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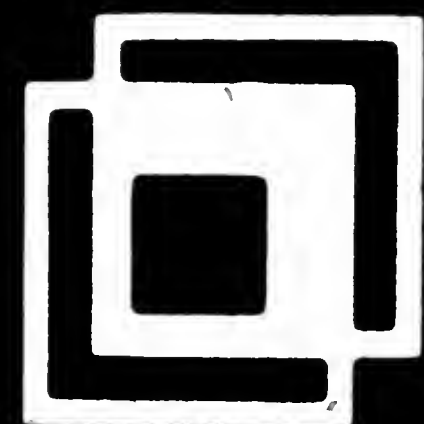
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MICRO PHOTO DIVISION



BELL & HOWELL

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.
 THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.
 GENERAL INFORMATION concerning PATENTS.
 GENERAL INFORMATION concerning TRADEMARKS.

PRINTED COPIES OF PATENTS are furnished by the Patent and Trademark Office at \$1.00 each; PLANT PATENTS in color, \$8.00 each; copies of TRADEMARKS at \$1.00 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	670.00
International Fees	
Basic Fees (first 30 pages)	265.00
Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,588,917, Re. S.N. 491,552, Filed May 4, 1983, Cl. 2/161, GOLF GLOVE, Anthony John Antonious, Owner of Record: *Inventor*, Attorney or Agent: Eugene L. Bernard, et al., Ex. Gp.: 353

3,645,835, Re. S.N. 494,013, Filed May 12, 1983, Cl. 428/146, MOISTURE-VAPOR-PERMEABLE PRESSURE SENSITIVE ADHESIVE MATERIALS, Martin E. Hodgson, Owner of Record: *T. J. Smith & Nephew Ltd., Yorkshire, England*, Attorney or Agent: Albert L. Jacobs, Jr., Ex. Gp.: 164

3,878,876, Re. S.N. 486,027, Filed Apr. 18, 1983, Cl. 145/32R, MULTI-PURPOSE SAW BLADE SUSPENSION ARRANGEMENT FOR RECIPROCATING SAWS, Helmut Abel, Owner of Record: *Inventor*, Attorney or Agent: Costas S. Krikelis, Ex. Gp.: 323

3,975,761, Re. S.N. 487,089, Filed Apr. 21, 1983, Cl. 358/78, METHOD AND ARRANGEMENT FOR THE AVOIDANCE OF ERRORS DURING THE REPRODUCTION OF AN IMAGE PATTERN, Heinz Taudt, et al., Owner of Record: *Ing. Rudolf Hell GmbH., Kiel, Germany*, Attorney or Agent: James Van Santen, et al., Ex. Gp.: 233

4,119,754 Re. S.N. 485,508, Filed Apr. 15, 1983, Cl. 162/000,000, PAPERMAKERS FABRICS, Bryan J. Gisbourne, Owner of Record: *Scapa-Porritt Ltd., Lancashire, England*, Attorney or Agent: Martin Fleit, et al., Ex. Gp.: 173

4,135,213, Re. S.N. 492,037, Filed May 5, 1983, Cl. 358/142, ROW GRABBING VIDEO DISPLAY TERMINAL HAVING LOCAL PROGRAMMABLE CONTROL THEREOF, Leonard Wintfeld, et al., Owner of Record: *IDR, Inc., Farmingdale, N.Y.*, Attorney or Agent: Lawrence G. Kurland, et al., Ex. Gp.: 233

4,256,945, Re. S.N. 474,096, Filed Mar. 10, 1983, Cl. 219/10.75, ALTERNATING CURRENT ELECTRICALLY RESISTIVE HEATING ELEMENT HAVING INTRINSIC TEMPERATURE CONTROL, Philip S. Carter, et al., Owner of Record: *Oximetrix, Inc., Mountain View, Calif.*, Attorney or Agent: William D. Hall, et al., Ex. Gp.: 213

4,265,193, Re. S.N. 491,937, Filed May 5, 1983, Cl. 114/267, CONCRETE MARINE FLOAT AND METHOD OF FABRICATING, Wesley W. Sluys, Owner of Record: *Builders Concrete, Inc., Billingham, Wash.*, Attorney or Agent: Richard W. Seed, et al., Ex. Gp.: 315

4,266,668, Re. S.N. 493,564, Filed May 11, 1983, Cl. 206/557, TELESCOPING SLICED BREAD DISPENSER, Yong K. Paek, Owner of Record: *Inventor*, Attorney or Agent: Harold L. Stowell, et al., Ex. Gp.: 241

4,290,304, Re. S.N. 493,976, Filed May 12, 1983, Cl. 73/862.25, BACK-UP POWER TONGS AND METHOD, Emery L. Eckel, Owner of Record: *Eckel Manufacturing Co., Odessa, Tex.*, Attorney or Agent: Robert M. Carwell, et al., Ex. Gp.: 244

4,290,816, Re. S.N. 492,183, Filed May 6, 1983, Cl. 106/287.32, SULFUR COMPOUNDS AND METHOD OF MAKING SAME, Allen C. Ludwig, et al., Owner of Record: *Southwest Research Institute, San Antonio, Tex.*, Attorney or Agent: W. F. Hyer, Ex. Gp.: 142

4,306,034, Re. S.N. 487,365, Filed Apr. 21, 1983, Cl. 521/139,000, COMPOSITION FOR PRODUCING ARTICLE SIMULATING PLANTATION CREPE RUBBER, Agmund K. Thorsrud, Owner of Record: *Phillips Petroleum Co., Bartlesville, Okla.*, Attorney or Agent: Louis N. French, et al., Ex. Gp.: 143

4,319,214, Re. S.N. 485,261, Filed Apr. 15, 1983, Cl. 337/343, CREEPLESS, SNAP ACTION THERMOSTAT, Omar Givler, Owner of Record: *Portage Electric Products, Inc., North Canton, Ohio*, Attorney or Agent: Lloyd McAulay, et al., Ex. Gp.: 212

4,364,292, Re. S.N. 491,758, Filed May 5, 1983, Cl. 83/605, FLOOR OR BENCH MOUNTED CONDUIT CUTTING DEVICE, Glenh A. Wozniak, et al., Owner of Record: *Indian Head Inc., New York, N.Y.*, Attorney or Agent: William R. Laney, et al., Ex. Gp.: 324

Erratum

In the Official Gazette of Feb. 15, 1983, an incorrect patent number, 4,306,624, appears in the following listing under "REISSUE APPLICATIONS FILED":

4,306,624, Re. S.N. 442,913, Filed Nov. 19, 1982, Cl. 198/341, CONVEYOR APPARATUS, Antonio

JULY 5, 1983

U.S. PATENT AND TRADEMARK OFFICE

1032 OG 3

Magni, Owner of Record: *AXIS, S.p.A., Firenze, Italy*, Attorney or Agent: Lawrence I. Lerner, Ex. Gp.: 313.

The listing should read as follows:

4,306,646, Re. S.N. 442,913, Filed Nov. 19, 1982, Cl. 198/341, CONVEYOR APPARATUS, Antonio Magni, Owner of Record: *AXIS, S.p.A., Firenze, Italy*, Attorney or Agent: Lawrence I. Lerner, Ex. Gp.: 313.

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,732,068, Reexam. No. 90/000,382, Requested: May 16, 1983, Cl. 432/120, CYLINDRICAL ELONGATED FURNACE FOR TREATING MATERIAL AT HIGH TEMPERATURE AND UNDER HIGH PRESSURE, Hans Larker, Owner of Record: *Alimanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden*, Attorney or Agent: None, Ex. Gp.: 344, Requester: Stanley P. Fisher, et al., Arlington, Va.

3,932,044, Reexam. No. 90/000,385, Requested: June 1, 1983, Cl. 401/265, PEN POINT FOR WRITING INSTRUMENTS, Nobuyuki Otake, et al., Owner of Record: *Requester*, Attorney or Agent: Parkhurst & Oliff, Ex. Gp.: 336, Requester: Tokyo Boski K. K., Tokyo, Japan

4,038,498, Reexam. No. 90/000,384, Requested: May 26, 1983, Cl. 179/18PC, CENTRAL OFFICE SWITCHING SYSTEM WITH REMOTE LINE SWITCH, Frank S. Boxall, Owner of Record: *Inventor*, Attorney or Agent: Flehr, Hohbach, et al., Ex. Gp.: 214, Requester: Inventor

4,379,168, Reexam. No. 90/000,387, Requested: May 27, 1983, Cl. 424/356, PESTICIDES CONTAINING D-LIMONENE, Vincent Dotolo, Owner of Record: *Inventor*, Attorney or Agent: James C. Wray, Ex. Gp.: 125, Requester: Roger L. Browdy, Washington, D.C.

COMMISSIONER ORDERED REEXAMINATIONS

Notice under 37 CFR 1.11(c). The orders for reexamination listed below are open to inspection by the general public in the indicated Examining Group. Copies of the Orders and other related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed. 37 CFR 1.248(a)(5) and 1.525(b).

4,338,751, Reexam. No. 90/000,394, Ordered: June 10, 1983, Cl. 52/187, KNOCKDOWN SPIRAL STAIRWAY, Forest E. Sanders, Owner of Record: *Inventor*, Attorney or Agent: Morton S. Adler, Ex. Gp.: 354.

4,338,757, Reexam. No. 90/000,393, Ordered: June 10, 1983, Cl. 52/699, DEVICE FOR CONNECTING A STRUCTURE WITH A WALL TO BE POURED WITH CONCRETE, Heinz Witschi, et al., Owner of Record: *Inventors*, Attorney or Agent: Wigman & Cohen, Ex. Gp.: 354.

4,343,124, Reexam. No. 90/000,392, Ordered: June 10, 1983, Cl. 52/226, STRUCTURAL ELEMENTS, Friedrich C. Math, Owner of Record: *British Petroleum Co., Ltd., London, England*, Attorney or Agent: Morgan, Finnegan, et al., Ex. Gp.: 354.

Service by Publication

A petition to cancel each of the registrations identified below having been filed, and the notice of such proceedings sent by certified mail to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their legal assigns or legal representatives, shall enter an appearance within thirty days from the date of this publication, the cancellation will be proceeded with as in the case of default.

New World Communications, Inc., Indianapolis, Ind., Reg. No. 1,060,995, for the mark "NEW WORLD", Canc. No. 13,459.

Insight Dynamics Corp., New York, N.Y., Reg. No. 1,136,437, for the mark "INSIGHT DYNAMICS", Canc. No. 13,471.

Topper Corp., assignee, by assignment and change of name, of De Luxe Reading Corp., Elizabeth, N.J., Reg. No. 766,656, for the mark "CANDY FASHION", Canc. No. 13,490.

The Thomas Holmes Corp., assignee by mesne assignment of Sulray, Inc., Philadelphia, Pa., Reg. No. 770,851, for the mark "SPANETTE", Canc. No. 13,548. Pro-Am Skateboard Products, Inc., Downey, Calif., Reg. No. 1,100,891, for the mark "PURE GOLD", Canc. No. 13,603.

Mid-Tec, Inc., St. Charles, Mo., Reg. No. 923,403, for the mark "CELL-TEC", Canc. No. 13,611.

Tri-R Chemicals, Inc., Boca Raton, Fla., Reg. No. 1,066,008, for the mark "BOND-CRAFT", Canc. No. 13,623.

Newporter Industries, Inc., Irvine, Calif., Reg. No. 1,100,281, for the mark "PIPELINE", Canc. No. 13,629.

Dent-U-Sonic Corp., North Miami Beach, Fla., Reg. No. 887,562, for the mark "DENT U SONIC", Canc. No. 13,658.

Don Heyer, Anaheim, Calif., Reg. No. 404,741, for the mark "VARIGEAR", Canc. No. 13,674.

Legi Electronics Corp., assignee of Ishimoto Trading Co., Gardena, Calif., Reg. No. 865,664, for the mark "ITRON", Canc. No. 13,675.

Joseph A. McCollum, Inc., assignee of R. M. Hollingshead Corp., Marlton, N.J., Reg. No. 443,509, for the mark "COCOON", Canc. No. 13,700.

Whitney Paige Cosmetics, Ltd., Mount Vernon, N.Y., Reg. No. 1,106,954, for the mark "EMOLLIENCE P.M.", Canc. No. 13,723.

ERMA S. BROWN,

Deputy Clerk of the
Trademark Trial and
Appeal Board.

For MARGARET M. LAURENCE,
Assistant Commissioner
for Trademarks.

Service by Publication

A petition to cancel the registration identified below having been filed, and the notice of default of such proceedings sent to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrant listed herein, its legal assign or legal representative, shall enter an appearance within thirty days from the date of this publication, judgment will be entered against registrant and said registration will be cancelled.

Drossler and Associates, Inc., assignee of Ceco Marketing Consulting & Research, Inc., San Francisco, Calif., Reg. No. 853,394, for the mark "COMPASS", Canc. No. 13,469.

ERMA S. BROWN,

Deputy Clerk of the
Trademark Trial and
Appeal Board.

For MARGARET M. LAURENCE,
Assistant Commissioner
for Trademarks.

National Technical Information Service
U.S. GOVERNMENT-OWNED INVENTIONS
Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

Office of Government Inventions and Patents
 U.S. Department of Commerce
 P.O. Box 1423
 Springfield, Va. 22151

Please cite the number and title of inventions of interest.

GEORGE KUDRAVETZ,
Program Manager,

Office of Government Inventions and Patents
 National Technical Information Service
 U.S. Department of Commerce.

DEPARTMENT OF THE AIR FORCE

- SN 6-169,231 (4,377,755). SIGNAL COMPRESSOR APPARATUS.
 SN 6-191,044 (4,375,597). METHOD OF IMPLEMENTING UNIFORM BACKGROUND CHARGE SUBTRACTION IN A RADIATION SENSING ARRAY.
 SN 6-222,845 (4,380,763). CORROSION MONITORING SYSTEM.
 SN 6-227,558 (4,381,450). PULSED RADIATION DOSIMETRY APPARATUS.
 SN 6-237,020 (4,381,509). CYLINDRICAL MICRO-WAVE LENS ANTENNA FOR WIDEBAND SCANNING APPLICATIONS.
 SN 6-242,816 (4,377,341). SYSTEM FOR MEASURING ANGULAR DEVIATION IN A TRANSPARENCY.
 SN 6-251,696 (4,377,824). MULTI-CHANNEL LONGITUDINAL VIDEO TAPE RECORDING.
 SN 6-291,891 (4,377,546). PROCESS FOR PRODUCING AROMATIC HETEROCYCLIC POLYMER ALLOYS.
 SN 6-313,859 (4,377,641). METHOD AND APPARATUS FOR THE CONTINUOUS EXTRACTION OF INGREDIENTS FROM SAMPLES.
 SN 6-366,744 (4,380,619). OXY-AND THIOARYLPHENYLATED AROMATIC HETEROCYCLIC POLYMERS.
 SN 6-368,784 (4,377,291). SEALING ASSEMBLY.
 SN 6-435,522. IMAGING APPARATUS FOR TRANSVERSE ELECTRODE ELECTRO-OPTIC TUNABLE FILTER.
 SN 6-441,815. OPTICAL ALIGNMENT DEVICE FOR BINOCULAR DISPLAYS.
 SN 6-444,004. LIFTOFF SUPPRESSION APPARATUS FOR THE FERROMAGNETIC RESONANCE PROBE.

- SN 6-447,599. SCHOTTKY BARRIER INFRARED DETECTOR AND PROCESS.
 SN 6-468,781. A METHOD FOR THE PREPARATION OF EPITAXIAL FILMS OF MERCURY CADMIUM TELLURIDE.
 SN 6-470,749. VERTICAL LAUNCH ALIGNMENT TRANSFER APPARATUS.
 SN 6-471,078. ECCENTRICALLY TIGHTENED LATCH DEVICE.
 SN 6-475,417. STORAGE CABINET TRAVEL LOCK.
 SN 6-475,436. A SCANNING SYSTEM FOR MAPPING GAS FLOW UNIFORMITY IN A LAZER.
 SN 6-475,664. PNEUMATIC CLAMPING DEVICE.
 SN 6-475,665. LATERAL SUPPORT SYSTEM FOR CANISTER-LAUNCHED MISSILE.
 SN 6-475,669. AUGMENTOR FUEL SPRAYING WITH DRAIN VENT.
 SN 6-477,793. IMPROVED TITANIUM METAL-MATRIX COMPOSITES.
 SN 6-477,998. MULTI-MICROPROCESSOR APPARATUS.
 SN 6-478,581. SYNTHESIS OF PENTAFLUOROTELLURIUM HYPOFLUORITE.
 SN 6-479,221. HYPERPRODUCING CELLULOSE MICROORGANISM.
 SN 6-480,156. INTERFACE ALIGNMENT SYSTEM.
 SN 6-480,170. TWO FAULT TOLERANT TRANSMITTER ACTIVATOR.
 SN 6-484,329. FLAMEHOLDER WITH INTEGRATED AIR MIXER.
 SN 6-484,390. STRUTLESS DIFFUSER FOR GAS TURBINE ENGINE.
 SN 6-488,887 (4,376,716). PREPARATION OF STABLE SODIUM CARBONATE DISPERSIONS.

ENVIRONMENTAL PROTECTION AGENCY

- SN 6-213,799 (4,381,681). PARTICULATE SAMPLE COLLECTOR.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

- SN 6-476,830. A PRACTICAL TOTAL SYNTHESIS UNNATURAL ENANTIOMERS OF OPIUM-DERIVED MORPHINANS.

DEPARTMENT OF THE INTERIOR

- SN 6-363,367 (4,381,287). SEPARATION OF ZIRCONIUM AND URANIUM.
 SN 6-460,102. RECOVERY OF METALS FROM GRINDING SLUDGES.

TENNESSEE VALLEY AUTHORITY

- SN 6-164,418 (4,379,939). PREPARATION OF NITROGEN FERTILIZERS FROM OXALATE ESTERS PREPARED BY THE OXIDATIVE CARBONYLATION OF ALCOHOLS OVER NOBEL METAL CATALYSTS UTILIZING REGENERABLE 2,5-CYCLOHEXADIENE-1,4-DIONE OXIDANTS.
 SN 6-336,662 (4,377,406). AMMONIUM POLYPHOSPHATE SULFATE FERTILIZERS FROM WET-PROCESS PHOSPHORIC ACID.

PATENT NOTICES

Certificates of Correction for the Week of July 5, 1983

Re. 31,177	4,331,175	4,368,199	4,374,992
3,920,278	4,342,161	4,368,233	4,375,057
4,012,326	4,343,902	4,368,247	4,375,136
4,045,563	4,344,356	4,368,533	4,375,256
4,108,366	4,344,539	4,369,105	4,376,030
4,150,779	4,345,302	4,369,280	4,376,100
4,151,645	4,345,855	4,369,444	4,376,250
4,184,203	4,347,678	4,369,522	4,376,322
4,192,935	4,349,848	4,370,114	4,376,769
4,213,987	4,350,975	4,370,193	4,376,800
4,233,080	4,351,977	4,370,328	4,376,834
4,234,493	4,353,997	4,370,335	4,377,072
4,236,365	4,354,497	4,370,599	4,377,435
4,249,451	4,355,151	4,370,614	4,377,498
4,254,793	4,359,273	4,371,446	4,377,572
4,273,898	4,359,304	4,371,519	4,378,204
4,276,122	4,360,702	4,371,823	4,378,911
4,282,867	4,362,578	4,371,843	4,379,607
4,283,249	4,363,835	4,371,844	4,379,638
4,287,338	4,363,879	4,372,143	4,380,304
4,294,309	4,365,468	4,372,384	4,380,625
4,296,889	4,365,546	4,372,480	4,380,882
4,298,927	4,365,994	4,373,208	4,381,101
4,301,052	4,366,092	4,373,416	4,381,255
4,303,098	4,366,162	4,374,256	4,381,303
4,304,267	4,366,307	4,374,296	4,381,699
4,309,304	4,367,022	4,374,427	4,382,244
4,315,699	4,367,444	4,374,428	4,382,722
4,322,816	4,367,511	4,374,490	4,383,213
4,328,013	4,367,921	4,374,675	4,383,219

Disclaimers

3,898,566.—*Israel Switzer*, North York, Ontario, Canada; *Arie Zimmerman*, Santa Monica; *Lucius T. La Fleur*, Torrance and *Patrick A. Segrave*, Santa Monica, Calif. METHOD AND APPARATUS FOR REDUCING DISTORTION IN MULTICARRIER COMMUNICATION SYSTEMS. Patent dated July 29, 1975. Disclaimer filed May 9, 1983, by the assignee, *Phasecom Corp.*

Hereby enters this disclaimer to claims 1 through 17 and 20 through 27 of said patent.

4,124,834.—*Edward J. Walsh*, Hermitage, Pa. ELECTRICAL INDUCTIVE APPARATUS. Patent dated Nov. 7, 1978. Disclaimer filed Apr. 29, 1983, by the assignee, *Westinghouse Electric Corp.*

Hereby enters this disclaimer to all claims of said patent.

4,162,693.—*John Heller Beckman*, Downers Grove, Ill. REVERSIBLE SHIRRED CASING AND METHOD FOR PRODUCING IT. Patent dated July 31, 1979. Disclaimer filed May 9, 1983, by the assignee, *Union Carbide Corp.*

Hereby enters this disclaimer to the entire term of said patent.

4,320,222.—*John A. Lopez*, Houston, Tex. STORAGE-STABLE PRECATALYZED POLYEPOXIDE COMPOSITIONS. Patent dated Mar. 16, 1982. Disclaimer filed Aug. 23, 1982, by the assignee, *Shell Oil Co.*

Hereby enters this disclaimer to claims 1 to 10, inclusive of said patent.

4,332,320.—*Jeffrey A. Feibelman*, Cranston, R.I. PENDANT DISPLAY CARD. Patent dated June 1, 1982. Disclaimer filed Apr. 28, 1983, by the assignee, *A & H Mfg. Co.*

Hereby enters this disclaimer to the entire remaining term of said patent.

4,366,761.—*Roy T. Card*, Chattanooga, Tenn. DUAL SHIFTABLE NEEDLE BARS FOR TUFTING MACHINE. Patent dated Jan. 4, 1983. Disclaimer filed Apr. 28, 1983, by the assignee, *Tuftco Corp.*

Hereby enters this disclaimer to claims 1-5 and 11 of said patent.

4,376,916.—*John B. Glaberson*, Stamford, Conn. SIGNAL COMPRESSION AND EXPANSION SYSTEM. Patent dated Mar. 15, 1983. Disclaimer filed May 5, 1983, by the assignee, *CBS, Inc.*

Hereby enters this disclaimer to claims 16 and 17 of said patent.

4,383,199.—*Shoichi Washino*, Hyogo, and *Eisho Nosaka*, Kyoto, Japan. ELECTRON GUN. Patent dated May 10, 1983. Disclaimer filed Feb. 25, 1983, by the assignee, *Mitsubishi Denki Kabushiki Kaisha*.

The term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Dedication

3,929,191.—*John Wayne Graham*; *Thomas Wayne Muecke* and *Claude Everett Cooke, Jr.*, Houston, Tex. METHOD FOR TREATING SUBTERRANEAN FORMATIONS. Patent dated Dec. 30, 1975. Dedication filed Mar. 25, 1983, by the assignee, *Exxon Production Research Co.*

Hereby dedicates to the Public the entire remaining term of said patent.

Disclaimer and Dedication

3,265,902.—*Sidney A. Wingate*, Concord, Mass. PHOTO-ELECTRIC SHAFT ANGLE ENCODER. Patent dated Aug. 9, 1966. Disclaimer and Dedication filed May 2, 1983, by the assignee, *Itek Corp.*

Hereby disclaims and dedicates to the Public the term of the patent subsequent to Mar. 15, 1983.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
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	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
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North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
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	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
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PATENT EXAMINING CORPS RENE D. TEGTMEYER, Assistant Commissioner WILLIAM FELDMAN, Deputy Assistant Commissioner CONDITION OF PATENT APPLICATIONS AS OF April 2, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-1-82
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthodontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	3-09-82
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	1-12-82
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-22-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-30-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy; Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	1-05-81
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	5-12-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	8-25-80
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	1-30-81
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-18-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—STEPHEN G. KUNIN, Director	7-27-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	8-27-82
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	9-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1983, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,243,822 to 3,248,737, inclusive
Plant Patents Numbers 2,616 to 2,627 inclusive

REEXAMINATIONS

JULY 5, 1983

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 Re. 29,285 (101st)
METHOD FOR CONCOMITANT PARTICULATE
DIAMOND DEPOSITION IN ELECTROLESS
PLATING, AND THE PRODUCT THEREOF

Theodore Peter Christini, Dushore, Pa.; Albert Lawrence Eustice, Lewiston, N.Y.; Arthur Hughes Graham, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 208,233, Dec. 15, 1971, abandoned.

Reexamination Request No. 90/100,120, Dec. 3, 1981.

Reexamination Certificate for Patent No. Re. 29,285, issued Jun. 28, 1977, Ser. No. 694,047, Jun. 7, 1976.

U.S. Cl. 428/544

Int. Cl.³ C23C 3/02

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 4 and 6 is confirmed.

Claims 1-3 are determined to be patentable as amended:

Claim 5, dependent on an amended claim, is determined to be patentable.

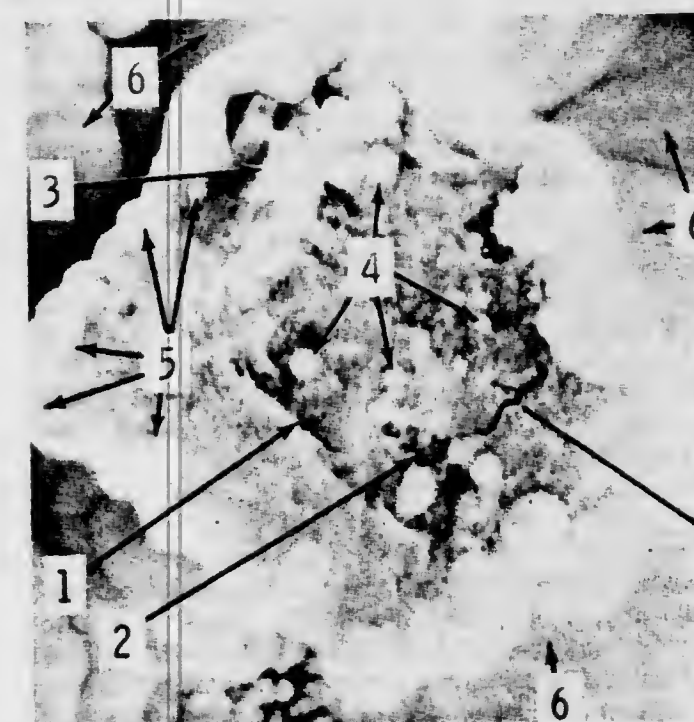
New claims 7-14 are added and determined to be patentable.

1. A coated article formed by electroless plating comprising a co-deposited uniform, dispersion of *polycrystalline* diamond particles secured by substantial nucleation within a metallic matrix comprising one of the group consisting of: (1) an alloy including a metal of the sub-group made up of nickel, cobalt and mixtures thereof with one of the elements phosphorus, boron and mixtures thereof and (2) elemental copper, deposited on a supporting substrate consisting of polymer, metal, ceramic or glass.

2. A method of forming a composite structure on an article by electroless plating comprising immersing said article in a stable electroless plating bath having a composition effecting concurrent deposition of particulate *polycrystalline* diamond having a particle size in the range of 0.1 μ to 75 μ dispersed in a metallic matrix comprising one of the group consisting of: (1) an alloy including a metal of the sub-group made up of nickel, cobalt and mixtures thereof with one of the elements phosphorus, boron and mixtures thereof and (2) elemental [elemental] copper, while maintaining agitation of said bath retaining said particulate diamond in suspension, and removing said article carrying said composite structure from said bath [when] after said composite structure has been plated out on said article in preselected amount.

ELECTROLESS Ni-8/12 μ SYNTHETIC DIAMOND "A", 6340X

FIG. I



- (1) RECESSED GROWTH LEDGE
- (2) CRATER
- (3) UPSTANDING GROWTH PROJECTION
- (4) Ni-8 ALLOY GRAINS NUCLEATED ON DIAMOND "A" SURFACE
- (5) Ni-8 ALLOY GRAINS NUCLEATED ON DIAMOND "A" EDGES
- (6) Ni-8 ALLOY GRAIN MATRIX
- (7) DIAMOND SURFACE

B1 3,892,984 (102nd)

REGENERATING CIRCUIT IN THE FORM OF A KEYED FLIP-FLOP

Karl-Ulrich Stein, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany.

Reexamination Request No. 90/000,124, Dec. 14, 1981.

Reexamination Certificate for Patent No. 3,892,984, issued Jul. 1, 1975, Ser. No. 442,084, Feb. 13, 1974.

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1973, 2309192.

U.S. Cl. 307/530

Int. Cl.³ H03K 5/24, 3/356; G11C 7/06

node self-capacitance from the associated bit line self-capacitance, and so as to permit the flip-flop to assume a stable state corresponding to the binary signal being read when substantial feedback is initiated, said flip-flop action being used to refresh one of the logic level binary signals stored prior to readout over said same respective barrier transistor, a refresh path for said logic level binary signal being formed to extend from said associated node of the flip-flop over said barrier transistor to the readout storage element.

B1 4,295,096 (103rd)

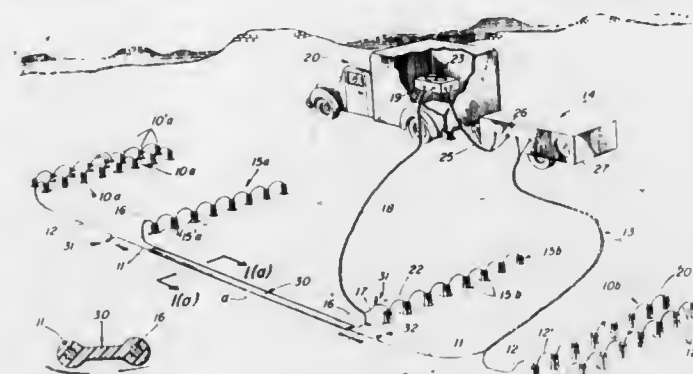
ELECTRODE PROSPECTING METHOD PROVIDING CALCULABLE ELECTROMAGNETIC COUPLING FOR THE INDIRECT DETECTION OF HYDROCARBON RESERVOIRS

Ben K. Sternberg; Dale E. Miller; Dhari S. Bahjat, all of Ponca City, Okla., assignors to Conoco, Inc., Ponca City, Okla.

Reexamination Request No. 90/000,238, Aug. 5, 1982.

Reexamination Certificate for Patent No. 4,295,096, issued Oct. 13, 1981, Ser. No. 971,177, Dec. 30, 1978.

U.S. Cl. 324/357

Int. Cl.³ G01V 3/06**AS A RESULT OF REEXAMINATION IT HAS BEEN DETERMINED THAT:**

Claims 1 to 7 are determined to be patentable as amended:

New claims 8-10 are added and determined to be patentable.

1. A regenerating circuit system in the form of a keyed field-effect transistor flip-flop for "0" and "1" logic level binary signals, in particular for the readout of such binary logic signals of integrated single-transistor storage elements forming a storage field in which the single-transistor storage elements are connected over a digit-line to the flip-flop, characterized in that first and second digit lines each with an associated digit line self-capacitance are provided and with each connecting to a group of storage elements and a respective dummy element; and wherein the regenerating circuit comprises at least two inverting amplifier stages with feedback connected between first and second nodes; [], at least one barrier transistor disposed at the signal input between the associated digit line and the corresponding amplifier stage; first and second barrier field effect transistors respectively connected at the first and second nodes so as to connect the respective first or second node with the respective associated first or second digit line []; means for selectively effecting a discontinuance of the feedback function [and means for selectively adjusting bias potentials at the inputs of the regenerating circuit.] of the flip-flop; first potential means connected for selectively setting a bias potential on the respective gates of the first and second barrier transistors; second potential means connected for precharging the digit lines and a node self-capacitance of the flip-flop first and second nodes; and the first and second barrier transistors, the first and second potential means, and the means for discontinuance of the feedback function being provided such that after a selection of a storage element for reading of the stored binary signal therein the respective barrier transistor associated with the storage element signal level being readout forms a barrier for a portion of time thereby isolating the associated flip-flop

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 4 having been finally determined to be unpatentable, is cancelled.

Claims 1, 5, 6, 9, 11 are determined to be patentable as amended:

Claims 2, 3, 7, 8, and 10, dependent on amended claims, are determined to be patentable.

9. A method of electrical hydrocarbon prospecting, using an electrode array in which a portion of its conductor means is closely spaced, to investigate a subsurface polarizable stratum which is indicative of the presence of a hydrocarbon deposit lower than the stratum wherein a first set of space electrode means is placed in the surface of the ground in electrical communication with said stratum, a second set of space electrode means is placed in the surface of the ground in electrical communication with said stratum, with generating means coupled through second conductor means to said second set of electrode means, and a voltage measuring means coupled through a first conductor means to said first set of spaced electrode means, an improvement comprising:

- (a) maintaining a calculable electromagnetic coupling between said first and second conductor means where said means are closely spaced;
- (b) measuring the current through said second conductor means to said second set of spaced electrical means; and
- (c) recording in time synchronism voltage that is measured through said first conductor means from said first set of spaced electrical means by said voltage measuring means, and said measured current, whereby an anomaly indication of a hydrocarbon deposit can be ascertained by processing from the measured current and voltage and said calculable [electromagnetic] electromagnetic coupling [], said processing including the step of ascertaining a decoupled phase angle by subtracting the electromagnetic coupling phase angle from a measured phase angle.

DEFENSIVE PUBLICATIONS

PUBLISHED JULY 5, 1983

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T103,201

ADJUSTABLE RECLINE-CONTROL MECHANISM FOR FURNITURE AND FURNITURE COMPRISING THE MECHANISM

James D. Robinson, 3 The Jinnings, Welwyn Garden City, Hertfordshire, England

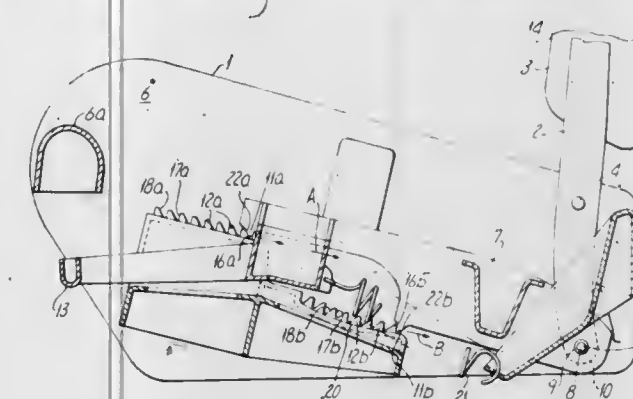
Filed Dec. 7, 1981, Ser. No. 328,391

Claims priority, application United Kingdom, Dec. 31, 1980, 8041570

Int. Cl.³ A47C 1/025

U.S. Cl. 297-367

4 Sheets Drawing. 13 Pages Specification



An adjustable recline-control mechanism for furniture of the type comprising a carrier for an occupant, e.g. a seat-pan and a support e.g. a back-rest, reclining relative to the carrier wherein the angle of recline is controlled by the mechanism which comprises a link one end of which is pivotally connected to the support while the other end is latchable by at least two co-operating latching portions which respectively prevent travel of the link in opposite directions, the respective latching portions being spaced apart relative to the pivot axis of the link such that a jolt to the front or back of the support exerts on the link a moment which biases the link towards latching irrespective of the direction of the jolt. Each latching portion suitably comprises a fixed toothed array and a cooperable displaceable tooth array, at least one tooth in each array comprising a thrust face and the teeth being arranged so that projections normal to a thrust face in each of the latching portions pass respectively on opposite sides of the pivot axis of the link. The mechanism is suitably incorporated into furniture, especially a motor vehicle seat, and is of utility in household and garden furniture.

T103,202

PRODUCTION OF PURIFIED STRONG WET-PROCESS PHOSPHORIC ACID

Alva W. Frazier, 2219 Randolph, and Ewell F. Dillard, Rte. 10, Box 196, both of Florence, Ala. 35630

Filed Sep. 13, 1982, Ser. No. 417,804

Int. Cl.³ C01B 25/16

U.S. Cl. 423-321 R

No Drawing. 41 Pages Specification

The concentration of impurities in wet-process phosphoric acid limits the usefulness of the acid for the production of fertilizers, feed-grade phosphate and detergents. The aluminum, magnesium, and fluoride impurities are removed with the calcium sulfate hemihydrate filter cake by hydrolyzing and recycling the off-gas scrubber solutions in the presence of a ferric iron catalyst. The aluminum and magnesium are reduced

T103,203

THIN LAYER DEPOSITION PROCESS

Timothy W. Carr, 22 Kimball Dr., Poughkeepsie, N.Y. 12603; Charles D. Needham, Thornacre Rd., Wappingers Falls, N.Y. 12590, and Robert T. Villetto, Jr., 12 Hasbrouck Dr., Poughkeepsie, N.Y. 12601

Continuation of Ser. No. 106,608, Dec. 26, 1979, abandoned.

This application Aug. 16, 1982, Ser. No. 408,332

Int. Cl.³ H01L 21/443

U.S. Cl. 427-91

1 Sheets Drawing. 16 Pages Specification



A method of preventing out-gassing from lift-off structures formed of positive resists (as for example, o-quinone diazide/phenol formaldehyde novolak resins) during vacuum evaporation of metals in the fabrication of semiconductor devices. Such outgassing is avoided by compositional control of the photosensitive resist lift-off layer and by providing an additional baking step after the lift-off mask has been formed. Both conditions are required and critical to avoid the volatile resin decomposition products which not only tend to contaminate the device substrate surface, but also the deposited metal film. The method employs a photosensitive polymer which contains about 10 to 20 wt. % of the sensitizer (e.g. o-quinone diazide) in conjunction with a secondary baking step at about 160° to about 200° C. after the lift-off mask has been formed and prior to metal film deposition. As a result the method provides an improved metal film as well as increased through-put, particularly when forming Schottky barrier diode contacts.

T103,204

PROCESS CONTROL DISPLAY PANEL

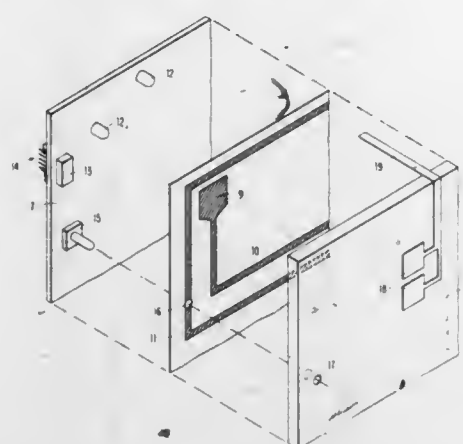
Carter E. Dorrell, 1113 10th St., Boulder, Colo. 80302; Donald E. Gutscher, 412 Sumner St., Longmont, Colo. 80501, and Carol J. Huffman, 2224-B Mapleton Ave., Boulder, Colo. 80302

Filed Feb. 12, 1982, Ser. No. 348,577

Int. Cl.³ H05K 1/00, 1/18

U.S. Cl. 428—42

5 Sheets Drawing. 7 Pages Specification



An easily modified, brilliantly backlit, switch controlled panel graphically represents a process. An operator panel includes a frame holding a light-transmitting screen in front of circuit boards connected to a computer and to the controlled process. The screen displays symbols, placed on the screen with self-sticking tape, representing process steps and controls, transparent touch-sensitive switches, lights, illuminated digital displays, and the like. The switches, lights and displays connect to the circuit boards.

T103,205

INTERMEDIATES AND PROCESS FOR INSECTICIDAL 4-PHENYL-2-INDANYL ESTERS

Philip A. Cruickshank, 211 Dodds La., Princeton, N.J. 08540
Continuation of Ser. No. 286,309, Jul. 24, 1981, abandoned. This

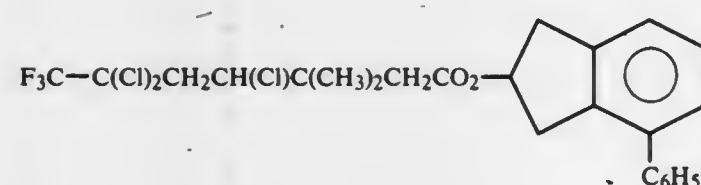
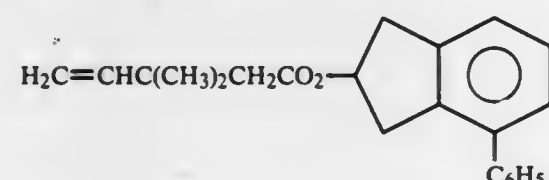
application Aug. 11, 1982, Ser. No. 407,230

Int. Cl.³ C07C 67/317

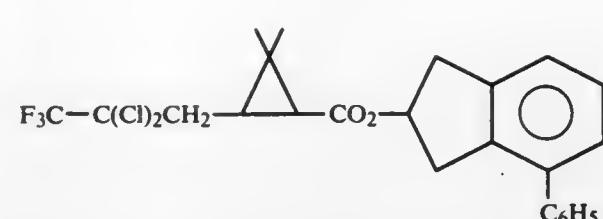
U.S. Cl. 560—124

No Drawing. 21 Pages Specification

Compounds of formulae II, III and IV:

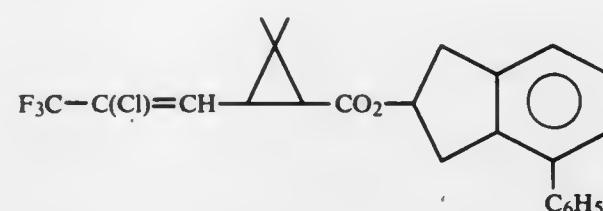


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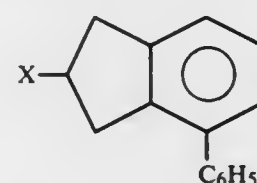
IV

are useful intermediates for preparation of an insecticidal compound of formula (I):



I

The intermediate II is prepared by reacting the acid halide, alkali metal salt, or lower alkyl ester of 3,3-dimethyl-4-nentenoic acid with a compound of the formula



in which X is a hydroxy group or a leaving group. Intermediate III is prepared by reacting II with 1,1,1-trichloro-2,2,2-trifluoroethane in the presence of a solvent, a solvating agent, and a catalyst. Intermediate III is then di-dehydrochlorinated in the presence of base, in one or two steps, to produce I.

T103,206

PRODUCTION OF UREA PHOSPHATE

Harry T. Lewis, 802 Meadow La., and Ewell F. Dillard, Rte. 10, Box 196, both of Florence, Ala. 35630

Filed Nov. 24, 1981, Ser. No. 324,515

Int. Cl.³ C07C 127/01, 126/08

U.S. Cl. 564—363

4 Sheets Drawing. 36 Pages Specification

A two-stage continuous crystallization process for production of urea phosphate by reaction of impure wet-process orthophosphoric acid (about 54 percent P_2O_5) and urea with simultaneous addition of a selected acidifying agent (sulfuric acid; hydrochloric acid, or phosphoric acid) to clarified mother liquor used as recycle in the process. Addition of the acidifying agent decreases pH in the crystallization process whereby the solubility of a contaminating water-insoluble iron phosphate-urea salt $[\text{FeH}_3(\text{PO}_4)_2 \cdot 2\text{CO}(\text{NH}_2)_2]$ is increased, purity of the crystalline urea phosphate product is improved significantly, and the useful storage life of the recycle mother liquor is prolonged.

II

III

REISSUES

JULY 5, 1983

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,296

TRANSMISSION WITH RESILIENTLY LOADED MAINSHAFT GEARS

Elmer A. Richards, Kalamazoo, Mich., assignor to Eaton Corporation, Cleveland, Ohio

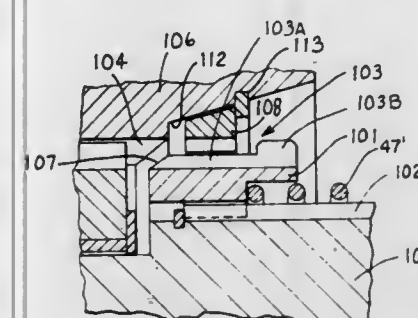
Reissued No. Re. 29,601, dated Apr. 4, 1978, Ser. No. 750,299, Dec. 13, 1976.

Original No. 3,921,469, dated Nov. 25, 1975, Ser. No. 452,825, Mar. 20, 1974, Division of Ser. No. 276,376, Jul. 31, 1972, Pat. No. 3,799,002. Application for reissue Oct. 12, 1979, Ser. No. 84,261

Int. Cl.³ F16H 3/38; F16D 13/00, 21/02

U.S. Cl. 74—339

3 Claims



at the upper end with said support means and a lower edge; [and] said reservoir being disposed enclosing said lower edge of the collector mat and adapted to collect liquid flowing from the collector [], whereby to reduce wind and travel speed effects on the solid streams of liquid and splashing of said streams as they strike said weeds [] and said reservoir having an abutment surface projecting forwardly in the direction of travel of the vehicle to impact against vegetation and bend it over towards and into said spray patterns.

Re. 31,298

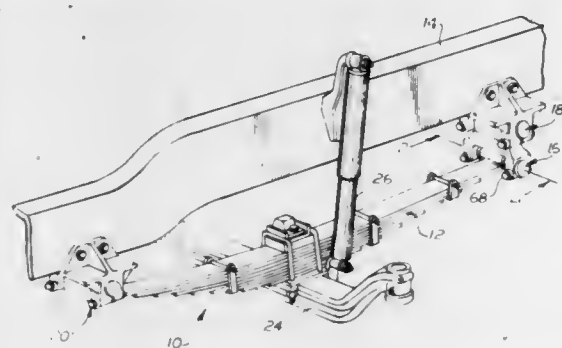
SPRING SHACKLE ASSEMBLY

Edward J. Herbenar, Birmingham, Mich., assignor to TRW Inc., Cleveland, Ohio
Original No. 4,083,545, dated Apr. 11, 1978, Ser. No. 719,190, Aug. 31, 1976. Application for reissue Jul. 31, 1979, Ser. No. 62,536

Int. Cl.³ B60G 11/12

U.S. Cl. 267—54 A

15 Claims



11. A pivot means constructed to interconnect first and second members for angular displacement of one of said members relative to the other of said members about a fixed pivot axis; said pivot means comprising a pair of ball studs; each of said ball studs having a shank portion and a head portion; said shank portions being in axial alignment with the ends of said shank portions being in juxtaposed relationship; a sleeve surrounding said shank portions supported by one of said members; a pair of socket means enclosing said head portions of said pair of ball studs; each of said socket means being secured to the other of said members.

Re. 31,299

ION-SELECTIVE ELECTRODE DEVICE FOR POLAROGRAPHIC MEASUREMENT OF OXYGEN

Manfred Kessler, and Jens Höper, both of Dortmund, Fed. Rep. of Germany, assignors to Max Planck Gesellschaft zur Förderung der Wissenschaften, Göttingen, Fed. Rep. of Germany
Original No. 4,263,115, dated Apr. 21, 1981, Ser. No. 921,259, Jul. 3, 1978. Application for reissue Mar. 12, 1982, Ser. No. 357,563

Claims priority, application Fed. Rep. of Germany, Jul. 4, 1977, 2730143

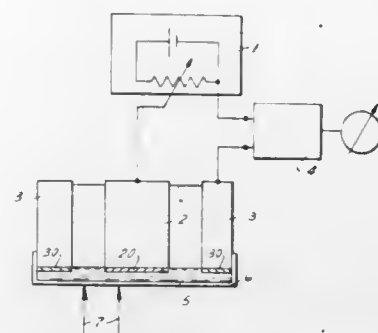
Int. Cl.³ G01N 27/30

U.S. Cl. 204—415

12 Claims

1. An ion-sensitive electrode device for measuring oxygen concentrations comprising
a source of potential voltage;
a reduction electrode for the oxygen composed of a noble metal and connected to said voltage source;
a reference electrode annularly disposed about said reduction electrode;
a ligand membrane provided in front of the reduction electrode, the said ligand membrane containing a cation-selective carrier and being permeable to hydrogen ions;
a closure membrane to seal the said electrodes against the

outside space, the closure membrane being permeable to oxygen and impermeable to water, and an aqueous elec-



trolyte containing the ligand cation of the said ligand membrane, the said electrolyte being disposed between said ligand membrane and said closure membrane.

Re. 31,300

PROCESS FOR PREPARING ALKYL- OR ARYLPHOSPHONOTHIOIC DIHALIDES

Eugene H. Uhing, Pleasantville, N.Y., and Arthur D. F. Toy, Stamford, Conn., assignors to Stauffer Chemical Company, Westport, Conn.

Original No. 3,968,156, dated Jul. 6, 1976, Ser. No. 534,942, Dec. 20, 1974. Application for reissue Jan. 5, 1979, Ser. No. 1,633

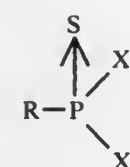
The portion of the term of this patent subsequent to Jul. 29, 1992, has been disclaimed.

Int. Cl.³ C07F 9/42

U.S. Cl. 260—543 P

6 Claims

1. A method of preparing compounds of the formula:



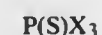
wherein R is a hydrocarbyl group consisting essentially of hydrogen and carbon including C₁ to C₂₀ alkyl; the aryl substituted derivatives thereof, said aryl having 1 or 2 fused rings, cycloalkyl of 5-6 carbons in the ring, aryl of up to 3 fused rings, biphenyl and the C₁-C₄ alkyl substituted derivatives of said cycloalkyl, aryl or biphenyl and X is chlorine or bromine, comprising contacting under at least an autogenous pressure in a reaction zone capable of withstanding elevated pressure at a temperature of from about 175° C. to about 400° C. in the presence of combinations of phosphorus sulfides an alkyl or aryl halide of the formula:



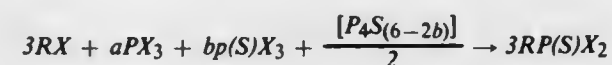
wherein R and X are as defined above with a trivalent phosphorus trihalide of the formula:



or a pentavalent thiophosphoryl halide of the formula:



or mixtures thereof wherein X is as defined above [] said reactants being contacted approximately according to the following general scheme:



wherein R and X are as defined above and a plus b equals 1.

Re. 31,301

INTRAMAMMARY COMPOSITIONS

John S. Dowrick, Littlehampton, England, assignor to Beecham Group p.l.c., England

Original No. 4,282,202, dated Aug. 4, 1981, Ser. No. 88,859, Oct. 29, 1979. Application for reissue Feb. 3, 1982, Ser. No. 345,474

Claims priority, application United Kingdom, Oct. 27, 1978, 42336/78

Int. Cl.³ A61K 9/06, 9/08, 9/10, 9/18

U.S. Cl. 424—23

43 Claims

1. A liquid veterinary composition adapted for intramammary administration comprising a suspension of a powered solid pharmaceutically acceptable alkali metal, alkaline earth metal or amine salt of clavulanic acid in an amount of from [] 0.1 to 40% by weight of said composition calculated on the basis of the equivalent weight of free clavulanic acid, and from 5 to 20% by weight of a powdered solid molecular sieve in a pharmaceutically acceptable oil carrier.

Re. 31,302

VALIDATION SYSTEMS FOR CREDIT CARD OR THE LIKE

Leon Stambler, 534 Longacre Ave., Woodhaven, N.Y. 11598

Original No. 3,786,420, dated Jan. 15, 1974, Ser. No. 227,146, Feb. 17, 1972. Continuation of Ser. No. 648,522, Jan. 12, 1976, Pat. No. 3,786,420. Application for reissue Jul. 23, 1979, Ser. No. 59,784

Int. Cl.³ H04Q 9/00; G06K 9/00

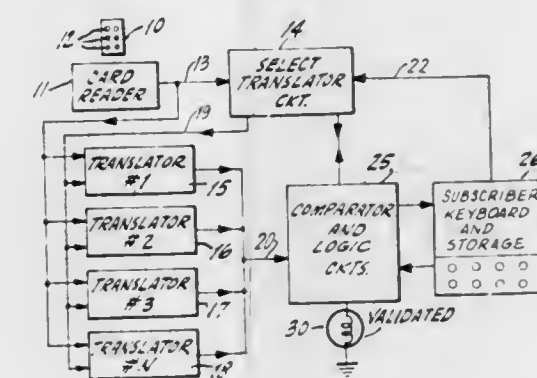
U.S. Cl. 340—825.34

19 Claims

1. In a system where the owner of an information bearing card such as a credit card or the like is in the sole possession of a predetermined memorized number of a given number of significant digits, said credit card having on a surface thereof a plurality of first indicia corresponding to said predetermined number and a plurality of second indicia corresponding to a code determining how said first indicia is manifested on said information bearing card, in combination therewith apparatus for verifying that said number and said first indicia correspond, comprising:

- a first means including a keyboard for storing said number after insertion thereby by an owner,
- second means responsive to both said first and second indicia on said credit card for providing at an output thereof an electrical signal according to said indicia,
- third means responsive to a digit of said number as stored to provide a first control signal and then responsive to

only said second indicia for providing any one of a plurality of control signals each one operative to determine how said first indicia is to be translated,
d. a plurality of translating means coupled to said second means, each one capable of responding to said electrical signal output representative of said first indicia to provide a decoded signal therefrom according to the particular format of said translator, each of said decoded signals representative of a digit contained in said predetermined number when translated according to said second indicia,
e. translating selector means responsive to said control signals and coupled to said translating means to cause a first



one, of said translating means to be selected according to said first control signal and thereafter others of said translating means to be selected according to said plurality of control signals, whereby different selected ones of said translating means provide different digits of said number according to said second indicia on said credit card, and
f. comparison means responsive to said decoded signals and said stroed number to provide an output when said decode signals correspond to said stored number, said output verifying that said memorized number and said first indicia on said card correspond.

Re. 31,303

Patent Not Issued For This Number

PLANT PATENTS

GRANTED JULY 5, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,065

AFRICAN VIOLET NAMED PINK LADY

Arnold W. Fischer, Hanover, Fed. Rep. of Germany, assignor to
Pan-American Plant Company, Parrish, Fla.

Filed Apr. 10, 1981, Ser. No. 252,894

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—69

1. A new African Violet cultivar, substantially as herein shown and described, characterized by the large, star-shaped flowers and the phlox pink coloring of its profusely produced flowers.

1 Claim

5,066

AFRICAN VIOLET NAMED BIG STAR

Arnold W. Fischer, Hanover, Fed. Rep. of Germany, assignor to
Pan-American Plant Company, Parrish, Fla.

Filed Apr. 10, 1981, Ser. No. 252,895

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—69

1. A new and distinct African Violet cultivar, substantially as herein shown and described, distinguished by its vigorous growth habit and its profuse production of very large, dark blue, star-shaped flowers atop a plant of generally rosette shape.

1 Claim

PATENTS
GRANTED JUL. 5, 1983

ERRATA

For	See
CLASS	PATENT NO.
604-110	4,391,272
604-110	4,391,273
604-190	4,391,274
604-266	4,391,276
177-210	4,391,338
182-141	4,391,345
339-075	4,391,408
273-142	4,391,442
384-152	4,391,474
384-226	4,391,475
549-525	4,391,753
423-659	4,391,880
435-042	4,391,887
236-036	4,391,913
215-307	4,392,055
382-022	4,392,120
366-129	4,392,168
346-154	4,392,194

PATENTS

GRANTED JULY 5, 1983

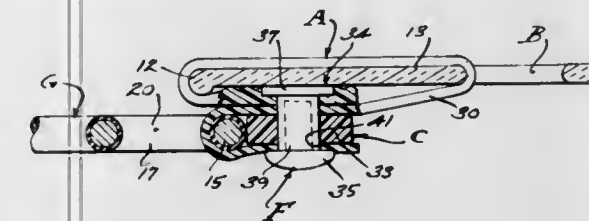
GENERAL AND MECHANICAL

4,390,995 SHOCK DAMPING FACE GUARD STRAP FOR FOOTBALL HELMETS

Vernon R. Walck, 267 Bonita Dr., Bakersfield, Calif. 93305
Filed Mar. 3, 1982, Ser. No. 354,169
Int. Cl.³ A41D 13/00; A42B 3/00

U.S. Cl. 2-9

13 Claims



1. Shock damping anchor straps for a face guard mounted on a transverse horizontal axis to a brow portion of a protective helmet, the face guard having a mounting bar rotatably mounted to the helmet on said axis and extending rearward at opposite sides of the helmet, and the face guard having opposite side anchor bars depending from the mounting bar at the front edges of opposite side ear portions of the helmet, there being an ear hole through each side ear portion of the helmet, and each anchor strap including a flexible body with inner and outer loop portions continuing one into the other from one end provided with a hole therethrough and to a terminal end, the hole at said one end being engaged over a fastener means and the inner loop portion formed into an inner loop wrapped around the front edge of the ear portion and passing through the ear hole of the helmet and secured by a second hole therethrough engaged over the fastener means, and the outer loop portion formed into an outer loop wrapped over the anchor bar and the said terminal end secured by a third hole therethrough engaged over and held by said fastener means.

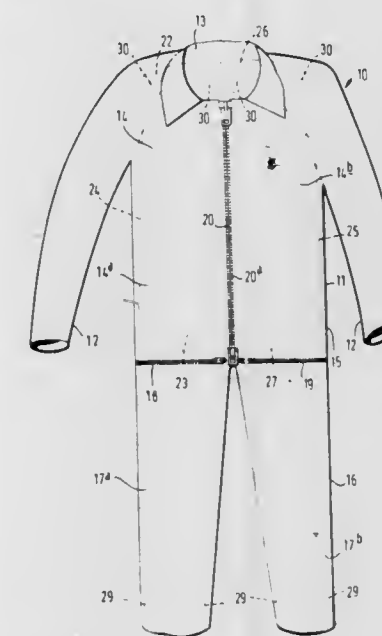
4,390,996 GARMENT

Stuart W. Read, 87 Malvern Rd., St. Johns, Worcester, England
Filed Aug. 17, 1981, Ser. No. 293,673
Claims priority, application United Kingdom, Sep. 2, 1980, 8028302

Int. Cl.³ A41B 1/12

U.S. Cl. 2-70

10 Claims



1. A garment comprises a jacket and a trouser part, the jacket comprising a body having a lower edge at or above crotch level, two arms extending from the body, the trouser

part comprising two legs, part of the upper edge of each leg being permanently attached to the lower edge of the body and the remainder of the upper edge being releasably attached to the lower edge of the body by fastening means whereby to provide a one piece suit, the jacket and trouser part each having co-operable retaining means whereby, when the fastening means are released and the trouser part folded relative to the jacket, the trouser part may be retained between the upper and lower edges of the body by said retaining means, whereby the garment may be worn as a jacket only.

4,390,997

HEAT PROTECTION GARMENT

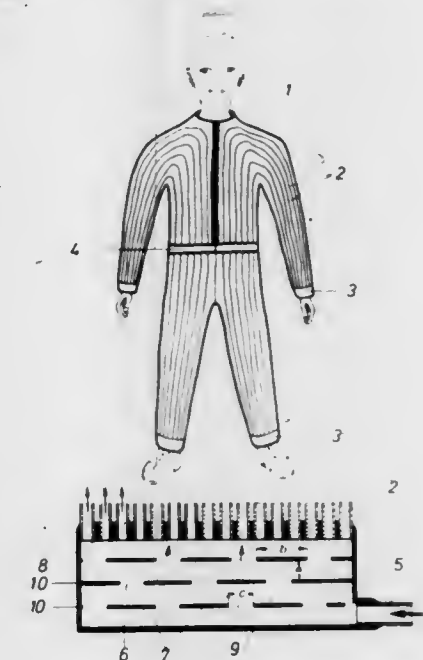
Claus-Dieter Hinz, Lübeck, and Adalbert Pasternack, Bad Schwartau, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany
Filed Jan. 16, 1981, Ser. No. 225,656

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1980, 3004593

Int. Cl.³ A41D 13/00

U.S. Cl. 2-81

6 Claims



1. A heat protection garment comprising:
at least one manifold having opposite parallel end walls defining a mixing chamber;
at least one header having opposite parallel end walls defining a mixing chamber;
a plurality of coolant tubes connecting the manifold and header mixing chambers, the tubes connected to one end wall of each of the manifold and header;
at least one coolant supply conduit connected to the manifold mixing chamber at a location spaced from the coolant tubes connected thereto;
at least one coolant discharge conduit connected to the header mixing chamber at a location spaced from the coolant tubes connected thereto; and
a plurality of parallel rows of connecting pieces extending across the manifold and header mixing chambers respectively, between the conduits and the coolant tubes and parallel to the end walls of the manifold and header respectively;
the ratio, in each of the manifold and header of the number of coolant tubes to the number of parallel rows of connecting pieces to the number of coolant conduits being approximately equal to or smaller than 12:3:1; and
the ratio in each of the manifold and header of the spacing between the parallel rows of connecting pieces to the

length of each connecting piece in each row to the spacing between each connecting piece in each row being approximately equal to or less than 1:3:1.

4,390,998

PREFABRICATED CAP FRAME

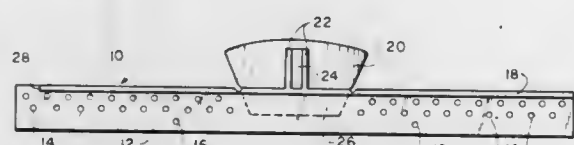
Paul G. Gallin, Bronxville, N.Y., assignor to Art Cap Company, Inc.

Filed Jun. 1, 1981, Ser. No. 269,227

Int. Cl.³ A41C 5/00

U.S. Cl. 2-180

12 Claims



1. A prefabricated cap frame for a uniform cap of the type having a visor and a grommet for supporting and stretching the top of the cap comprising a one piece structure molded from a flexible synthetic resin and including a perforated band portion in the form of a substantially flat open strip adapted to be curved and joined at the ends to form the hat band, said band portion including a thickened portion at the upper edge thereof for reinforcement, and an integral vertical stay portion extending from the upper edge of said band portion.

4,390,999

PANTY HOSE WITH BODY BULGE CONTROL

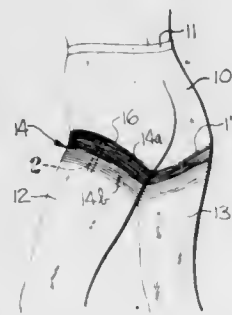
J. William Lawson, Siler City, and Robert M. Matthews, Pittsboro, both of N.C., assignors to Kellwood Company, St. Louis, Mo.

Filed Dec. 29, 1980, Ser. No. 220,380

Int. Cl.³ A41B 11/04; D04B 9/46; A41B 9/10; D04B 7/12

U.S. Cl. 2-409

7 Claims



1. In a panty hose type garment including certain portions with elastic yarn in an amount sufficient to provide a relatively great amount of compressive force against the underlying portion of the body of the wearer, and other portions normally joined directly to said certain portions and being knit solely of stretchable yarn to provide a relatively small amount of compressive force against the underlying portion of the body of the wearer, the combination therewith of a body bulge controlling intermediate portion positioned between and interconnecting said certain and said other portions, said intermediate portion being knit of stretchable yarn with elastic yarn incorporated in spaced-apart courses and providing a lesser amount of elastic yarn in said intermediate portion than the amount of elastic yarn provided in said certain portions to provide a medium amount of compressive force against the portion of the body of the wearer underlying said intermediate portion, said successive great, medium, and small amounts of compressive forces applied by said corresponding certain, intermediate, and other portions of said garment thereby applying a gradually varying amount of compressive force against the underlying portion of the body to prevent an abrupt outward bulging of the corresponding portion of the body of the wearer.

4,391,000

EAR MUFF MOUNTING DEVICE

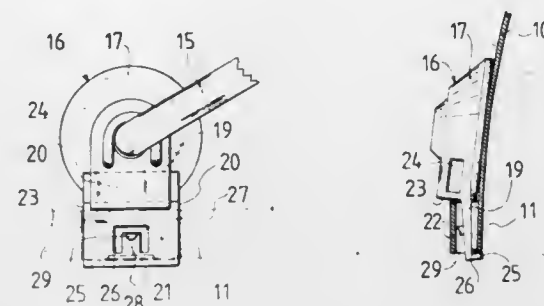
Bo G. Lönnstedt, Kvarnbergsvägen 23, S-141 45 Huddinge, Sweden

Filed Mar. 9, 1982, Ser. No. 356,397

Int. Cl.³ A42B 3/00, 1/06

U.S. Cl. 2-423

4 Claims



1. A device for removably mounting an ear muff holder arm at a hard hat having a narrow pocket defined by substantially parallel side walls and having an open bottom, said device comprising a main body for rotatably receiving said holder arm and defined by a face adapted to rest against said hat, as well as a plate member having a shape suitable for fitting into said pocket, said plate member having an inward face to be directed towards said hat and being arranged at an angle less than 180° in relation to said face of said main body, as well as by substantially parallel side edges and a transverse lower edge, there being provided at said lower edge a ledge extending between said side edges and facing the same way as said inward face, there also being provided a ledge means, being narrower and shorter than said ledge, and being located above and parallel to the latter.

4,391,001

SOFT TOILET SEAT AND HINGE CONNECTOR

David E. Harrison, Columbus, Miss., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Sep. 15, 1982, Ser. No. 418,388

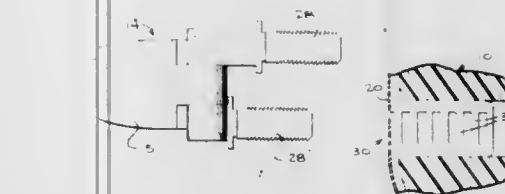
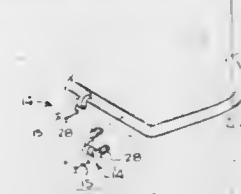
Int. Cl.³ A47K 13/12

U.S. Cl. 4-236

25 Claims

1. A toilet seat component and hinge combination comprising:
a hinge member including an elongated connector spike having an upper sawtooth-shaped surface and a lower sawtooth-shaped surface; and
a toilet seat component including a female coupling means provided adjacent the rear edge of the toilet seat component for receiving and retaining said elongated connector spike to provide a permanent and secure attachment thereto; said female coupling means including:
a plurality of horizontally aligned upper lock lugs;
a plurality of horizontally aligned lower lock lugs positioned below and spaced from said upper lock lugs; and
said upper lock lugs and said lower lock lugs defining the upper extent and the lower extent of a coupling opening extending inwardly from the rear extent of said female coupling means, said coupling opening being dimensioned to matingly receive said elongated connector spike with the sawtooth-shaped upper surface of the elongated connector spike lockingly engaging the upper lock lugs and the sawtooth-shaped lower surface of the elongated connector spike lockingly engaging the

lower lock lugs for effecting automatic locked retention of the elongated connector spike in the female coupling



in response to the insertion of the elongated connector spike into the female coupling opening.

4,391,002

WATER-CLOSET FOR VEHICLES, PARTICULARLY MOTOR COACHES

Ernst Marti, Kallnach, Switzerland, assignor to Karl Kassbohrer Fahrzeugwerke GmbH, Ulm, Fed. Rep. of Germany

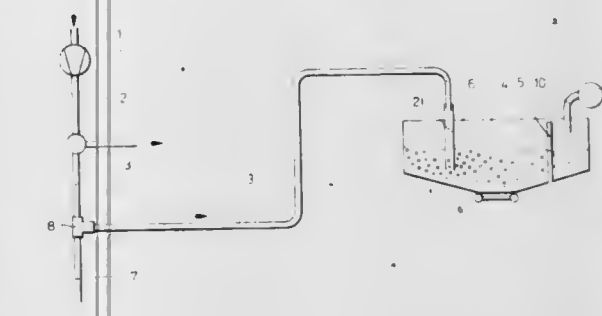
Filed Nov. 13, 1980, Ser. No. 172,197

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930403

Int. Cl.³ E03D 1/00

U.S. Cl. 4-321

4 Claims



1. In a water-closet for a vehicle including a completely closed sewage container for receiving faecal matter and sewage therein, said vehicle having a pressurized air supply system for operating brakes, doors, ventilation flaps and the like, said system including a compressor operable continuously during operation of the vehicle engine to supply pressurized air to a pressure tank, a pressure regulator for controlling the air pres-

sure in the pressure tank, and a bypass duct connected to the regulator for exhausting excess air from the system when the pressure tank is at its operating pressure, the improvement comprising a tube extending into the container to a point close to the bottom of the container and connected to the bypass duct of the pressurized air supply system to continuously supply aerating air to said container during operation of the vehicle engine and when the pressure tank is at its operating pressure and to substantially continuously aerate faecal matter in said container during vehicle engine operation.

4,391,003

WATER-SAVING DEVICE FOR USE WITH TOILETS

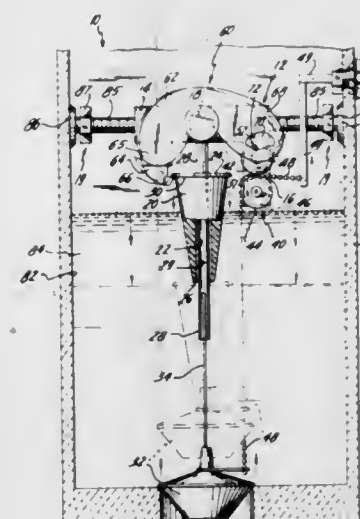
Joseph M. Talerico, 103 W. Greenbrook Rd., and Henry Fleischer, 15 Wind Ridge Dr., both of North Caldwell, N.J. 07006

Filed Feb. 24, 1982, Ser. No. 351,666

Int. Cl.³ E03D 1/00, 1/14, 3/12

U.S. Cl. 4-415

16 Claims



1. A water-saving device for use in conjunction with a toilet bowl-tank assembly, which includes a tank having an outlet opening in the bottom thereof and means for replenishing water in the tank, comprising, in combination:

lower float means adapted to removably seat over the opening in the bottom of a toilet tank;
upper float means actuated upon flushing and adapted to float with the level of water in the toilet tank and contact the lower float means as the water level drops to a predetermined level in the toilet tank and thence force the

lower float means to seat over the opening in the bottom of the toilet tank;
locking means adapted to lock the upper float means in an immobile position out of contact with the lower float means when the toilet tank is filled with water;
float control means in communication with the locking means and connected to the lower float means which, upon flushing the toilet, is adapted to unseat the lower float means from the outlet opening in the toilet tank to allow water to drain out, while causing the locking means to unlock the upper float means to thereby allow the upper float means to fall with the falling level of water in the toilet tank whereby when the water level has fallen to a predetermined level, the upper float means contacts and weighs against the lower float means forcing it downwardly and seat over the outlet opening in the toilet tank and thereby preventing the water level in the tank from dropping any further, and as the water level rises in the tank the upper float means floats upwardly with the rising water level until it contacts the locking means and is locked into its immobile position while the lower float means, through the force of water bearing against it and suction, remains seated over the outlet opening in the toilet tank.

4,391,004

SPRAYING DEVICE FOR USE IN TOILET BOWLS

Shinji Kawai, Toyota; Koichi Suzuki, Chiryu, and Yuji Yamaguchi, Anjo, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

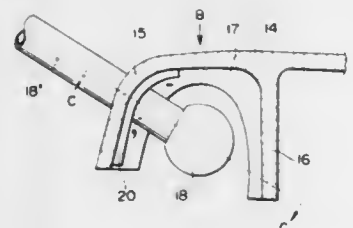
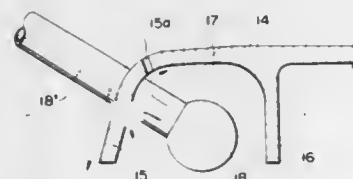
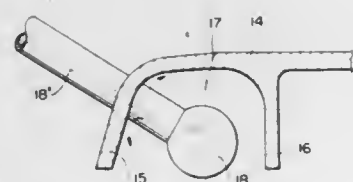
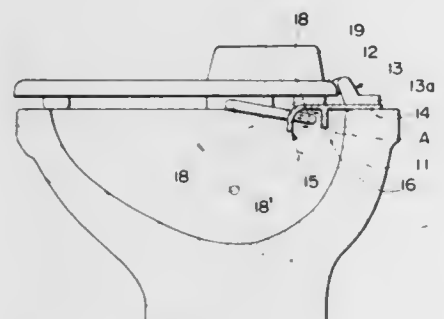
Filed May 7, 1982, Ser. No. 376,219

Claims priority, application Japan, May 9, 1981, 56-070021

Int. Cl.³ A61H 35/00; A47K 3/22

U.S. Cl. 4-443

5 Claims



1. A spraying device for use in toilets of the type having a

toilet bowl and toilet seat, which rectal spraying device comprises:

- a spraying head for spraying water;
 - means mounting said spraying head in the toilet bowl for moving said spraying head between a first spraying position underlying the anal or rectal area of an individual seated on the toilet seat, and a second spraying position located at the side of the toilet bowl; and
 - a spray deflecting member mounted on the toilet bowl at said second spraying position for confronting said spraying head when said spraying head is moved to said second spraying position;
- water ejected from said spraying head at said second spraying position being deflected back toward said spraying head.

4,391,005

APPARATUS FOR CLEANING SWIMMING POOLS

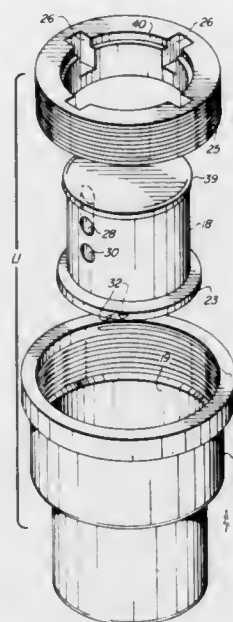
John M. Goettl, Phoenix, Ariz., assignor to George J. Ghiz, Phoenix, Ariz.

Filed Nov. 9, 1981, Ser. No. 319,686

Int. Cl.³ E04H 3/20; B08B 3/02; B05B 15/10

U.S. Cl. 4-490

6 Claims



1. In an intermittently activated water delivery assembly for cleaning a swimming pool, comprising:

- a generally cylindrical housing in communication with a source of water under pressure, said housing being in open communication with the interior of said pool at a surface of the pool structure, and
- a generally cylindrical hollow nozzle head rotatably mounted in said housing and being axially movable from an inactive, retracted position therein to an active position in which a portion of said head projects outside said housing within said pool when water under pressure is supplied to said housing;

the improvement comprising:

- thickened wall regions diametrically and symmetrically disposed interiorly of the portion of said nozzle head projecting outside said housing, each of said wall regions having at least one nozzle passage formed therein, said nozzle passages being symmetrically disposed in said nozzle head and being constructed to deliver streams of water non-radially from said nozzle head across said surface of the pool structure for cleaning said surface.

6. In an intermittently activated water delivery assembly for cleaning a swimming pool, comprising:

- a generally cylindrical housing in communication with a source of water under pressure, said housing being in open communication with the interior of said pool at a surface of the pool structure, and
- a generally cylindrical hollow nozzle head rotatably

mounted in said housing and being axially movable from an inactive, retracted position therein to an active position in which a portion of said head projects outside said housing within said pool when water under pressure is supplied to said housing;

the improvement comprising:

- a retainer ring threadably received in said housing for determining the active position of said housing, and means are provided for releasably connecting said nozzle head and said retainer ring for joint removal from said housing, said last named means comprising a stop collar carried by said nozzle head and engageable with said retainer ring for limiting movement of said nozzle head to its active position and a holding ring formed on said nozzle head, said holding ring having a diameter slightly greater than the inside diameter of said retainer ring whereby said retainer ring may be forced over said holding ring to assemble said retainer ring and said nozzle head but interference between the holding ring and said retainer ring prevents accidental separation of the nozzle head and the retainer ring when the retainer ring is removed from the housing.

4,391,006

TRANSFER BENCH

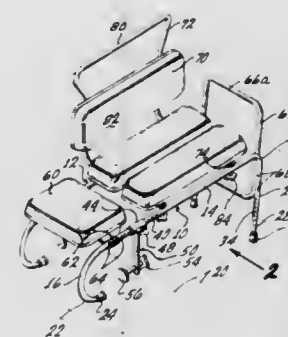
Alfred A. Smith, 13114 Margate St., Van Nuys, Calif. 91401

Filed May 17, 1982, Ser. No. 379,077

Int. Cl.³ A47K 3/00, 3/02, 3/022, 3/22

U.S. Cl. 4-559

6 Claims



1. A transfer bench to facilitate the movement of an infirm person or invalid from outside of a bathtub to a position at least partially within the bathtub, said bathtub being defined by a transverse floor and a wall extending upwardly from said floor to terminate in a rim, said transfer bench comprising:

- A. a pair of parallel bar members spaced from each other, each of said bar members including a horizontal support section, having
 - (i) a first end portion to be disposed transversely upon the rim of the tub side wall and to extend outside of the tub and downwardly and back to terminate in abutment against the outside of the tub side wall, the horizontal support section adjacent said first end portion of one of said bar members being held in spaced parallel relationship with the corresponding horizontal support section of the other bar member by a rigid cushioning element secured to and extending over both said horizontal support sections; and
 - (ii) a second opposite end portion curved downwardly and extending vertically as a leg to terminate upon the transverse floor of the tub, the last said end portion of each of said bar members being secured in spaced rela-

tion to the corresponding end portion of the other bar member by a frame securable to and extending upwardly from each of said second end portions, said frame being spaced from said rigid cushioning element by at least the width of a seat;

- B. clamping means whereby the bench may be clamped to said tub side wall, said means comprising an element adjustably securable to, and extending downwardly from, the horizontal support section of each of said parallel bar members in proximity to its first end portion, the lower end of said adjustably securable element carrying a threaded member extending through said lower end with a first end directed toward the terminus of the first end portion of the bar member which abuts the outside of said tub side wall, said threaded member having knob means on its other end to enable the said first end of the threaded member to be adjustably moved toward or away from the inside of the tub side wall, and means disposed on said first end to distribute force, applied by the torquing of said threaded element by the knob means, over a broad area of the inner wall of the tub when said tub wall is clamped between the said means disposed on the first end of the threaded member and the terminus of the first end portion of horizontal support section of the parallel bar member, in abutment with the outside of the tub wall; and
- C. cushioned seating means, the last said means extending across and fixedly secured to the horizontal support section of each of said parallel bar members intermediate said frame and said rigid cushioning element.

4,391,007

MULTI-POSITION WALL SPACER

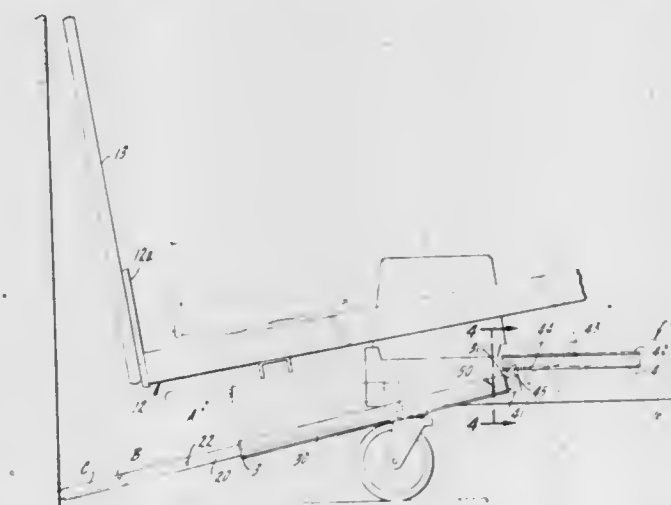
Larry D. Mitchell, and Charles W. Keith, Jr., both of Manchester, Mo., assignors to B-W Health Products, Inc., Maryland Heights, Mo.

Filed Jan. 5, 1981, Ser. No. 222,415

Int. Cl.³ A61G 7/00

U.S. Cl. 5-60

13 Claims



1. An adjustable hospital bed having a relatively fixed frame having side rails and head and foot portions, a movable frame having a headboard mounted thereon, and having head and foot portions, said bed having a normal position wherein said headboard is substantially parallel with an adjacent wall of a hospital room, elevation linkage interconnecting said movable frame with said fixed frame to elevate said movable frame, said linkage also being adapted to elevate the head portion of said movable frame into a reverse Trendelenburg tilt position, and operable to elevate the foot portion of the movable frame into a Trendelenburg tilt position, and an adjustable wall spacer attached through pivot means to said adjustable frame, said wall spacer comprising:

- pivot means;
- two tubes having guide bushings provided therein, each of

said tubes attached through said pivot means to one of said side rails;
 a U-shaped tube having two legs, each of said legs slidably received by said guide bushings;
 two tenons, each attached to one leg of said U-shaped tube; and
 two U-shaped strike members, each attached to one of said side rails and each having an aperture in the top thereof and an aperture and an elongated notch in the bottom thereof, said strike members each positioned to receive a tenon selectively within either of said apertures.

4,391,008

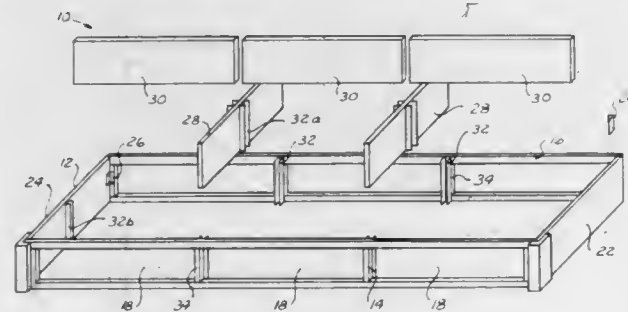
ELEMENTS FOR ASSEMBLY OF KNOCKED-DOWN WATERBED PEDESTAL

Don N. Yamaoka, and David L. Yamaoka, both of 13599 Desmond, Pacoima, Calif. 91331

Continuation-in-part of Ser. No. 173,666, Jul. 29, 1980, abandoned. This application Mar. 16, 1981, Ser. No. 243,844 Int. Cl.³ A47C 19/00

U.S. Cl. 5—200 R

3 Claims



1. A drawer usable in a waterbed pedestal, comprising in combination:

- a front section, having dovetailed slots at its respective ends and a groove extending continuously horizontal along its lower portion;
- side sections, the front ends of which dovetails, fitting tightly into the slots of the front section, and grooves extending continuously horizontal along the lower portions thereof, the rear ends of the side sections being provided, respectively, with dovetail slots;
- a bottom section fitting slidably into the grooves of the front and side sections;
- a back section, the ends of which have undersized dovetails fitting loosely within the dovetail slots of the rear end portions of the side sections, respectively, so as to create an elongated tapered cavity therebetween;
- elongated insert means adapted, respectively to be pressure fitted within the cavity in the dovetail joints of the end portions of the back and side sections, so as to establish rigid joining of the back and side section of the drawers, respectively.

4,391,009

VENTILATED BODY SUPPORT

Rolf Schild; Denis G. Melrose, both of London, and Brian M. Hawkins, Luton, all of England, assignors to Huntleigh Medical Ltd., Bedfordshire, England

Filed Oct. 17, 1980, Ser. No. 198,111

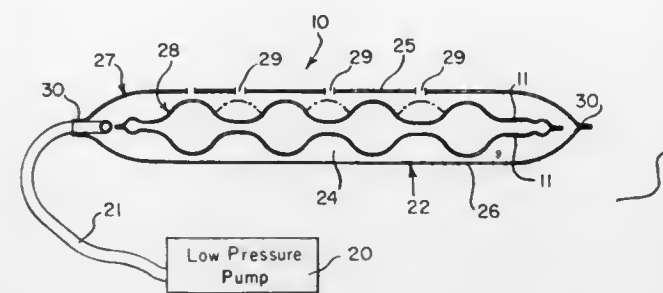
Int. Cl.³ A61G 7/04; A47C 27/10

U.S. Cl. 5—453

13 Claims

1. A ventilated support for living bodies comprising:
 a plenum chamber having a plurality of apertures for communication with the environment;
 first pump means coupled to said plenum chamber for providing passage of air through said plenum chamber at a relatively low pressure;
 alternating inflatable support means disposed in operative relationship to said plenum chamber and having a first set of aligned bubblelike cells which are interdigitated with a

second set of aligned bubblelike cells for giving sole support to said living body; and



second pump means coupled to said alternating inflatable support means for alternately inflating at a relatively high pressure said first and second interdigitated sets of aligned bubblelike cells.

4,391,010

DISPOSABLE DRAW SHEET

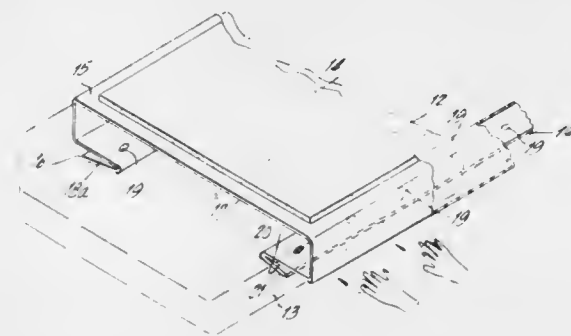
Albert F. Kronman, Locust Valley, N.Y., assignor to Hosposable Products Inc., Bound Brook, N.J.

Filed Aug. 18, 1981, Ser. No. 293,864

Int. Cl.³ A47G 9/00; A61G 12/00

U.S. Cl. 5—484

8 Claims



1. A disposable draw sheet for application to the mattress of a bed comprising a thin sheet of liquid impervious material, a top surface, a bottom surface, longitudinal margins on said sheet and a sheet width substantially greater than that of the mattress to which it is to be applied so that said sheet margins may be tucked under said mattress on opposite sides thereof, a layer of liquid absorbent material carried by the top surface of the sheet across the midregion of said sheet, said absorbent material being of a width less than the top of the mattress, a doubled back portion on the longitudinal margins of the sheet, and means to secure the doubled back portion of the said margins to the top surface of the said sheet in at least two spaced discrete areas to form at least one pocket in each of the doubled back portions.

4,391,011

MACHINE ADAPTED FOR USE IN THE MANUFACTURE OF SHOES

Alan M. Peck, Beverly, Mass.; Kingsley J. Tutt, Birstall, and Andrew G. N. Walter, Quorn, both of England, assignors to USM Corporation, Farmington, Conn.

Filed Jun. 8, 1981, Ser. No. 271,585

Claims priority, application United Kingdom, Jun. 10, 1980, 8019008

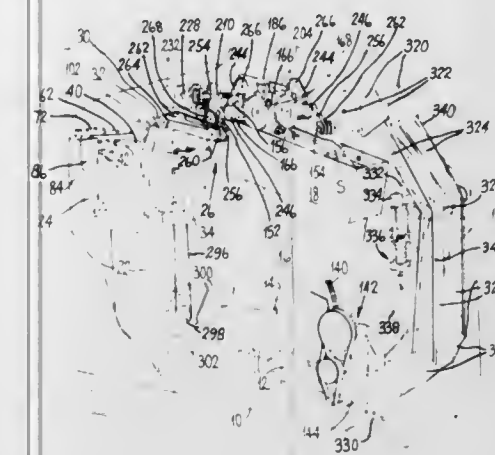
Int. Cl.³ C14B 1/44

U.S. Cl. 12—1 B

11 Claims

1. A machine suitable for performing a roughing operation progressively along marginal portions of shoe bottoms comprising a shoe support, tool supporting means, means for effecting relative movement, lengthwise of the bottom of a shoe supported by the shoe support, between said shoe support and

the tool supporting means first in one direction and then in an opposite direction, and means, operable as relative lengthwise movement takes place as aforesaid, for effecting relative movement, widthwise of the bottom of a shoe supported by the shoe support, between said shoe support and the tool supporting means, whereby, in the operation of the machine, a roughing operation can be progressively performed along marginal portions of such shoe bottom, wherein the tool supporting means is arranged to support two roughing tools side-by-side for operating along opposite marginal portions of the shoe



bottom, the arrangement being such that each tool is caused to effect an in-wiping action on the marginal portion on which it is caused to operate, and further wherein, in a cycle of operation of the machine, a left-hand one of said tools is caused to operate along the marginal portion of the shoe bottom at the right-hand side thereof during relative lengthwise movement as aforesaid in said one direction, and the right-hand one of said tools is caused to operate along the marginal portion of such shoe bottom at the left-hand side thereof during said relative lengthwise movement in said opposite direction.

4,391,012

SWINGABLE INSOLE REST

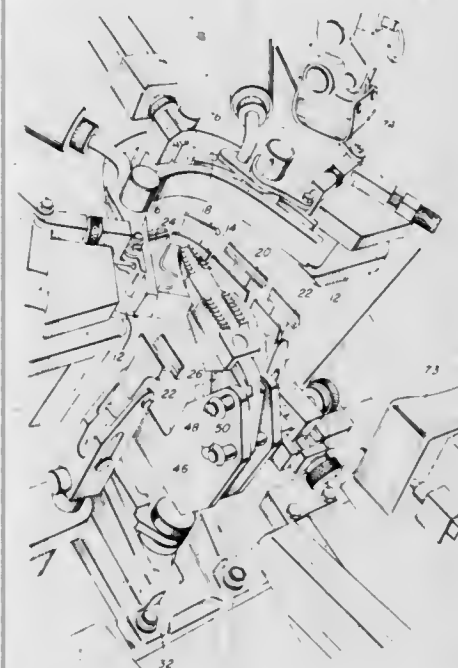
Michael M. Becka, Nashua, N.H., assignor to International Shoe Machine Corporation, Nashua, N.H.

Filed Jun. 2, 1981, Ser. No. 269,447

Int. Cl.³ A43D 21/00, 3/00

U.S. Cl. 12—10.5

4 Claims



1. A machine, operable on a shoe assembly formed of a last having an upper draped thereon and an insole located on its bottom, for stretching the vamp of the upper about the last and wiping the vamp of the upper margin against the insole comprising: an insole rest mounted for heightwise movement be-

tween a lower position and an upper position; a plurality of pincers extending about the insole rest, each pincers having a pair of jaws movable between open and closed positions; wiping means, mounted for forward and inward movement, extending outwardly about the insole rest; means for initially maintaining the insole rest in its lower position wherein the top of the insole rest is below the top of the wiping means with the shoe assembly so supported on the insole rest that the toe end of the shoe assembly faces rearwardly; means for initially maintaining all of the pincers jaws in their open positions; means for thereafter causing all of the pincers jaws to move to their closed positions to thereby grip the vamp of the upper margin; means for thereafter effecting rising movement to the insole rest to its upper position wherein the top of the insole rest is substantially at the level of the top of the wiping means to thereby enable the vamp of the upper to be stretched about the vamp of the last; means for thereafter imparting forward and inward movement, in a wiping stroke, to the wiping means to cause the wiping means to wipe the vamp of the upper margin against the insole; and means for causing all of the pincers jaws to move to their open positions and release the gripped vamp of the upper margin prior to the completion of the wiping stroke; characterized in that the machine comprises: means mounting the insole rest for heightwise swinging movement, about a prone axis that is located rearwardly of the insole rest, between an inclined position wherein the insole rest top is inclined rearwardly and upwardly and a prone position wherein the insole rest top is substantially parallel to the top of the wiping means; means for initially maintaining the insole rest in its inclined position when the insole rest is in its lower position; and means to effect such swinging movement to the insole rest about said axis that the insole rest is in its prone position when the insole rest is in its upper position.

4,391,013

FINISHING TOOL FOR SMOOTHING WALLBOARD TAPE JOINTS

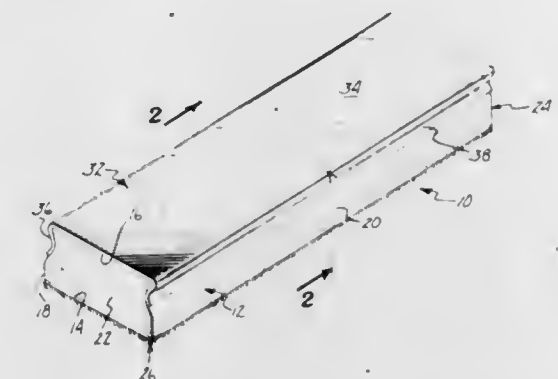
Craig R. Janssen, Arden Hills, Minn., assignor to Padco, Inc., Minneapolis, Minn.

Filed Feb. 9, 1981, Ser. No. 232,708

Int. Cl.³ A46B 3/02, 11/00

U.S. Cl. 15—210 R

14 Claims



1. A tool for smoothing joints between adjacent wallboards, the joints having been prepared with a tape joint compound, the tool comprising:
 a fluid retaining resilient foam pad having first and second major surfaces;
 an adhesive layer bonded to and covering substantially all of the first major surface;
 a wettable abrasive surface formed by a plurality of coarse, short, stiff synthetic polymer fibers oriented generally perpendicularly to the first major surface and bonded to the first major surface by the adhesive layer at first ends and having second free ends wherein the fibers are of a thickness of about 100 Denier and a length of not more than about 0.100 inch so that when the free ends are placed in moving abrasive contact with the wetted tape

joint compound, the wetted compound is smoothed flush with the adjacent wallboards as a result of moving abrasive action of the free ends.

4,391,014

CLEANING WIPER

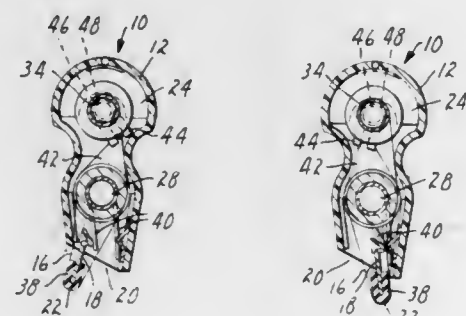
James F. Pitzon, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Oct. 13, 1981, Ser. No. 311,055

Int. Cl.³ A47L 13/46, 13/256

U.S. Cl. 15—231

8 Claims



1. A cleaning wiper adapted to hold a roll of cleaning web, comprising:

- a body having a slot along one side thereof;
- a support member movably mounted within said body, a portion of which is accessible through said slot;
- a supply holder mounted in said body adapted to hold said roll of said cleaning web;
- a take-up holder mounted in said body adapted to hold a take-up roll for said cleaning web;
- said cleaning web when intermediate said supply roll and said take-up roll passing over said portion of said support member forming a cleaning surface;
- said support member being resiliently biased within said slot; and

an advance linkage activated by movement of said support member within said slot and coupled to said take-up holder for advancing the rotation of said take-up holder a predetermined amount;

whereby said cleaning surface maintains a fresh portion of said cleaning web by automatically advancing said cleaning web as said cleaning wiper is utilized.

4,391,015

PIVOT CONNECTION FOR WIPER BLADES

Johan H. van den Berg, Hasselt, Belgium, assignor to Champion Spark Plug Europe S.A., Binche, Belgium

Filed Oct. 22, 1981, Ser. No. 313,639

Claims priority, application France, Oct. 27, 1980, 80 22923

Int. Cl.³ B60S 1/38

U.S. Cl. 15—250.42

9 Claims

1. A pivot connection for two yokes (1,2,10) of a wiper blade wherein the cross-section of a first metallic yoke (1) has substantially the form of an inverted U comprising a web and two flanges and further comprising at its two extremities, as well as in its central portion, a transverse pivot pin extending between said flanges (6,5) and wherein a second yoke (2,10) comprises attaching means (11,15,16) capable of cooperating with one or

the other of said pivot pins (6,5), characterized in that the two pivot pins (6) at the extremities of the first yoke (1) are formed



from a tongue (14) cut in the web (4) of said yoke (1) and rolled to form a tubular pivot.

4,391,016

DEGREASING APPARATUS FOR ELONGATED MATERIALS

Teruaki Kawamura; Nobuhiko Harada; Yukihiko Komatsu, and Masaru Sakai, all of Shimonoseki, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

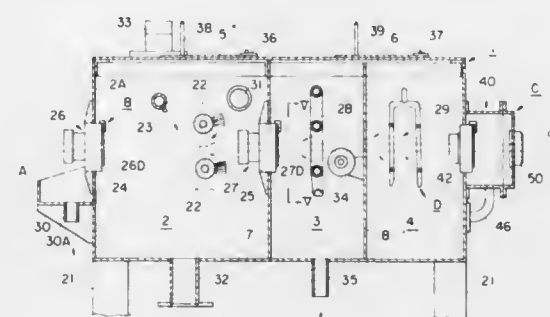
Filed Sep. 14, 1981, Ser. No. 302,135

Claims priority, application Japan, Oct. 14, 1980, 55-146429[U]

Int. Cl.³ B21B 45/02

U.S. Cl. 15—302

11 Claims



1. A degreasing apparatus for degreasing an elongated member comprising:

- a treatment room having a plurality of chambers sequentially divided in an isolated fashion along a feeding direction of the elongated member wherein said plurality of chambers comprise a degreasing chamber, a predrying chamber and a finish drying chamber;

at least one pair of rotary brushes provided in the degreasing chamber such that said brushes are maintained in contact with an outer surface portion of the elongated member; means disposed in the degreasing chamber for jetting out a degreasing liquid in a direction toward the inlet side of a contact area between said brushes and said elongated member;

a plurality of degreasing members provided, respectively, at the inlet and outlet sides of the degreasing chamber along an axis on which the elongated material is fed, wherein each of said degreasing members comprises an elastic material and defines an opening for permitting said elongated member to forceably pass therethrough; means disposed in said predrying chamber for jetting out water or steam against the elongated material; and means mounted in said finish drying chamber for jetting out a drying medium of hot air against the elongated member.

4,391,017

DEVICE FOR REMOVING INCENDIARY MATTER FROM THE INTERIOR OF AN AIRCRAFT

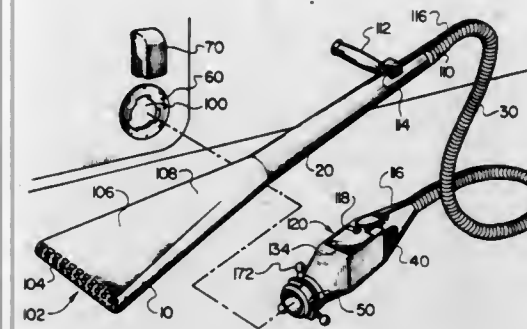
Wilhelm A. Bruensicke, Santa Monica, Calif., assignor to Lockheed Corporation, Burbank, Calif.

Filed Dec. 28, 1981, Ser. No. 335,178

Int. Cl.³ A47L 5/18, 5/38

U.S. Cl. 15—313

9 Claims



1. A device for disposing of flammable fluids and other incendiary material from the pressurized interior of an aircraft comprising:

- an intake nozzle;
- an intermediate wand portion having a longitudinal bore extending therethrough, said bore being in fluid communication with said nozzle;
- a flexible hose connected at the end of said intermediate wand portion bore remote from said intake nozzle;
- a quick connect fitting at the other end of said flexible hose and in fluid communication therewith;
- an outlet fitting adapted for forming a flow path for fluid communication with said quick connect fitting, said outlet fitting comprising a plug which when removed results in said outlet fitting being in fluid communication with the external airstream and means for removing said plug by ejecting it into said external airstream.

4,391,018

VACUUM CLEANER WITH WHEEL AND NOZZLE HEIGHT ADJUSTING MECHANISM

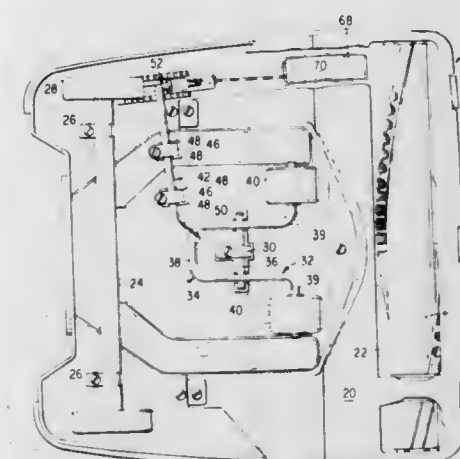
Don W. Vermillion; Francis S. Gromek, both of Anderson, S.C., and Scott S. Bair, III, Atlanta, Ga., assignors to The Singer Company, Stamford, Conn.

Filed Mar. 13, 1981, Ser. No. 243,413

Int. Cl.³ A47L 5/34

U.S. Cl. 15—339

5 Claims



1. In a suction cleaner having a chassis including a front suction nozzle inlet at the bottom thereof and rear and front sets of wheels supporting such chassis for movement on a floor surface, a nozzle height adjusting mechanism comprising rear axle means including a rear axle carried by said chassis for

rotatably supporting said rear set of wheels, front axle means including a central portion having a pintle shaft mounted therewith and with the chassis for enabling rocking movement of said front axle means relative said chassis, said front axle means including an actuating portion extending rearwardly from said pintle shaft and a pair of offset arms forwardly of and formed on an opposite side of said pintle shaft extending laterally outwardly thereof for journaling said front set of wheels, said offset arms being longitudinally spaced from said rear axle means, means for adjusting the position of said front wheels relative said chassis, said adjusting means including an adjustment lever journaled on said chassis adjacent said rear axle and having one end angulated to engage said actuating portion so that rocking movement of said adjustment lever rocks said front axle means about said pintle shaft and thereby raises or lowers said front set of wheels relative said chassis, an operator engageable means for cooperating with a second end of said adjustment lever and extending upwardly through said chassis to a position accessible by an operator from an operating position for said suction cleaner for engagement by the foot of said operator to adjust nozzle height as said operator engageable means is rocked in a front to back direction thereby.

4,391,019

CORNER CONNECTOR FOR SLIDING DOORS

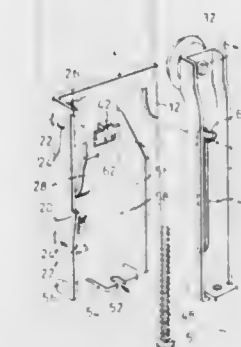
Peter B. Downes, Oakville, Canada, assignor to DSH, Concord, Canada

Filed Feb. 27, 1981, Ser. No. 239,147

Int. Cl.³ A47H 15/00; E05D 13/02

U.S. Cl. 16—105

7 Claims



1. In a corner connector for a sliding door slidable along top and bottom tracks, said connector comprising a rigid connector member for locking engagement with a vertical stile and a horizontal rail of such a door whereby to hold them together, and an elongated arm movable vertically within said connector member whereby to control the extension of the distal end of said arm beyond the connector member, said distal end having a track engaging guide member, the connector member being a one-piece stamping formed from metal sheet, the general plane of which is located when in use in a vertical plane behind and parallel to a panel of the door, said connector member including a portion at one vertical margin bent rearwardly out of the general plane of the sheet and configured for locking engagement with the stile and a portion at an opposite vertical margin configured for engagement with a slot in the rail, the arm being supported for vertical sliding movement in contact with the rear surface of the sheet, the improvement wherein the arm is separable from the connector member, and is normally guided longitudinally and retained in contact with the rear surface of the sheet solely by a plurality of portions of the sheet struck rearwardly out of the plane of the sheet and presenting guiding and retaining surfaces to the arm which restrict it to vertical sliding movement in contact with the rear surface of the connector throughout its normal range of movement, the rearwardly struck portions being so located and configured relative to the location and configuration of the arm that the latter can be disengaged therefrom but only when moved.

vertically to a position beyond one end of its normal range of movement.

4,391,020

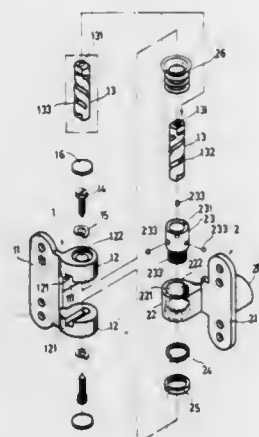
GRAVITY RETURN HINGE HAVING AN AXLE ROD IN AN AXLE SLEEVE

Yun-Tung Hsu, Taipei, Taiwan, assignor to Pei-Liang Chiu, Taipei, Taiwan

Filed Jun. 3, 1981, Ser. No. 270,213
Int. Cl.³ E05F 1/04

U.S. Cl. 16—314

5 Claims



said middle rolls and to said front apron pins to control the textile fibers in abutting contact in both the back and front drafting zones.

4,391,022

AUTOMATIC LOCK SLIDER FOR SLIDE FASTENERS

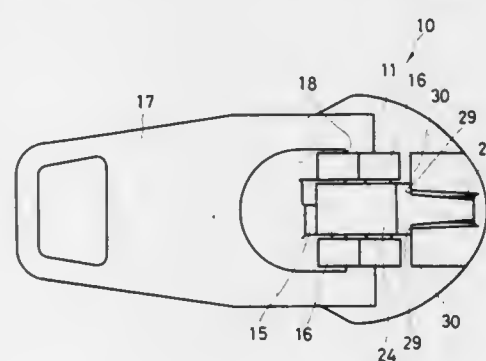
Kiyoshi Oda, Namerikawa, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,573
Claims priority, application Japan, Mar. 4, 1980, 55-28108[U]; Mar. 4, 1980, 55-28109[U]

Int. Cl.³ A44B 19/00

U.S. Cl. 24—205.14 R

8 Claims



1. An automatically locking slider for a slide fastener having a pair of coupling element rows, said slider comprising:

- (a) a slider body including a pair of first and second wings joined at one end by a neck, there being defined a Y-shaped guide channel between said wings for the passage of the pair of coupling element rows of the slider fastener, said first wing having an aperture communicating with said guide channel, said neck having a projecting locking-member retaining nose adjacent to said second wing;
- (b) a pair of laterally spaced lugs on said first wing, one on each side of said aperture;
- (c) a pull tab pivotably connected to said lugs and having a transverse spindle journaled thereby in a fixed axis; and
- (d) a locking member pivotably supported on said slider body and including a resilient strip having
 - (1) a U-shaped base extending around said transverse spindle and normally urged thereagainst by the resilience of said strip, said base being angularly movable away from said first wing in response to the pivotal movement of said pull tab against the bias of said strip,
 - (2) an anchor extending from one end of said base and terminating in a hook-shaped end hooked with said retaining nose, said hook-shaped end being urged against said nose by the resilience of said strip and

4,391,021

APRON DRAFTING SYSTEM

Fouad A. Kamel, Pineville, N.C., assignor to Whitin Roberts Company, Charlotte, N.C.

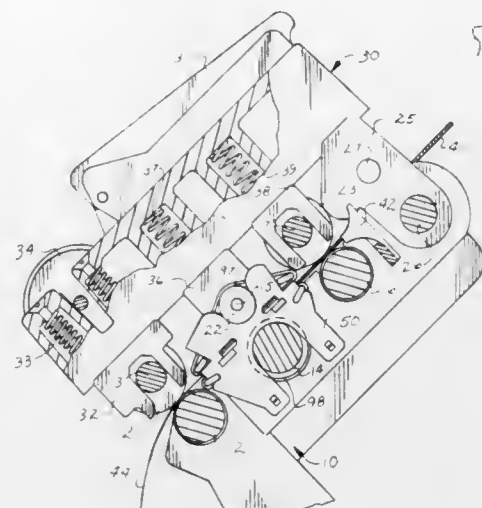
Filed Oct. 19, 1981, Ser. No. 313,318
Int. Cl.³ D01H 5/86

U.S. Cl. 19—253

23 Claims

1. A drafting apparatus for textile fibers comprising a pair of back rolls, a pair of middle rolls, and a pair of front rolls, each of said pairs of rolls including a top roll and a bottom roll, a cradle supported on said middle rolls and including a pair of side plates, a top apron extending around said top middle roll between said side plates, a bottom apron extending around said bottom middle roll between said side plates, said cradle including a pair of front apron pins in the front drafting zone between said front and middle rolls, said cradle including a pair of back apron pins in the back drafting zone between said back and middle rolls, said top apron extending around the top ones of said front and back apron pins, said bottom apron extending around the bottom ones of said front and back apron pins,

whereby said top and bottom aprons extend in confronting relationship from said back apron pins through the nip between



thereby prevented from being unhooked from said nose, and

(3) a locking prong extending from the other end of said base for normally projecting into said guide channel through said aperture to lockingly engage with the pair of coupling element rows, said locking prong being retractable, from said guide channel into said aperture, in response to the angular movement of said base away from said first wing.

4,391,023

BUCKLE ARRANGEMENT FOR SEAT BELTS

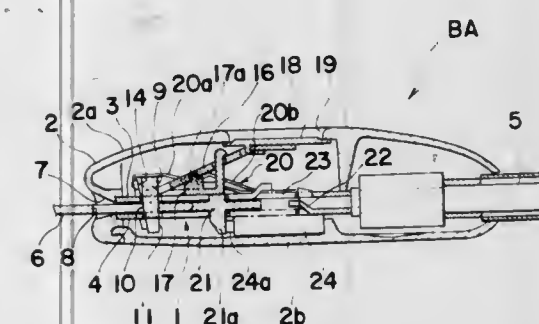
Kobun Tanaka, Nagoya, and Takashi Kawaharazaki, Toyooka, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed Jan. 19, 1981, Ser. No. 226,474

Claims priority, application Japan, Jan. 23, 1980, 55-6788[U]
Int. Cl.³ A44B 11/26

U.S. Cl. 24—230 AL

4 Claims



1. A buckle arrangement for a seat belt comprising:
- a frame member;
 - a tongue portion having an inserting end, insertable into said frame member in an insertion direction and withdrawable from said frame member in a withdrawal direction;
 - a locking member having contact portions, movably disposed on said frame member for movement into a locking position in which said tongue portion is locked in said frame member upon insertion of said tongue portion into said frame member, and for movement from said locking position in a direction of unlocking to unlock said tongue portion from said frame member; said tongue portion having engaging means, formed at said inserting end, for selective engagement of said tongue portion with and disengagement of said tongue portion from said locking member;
 - means for moving said locking member from said locking position in said direction of unlocking; and
 - a retaining plate having a plate-like surface, provided on said frame member for retaining said locking member in said locking position, said retaining plate having portions inclined to said plate-like surface for contact with said contact portions of said locking member, such that said retaining plate exerts a component force in said withdrawal direction on said tongue portion.

4,391,024

BUCKLE DEVICE

Masaru Morinaga, Yamato, Japan, assignor to NSK-Warner K.K., Tokyo, Japan

Filed Mar. 24, 1981, Ser. No. 247,148

Claims priority, application Japan, Apr. 10, 1980, 55-47613[U]

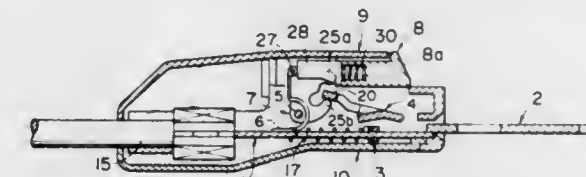
Int. Cl.³ A44B 11/25

U.S. Cl. 24—230 A

8 Claims

1. A buckle device for latching to a tongue, comprising a base, a latch member supported on said base so as to be movable between an engaged position with said tongue and a non-engaged position with said tongue, a push button member for releasing the engagement between said tongue and said latch member when manually operated, and a lever member pivot-

ally supported on said base and having a first portion adapted to be engaged by said push button member when the push button member is manually operated, a second portion adapted to engage said latch member so as to bring said latch member into said engaged position and to hold said latch member in such position, a third portion adapted to engage said latch member when said push button member is manually operated to bring said latch member from said engaged position into said non-engaged position, the latch member being held loosely



between said second and third portions, and a spring portion for imparting a biasing force to the lever member in a direction in which said second portion is engaged with said latch member, said lever member being adapted, when said push button member is operated with said tongue and said latch member being engaged with each other, to receive a rotational force applied to said first portion and to transmit said rotational force to said latch member through said third portion to thereby bring said latch member from said engaged position into said non-engaged position.

4,391,025

PROCESS FOR LAYING DOWN CONTINUOUS MATERIAL

Frank R. Mehdorn, Steppach, and Johann Seelig, Schwabmünchen, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

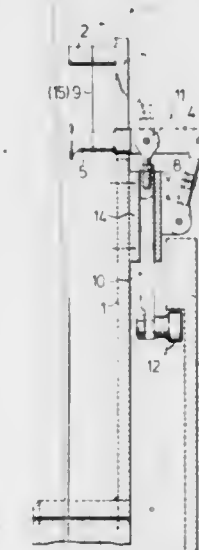
Filed Aug. 18, 1980, Ser. No. 178,740

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933963

Int. Cl.³ B65H 54/80

U.S. Cl. 28—289

1 Claim



1. An apparatus for forming meanders in a continuous spinning tow running in a plane comprising a single rotating wheel and meander-forming and -releasing means comprising:

- reversing elements (2) arranged generally in a circle on the surface and around the periphery of the wheel (1) and, between each pair of reversing elements (2), a guide groove (3) in wheel (1) for guiding a catching device (5);
- movable catching devices (5), each catching device (5) arranged on a fork (4) sliding in a guide groove (3), and mechanical actuating means for the catching devices (5), each catching device (5) having an initial position, outside of the plane in which the continuous spinning tow is running and in closely spaced relation to the periphery of

the wheel, and being movable from this initial position radially inwardly toward the axis of the wheel and into said plane; each fork (4) being fastened to the wheel (1) via a first joint (6), a connecting rod (7), and a pillow block (8);

said mechanical actuating means including means for:

sequentially moving the catching devices (5) to a relatively radially inward position from their initial position while also moving the catching devices into the plane in which the spinning tow is running thereby catching the spinning tow and forming a first meander of a sequential series of meanders in said spinning tow, each meander extending from a reversing element (2) to a catching device (5) which is in the relatively radially inward position, and

moving each catching device (5) back toward its initial position after the catching device has rotated more than 60° of the circumference of the wheel (1), thereby releasing the meander;

the actuating means for each catching device (5) including a slide rod (10) for driving each fork (4) via a second joint (11); the slide rod (10) sliding in a corresponding track (14), and the motion cycle of the slide rod (10) being determined by a cam disk (13) via a cam roller (12).

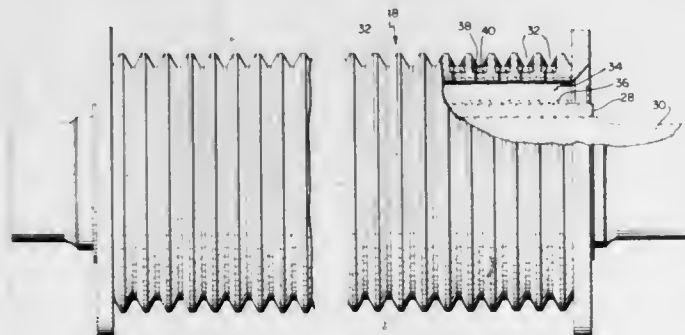
4,391,026 MILL ROLL

John A. Casey, San Francisco, and Joseph C. V. Ducasse, Martinez, both of Calif., assignors to Fabcon Incorporated, San Francisco, Calif.

Filed Mar. 19, 1981, Ser. No. 245,689
Int. Cl.³ B21B 27/02

U.S. Cl. 29—121.6

6 Claims



1. A mill roll for use in grinding material such as sugar cane and for extracting juice therefrom, said mill roll comprising:

- a roll body;
- a plurality of circumferentially extending grooves formed in the periphery of said roll body, each said circumferentially extending groove comprising a substantially V-shaped groove defined by a pair of facing flank surfaces which converge radially of said roll body;
- a plurality of channels extending axially through said roll body at positions inwardly of said grooves;
- a plurality of radially extending recesses formed at locations spaced circumferentially around each said groove, each said recess being formed in at least portions of said facing flank surfaces of the respective said groove, and each said recess extending inwardly of the bottom of said respective groove;
- a plurality of inserts, each said insert being fitted within a respective said recess, and each said insert being secured in the respective said recess by welds filling-in portions of said recess in said facing flank surfaces and reforming said flank surfaces;
- each said insert having extending substantially radially therethrough an opening connecting the respective said groove with a respective said channel, each said opening having an elongated, substantially rectangular circumferential cross-section with a longer dimension extending substantially circumferentially of said roll body and a

narrower dimension extending axially of said roll body; and
said welds covering substantially the entire radial outer surface of the respective said insert, except for said opening therethrough, such that said welds protect the radially outer edges of said opening.

4,391,027 METHOD OF MAKING A HEAT EXCHANGER ASSEMBLY

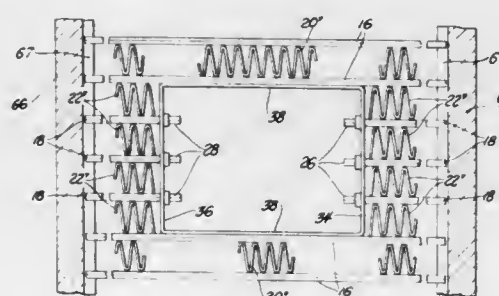
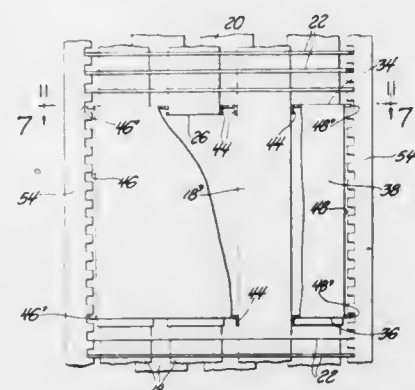
James C. Fleury, Ora, Ind., assignor to Ex-Cell-O Corporation, Troy, Mich.

Division of Ser. No. 104,588, Dec. 17, 1979, Pat. No. 4,296,805.
This application Jun. 5, 1981, Ser. No. 270,602

Int. Cl.³ B23P 15/26

U.S. Cl. 29—157.3 B

10 Claims



1. A method of making a heat exchanger assembly of the type having a core with front and rear faces with a plurality of tubes parallel to the faces and a plurality of fins extending transversely to the faces and tubes respectively and interconnecting the tubes, comprising the steps of: assembling the fins and tubes together and with a peripheral wall extending between the front and rear faces to define oppositely facing openings adjacent the faces and including perforated top and bottom walls interconnected by side walls inserting a first group of tubes through the perforations in the top and bottom walls so as to extend between the top and bottom walls, removing the lengths of the first group of tubes extending between the top and bottom walls, and closing the oppositely facing openings of the peripheral wall with closure members.

9. A method of making a heat exchanger assembly of the type having a core with front and rear faces with a plurality of fins extending transversely to the faces and tubes respectively and interconnecting the tubes comprising the steps of: providing tube nesting members each having a notch extending along the longitudinal axis of said tube nesting member, arranging said tube nesting members so that said notches are oriented vertically and disposing said tube nesting members a horizontal distance apart approximately the distance between the top and bottom of the core, disposing a first group of vertically spaced horizontal tubes between the tube nesting members and within the notches, disposing horizontal lengths of serpentine fin extending between the tube nesting members and engaging adjacently spaced rows of tubes, disposing a peripheral wall extending between the front and rear faces of the core to define

oppositely facing openings adjacent the faces and including perforated top and bottom walls interconnected by side walls between the tube nesting members, disposing a second group of tubes to extend between and within each nesting member and the perforations in one of the top and bottom walls, closing the oppositely facing openings of the peripheral wall with closure members, removing the tube nesting members, and securing the tubes, fins and peripheral wall together to form the heat exchanger.

4,391,028

SOLVENTLESS ASSEMBLY OF FLEXIBLE TUBING TO A COMPONENT

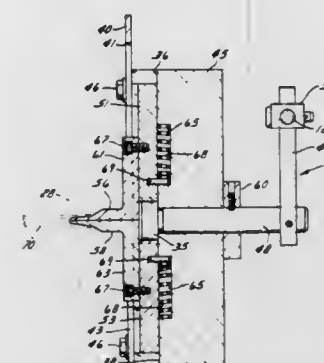
Hrishikesh Choudhury, Gurnee, Ill., and Juergen H. Zaha, Moore, S.C., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Oct. 26, 1981, Ser. No. 315,076

Int. Cl.³ B23P 19/00; B29C 17/00, 25/00

U.S. Cl. 29—235

10 Claims



1. An assembly apparatus for securing a length of flexible tubing having a predetermined internal diameter to a tubular portion having an external diameter larger than said predetermined internal diameter comprising:

- a multiplicity of jaw members each having a longitudinal portion dimensioned to fit within said length of flexible tubing;
- means to radially guide said jaw members from a closed position to a position spaced therefrom while maintaining a parallel relationship with respect to the jaw members;
- means operatively associated with said jaw members to move said jaw members from said closed position to said spaced apart position; and
- means positioned adjacent said jaw members to introduce a cooling media having a temperature to temporarily freeze said length of tubing in an expanded state when contacted with said jaws in said spaced apart position.

4,391,029

CATHETER HUB ASSEMBLY

Leonard F. Czuba, Lombard, and Dean G. Laurin, Lake Zurich, both of Ill., assignors to Baxter Travenol Laboratories Inc., Deerfield, Ill.

Division of Ser. No. 970,609, Dec. 18, 1978, abandoned. This application Apr. 24, 1980, Ser. No. 143,072

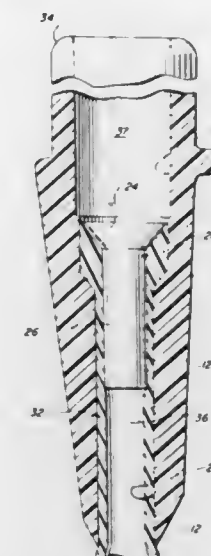
Int. Cl.³ B23P 11/02; B29C 13/00

U.S. Cl. 29—450

3 Claims

1. The method of forming an end having a plurality of areas of increasing wall thickness on a heat recoverable stressed thermoplastic tubular catheter, which comprises: heating the end of the tubular catheter to cause it to spontaneously reduce its length and increase its wall thickness and inner diameter, as stresses are relieved in the heated portion of said catheter,

while not exposing the remainder of said catheter to heat, and thereafter pressing the end of said catheter at at least its softened



ing temperature against a flat surface to form a thickened annular lip about the catheter end.

4,391,030

METHOD OF PRODUCING A LOOPED STRAND LACING MEMBER FOR USE IN TRANSPLANTING TREES

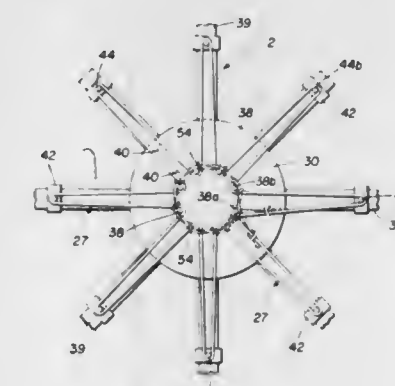
Barry Weidner, 153 E. Marion St., Doylestown, Wayne County, Ohio 44230

Division of Ser. No. 131,208, Mar. 17, 1980, Pat. No. 4,287,840.
This application Jun. 29, 1981, Ser. No. 278,041

Int. Cl.³ B21D 39/00; B23P 11/02

U.S. Cl. 29—509

4 Claims



1. A method of forming a looped-strand drum lacing member for use in transplanting trees, including the steps of:

- (a) providing a wheel-like member having a central hub with a plurality of posts arranged in a circular manner on the hub, and having a plurality of outwardly radially extending legs with a peg mounted on each of the legs at a predetermined radial distance from the central hub posts;
- (b) looping a first piece of flexible strand material in a repeating manner about one of the central hub posts and then outwardly along one of the legs and about the peg of said one leg and then inwardly and around a next post adjacent to said one post to form a closed end loop, and continuing said loop-forming procedure until a loop is formed along each of the legs;
- (c) securing the first piece of strand material after completing the formation of the loops;
- (d) weaving a second piece flexible strand material into a circular arrangement about the central hub posts; and
- (e) securing together certain areas of the first and second pieces of stand material adjacent the central hub posts.

4,391,031

METHOD OF ASSEMBLING TWO SHAPED SECTIONS WITH A COTTER

Yves D. Laugier, Toulouse, France, assignor to Technal International S.A., Toulouse, France

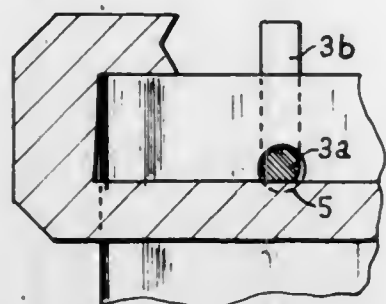
Filed Jul. 14, 1981, Ser. No. 283,344

Claims priority, application France, Jul. 21, 1980, 80 16083

Int. Cl.³ B23P 19/00

U.S. Cl. 29—526 R

9 Claims



1. A method for assembling first and second shaped sections at substantially perpendicular directions comprising: providing a first shaped section having a wall (1a), two flanges (1b, 1c), two bends (1d, 1e) and a slot formed in said wall, said slot having a configuration such as to receive said second shaped section therein, providing at least one cotto (3) comprising a rod (3a) having a thinned segment formed on a portion of its periphery, providing a second shaped section having a cross-sectional configuration complementary to said slot and at least one circular aperture for receiving a cotto, said aperture being positioned in said second shaped section such that when said second shaped section is inserted in said slot and abutted against said bends, said aperture extends beyond said first section a distance at least as great as the thickness of said cotto at said thinned segment and less than the thickness of said cotto at its unthinned segment, inserting said second shaped section (2) into said slot (4) until its end (2a) abuts the bends (1d, 1e) of said first shaped section, inserting said at least one cotto into said at least one aperture with said thinned segment against the wall of said first shaped section, and rotating said at least one cotto about the longitudinal axis thereof for urging the unthinned portion thereof in compression against said wall.

4,391,032

METHOD FOR MANUFACTURING INTEGRATED DYNAMIC RAM ONE-TRANSISTOR STORAGE CELLS

Heinz Schulte, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

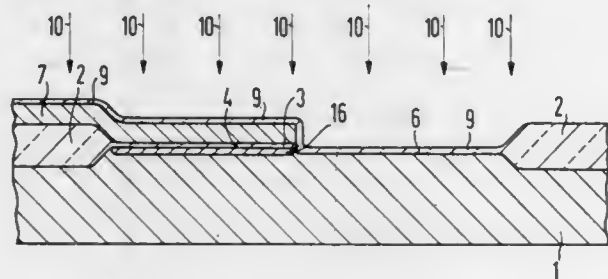
Filed Jul. 13, 1981, Ser. No. 282,706

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1980, 3032632

Int. Cl.³ H01L 21/20; B01J 17/00; H01L 27/04

U.S. Cl. 29—571

3 Claims



1. Method for manufacturing dynamic RAM one-transistor cells integrated in a semiconductor substrate, each cell consist-

ing of one field-effect transistor and one storage capacitor, which comprises

- insulating areas of the semiconductor substrate for the one-transistor cells by thick oxide structures to insulate the cells from each other and covering the areas for the cells between the thick oxide structures with first thin oxide layers,
- forming an electrode for the storage capacitors by applying a first polycrystalline semiconductor layer over the entire surface of the thick oxide structures and the first thin oxide layers, and structuring by etching in the areas of the semiconductor substrate together with the first thin oxide layers, to leave remaining on the storage capacitor parts of the one-transistor cell areas of the semiconductor substrate a layer sequence of thin oxide as a capacitor dielectric and the polycrystalline layer as the capacitor electrode,
- applying a second thin oxide layer over the entire surface to form a gate oxide for the transistors,
- doping the transistor parts of the one-transistor cell areas of the semiconductor substrate by another ion implantation to adjust the cut-off voltage of the transistors,
- forming the gate electrodes of the transistors, by applying a second polycrystalline semiconductor layer over the entire surface and structuring by etching to leave parts of the second polycrystalline semiconductor on the transistor parts of the one-transistor cell areas, the combination therewith of
- adjusting the storage capacitors to a predetermined storage capacity after the thick oxide structures and the first thin oxide layers are formed, and using the thick oxide structures as a mask, subjecting the cell areas to an ion implantation for preparing a doped layer which with the semiconductor substrate forms a pn-junction in the storage capacitor parts in the semiconductor substrate, and
- performing said another ion implantation for adjusting the cut-off voltage of the transfer transistors utilizing as a mask the parts of the first polycrystalline semiconductor layer which form the electrode of the storage capacitors.

4,391,033

METHOD OF MAKING V-ISOLATION GROOVES BY OVER-FILLING WITH POLYCRYSTALLINE SILICON OF GRADED CONDUCTIVITY AND ETCHING

Satoshi Shinozaki, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jul. 21, 1981, Ser. No. 285,507

Claims priority, application Japan, Jul. 28, 1980, 55-103341; Dec. 12, 1980, 55-175292; Dec. 12, 1980, 55-175293; Mar. 5, 1981, 56-31602

Int. Cl.³ H01L 21/20, 21/306

U.S. Cl. 29—576 W

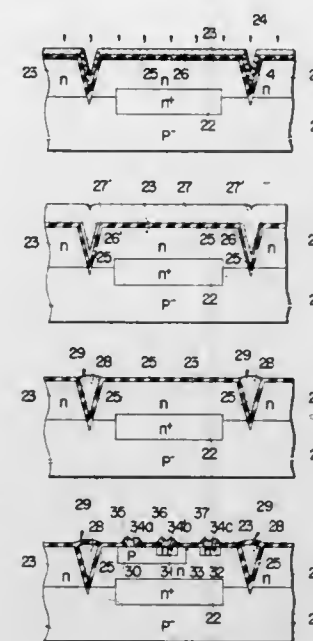
20 Claims

1. A method of manufacturing a semiconductor circuit, comprising the steps of:

- forming a groove on one main surface of a semiconductor substrate such that an island region is defined by said groove;
- oxidizing said main surface of the substrate including at least the surface of the groove;
- depositing a semiconductor layer in said groove and on the substrate surface adjacent said groove, said semiconductor layer being deposited to a depth greater than the depth of said groove so that at the location of said groove said semiconductor layer fills said groove and extends above the main surface of said substrate;
- introducing an impurity into said semiconductor layer whereby the impurity concentration of the semiconductor layer within the groove is substantially different than the impurity concentration of the semiconductor layer above and adjacent the groove; and
- selectively removing the semiconductor layer above and

adjacent the groove by utilizing the difference in impurity concentration so as to follow the semiconductor layer to

ment with the intended deposition locations on the silicon wafer.



remain only within the groove and, thus, to provide a region for separating two adjacent island regions.

4,391,034

THERMALLY COMPENSATED SHADOW MASK

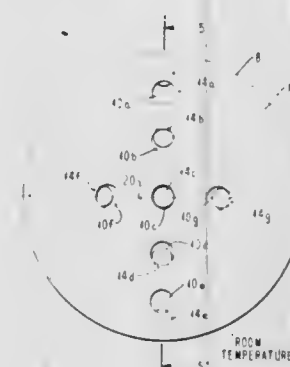
Kenneth P. Stuby, Catlett, Va., assignor to IBM Corporation, Armonk, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,910

Int. Cl.³ H01L 5/00, 7/10, 7/54

U.S. Cl. 29—579

3 Claims



3. A method for making an improved high temperature shadow mask assembly for a large diameter silicon wafer, comprising the steps of:

- forming a planar plate having a pattern of apertures misregistered at room temperature but registered at high temperature during a deposition process, each of those respective distances from the centroid of said plate at room temperature is misregistered with respect to the corresponding desired distance from the centroid of said wafer of a corresponding shadow image on the silicon wafer at room temperature, by approximately the product of the difference between said high temperature and said room temperature times said desired distance times the difference between the thermal coefficient of expansion of the plate material and the thermal coefficient of expansion of the silicon wafer;
- clamping said plate and said wafer with their said centroids mutually coincident, in a fixture which does not maintain their said centroids mutually coincident at said high temperature;
- raising the temperature of said plate and silicon wafer to said high temperature for processing;
- whereby the differential expansion of the plate material will bring the apertures therein into a minimum total misalign-

METHOD OF MOUNTING A MAGNETIC HEAD UNIT ON A MOVABLE CARRIER

Oelke Van de Bult, The Hague, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

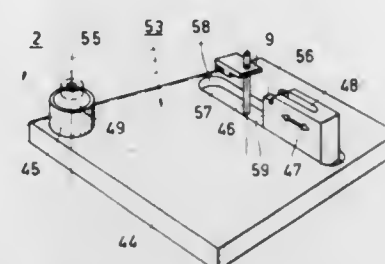
Filed Sep. 24, 1981, Ser. No. 305,313

Claims priority, application Netherlands, Apr. 14, 1981, 8101824

Int. Cl.³ G11B 5/42

U.S. Cl. 29—603

4 Claims



1. A method of mounting a magnetic head unit (6) on a carrying arm (3) of a movable carrier (2) of a magnetic disk storage device for digital data, which device comprises at least one rotating rigid magnetic disk (1) having a surface over which the magnetic head unit is moved for the storage and/or reproduction of the data in closely spaced tracks, and a bearing arrangement (29) which comprises bearing parts (31a, b; 32a, b) respectively connected to the movable carrier (2) and to a stationary frame (30) of the magnetic disk storage device, for accurately guiding the movements of the carrier (2) relative to the frame (30) and thereby guiding the movements of the magnetic head unit (6) over said surface of said magnetic disk (1) in an accurately defined plane, characterized in that the method comprises the following steps in the specified order:

- manufacturing a fixing part (9) for the magnetic head unit (6), the part being provided with locating faces, recesses, projections and openings for subsequent positioning and fixing of the magnetic head unit;
- arranging said carrying arm (3) and the fixing part (9) on a mounting aid (53) provided with first means (45) for positioning the carrying arm (3) relative to the mounting aid and second means (46, 47) for positioning the fixing part (9) relative to the mounting aid, the carrying arm 3 and the fixing part (9) assuming a relative position on the mounting aid (53) which is within the required positional tolerances of the finished product, but leaving a certain space between the fixing part (9) and the carrying arm (3);
- filling said space, at least partly, with a bonding agent in liquid form, such as an adhesive or solder;
- allowing the bonding agent to cure; thereby securing said fixing part and said carrying arm in said relative position determined in step b, and
- securing the magnetic head unit to the fixing part.

4,391,036

PROCESS FOR PRODUCING SEALED LEAD-ACID BATTERY

Kenjiro Kishimoto, Hideaki Igarashi, and Migaki Kono, all of Osaka, Japan, assignors to Yuasa Battery Company Limited, Takatsuki, Japan

Filed Jul. 31, 1981, Ser. No. 288,791

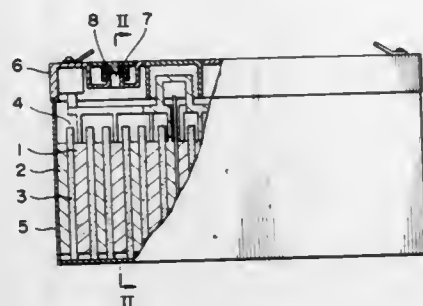
Int. Cl.³ H01M 10/04

U.S. Cl. 29—623.2

8 Claims

1. A process for producing a sealed lead-acid battery comprising the steps of positioning a plate group in a container, the plate group being formed of positive and negative plates with separa-

tors therebetween, the separators being formed mostly of glass fibers having diameters of not more than 1.0 micron, arranging a viscosity-increasing agent in the peripheral part of the plate group, pouring a first sulfuric acid electrolyte into the container in an amount which is less than the total pore volume of the plate group, and



pouring a second sulfuric acid electrolyte into the container in an amount such that the total amount of poured electrolyte is at least equal to the total pore volume of the plate group, and sealing the container to form the sealed lead-acid battery.

4,391,037

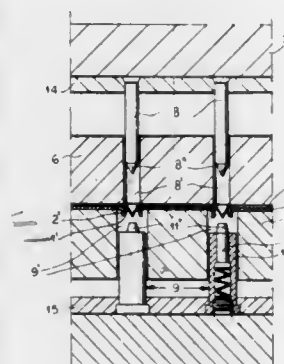
APPARATUS FOR JOINING THIN METAL STRIPS END-TO-END

Giovanni Giasini, Via Vespucci 24, Grassobbio, Bergamo, Italy
Filed Nov. 14, 1980, Ser. No. 207,079

Claims priority, application Italy, Nov. 16, 1979, 27349 A/79
Int. Cl.³ B23P 21/00; B23Q 15/00

U.S. Cl. 29—716

8 Claims



1. An apparatus for joining thin metal strips end-to-end, comprising:

- clamping means for relatively immobilizing two metal strips with extremities thereof overlapping but accessible from opposite sides;
- a plurality of four-sided-cross-section piercing tools on the side of one of said strips operable to form as many throughgoing perforations with two pairs of parallel sides in said overlapping extremities, with punched-out metal from both strips extending through each perforation to form a double burr projecting through the other strip, each of said tools having a tip substantially in the form of a four-sided pyramid with outlines conforming to said perforations adapted to split said double burr into four separate double tabs of substantially triangular shape;
- a support having a plurality of openings aligned with said piercing tools; and
- a plurality of pushers on the side of said other strip disposed opposite said tools and operable to spread said double tabs and flatten same against the perforated extremity of said other strip.

4,391,038 METHODS AND APPARATUS FOR PREPARING THE TERMINATED END OF FLAT CABLE FOR CONNECTORIZATION

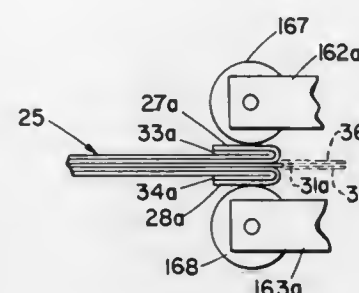
Richard A. Greene, Pickerington, and Robert P. Kennedy, Columbus, both of Ohio, assignors to Western Electric Company, Inc., New York, N.Y.

Filed Jan. 4, 1982, Ser. No. 336,981

Int. Cl.³ H05K 3/00; B23P 23/00

U.S. Cl. 29—829

26 Claims



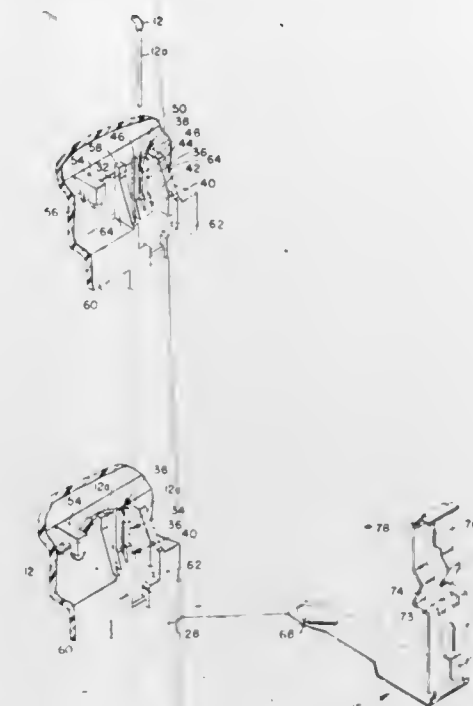
1. A method of forming the terminated end of a flat cable of indefinite length with fold-back portions so as to facilitate the subsequent connectorization thereof, wherein the cable is of the type having two overlying/underlying arrays of laterally disposed conductors separated by a resilient insulative center film, with each array being secured directly to only the respectively adjacent one of two mutually disposed outer insulative films, and wherein the cable, as fabricated, further includes an aligned pair of insulative isolating members respectively positioned on opposite sides of, and extending transversely across, the center film at each predetermined terminated end of the cable, said isolating members being of a material that will not adhere to the associated array of conductors and outer film, said method including the steps of:

- confining at least an end region of the flat cable such that only an end portion thereof of predetermined length is exposed;
- applying a first force against the major surface of one outer film end section, in a first direction, to effect a sharp, retainable bend, at a predetermined angle, in both the other outer film end section, and the coextensive array of conductor end portions secured thereto;
- releasing the first force from the one outer film end section so as to allow the center film end portion and the opposite side isolating members positioned thereon, to snap back to at least approximately their original positions as a result of the selective inherent resiliency thereof, thereby, also forcing the one outer film end section, and the coextensive array of conductor end portions secured thereto, back to at least approximately their original positions;
- applying a second force against the major surface of the then one exposed isolating member previously positioned adjacent the other then bent-out outer film end section, in a second direction, to effect a sharp, retainable bond, at a predetermined angle, in both the one outer film end section, and the array of conductor end portions secured thereto;
- releasing the second force from the one exposed isolating member so as to allow the center film end portion and the one and other side isolating members positioned thereon, to snap back to at least approximately their original positions as a result of the selective inherent resiliency thereof, and
- applying a force against each of said bent-out outer film end sections, on the conductor-secured side thereof, and in a direction to effect the sharp fold-back thereof against the adjacent portion of the associated outer film that remains a part of the fabricated cable and, thereby, position the associated array of conductor end portions in the plane of the cable to facilitate the subsequent connectorization thereof.

15. An apparatus for forming the terminated end of a flat cable of indefinite length with fold-back portions so as to facilitate the subsequent connectorization thereof, wherein the cable is of the type having two overlying/underlying arrays of laterally disposed conductors separated by a resilient insulative center film, with each array being secured directly to only the respectively adjacent one of two mutually disposed outer insulative films, and wherein the cable, as fabricated, further includes an aligned pair of resilient insulative isolating members respectively positioned on opposite sides of, and extending transversely across, the center film at each predetermined terminated end of the cable, said isolating members being of a material that will not adhere to the associated array of conductors and outer film, said apparatus including:

- positioning means including upper and lower channel-forming means for confining and controllably transporting a cable back and forth between first and second work stations, while an exposed end section of such a confined cable, of predetermined length, extends beyond two laterally disposed face portions of said upper and lower channel-forming means at the upstream end thereof;
- flare-out die means including a reciprocally driven die member located at said second work station, said die member having a laterally disposed cable end-receiving notch formed therein and a specially contoured outer cable wiping surface profile, said die member, in response to being reciprocally displaced in a direction perpendicular to the initial plane of an exposed end of a channel-confined cable, while being brought into periodic wiping contact therewith, cooperating with the forward face portions of said upper and lower channel-forming means to sequentially effect the bending of the two exposed end sections of the outer films, together with the coextensive arrays of conductor end portions respectively secured thereto, at sharp predetermined angles, and in different directions, relative to the initially coextensive center film end portion, and associated isolating members, which are also momentarily sequentially bent, in said different directions, but each time allowed to snap back to at least their approximate original positions, one time because of the presence of said die member notch, and
- reciprocally driven fold-back means located at said first work station for sharply folding back each previously outwardly bent outer film end section of a channel-confined cable, together with the array of exposed conductor end portions secured thereto, firmly against the adjacent portion of the outer film still remaining as part of the fabricated cable so as to facilitate the subsequent connectorization of the cable.

test energy with said retained conductive end portions of said wire leads; and



assembling leaf-like battery contacts on said support member to be electrically joined with said wire lead conductive end portions after said pretesting step.

4,391,040

HAIR CUTTING DEVICE

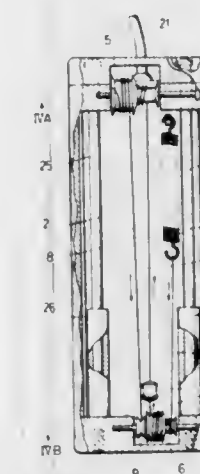
Yukio Kanazawa, No. 880 Sekishi-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Oct. 8, 1981, Ser. No. 309,817

Int. Cl.³ B26B 19/20, 19/44

U.S. Cl. 30—201

15 Claims



1. A hair cutting device comprising a unit consisting of a casing having an open end surface and an electrically operated clipper having fixed cutting blade end surface arranged adjacent the open end surface of the casing when in a home position so that both end surfaces may be in the same plane, guide means supporting the clipper for guided controlled movement in the casing, a first rotary drum mounted in the casing, a first thread mounted on the first drum and having one end connected to a connector fixable to a fixedly positioned external object, power transmitting means connecting the rotary drum with the clipper to operatively effect displacement of the clipper from the home position relative to the casing in response to rotation of the rotary drum so that rotation of the rotary drum causes the relative position of the clipper with respect to the casing to vary in response to the spacing of the unit from the fixedly positioned external object, and resilient means connecting the casing with the clipper for urging the clipper toward said home position.

4,391,039

ELECTRIC WIRE TERMINAL CONNECTING METHOD Jonathan I. Kaplan, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 67,029, Aug. 16, 1979, Pat. No. 4,281,886.
This application Jul. 22, 1981, Ser. No. 287,766

Int. Cl.³ H01R 43/00

U.S. Cl. 29—884

1 Claim

1. The method of assembling a photographic camera having an internal support member on which functioning electrical components are mounted to provide a functioning module for subsequent completion and assembly in an exterior housing, said method comprising the steps of:

- assembling wire leads on said module for connection of components with a source of electrical energy;
- fixing a conductive end portion of said wire leads to a non-conductive bracket formation;
- pretesting said module by connecting a source of electrical

4,391,041

POWERED GROUND CARE IMPLEMENT

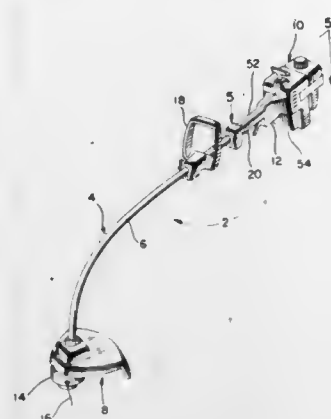
David E. Porter-Bennett, Willmar, Minn., assignor to The Toro Company, Minneapolis, Minn.

Filed Apr. 20, 1981, Ser. No. 255,571

Int. Cl.³ A01D 50/00

U.S. Cl. 30—296 R

14 Claims



1. A powered ground care implement, which comprises:

- (a) active means for performing a grooming or working action on the ground or ground growing vegetation;
- (b) an elongated upwardly extending handle assembly having a lower end on which the active means is carried, the handle assembly being sufficiently long so that a standing operator can hold the handle assembly while positioning the active means closely adjacent to or in contact with the ground;
- (c) engine means for driving the active means, wherein the engine means has a crankshaft configured to cause engine vibration substantially more in a first direction than in other directions; and
- (d) means for mounting the engine means on the handle assembly, wherein the mounting means includes means for vibrationally isolating the engine means from the handle assembly to help an operator hold the handle assembly when the engine means is operating, wherein the mounting means has means for damping out vibration primarily in the first direction, and wherein the mounting means comprises:
 - (i) a backing plate fixedly secured to the engine means;
 - (ii) an engine housing fixedly secured to the handle assembly for receiving the backing plate;
 - (iii) flexible means for mounting the backing plate in the engine housing so that vibration of the engine means is not transmitted to the housing.

4,391,042

CUTTING APPARATUS FOR CUTTING A NON-CIRCULAR OPENING

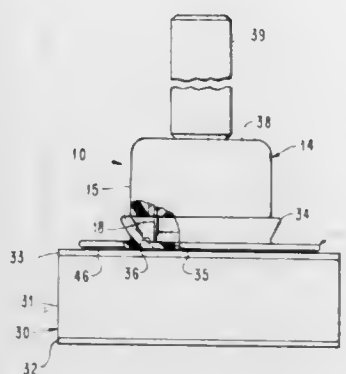
Ned E. Sunderland, 209 Melbourne Way, Lexington, Ky. 40503

Filed Jun. 18, 1981, Ser. No. 274,748

Int. Cl.³ B26B 27/00

U.S. Cl. 30—316

19 Claims



1. A cutting apparatus for cutting a non-circular opening in

a face plate for a non-circular stoma in which the face plate has an annular flange to support a bag of an ostomy appliance including:

- a body having a single recess in one surface thereof, said recess having a single continuous peripheral wall;
- a non-circular cutting element disposed within said recess and extending a selected distance beyond said one surface of said body;
- said body having a circular periphery to center said body relative to an annular flange of a face plate in which a non-circular opening is to be cut by said non-circular cutting element;
- said recess in said body having a non-circular shape substantially the same shape as said non-circular cutting element;
- said non-circular cutting element having a selected non-circular shape in accordance with the shape of the non-circular stoma with which the face plate is to be used;
- said non-circular cutting element having its outer surface straight and its inner surface beveled at its outer end to form the cutting surface of said non-circular cutting element;
- and retaining means to permanently retain said non-circular cutting element in its desired position within said recess.

4,391,043

KNIFE WITH REMOVABLE BLADES

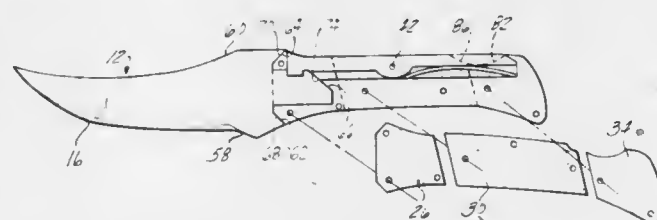
Howard Sizemore, 26384 Couzens Rd., Madison Heights, Mich. 48071, and Robert Bruner, 1730 Peavey Rd., Howell, Mich. 48843

Filed Oct. 26, 1981, Ser. No. 314,589

Int. Cl.³ B26B 1/00

U.S. Cl. 30—330

9 Claims



1. A knife comprising:

- an elongated blade comprising a cutting end having a sharpened edge extending along at least one side and a tang formed with sides extending generally away from said cutting end, and also having a recess extending into one side thereof, said tang formed at the end thereof remote from said blade cutting end with an angled surface;
- said blade including a pair of inwardly and forwardly angled shoulders on either side of said tang;
- a handle including grip portions and a socket at a forward end adapted to slidably receive said tang, said socket including a fixed angled surface aligned with said tang and adapted to mate with said tang angled surface upon full insertion of said tang in said handle socket;
- and also including a pair of angled shoulders on said forward end of said handle adjacent said socket, and configured to be brought into mating engagement with said angled shoulders on said blade with said tang fully inserted in said socket;
- an elongated locking plate and a pivotal mount pivotally mounting said locking plate to said handle at a point intermediate the length of the locking plate to allow limited pivoting motion between locking and releasing positions;
- said locking plate including a forward locking end and a rear-end, said locking end on a side adjacent to said socket, and formed with a locking tab configured to be moved downward into mating relationship with said recess in said tang, with said tang fully inserted in said socket;
- spring bias means urging said locking plate to said locked position;

whereby said blade may be released by pivoting said locking plate rear-end to release position against the resistance of said spring bias means.

4,391,044

METROLOGY INSTRUMENT FOR MEASURING VERTICAL PROFILES OF INTEGRATED CIRCUITS AND THE LIKE

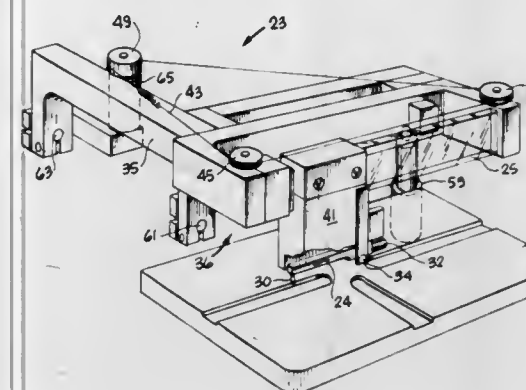
William R. Wheeler, Saratoga, Calif., assignor to Tencor Instruments, Mountain View, Calif.

Filed Sep. 28, 1981, Ser. No. 305,986

Int. Cl.³ G01B 7/28

U.S. Cl. 33—174 P

7 Claims



- 2. A tilt compensated stylus scanner comprising, an elongated beam suspended in a frame, the beam supporting a housing movable along the beam,
- a stylus mounted on a lower portion of said housing for contact with a generally flat article to be scanned linearly in the direction of said beam,
- a transducer connected to said stylus for generating an electrical signal representing a step height profile of said generally flat article,
- a bracket having spaced apart extensions with aligned pivots defining an axis for tilt compensation of the beam to be scanned relative to the article to be scanned, the tilt axis being perpendicular to said elongated beam, said bracket supported from a base at said pivots and having said frame mounted thereto,
- force means communicating with said bracket for compensating undesired tilt of the beam, and
- drive motor means for moving said movable housing on the beam.

4,391,045

DRAWING INSTRUMENT OR APPARATUS

Denys Fisher, Kirkconnel Lea, Glencaple, Dumfries DG1 4RG, Scotland

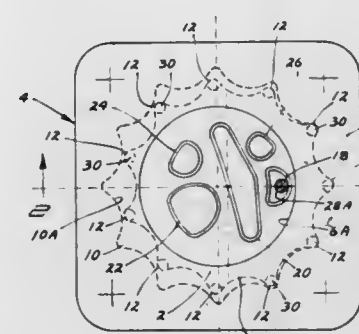
Filed Mar. 16, 1981, Ser. No. 244,506

Claims priority, application United Kingdom, Mar. 18, 1980, 8009084; Sep. 19, 1980, 8029079

Int. Cl.³ B43L 11/00

U.S. Cl. 33—27 L

11 Claims



1. A self-indexing design drawing apparatus comprising a

first member having a first substantially circular multi-lobed cam-shaped surface formed with a first number of identical angularly spaced outwardly projecting lobes, a second member having a second substantially circular multi-lobed cam-shaped surface formed with a second number of identical angularly spaced inwardly projecting lobes having notches therebetween, said first number being one less than said second number and the size and shape of said first lobes being correlated with the size and shape of said notches so that said first lobes engage and interfit in said notches between said second lobes, means for joining said first and second members together so that contact can be produced between successive portions of said cam-shaped surfaces, said first and second members being movable relative to each other, the size of said surfaces with respect to each other being such that when one of said lobes on said first member is fully received or engaged in one notch between two adjacent lobes on said second member there is a slight clearance between the lobe on said first member located substantially opposite said one lobe, said slight clearance being less than the distance said first lobes project from said first member and only sufficient to permit angular movement of said opposite lobe relative to the nearest lobe on said second member while said one lobe is fully received or engaged in said one notch between said two adjacent lobes on said second member, said first member having at least one shaped opening therein, whereby a design can be formed on a surface by tracing the opening shape in said first member with a writing instrument by engaging the edge of said opening and moving said instrument within said opening in one direction while engaging said edge, said first member having indexed one part of one revolution in an opposite direction with respect to said second member each time that the opening in the first member is traced.

4,391,046

SOLAR HEATED GRAIN DRYING SYSTEM

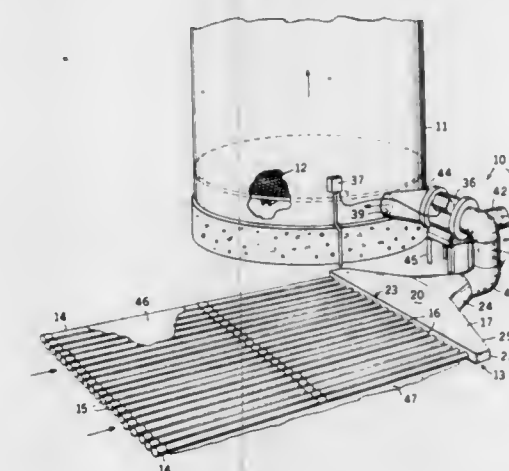
Roy Pietraschke, Rte. #1, Box 194, Cuba, Mo. 65453

Continuation of Ser. No. 40,942, May 21, 1979, abandoned. This application Jun. 25, 1981, Ser. No. 277,228

Int. Cl.³ F26B 3/06, 3/28

U.S. Cl. 34—93

4 Claims



1. A method of utilizing straight cylindrical irrigation line pipes for a solar collector system for drying grain, comprising the steps of:

- (a) dismantling the irrigation pipe line after the irrigation season to provide a plurality of pipe lengths,
- (b) arranging the pipe lengths separately in side-by-side relation to receive solar heat,
- (c) removably connecting one end of the pipe lengths to a manifold leaving the other end open,
- (d) drawing air through the pipes and the manifold,
- (e) directing warmed air from the manifold into a grain storage bin, and
- (f) dismantling the solar collector system to utilize the pipes for irrigation during the irrigation season.

4,391,047

HAND-HELD HAIR DRYER

Wilhelmus G. E. Janssens, Drachten, Netherlands, and Heinz Merges, Cologne, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

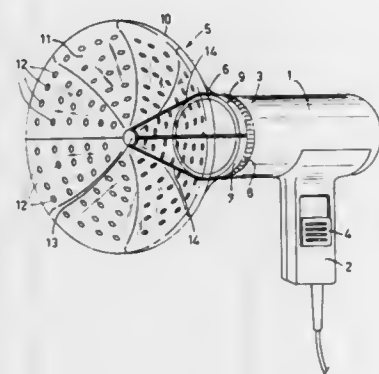
Filed Mar. 17, 1980, Ser. No. 130,945

Claims priority, application Netherlands, Mar. 20, 1979, 7902158

Int. Cl.³ F26B 19/00

U.S. Cl. 34-97

5 Claims



1. An attachment formed of a substantially flexible material for use with a hair dryer having an air discharge nozzle, said attachment being expandable in use from a collapsed position to an expanded shape, which comprises an imperforate funnel-shaped wall portion open at both ends; means to connect the small end of said funnel-shaped wall portion to the air discharge nozzle; an outer end wall extending across the larger end of said funnel-shaped wall portion and being connected thereto, said outer end wall being provided with a plurality of outlet openings; and a plurality of flexible strips situated within the funnel-shaped wall portion and connecting the central portion of the outer end wall to the small end of the funnel-shaped wall portion, said flexible strips serving to maintain the outer end wall in its expanded shape during use.

4,391,048

ELASTIC SOLE FOR A SHOE INCORPORATING A SPRING MEMBER

Dieter Lutz, Schweinfurt, Fed. Rep. of Germany, assignor to Sachs-Systemtechnik GmbH, Schweinfurt, Fed. Rep. of Germany

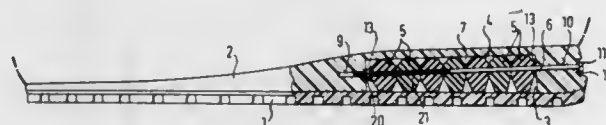
Filed Dec. 16, 1980, Ser. No. 217,037

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951572

Int. Cl.³ A43B 13/18, 21/26

U.S. Cl. 36-28

30 Claims



1. A shoe, particularly for use as a sport shoe, comprising an elastic sole, at least one chamber located in said sole, and a spring member formed of an elastomer material located within said chamber, wherein the improvement comprises at least one elongated tension rod located in and extending through said chamber and disposed generally parallel to said sole, at least two abutments spaced apart in the elongated direction of said tension rod, said spring member is located between said abutments, said spring members slidably displaceable within said chamber, and an adjusting device positioned on said tension rod and operable from the exterior of said sole for varying the distance between said abutments in the elongated direction of said tension rod for adjusting said spring member.

4,391,049

COVERING ELEMENT OR TONGUE FOR ROCK-CLIMBING AND SIMILAR SPORT BOOTS

Francesco Parisotto, Asolo, Italy, assignor to CALZATURIFICIO S.C.A.R.P.A. S.n.c. di Parisotto Francesco & C., Italy

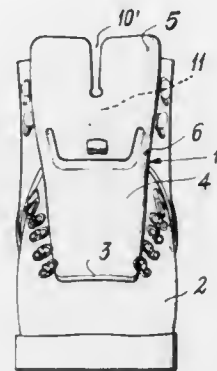
Filed Jan. 30, 1981, Ser. No. 229,949

Claims priority, application Italy, Feb. 12, 1980, 20768/80[U]

Int. Cl.³ A43B 5/04, 23/26

U.S. Cl. 36-114

5 Claims



1. A covering element or tongue for rock-climbing and similar sport boots, comprising:

a single, shaped laminar element divided into first and second parts, one end of one part being connected to an opposite end of the other part by hinge means formed by a partly notched intermediate zone of the covering element, and wherein one end region of one part overlies and is superimposed over an end region of the other part so that said one end of one part is relatively slidable or longitudinally moveable with respect to said opposite end of the other part, whereby an improved flexibility is imparted to the covering element.

4,391,050

TOOTH ASSEMBLY

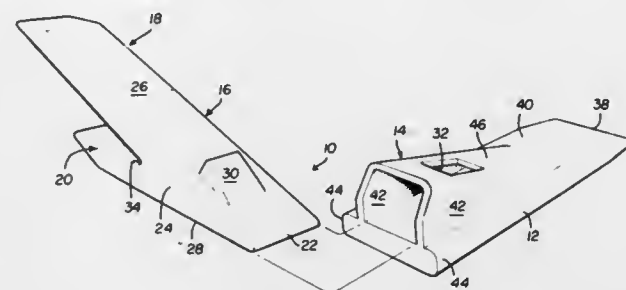
Wayne G. Smith, and Herman J. Maurer, both of Burlington, Iowa, assignors to J. I. Case Company, Racine, Wis.

Filed May 1, 1981, Ser. No. 259,347

Int. Cl.³ E02F 9/28

U.S. Cl. 37-142 A

1 Claim



1. A digging tooth assembly comprising:

an elongated generally rectangular digging tooth of hard wear-resisting material having substantially parallel top and bottom surfaces and opposed side surfaces, said digging tooth being substantially rectangular in transverse cross-section and tapered to a horizontal cutting edge at one end;

a generally V-shaped support shank including top and bottom spaced apart portions which converge at one end to form a tip portion for the shank, said shank including flat top and bottom surfaces which converge to said tip portion, said top and bottom portions of said shank forming an undercut adaptable for mounting said shank on the cutting edge of an excavating machine;

a resilient housing mounted to the top surface of said digging tooth, said housing having an open end and including opposed side walls which intersect the top surface of said digging tooth inwardly of the opposed side surfaces of

said digging tooth, and said housing being mounted over the tip portion of said shank, said housing being substantially U-shaped in transverse cross-section having a top wall extending between and connecting said side walls, said side walls being flat and substantially parallel to lie closely against the tip portion of said shank and said side walls being substantially triangular in side elevation and including upper edges sloping downwardly and forwardly to engage against said tip portion of said shank; retaining means for releasably securing said digging tooth to said shank, said retaining means including a wedge-shaped projection mounted on the top surface of said shank, said projection being inclined relative to said shank top surface, said projection being received for locking engagement within an opening formed through the top wall of said housing for mounting said digging tooth to said shank, and said digging tooth being held on said shank tip portion by the locking coaction between said projection and said opening and the resiliency of said housing; and said top surface of said digging tooth abutting only against the flat bottom surface of said shank and said bottom surface of said digging tooth being spaced downwardly from the bottom surface of said shank with the top and bottom surfaces of said digging tooth being generally parallel to the bottom surface of said shank such that the impact force against said tooth is transmitted through said resilient housing to said support shank, and wherein the longitudinal axis of said support shank being on a vertical plane that is perpendicular to the horizontal digging tooth cutting edge, and the digging tooth cutting edge providing a horizontal cutting action during excavation whereas said supporting shank providing a subsequent vertical cutting action.

4,391,051

MACHINE ARRANGEMENT FOR FORMING TRACKS AND/OR LEVELLING SURFACES RELATED TO CROSS-COUNTRY SKI TRAILS OR DOWNHILL SKI SLOPES

Anton R. Bächler, Seeburgstrasse 10, 6006 Luzern, Switzerland

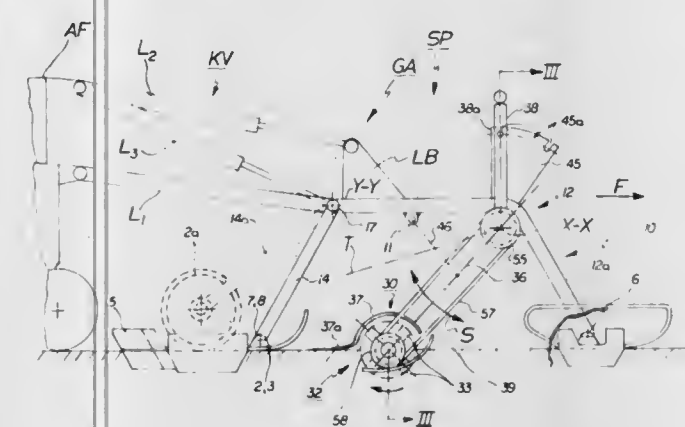
Filed Jun. 29, 1981, Ser. No. 278,695

Claims priority, application Switzerland, Jul. 4, 1980, 5149/80

Int. Cl.³ E01H 4/00; E01C 19/41

U.S. Cl. 37-223

17 Claims



1. Apparatus for treating a snow cover of varying height to make tracks for ski trails and/or to level surfaces for ski slopes and adapted to be attached to and positioned in front of a driving vehicle, comprising a frame, at least one front support, at least one rear support, said front and rear supports being adapted to contact the snow cover and support the apparatus thereon, pivot means for connecting said front and rear supports to said frame, cutting means connected to said frame between said front and rear supports for treating the snow cover, and coupling means for attaching said frame to the driving vehicle, said coupling means being responsive to the height of the snow cover relative to the driving vehicle whereby said frame and thereby said cutting means may move

vertically relative to the driving vehicle to adjust their vertical position to the height of the snow cover.

4,391,052

SNOW BLOWER

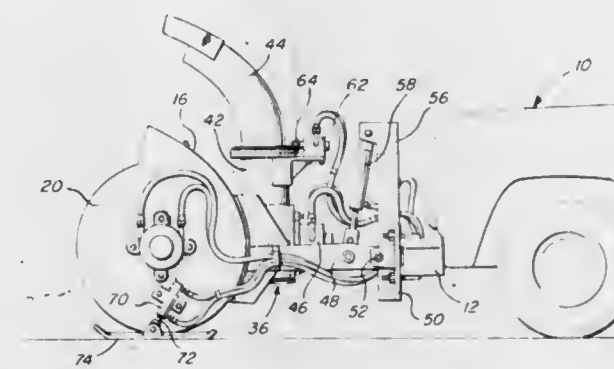
Burlin A. Guy, Jr., P.O. Box 83, Caroga Lake, N.Y. 12032

Filed Dec. 23, 1981, Ser. No. 333,727

Int. Cl.³ E01H 5/04, 5/09

U.S. Cl. 37-236

7 Claims



1. A snow blower assembly including a horizontally elongated and laterally opening shroud having one open longitudinal front side and one closed longitudinal rear side as well as opposite end mounting structures at least substantially closing the opposite ends of said shroud, a pair of spiral bladed rotary conveyor members journaled in the opposite end portions of said shroud for simultaneous rotation about an axis extending longitudinally of said shroud, said closed side including a lateral outlet formed therein centrally intermediate said mounting structures and opening rearwardly outwardly of said shroud, a horizontal axial inlet and upwardly opening tangential outlet blower assembly supported relative to said closed side of said shroud and including a rotary impeller registered with said lateral outlet, first and second fluid motors drivingly coupled to said rotary conveyor members and said rotary impeller, each of said first and second fluid motors being of the variable speed type, a pair of opposite end laterally extending horizontal skids carried by opposite ends of said shroud and projecting slightly below the lower periphery of said shroud, rearwardly projecting arm means carried by said shroud, a prime mover including front and rear ends, means pivotally supporting the rear ends of said arm means from said prime mover for angular displacement about a horizontal axis generally paralleling the first mentioned axis, first motor means operatively connected between said arm means and said prime mover for adjustably angularly displacing said arm means relative to said prime mover, said tangential outlet including a horizontally curving outlet head rotatably supported therefrom for rotation about an upstanding axis concentric with said tangential outlet, and second motor means operatively connected between said outlet head and said tangential outlet for adjustably angularly displacing said head relative to said tangential outlet, support means supporting said skids from said shroud for vertical adjustment relative thereto, said support means including fluid motor means for adjustably shifting said skids relative to said shroud.

4,391,053

VISOR PICTURE FRAME

Alfred Anthony, Westport, Conn., assignor to Yankee Metal Products, Inc., Norwalk, Conn.

Filed Jun. 1, 1981, Ser. No. 268,773

Int. Cl.³ A47G 1/06; G09F 1/12; B60J 3/00

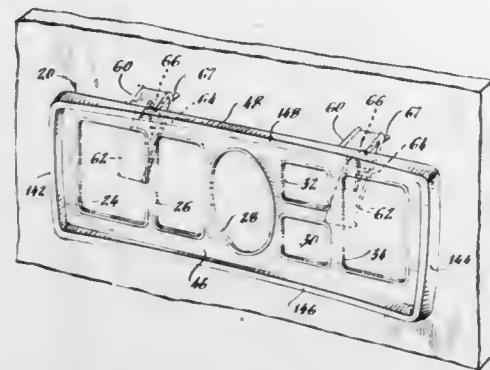
U.S. Cl. 40-152

13 Claims

1. For displaying a plurality of pictures, a frame assembly adapted to be detachably secured to the sun visor of an automotive vehicle or the like comprising:

a rigid frame member including a top, a bottom and a pair of side edges joining said top and bottom edges;

a front panel affixed to said frame member, said panel having a plurality of viewing openings therein;
a backing plate removably mounted within said frame member behind said front panel adapted to removably receive a plurality of pictures thereon behind said viewing openings in said front panel; and
at least one resilient clip integrally attached to said frame



member and overlying the rear surface of said backing plate for mounting said assembly to another supporting surface, said clip including a substantially planar top portion extending rearwardly from and coplanar to the top edge of said frame member and a bottom portion extending downwardly from said top portion having a pair of generally parallel spaced edges for contacting said supporting surface in gripping relation thereto.

4,391,054

METHOD, APPARATUS AND ARTICLE FOR FORMING A PICTURE FRAME

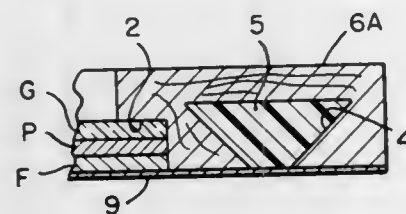
John R. Schovee, 10 Burr Oak Dr., Pittsford, N.Y. 14534

Filed Oct. 3, 1980, Ser. No. 193,809

Int. Cl.³ A47G 1/06; B32B 31/18

U.S. Cl. 40-154

31 Claims



1. In a method of making frames from a plurality of frame sections comprising:

- (a) providing a length of frame section;
- (b) forming a groove in a surface of said length of frame section and inserting a fusible strip into said groove;
- (c) cutting said molding across said fusible strip into a plurality of sections that mate together at corners to form a frame;
- (d) abutting said sections at said corners of the frame; and
- (e) fusing the abutting ends of said fusible strip together at said corners, whereby said sections of molding are held together to form a frame.

4,391,055

AMMUNITION MAGAZINE

Azriel Kadim, Tel Aviv, Israel, assignor to Orlite Engineering Ltd., Nes Ziona, Israel

Filed Jul. 18, 1980, Ser. No. 170,087

Int. Cl.³ F41C 25/02

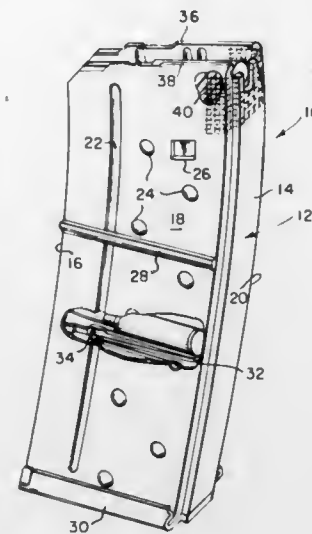
U.S. Cl. 42-50

5 Claims

1. An ammunition magazine formed of plastic and comprising:

- a housing defining a pair of side walls and front and rear

edge walls joining said pair of side walls, said housing defining an opening;
a bullet support plate located in said housing;
a spring disposed in said housing and underneath said support plate for urging bullets towards said opening, said opening being configured to provide means for retention of bullets located in said housing; and



reinforcing means in the form of a reinforcing web moulded into said housing and spanning said rear edge wall and parts of said pair of side walls adjacent thereto in a region adjacent said opening for preventing fracture of said housing upon impact.

4,391,056

RETAINING MEANS FOR REVOLVER CYLINDERS

Jose C. M. Bornancini, Porto Alegre, Brazil, assignor to Forjas Taurus S/A, Porto Alegre, Brazil

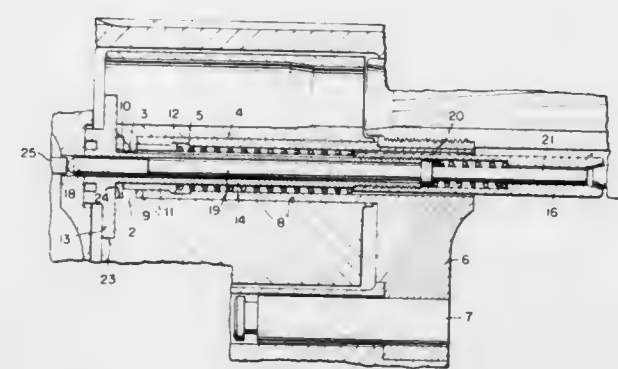
Filed Dec. 23, 1980, Ser. No. 219,433

Claims priority, application Brazil, Dec. 27, 1979, 7908530

Int. Cl.³ F41C 1/00

U.S. Cl. 42-62

5 Claims



1. In a firearm including a frame, a hammer mounted in the frame, a barrel, a cylinder opening between said hammer and said barrel, a bore in the wall of the cylinder opening beneath said hammer, a cylinder rotatably mounted in said opening and tiltably movable out of said opening for the loading and extraction of cartridges therefrom, said cylinder having a centrally disposed bore, a hollow cylinder axle telescopically fitted within said cylinder bore, a cartridge extraction mechanism, said mechanism including an extractor rod having an inner end and an outer end, a star shaped member at the outer end of said rod, the improvement comprising a resilient bushing fitted in that end of the cylinder bore adjacent said hammer, said end of the cylinder bore having a recess therein, said recess being of lesser diameter than the diameter of the remainder of the bore, a projection extending into said recess, means on said bushing cooperating with said projection to fix said bushing against rotation, retaining means on the inner wall of said cylinder axle, retaining means on the outer wall of said bushing, whereby when said cylinder axle is moved axially in said cylin-

der bore from the barrel end of said frame toward said hammer, said cylinder axle retaining means and said bushing retaining means engage with each other and connect the bushing to said cylinder axle.

4,391,057

ACTUATOR SYSTEM FOR THE RETURN OF THE TRIGGER IN DOUBLE-ACTION REVOLVERS

Jose C. M. Bornancini, Porto Alegre, Brazil, assignor to Forjas Taurus S/A, Porto Alegre, Brazil

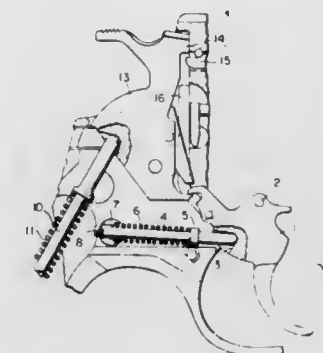
Filed Dec. 23, 1980, Ser. No. 219,432

Claims priority, application Brazil, Dec. 27, 1979, 7908531[U]

Int. Cl.³ F41C 1/00, 19/00

U.S. Cl. 42-65

15 Claims



1. A trigger return actuator mechanism for a double-action revolver having a hammer and trigger pivotally supported within a frame, a hammer rod provided with a mainspring and engaging said hammer, said mechanism including an actuating rod provided with a forward end bearing against said trigger; an abutment member within said frame having a bore therethrough, said actuating rod having a rear end slidably disposed through said bore, said abutment member mounted within said frame for rotary displacement about a fixed transverse axis, and spring means biasing said actuating rod forward end away from said abutment member and toward said trigger.

4,391,058

TRIGGER AND FIRING MECHANISM FOR BOLT ACTION RIFLE

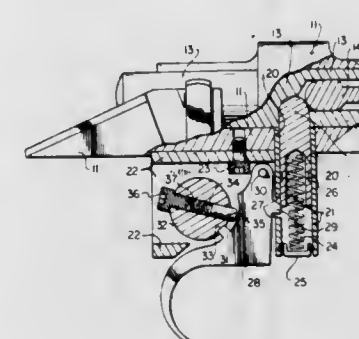
Richard J. Casull, P. O. Box 276, Freedom, Wyo. 83120

Filed Jan. 12, 1981, Ser. No. 224,183

Int. Cl.³ F41C 19/00, 17/02

U.S. Cl. 42-69 A

5 Claims



1. In a bolt action type firearm, in which the barrel of the firearm is attached to a receiver and a bolt is received in a bore in the receiver, an improved firing mechanism comprising a longitudinal bore within the bolt extending from the head end of the bolt;
an elongate firing pin positioned in said longitudinal bore, with the forward end of the pin adapted to project from the forward end of the bolt to strike the end of a cartridge in the firing chamber of the firearm when the bolt is in its closed position, and with the rear end of the firing pin

positioned near the innermost end of the longitudinal bore in said bolt;

a cammed notch in the bolt extending inwardly from a longitudinal side of the bolt and intersecting the innermost end of the longitudinal bore in said bolt;

an opening in the receiver adapted to be in alignment with the cammed notch in the bolt when the bolt is in its closed position;

an elongate spring-biased puncher having a recess in its side surface, said puncher being adapted to move lengthwise within the opening from a cocked position in which the lead end of the puncher is substantially withdrawn from the cammed notch to a fired position in which the lead end of the puncher enters into the cammed notch in the bolt so as to strike the rear end of the firing pin, with said cammed surface on the cammed notch being adapted to push the puncher from the cammed notch in the bolt to the puncher's cocked position during movement of the bolt to extract a spent shell casing from the firearm;

trigger means having a sear pin thereon adapted to engage the recess in the spring-loaded puncher when the puncher is moved into its cocked position, whereby the puncher is retained in its cocked position until the trigger is pulled so as to move the sear pin from the recess in said puncher, whereupon the puncher moves into the cammed notch in the bolt and strikes the firing pin and the firing pin is, in turn, forced forward so as to strike the end of the cartridge in the firing chamber of the firearm.

4,391,059

AUTOMATIC FISH HOOK SETTER

Samuel Cordova, Denver, Colo., and Robert J. Spitz, 1548 S. Gray, Lakewood, Colo. 80226, assignors to Robert J. Spitz, Lakewood, Colo.

Filed Apr. 10, 1981, Ser. No. 253,065

Int. Cl.³ A01K 97/00

U.S. Cl. 43-15

4 Claims



1. In an automatic fishing device having a base for securing to a rigid structure, and a pivoted pole holding tube spring biased to an upright position, the improvement of:

- (a) latch/release means arranged to temporarily hold the pole holding tube in downwardly pivoted position,
- (b) said latch/release means including:

- (1) a plate generally centrally mounted for limited pivotal movement on the base and an upright latch plate mounted on said plate and having an aperture therein,
- (2) spring means biasing said plate toward a latching direction,

- (3) stop means limiting the biased pivotal movement of said plate in said latching direction,
- (4) a pin mounted on the pole holding tube positioned to mate with and be held in said aperture in said latch plate,
- (5) the top edge of said latch plate being beveled toward said pin so as to aid the latching of the pole holding tube, and
- (6) trigger means rigidly secured to said latch/release means and having a portion extending beyond said latch plate and generally aligned therewith, said portion extending beyond said latch plate including fish line holding means, whereby said latch/release means permits easy one hand latching of said pole holding tube in a down position under spring bias.

4,391,060

TOY ROBOT VEHICLE ASSEMBLY

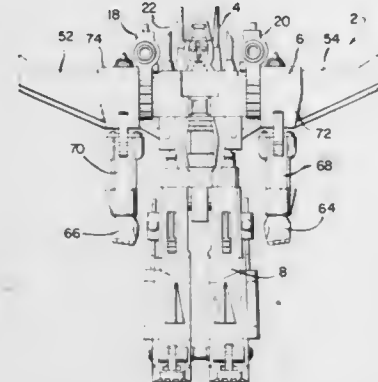
Shigeru Nakane, Yachiyo, Japan, assignor to Takara Co., Ltd., Osaka, Japan

Filed Aug. 21, 1981, Ser. No. 294,894

Int. Cl.³ A63H 33/00

U.S. Cl. 46—22

11 Claims



1. A toy assembly simulating a robot of humanoid form with removable members reconfigurable into separate toy vehicles comprising:

- a first member configured to simulate a robotic humanoid head and trunk;
- a second member removably attached to the first member and configured to simulate a pair of robotic humanoid arm appendages;
- a third member removably attached to the first member and configured to simulate a pair of robotic humanoid leg appendages;
- means on the first member for removable connection to the second and third members, and
- means for providing locomotion on each of the first, second and third members to permit each member to operate independently as separate vehicles.

4,391,061

MUSICAL TOY

A. Edward Fogarty, and Bonnie R. Fogarty, both of 3513 School Ave., Sarasota, Fla. 33579

Filed Dec. 22, 1981, Ser. No. 333,580

Int. Cl.³ A63H 29/16

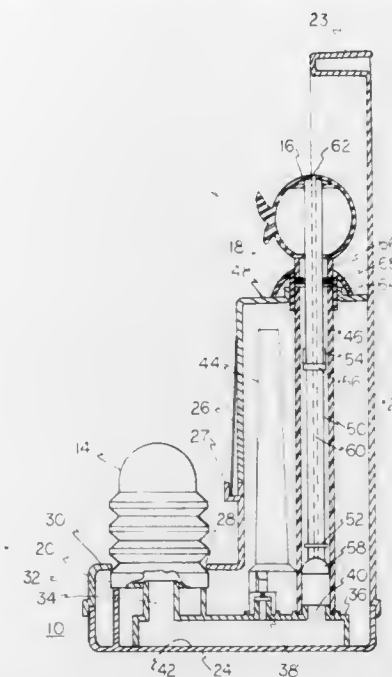
U.S. Cl. 46—44

3 Claims

1. A musical toy, comprising:
 - (a) a housing;
 - (b) a plurality of air manifolds positioned in the interior of said housing, each of said air manifolds having an inlet port, a first outlet port and a second outlet port;
 - (c) a plurality of bellows operatively positioned in openings through said housing, each of said bellows having its open end in fluid communication with said inlet port of one of said air manifolds;
 - (d) a plurality of whistles positioned in the interior of said housing, each of said whistles having one of its ends in

fluid communication with said first outlet port of one of said air manifolds;

- (e) a plurality of tubes positioned essentially vertically in the interior of said housing, each of said tubes having its lower end in fluid communication with said second outlet port of one of said air manifolds and its upper end extending out of an opening through said housing;
- (f) a plurality of pistons moveably positioned in said tubes,



each of said pistons having a flexible seal on its lower end, a lower flange, an upper flange, a centering ring resting on said upper flange and its upper end extending out of said upper end of one of said tubes;

- (g) means for limiting the distance of travel of said pistons; and
- (h) a plurality of moveable ornaments exterior to said housing, each of said moveable ornaments being connected to one of said pistons.

4,391,062

INFLATABLE ARTICLES

Sidney H. Magid, 4th Fl., No. 10, Alley 5, La. 12, Section 4, Jen Ai Rd., Taipei, Taiwan

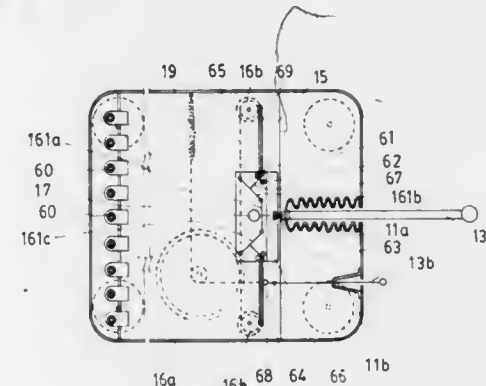
Filed Jun. 23, 1981, Ser. No. 276,513

Claims priority, application Taiwan, Jun. 1, 1981, 7011599

Int. Cl.³ A63H 3/06

U.S. Cl. 46—88

13 Claims



1. An inflatable article comprising:
 - an inflatable envelope made of a gas impervious material which is at least in part resilient and has at least one inflating valve provided thereon;
 - at least one flexible hollow protrusion attached to a wall of said envelope, said hollow protrusion having a closed end and an open end;
 - at least one external control element connected with the closed end of said hollow protrusion and extending out-

wardly from said hollow protrusion so that said protrusion can be flexed from a normally unflexed position by an external force, applied by a user, to activate said external control element;

an internal supporting element attached to the wall of said envelope;

an engaging member provided on said closed end of said hollow protrusion;

at least one movement imparting element capable of being selectively engaged and disengaged with the closed end of said hollow protrusion by means of said engaging member;

at least one internal movable object contained in said envelope, said movable object being movable by said movement imparting element;

one or more returning elements associated with said hollow protrusion for returning said hollow protrusion to its unflexed position after said external force is released.

4,391,063

BALLOON WITH SEALING DEVICE THEREFOR AND METHOD

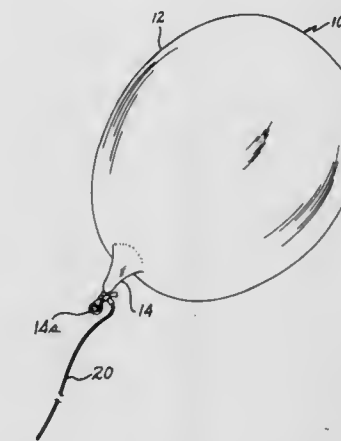
H. Ross Gill, III, Ashland, Ohio, assignor to The National Latex Products Co., Ashland, Ohio

Filed Jun. 22, 1981, Ser. No. 275,858

Int. Cl.³ A63H 3/06; B32B 15/14, 15/20; B65D 63/02

U.S. Cl. 46—90

10 Claims



1. A combined sealing device and flexible retainer line for a toy balloon, comprising a double wall thickness strip of deformable but self-sustaining foil with the retainer line being non-self-sustaining, as for example string, disposed intermediate the walls of said double wall thickness foil strip, and extending for substantially the full length of said strip as well as extending a predetermined amount of substantially greater length as compared to the length of said strip from an end of said strip, for providing for gripping of the line by the balloon user, said walls of said strip being secured to one another by an adhesive disposed between the same, said adhesive also securing said line to said strip walls intermediate thereof, the wall thickness of said foil being in the range of approximately 0.001 of an inch to 0.002 of an inch, said strip being readily wound or twisted about the neck of an inflated balloon by one's fingers and being self-sustaining in said wound or twisted condition for expeditiously sealing the balloon against the escape of pressure from within the balloon's interior while at the same time securely attaching the retainer line to the balloon, said combined sealing device and attached retainer line being readily removable from the balloon neck by unwinding or untwisting said strip.

5. In combination a toy balloon comprising an inflatable resilient body portion and a neck portion connected to said body portion, and a combined sealing device and flexible retainer line wound or twisted about the neck portion and carried thereby, said sealing device comprising a relatively thin deformable but self-sustaining strip of foil of double wall thickness with said flexible retainer line being non-self-sustaining, as for example string, attached to said strip intermediate the walls of said strip, said line extending for substantially the full length

of said strip as well as extending a predetermined amount of substantially greater length as compared to the length of said strip from an end of said strip, for providing for gripping of the line by the balloon user, said walls of said strip being secured to one another by an adhesive disposed between the same, with said adhesive also securing said line to said strip walls intermediate thereof, the wall thickness of each of said strip walls being in the range of approximately 0.001 of an inch to 0.002 of an inch, said strip encircling the exterior of said neck portion and being readily wound or twisted about the neck portion of the inflated balloon by one's fingers, and being self-sustaining in said wound or twisted condition and preventing the escape of air through said neck portion, while securing said flexible retainer line to said balloon, said combined sealing device and retainer line being readily removable from said balloon by unwinding or untwisting said strip from about said neck.

8. A method of forming a combined sealing device and flexible retainer line for a toy balloon comprising, providing a relatively thin deformable but self-sustaining elongated section of foil having on one side thereof a coating of adhesive, the wall thickness of said foil being in the range of approximately 0.001 of an inch to 0.002 of an inch, laying a non-self-sustaining retainer line such as a string or the like longitudinally of said foil section for substantially the full length of said section with the line extending a predetermined amount of substantially greater length as compared to the length of said section from an end of said section, and then folding said foil section upon itself to form an elongated foil strip of double wall thickness which clasps said retainer line therein, with said adhesive securing the double wall thickness of the foil together and to the intermediate retainer line, said strip being self-sustaining but being readily wound or twisted about the neck of an inflated toy balloon for expeditiously sealing the latter against the escape of pressure from within the balloon and at the same time being operable to securely attach the retainer line to the balloon, with said combined sealing device and attached retainer line being readily removable from the balloon by unwinding or untwisting the strip from about the neck of the balloon.

4,391,064

ACROBATIC TOY

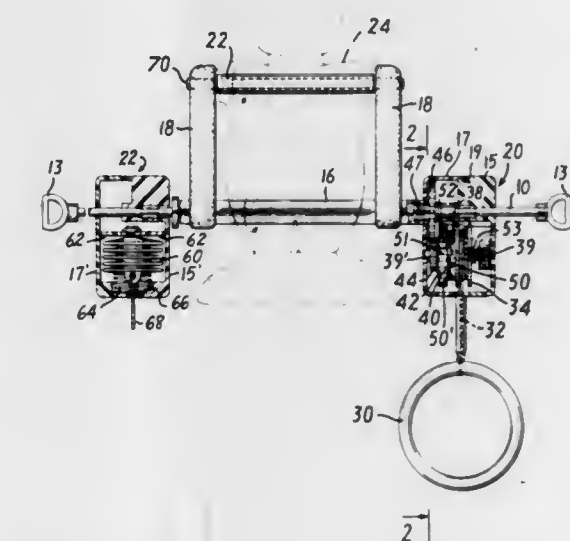
Willis M. Lakin, 7879 Northway Dr., Hanover Park, Ill. 60103; Faith L. Goodman, North Bergen, N.J., and Diane L. Savoca, Howard Beach, N.Y., assignors to Willis Lakin, Hanover Park, Ill.

Filed Dec. 29, 1980, Ser. No. 220,463

Int. Cl.³ A63H 13/12

U.S. Cl. 46—130

3 Claims



1. A toy comprising:
 - (a) supporting means comprising a cross bar and a pair of eyelets on the respective ends of said cross bar wherein a

- pair of spaced bearing sleeves is on and rotatable about said cross bar;
- (b) a hollow main shaft, disposed around, rotatably supported by said supporting means at spaced locations along said main shaft;
- (c) a figure suspended on said main shaft, wherein said figure comprises a body and a pair of arms, said pair of arms being fixedly attached at their respective one ends to said main shaft and pivotally mounted to said body at their respective other ends;
- (d) driving means for rotating said main shaft about its axis, said means comprising a cord wound about a reel, a ratchet gear means arranged between said reel and said main shaft, wherein the gears of said ratchet gear means positively engage for driving said main shaft when said cord is pulled and thereby unwound from the reel, and wherein said gears slip as the cord is rewound onto the reel so as not to drive said main shaft;
- (e) biasing means for rewinding the cord onto the reel;
- (f) means for suspending said supporting means and hence the toy from a crib or the like for providing counterforce to pulling action on said cord;
- (g) a first and second housing supported at spaced locations by said supporting means and means for attaching said housings to said cross bar, wherein said first housing comprises a gear housing for containing said driving means;
- (h) a drive shaft mounted in said gear housing, wherein said driving means is contained on said drive shaft, wherein said reel is rotatably mounted on said drive shaft and axially displaceable along said drive shaft, and wherein said driving means comprises a first ratchet gear on said reel, a second ratchet gear fixed on said drive shaft for cooperating with said first ratchet gear, a spring fixed at one end on said gear housing and at the other end to said reel for urging said first ratchet gear into engagement with said second ratchet gear, and an output gear fixed on one of said drive shaft and said second ratchet gear for driving said main shaft when said cord is pulled and said ratchet gears are in positive engagement;
- (i) a drive gear coupled with said main shaft for rotation therewith and engaging said output gear wherein one of said bearing sleeves forms a part of said driving gear; and
- (j) a pivot shaft extending through aligned holes in said other ends of said arms and said body for rotatably mounting said body to said arms.

4,391,065

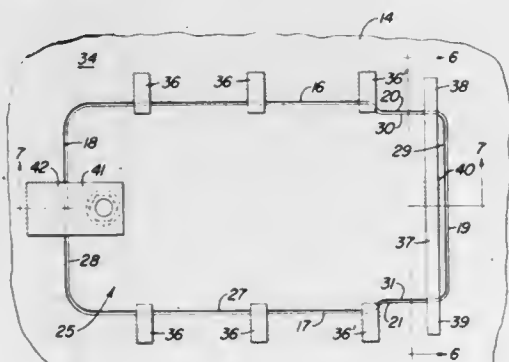
COVER PLATE FOR ACCESS OPENING

Dennis A. Rice, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jul. 27, 1981, Ser. No. 286,796
Int. Cl.³ E05C 21/02

U.S. Cl. 49-465

8 Claims



1. In combination, a plate structure forming part of a housing and having an access opening therein; a cover plate positioned in said opening having an enlarged portion closing the main part of the opening and a small portion contiguous with and extending from the enlarged portion closing a matching part of

the opening, said plate structure and said cover plate having internal and external surfaces extending from the respective edges of the opening and plate; a series of rigid stop elements fixed to the internal surface of the plate structure adjacent the edges of the opening and extending beyond the edges into said opening and engaging the internal surface of the cover plate so as to limit movement of the cover to a position in which the internal and external surfaces of the plate structure and cover are co-extensive at their edges, and in which two of the elements are on opposite sides of the opening in the areas where the edges forming said main part of the opening join the edges forming the aforesaid matching part of the opening; a rod fixed to the internal surface of and extending across the small portion of the cover plate and having opposite end sections that extend beyond the opposite edges of the small portion and engage the internal surface of the plate structure, said end sections being inclined in a direction toward the external surface and when in a free state, extending to ends beyond the internal surface; and means spaced from said rod and extending between the plate structure and cover plate for drawing the cover plate against the stop elements to thereby distort said rod end sections.

4,391,066

GRINDING MACHINE WITH DETECTION DEVICE FOR USEABLE LIMIT OR GRINDING WHEEL

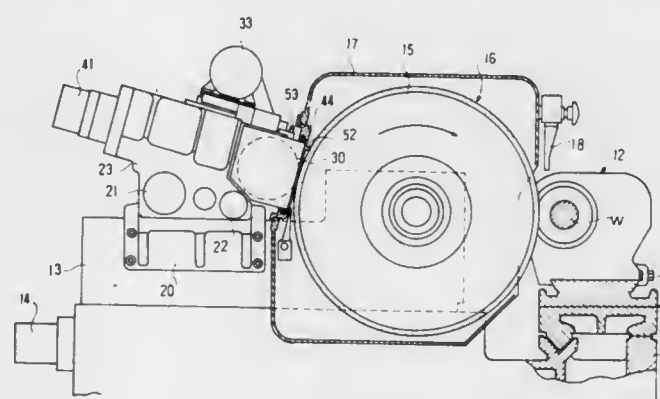
Kenichi Munekata; Kunihiro Unno, both of Kariya, and Norihiko Shimizu, Nagoya, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Jun. 15, 1981, Ser. No. 273,580

Claims priority, application Japan, Jun. 18, 1980, 55-82447
Int. Cl.³ B24B 49/18

U.S. Cl. 51-165.87

13 Claims



1. A grinding machine having a truing device of the type wherein a grinding wheel is trued by in-feeding a truing tool a predetermined truing in-feed amount against said grinding wheel at the time of each truing operation, comprising: truing tool wear detection means for detecting a total wear amount $\Sigma \Delta r$ of said truing tool after each truing operation, and arithmetic and judgement means coupled to said truing tool wear detection means for receiving said total wear amount $\Sigma \Delta r$ and for judging whether or not said grinding wheel has been worn down to a predetermined size limit R_{min} based upon at least said total wear amount $\Sigma \Delta r$.

4,391,067

LOG WALL CONSTRUCTION FOR LOG HOME

Dale A. Frady, and David C. Frady, both of Waynesville, N.C., assignors to Frontier Homes, Inc., Waynesville, N.C.

Filed Apr. 14, 1980, Ser. No. 140,240

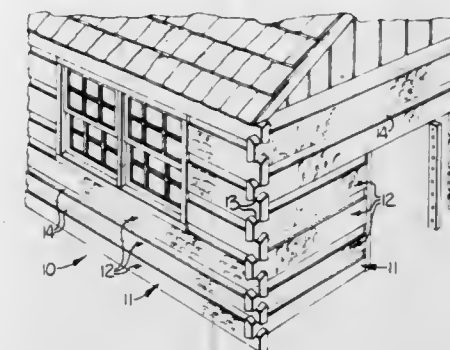
Int. Cl.³ E04B 1/10, 1/78

U.S. Cl. 52-97

24 Claims

1. A building wall comprising a plurality of logs arranged generally parallel, one above another, said logs having respective inner and outer sides and respective upper and lower sides positioned in opposing relation to the adjacent upper and

lower sides of other logs, the upper side of each of said logs including a longitudinally extending generally vertical abutment surface located between the inner and outer sides of the log and a longitudinally extending inclined surface portion adjoining said abutment surface and sloping continuously downwardly therefrom toward and adjoining the outer side of said log, respective longitudinally extending filler panels located between the upper side of each log and the lower side of



the next higher log and positioned against said vertically extending abutment surface on the upper side of the log for substantially filling any longitudinal spaces between adjacent logs, and a hardenable filler material located between the upper side of each log and the lower side of the next higher log and covering the outer side of said filler panel located therebetween to provide a seal between adjacent logs to prevent the passage of water and air through said wall.

4,391,068

WATER DEFLECTOR

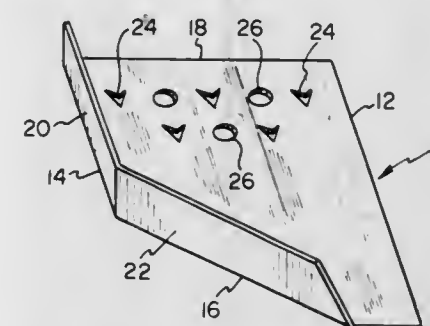
Walter F. Kosar, 103 Elmore Rd., Pittsburgh, Pa. 15221

Filed Apr. 24, 1981, Ser. No. 257,394

Int. Cl.³ E04D 13/00

U.S. Cl. 52-97

7 Claims



5. A deflector adapted to be mounted between overlapping shingles along the edge of a roof, said deflector comprising:
- (a) a substantially flat base with a side edge and a front edge extending at an angle from said side edge, said base including at least one tab adapted to engage the lower surface of a shingle placed on top of said base and secure said base thereto,
- (b) a first upstanding lip integral with said base along said side edge and substantially perpendicular to said base, and
- (c) a second upstanding lip integral with said base along said front edge and integral with said first lip and substantially perpendicular to said base, said upstanding lips forming a continuous deflector lip adapted to deflect liquid.

4,391,069

FREE STANDING WALL

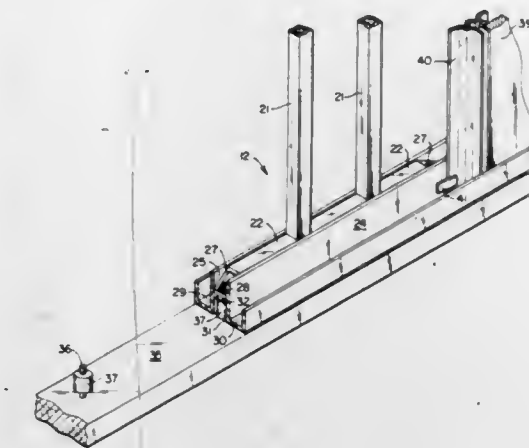
Eugene F. Vermillion, Columbus, Ohio, assignor to The Columbus Show Case Company, Columbus, Ohio

Filed Oct. 23, 1980, Ser. No. 200,026

Int. Cl.³ E04D 15/00

U.S. Cl. 52-126.4

4 Claims



1. A prefabricated, free standing wall comprising:
- (a) an elongated floor-mounted, substantially horizontally disposed sill member formed with upwardly opening, longitudinally coextensive, transversely spaced apart, medial and first and second lateral channels;
- (b) an elongated substantially horizontally disposed cap member formed with downwardly opening, longitudinally coextensive transversely spaced apart, medial and first and second lateral channels;
- (c) a plurality of substantially vertically disposed frame members extending between and connecting said sill and cap members in relatively spaced apart, coplanar relation, each of said frame members having laterally outwardly projecting, horizontally extended foot and head sections secured in the medial channels of said sill and cap members, respectively;
- (d) a plurality of substantially vertically disposed, horizontally spaced apart panel-positioning studs having opposite end portions positioned in each of the first and second lateral channels of said sill and cap members; and
- (e) at least two, coplanar wall panels removably carried in each of the first and second lateral channels of said sill and cap members and having adjacent edges thereof disposed in abutment with and separated by one of said studs.

4,391,070

CHIMNEY

Manfred Bönnighausen, Bochum, Fed. Rep. of Germany, assignor to Babcock-Bau GmbH, Oberhausen, Fed. Rep. of Germany

Filed Feb. 27, 1981, Ser. No. 239,116

Claims priority, application Fed. Rep. of Germany, Feb. 29, 1980, 3007719

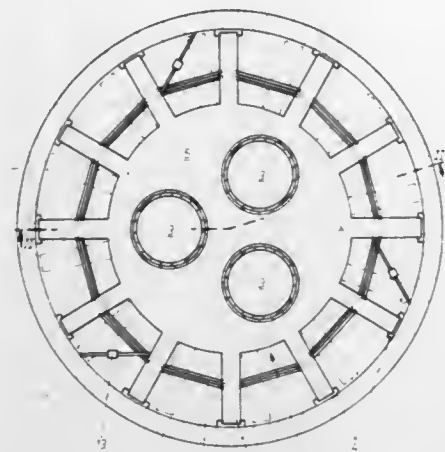
Int. Cl.³ E04H 12/28; F23J 13/02; E04B 1/35

U.S. Cl. 52-127.2

5 Claims

1. Method for constructing a chimney having a loadbearing external trunk which is built in sliding or climbing shuttering and supports platforms for accommodating flue gas pipe or flue gas pipes, comprising the steps: forming support elements on the inner wall of the external trunk at planned levels of the platforms; constructing said support elements as individual brackets; providing the platforms with support arms; building the platforms with support arms completely within the external trunk at ground level; raising the platforms to respective levels with lifting equipment; passing each platform by the brackets when being raised to a respective level; turning the

hanging platform by an amount so as to locate its support arms above the brackets; and then lowering the platform with sup-



porting arms onto the brackets, said platforms and support elements being prefabricated.

4,391,071

BASEMENT WATER DRAIN COVE

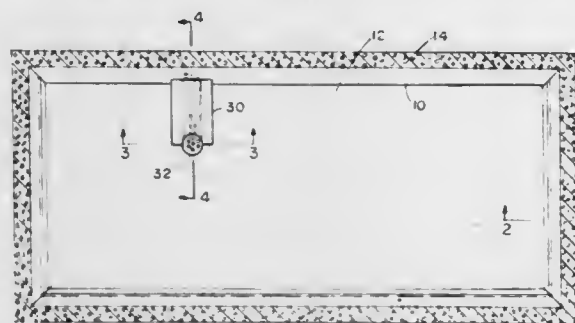
Socrates J. Schantz, Marine, Ill., assignor to Schantz & Sons, Inc., Marine, Ill.

Filed Aug. 28, 1980, Ser. No. 181,986

Int. Cl.³ E04B 1/70; E04F 17/00; E02D 31/02

U.S. Cl. 52—169.5

3 Claims



1. A unitary integral plastic or rubber-like drain cove of uniform composition for draining water from a basement wall along a junction of the wall and floor which comprises a base member secured in sealed relation on the floor adjacent to and spaced from said wall to define a drain channel bounded by the wall, the floor and said base member and a water directing cove member integrally connected to said base member extending upwardly from and inwardly of said base and having a water directing portion at a top part of the cove member extending downwardly toward and bearing lightly against the wall and being free of any connection thereto to provide water drain means for moisture on said wall surfaces to said drain channel, said base member extending outwardly along the floor from a bottom portion of the cove member, said water directing portion being constructed of a plastic or rubber-like material having the capacity to conform to irregularities in the wall surface against which it bears and extending from a point above and inwardly from said base member and spaced from said wall downwardly toward and against said wall to provide a gutter defining said water drain means and said base member being spaced from said wall and secured to the floor outwardly of said water directing portion.

4,391,072

WINDOW TRIM

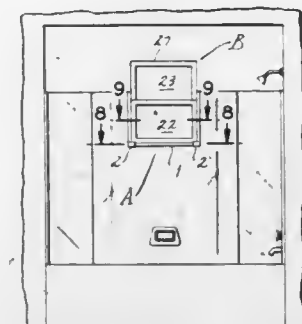
John W. Moore, Creve Coeur, Mo., assignor to The Swan Corporation, St. Louis, Mo.

Filed Dec. 29, 1980, Ser. No. 220,807

Int. Cl.³ E06B 1/04

U.S. Cl. 52—211

10 Claims



1. A window trim assembly for use with a building window having a sill and jambs at opposite sides of said window, for the purpose of modifying the appearance of said window, said assembly comprising a sill trim component for covering disposition of said sill including a main or body section of planar configuration and an apron depending from a horizontal edge of said main body portion for obscuring the adjacent edge portion of said sill, said apron having a planar configuration and being in substantially planar perpendicular relationship to said main or body section, and a pair of jamb trim components, each of said jamb trim components having a panel portion for covering disposition of corresponding portions of said jambs, each said panel portion being directed toward the opening of said window and being presented in upstanding relationship to the main or body section of said sill trim component, each said panel portion having a base extension projecting from said panel portion inwardly from the corresponding jamb member toward the opposite panel portion in overlying relation to the adjacent portion of the main or body section of said sill trim component, each base extension including a skirt integral with said base extension extending over the proximate portion of said apron of said sill trim component in covering disposition, and means securing together said sill trim component and jamb trim components.

4,391,073

MOVABLE PANEL ASSEMBLY

Lloyd C. Mollenkopf, Akeley, and Daniel J. Branson, Prior Lake, both of Minn., assignors to Rosemount Office Systems, Inc., Lakeville, Minn.

Filed Dec. 12, 1980, Ser. No. 215,692

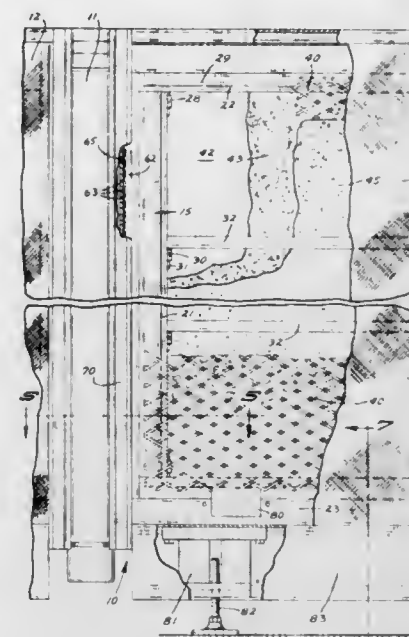
Int. Cl.³ G01K 11/04; E04B 2/82; E04H 5/00

U.S. Cl. 52—241

6 Claims

1. A movable panel assembly comprising a frame defining a perimeter and including generally vertical frame members and a generally horizontal lower frame member: support means operable to hold said frame members in an assembly defining an interior space; said vertical frame members comprising channel shaped members having a base and side walls, the sidewalls having intumed ends spaced from the base and defining an opening facing away from the space defined by the perimeter frame; sheet means extending across said space to form a support resisting forces perpendicular to the plane of the perimeter frame; a layer of fabric over said sheet means; retainer means on each of the edges of the frame members comprising a plurality of teeth extending in direction relative to the frame so that edge portions of the fabric layer placed over the teeth under tension are retained by the teeth, and a pair of support feet mounted on the lower horizontal frame member, a raceway having a lower wall and hingedly

attached side walls, means to mount the lower wall of the raceway to the support feet with the raceway side walls extending upwardly to position adjacent the lower frame member to form an enclosure in cooperation with the lower frame member, said raceway side walls having



intumed side edges adjacent the lower frame member, and cooperating grooves and lip means acting between the intumed edges of the raceway sidewalls and the support feet to releasably retain the raceway sidewalls uprightly on the support feet.

4,391,074

WEEP SCREED

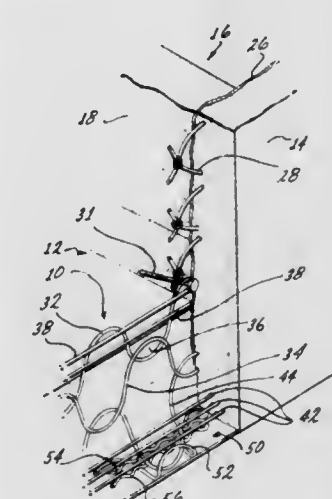
Henrietta H. Holsman, 101 Ocean Ave., Apt. B7, Santa Monica, Calif. 90402

Filed Jan. 8, 1981, Ser. No. 223,309

Int. Cl.³ E04B 1/00

U.S. Cl. 52—367

34 Claims



1. In combination in a weep screed for providing a reinforcement for stucco at or near the foundation plate line of a building:

a first lattice network disposable against the wall of the building before the addition of stucco to the building and including undulating wires disposed in overlapping relationship for receiving and reinforcing the stucco and including line wires extending across the undulating wires to define overlapping relationships with the undulating wires, and a second lattice network extendable from the wall of the building in transverse relationship to the first lattice network before the addition of stucco to the building and disposed in a horizontal relationship and including undulating wires disposed in overlapping relationship for

ceiving and reinforcing the stucco and including line wires extending across undulating wires to define overlapping relationships with the undulating wires, and the second lattice network including undulating wires extending into the first lattice network to provide a continuation between the first and second lattice networks.

4,391,075

INSULATED ROOF STRUCTURE

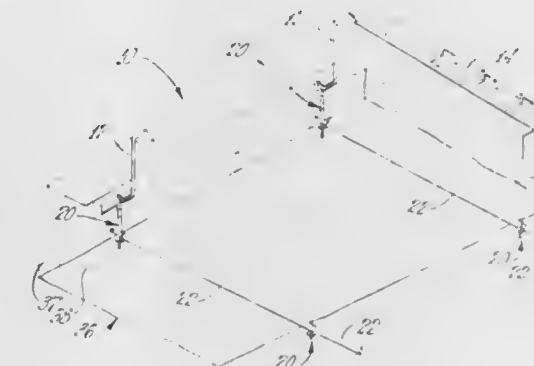
Dwight S. Musgrave, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Nov. 3, 1980, Ser. No. 202,989

Int. Cl.³ E04B 1/74, 5/57

U.S. Cl. 52—404

13 Claims



1. An insulated roof structure (10) comprising a plurality of parallel, spaced main support beams (18), a plurality of parallel, horizontally extending auxiliary support beams (12) spaced apart from each other and supported by and extending transversely of the main support beams (18), the auxiliary support beams (12) each having a lower upstanding flange, a plurality of roof panels (14) mounted in covering relationship to the auxiliary support beams (12), a plurality of hangers (20) mounted in spaced relationship along each of the auxiliary support beams (12) between each pair of adjacent main support beams (18), each hanger (20) including an upper hook portion (28) in cooperative engagement with the lower upstanding flange of an auxiliary support beam (12), a plurality of elongated support members (22) hung on each of the auxiliary support beams (12) in alignment with each other and parallel to the auxiliary support beams (12), the support members (22) being cooperatively engaged with and suspended by the hangers (20), and insulation strips (36) strung over the support members (22) transversely of the auxiliary support beams (12).

4,391,076

ROOF OR SIDEWALL CONSTRUCTION

Stewart Ferguson, P.O. Box 12, Aloha, Wash. 98525

Continuation-in-part of Ser. No. 59,998, Jul. 23, 1979. This application Apr. 13, 1981, Ser. No. 253,495

The portion of the term of this patent subsequent to Oct. 20, 1998, has been disclaimed.

Int. Cl.³ E04D 1/00

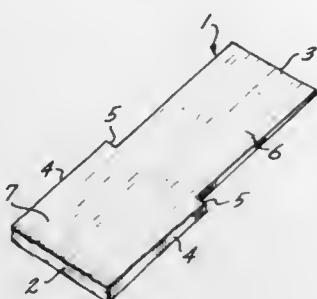
U.S. Cl. 52—553

24 Claims

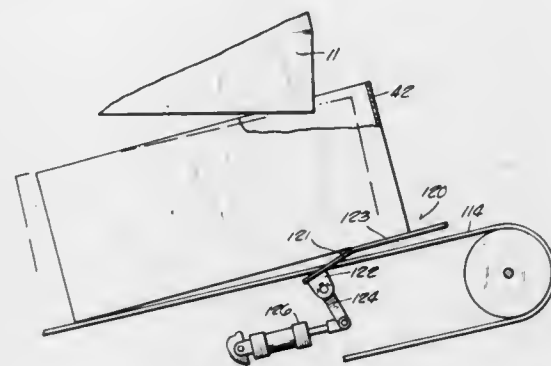
1. In a covering for a surface of a building structure, such covering including separate generally rectangular covering elements having respective butt and tip ends and applied in generally coplanar, side adjacent relationship in each of several courses with the tip portions of the covering elements of one course being overlapped by the butt portions of the covering elements of a higher course, the improvement comprising a filler element having respective butt and tip ends, at least one side of said filler element having a shoulder extending transversely of such side and dividing said filler element into a wide

tip portion and a narrower butt portion, said filler butt portion being fitted between the adjacent sides of adjacent covering

effectively provide shear resistance in the finished structure, and continuing said process of assembling and connecting said components until said structure is completed.



4,391,078
LOADING BLADES FOR PACKAGING APPARATUS
Biagio J. Nigrelli, Kiel, Wis., assignor to Nigrelli Corporation, Kiel, Wis.
Division of Ser. No. 112,589, Jan. 16, 1980, Pat. No. 4,332,121.
This application Nov. 25, 1981, Ser. No. 325,066
Int. Cl.³ B65B 5/04
U.S. Cl. 53—251 2 Claims



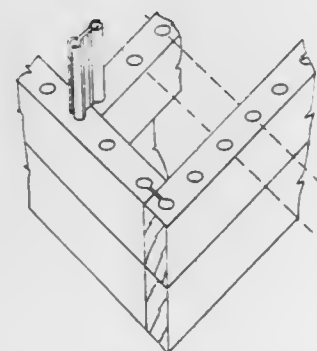
1. In a case loader having an article conveyor for moving articles along support means having an upper surface defining a first plane, a case conveyor located beneath the article conveyor and in which the case conveyor path merges upwardly into the conveying path of the article conveyor from below, the improvement wherein said case conveyor includes two spaced parallel conveyor runs separated by a gap and a case displacement lever, and means for supporting and operating said lever for pivotal movement between an advanced position extending in said gap between said conveyor runs to engage the under surface of a carton and raise a portion of the carton above said first plane and above the bottom of an article carried on said article conveyor to intercept the leading end of an article carried on said conveyor to insure engagement of the leading edge of said carton with the article being loaded and to minimize the distance the articles must fall into the case and said means for supporting and operating said lever affording movement of said lever to retracted position below said first plane to afford movement of the filled case from said case conveyor.

4,391,079
CONTROL SYSTEM FOR CYCLIC MACHINES
Dale M. Cherney, Howards Grove, Wis., assignor to Hayssen Manufacturing Company, Sheboygan, Wis.
Filed Aug. 21, 1980, Ser. No. 180,039
Int. Cl.³ B65B 41/18; B31B 1/10; G05B 19/28; G06F 15/46
U.S. Cl. 53—396 15 Claims

1. The method of controlling apparatus for sealing packages wherein a web of flexible packaging material having a series of registration marks is formed into tubing and fed past sealing means for sealing the tubing to form packages, comprising: presetting a predetermined delay length of tubing to be fed past the sealing means; initiating web feeding; detecting a registration mark; feeding said predetermined delay length past the sealing means in response to said detection of a registration mark before sealing of the tubing, said predetermined delay length being substantially independent of the rate at which packaging material is fed past the sealing means; determining when the predetermined delay length of tubing has passed the sealing means after detection of said registration mark; stopping the feeding of material past the sealing means in

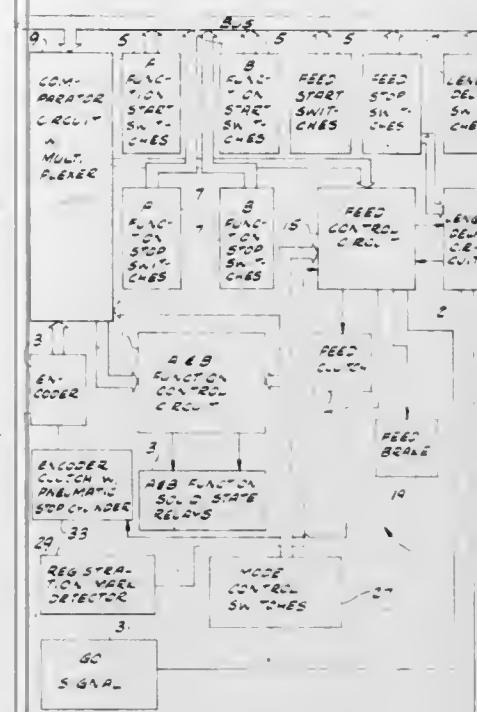
elements in a course and said shoulder abutting the tip end of one of such adjacent covering elements.

4,391,077
METHOD OF CONSTRUCTING A BUILDING SYSTEM
Hans J. Giess, Rotorua, New Zealand, assignor to Fletcher Timber Limited, Auckland, New Zealand
Continuation of Ser. No. 100,976, Dec. 6, 1979, abandoned. This application Jul. 14, 1981, Ser. No. 283,144
Claims priority, application New Zealand, Dec. 8, 1978, 189128
Int. Cl.³ E04B 1/10
U.S. Cl. 52—747 4 Claims



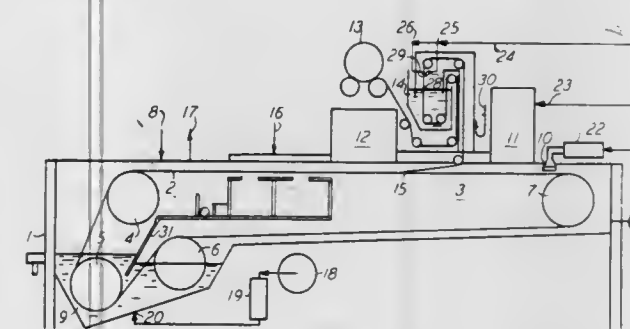
1. A method of constructing an essentially one component thick structure of substantially planar walls from contiguous lengths of plank-like building components comprising the steps of producing a plurality of equally spaced parallel holes through each said component, producing slots through each component parallel to said holes and extending from an outer surface of said component where a contiguous component is to be joined to the hole adjacent thereto, placing at least one of said components in position for construction, providing an elongated joining member having the cross-sectional shape of a straight shank with elongated bulbous ends, the dimensions of said shank and bulbous ends being such as to provide a snug sliding fit in said slot and holes respectively, inserting said joining member into at least one of said holes and slot with said shank and one bulbous end in said slot and hole respectively, said joining member also being dimensioned so that when inserted into said hole and slot substantially half of the cross-section of said joining member extends from said component and the length of said joining member extends substantially parallel to the central axis of said hole for a distance comparable to at least one-half the length of said hole, positioning another component with respect to said construction position with the hole and slot thereof in aligned engagement with the extending end of said joining member, sliding said another component into abutting engagement with said first positioned component using said joining member as a guide, inserting wooden dowels into said holes in said another component which are aligned with said holes in previously positioned adjacent components, said dowels having a diameter to provide a snug fit with said holes and a length no greater than the length of a hole, driving said dowels into said aligned holes to

response to said predetermined delay length's having passed the sealing means;



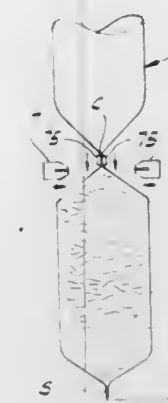
actuating the sealing means; and reinitiating feeding of the web.

4,391,080
METHOD FOR PROVIDING AN INERT STERILE ATMOSPHERE IN AN ASEPTIC PACKAGING MACHINE
Aaron L. Brody, Dunwoody; Joseph J. Embro, Atlanta, both of Ga., and William E. Young, Neptune, N.J., assignors to The Mead Corporation, Dayton, Ohio
Filed Sep. 20, 1979, Ser. No. 76,932
Int. Cl.³ B65B 55/10
U.S. Cl. 53—426 6 Claims



1. In a method for providing a sterile inert atmosphere in an aseptic packaging machine whereby inert gas is supplied to the interior of the machine and wherein preformed flanged containers are introduced into said interior through a sterilant bath, then filled by a filler means and thereafter covered with a cover material which is supplied through another sterilant bath, the improvement whereby said inert gas is introduced into the interior of said machine by sparging said gas into and through said container sterilant bath, and a portion of said gas is withdrawn from said interior, divided into three parts and delivered to (i) said containers for drying the flange areas thereof prior to filling and sealing, (ii) to said filler means to aid in the operation thereof and to provide a microbiological barrier therefor, and (iii) to said cover material as it emerges from said other sterilant bath for removing residual sterilant.

4,391,081
METHOD OF AND APPARATUS FOR FORMING, FILLING AND SEALING PACKAGES
Lloyd Kovacs, Sheboygan, Wis., assignor to Hayssen Manufacturing Company, Sheboygan, Wis.
Filed Sep. 8, 1980, Ser. No. 185,209
Int. Cl.³ B65B 1/24, 9/06
U.S. Cl. 53—436 14 Claims

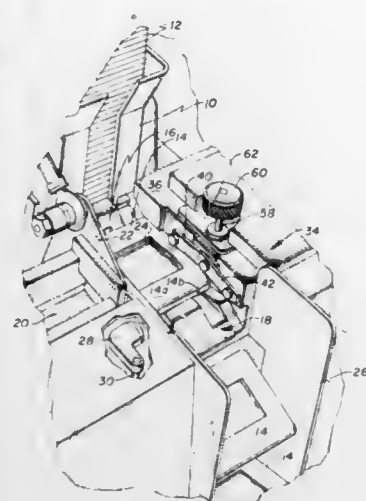


1. The method of forming, filling and sealing packages comprising forming a flexible packaging material into tubing, the tubing extending downwardly, feeding the tubing downwardly and transversely sealing it at package length intervals, and delivering a quantity of the product with which the packages are to be filled into the tubing during an interval of time between successive sealing operations, the transverse seals being formed by a pair of sealing members movable relative to one another between an open position and a closed position in sealing engagement with the tubing, and, with the sealing members open and after the delivery of the product into the tubing and before the next seal is made, squeezing the tubing above the sealing members by positively moving a pair of stripper members relative to one another independently of the movement of the sealing members from an open position to a closed position wherein the stripper members are closely adjacent one another on opposite sides of the tubing in engagement with the tubing above the sealing members, then holding the stripper members in their closed position while moving them generally straight down on the tubing between the sealing members from above to below the sealing members, thereby to compact the product in the tubing below the level of the next seal to be made, closing the sealing members on the tubing above the stripper members, and then opening the stripper members and the sealing members and moving the stripper members up between the sealing members returning them to their open position.

4,391,082
SLIDE MOUNTER WITH FILM CURL ACCOMMODATOR
Robert E. Diesch, Rogers, Minn., assignor to Pako Corporation, Minneapolis, Minn.
Filed Nov. 6, 1980, Ser. No. 204,555
Int. Cl.³ B65B 61/00, 63/00
U.S. Cl. 53—520 16 Claims

1. Apparatus for mounting a film transparency in a slide mount, said slide mount having opposing portions defining a plane therebetween, the apparatus comprising: means for partially inserting a film transparency, while attached to a film web, into the slide mount; means for severing the transparency from the web at a position outside the slide mount; means for engaging the transparency to fully insert the transparency into the slidemount; and means for bowing both portions of the slide mount in the

same direction relative to said plane about an axis parallel to the direction of transparency insertion to match a curl



4,391,083

PACKING MACHINE

Austin L. Fox, London, England, assignor to Molins Limited, London, England

Filed Jun. 27, 1980, Ser. No. 163,457

Int. Cl.³ B65B 19/24

U.S. Cl. 53—575

9 Claims



1. A packing machine comprising:

- (a) a movable carrier;
- (b) a plurality of packet-forming assemblies mounted on said movable carrier, each assembly comprising a stationary member and at least one operating member mounted for movement towards and away from said stationary member;
- (c) means for moving said carrier intermittently along a path so that each of said assemblies stops successively at each of a plurality of stations; and
- (d) means for positively driving said at least one operating member of each of said assemblies to progressively move said operating member towards and away from said stationary member, said driving means comprising at least one coupling shaft rotatably mounted on said movable carrier and operatively connected to said at least one operating member, said coupling shaft extending transverse to the directional movement of said assembly along said path between successive stations, and at least one rotatably mounted driving shaft at each of a selected plurality of said stations where at least one operating member of each of said assemblies is to be moved, said at least one driving shaft at each of said selected stations being so located that when each of said assemblies is stopped at each of said selected stations said at least one driving shaft is in axial alignment with said at least one coupling shaft on said movable carrier, the end of one of said shafts having at least one tongue and the end of the

other of said shafts having at least one corresponding slot, said tongue and slot being arranged to engage each other to provide a drive connection therebetween when said driving and coupling shafts are in axial alignment.

4,391,084

TOBACCO DEFOLIATING UNITS WITH OVERLAPPING CUTTING EDGES

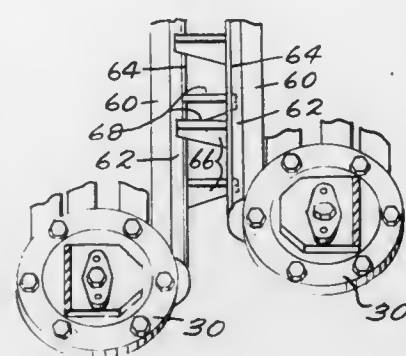
Robert W. Wilson, Charlotte, N.C., assignor to Powell Manufacturing Company, Inc., Bennettsville, S.C.

Filed Jan. 28, 1982, Ser. No. 343,524

Int. Cl.³ A01D 45/16

U.S. Cl. 56—27.5

4 Claims



1. In an apparatus for priming tobacco plants having stalks and leaves extending outwardly therefrom comprising a vehicle frame movable along a row of tobacco plants, a pair of intermeshing defoliating units, means mounting said units on said frame in spaced side-by-side relation for vertical adjustment together with respect to said frame, each of said defoliating units including a forward rotary element mounted on said frame for rotation about a first axis, a rearward rotary element mounted on said frame in a position spaced rearwardly and upwardly with respect to said forward rotary element for rotation about a second axis parallel to said first axis, a plurality of elongated members extending between said rotary elements, means mounting the forward ends of said elongated members on said forward rotary element for rotational movement about axes parallel to said first axis and spaced circumferentially thereabout, means mounting the rearward ends of said elongated members on said rearward rotary element for rotational movement about axes parallel with said second axis and spaced circumferentially thereabout, each of said elongated members including cutting blade means thereon having sharp upper cutting edges extending generally in directions both longitudinal and transverse with respect to the row of plants, the transverse extent of the cutting edges of each unit being in a direction toward the other and in longitudinally intermeshing relation therewith, and driven means operatively connected with at least one rotary element of each unit for rotating said element and effecting an orbital translational movement of the elongated members of each unit in a direction such that the cutting edges of each elongated member will be moved inwardly toward the stalks, upwardly to sever the leaves from the stalks and then outwardly to carry the severed leaves away from the stalks, the improvement which comprises

the longitudinal extent of the cutting edges associated with the elongated members of each unit during their movement inwardly toward the stalks passing into a common vertical plane disposed closely adjacent the associated side of the stalks of a row of tobacco plants along which the vehicle frame is moved so as to insure that leaves attached to stalks at positions adjacent opposite sides thereof with respect to the row will be severed,

the distance between the aforesaid vertical planes associated with both units being less than the transverse extent of the cutting edges of said units so that the free ends of the transverse extent of the cutting edges of each elongated member associated with each unit during their movement

inwardly toward the stalk moves inwardly a distance beyond the vertical plane associated with the other unit so as to insure that leaves attached to stalks at positions other than at opposite sides thereof with respect to the row will be severed.

4,391,085

GRAPE HARVESTER

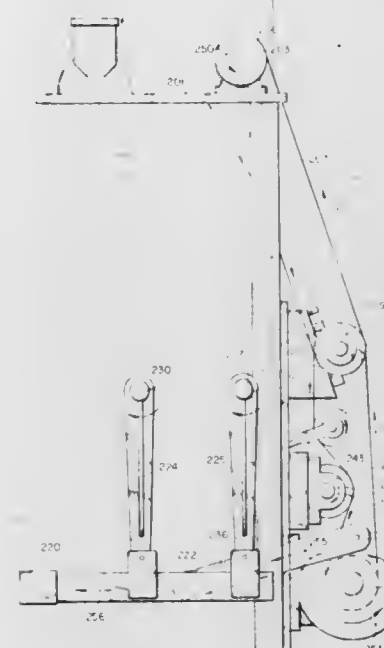
Robert H. Harris, Indianapolis; Troy G. Humphrey, Beech Grove, and John J. Stimson, Jr., Indianapolis, all of Ind., assignors to Labeco Harvesters, Inc., Fresno, Calif.

Continuation-in-part of Ser. No. 120,542, Feb. 11, 1980, Pat. No. 4,299,081. This application Nov. 9, 1981, Ser. No. 319,698

Int. Cl.³ A01D 46/26, 46/28

U.S. Cl. 56—330

9 Claims



1. A harvester comprising:

- frame means operable to move along in straddling fashion a row of plants having growing items thereon and including a receptacle to catch said items falling from said plants;
- a head pivotally mounted on said frame means to pulsate said plants to cause items growing thereon to fall therefrom into said receptacle, said head including:
- a frame pivotally mounted to said frame means and having a pair of downwardly extending spaced apart supports forming a channel through which said row of plants may pass;
- a pair of horizontally movable arms mountable to said supports with spaced apart distal ends positionable on opposite sides of said row of plants;
- driving means mounted on said frame and operatively associated with said arms to reciprocate said arms back and forth against said plants while limiting movement of one arm to approximately the same horizontal direction of movement as the other arm, said driving means including first and second crank shafts rotatably mounted about an axis of rotation on said frame, a source of energy having a rotatable output operatively driving said first and second crank shafts which are connected to said arms maintaining a constant spacing between said distal ends as said arms are reciprocated by said driving means, said arms including at least a pair of links with top ends pivotally mounted to said frame and bottom ends pivotally connected to said arms suspending said arms therefrom and allowing a swinging arc movement of said arms in response to said driving means and independent of pivotal movement of said frame, said distal ends being rigid members extending in the direction of said row of plants;
- counterweight means including a first and a second off centered counterweights respectively on said first and second crank shaft rotatably mounted on said frame, said counterweight means being operable to provide a vibra-

tion neutralizing force in a direction opposite of the direction of movement of said arms; and timing means operatively associated with said first and second off centered counterweights along with said first and second crank shafts being operable to rotate said counterweights about said axis of rotation but in a direction opposite of the crank shaft upon which each counterweight is mounted dampening vibration imparted to said frame by said arms.

4,391,086

APPARATUS FOR RESTRINGING MULTIPLE THREADLINES

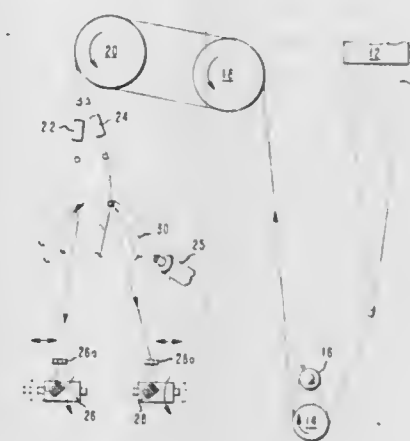
Charles H. Doherty, III, Nashville, Tenn., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Continuation-in-part of Ser. No. 237,615, Feb. 24, 1981, abandoned. This application Mar. 15, 1982, Ser. No. 357,856

Int. Cl.³ B65H 69/06; D02J 1/08

U.S. Cl. 57—22

4 Claims



1. In a machine for processing multiple threadlines moving in a path from a supply source to a windup, an apparatus for stringing an unstrung threadline of said multiple threadlines that includes a jet adjacent said threadlines for interlacing the unstrung threadline with a moving threadline comprising: a forwarding jet located downstream of the interlacing jet, said forwarding jet having an inlet and an outlet through which said multiple threadlines pass in said path, said forwarding jet having a coanda surface located at its outlet; a suction device located below said coanda surface; a first elongated guide pin located across the threadline path contacting the moving multiple threadlines adjacent the outlet of the forwarding jet; and a second elongated pin having a notch in its surface at its center pivotally mounted at the outlet of the forwarding jet for swinging movement from a location below said coanda surface and above said suction device past said suction device to a location between the outlet of the forwarding jet and said first guide pin and above and across the threadline path.

4,391,087

TWISTING APPARATUS

Aloys Greive, Münster; Aloys Horstmann, Greven, and Wilhelm Stupirak, Münster, all of Fed. Rep. of Germany, assignors to Volkmann GmbH & Co., Krefeld, Fed. Rep. of Germany

Filed Apr. 16, 1981, Ser. No. 254,764

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1980, 3015044

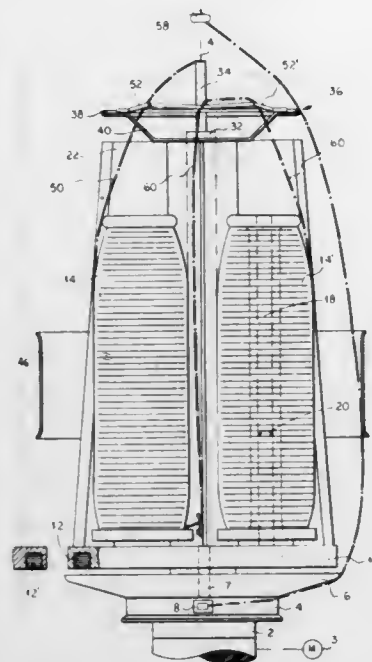
Int. Cl.³ D01H 1/10, 7/86

U.S. Cl. 57—58.52

10 Claims

1. A twisting apparatus comprising: a spindle extending along an upright axis, having an upper end and a rotatable lower end, and formed with a passage opening axially upwardly at said upper end and radially outwardly at said lower end; means for rotating said spindle about said axis; a bobbin support rotatably carried on said spindle between said ends thereof and provided with a plurality of bobbin

holders spaced about and radially offset from said axis and each adapted to support a respective bobbin carrying a respective yarn, whereby said yarns can be led down through said passage and up around said bobbin support while said spindle is rotating to wind said yarns together and form a balloon around said support; and



means for preventing rotation of said support about said axis even while said spindle is rotating, said bobbin holders being angularly equispaced about and radially equispaced from said axis, said bobbin holders number four, including two for main bobbins and two for the reserve bobbins, the holders for said main bobbins being diametrically opposite each other and alternating with the holders for said reserve bobbins.

4,391,088

STRING FOR SPORTS RACKETS

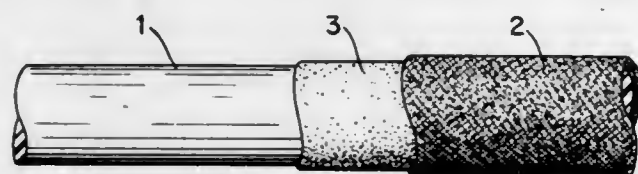
Jerome Salsky, Emerson, N.J.; Patrick K. Janis, Oak Park, Ill., and Kenneth E. Brannen, Nashua, N.H., assignors to United States Tennis Gut Association, Inc., Emerson, N.J.

Filed Jan. 13, 1982, Ser. No. 339,082

Int. Cl.³ D02G 3/04, 3/10, 3/38, 3/40

U.S. Cl. 57-234

15 Claims



1. A string for sports rackets consisting of a gut core covered with filamentary aramid and impregnated with at least one coating of water-resistant, vapor-impermeable, wear-resistant, flexible smooth adhesive polymeric resin.

4,391,089

APPARATUS FOR PIECING-UP A WRAP YARN

Werner Billner, and Erich Bock, both of Ingolstadt, Fed. Rep. of Germany, assignors to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany

Filed May 22, 1981, Ser. No. 266,588

Claims priority, application Fed. Rep. of Germany, May 31, 1980, 3020726

Int. Cl.³ D01H 15/00; D02G 3/36

U.S. Cl. 57-261

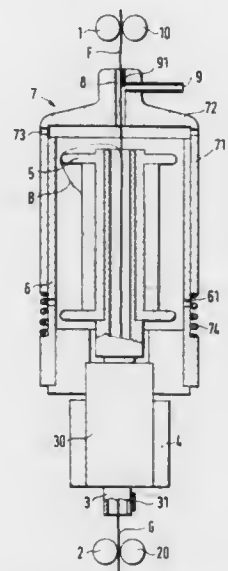
6 Claims

1. Apparatus for piecing-up a wrap yarn being produced from a bundle of spinning fibers and a wrapping thread on a wrapping device, a hollow spindle forming part of said wrap-

ping device, a bobbin of said wrapping thread carried on said hollow spindle, a pair of delivery rolls for feeding said bundle of spinning fibers to said hollow spindle and a pair of takeoff rolls for drawing off said wrap yarn out of said hollow spindle, a housing concentrically surrounding said bobbin, a jacket forming part of said housing having openings for the passage of air, and a suction duct arranged between said pair of delivery rolls and said hollow spindle comprising:

a closing element associated with said openings for selectively closing and opening during piecing-up of said yarn; said closing element being a pot inverted over said housing, a fiber feed channel extending through said pot in axial alignment with said hollow spindle, said suction duct opening into said feed channel, and said pot being telescopically displaceable during piecing-up in the direction of said pair of takeoff rolls to an extent such that it covers said openings.

2. A method for piecing-up a wrap yarn being produced from a bundle of spinning fibers and a wrapping thread by



means of a wrapping device comprising a hollow spindle carrying a bobbin of said wrapping thread and arranged between a pair of delivery rolls for feeding said bundle of spinning fibers to said hollow spindle and a pair of take-off rolls for drawing off said wrap yarn out of the hollow spindle, a housing concentrically surrounding said bobbin, a jacket forming part of said housing having openings for the passage of air, and a suction duct arranged between said pair of delivery rolls and said hollow spindle, comprising the following steps:

stopping said wrapping device; producing an eddy of air in said housing by an airflow through said openings for seeking and exposure of a free end of said wrapping thread on said bobbin; introducing an end of said wrap yarn withdrawn from a yarn bobbin into said hollow spindle, and producing a concentrated suction air stream in said housing by closing said openings for delivering back said ends of said wrap yarn and said wrapping thread into said suction duct.

4,391,090

DEVICE FOR PNEUMATICALLY THREADING A YARN IN A DOUBLE TWIST SPINDLE

Simon Charbonnier, Lyons, France, assignor to Verdol S.A., Caluire, France

Filed Oct. 6, 1981, Ser. No. 308,969

Claims priority, application France, Nov. 3, 1980, 80 23666

Int. Cl.³ D01H 15/00, 7/86

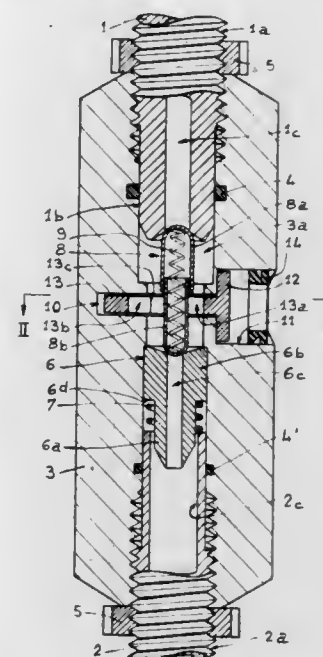
U.S. Cl. 57-279

5 Claims

1. A pneumatic yarn threading device for a double twist spindle having a hollow central shaft with a yarn brake therein, and having means operative when the shaft is pneumatically pressurized for introducing yarn through its bore past the brake, wherein the device comprises:

(a) a shaft comprising axially aligned mutually-spaced tubular portions joined together by a central portion having an axial bore of diameter larger than the bores of said tubular portions, the tubular portions having opposed ends facing each other across the bore of the central portion, and the central portion having a transverse passage extending thereacross between the tubular portions;

(b) a yarn brake comprising an elongated capsule in the bore of the central portion and having opposed ends which are disposed in a first axially aligned position to abut said opposed ends of the tubular portions and close their bores, and the capsule in a second displaced position being offset from axial alignment to expose the bores at said opposed ends to permit yarn to be passed therethrough; and



(c) means for controlling the position of the capsule comprising piston means slidably mounted in said transverse passage and having an opening therethrough receiving said capsule, the opening being larger in diameter than the capsule; yieldable spring means urging the capsule and the piston means normally to occupy a first position wherein the capsule is axially aligned with and closes the bores of the tubular portions; and one side of the piston means being pneumatically coupled to the bore of the central portion and operative when the hollow shaft is pressurized to displace the piston means and move the capsule to said second displaced position, whereby yarn can pass through said bores and the opening of the piston means for threading the double twist spindle.

4,391,091

FALSE TWISTING APPARATUS AND METHOD

Hellmut Lorenz, Remscheid-Lennep, Fed. Rep. of Germany, assignor to Barmag Barmer Maschinenfabrik AG, Remscheid, Fed. Rep. of Germany

Filed Jun. 12, 1981, Ser. No. 273,196

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1981, 3110242; May 9, 1981, 3118410

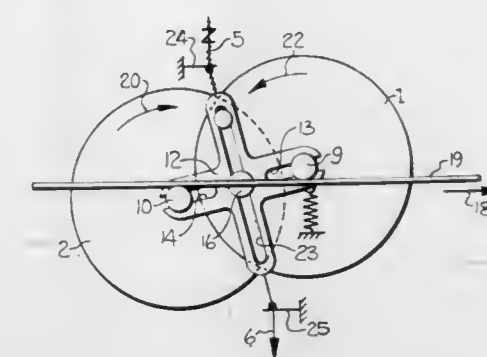
Int. Cl.³ D02G 1/08

U.S. Cl. 57-340

20 Claims

1. A yarn false twisting apparatus comprising a frame, a pair of twist imparting discs, with each disc being mounted to a supporting shaft and having a yarn engaging friction surface on one face thereof, means mounting said discs to said frame and including a carrier plate mounting said shafts for rotation about essentially parallel, spaced apart axes and such that portions of the respective yarn engaging friction surfaces are disposed in opposing relationship and define a twisting zone therebetween; drive means for rotating each of said discs in opposite rota-

tional directions, said drive means including a whorl mounted to each of said shafts, and an endless drive belt rotatably mounted to said frame so as to have a run contacting opposite surfaces of said whorls and thereby rotate the same in opposite directions,



whereby a yarn may be continuously moved through said twisting zone in a direction extending perpendicular to the plane defined by said axes of rotation and so as to have twist imparted thereto by frictional contact between the yarn and the respective opposed friction surfaces.

4,391,092

MULTIPLE POSITION DIGITAL ACTUATOR

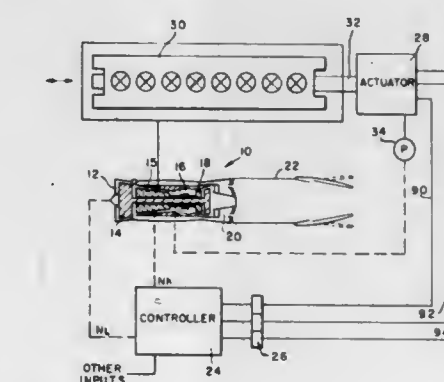
Samuel E. Arnett, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 30, 1980, Ser. No. 173,531

Int. Cl.³ F02C 9/18

U.S. Cl. 60-39.29

11 Claims



1. A multiposition actuator for changing a N-bit digital word into N physical positions of an actuator element comprising:

N-1 telescoped open ended cylinders mounted in an open ended bore with the open ends of said cylinders disposed toward the closed end of said bore and an end cap closing the open end of said bore;

said actuator element including an elongated body passing through an aperture in the closed end of said bore and having a flange being a double acting piston disposed within the innermost cylinder;

said actuator element, cylinders and end cap forming N piston cylinder combinations wherein the piston area of each successive piston increases from the innermost combination to the outermost combination, and wherein the flange piston area disposed toward the closed end of the bore is less than the flange piston area for the innermost cylinder;

each of said combinations operable to move said actuator element independently of the other combinations through a distance controlled by an expandable chamber disposed between the cylinder and piston of each combination, each distance being related to the other distances by powers of the numeral 2;

N pilot solenoids, each associated with an expandable chamber and operable to control means for communicating a

source pressure to a corresponding chamber and the source pressure from a corresponding chamber to a reference pressure and each associated with one of the bits of said digital input and actuated by one of the states of said bit;

a bias chamber defined by the open ends of said cylinders and the closed end of said bore;
means for communicating said source pressure to said bias chamber such that movement of the expandable chambers is accomplished by the force difference between the pistons because of the source and reference pressures acting over the differing piston areas.

4,391,093

TEMPERATURE-RESPONSIVE ACTUATOR

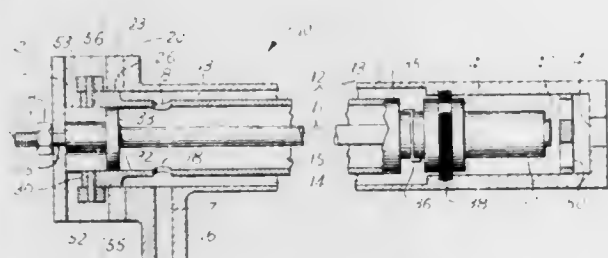
William K. Gulick, Glendale, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Jun. 29, 1981, Ser. No. 278,922

Int. Cl.³ F02C 7/042

U.S. Cl. 60—39.29

8 Claims



1. A temperature-responsive actuator comprising:

a support member;

a spaced pair of thermally expandable members extending longitudinally in parallel alignment, one of said expandable members having one end fixedly connected to said support member and an opposite end connected to a corresponding end of the other expandable member;

means directing a flow of fluid into contact with both said expandable members; and

means restricting the flow of said fluid into contact with one of said expandable members in a first mode of operation and enabling relatively unrestricted flow of said fluid in contact therewith in a second mode of operation;

whereby said one expandable member expands longitudinally in one direction during said first mode and the other of said expandable members expands longitudinally in an opposite direction during said second mode for retracting said one expandable member.

4,391,094

DESTRUCTABLE AIR INLET COVER FOR ROCKET ENGINES

Herbert Engel, Munich, and Horst Boettger, Zorneding, both of Fed. Rep. of Germany, assignors to Messerschmitt-Bölkow-Blohm Gesellschaft mit Beschränkter Haftung, Fed. Rep. of Germany

Filed Jan. 16, 1981, Ser. No. 225,607

Claims priority, application Fed. Rep. of Germany, Jan. 29, 1980, 3003004

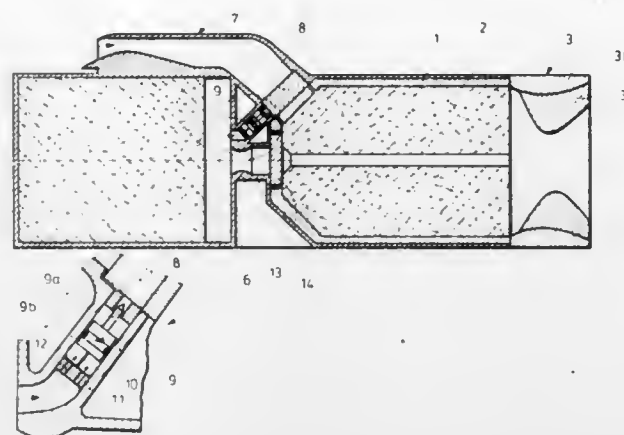
Int. Cl.³ F02K 7/10, 9/08

U.S. Cl. 60—245

5 Claims

5. A movable air inlet control device for a ram jet engine which includes a precombustion chamber connected through a flow passage to a main combustion chamber which has an inlet having a breakable cover closing said inlet which may be broken to permit air to enter into said main combustion chamber for combustion, comprising a tubular connection between said air inlet passage and said precombustion chamber, a striker device movable in said tubular connection, means for exposing

said striker device to the pressure of said precombustion chamber so as to effect movement of said striker device to destroy



said cover and open said air inlet on the occurrence of a predetermined pressure in said precombustion chamber.

4,391,095

INTERNAL COMBUSTION ENGINE WITH EXHAUST FILTER REJUVENATION

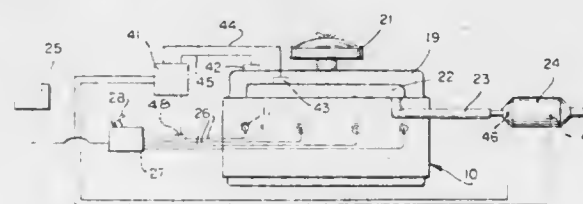
Kashmir S. Virk, Hopewell Junction, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Jul. 2, 1981, Ser. No. 279,913

Int. Cl.³ F01N 3/02

U.S. Cl. 60—286

7 Claims



1. In a multi-cylinder internal combustion engine 10 having a plurality of cylinders 12, and a primary fuel injection system including a fuel injector 11 communicated with each of said cylinders 12 to inject a primary liquid fuel charge thereto, intake 17 and exhaust valve 18 sets communicated with each of said cylinders 12, said valve sets being operable between opened and closed positions when the engine is functioning,

a valve override means 41 engaging the intake valve 17 in at least one of said cylinders 12 and being operable to maintain said intake valve 17 in closed position whereby to immobilize said at least one cylinder during a period of engine operation,

power control means communicated with said valve override means and with said primary fuel system, and being operable to discontinue fuel flow to said at least one cylinder when the latter is in immobilized mode,

an exhaust gas filter 24 communicated with the respective engine exhaust valves 18 to receive a stream of hot exhaust gas therefrom,

an exhaust gas filter rejuvenation system including: supplementary fluid fuel injector means communicated with a source of supplementary fuel and being operable to controllably inject an amount of said supplementary fluid fuel into an immobilized cylinder 12 when said cylinder is in immobilized mode.

4,391,096

HYDRODYNAMIC REVERSING TRANSMISSION

Erich Polzer, Gottfried Ruetz, both of Heidenheim; Hubert Schmölz, Nattheim, and Remy Pochon, Heidenheim, all of Fed. Rep. of Germany, assignors to Voith Getriebe KG, Heidenheim, Fed. Rep. of Germany

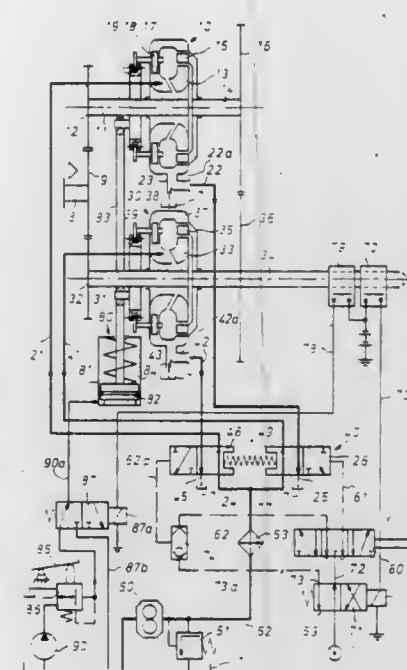
Filed Dec. 15, 1980, Ser. No. 216,554

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010661

Int. Cl.³ F16D 33/00

U.S. Cl. 60—335

12 Claims



1. A hydrodynamic reversing transmission, particularly for use in earth moving and like vehicles, comprising rotary input means; reversible rotary output means; forward and reverse drive trains connecting said input means with said output means and respectively including first and second hydrodynamic starting torque converters respectively comprising first and second working circuits which are respectively rendered operative and ineffective, also within the counterbraking range, in response to admission and evacuation of working fluid, each of said circuits including a stationary housing, a turbine wheel designed for substantially centrifugal flow of fluid therethrough and means for influencing the torus stream in the respective circuit; a source of pressurized working fluid; a sump; first and second filling lines connecting said source with the respective circuits; first and second draining lines having inlet portions connected with the respective housings and outlet portions discharging into said sump; and reversing means for regulating the flow of fluid in said lines so that said first filling line delivers fluid from said source to said first circuit and said first draining line is sealed when said second filling line is sealed from said source and said second draining line is open, and vice versa, said inlet portions having permanently open apertures for evacuation of some fluid from the respective housings, said apertures being arranged to admit working fluid into said sump and said inlet portions being disposed in the regions of outflow of fluid from the respective turbine wheels, the orientation of said inlet portions being such that the direction of fluid flow therein coincides, at least substantially, with the direction of fluid flow toward said inlet portions within said counterbraking range.

4,391,097

PUMPING UP HYDROELECTRIC POWER PLANT

Sachio Tsunoda, Yokohama, and Kaneo Sugisita, Ayase, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

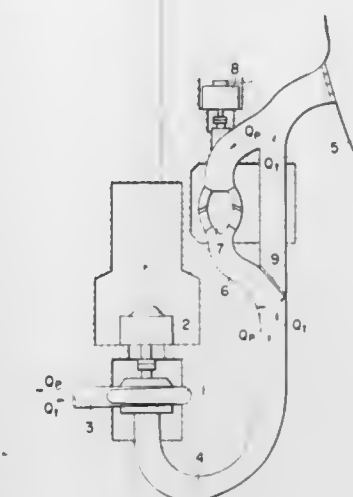
Filed Nov. 4, 1980, Ser. No. 204,036

Claims priority, application Japan, Nov. 7, 1979, 54/143291

Int. Cl.³ F16D 31/02

U.S. Cl. 60—398

4 Claims



3. A pumping up hydroelectric power plant structure comprising a main pump/turbine having a draft tube, a booster pump provided in said draft tube, so that said booster pump is operated in series with said main pump/turbine during the pumping operation of the pump/turbine, and a power system for operating the main pump/turbine and booster pump, said main pump/turbine and said booster pump being constructed to satisfy relations

$$(K_1/K_2)(y_2/y_1) \approx 1.0$$

and

$$0.71 \leq K/K \leq 1.42$$

wherein

K_1 : time constant of the rotating part of the pump/turbine

K_2 : time constant of the rotating part of the booster pump,

y_1 : average torque exerted to the rotating part of the pump/turbine,

y_2 : average torque exerted to the rotating part of the booster pump,

so that when the main pump/turbine and booster pump are simultaneously disconnected from the power system, the rotating speeds of each pump are simultaneously reduced to zero.

4,391,098

TURBO-COMPOUND INTERNAL COMBUSTION ENGINE

Hideaki Kosuge, Hayama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 8, 1981, Ser. No. 300,115

Claims priority, application Japan, Sep. 17, 1980, 55-132519

Int. Cl.³ F02B 37/00

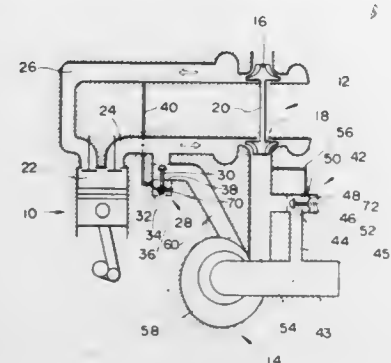
U.S. Cl. 60—602

4 Claims

1. In an engine system including an internal combustion engine equipped with a turbo-charger and an auxiliary turbine integrated with said engine, the combination comprising: an exhaust passage leading from a combustion chamber of said engine to a turbine of said turbo-charger; a transfer passage leading from the turbo-charger turbine to a scroll of said auxiliary turbine; a first by-pass passage leading from said exhaust passage to said scroll; a second by-pass passage leading from said transfer passage to an exhaust conduit of said engine;

a first waste gate responsive to the discharge pressure of a compressor of said turbo-charger which controls the communication between said exhaust passage and said first by-pass passage, said first waste gate being adapted to open upon the discharge pressure of said turbo-charger compressor reaching a first predetermined value;

a second waste gate responsive to the pressure prevailing in



said transfer passage which controls the communication between said second by-pass passage and said transfer passage, said second waste gate being adapted to open upon a second predetermined pressure prevailing in said transfer passage; and

means defining first and second passages within said scroll which exclusively communicate with said first by-pass passage and said transfer passage, respectively.

4,391,099

ATMOSPHERIC THERMAL ENERGY CONVERSION UTILIZING INFLATABLE PRESSURIZED RISING CONDUIT

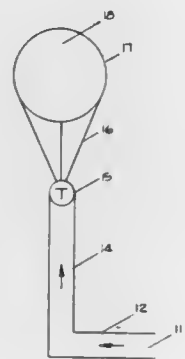
Jens O. Sorensen, P. O. Box 2274, Rancho Santa Fe, Calif. 92067

Filed Sep. 22, 1980, Ser. No. 189,610

Int. Cl.³ F03G 7/02, 7/04

U.S. Cl. 60—641.6

32 Claims



1. A method of atmospheric thermal energy conversion utilizing pressurized rising conduit comprising the steps of:

- providing warm gas at a low elevation,
- transporting the warm gas upwards from the low elevation to a high elevation through a thin-walled, inflatable, rising conduit thereby providing gas within the conduit with a low density which causes the upward flow of the gas through the conduit,
- converting the energy of the flowing gas by passing the gas through a transducer,
- pressurizing the conduit from the inside with the transported gas to thereby inflate and support the thin-walled, inflatable rising conduit.

4,391,100 CLOSED LOOP HERMETICALLY SEALED SOLAR POWER GENERATOR

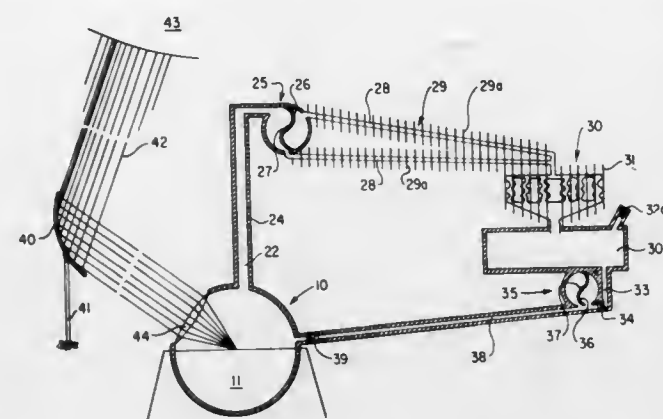
Derrick A. Smith, 1180 S. Seabreeze Blvd., Fort Lauderdale, Fla. 33316

Filed Aug. 27, 1979, Ser. No. 70,327

Int. Cl.³ F03G 7/02

U.S. Cl. 60—641.11

1 Claim



1. A closed loop sealed recirculatory water conservation solar power generator comprising:

- a stationary hollow globular boiler, said boiler including water inlet means disposed adjacent said upper portion of said globular boiler, an upwardly directed steam outlet conduit originating from the uppermost portion of said globular boiler, and a refractor lens window disposed within an upper portion of said globular boiler, said boiler being adapted to contain a body of water;
- controllable means comprising a paraboloid reflector mounted on a post for directing the sun's rays towards said refractor lens window, thereby to generate heat to boil water in said globular boiler;
- a primary steam-powered turbine for the generation of electricity, said turbine being disposed at a level above that of said boiler, said primary steam-powered turbine being connected to said steam outlet conduit and thus being driven by steam under pressure from said globular boiler;
- steam condenser means comprising a radiator connected to the outlet from said primary steam-powered turbine for simultaneously recovering useful heat from said steam and for partially condensing said steam to a mixture of steam and water, and a condenser connected to the outlet from said radiator for substantially completely condensing said steam to substantially pure water;
- a closed reservoir connected to an outlet from said condenser, said reservoir being disposed at a level lower than the level of said primary steam-powered turbine but at a level higher than the level of said globular boiler, said reservoir being for receiving and storing said substantially pure water from said condenser;
- a secondary water-powered turbine for the generation of electricity, said turbine being disposed at a level lower than that of said reservoir but at a level higher than that of said globular boiler, said turbine being connected to said reservoir, said secondary, water-powered turbine and being selectively driven by water from said reservoir;
- a valve automatically sequenced for periodic opening, to permit flow of water from said reservoir to said secondary turbine to drive said turbine, for periodic closing to cut-off said flow of water to permit said secondary turbine to remain at rest;
- effluent means from said secondary turbine to conduct pure water to an inlet to said globular boiler, said inlet being disposed at an upper portion of said globular boiler; and
- a check valve in said effluent means (h) to control the recirculating flow of water back to said globular boiler.

4,391,101

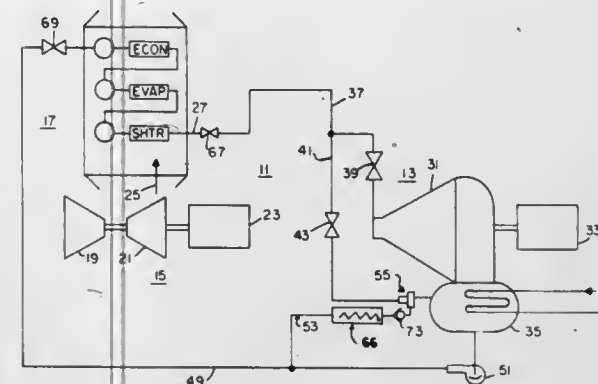
ATTEMPERATOR-DEAERATOR CONDENSER Donald E. Labbe, Woburn, and Mayo E. Brown, Jr., Milton, both of Mass., assignors to General Electric Company, Lynn, Mass.

Filed Apr. 1, 1981, Ser. No. 250,967

Int. Cl.³ F01K 21/06

U.S. Cl. 60—646

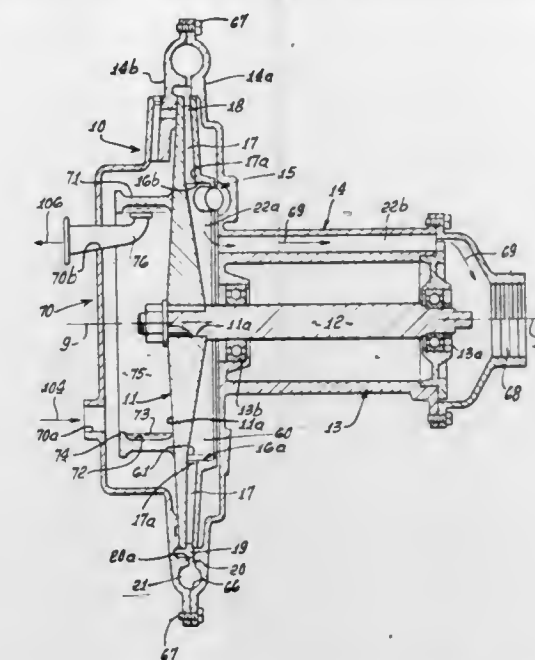
6 Claims



1. In an improved power plant of the type having a steam generator providing steam to a steam turbine, said steam turbine exhausting into a condenser for condensing exhaust steam into feedwater for the steam generator; means for pumping feedwater from the condenser to the steam generator, said steam generator connected to said steam turbine and condenser through a main steam header and a bypass line respectively; and, wherein the improvement comprises:

- a recirculation loop for recirculating a portion of said feedwater into the condenser;
- means for heating said feedwater upstream from said condenser whereby said feedwater is slightly above saturation temperature; and,
- nozzle means for delivering said heated feedwater into said condenser whereby flashing is effected for deaeration purposes.

(d) and a pump associated with and driven by said rotor, the pump including an annular rim surface to receive impinge-



ment of liquid to be pumped, the liquid collecting as a rotating ring on said rim surface.

4,391,103

FLUIDIC CRYOGENIC REFRIGERATOR

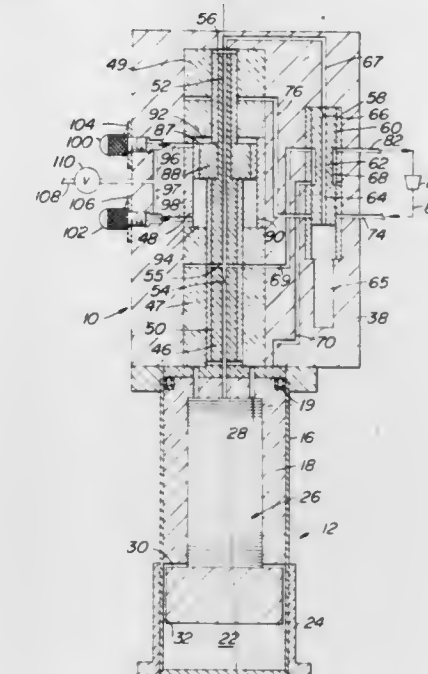
Domenico S. Sarcia, Carlisle, Mass., assignor to CVI Incorporated, Columbus, Ohio

Filed Apr. 19, 1982, Ser. No. 369,865

Int. Cl.³ F25B 9/00

U.S. Cl. 62—6

10 Claims



1. In a cryogenic refrigerator in which a movable displacer means defined within an enclosure first and second chambers of variable volume, and in which a refrigerant fluid is circulated in a fluid flow path between said first chamber and said second chamber by the movement of said displacer means controlled in part through the introduction of high-pressure fluid and the discharge of low-pressure fluid, chamber means for guiding a slide connected to the displacer means, said slide having an axial passage communicating with one end of said chamber means remote from the displacer means, a piston coupled to said slide for controlling movement of the displacer means, valve means for metering flow between opposite sides of said piston, the cross-section of said slide being smaller on one side of the piston than on the other side, said passage in said slide having a restriction, a valve having a spool valve member for controlling flow the high and low pressure fluid, means

4,391,102

FRESH WATER PRODUCTION FROM POWER PLANT WASTE HEAT

Walter R. Studhalter, Woodland Hills; William E. Amend, Rolling Hills Estates, and Norman L. Helgeson, Pasadena, all of Calif., assignors to Biphase Energy Systems, Santa Monica, Calif.

Filed Aug. 10, 1981, Ser. No. 291,339

Int. Cl.³ F01K 25/04; F03G 7/00

U.S. Cl. 60—649

18 Claims

1. In reaction turbine and pump apparatus, the combination comprising

- a first nozzle means to receive heated fluid for expansion therein to form a two-phase discharge of gas and liquid,
- a separator rotor having an axis and a rotating surface located in the path of said discharge for supporting a layer of separated liquid on said surface,
- the rotor having reaction nozzle means to communicate with said layer to receive liquid therefrom for discharge in a direction or directions developing torque acting to rotate the rotor,

including a conduit communicating one end of said spool valve member with said one end of said chamber means for introducing high fluid pressure into the conduit to shift the spool valve member when the displacer means is at one of the extremities of its movement.

4,391,104

CASCADE HEAT PUMP FOR HEATING WATER AND FOR COOLING OR HEATING A COMFORT ZONE

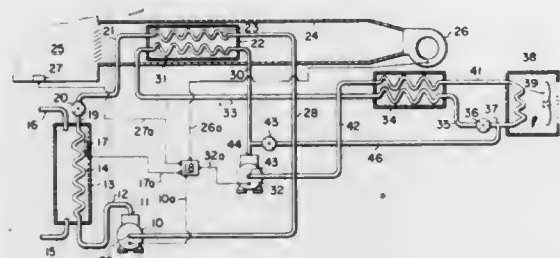
James C. Wendschlag, Onalaska, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Jan. 15, 1982, Ser. No. 339,540

Int. Cl.³ F25B 27/02, 7/00

U.S. Cl. 62—79

15 Claims



1. A heat pump system selectively operable in cascade fashion for heating water and in non-cascade fashion, for heating or cooling air, comprising

- a first compressor selectively operative to compress a first refrigerant fluid, and including a first suction port and a first discharge port;
- a refrigerant-to-water heat exchanger connected in fluid communication with the first discharge port and operative to transfer heat from the first refrigerant fluid compressed in the first compressor, to water, thereby condensing the first refrigerant fluid and heating the water;
- first expansion means, in fluid communication with the refrigerant-to-water heat exchanger, for expanding and reducing the pressure of the condensed first refrigerant fluid;
- a tri-fluid heat exchanger including non-communicating first and second circuits, and air passages arranged to provide heat transfer between the first refrigerant fluid, a second refrigerant fluid, and air, respectively; an inlet to said first circuit being connected in fluid communication to the first expansion means, and an outlet from said first circuit being connected in fluid communication with the first suction port for return of the first refrigerant fluid vaporized in said tri-fluid heat exchanger to the first compressor;
- a second compressor selectively operative to compress the second refrigerant fluid, including a second suction port, and a second discharge port connected in fluid communication with an inlet to said second circuit in the tri-fluid heat exchanger;
- second expansion means connected to an outlet from said second circuit, for expanding and reducing the pressure of the second refrigerant fluid condensed in the tri-fluid heat exchanger; and
- an evaporator heat exchanger, connected in fluid communication between said second expansion means, and said second suction port, operative to provide heat transfer with a source of heat to vaporize the second refrigerant fluid prior to its return to the second compressor, said system being used in a first mode to heat the water and cool the air when only the first compressor is selectively energized, or in a second mode to heat the water when both the first and second compressors are selectively energized, in cascade relationship, or, in a third mode, to heat the air when only the second compressor is energized.

4,391,105 YARN FEED UNIT IN A SINGLE-CYLINDER CIRCULAR KNITTING MACHINE

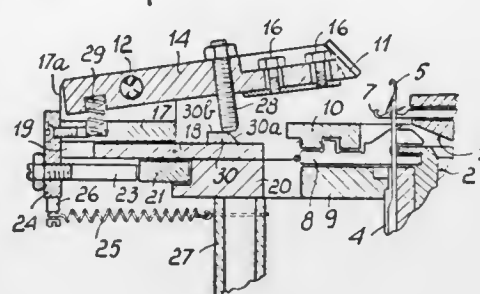
Francesco Lonati, Brescia, Italy, assignor to Costruzioni Meccaniche Lonati S.p.A., Brescia, Italy

Filed Mar. 16, 1981, Ser. No. 244,472

Claims priority, application Italy, Apr. 1, 1980, 21362/80[U] Int. Cl.³ D04B 15/58

U.S. Cl. 66—138

5 Claims



1. An improved yarn feed unit in a single-cylinder circular knitting machine, in particular a hose or the like knitting machine, comprising a plurality of yarn feeding fingers arranged side-by-side and independently journaled about a common axis, said yarn feeding fingers being movable independently of one another between inoperative and operative positions, an arm journaled to said common axis and having a small plate secured thereto and extending underneath all of said yarn feeding fingers, means for raising said arm and along therewith, through the intermediary of said small plate, all of said yarn feeding fingers at once to a rest position substantially coincident with said inoperative position, a carrier body supporting said axis, means for substantially radially displacing said carrier body between a position close to said needle cylinder and a position remote from said needle cylinder, said means for raising said arm being operative upon said carrier body being displaced to said position remote from said needle cylinder.

4,391,106

WOUND DRESSING

Ewald Schäfer, Wolfstein, and Harald Jung, Kreimbach, both of Fed. Rep. of Germany, assignors to Karl Otto Braun K.G., Wolfstein, Fed. Rep. of Germany

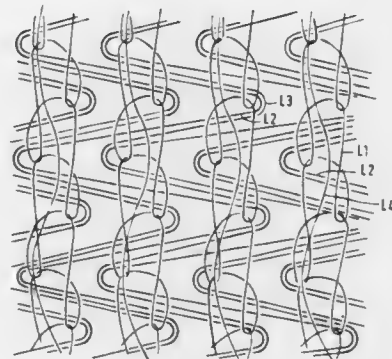
Continuation of Ser. No. 880,150, Feb. 22, 1978, abandoned.

This application Apr. 21, 1980, Ser. No. 141,812

Int. Cl.³ D04B 23/08

U.S. Cl. 66—193

9 Claims



1. A warp knitted fabric for use as a surgical bandage and dressing comprising four yarns arranged in a plurality of wales and causes including a first yarn comprising a basic stitch construction (L1) and second, third, and fourth yarns bound in as in-laid threads (L2, L3, L4), said fourth yarn consisting of a thick, roughened binding yarn of high volume bound in warp-wise, said second and third yarns consisting of cross filling long looped, highly twisted yarns of sinuous configuration having a twist of one of the Z-twisting direction and S-twisting direction, one of said second and third yarns being bound in be-

tween two adjacent wales and the other of said second and third yarns being bound in between three adjacent wales.

4,391,107

SPIRAL GYRATOR FOR WASHING MACHINES

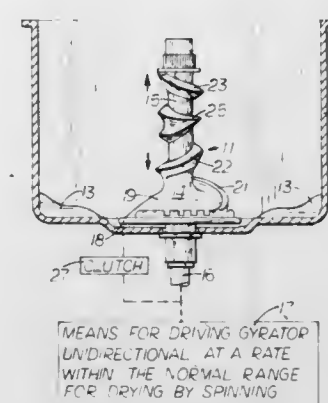
George M. Gibson, 322 Brookvale Rd., Kinnelon, N.J. 07405

Filed May 21, 1981, Ser. No. 265,936

Int. Cl.³ D06F 17/10

U.S. Cl. 68—133

2 Claims



1. A washing machine comprising:

- a tub having a bottom and a substantially vertical wall for enclosing a space to contain wash,
- a gyrotor having a base and a driving post, said base subtending a substantial portion of said bottom, said base having an outer circumferential portion and an inner upper portion shaped substantially as a frustum of a cone, the base of the cone being parallel with said bottom and said outer portion extending outwardly therefrom, said driving post extending coaxially upwardly from the truncated end of said inner portion of said base,
- a driving surface comprising a spiral ridge having one end positioned substantially circumferentially on the upper surface of said outer circumferential portion and extending from said one end gradually inwardly and upwardly in one circumferential direction on the surface of said inner portion of said base to said truncated end thereof and continuing in said one circumferential direction like an expanded helical screw thread upwardly about said driving post to an upper intermediate region of said post where said ridge gradually reverses in circumferential direction to form at least one helical turn of opposite direction near the upper end of said driving post, the ends of said driving surface having gradual and smooth contours, and
- unidirectional driving means connected to said driving post to rotate said gyrotor about said axis thereof.

4,391,108

DRUM FOR A CONTINUOUSLY OPERATING LAUNDRY PROCESSING MACHINE

Richard R. Albers, Warren, N.J., assignor to Passat-Maschinenbau GmbH, Heilbronn, Fed. Rep. of Germany

Filed Nov. 6, 1980, Ser. No. 204,659

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944857

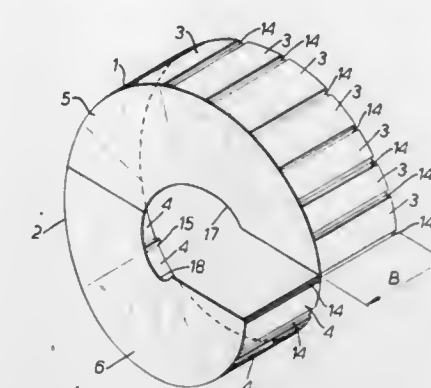
Int. Cl.³ D06F 21/02, 37/08

U.S. Cl. 68—143

8 Claims

1. A drum for a continuously operating textile processing machine, comprising a drum shell, defining an interior space having a central longitudinal axis and a horizontal middle plane, a conveying screw composed of right helicoids which divide the interior space of the drum shell into individual chambers, the drum being constructed from individual elements joined to each other by weld seams, each element comprising an upper portion and a lower portion which are welded together in the horizontal middle plane of the drum interior space, each of said upper and lower portions consisting of a surface which follows the shape of a helix and forms a part of

the drum shell, and a surface corresponding to a half helicoid of the conveying screw, said half helicoid surface being



welded to the said surface forming a part of the drum shell of the said portion.

4,391,109

APPLIANCE DESIGNED FOR THE TREATMENT, PARTICULARLY IN A LIQUID, OF A PRODUCT LIKE LEATHER AND PROCEDURE FOR APPLYING THIS APPLIANCE

Yves Grenier, Le Verdin, France, assignor to R.I.A.T., Charavines, France

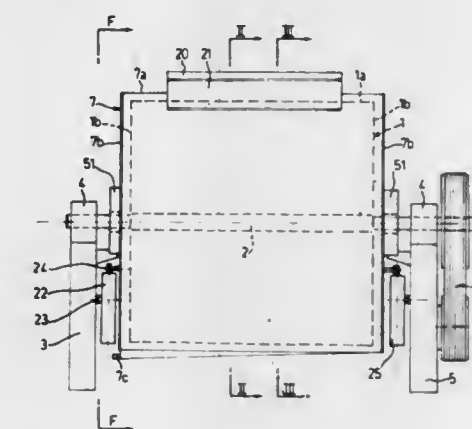
Filed Feb. 18, 1981, Ser. No. 235,478

Claims priority, application France, Feb. 18, 1980, 80 03516

Int. Cl.³ C14C 1/00; D06F 21/00

U.S. Cl. 69—30

17 Claims



1. An appliance designed for the liquid treatment of a product like leather, comprising a tank which can be filled at least partly with the treatment liquid and which is provided with an opening made in its peripheral wall, a rotary drum placed inside the tank, said drum being mounted on a roughly horizontal shaft which runs from end to end of the said tank and which can be driven in rotation, said drum having a peripheral envelope and compartments separated by axial partitions extending roughly radially from its shaft to said peripheral envelope, the product being loaded into each of the compartments in order to be treated by rotation of the drum and discharged through the said tank opening, each compartment having an opening and a lockable door in said peripheral envelope, said appliance being characterized by the fact that said tank is mounted to swing round the drum shaft, a fixing means for temporarily fixing together in rotation the drum and the tank when the opening of one of the compartments is placed opposite the tank opening with the object of loading and discharging the product in this compartment, a drive means for swinging the tank between a first position in which its opening is placed roughly in its top position and a second position in which its opening is placed on the side, the product being treated by rotation of the drum when the opening of the said tank is in the said first position, loading of the product being

performed through the top when the opening of the tank is in the said first position and the opening of the compartment to be loaded is opposite the tank opening, and discharge of the product being carried out on the side after the tank and the drum fixed together by the fixing means have been swung round by means of the said drive means to move the tank opening from the first position to said second position.

4,391,110

BARREL LOCK SLEEVE

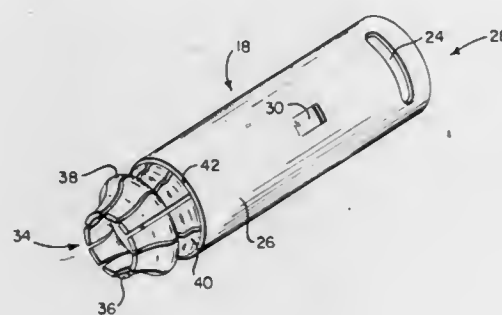
Anker J. Nielsen, Jr., Holden, Mass., assignor to Omco Inc., Holden, Mass.

Filed Jul. 29, 1981, Ser. No. 288,189

Int. Cl.³ E05B 17/14, 67/36

U.S. Cl. 70—34

7 Claims



1. A barrel lock sleeve adapted to be pushed into and resiliently snap-mounted in a meter box door aperture, said sleeve adapted to be fixed in the door aperture by a barrel lock inserted and locked within said sleeve, said sleeve comprising:

- (a) a hollow cylindrical sleeve having open leading and trailing ends;
- (b) said sleeve having four axially sequential portions including a tip portion and a locking ball retaining portion both adapted to be inserted through the door aperture and positioned on the inside of the door, a neck portion adapted to be positioned within the door aperture, and a shoulder portion adapted to be positioned on the outside of the door;
- (c) said tip portion being located at the extreme leading end of said sleeve and having an uncompressed outside diameter smaller than the door aperture diameter;
- (d) said locking ball retaining portion being located to the rear of said tip portion and having at least a portion of its uncompressed outside diameter larger than the door aperture diameter, said locking ball retaining portion including means for permitting said larger outside diameter portion of said locking ball retaining portion to be resiliently and sufficiently reduced in diameter as said larger portion is pushed through the door aperture, and for permitting said larger outside diameter portion of said locking ball retaining portion to snap back to its original uncompressed outside diameter after said larger portion has passed to the inside of the meter box door;
- (e) said neck portion being located to the rear of said locking ball retaining portion, and having an outside diameter smaller than the door aperture diameter;
- (f) said shoulder portion being located to the rear of said neck portion and having at least a portion of its outside diameter larger than the door aperture diameter and having an inside diameter larger than the barrel lock head diameter; and
- (g) said sleeve having an interior length, shape and inside diameter selected to permit the insertion of an unlocked barrel lock entirely therein, and to accommodate the radial extension of the barrel lock locking balls within said locking ball retaining portion when said barrel lock is locked, said sleeve being sized and shaped to remain fixed in the meter box door aperture when the barrel lock is locked, and to be removed from the door aperture when the barrel lock is unlocked.

4,391,111 LATCHING MECHANISM FOR DISPENSER APPARATUS

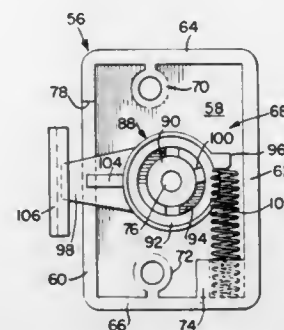
Russell A. Marcy, Watertown, Conn., assignor to Waterbury Companies, Inc., Waterbury, Conn.

Filed Jun. 12, 1981, Ser. No. 273,137

Int. Cl.³ B65D 55/14; E05B 15/06

U.S. Cl. 70—162

10 Claims



1. Dispenser apparatus for repeated use in dispensing a consumable through an outlet opening, said dispenser apparatus including a casing having a body member both for supporting a container for said consumable and enclosing said container within a space, and a closure member mounted on said body member to close said space preventing access to said consumable; means mounting said closure member for movement between an open position to permit replenishment of said consumable and a closed position; latching means for latching said closure member in said closed position to prevent substantially unauthorized access to said space, said latching means including a stationary latching element carried by one of said body member and container, a movable latching element carried by said closure member, said movable latching element including a base, a hub extending from said base, a rim likewise extending from said base and spaced outwardly of said hub to define a recess therebetween, at least one projection within said recess at said base, an ear extending from said base, means for mounting said movable latching element to said closure member, means for biasing said movable latching element to a first position, means carried by said mounting means for supporting one end of said biasing means whose other end is supported by said ear, and a nose extending from said base to cooperatively interact with said stationary latching element for latching said closure member when said movable latching element is in said first position; said mounting means also supporting said movable latching element for movement from said first position; and a key having an operative portion to be received in said recess, said operative portion having a slot equal in number and spaced apart in accordance with the spacing of each said projection, each said projection being received in a slot to engage said key and movable latching element whereby movement of said movable latching element in opposition to said biasing means in following movement of said key results in movement of said movable latching element from said first position toward a second position for release of said cooperative interaction between latching elements.

4,391,112

PISTON-TYPE LOCKS

Guy Neyret, Oullins, France, assignor to Sodex-Magister, Societe d'Exploitation, Croissy, France

Filed Jul. 9, 1980, Ser. No. 167,283

Claims priority, application France, Jul. 23, 1979, 79 18918

Int. Cl.³ E05B 9/04, 27/04

U.S. Cl. 70—364 A

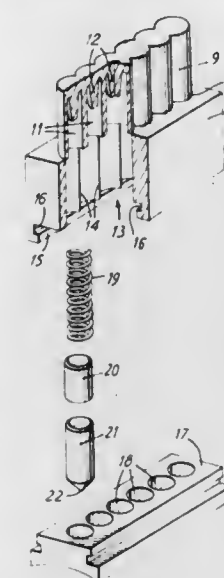
7 Claims

1. A piston-type lock comprising:

- (a) a stator,
- (b) a cylindrical rotor pivoting in a longitudinal bore of the stator, said rotor comprising a longitudinal key passage and a plurality of radial bores opening into the key passage and to the periphery of the rotor, said stator comprising a plurality of bores opening into the longitudinal bore of the

stator and each continuing, in one angular position of the rotor, a radial bore of the rotor,

- (c) a sliding piston within each radial bore of the rotor,
- (d) a sliding piston within each radial bore of the stator spring-loaded towards the longitudinal bore of the stator, the pistons of the rotor each cooperating with a piston of the stator in the said angular position, the inner extremities of the pistons of the rotor cooperating with the notches of a coded key introduced into the key passage in such manner that the other extremities of the said rotor pistons are flush with the periphery of the rotor, said stator compris-



4,391,113

ONE-HAND KEY RING

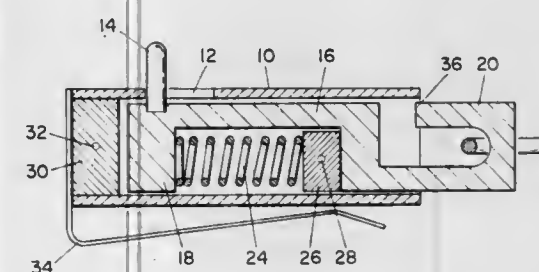
Douglas M. Jorgens, 1527 Sitka Ave., Sun Valley, Calif. 93063

Filed Aug. 3, 1981, Ser. No. 289,507

Int. Cl.³ A47G 29/10

U.S. Cl. 70—459

5 Claims



1. A key ring device adapted to be attached at one end to a piece of clothing and to hold a ring of keys at the other comprising a tubular outer shell, a slot disposed within said outer portion, a U-shaped inner body, a spring disposed within said U-shaped inner body, a button fixedly attached to said U-shaped inner body which button passes through the slot in the outer shell, said inner body comprising a U-shaped key ring holder portion, means to attach the key ring device to a piece of clothing.

4,391,114

SHEAR FORMING APPARATUS FOR ELONGATED NON-ROTATING METAL TUBES

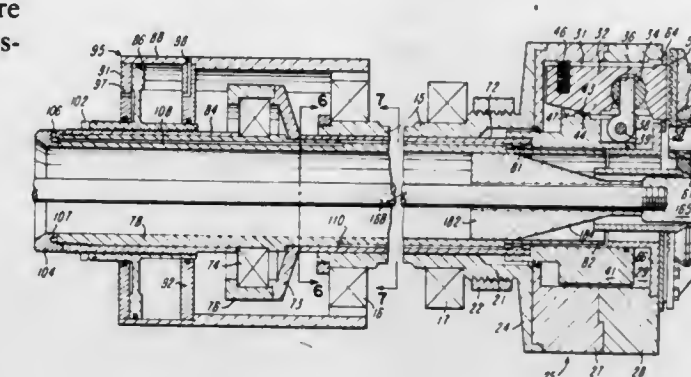
Anthony C. Keathley, Xenia, Ohio; Howard F. Stanton, Lockport, and Mahesh M. Wagle, Amherst, both of N.Y., assignors to Tubing Technology, Inc., Alpha, Ohio

Filed May 26, 1981, Ser. No. 266,708

Int. Cl.³ B21B 19/12

U.S. Cl. 72—78

28 Claims



1. Shear forming apparatus for reducing the diameter of an elongated cylindrical workpiece, comprising a tubular spindle supporting an annular forming head for rotation on an axis, a plurality of angularly disposed forming wheels supported by said head for orbital movement around the axis, an actuating tube disposed within said spindle for rotation therewith and supported for axial movement within said spindle, actuating means within said head and connected to said actuating tube, said actuating means being effective to move said forming wheels in corresponding generally radial directions in response to axial movement of said actuating tube within said spindle, means for pulling the workpiece axially through said spindle and said head and between said forming wheels, a fluid cylinder having a non-rotating piston, means including a non-rotating connecting tube and a thrust bearing for connecting said piston to said actuating tube for moving said actuating tube axially while said spindle and head are rotating to effect radial inward deformation of the workpiece by said forming wheels, and means for precisely adjusting a limit of movement of said connecting tube to control the limit of generally radial inward movement of said forming wheels.

4,391,115

METHOD AND APPARATUS FOR BENDING METAL BEAMS

William Slattery, Annbank Station; Thomas Brechany, Ayr, and Colin J. MacLeod, Glasgow, all of Scotland, assignors to Caledonian Mining Company Limited, Nottinghamshire, England

Filed Dec. 3, 1980, Ser. No. 212,594

Claims priority, application United Kingdom, Dec. 4, 1979, 7941886

Int. Cl.³ B21D 7/04, 43/28

U.S. Cl. 72—131

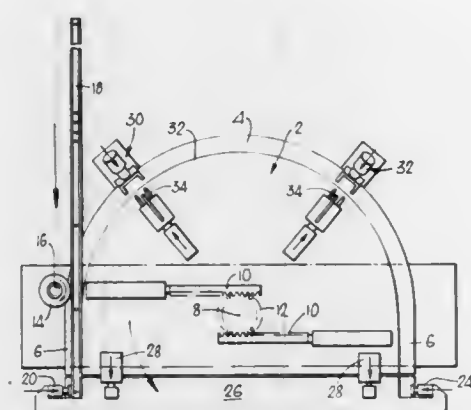
21 Claims

1. A machine for forming a curved beam, said machine comprising

- a former having a convex arcuate edge bounded by opposed ends,
- a first clamp positioned to cooperate with one of said ends of said arcuate edge, said first clamp being adapted to hold one end of a beam in fixed position relative to said arcuate edge prior to and during the bending of that beam about said arcuate edge,
- a roller positioned adjacent to said arcuate edge but spaced therefrom a distance not significantly greater than the width of said beam, said roller being moveable relative to said former for bending said beam about said arcuate edge between a beam entry position at which said beam is initially clamped to said arcuate edge between said roller

and said arcuate edge, and a curved beam position at which said beam is bent about said arcuate edge, motor means for moving said former relative to said roller for translating said beam between said entry and curved positions, and

a second clamp positioned to cooperate with the opposite



end of said arcuate edge, said second clamp being adapted to hold the other end of said beam in fixed position adjacent said opposite end of said arcuate edge after said beam has been bent about said arcuate edge, said second clamp being operatively connectable with the other end of said beam only after said beam has been bent about said arcuate edge.

4,391,116

LACE BENDING APPARATUS

Teruaki Yogo, Kabushikikaisha Chuodenkiseisakusho 4423 aza-Johnoh, Ohaza-Ohmori, Moriyama-ku, Nagoya-shi, Japan

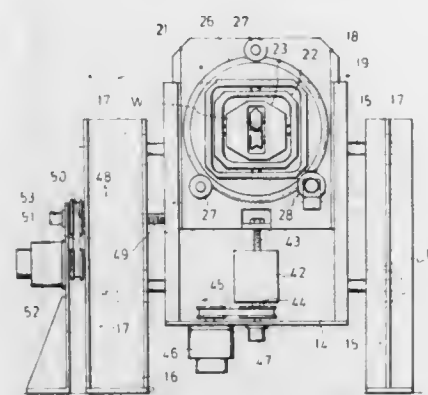
Filed Dec. 2, 1980, Ser. No. 212,184

Claims priority, application Japan, Dec. 3, 1979, 54-157225; Sep. 1, 1980, 55-120944

Int. Cl.³ B21B 15/00, 39/00

U.S. Cl. 72-168

5 Claims



1. A lace bending apparatus comprising:

- a material feed device for supplying a material in the lengthwise direction thereof,
- a first guide roller element provided fixedly on the side to receive said material supplied from said material feed device and adapted to locate said material,
- a support mechanism including a plurality of frames provided fixedly on the side to receive said material supplied from said first guide roller element and a movable element mounted to move in directions perpendicular to the direction of supply of said material from said first guide roller element,
- a second guide roller element provided in said movable element and adapted to bend said material,
- means to maintain said second guide roller element substantially at right angles to the direction of feed of said material,
- a plurality of driving means connected to said movable

element for moving said movable element in said perpendicular directions,

- a means connected to said material feed device for detecting the amount of feed of said material by said material feed device, and
- a control device responsive to information from said feed-amount detecting means for controlling said driving means, including an input portion adapted to receive the feed amount information from said detecting means, a memory portion for storing in advance the relationship between the feed amount of said material and the moving amount of said movable element, and a command portion adapted to designate driving amounts of said driving means based on said relationship stored in said memory portion, in accordance with said information from said input portion, wherein said movable element includes a first slide provided movable in the horizontal direction perpendicular to the direction of supply of said material from said first guide roller element and a second slide provided movable in a vertical direction, said driving means includes a first-slide driving element connected to said first slide for moving said first slide in said horizontal direction and a second-slide driving element connected to said second slide for moving said second slide in a vertical direction, and said memory portion of said control device includes a first memory means storing in advance the relationship between the amount of feed of said material and the moving amount of said first slide and a second memory means storing in advance the relationship between the amount of feed of said material and the moving amount of said second slide and wherein said command portion of said control device includes a first command means responsive to information from said input portion for designating a moving amount to said first-slide driving element based on the relationship stored in advance into said first memory means and a second command means responsive to information from said input portion for designating a moving amount to said second-slide driving element based on the relationship stored in advance into said second memory means.

4,391,117

ROLLING MILLS AND METHODS OF ROLLING

Werner Demny, Düsseldorf, Fed. Rep. of Germany, assignor to Friedrich Kocks GmbH & Company, Ilden, Fed. Rep. of Germany

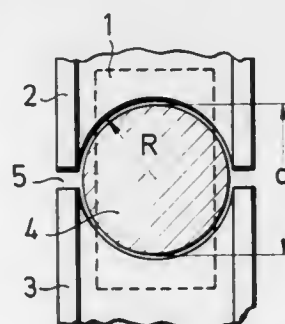
Continuation of Ser. No. 42,812, May 29, 1979, abandoned. This application Sep. 8, 1981, Ser. No. 300,325

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1978, 2824143

Int. Cl.³ B21B 13/22, 1/46

U.S. Cl. 72-224

13 Claims



1. A rolling mill for rolling of bars and wire from stock having a rectangular, oval or similar elongate cross-sectional shape, the ratio of the lengths of the principal axes of the cross section of said stock being larger than approximately 1:2, comprising a plurality of roll stands arranged closely one behind the other to define a line of sizing passes, said roll stands having

- a first entry sizing pass stand formed by two rolls whose roll axis is substantially transverse to the principal axis of the stock

being rolled and receiving the stock to be rolled, (b) the cross-sectional shape of the said first sizing pass being one of an exact circle, a regular polygon having an even number of sides and a like but somewhat elongated geometrical figure, (c) the ratio of the lengths of whose principal axes does not exceed approximately 1:2, and (d) at least one three roll stand immediately following said two roll stand receiving the rolled stock from said first stand, the first stand of said three roll stands adjacent the two roll stand having one roll axis extending parallel to the longer principal axis of the first sizing pass cross section, in the case wherein the latter is somewhat elongated, all roll stands following the first stand being three roll stands.

9. A method of rolling bars and wire from stock having a rectangular, oval or similar elongate cross-sectional shape, the ratio of the lengths of the principal axes of the cross section of said stock being larger than about 1:2, comprising the steps of:

- passing said stock between two rolls forming a first roll pass opening having a cross-sectional shape in one of an exact circle, a regular polygon having an even number of sides and a like elongate geometric figure having principal cross-sectional axes whose ratio is less than 1:2, and whose roll axes are substantially transverse to the principal axis of the stock being rolled; and
- thereafter passing the sized product successively through at least one additional roll pass formed by three rolls, said roll pass immediately following the two roll pass having one roll axis extending parallel to the longer principal axis of said first roll pass section in the case where said section is elongate, and all passes thereafter being three roll passes.

4,391,118

MECHANISM FOR FORMING A HOLE THROUGH A FORGED WORKPIECE

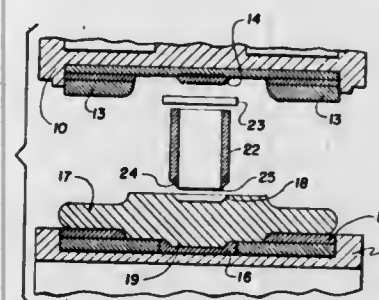
Wayne A. Martin, Pittsburgh, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 45,529, Jun. 4, 1979, Pat. No. 4,299,110, which is a continuation-in-part of Ser. No. 892,715, Apr. 3, 1978, abandoned. This application May 6, 1981, Ser. No. 261,071

Int. Cl.³ B21D 28/00

U.S. Cl. 72-356

4 Claims



1. In a forging press which includes cooperating sets of top and bottom dies for shaping a workpiece heated to a hot forging temperature, the combination therewith of an improved mechanism for forming a hole through the workpiece, said mechanism comprising:

- a male die member in said set of top dies engageable with the upper surface of the workpiece for forming an indentation therein; and
- a tubular trepanning tool having at least one sloping face extending around its circumference at its lower end; said male die member having tapered circumferential edges matching the sloping face of said tool and being of a diameter substantially equal to the tool diameter, whereby the indentation formed in the workpiece receives the sloping face of said tool and serves to center it; said set of top dies being adapted to apply force to said tool to hot-trepan a hole in the workpiece at the indentation before the workpiece is removed from the press following the forging operation.

1032 O.G.—3

4,391,119

APPARATUS FOR CUTTING SWIVEL-BENDING AND PRESS-BENDING SHEET METAL AND SIMILAR MATERIALS

Peter Schmitz, Pietra Rossa-Renon, Prov. Bozen, Italy

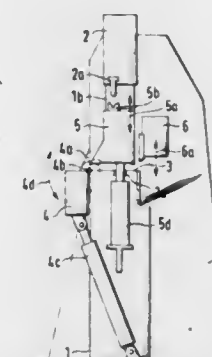
Filed Feb. 13, 1981, Ser. No. 234,415

Claims priority, application Italy, Feb. 20, 1980, 4810 A/80

Int. Cl.³ B21D 5/01

U.S. Cl. 72-384

6 Claims



1. Apparatus for cutting, swivel-bending and press-bending of sheet material, comprising: a frame for receiving said sheet material; a cross-beam having a first press-bending element; an integral clamping beam having a second press-bending element; means providing a bearing surface, said frame supporting said cross-beam and said clamping beam for movement relative to one another to effect engagement of said first and second press-bending elements with said sheet materials for press-bending thereof, said frame further supporting said clamping beam and such bearing surface means for movement relative to one another to clamp said sheet material for cutting and swivel-bending thereof, and a shearing beam supported by said frame for movement independently of movement of said clamping beam.

4,391,120

RADIAL DEFORMATION MEANS FOR CYLINDRICAL OBJECTS SUCH AS WHEELS

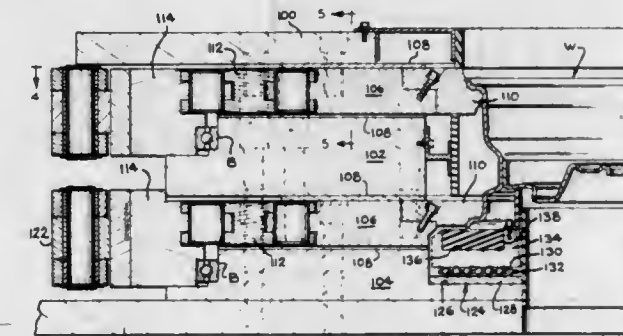
David Trevarrow, 119 Reiniche, Horton, Mich. 49246

Filed Mar. 12, 1979, Ser. No. 19,683

Int. Cl.³ B21D 53/26

U.S. Cl. 72-403

20 Claims



1. Truing apparatus for wheels having a rim with opposing bead seats and a web, said apparatus comprising: radially inwardly moving concentric dies movable in a predetermined plane, a rigid support surface parallel to said predetermined plane, a plurality of rollers having the same diameter on said rigid support surface, an annular surface plate on said rollers free to move parallel to said rigid support surface, and a resilient surface on said annular surface plate, said resilient surface being arranged to support the rim of a wheel being worked open by said radially inwardly moving dies and being adapted to accommodate lateral deflection produced by said dies.

4,391,121

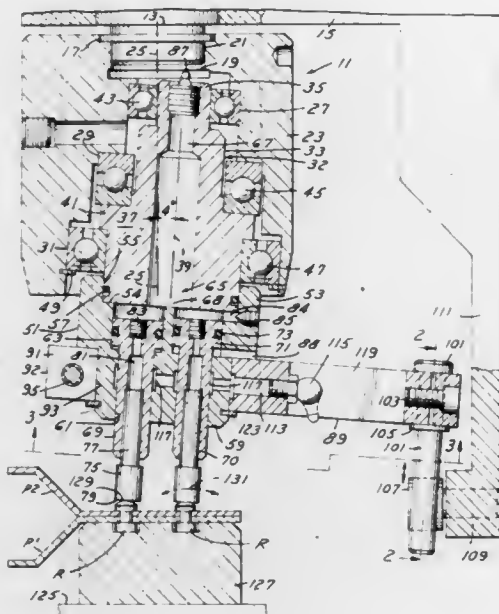
ORBITAL TOOL ASSEMBLY FOR FORMING RIVET HEADS

V. Taruntaev, Davison, Mich., assignor to T. A. Systems, Inc., Troy, Mich.

Filed May 13, 1981, Ser. No. 263,380

Int. Cl.³ B21J 7/20

U.S. Cl. 72-406



1. An orbital tool assembly for forming rivet heads comprising:
 - a housing adapted for an attachment to a driven member rotatable upon a first axis;
 - said housing having a bore extending along a second axis inclined at an acute angle to said first axis;
 - an elongated equalizing head having a longitudinal axis coincident with said second axis nested and retained within said housing;
 - bearing means interposed between said head and housing for journalling said housing for rotation about said first axis relative to said head;
 - said head having an axial bore defining a fluid pressure chamber open at one end;
 - a cylindrical driver coaxial with and mounted upon said head projecting from said housing and having a plurality of longitudinal bores parallel to said second axis and communicating with said pressure chamber;
 - a longitudinally reciprocal peening tool holder having an elongated bore movably mounted in each of said driver bores;
 - each holder having a piston movable in said driver head bore and normally biased outward by pressurized fluid filling said head and driver bores on one side of said piston;
 - an elongated peening tool mounted within each peening tool holder, at its outer end having a transverse rivet working surface, adapted for registry and operative engagement with an unheaded rivet projecting through a pair of parts upon a support to be secured together;
 - an elongated anti-rotation arm extending at right angles to said driver and at one end mounted upon and secured thereto;
 - and a bracket means upon a support retainingly engaging said arm at its opposite end against rotation, said arm being free for rocking movements in a plane passing through said axes;
 - continuous rotation of said housing oscillating said head and peening tools in said plane over the ends of said rivets forming heads thereon.

4,391,122

COMBINED HYDRAULIC CLAMPING AND ROTATING SADDLE DEVICE ON FORGING PRESSES

Fritz Priebe, Duisburg, Fed. Rep. of Germany, assignor to SMS Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

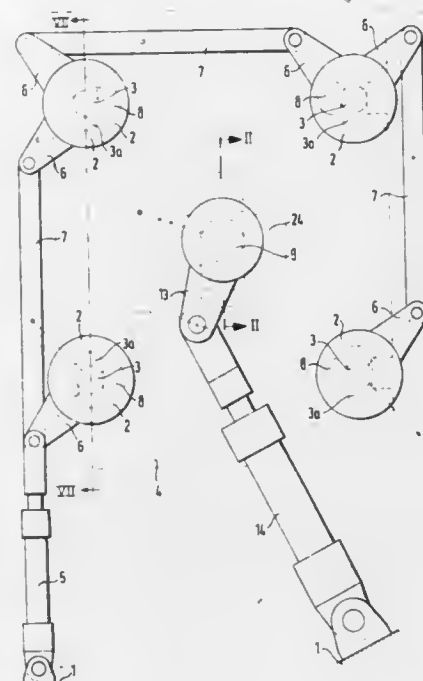
Filed Jun. 29, 1981, Ser. No. 278,681

27 Claims Claims priority, application Fed. Rep. of Germany, Jul. 11, 1980, 3026295

Int. Cl.³ B21J 13/02

U.S. Cl. 72-481

4 Claims



1. In a forging press having a movable crosshead and an upper press saddle carried by said crosshead; the improvement comprising the combination of:
 - (a) a plurality of vertical hammer-headed saddle-retaining rods mounted for rotation and longitudinal movement on the movable crosshead, for releasably clamping said upper saddle to said movable crosshead;
 - (b) a centrally disposed vertical hammer-headed saddle-rotating rod mounted for rotation on the movable crosshead with the hammer head of said rod at the lower end thereof projecting downwardly from said crosshead;
 - (c) a receptacle provided on said upper saddle for receiving said hammer head of said saddle-rotating rod, which receptacle has a slot-like through aperture for vertical passage therethrough of said hammer head and a downwardly open slot-like seat transverse to said through aperture for receiving said hammer head and effecting rotational driving engagement of said hammer head with said upper saddle, a recess of a size corresponding to the length and height of the hammer head being provided directly below said seat and aperture whereby said hammer head is transferrable from said aperture to said seat and vice versa by rotation within said recess;
 - (d) means for effecting rotation of said saddle-rotating rod and for effecting relative movement of said rod and said upper saddle in the longitudinal direction of said rod; and
 - (e) means for effecting said rotation and longitudinal movement of said saddle-retaining rods.

4,391,123

AUTOMATIC PUNCHING MACHINE

Guido Salvagnini, Arzignano, Italy, assignor to Salvagnini Transferica S.p.A., Italy

Filed Aug. 15, 1980, Ser. No. 178,565

Claims priority, application Italy, Sep. 12, 1979, 25676 A/79

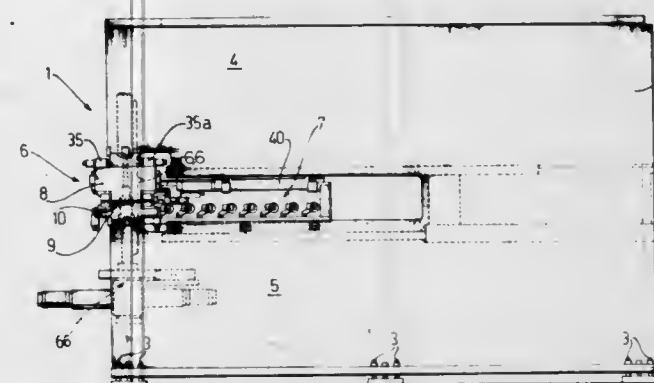
Int. Cl.³ B26F 1/04

U.S. Cl. 72-464

6 Claims

1. An automatic punching machine for performing punching

of a metal sheet in a programmed and programmable manner, comprising, in combination, a punching head provided with a plurality of independently operable punch and die pairs arranged at respective operative positions of the punching head, a numerically controlled programmable manipulator equipped with gripping means for gripping the metal sheet and with first and second driving means for displacing said gripping means in first and second horizontal directions perpendicular to one another, and a rotator for rotating the metal sheet through desired angles about a vertical axis, said manipulator including a first horizontal arm movable in the first direction and a second horizontal arm mounted on said first arm and movable in



said second horizontal direction, said second arm being equipped with the said means for gripping the metal sheet, and motor means for rectilinear alternating displacements of the said arms independently from one another, a disappearing plane is provided for receiving and supporting the metal sheet to be punched, said plane being defined by a plurality of rods extending parallel to said second arm of the manipulator and eccentrically mounted on pivot pins so as to be normally held in raised position, said manipulator further including a rectilinear shaft fixed to and extending parallel to said first arm in such a position as to engage progressively said rods and to displace the same to a lowered position during the advancing movement of said first arm of the manipulator.

4,391,124

ELECTROACOUSTIC TRANSDUCER CALIBRATION METHOD AND APPARATUS

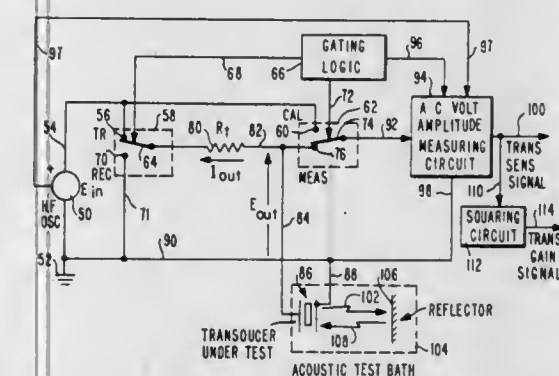
Cornelis J. Drost, and G. Jan Milanowski, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Feb. 26, 1981, Ser. No. 238,319

Int. Cl.³ H04B 11/00; H04R 29/00

U.S. Cl. 73-1 DV

33 Claims



1. A self-reciprocity calibration method for terminated ultrasonic transducers, comprising:
 - supplying a driving signal from a driving source to a transducer in a transmit mode to cause said transducer to emit a burst of ultrasonic waves;
 - switching said transducer to a receive mode to receive an echo of its emitted wave, said transducer responding to said echo wave to produce a transducer output signal;

measuring the ideal source value of said driving signal source;

measuring said transducer output signal, said driving signal and said output signal being fed through substantially identical impedance values; and

deriving from the measures of said driving signal and said output signal a measure of transducer performance in absolute terms under conditions of actual termination.

4,391,125

METHOD AND APPARATUS FOR TESTING AND/OR ADJUSTING VIBRATION ABSORBER FOR SUSPENDED CABLES

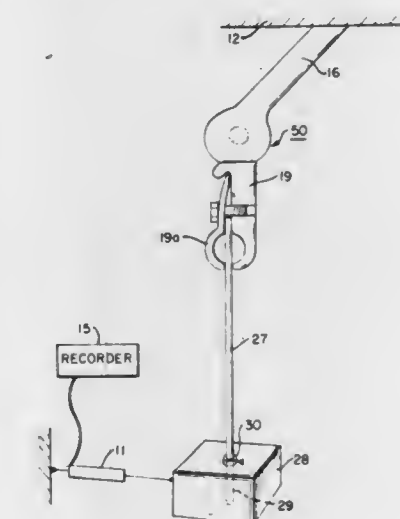
Olaf Nigol, Etobicoke, and Herbert J. Houston, Oakville, both of Canada, assignors to Slater Steel Industries Limited, Hamilton, Canada

Filed Jun. 10, 1981, Ser. No. 272,163

Int. Cl.³ G01M 19/00

U.S. Cl. 73-11

12 Claims



1. A method for testing and/or adjusting a vibration absorber to be used to absorb vibration from a suspended cable, comprising the steps of:
 - determining the desired damping of said absorber, the desired oscillation frequency at which the test is to be conducted, and the tension and mass per unit length of the cable from which vibration is to be absorbed;
 - selecting a logarithmic decrement value to be utilized for test purposes;
 - providing a pendulum to be used as a mechanical analog of the suspended cable-vibration absorber system;
 - adjusting the weight and radius of gyration of said pendulum to cause said pendulum to oscillate at said frequency and with said logarithmic decrement when said damping factor has said desired value;
 - coupling said vibration absorber to said pendulum to damp the oscillation thereof;
 - setting said adjusted pendulum into oscillation; and
 - displaying information responsive to the sensed amplitude and indicative of the logarithmic decrement of said oscillation.
6. Apparatus for testing and/or adjusting a vibration absorber to be used to absorb vibration from a suspended cable, comprising:
 - a pendulum;
 - means for adjusting the weight and radius of gyration of said pendulum;
 - means for coupling said vibration absorber to said pendulum so as to damp any oscillation of said pendulum;
 - means for sensing the amplitude of oscillation of said pendulum; and
 - display means coupled to said sensing means for displaying information indicative of the logarithmic decrement of said oscillation.

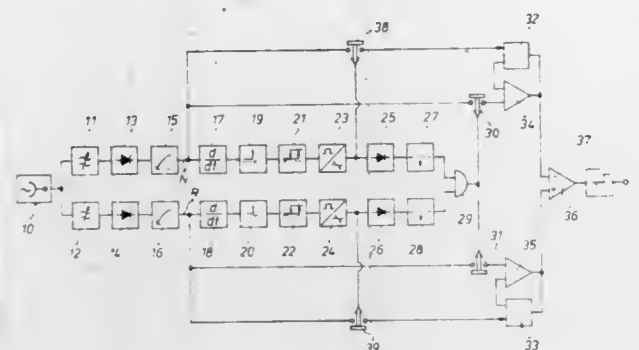
4,391,126

METHOD AND APPARATUS FOR DETECTING ENGINE KNOCK IN AN INTERNAL COMBUSTION ENGINEAnton van Zanten, Ditzingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed May 28, 1981, Ser. No. 267,892

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1980, 3020853

Int. Cl.³ G01L 23/22

U.S. Cl. 73—35



1. Method for detection of knocking in an internal combustion engine comprising the steps of:

detecting the wave shape of mechanical vibrations by a sensor responsive to engine vibrations both in a first frequency range within which engine knock vibrations commonly occur and in a second frequency range in which few, if any, components of engine vibrations commonly occur;

separating the outputs of said sensor in said first and second frequency ranges to produce a main signal and a reference signal;

initiating a comparison of said signals when both rise to a peak at approximately the same time;

performing said comparison during an interval beginning substantially when the peaks of said signals have passed, in such a way as to provide an engine knock signal when said main signal falls off more slowly than said reference signal and thereby produces a comparison output exceeding a predetermined output value.

4,391,127

PROXIMITY SENSOR

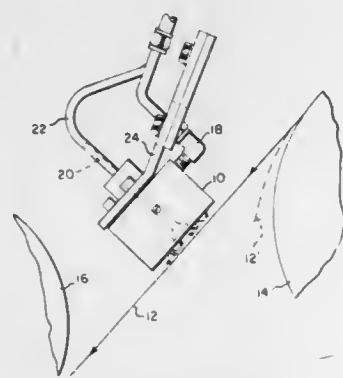
William E. Hawkins, Circleville, Ohio, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 20, 1981, Ser. No. 252,519

Int. Cl.³ G01B 13/00

U.S. Cl. 73—37.7

3 Claims



1. A proximity sensor comprising:

a body having a plenum therein in communication with inlet and outlet passages;

an elongated tube extending through the plenum and projecting from the outlet passage, said tube having a lesser diameter than the outlet passage, presenting an annular

discharge orifice, and a flared end located externally of said body and the discharge orifice; and
a pressure switch having a sensing chamber in communication with the tube.

4,391,128

BACK-DIFFUSION QUALITY CONTROL METHOD FOR BARRIER TREATED CONTAINERS

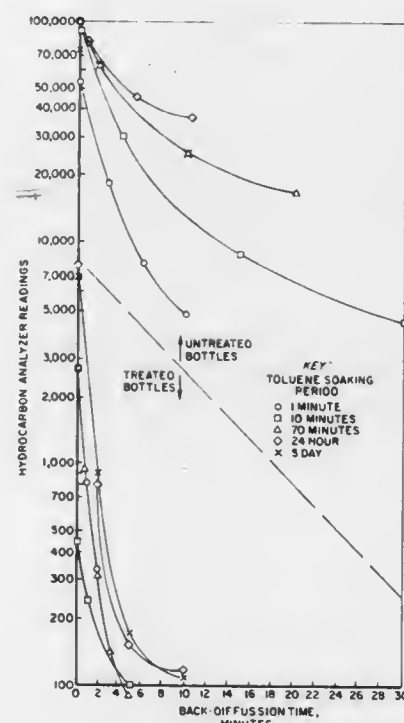
Thomas E. McWhorter, Whitehall, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 20, 1981, Ser. No. 255,958

Int. Cl.³ G01N 15/08

U.S. Cl. 73—38

10 Claims



1. A method for distinguishing between a solid material having at least one surface treated to impart a measurable degree of impermeability to a volatile fluid and an untreated material which comprises the steps of:

- exposing the treated surface to a high concentration of said volatile fluid for a fixed period of time,
- removing the excess fluid from said treated surface after said fixed period of time,
- exposing said treated surface from step (b) to an environment for causing volatile fluid to back-diffuse through said treated surface into the environment; and
- measuring if the concentration of said volatile fluid back-diffusing into the environment from said treated surface after a fixed period of time is at least one order of magnitude less than the concentration of such a fluid back-diffusing from said untreated material.

4,391,129

SYSTEM FOR MONITORING PHYSICAL CHARACTERISTICS OF FLUIDS

Eugene Trinh, Los Angeles, and Taylor G. Wang, Glendale, both of Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 23, 1981, Ser. No. 246,774

Int. Cl.³ G01N 13/02

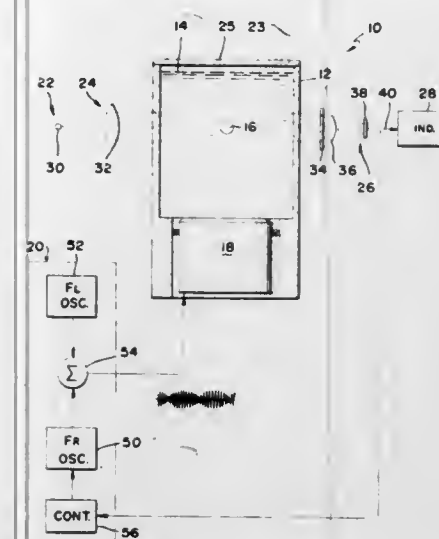
U.S. Cl. 73—64.4

14 Claims

1. Apparatus useful in oscillating a drop of a first fluid when surrounded by a bath fluid, comprising:

- a container for holding a bath fluid and for receiving a drop of the first fluid within the bath fluid;
- transducer means coupled to said container and energizable for generating acoustic energy and conducting it into bath fluid lying in said container;

means for energizing said transducer means; and
means for sensing oscillations of the drop of first fluid;



said energizing means being frequency controllable to alter the frequency to a value which produces resonant oscillations of said drop of first fluid.

4,391,130

METHOD OF AND APPARATUS FOR COMMUNICATING THE OPERATING CONDITION OF AN INTERNAL COMBUSTION ENGINE

Jiro Nakano, Okazaki, and Hironobu Ono, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

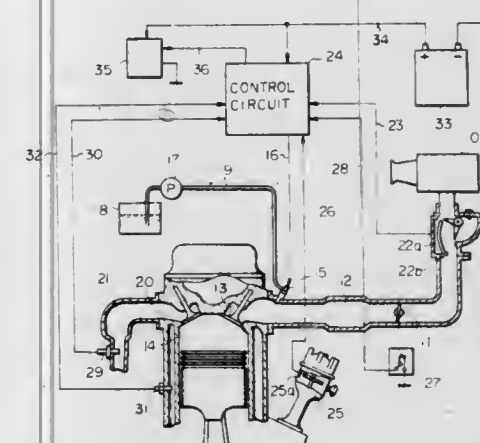
Filed Sep. 18, 1981, Ser. No. 303,493

Claims priority, application Japan, Sep. 25, 1980, 55/132269

Int. Cl.³ G01M 15/00

U.S. Cl. 73—117.3

14 Claims



1. A method of communicating the operating conditions of an internal combustion engine having a throttle valve, an information output terminal, an exhaust gas sensor for detecting the concentration of a predetermined component in the exhaust gas and producing an output signal which alternates in response to the change of the detected concentration, and a feedback control system for producing, depending upon the output signal from the exhaust gas sensor, a loop feedback signal and for correcting the air-fuel ratio of the air-fuel mixture supplied to the engine depending upon the produced loop feedback signal, said method comprising the steps of:

- detecting whether the throttle valve is in the idling position and producing an idling detection signal which indicates whether the throttle valve is in the idling position;
- in response to the idling detection signal, discriminating whether the loop feedback signal is within a predetermined range and supplying an electrical signal which indicates whether the loop feedback signal is within the predetermined range, to said information output terminal, only when the throttle valve is in the idling position; and
- in response to the idling detection signal, supplying an electrical signal which is synchronized with the output signal

from the exhaust gas sensor to said information output terminal, when the throttle valve is not in the idling position.

4,391,131

TRANSMISSION TESTING APPARATUS AND METHOD

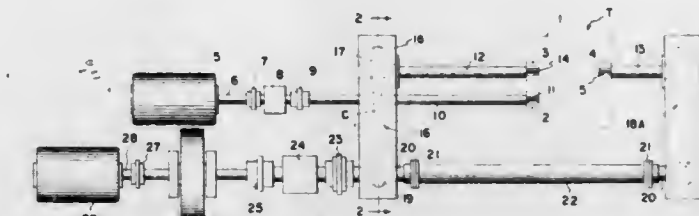
George Scourtes, Plymouth, Mich., assignor to The Allen Group Inc., Saginaw, Mich.

Filed Nov. 10, 1980, Ser. No. 205,609

Int. Cl.³ G01M 13/02

U.S. Cl. 73—118

12 Claims



1. A method of testing a front wheel drive vehicle transmission having a rotary input and two rotary outputs, said method comprising coupling drive means to said input; coupling driven means to each of said outputs; coupling each of said driven means to a single rotary member so that neither output can rotate relatively to the other; and driving said drive means.

8. Apparatus for testing an automotive transmission having a pair of drive outputs each of which may be driven in a selected one of two different directions from a single drive input, said apparatus comprising an input drive shaft for connection to the transmission drive input; a pair of output shafts for connection to the respective drive outputs of the transmission; a single driven shaft; non-slip, positive drive transmitting means coupling said driven shaft to each of said output shafts and precluding any rotation of either one of said output shafts without corresponding rotation of the other in the same direction and at the same speed of rotation as said one of said output shafts; and means coupled to said driven shaft for imposing a load on the latter.

4,391,132

GAS FLOW MEASURING APPARATUS

Tsuneaki Egami, Aichi; Hisasi Kawai, Toyohashi; Tokio Kohama, Nishio, and Hideki Obayashi, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

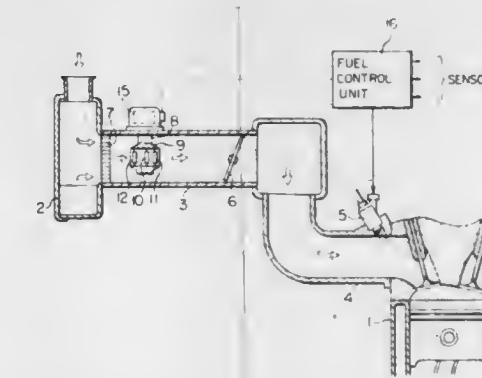
Filed Sep. 11, 1981, Ser. No. 301,448

Claims priority, application Japan, Sep. 17, 1980, 55-130003

Int. Cl.³ G01F 1/68; G01M 15/00

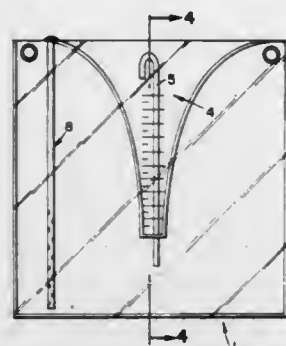
U.S. Cl. 73—118

5 Claims



1. A gas flow measuring apparatus comprising:
an electric heater disposed in a tube in which an object gas flows;
a first temperature dependent resistor disposed downstream of said electric heater in said tube;
a second temperature dependent resistor disposed at a point

a measuring pouch part, said measuring part, being tapered and having a narrow end and a wide end, said wide end of said measuring part in fluid communication with said main part;
 a graduated measurement scale positioned along said tapered part, said graduations starting at said narrow end of said measuring part;
 an inflow tube having a free end, said tube passing through said narrow end of said measuring part and extending in a



direction toward said main part for a distance and having a generally semicircular, U-shaped bend substantially at said free end of said tube; and
 suspension means affixed to said main part between said measuring part and said main part, said suspension means for suspending said vessel in a folded-over fashion so that said narrow end of said measuring part hangs downwardly from said affixment of said suspension means.

4,391,139

PLASTIC WATER METER MAIN CASE

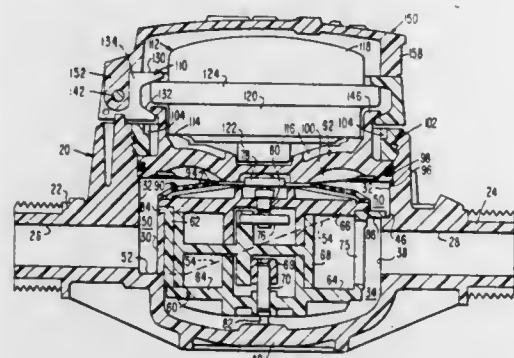
Ray Sutherland, Hopewood, and Mark S. Wood, Lemont Furnace, both of Pa., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Feb. 24, 1982, Ser. No. 351,827

Int. Cl.³ G01F 15/14

U.S. Cl. 73-273

4 Claims



1. A water meter comprised of a main case enclosing an inlet chamber and a generally circular measuring chamber compartment, inlet and outlet passages in said main case communicating respectively with said inlet chamber and said compartment, a continuous compartment seating surface circumscribing said compartment including a first portion which is circular and concentric with the axis of said compartment and a second portion at a radial distance from said axis greater than the radius of said first portion, said portions of said seating surface being co-planar, a generally circular measuring chamber having a continuous downwardly facing seating surface circumscribing said measuring chamber and seated on said compartment seating surface and comprised of a first measuring chamber seating surface portion which is circular and coextensive and co-axial with said first portion of said compartment seating surface, and a second measuring chamber seating surface portion which projects beyond the radius of said first measuring chamber seating surface portion and is seated on the second portion of said compartment seating surface.

4,391,140 METHOD AND APPARATUS FOR METERING PARTICULATE MATERIAL

Max Reinhard, and Horst Kornmayer, both of Bad Homburg, Fed. Rep. of Germany, assignors to Colortronic Reinhard & Co. KG, Friedrichsdorf, Fed. Rep. of Germany

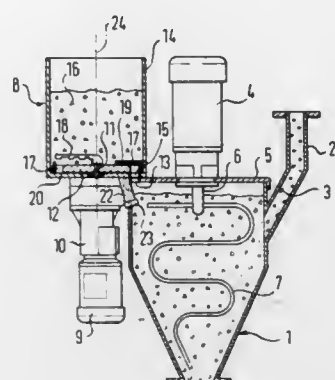
Filed Jul. 13, 1981, Ser. No. 283,081

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1980, 3038260

Int. Cl.³ G01M 19/00

U.S. Cl. 73-432 R

10 Claims



1. Apparatus for metering particulate material into a mixing vessel, comprising a vessel for containing a body of the particulate material, the vessel having a bottom plate, a metering disc disposed directly above the bottom plate in the containing vessel, the disc being mounted for rotation in a given direction and having apertures for separating respective portions from the body of material, the containing vessel having first and second apertures positioned so that each disc aperture comes successively into alignment with them, the first, upstream aperture being intended for connection to a sampling receiver, the second, downstream aperture being intended for connection to a mixing vessel, and covering means in the containing vessel arranged to cover the disc in the region above the first and second apertures in order to prevent the body of material from escaping through the aligned apertures.

4,391,141

APPARATUS FOR DETERMINING THE PROPERTIES OF A MATERIAL HAVING PLASTIC PROPERTIES BY DETERMINING ITS DENSITY

Olfert H. Petersen, Lejre, Denmark, assignor to Slagterierne Forskningsinstitut, Roskilde, Denmark

Filed Oct. 8, 1980, Ser. No. 195,305

Claims priority, application Denmark, Oct. 8, 1979, 4211/79

Int. Cl.³ G01N 9/02, 7/00

U.S. Cl. 73-433

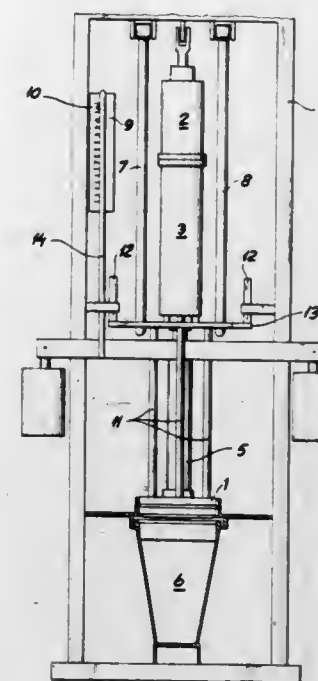
4 Claims

1. An apparatus for determining the properties of a material having plastic properties by determining its density on the basis of a measurement of weight and volume, which comprises:

- a chamber for receiving said material;
- a displacement member for contacting the material to thereby apply pressure to the material, which member is slidably movable through a wall of the chamber and has a cross sectional area perpendicular to the direction of movement smaller than the cross sectional area of the chamber in the cross section;
- drive means connected to said member for applying a predetermined force on said displacement member towards the interior of the chamber, said drive means comprising means for applying a predetermined weight to said displacement member; and

measuring means for measuring the penetration depth of the displacement member into the chamber to, thereby deter-

echo signals from the transducer means to the spectrum analyzer through the receiver gate.



mine the volume of the material, the measured volume and weight being used to determine density of the product.

4,391,142

FREQUENCY TRACKED GATED PULSE TECHNIQUE FOR ULTRASONIC FREQUENCY

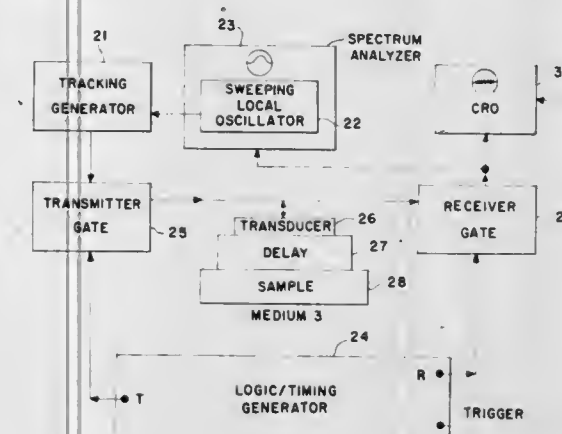
John H. Cantrell, Jr., Newport News, and Joseph S. Heyman, Gloucester, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 10, 1980, Ser. No. 158,183

Int. Cl.³ G01N 29/00; G01H 9/24

U.S. Cl. 73-610

3 Claims



1. A device for obtaining an ultrasonic frequency analysis comprising:

- a spectrum analyzer having a tuning frequency;
- a tracking generator means connected to said spectrum analyzer for producing an RF source locked to the tuning frequency of said spectrum analyzer;
- a transducer means suitable for attachment to the sample to be frequency analyzed;
- a transmitter on-off gate connected between said tracking generator means and said transducer means;
- a receiver on-off gate connected between said transducer means and said spectrum analyzer; and
- circuit means connected to said transmitter gate and said receiver gate for gating pulses of the RF signal from the tracking generator to the transducer means through the transmitter gate and for gating selected durations not coinciding with the durations of said pulses the resulting

4,391,143

ULTRASONIC PROBE FOR INSPECTING DOUBLE-WALL TUBE

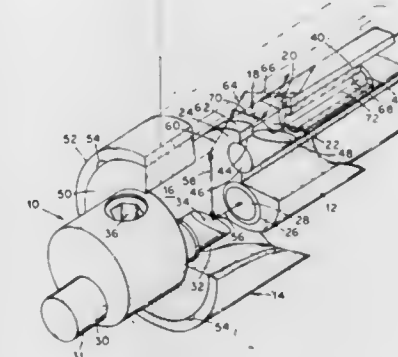
Kenneth V. Cook, Clinton; Robert A. Cunningham, Jr., Powell, and Horace T. Murrin, Alcoa, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 29, 1981, Ser. No. 268,424

Int. Cl.³ A61B 5/04; G01N 29/00; G01M 7/00

U.S. Cl. 73-623

2 Claims



1. An ultrasonic probe assembly for inspecting a double-wall structure, comprising:

- a body member having first and second cavities extending inwardly from its periphery and spaced apart from each other axially of one side thereof, the portion of said body member disposed between said first and second cavities constituting a baffle wall blocking direct transmission of ultrasonic energy therebetween;
- a first transducer mounted within said body member and operative to (1) transmit ultrasonic energy into said first cavity and (2) sense ultrasonic energy;
- a first reflector mounted within said first cavity and aligned with said first transducer so as to receive ultrasonic energy therefrom and reflect it to said double-wall structure at a predetermined angle, said first reflector also receiving ultrasonic energy reflected back from said double-wall structure and reflecting it to said first transducer;
- a second transducer mounted within said body member and operative to sense ultrasonic energy, said second transducer being spaced from said second cavity on the side thereof remote from said first cavity;
- an aperture in said body member extending from said second cavity to said second transducer;
- a tubular collimator insert mounted within said aperture; and
- a second reflector mounted within said second cavity and arranged to receive ultrasonic energy reflected from the end of said collimator insert adjacent thereto and reflect it through said collimator insert to said second transducer.

4,391,144

ULTRASONIC TEST PROBE

Rolf Diederichs, Hürth-Hermülheim, Fed. Rep. of Germany, assignor to Krautkramer-Branson, Inc., Stratford, Conn.

Filed Nov. 10, 1980, Ser. No. 205,303

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2948552

Int. Cl.³ G01N 29/04

U.S. Cl. 73-629

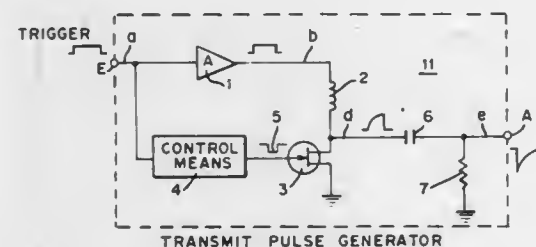
2 Claims

1. An ultrasonic test probe comprising a housing in which is disposed:

- (a) a piezoelectric transducer element adapted to transmit an ultrasonic seach pulse into a workpiece and to receive ultrasonic echo signals from such workpiece;
- (b) an electrical circuit coupled to said transducer element

for periodically energizing said transducer element with a high voltage pulse, said circuit including;

- (i) an electrical inductor coupled with one of its two terminals for receiving a trigger pulse;
- (ii) an electrical switching means coupled serially between the other terminal of said inductor and ground potential;
- (iii) control means coupled to said switching means and controlled by said trigger pulse for periodically rendering said switching means briefly non-conductive when said switching means is in its conductive state;
- (iv) a capacitor coupled with one of its two terminals to



the junction between said inductor and said switching means, and

- (v) a resistor coupled with one of its two terminals to ground potential and with its other terminal to the other terminal of said capacitor,

whereby responsive to the provision of a trigger pulse said control means renders said switching means non-conductive to cause a high voltage signal to form across said inductor which charges said capacitor with a potential, and responsive to said control means subsequently rendering said switching means conductive said capacitor discharges its potential to provide a high voltage pulse across said resistor which pulse is applied to said transducer element to energize said element.

4,391,145

FLUID-PRESSURE RESPONSIVE APPARATUS

Sylvain Janssen, Neuilly, and Jean Sequies, Rueil Malmaison, both of France, assignors to Giers, Montrouge, France

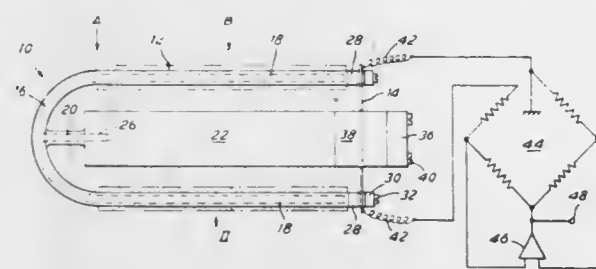
Filed Mar. 27, 1981, Ser. No. 248,620

Claims priority, application United Kingdom, Apr. 3, 1980, 8011351

Int. Cl.³ G01L 11/00

U.S. Cl. 73—704

12 Claims



1. Fluid-pressure responsive apparatus comprising: elongate means at least a portion of which is hollow and curved, and a resilient member interconnecting two points on said elongate means which are separated by said hollow, curved portion, whereby application of fluid pressure within said portion causes a change in tension in said resilient member; and means arranged to induce oscillation of said resilient member and to generate a signal related to the frequency of said oscillation; and wherein at least the entirety of said hollow, curved portion of said elongate means is of unitary construction and said elongate means is placed under a predetermined amount of tension by said resilient member, whereby temperature sensitivity of said apparatus is reduced.

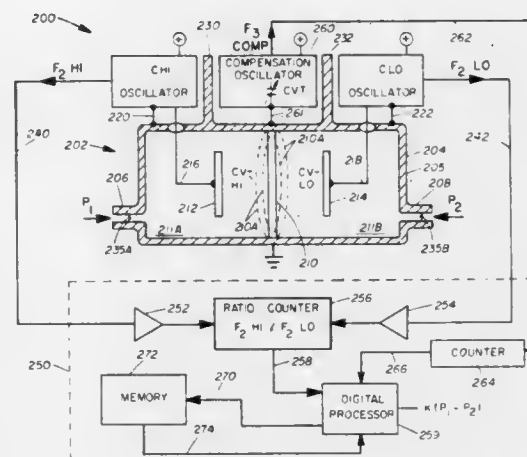
4,391,146 PARALLEL T IMPEDANCE MEASUREMENT CIRCUIT FOR USE WITH VARIABLE IMPEDANCE SENSOR Earl A. Grindheim, Richfield, Minn., assignor to Rosemount Inc., Minneapolis, Minn.

Filed Jun. 1, 1981, Ser. No. 269,415

Int. Cl.³ G01L 9/12

U.S. Cl. 73—718

34 Claims



34. A circuit for providing an output signal having a frequency which is representative of a sensed parameter, the circuit comprising:

sensing means for sensing the parameter, the sensing means exhibiting a variable impedance which is a function of the parameter;

controllable impedance means for providing a controllable impedance which is a function of a direct current control signal;

frequency determining means, connected to the sensing means and the controllable impedance means to form a parallel T circuit, for receiving the output signal and providing an oscillatory frequency signal which has a frequency which is a function of the variable impedance and the controllable impedance;

signal amplification means for amplifying the oscillatory frequency signal to produce the output signal; and

detection means for providing the direct current control signal to the controllable impedance means as a function of amplitude of the output signal.

4,391,147

TRANSDUCER DEVICE FOR MEASURING MECHANICAL VALUES ON HOLLOW BODIES

Peter W. Kreml, Vienna; Peter Claassen, and Rudolf Zeiringer, both of Graz, all of Austria, assignors to Hans List, Graz, Austria

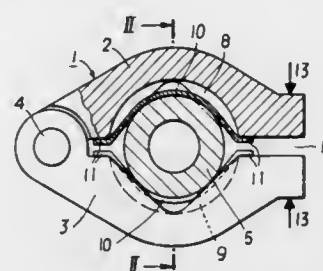
Filed Mar. 11, 1981, Ser. No. 242,456

Claims priority, application Austria, Mar. 19, 1980, 1501/80

Int. Cl.³ G01L 7/02; H01L 41/18

U.S. Cl. 73—730

17 Claims



1. A transducer device for measuring mechanical values on hollow bodies, especially for measuring pressure distributions within a pipe by detecting deformations in the outer surface thereof, comprising a housing for detachably enclosing the

pipe whose outer surface deformation is to be measured, and at least one elastic sensor element being mounted in said housing, said sensor element being capable to at least indirectly contact the surface of said enclosed pipe and having electrical connections for taking off the measuring signals, said sensor element further being connected to at least two points of said housing and having a free length between said connecting points so as to be stretched over the surface of the pipe when the transducer device is attached, and wherein at least one part of said sensor element is made in one piece with said housing.

4,391,148

METHODS AND APPARATUS FOR MEASURING THE CROSS-SECTIONAL AREA OF A DUCT AND THE VOLUME FLOW RATE OF FLUID IN THE DUCT

Antonio J. Sainz, and Victor C. Roberts, both of London, England, assignors to National Research Development Corporation, London, England

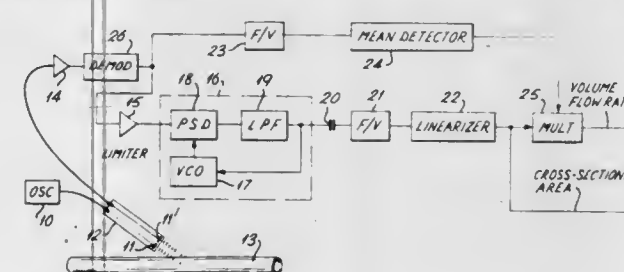
Filed Feb. 27, 1981, Ser. No. 238,952

Claims priority, application United Kingdom, Feb. 29, 1980, 8007008; Jun. 11, 1980, 8019049

Int. Cl.³ A61B 5/10; G01F 1/66

U.S. Cl. 73—861.25

9 Claims



1. Apparatus for measuring the cross-sectional area of a duct containing a fluid, comprising means for deriving a plurality of velocity signals, each having a frequency which corresponds to a respective velocity of fluid in a duct, the number of velocity signals depending on the number of different velocities currently present in the duct,
- a frequency-to-voltage converter coupled to receive the velocity signals, and means responsive to the varying output of the said converter to provide a signal representative of duct cross-sectional area.

4,391,149

DOPPLER-TYPE ULTRASONIC FLOWMETER

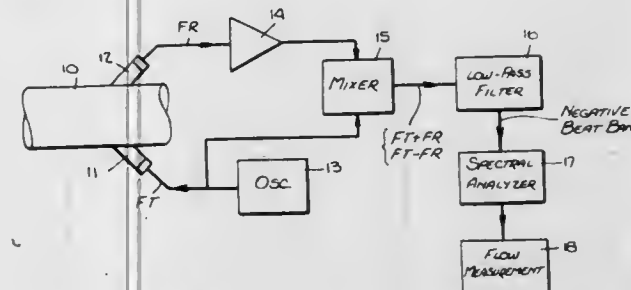
Peter J. Herzl, Morrisville, Pa., assignor to Fischer & Porter Company, Warminster, Pa.

Filed May 15, 1981, Ser. No. 263,473

Int. Cl.³ G01F 1/66

U.S. Cl. 73—861.25

7 Claims



1. A Doppler-type ultrasonic flowmeter for measuring the mean flow velocity of a fluid stream carrying contaminants passing through a pipe, said stream having a changing velocity profile, said flowmeter comprising:

A. a transmitting transducer mounted on the pipe to project

in the upstream direction therein a diverging beam of ultrasonic energy;

- B. a stable oscillator coupled to the transmitting transducer to excite same at a predetermined ultrasonic frequency;
- C. a receiving transducer mounted on the pipe to pick up ultrasonic energy reflected by moving contaminants in the fluid which lie within the zone in which the projected beam intersects a converging reception beam leading downstream to the receiving transducer to produce a Doppler signal;
- D. means responsive to the transmitted frequency and the Doppler signal to produce a band of negative beat frequencies which are determined by the disparate flow velocities of the reflecting contaminants dictated by the prevailing velocity profile; and
- E. means responsive to the band of negative beat frequencies to determine the prevailing velocity profile and to derive therefrom the mean flow velocity, said means including spectral analyzer which sweeps through a frequency range that includes said band, the analyzer functioning to measure the amplitude output of each frequency in the band to provide a spectral analysis.

4,391,150

ELECTRO-ACOUSTIC FLOWMETER

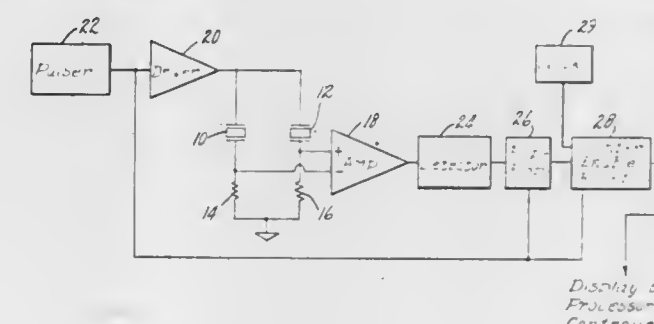
Thomas J. Rey, 319 Nashua Rd., Bedford, Mass. 01730

Filed Dec. 15, 1980, Ser. No. 216,667

Int. Cl.³ G01F 1/66

U.S. Cl. 73—861.29

7 Claims



1. A flowmeter for measuring the velocity of fluid flow in a conduit comprising a pair of transducers mounted in spaced apart relationship in the direction of fluid flow on the exterior of the conduit, each of the transducers being tuned to its resonant frequency near that of the other, excitation means for causing both of the transducers to emit sonic energy intermittently and at the same time through the wall of the conduit and into the fluid, amplifier means for processing upstream and downstream travelling signals received by the transducers including a differential amplifier to which both transducers are connected, whereby signals carried through the isotropic medium of the wall of the conduit simultaneously between the transducers produce zero differential signals at the input of the differential amplifier, counting means controlled by the downstream signal and the upstream signal and means for converting the counts into fluid velocity.

4,391,151

CIRCULAR TWO-STAGE AIR PARTICULATE AND GAS SAMPLER

John W. Nelson, and Bruno Jensen, both of Tallahassee, Fla., assignors to PIXE International Corporation, Tallahassee, Fla.

Filed Jun. 26, 1981, Ser. No. 277,833

Int. Cl.³ B01D 50/00; G01N 1/22

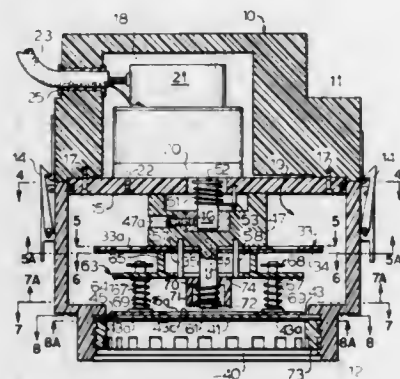
U.S. Cl. 73—863.23

6 Claims

2. A sampling device for the particulate matter of air and gaseous fluids comprising:

(a) a chamber (19) having an inlet (40) and an outlet (31);

- (b) a vacuum pump (30) for sucking said fluid through said inlet into said chamber and through said outlet;
- (c) a collector member (41) with an associated orifice member (44, 45) at said inlet and adapted to retain from said fluid the coarser particulates of a predetermined size and larger, and to transmit therefrom the finer particulates into said chamber, one of said members being disposed within said chamber and rotatable relative to the other member;
- (d) a second collector member (34) with an associated second orifice member (32, 39) disposed within said chamber and adapted to retain from said finer particulates transmitted to said chamber those particulates of a predetermined



size and larger, and to transmit therefrom the remaining finer particulates to said outlet, said second collector member (34) being rotatable relative to said second orifice member (32, 39) and about an axis (46) common to the axis of rotation of said first rotatable member (44, 45), and

(e) means (20, 63) for effecting rotary movement of said first rotatable member to chronologically form a circular arcuate deposit (41a) of said coarser particulates on said first collector member and, concurrently, for effecting rotary movement of said second collector member (34) to chronologically form a circular arcuate deposit (34a) of said remaining finer particulates retained by said second collector member.

4,391,152 SAMPLER

James R. Ellett, Edmonton, Canada, assignor to Bralorne Resources Limited, Vancouver, Canada

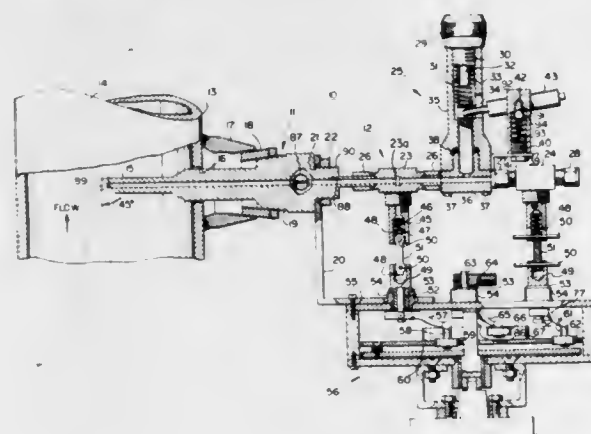
Filed May 28, 1981, Ser. No. 257,856

Claims priority, application Canada, Dec. 16, 1980, 366918

Int. Cl.³ G01N 1/14

U.S. Cl. 73-863.84

29 Claims



1. A sampling device for taking fluid samples, said device comprising a probe adapted to extend into fluid and to act as an intake port, a housing connected to said probe, first valve means in said housing adapted to allow admittance of a portion of said fluid, second valve means adapted to allow exit of said admitted fluid to a storage container, sample holding means adapted to hold a predetermined amount of said admitted fluid, actuating means adapted to open and close said first and second valve means at predetermined intervals to allow for said admit-

tance and exit of said fluid, respectively, and a substantially uninterrupted passageway for said fluid extending through said housing and probe, said passageway being adapted to allow for the admission of cleaning means to clean said passageway without disassembly of said probe and housing.

4,391,153

SEGMENTED FIBER SAMPLER

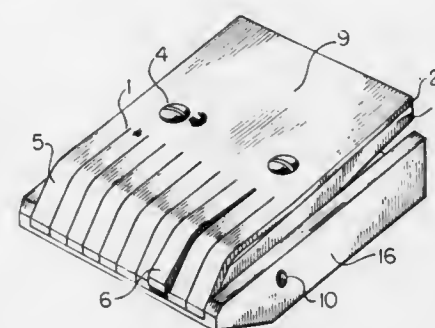
Robert A. Taylor, Anderson, S.C., assignor to The United States of America as represented by the United States Department of Agriculture, Washington, D.C.

Filed Jan. 4, 1982, Ser. No. 337,044

Int. Cl.³ G01N 3/10

U.S. Cl. 73-864.41

2 Claims



1. An apparatus for sampling staple fibers comprising in combination:

- (a) a rigid lower jaw;
- (b) an upper jaw juxtaposed to said lower rigid jaw, one end of said upper jaw fabricated into a plurality of segments, said segments capable of deflecting in different amounts to accommodate local differences in fiber density and/or imbedded trash/foreign particles;
- (c) means for pivoting said upper jaw in relation to said rigid lower jaw;
- (d) a spring assembly located between said upper and lower jaws, said spring assembly also located on the opposite end from the segmented end of said upper jaw to provide clamping pressure during and after the taking of a sample.

4,391,154

VARIABLE SPEED DIGGING MACHINE PROVIDED WITH A GEARBOX HAVING AN ORIENTABLE DRIVE

Michele Tortella, Zona Industriale, Madonna delle Grazie-Ortona (Chieti), Italy

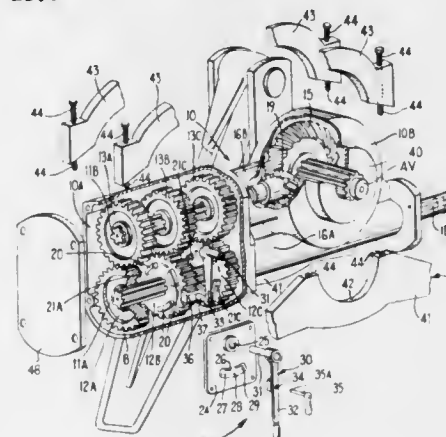
Filed May 6, 1980, Ser. No. 147,219

Claims priority, application Italy, May 11, 1979, 49033 A/79

Int. Cl.³ F16H 37/00, 3/22, 57/02

U.S. Cl. 74-15.4

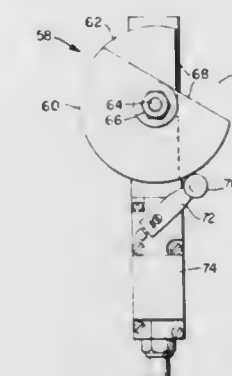
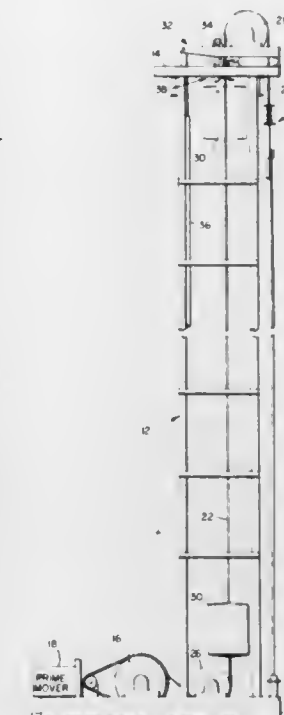
12 Claims



1. In a digging machine including a longitudinal frame supporting at least one hoe-driving shaft driven by a main drive shaft for coupling to the power takeoff of a tractor operating the digging machine, the improvement comprising:

- (a) an elongate gearbox carried by the machine;
- (b) means for supporting the elongate gearbox for movable orientation in a vertical plane about the longitudinal axis of the machine;
- (c) the gearbox supporting the main drive shaft of the machine and interposed between the main drive shaft and the hoe-driving shaft;
- (d) a first gear shaft connected to and driven by the main drive shaft;
- (e) a second gear shaft for driving the hoe-driving shaft;
- (f) the first and second gear shafts being journaled through the gearbox;
- (g) a first gear set including three gears mounted on the first gear shaft;
- (h) a second gear set including three gears mounted on the second gear shaft; and
- (i) each gear of the second gear set being engageable with and selectively driven by a corresponding gear of the first gear set, with the diameters of the corresponding gears being such that the second gear shaft may be driven by the first gear shaft at any one of three different speeds depending upon which corresponding gears of the first and second gear shafts are in selected driving engagement with each other for transmitting the motion of the first gear shaft to the second gear shaft.

means being arranged to move the limit switch to the third position when the counterweight is in its lowermost position



and to maintain the limit switch in one of the first or second positions at all other times.

4,391,155

RECIPROCATING DRIVE AND REVERSING MECHANISM FOR LONG STROKE, WELL PUMPING UNIT

Emil A. Bender, 6625 Kane Way, Bakersfield, Calif. 93309

Filed Jun. 28, 1982, Ser. No. 393,100

Int. Cl.³ F16H 27/02, 29/02; F04B 47/06

U.S. Cl. 74-89.2

5 Claims

1. A long stroke, well pumping unit comprising: a base platform; a tower on the base platform; drive train means including rotatable, winding drum means on the base platform and power means to rotate the drum means; a flexible lift belt attached at one end to the drum means and at its other end to the polish rod of a pump; a freely rotatable spool mounted atop the tower, the belt being trained over the spool; a counterweight attached to that portion of the lift belt between the spool and the rotatable drum; and means for reversing the power means, thus to cyclically wind and unwind the belt from the winding drum and thus impart reciprocating movement to the polish rod of a pump, said reversing means including: rotary motion transmission means responsive to rotation in the drive train means; control means responsive to said transmission means; and a three position limit switch operable from said control means, the switch being arranged to cause the power means to rotate the winding drum clockwise in a first position and counterclockwise in a second position, the third position of the switch being an off position and providing a dwell or rest period between reversals of said power means, the control

4,391,156

ELECTRIC MOTOR DRIVE WITH INFINITELY VARIABLE SPEED TRANSMISSION

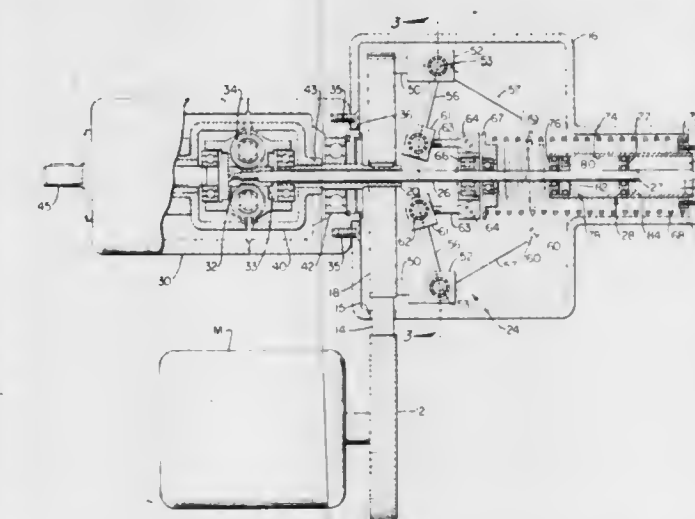
Edward C. Tibbals, Jr., Greensboro, N.C., assignor to William R. Loeffler, Denver, Colo.

Filed Nov. 10, 1980, Ser. No. 207,190

Int. Cl.³ F16H 5/44

U.S. Cl. 74-336.5

18 Claims



1. A variable speed drive for motor vehicles and the like

characterized by having an output shaft with high torque requirements at low speeds of operation, the combination comprising:

- an electric motor drive;
- infinitely variable speed transmission means having an input driven by said motor drive and an output coupled to a vehicle to be driven, said infinitely variable speed transmission means including a movable control member shiftable to vary the speed ratio between the input and output of said transmission means over a predetermined range of speed ratios;
- speed ratio control means operatively coupled to said movable control member, said control means movable in response to rotation of said motor drive to vary the ratio of the output speed and torque at the output side of said transmission with respect to the input speed and torque; and
- resistance compensator means for imposing a predetermined resistance to movement of said control means whereby to control the speed ratio between the input side and the output side of said infinitely variable speed transmission, the maximum output speed of said transmission means being matched to the most efficient operating speed of said electric motor drive.

4,391,157

BEVEL GEAR AND PINION DRIVE WITH BIASED THRUST BEARING

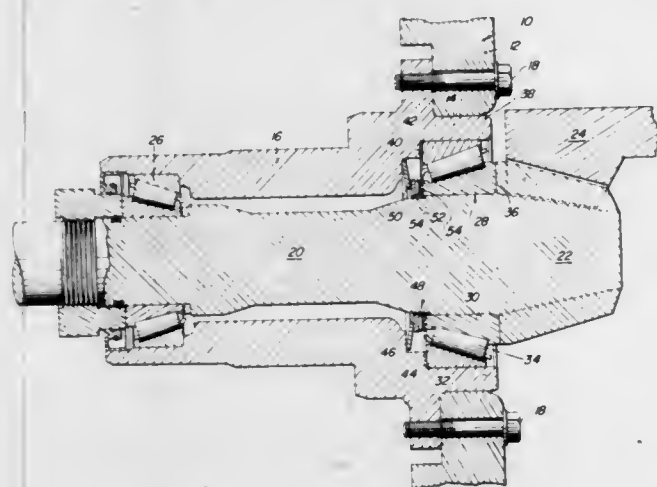
Roger L. Jacklin, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Oct. 17, 1980, Ser. No. 198,076

Int. Cl.³ F16H 35/08, 1/14

U.S. Cl. 74—402

3 Claims



1. Drive mechanism including a fore-and-aft shaft having a spiral bevel pinion fixed at its rear end, a spiral bevel gear meshing with the pinion, a combination radial-thrust bearing including an inner race ring fitting the shaft so as to receive forward thrust forces imparted thereto by the meshing pinion and gear, an outer race ring and rolling elements between the rings, and fixed support structure carrying the bearing, characterized in that the support structure has a stepped annular groove therein concentrically surrounding the shaft ahead of the bearing and including a first radial shoulder facing toward and axially abutting the outer race ring and a second radial shoulder of lesser diameter than the first shoulder and spaced ahead of and facing the inner race ring and biasing means is disposed in the groove and is interposed between the second shoulder and the inner race ring in opposition to the aforesaid thrust forces.

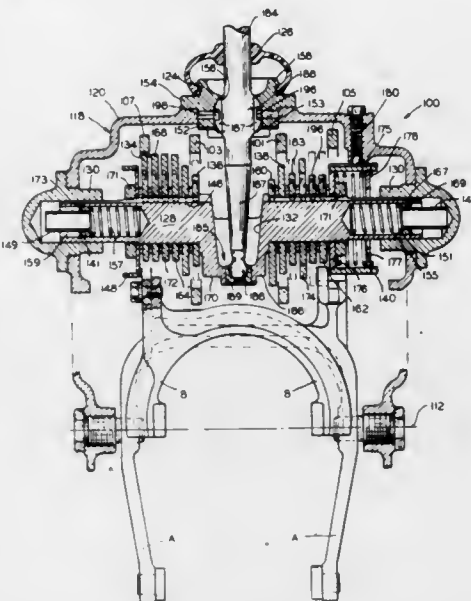
4,391,158
BIASED TRANSMISSION CONTROL SHAFT
Theodore A. Malott, and Robert W. Wolfe, both of Jackson, Mich., assignors to Clark Equipment Company, Buchanan, Mich.

Filed Jan. 29, 1981, Ser. No. 230,781

Int. Cl.³ G05G 9/12, 5/10

U.S. Cl. 74—473 R

5 Claims



1. A transmission having a plurality of speed ratios comprising:
 - a housing;
 - a shift lever pivotally connected with the housing, the shift lever having a lower end extending through the housing;
 - a control shaft contained in the housing and operably associated with the shift lever, the control shaft being shiftable in opposed directions in response to pivotal movement of the shift lever, the control shaft having two ends, one of the ends having an internal bore;
 - a bias assembly operably associated with the control shaft for resisting the shifting of the control shaft in a selected direction past a predetermined point, the bias assembly being mounted in the internal bore and projecting therefrom, whereby a first amount of resistance is provided to enable the operator to sense his position in the transmission shift pattern.

4,391,159

PARKING BRAKE ACTUATING DEVICE

Daniel J. Sellmeyer, Royal Oak, Mich., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Dec. 3, 1980, Ser. No. 212,270

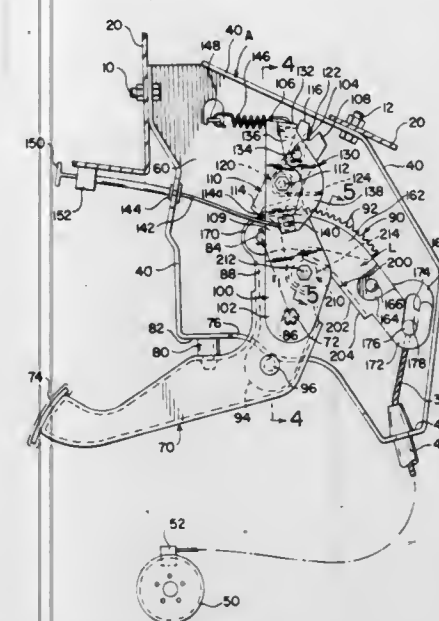
Int. Cl.³ G05G 1/04

U.S. Cl. 74—516

23 Claims

1. In a parking brake operating mechanism for a vehicle, which mechanism includes a support structure; a pedal actuated lever; means for mounting said lever on said structure to pivot about a fixed axis; a movable force transmitting means for applying an actuating force to a brake actuating element upon movement of said force transmitting means along a preselected path between a brake release position and a brake actuating position; coupling means for connecting said force transmitting means to said pedal actuated lever to move said force transmitting means along said preselected path as said pedal actuated lever is pivoted about said fixed axis; and, means for releasably locking said force transmitting means in said brake actuating position on said path, the improvement comprising: said coupling means comprises a drag link having first and second spaced ends; means for pivotally connecting said first end to said pedal actuated lever on a second axis spaced from said fixed axis whereby said first end of said drag link is moved with said second axis in an arcuate path generally concentric with said fixed axis; means for connecting said force transmitting

means onto said second end of said drag link; and, cam means for pivoting said drag link about said second axis on said pedal



actuated lever as said first end of said drag link is moved in said arcuate path by pivotal movement of said pedal actuated lever.

4,391,160
SUPPORT ASSEMBLY HAVING RELEASABLE LEVER MOUNTING FOR HANDLE BAR

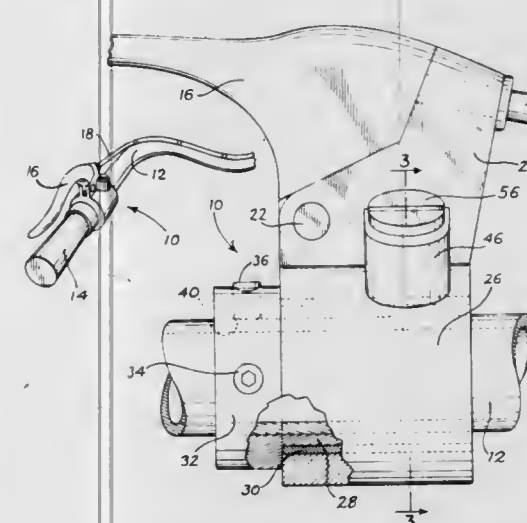
John E. Myers, Star Rte., Echo, Oreg. 97826

Filed Nov. 10, 1980, Ser. No. 205,316

Int. Cl.³ B62K 21/12

U.S. Cl. 74—551.8

3 Claims



1. A support assembly for securing a mechanical device on a bar comprising
 - an annular sleeve for encompassing and fixable to such bar,
 - a tubular base portion encompassing said sleeve,
 - a post laterally projecting from and integral with said base portion adapted for attaching to such device;
 - releasable means releasably locking said base portion to said sleeve, said base portion being movable relative to said sleeve with release of said releasable means, and
 - a tubular bushing positioned between said sleeve and said base portion for facilitating movement of said base portion relative to said sleeve with release of said locking means.

4,391,161
CONNECTING ROD OF INTERNAL COMBUSTION ENGINE

Keisuke Ban, Fujimi, and Takeo Arai, Higashimatsuyama, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

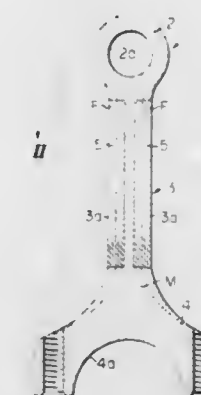
Filed Aug. 25, 1980, Ser. No. 181,227

Claims priority, application Japan, Aug. 29, 1979, 54-109854

Int. Cl.³ G05G 1/00

U.S. Cl. 74—579 E

3 Claims



1. A connecting rod of an internal combustion engine including a rod portion having longitudinal stiffening rib portions, a longitudinal axis and two ends, a big end portion connected to one end of said rod portion and being adapted to be connected to a crankshaft of the engine, and a small end portion connected to the other end of said rod portion having a hole bored therethrough for receiving a piston pin having an axis; said rod portion having a Y-axis perpendicular to said longitudinal axis and parallel to said axis of said piston pin and an X-axis perpendicular to both said Y-axis and said longitudinal axis; said rod portion comprising at least one reinforced portion and a remaining portion; said remaining portion being made of a light alloy material, said at least one reinforced portion being made of a bundle of inorganic fibers extending along said longitudinal axis formed into a metal matrix impregnated with said light alloy material; said fibers having a cross-sectional area; said rod portion having a cross-sectional area, a cross-sectional shape, a Y-axis second moment of inertia, and an X-axis second moment of inertia; said at least one reinforced portion having a cross-sectional area and a Y-axis second moment of inertia; said cross-sectional shape of said rod portion taken perpendicular to said longitudinal axis being such that said Y-axis second moment of inertia of said rod portion is smaller than said X-axis second moment of inertia of said rod portion; and said reinforced portion being positioned and sized in said rod portion such that said Y-axis second moment of inertia of said reinforced portion is equal to or greater than said X-axis second moment of inertia of said reinforced portion.

4,391,162

FLUID ASSISTED BOOSTER

John P. Burke, Leamington Spa, England, assignor to Automotive Products Limited, Leamington Spa, England

Filed Sep. 2, 1980, Ser. No. 183,579

Claims priority, application United Kingdom, Sep. 5, 1979, 79 30723

Int. Cl.³ G05G 1/00

U.S. Cl. 74—579 R

4 Claims

1. A fluid assisted brake booster having:

- an output rod with a piston head thereon having a load bearing face with an axial bore therein;
- an annular load transfer means located adjacent the load bearing face;
- an input rod located on the other side of the transfer means relative to the output rod and having a thrust member with an axial projection that extends through the centre of the transfer means into said axial bore; and a cap fitted to the load bearing face to provide anchorage means for the

4,391,168

METHOD FOR CUTTING SHEET MATERIAL WITH A CUTTING WHEEL

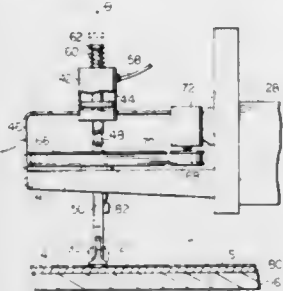
Heinz J. Gerber, and David R. Pearl, both of West Hartford, Conn., assignors to Gerber Garment Technology, Inc., South Windsor, Conn.

Division of Ser. No. 168,312, Jul. 10, 1980. This application Dec. 8, 1981, Ser. No. 328,788

Int. Cl.³ D06H 7/00; B26D 1/18

U.S. Cl. 83—34

3 Claims



1. A method of cutting pattern pieces from a single ply of sheet material comprising:
 spreading a single ply of sheet material on a hard support surface in a smooth and flattened condition;
 translating a cutting wheel having a sharp peripheral cutting edge along straight and curved lines of cut defining the perimeter of a pattern piece with the cutting edge cutting through the material to the hard support surface; and
 at angles in the perimeter translating the cutting wheel along one side of the angle toward the apex of the angle, stopping the translating when the center of the wheel is directly over the apex, then lifting the cutting wheel away from the support surface and rotating the wheel above the surface into alignment with the other side of the angle, then lowering the cutting wheel into engagement with the sheet material and the support surface with the center of the wheel directly over the apex of the angle, and thereafter advancing the wheel along the other side of the angle away from the apex whereby the angle is cut without overcuts or excessive heel cuts.

4,391,169

CUTTER WITH ANGULAR BLADES AND METHOD FOR CUTTING ROPE THEREWITH

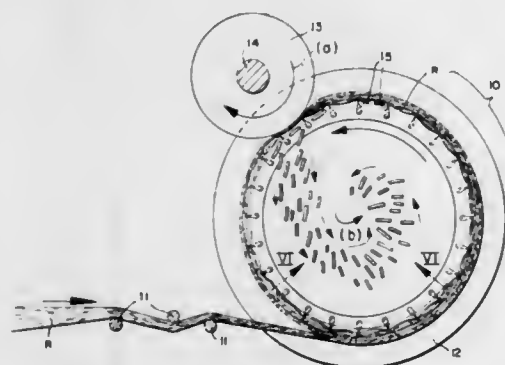
William F. Laird, and Kenneth A. Wood, both of Kingston, Canada, assignors to Hartford Fibres, Ltd., Ontario, Canada

Filed Aug. 11, 1980, Ser. No. 176,917

Int. Cl.³ D10G 1/04

U.S. Cl. 83—37

21 Claims



11. In a method of cutting a rope wherein said rope is laid out lengthwise against a plurality of cutting blades which are spaced apart from one another, and which is cut into fibers by forcing the rope against the cutting edges of the blades and forcing the cut fibers through the spaces between the blades, the step which comprises cutting said rope while maintaining said blades at an angle to the lengthwise orientation of said rope at an angle to a line perpendicular thereto, and with all of

said blades angled toward the same side of the perpendicular, thereby causing the fibers to undergo angular bodily swinging movement after cutting and while passing through the spaces between the blades.

4,391,170

APPARATUS FOR WORKING ON ADVANCING SHEET MATERIAL

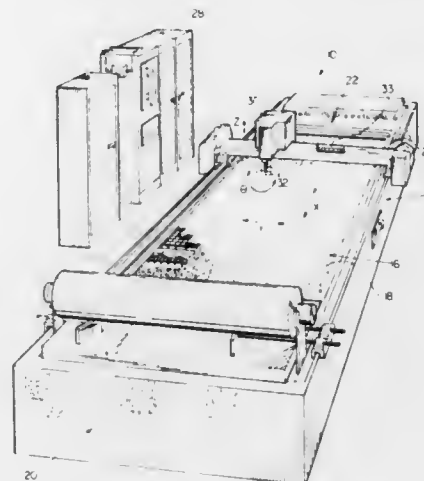
Bentsion Boverman, and Vilen Vodyanitsky, both of West Hartford, Conn., assignors to Gerber Garment Technology, Inc., South Windsor, Conn.

Filed Jan. 12, 1981, Ser. No. 224,650

Int. Cl.³ D06H 7/00

U.S. Cl. 83—71

19 Claims



1. In an apparatus for working on sheet material and having conveying means for supporting and moving sheet material, a carriage assembly, means supporting the carriage assembly for movement relative to the conveyor means and in one and an opposite direction generally parallel to the direction of movement of the conveyor means, instrument means mounted on said carriage assembly for movement with the carriage assembly and in working relation to sheet material supported by the conveyor means, and drive means for moving the carriage assembly relative to the conveyor means to move the instrument in working relation to the sheet material supported by the conveyor means, the improvement wherein said drive means comprises coengaging drive elements including one drive element mounted on the conveyor means to move with the conveyor means and another drive element supported on the carriage assembly to move with the carriage assembly and relative to the conveyor means.

4,391,171

TRIM PRESS INCLUDING EJECTOR

Michael Wendt, Hope, Mich., assignor to Lyle Development, Inc., Beaverton, Mich.

Filed Oct. 14, 1980, Ser. No. 196,207

Int. Cl.³ B26F 1/02

U.S. Cl. 83—82

4 Claims

1. In a trim press for trimming articles, which have been differentially pressure formed in a plastic sheet, from the plastic sheet comprising:

a frame;

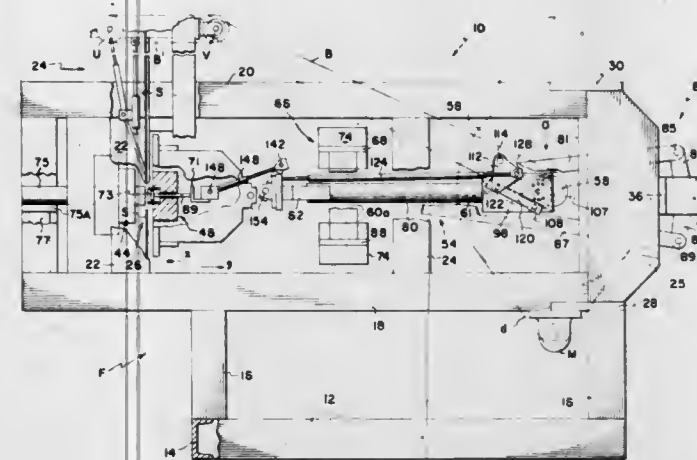
means for incrementally indexing said sheet of plastic to successively position articles at a trim station;

first and second trim dies mounted on said frame for relative movement toward and away from each other between spaced apart positions and closed positions in which the trim dies engage opposite sides of said plastic sheet to sever the articles from the sheet at said trim station;

means for reciprocally moving at least one of said trim dies toward and away from the other of said trim dies comprising:

a flywheel rotatably mounted about a first axis on said frame;

a first eccentric drive pin having a second axis radially offset from said first axis, mounted on said flywheel for bodily movement about a third axis;
 first coupler means coupling said eccentric drive pin to said one trim die to reciprocally move said one trim die; and
 ejector means reciprocally mounted on said one trim die for movement relative thereto; and the improvement comprising:
 means for moving said ejector means relative to said one trim die comprising:
 rocker arm means mounted on said first coupler means for to-and-fro swinging movement;



a second eccentric pin, having a fourth axis, radially offset from said first, second and third axes, coupled to said first eccentric drive pin for bodily movement therewith; and
 connector means coupling said second eccentric drive pin to said rocker arm means to swing said rocker arm in said to-and-fro path;
 said coupler means coupled to said ejector means and to said rocker arm means for reciprocally moving said ejector means relative to said trim die to separate severed articles at said trim station from said one trim die.

4,391,172

ROTARY CUTTING MACHINE

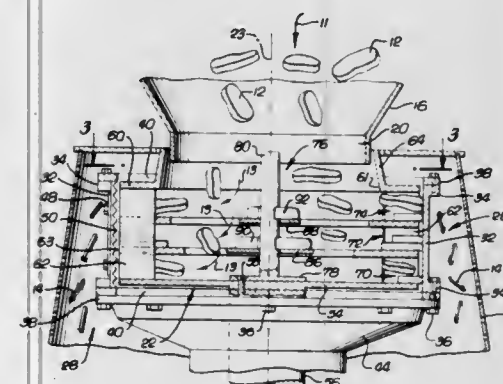
Lesley A. Galland, and Bruce W. Skiver, both of Caldwell, Id., assignors to J. R. Simplot Company, Boise, Id.

Filed Mar. 24, 1981, Ser. No. 246,926

Int. Cl.³ B26D 3/28

U.S. Cl. 83—403

30 Claims



1. A rotary cutting machine for cutting a product into a plurality of pieces, comprising:
 a generally cylindrical housing having a plurality of circumferentially spaced, axially open slots formed therein;
 a plurality of cutting knives each including an axially extending cutting edge at one side of a respective one of said slots, said cutting edges being presented in a common circumferential direction; and
 a generally cylindrical impeller mounted for rotation within said housing, said impeller including a base plate closing one axial end thereof, an annular cover plate at the oppo-

site axial end defining a central opening for admission of a flow of the product into the impeller, means cooperating with said base plate and said cover plate to form a plurality of axially separated and radially open passages, said passages forming means including at least one annular divider plate disposed axially between said base and cover plates and generally in parallel therewith, and a plurality of circumferentially spaced axially extending paddles connected to said base, cover, and divider plates near their peripheries for securing said base, cover, and divider plates with respect to each other and for rotationally carrying the product flowing through said passages into cutting engagement with said cutting knives, and means for directing the flow of the product upon rotation of the impeller in a radially outward direction for flow in substantially equal portions through said passages into cutting engagement with said cutting knives.

4,391,173

SHEARING CRADLE

Colin C. Anderson, 6 Montrose Pl., Beaumont, South Australia, Australia

Continuation of Ser. No. 108,164, Dec. 28, 1979, abandoned.

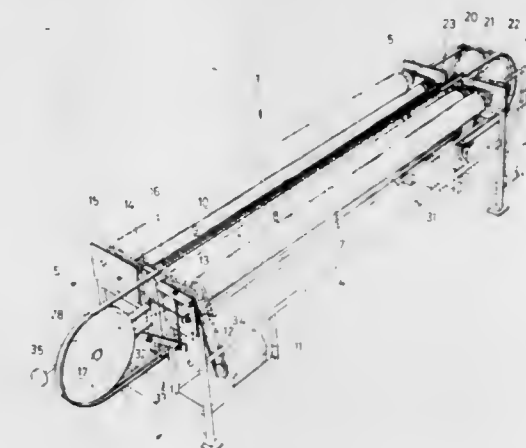
This application Nov. 24, 1981, Ser. No. 324,449

Claims priority, application Australia, Jan. 2, 1979, PD7250

Int. Cl.³ B26D 7/06

U.S. Cl. 83—424

6 Claims



1. Apparatus for shearing sheep, said apparatus comprising a frame supporting a plurality of propelled parallel rollers extending longitudinally of the frame to support a sheep in a reclining position, an endless belt cutter positioned between an adjacent pair of said rollers, said rollers being positioned to have central and outermost rollers with the central rollers lower than the outermost rollers to allow the sheep to lie on the rollers, said cutter means being characterized by said endless belt cutter having a course extending axially of said rollers intermediate said central rollers, and means to drive the rollers to move the sheep through an arc to present the unshorn wool to the endless belt cutter.

4,391,174

PUNCH PRESS MACHINE WITH ADJUSTABLE TOOL POSITIONING

Gerard G. F. Smeets, 50 Inverlochy Blvd., Apt. 102, Thornhill, Ontario, Canada

Filed Sep. 5, 1979, Ser. No. 72,668

Claims priority, application Canada, Aug. 30, 1978, 310359

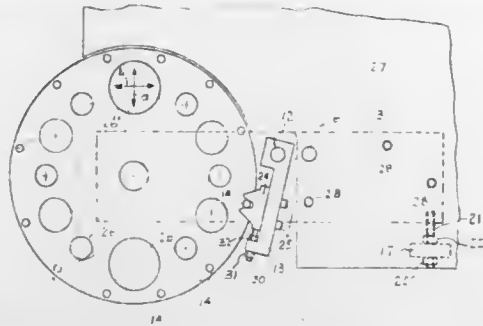
Int. Cl.³ B21D 28/26; B26F 1/04

U.S. Cl. 83—552

8 Claims

1. In a turret type punch press machine, adjustable means for aligning tool elements of spaced rotors comprising, a supporting member for at least one of the rotors, the supporting member being pivotably connected to a main frame of the machine, adjustable positioning and locking means for providing limited

vernier adjustment of said supporting member about its pivot point on the machine, an indexing mechanism mounted on the supporting member providing for multi-position indexing of the rotor about its axis, and wherein the indexing mechanism is adjustable to provide limited angular positioning of the rotor



for each indexed position thereof and to provide, in conjunction with the adjustable positioning of the supporting member two limited and substantial orthogonal directions of adjustment of the position of a tool mounted in the rotor on the supporting member.

4,391,175

PERFORATING DEVICE ESPECIALLY ADAPTED FOR USE WITH PRINTING MACHINES

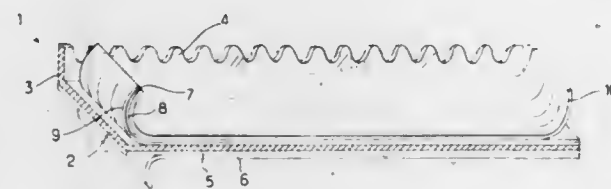
Steve Christian, 43, rue Rodin, 93290 Tremblay-les-Gonnesse, France

Filed Mar. 26, 1981, Ser. No. 247,996

Claims priority, application France, Mar. 27, 1980, 80 06862 Int. Cl.³ B26D 3/00

U.S. Cl. 83—678

3 Claims



1. Perforating device or similar means, especially adapted for use with printing machines such as offset machines which comprises:

- a rigid, thin metallic plate in the form of a strip, which presents, in protrusion, on one of its two faces, at least one cutting or perforating element;
- a layer of adhesive material applied upon the side of thin metal plate opposite said cutting or perforating element, said adhesive layer capable of being protected by a protective strip which is removed at the moment of use; and
- a double faced self-adhesive tape adhering upon one of its faces, upon the side of said thin metal plate adjacent to said cutting or perforating element, the other face of the double faced self-adhesive tape capable of being protected by a protective strip which is removed at the moment of use.

4,391,176

ELECTRONIC MUSICAL INSTRUMENT WITH MUSICAL COMPOSITION FASHION SELECTORS

Naoyuki Niinomi, and Kunihiko Watanabe, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 29, 1980, Ser. No. 182,575

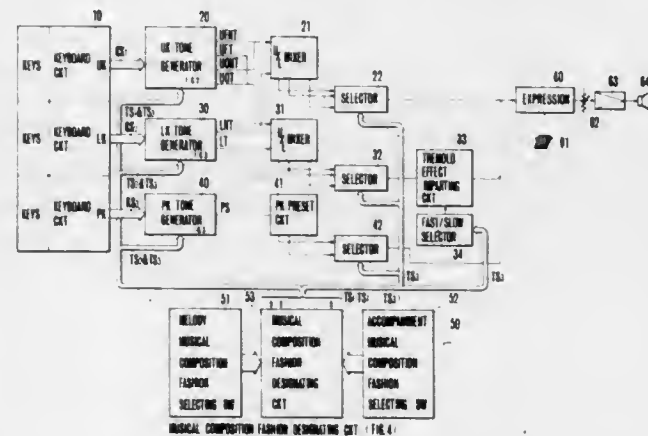
Claims priority, application Japan, Sep. 8, 1979, 54-115400 Int. Cl.³ G10H 1/12, 1/38, 1/46

U.S. Cl. 84—1.17

18 Claims

1. An electronic musical instrument comprising: a first keyboard having a plurality of keys for performing a melody;

a second keyboard having a plurality of keys for performing an accompaniment;
a melody tone generator generating a melody tone in response to depression of a key of said melody performance keyboard;
an accompaniment tone generator generating an accompaniment tone in response to depression of a key of said accompaniment performance keyboard;
a plurality of melody musical composition fashion selection switches connected to a like plurality of first logic circuit means for designating a single one of a musical composition fashion of a melody tone to be produced from among a plurality of predetermined kinds of musical composition fashions for melody;
a plurality of accompaniment musical composition fashion selection switches connected to a like plurality of second logic circuit means for designating a single one of a musical composition fashion of an accompaniment tone to be produced from among a plurality of predetermined kinds of musical composition fashions for accompaniment;



said second logic circuit means being connected to said first logic circuit means such that the musical composition fashion of an accompaniment tone is selected in correspondence with the selected musical composition fashion of a melody tone when none of said plurality of accompaniment musical composition fashion selection switches are operated, and such that the musical composition fashion of a melody tone is selected in correspondence with the selected musical composition fashion of an accompaniment tone when none of said plurality of melody musical composition fashion selection switches are operated;
a modifying parameter generator which generates a modifying parameter corresponding to an operated one of said musical composition fashion selection switches;
modifying means for modifying outputs of said melody and accompaniment tone generators in accordance with said modifying parameter generated from said modifying parameter generator; and
means for producing a musical tone signal in accordance with said output of said modifying means.

4,391,177

PIANO SOUNDBOARD AND METHOD OF MAKING SAME

Stanley A. Grajek, DeKalb, Ill.; Robert S. Hill, Holly Springs, Miss., and George S. Klaiber, Tonawanda, N.Y., assignors to The Wurlitzer Company, DeKalb, Ill.

Division of Ser. No. 234,360, Feb. 13, 1981, Pat. No. 4,361,458.

This application Jun. 21, 1982, Ser. No. 390,293

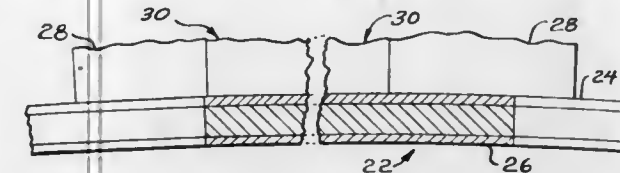
Int. Cl.³ G10C 3/06

U.S. Cl. 84—196

8 Claims

1. A soundboard for a piano comprising: three plies of wood bonded together, the front and back plies being of substantially equal thickness and the center ply being of a thickness greater than the sum of the thicknesses of the front and back plies, the center ply comprising a plurality of elongate boards each having a preselected curvature from side-to-side and bonded

together edge-to-edge with the curvature of each board in the same direction to form a composite board having a substan-



tially continuous curvature, concave on one side and convex on the other side, whereby the assembled, three-ply soundboard has a curvature imparted thereto by the center ply.

4,391,178

LOGISTIC VEHICLE ARMOR

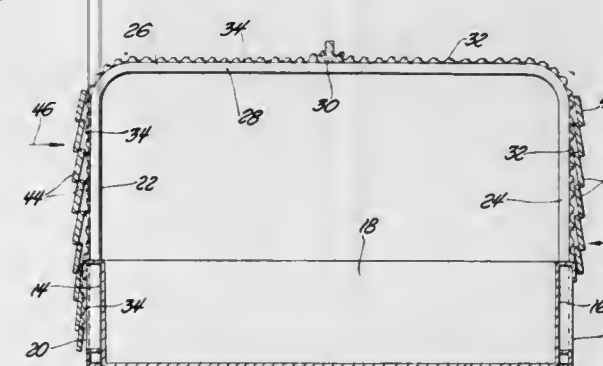
Victor H. Pagano, Oakland, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 13, 1981, Ser. No. 243,287

Int. Cl.³ F41H 7/00

U.S. Cl. 89—36 H

1 Claim



1. In a military vehicle that includes a cargo box having side walls (14 and 16); the improvement comprising an inverted U-frame structure having a number of elevated bow roof sections (28) and downwardly extending leg sections (22 and 24) connected to the box side walls; a central ridge pole (30) extending between and normal to the bow roof sections on the longitudinal axis of the cargo box; two fabric covers (32 and 34) extending horizontally in opposite directions from the central ridge pole and thence downwardly along the aforementioned leg sections at least to the upper edges of the cargo box side walls; means defining a number of horizontal hollow fabric sleeves on the downwardly extending portions of the fabric covers; each of the individual fabric sleeves being the same length in the horizontal direction as the associated cover; said fabric sleeves being open at their ends for enabling ballistic armor slats to be inserted into said sleeves; adjacent sleeves being overlapped on one another and being sufficient in number so that the sleeves collectively occupy the entire downwardly extending portion of each fabric cover; an elongated ballistic armor slat (44) insertable lengthwise into each fabric sleeve to provide ballistic protection for personnel occupying the cargo box; the fabric sleeves for each cover being formed from a single length of fabric material that is periodically doubled back on itself, each doubled back area being stitched to the fabric cover whereby the zones between adjacent stitched areas define the fabric sleeves; the individual armor slats having flat parallel faces and interconnecting longitudinal edges, opposite edges on individual slats being beveled so that edges on adjacent slats overlap one another when the slats occupy a given plane within the fabric sleeves; said armor slats being removable from the fabric sleeves, said covers being capable of being rolled up to a non-use storage position adjacent to the ridge pole when the slats are removed from the sleeves.

4,391,179

COMBAT VEHICLE

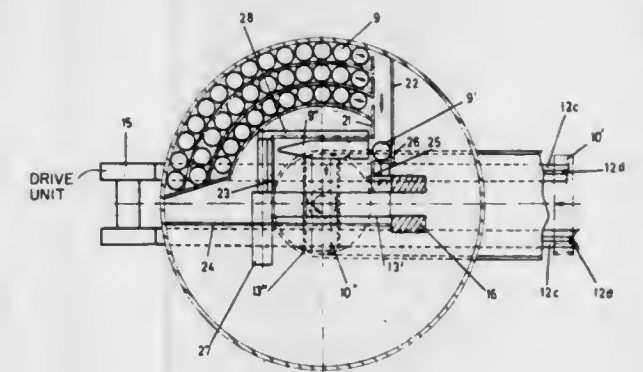
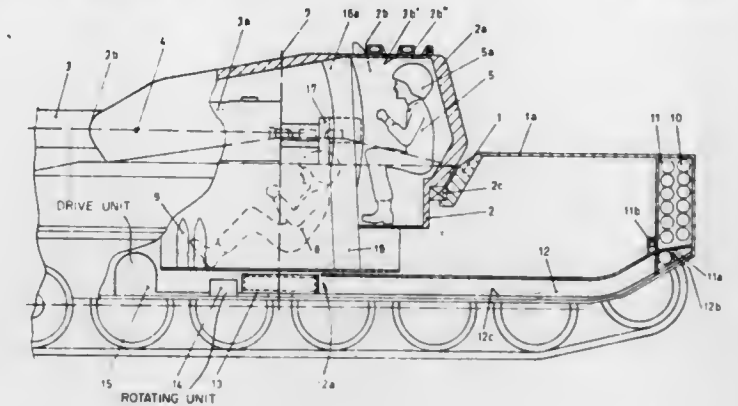
Erling Tidström, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed May 1, 1980, Ser. No. 145,635

Claims priority, application Sweden, May 14, 1979, 7904188 Int. Cl.³ F41H 7/06

U.S. Cl. 89—46

6 Claims



1. A track driven combat vehicle comprising:
a track driven mechanism supporting a lower chassis for movement in a longitudinal direction,
said lower chassis including at a rear portion thereof a magazine for holding explosive ammunition units,
a conveyor for receiving ammunition units from said magazine and delivering said ammunition units to a forward position along said chassis to a rotary table for rotating said ammunition units;
a turret mechanism centrally located for rotation about said chassis including a front portion narrower in width than in length for presenting a minimum target area;
said front portion including a breech loading firearm, and a rear portion of said turret including a compartment for supporting a crew member, a turret magazine located above said rotary table;
means for positioning a vertically oriented projectile in said turret magazine to a lateral position;
a hoist car vertically supported for movement in a vertically extending frame from a position for receiving an ammunition unit from said table, and a projectile in said lateral position, to a breech loading position of said firearm, whereby the vulnerability of a hit to said vehicle is minimized by maintaining the bulk of explosive ammunition units at the rear of said vehicle, and the probability of a hit to said turret is minimized by said front portion presenting a minimum target area.

4,391,180

METHOD AND MEANS FOR CONTROLLING THE FIRING RATE FROM A MACHINE GUN

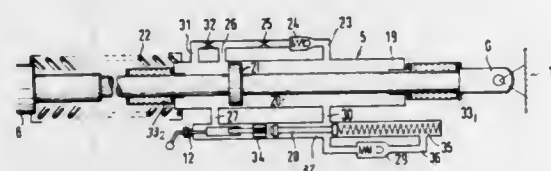
Richard Koine, Ratingen, Fed. Rep. of Germany, assignor to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 147,291, May 6, 1980, abandoned, which is a continuation of Ser. No. 864,237, Dec. 27, 1977, abandoned. This application Jul. 14, 1980, Ser. No. 168,331

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1976, 2658770

Int. Cl.³ F41D 11/00

U.S. Cl. 89—129 R

5 Claims



1. An improved arrangement for controlling the rate of firing of fire bursts in a machine gun having a breech block, an ammunition feed device and a recoil and counter-recoil device for elastically coupling the gun to gun mount by means of a differential recoil system so as to enable the gun to oscillate with preselected oscillation characteristics during firing said gun emitting energy impulses during firing of a shell which are operatively conducted by conduit means to produce ignition of the following shell fed into the gun by the ammunition feed device, the improvement comprising:

receiving means and storing means operatively mounted in said recoil and counter-recoil device said storing means being adapted to store the recoil energy of the gun during recoil thereof, control means operatively connected to said storing and receiving means, said control means having a timing element and being adapted to selectively release a predetermined amount of energy for the counter-recoil motion;

adjusting means operatively connected to said control means for adjusting said timing element;

a primary transmitter operatively associated with said breech block to emit a first signal at a preselected position of said breech block;

a secondary transmitter operatively associated with said recoil and counter-recoil device for emitting a second signal at a preselected position of said recoil and counter-recoil device; and

a relay in said conduit means adapted to conduct an energy pulse emitted from the gun during firing of a shell to initiate ignition of the following shell in the breech block when said first and second signals have placed said relay in a conductive state;

said primary and secondary energy transmitters being operatively coupled to said conduit means.

4,391,181

HYDRAULIC CONTROL SYSTEMS FOR MINING APPARATUS

Walter Weirich, Dortmund; Michael Dettmers, Kamen; Kunibert Becker, Werl, and Harry Rosenberg, Lüdinghausen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalen, Lunen, Fed. Rep. of Germany
Continuation of Ser. No. 948,458, Oct. 4, 1978, abandoned. This application Nov. 17, 1980, Ser. No. 207,507

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1977, 2749312

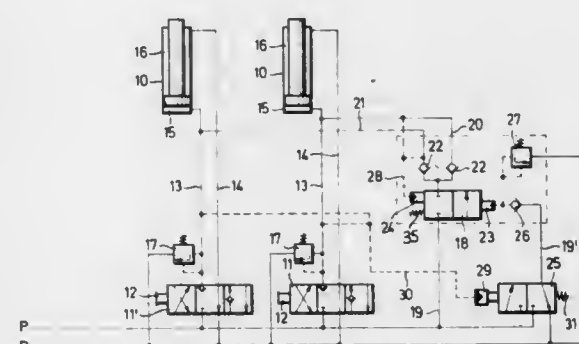
Int. Cl.³ F15B 13/04

U.S. Cl. 91—29

4 Claims

1. In a hydraulic control system for controlling the operation of pressure-fluid operated support props of mining apparatus, said system comprising a common pressure fluid feed line (P), a common pressure fluid return line (R) and manually operated

control devices (11, 11') for selectively connecting the feed and return lines to respective first (15) and second (16) working chambers of associated props (10) of which a first working chamber (15) serves to extend and set the prop when connected to the pressure line; the improvement comprising setting valve means (18) with opposed first (24) and second (23) pressure-fluid operated control pistons, the setting valve means being settable with the first piston (24) into a first state where connection between the pressure line and said first working chamber (15) is blocked and settable with the second piston (23) into a second state where connection between the pressure line and said first working chamber is established independently of the operating position of the manually operated control devices (11, 11') the first control piston (24) of the setting valve means being connected to said first working chamber (15) and biased with spring force (35) into the first state; and control valve means (25) provided with a control piston (29) connected to said first working chamber (15) and biased with opposed spring force (31) to block the pressure line



(P) from the second piston (23) of the setting valve means (18) unless a predetermined threshold pressure level prevails in said first working chamber (15) and to connect said second piston (23) of the setting valve means (18) to the pressure line (P) when said predetermined threshold pressure is exceeded in said first working chamber (15); whereby the control valve means (25) causes the setting valve means (18) to change from its first state to its second state to connect the first working chamber (15) to the pressure line (P) after an associated control device (11, 11') has connected the pressure line (P) to said first working chamber (15) and the threshold pressure level thereafter is exceeded so that connection between said first working chamber (15) and said pressure line (P) is maintained independent of the operating position of said associated control device, and whereby the setting valve means (18) thereafter reverts to its first state under the action of the first control piston (24) thereof once the pressure in the first working chamber (15) reaches a level in excess of the threshold level and signifying that prop setting has occurred.

4,391,182

FLUID ACTUATED POSITIONER

Jacob Kobelt, 6110 Oak St., Vancouver, British Columbia, Canada (V6M 2W2)

Filed Jul. 29, 1980, Ser. No. 173,279

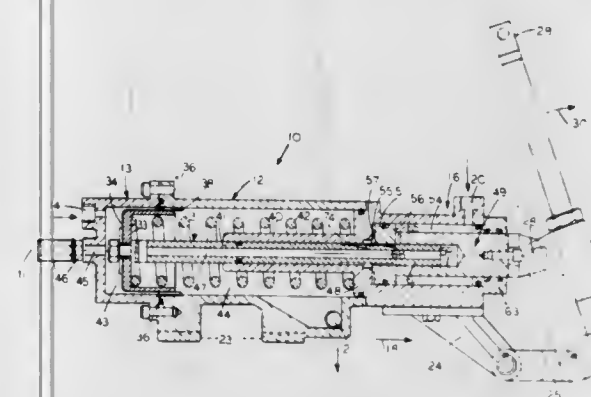
Int. Cl.³ F15B 9/10, 15/17

U.S. Cl. 91—378

10 Claims

1. A fluid actuated positioner adapted to receive a working fluid of constant pressure and to produce a mechanical output signal proportional to a fluid input signal from a signal fluid of varying pressure, the positioner having:

- (a) an input cylinder having input partition means dividing the cylinder into first and second input chambers, an input rod mounting the partition means for movement axially of the cylinder, the first input chamber receiving the signal fluid under varying pressure which generates a varying input signal on the input rod, and resilient means cooperating with the input rod to oppose the input signal on the input rod, the input rod being essentially unaffected by contact with the working fluid,
- (b) an output cylinder having an output member with an output partition means and an output rod, the output partition means dividing the output cylinder into first and second output chambers, the output partition means having first and second faces within the respective output chambers, the output rod mounting the output partition means for movement axially of the output cylinder, the first output chamber receiving the working fluid under a constant pressure which generates a first force on the output partition means, the output rod extending from the output partition means through the first output chamber so that the first face has a smaller effective area than the



second face, and a fixed metering means disposed between exhaust and the second output chamber to control flow of working fluid therefrom prior to exhausting the working fluid,

- (c) a main control valve communicating with the first and second output chambers and having first and second valve portions, the first valve portion being a connecting bore within the output member, the connecting bore communicating with the first output chamber, and the second valve portion being a portion of the input rod which cooperates with the connecting bore to control fluid flow there-through, so that relative positions of the output member and the input rod control metering of a continuous flow of working fluid passing between the first and second valve portions so as to control flow of working fluid from the first output chamber into the second output chamber prior to exhausting the working fluid from the positioner, so that the working fluid in the second output chamber generates a second force on the second face in opposition to the first force to produce on the output rod a resultant displacement proportional to the input signal.

4,391,183

HYDRAULIC BLOCKING VALVE

Stig Broms, Täby, and Lennart Freese, Järfälla, both of Sweden, assignors to Innovation Aktiebolag, Sundbyberg, Sweden

Filed Feb. 14, 1980, Ser. No. 121,619

Claims priority, application Sweden, Feb. 22, 1979, 7809012

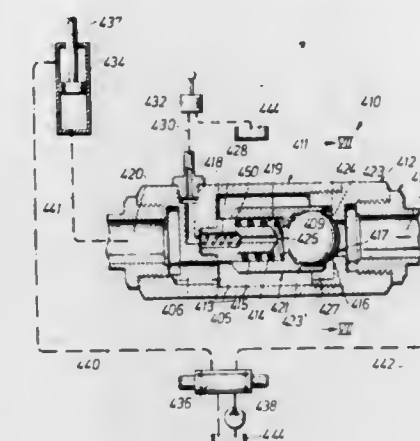
Int. Cl.³ F15B 13/042; F16K 31/122

U.S. Cl. 91—461

4 Claims

1. In a hydraulic blocking or holding valve including a valve housing having a hollow interior with an inlet and an outlet and a valve body shiftable to close a main valve seat for interrupting the communication between the inlet and outlet and alternately to open said main valve seat for permitting said communication, the valve body being arranged between two chambers in said housing interior, namely one inlet chamber in communication with the inlet and located between the valve

body and the valve seat, and one operating chamber located on the opposite side of the valve body from the valve seat, a throttling or constricting passage via which the inlet chamber and the operating chamber are in communication with each other for counteracting flow of hydraulic liquid between the chambers, and control valve means in normally unconstricted communication with the operating chamber and actuable for lowering the pressure in the operating chamber in relation to the pressure in the inlet chamber to thereby create a pressure difference between the two chambers causing the valve body to shift to an open position opening said main valve seat, wherein the improvement comprises a constriction means responsive to said shifting of said valve body to its open position for constricting but not stopping the outflow of hydraulic liquid from the operating chamber to said valve means, said valve body being a ball received in a movable sleeve communicating with said inlet chamber, said housing including a fixed internal spigot protruding into the housing interior and sepa-



rated from said main valve seat by said ball, spring means backed with respect to said housing for urging said ball against said valve seat and away from said spigot, said sleeve being slidable over said spigot and defining with the spigot said operating chamber, a sliding gap between said sleeve and spigot forming said throttling passage between the inlet chamber and operating chamber, an orifice in said spigot providing said normally unconstricted communication of said operating chamber with said valve means, said orifice being located in said operating chamber to face said ball, said spring means being dimensioned for causing said ball, in response to said shifting of said ball and sleeve away from said main valve seat by said pressure difference, to assume an almost abutting relation with said spigot at said orifice forming said constriction means therebetween, for simultaneously constricting outflow into the orifice and maintaining the constricted outflow of hydraulic liquid from the operating chamber through the orifice to the open valve means.

4,391,184

DIAPHRAGM ACTUATOR

Ken Yamane, Yokohama, Japan, and Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 30, 1980, Ser. No. 192,164

Claims priority, application Japan, Oct. 6, 1979, 54-137938; Oct. 16, 1979, 54-132445

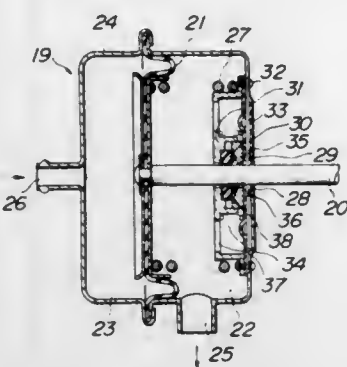
Int. Cl.³ F16J 15/16

U.S. Cl. 92—100

2 Claims

1. A diaphragm actuator comprising a pressure chamber supplied with positive or negative pressure, a negative pressure chamber supplied with negative pressure, a diaphragm defining said pressure chamber and said negative pressure chamber, an operating shaft extending through a wall portion of the negative pressure chamber and connected at one end with the diaphragm, said diaphragm causing the operating shaft to axially slide, relative to said wall portion, in response to the pressure difference between the positive or negative pressure in said pressure chamber, and the negative pressure in said

negative pressure chamber, wherein said wall portion is provided with a sealing arrangement which includes a sealing diaphragm mounted on said wall portion and having an axially movable inner peripheral portion surrounding the operating shaft, a movable annular member supported by the inner peripheral portion of the sealing diaphragm, a stationary annular member secured to the wall portion in the negative pressure



chamber and opposing to the movable annular member, and a resilient O-ring inserted between said annular members and slidably receiving the operating shaft, at least one of the opposite surfaces of said annular members being tapered such that the O-ring is compressed by said opposite surfaces axially and radially inwardly as the negative pressure in the negative pressure chamber exceeds a predetermined value.

4,391,185

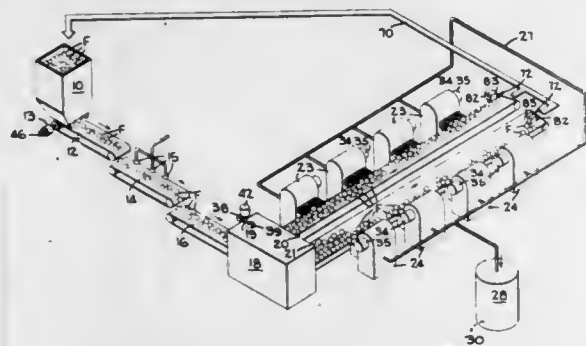
SYSTEM FOR CONTROLLING A JUICE EXTRACTION FACILITY

Robert C. Stanley, Lakeland, Fla., assignor to FMC Corporation, Chicago, Ill.

Division of Ser. No. 171,917, Jul. 24, 1980, Pat. No. 4,335,145.

This application Mar. 10, 1982, Ser. No. 356,671
Int. Cl.³ A23N 1/00; B02C 25/00; B23Q 15/00; G01N 33/14
U.S. Cl. 99—489

2 Claims



1. A system for controlling the flow of fruit and fruit juice through a juice extraction facility, said juice extraction facility including a fruit storage location for storing the fruit in bulk, a sizer for separating the fruit into at least two size categories, said sizer being adjustable to vary the size limits of each category, a feeder for feeding the fruit from the fruit storage location to the sizer, said feeder powered by a motor, a plurality of juice extractors, each of said extractors powered by a motor and said extractors being arranged in two or more groups with each group of extractors adapted to extract juice from fruit in one of said size categories, means for conveying the fruit from the sizer to the extractors according to size, means for recycling unused fruit from each group of extractors to a location upstream of said group, and a juice storage location adapted to receive juice collected from all extractors, said system comprising:

a central processing unit adapted to receive signals from sensors located at various remote locations, process said signals, and transmit control signals to various remote

final control devices, said control signals calculated according to predetermined algorithms; means associated with each group of extractors for counting the number of fruit recycled from that group and for transmitting a signal indicative of said number of fruit to the central processing unit; sensing means mounted at the juice storage location for measuring the amount of juice therein and for transmitting a signal indicative of said amount to the central processing unit; a sizer motor adapted to receive a control signal from the central processing unit and to vary the limits of each size category accordingly; a plurality of motor control centers, each of said centers associated with one extractor, adapted to start and stop the associated extractor motors in accordance with signals received from the central processing unit; and a motor speed control unit associated with the feeder motor and adapted to vary the feed rate of fruit to the extractors in accordance with a signal received from the central processing unit; said control signals to the sizer motor, to the motor control centers, and to the motor speed control unit calculated to maintain a preselected amount of juice at the juice storage facility, to equalize the number of fruit recycled from each group of extractors, and to minimize the total number of fruit recycled.

4,391,186

COTTON PRESS

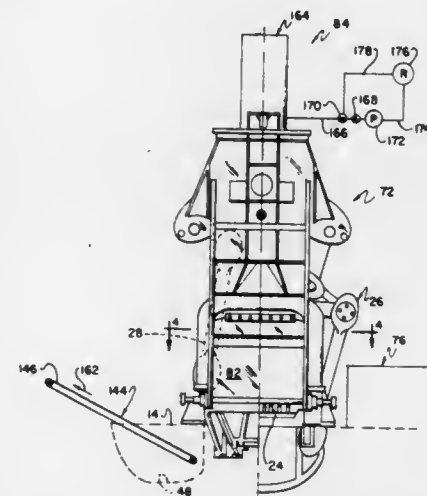
William R. Davis, P.O. Box 131, Charleston, Mo. 63834

Filed Nov. 17, 1980, Ser. No. 207,629

Int. Cl.³ B65B 13/18

U.S. Cl. 100—7

18 Claims



1. A cotton press adapted to receive a debanded bale for compressing the same to a configuration to receive bands therearound, the press being of the Webb type incorporating a frame having a pair of aligned spaced inverted U-shaped members; a movable platen mounted for upward movement toward a stationary platen; and means for forcing the movable platen upwardly toward the stationary platen including a vertically mounted piston-cylinder arrangement and a linkage mechanism interconnecting the piston-cylinder arrangement and the movable platen, the linkage mechanism comprising first and second pairs of links on opposite ends of the U-shaped members, each of the links being generally aligned with one of the U-shaped members, the improvement comprising means providing cotton movement through the press in a path between the spaced inverted U-shaped members including means for feeding a debanded cotton bale between the links of the first link pair toward a pressing location between the platens and for moving a banded cotton bale between the links of the second link pair away from the pressing location.

4,391,187

BELT-TENSIONING SYSTEM FOR ROUND BALERS

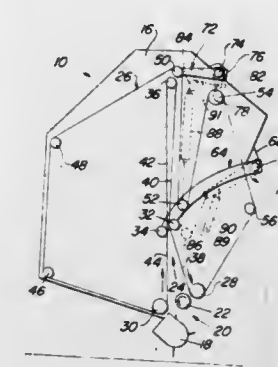
Richard W. Koning; Gerald F. Meiers, and Henry D. Anstey, all of Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Oct. 5, 1981, Ser. No. 308,223

Int. Cl.³ B30B 5/06; A01D 39/00

U.S. Cl. 100—88

10 Claims



1. A round baler having a main frame and including an endless belt and roll system providing first and second oppositely moving belt stretches to at least partly define a bale chamber, said system further including means for holding the stretches apart to define a crop inlet, first and second rolls spaced above the inlet and closely spaced apart to substantially close the upper part of the chamber and carrier means journalling the first and second rolls and mounted on the main frame for upward movement as the bale chamber grows and belt-tensioning mechanism characterized in that the belt-tensioning mechanism includes a third roll spaced above the first and second rolls and supporting a third belt stretch, means mounting the third roll on the main frame for movement toward and away from the carrier means, and means interconnecting the carrier means and the third roll mounting means for causing the third roll to move upwardly as the carrier means moves upwardly.

4,391,188

PIN-OFF AND DOOR CLOSURE ASSEMBLY FOR A STATIONARY REFUSE COMPACTOR

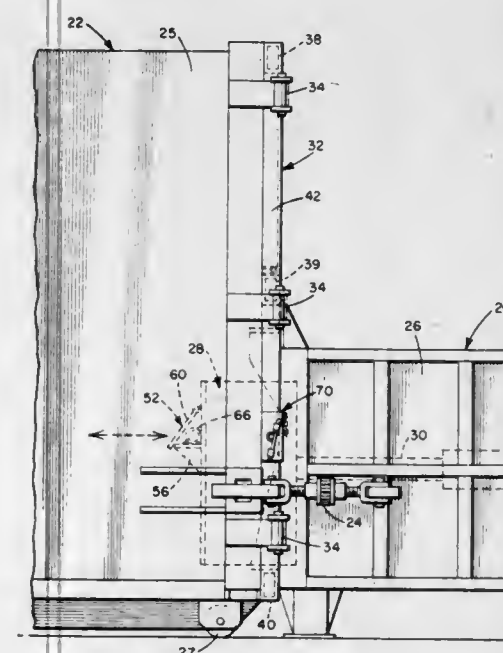
Kenneth W. Gwathney, Vernon; David L. Gann, Guin; Steven G. Seagraves, Sr., Millport, all of Ala.; Gary R. Fenner, Greenville, and Gordon H. Fenner, Columbus, both of Miss., assignors to Marathon Equipment Company, Vernon, Ala.

Filed Feb. 3, 1981, Ser. No. 231,021

Int. Cl.³ B30B 15/06

U.S. Cl. 100—229 A

20 Claims



8. In combination with a stationary refuse compactor assem-

bly including a refuse container having a load opening, and a packer unit having a reciprocating ram detachably engaged with said container for forcing refuse through the load opening into the refuse container, a pin-off assembly for positioning across the load opening of the refuse container, said pin-off assembly including

- (a) an elongated member adapted to be positioned across the load opening, the ends of said elongated member being provided with pin-receiving recesses
- (b) said refuse container being provided with opposed openings adjacent the load opening
- (c) pin support means carried by said container and aligned with the opposed openings adjacent the load opening
- (d) retaining pins positioned in said pin support means and inserted through the opposed openings of the refuse container into the pin-receiving recesses in said elongated member
- (e) said retaining pins being removable to withdraw said elongated member from the load opening, and
- (f) stop means for limiting the extent of entry of each of said retaining pins into the pin-receiving recesses of said elongated member.

4,391,189

CODE DATER FOR TRAY FORMING APPARATUS

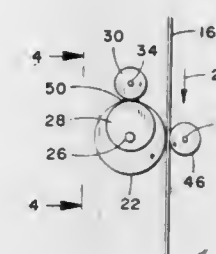
David Anenson, River Falls, Wis., assignor to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 85,788, Oct. 17, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,150

Int. Cl.³ B41F 17/22

U.S. Cl. 101—36

2 Claims



1. A code dater for coding tray blanks being formed into trays in a tray forming machine comprising:

- (a) means attached to said machine for maintaining each of said tray blanks in a semi-rigid condition as said blanks move through said machine, said means including a drive wheel mounted on a driven shaft, said drive wheel being rotated in one direction only, said drive wheel being disposed in contact with one side of said blanks thereby aiding in drawing said blanks through said tray forming machine, said means further including a freely rotatable idler wheel disposed on the opposite side of said tray blanks and aligned with said drive wheel, said means further including a pair of side plates for supporting the opposed ends of said tray blanks as they pass through said machine, said drive and idler wheels cooperating with said plates to deform said tray blank into a bow-like configuration to maintain said tray blanks in a semi-rigid condition, said drive and idler wheels being in contact with said blanks at approximately the apex of said bow-like configuration; and
- (b) means for printing coded information on said blanks as they are maintained in said semi-rigid condition, said means including a circular code dater wheel having a printing font located on the periphery thereof, said wheel being eccentrically mounted at a point spaced from its center on said driven shaft, such that the portion of the periphery of said code dater wheel having said printing font thereon comes into contact with one side of said blanks one time for each revolution of said driven shaft, and with said code dater wheel being mounted in close

proximity to and adjacent, said drive wheel, whereby said printing font thereon contacts with tray blanks at a point on said blanks which is maintained in said semi-rigid condition by said drive and idler wheels, in close proximity to and adjacent the apex of said bow-like configuration, and said machine being devoid of any support means for said coder dater wheel on said opposite side of said tray blanks whereby the semi-rigid condition and bow-like configuration of said blanks comprising the sole support surface for said code dater wheel.

4,391,190

PRE-SETTING OF PRINTING MACHINES

Hans-Georg Metzler, Höchststadt, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

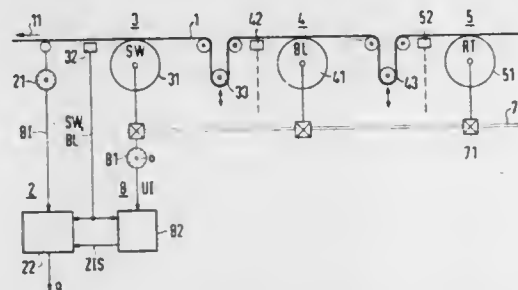
Filed Jul. 23, 1980, Ser. No. 171,368

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930438

Int. Cl.³ B41M 1/14; B41F 5/16; B65H 23/04

U.S. Cl. 101—211

13 Claims



8. In a printing machine including a plurality of printing stations each having at least one printing cylinder which can be activated for printing independently of printing cylinders of other stations, means for determining the angular offset of the printing cylinders of an upstream and a downstream printing station comprising means disposed at a predetermined location on each of the cylinders of the upstream and downstream printing stations for printing a reference mark on web or sheet material moved past the cylinders, optical scanning means disposed downstream of the printing cylinder of the downstream station for detecting reference marks printed by the two cylinders and providing respective output signals in response thereto, first transducer means having an output signal proportional to the length of material moved past the first transducer means, second transducer means having an output signal proportional to the angular rotation of a respective cylinder, first means coupled to receive the output signals of the scanning means and the second transducer means and in response thereto determining the relative angular position of the predetermined location of the downstream printing cylinder when a reference mark printed by the downstream printing cylinder is detected and for providing an output signal each time the predetermined location of the upstream printing cylinder rotates past an angular position corresponding to the relative angular position of the predetermined location of the downstream printing cylinder when the reference mark printed by the downstream printing cylinder was detected and second means coupled to receive the output signals of the first transducer means, the scanning means and the first means and providing a signal proportional to the distance travelled by the material between an output signal of the first means when the printing cylinder of the downstream printing station is not printing and when the printing cylinder of the upstream printing station is printing and the next reference mark printed by the printing cylinder of the upstream printing station detected by the optical scanning means.

4,391,191 RECIPROCAL SUPPORTING ARRANGEMENT FOR CONTACTING CYLINDERS OF A PRINTING UNIT

Hans-Bernhard Bolza-Schunemann, Würzburg, Fed. Rep. of Germany, assignor to Koenig & Bauer AG, Würzburg, Fed. Rep. of Germany

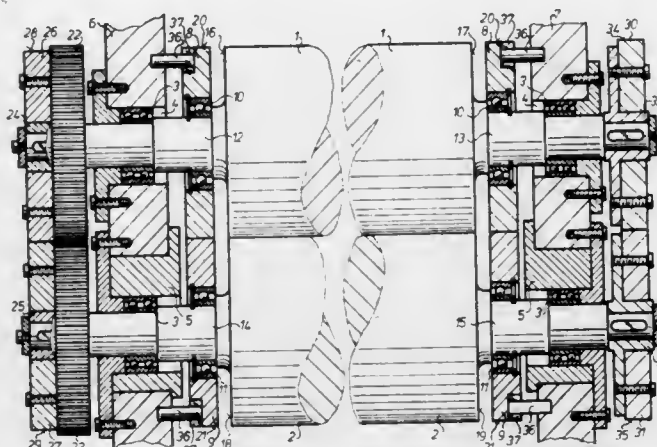
Continuation of Ser. No. 94,540, Nov. 15, 1979, abandoned. This application Aug. 3, 1981, Ser. No. 289,651

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2926570

Int. Cl.³ B41F 13/20

U.S. Cl. 101—216

4 Claims



1. An arrangement for the precise support and rotation of first and second cylinders which contact each other in a printing unit of a rotary printing press, the cylinders being carried on shafts which rotate in journals that are carried in spaced side frames, the cylinders being positioned between the spaced side frames, said support arrangement comprising:

spaced pairs of non-rotating support rings carried by the shafts of the first and second cylinders, said support rings on the first cylinder shaft contacting said support rings on the second cylinder shaft to produce an initial stress force between said pairs of support rings to maintain the cylinders spaced an exact distance from each other and to maintain journal deflections constant, said support rings being positioned adjacent planar ends of the cylinders interiorly of the side frames, and being constrained from rotation with the shafts;

at least a first pair of contacting rotatable cylinder rings, one of said rotatable cylinder rings being secured to the shaft of the first cylinder for rotation therewith, and another of said rotatable cylinder rings being secured to the shaft of the second cylinder for rotation therewith, said rotatable cylinder rings being sized to provide a selected peripheral contact force between said cylinder rings to ensure a precise rolling drive for the cylinders and to dampen vibrations, said cylinder rings contacting each other exteriorly of the side frames; and,

drive means to rotate the first and second cylinders.

4,391,192

BEARING ARRANGEMENT FOR AN INK FOUNTAIN IN A ROTARY PRINTING MACHINE

Erich G. Wieland, Würzburg, Fed. Rep. of Germany, assignor to Koenig & Bauer AG, Würzburg, Fed. Rep. of Germany

Filed Sep. 10, 1981, Ser. No. 300,850

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1980, 3033998

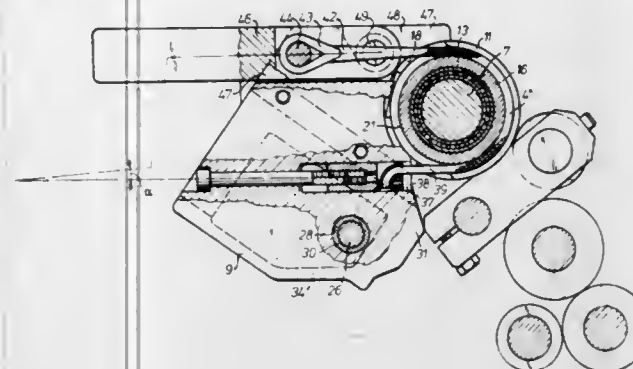
Int. Cl.³ B41F 31/06; B41L 27/08

U.S. Cl. 101—350

8 Claims

1. A bearing arrangement for a pivotable ink fountain in a rotary printing machine having a driven ink fountain roller plunging into said ink fountain, wherein a supporting ring is supported on either side of said fountain roller on a roller journal, each of said supporting rings carrying a securement

means which wraps on a periphery of said supporting ring, a first end of said securement means being secured to said ink fountain, a second end of said securement means being con-



ected to a tensioning device which is secured to said ink fountain so that said ink fountain is capable of being pivoted off said ink fountain roller.

4,391,193

PLATE HOLDING DEVICE FOR OFFSET DUPLICATOR

Koji Ishii; Takahiko Shinmoto, both of Fuchu, and Kenso Mahara, Hiroshima, all of Japan, assignors to Ryobi Ltd., Hiroshima, Japan

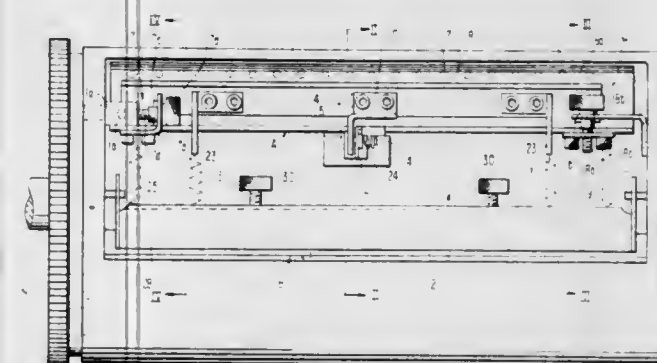
Filed Apr. 6, 1981, Ser. No. 251,450

Claims priority, application Japan, Apr. 17, 1980, 55-52663

Int. Cl.³ B41F 27/00

U.S. Cl. 101—415.1

9 Claims



1. A printing plate holding device for an offset duplicator, said holding device being positioned in a grooved portion of a plate cylinder and confronting a tail clamp device, said holding device comprising: a base positioned along one side of said grooved portion and slidably secured thereto in a horizontal plane; a clamp plate pivotally secured to said base and provided with a first pin; a clamp lever fixed to said clamp plate and provided with a second pin; a latch loosely secured to said second pin of said clamp lever and connected to a spring so as to provide a plate clamping force to said clamp plate, said latch being engageable with a bracket of said base so as to maintain said clamp plate at an open position; a guide plate and a plate release preventing plate both fixed to an outer longitudinal side of said base; axial displacement control means positioned at one longitudinal end of said cylinder; circumferential displacement control means positioned at the other longitudinal end of said cylinder; said axial displacement control means comprising a first knob rotatably extending through a slot formed in a first bracket fixed to said base, said first knob being threadingly engaged with said plate cylinder; and said circumferential displacement control means comprising a second knob rotatably extending through a slot formed in a second bracket fixed to said cylinder, said second knob being threadingly engaged with a third bracket fixed to said base.

4,391,194

METHOD FOR ADDRESSING CARDS AND ENVELOPES

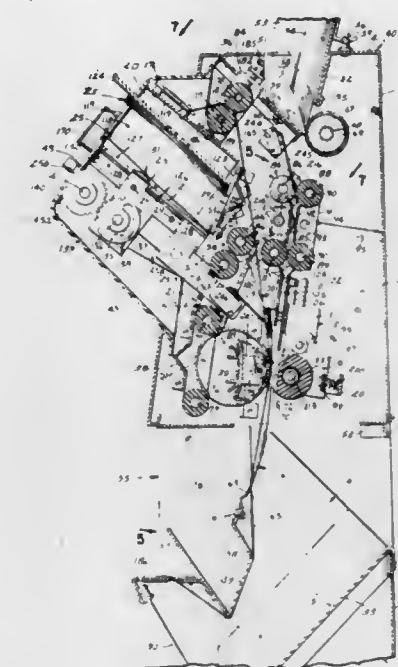
Ronald A. Rogers, Apple Valley; Ansel J. Wright, Minneapolis, and William H. Wright, Hopkins, all of Minn., assignors to Master Addresser Company, Minneapolis, Minn.

Continuation of Ser. No. 97,377, Nov. 21, 1979, abandoned, which is a division of Ser. No. 854,611, Nov. 25, 1977, Pat. No. 4,186,659. This application Apr. 30, 1981, Ser. No. 259,181

Int. Cl.³ B41M 5/00

U.S. Cl. 101—471

18 Claims



1. A method of reproducing material imprinted on a master element having indicia of heat conducting material thereon, comprising:

- (a) feeding the master element through a printing zone in which a heating element is disposed;
- (b) feeding a print receiving member through the printing zone outwardly of the master element relative to the heating element and in the same direction as the master element;
- (c) supporting a length of flexible sheet material provided with a heat transferable printing medium under predetermined tension between the master element and the print receiving member;
- (d) intermittently advancing a predetermined length of the flexible sheet material through the printing zone against its supporting tension in the same direction as the master element;
- (e) and pressing the master element, flexible sheet material and printing receiving member together during movement thereof through the printing zone.

4,391,195

DETONATION OF EXPLOSIVE CHARGES AND EQUIPMENT THEREFOR

Peter C. Shann, 4, Orchard Way, Dringhouses, York, England

Filed Aug. 18, 1980, Ser. No. 179,153

Claims priority, application United Kingdom, Aug. 21, 1979, 7929128; Aug. 21, 1979, 7929129; Oct. 20, 1979, 7936504

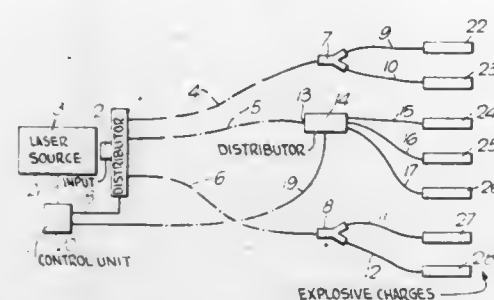
Int. Cl.³ F42B 3/10

U.S. Cl. 102—201

36 Claims

1. A system for connecting a set of explosive charges with a laser for detonation by optical energy from the laser which comprises an input for optical energy produced by the laser, a set of optical fibres for connection one with each of the charges and distributor means for distributing optical energy from the input to the fibres of said set, said fibres having longitudinal axes and said distributor means being operable to receive energy from the laser and to direct a part of the received energy into the fibres and to direct the remainder of the received

energy to waste, at least a substantial proportion of the part directed into the fibres being directed non-axially so that the



propagation of said at least a substantial proportion through the fibres is by zigzag paths.

4,391,196

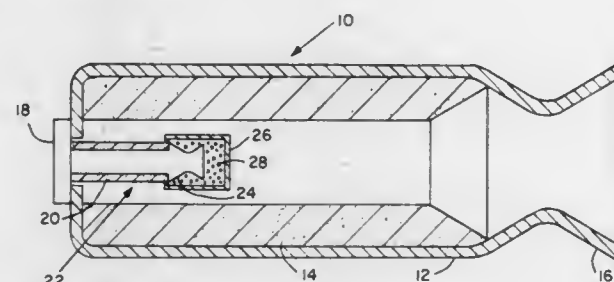
ADD-ON IGNITER FOR PYROGEN TYPE IGNITER

Robert E. Betts, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 20, 1981, Ser. No. 255,906
Int. Cl.³ F02K 9/95

U.S. Cl. 102-202

2 Claims



1. In a solid propellant rocket motor having a solid propellant perforated grain contained in a case, an exhaust nozzle at the aft end of said case and a pyrogen igniter at the forward end of said case, said pyrogen igniter including:

- (i) an exhaust nozzle for exhausting hot gases;
- (ii) an add-on pyrotechnic package secured to said pyrogen exhaust nozzle, said add-on pyrotechnic package comprising a suitable container for containing pyrotechnic pellets; and,

(iii) pyrotechnic pellets contained in said container which are ignitable by hot pyrogen exhaust gases when said hot pyrogen exhaust gases impinge upon said pellets and produces rapid burning of said pellets that are subsequently discharged in the form of hot gases and hot particles along with said hot pyrogen exhaust gases to perform the functions of rapidly sweeping away any undesirable solid propellant perforated grain constituents that have migrated to the surface of said solid propellant perforated grain or reaction products that have formed on said surface from chemical reactions, rapidly igniting said solid propellant, perforated grain, and maintaining a high pressure rate rise in said solid propellant rocket motor which achieves improved ignition and performance of said propellant rocket motor.

4,391,197

SMOKE CARTRIDGE

Kjell O. Jacobsen, Raufoss, and Gudmund Engen, Jonsvatnet, both of Norway, assignors to A/S Raufoss Ammunisjonsfabrikker, Raufoss, Norway

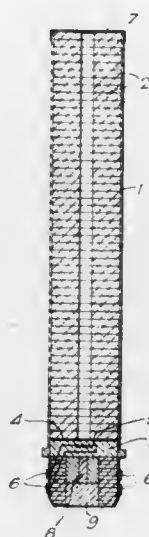
Continuation of Ser. No. 16,379, Mar. 1, 1979, abandoned. This application Sep. 19, 1980, Ser. No. 188,954

Claims priority, application Norway, Mar. 8, 1978, 780819

Int. Cl.³ F42B 13/44

U.S. Cl. 102-334

3 Claims



1. A smoke cartridge for producing instantaneous smoke, comprising:

- a casing,
- a first compartment within said casing comprising a stack of annular disc shaped smoke elements piled one on top of the other, and a hole passing longitudinally through each smoke element such that the holes through all of the smoke elements form a central passageway passing longitudinally of the casing through the entire first compartment, the forward end of the casing having a releasable cover,

at least some of the smoke producing material of every smoke element being directly exposed to the central passageway, the smoke elements being free of connection to each other, such that immediately upon leaving the casing, each smoke element is separate from the other smoke elements,

- a second compartment separated axially from the first compartment and axially adjacent the rearward end of the first compartment and containing a discharge composition and a means for igniting the discharge composition, said discharge composition comprising substantially the complete ignition composition for igniting all the disc shaped smoke elements, such that upon ignition of the discharge composition a jet of flames passes into one end of and then through the passageway to ignite all of the smoke elements directly exposed thereto as this same discharge composition expels all of the smoke elements out of the casing, whereupon, immediately upon discharge, each smoke element is free to scatter independently of the other smoke elements,

- a third compartment adjacent the second compartment on the side thereof opposite the first compartment, a second discharge composition in said third compartment for propelling the casing itself, and including a delay means between the second and third compartment such that ignition of the second discharge composition is delayed until after the smoke elements have been discharged from the first compartment.

4,391,198

BIDIRECTIONAL DISPERSIBLE SHAPED-CHARGE MINE

Claude Auge, Bourges, France, assignor to Etat Francais, Paris, France

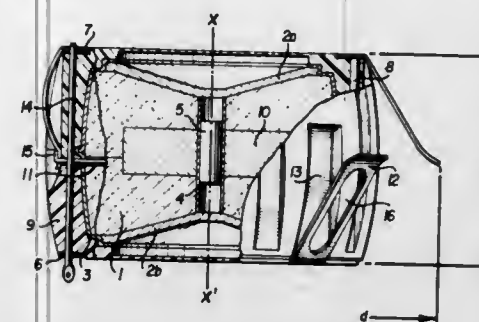
Filed Feb. 11, 1981, Ser. No. 233,496

Claims priority, application France, Feb. 11, 1980, 80 02907

Int. Cl.³ F42B 23/24

U.S. Cl. 102-401

7 Claims



1. A shaped charge mine with action directed along one of the two opposite directions of the axis of revolution perpendicular to the central plane of the mine which is of generally flattened shape, including a substantially cylindrical housing containing the charge to the ends of which housing there are fastened two metal coverings, an igniter provided with a cocking rod extracted by a spring, said mine being characterized by the fact that it comprises a damping means surrounding the housing and imparting to the mine a ratio of height h to outside diameter d which is less than 0.5 in order to assure laying along one or the other of the preferred directions, wherein the damping means consists of a layer of damping material surrounding the housing, on which layer flexible tongues are fastened on opposite sides of the central plane and at a given distance from it, said flexible tongues having free ends which extend away from the axis of revolution and which are substantially oriented in the median plane of the mine.

4,391,199

SAFE AMMUNITION FOR EXHIBITION AND TARGET SHOOTING

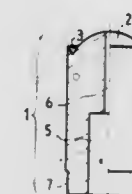
Lionel Morin, 20, avenue Gambetta, 19200 Ussel, France

Filed Sep. 24, 1980, Ser. No. 190,261

Int. Cl.³ F42B 5/22, 9/20

U.S. Cl. 102-444

17 Claims



1. Safety ammunition adapted for shooting at a reduced level in order to minimize noise, range and physical danger, said ammunition adapted to be used with various weapons, including both muzzle loading and breech loading weapons, said ammunition comprising:

- (a) a plastic charge carrier, said charge carrier comprising a small, tubular container having an interior opening and a

closed, generally conical nose, said closed generally conical nose having an enlarged, constant diameter and generally cylindrical portion, a median small collar and a tail provided with an enlarged portion having a uniform diameter which is substantially the same as the enlarged nose portion, said charge carrier being generally hollow and having a narrow, circular groove positioned adjacent to said small collar, said groove comprising a fracture line; (b) a hollow plastic projectile coupled with said charge carrier, said projectile including an interior opening adapted to receive either the tail or the nose of said charge carrier, said charge carrier and projectile including means for assembling them into a single unit having two different positions, a safety position in which said projectile opening receives said charge carrier tail, and a firing position in which said projectile opening receives said charge carrier nose; and (c) a holder coupled to said charge carrier and said projectile.

4,391,200

MEDIUM DISTANCE TRANSPORT DEVICE

Roger Bajulaz, Chemin William Barbey 22, 1292 Chambes, Geneva, Switzerland

PCT No. PCT/CH80/00049, § 371 Date Dec. 16, 1980, § 102(e)

Date Dec. 16, 1980, PCT Pub. No. WO80/02403, PCT Pub.

Date Nov. 13, 1980

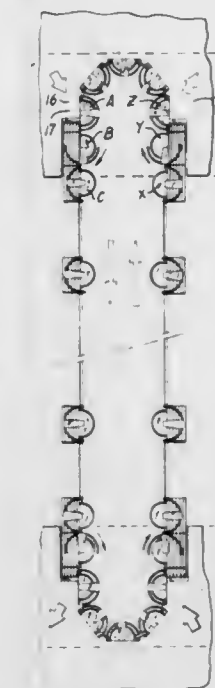
PCT Filed Apr. 25, 1980, Ser. No. 220,069

Claims priority, application Switzerland, May 4, 1979, 4200/79

Int. Cl.³ B61K 1/00

U.S. Cl. 104-20

9 Claims

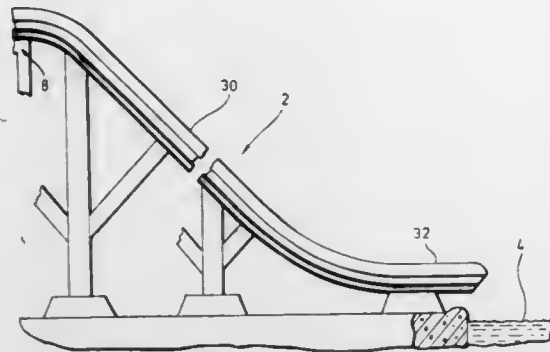


1. Transport device for persons, comprising at least one passenger loading and unloading platform, track means extending along said platform and extending a distance away from said platform, a plurality of passenger cabins movable on said track means into and out of adjacency with said platform, each cabin having a fixed floor and an upright wall extending upwardly from said fixed floor, each cabin having a vertically movable floor that extends laterally outwardly from said fixed floor, means mounting said movable floor for vertical movement relative to said fixed floor, means to raise said vertically movable floor when the cabin is adjacent said platform to bring said movable floor adjacent a level position with the platform, means thereafter to lower said movable floor relative to said fixed floor to permit said movable floor to pass beneath said platform, and a door to close the cabin.

4,391,201

AQUATIC TOBOGGAN SLIDE

Kenneth I. Bailey, R.R. #2, Whitby, Ontario, Canada
Continuation of Ser. No. 174,757, Aug. 4, 1980, abandoned,
which is a continuation-in-part of Ser. No. 25,795, Apr. 2, 1979,
abandoned. This application Sep. 16, 1981, Ser. No. 302,703
Int. Cl.³ B62B 13/06; A63G 21/18
U.S. Cl. 104—70 10 Claims



1. In an aquatic toboggan slide comprising the combination of a steeply downwardly inclined chute, a plurality of toboggans dischargable down the chute, and a body of water adjacent the lower end of the chute, the improvement wherein:
the chute is in the shape of a trough with continuous side walls and a load bearing bottom surface free of dangerous projections and formed by a plurality of parallel horizontal rollers extending laterally between the side walls, said chute providing a vertical drop of at least about 20 feet and the side walls extending higher than side walls of a toboggan so that a toboggan and rider discharged down the chute will be confined between the chute side walls, the lower portion of the chute being curved so that its discharge end is level and about 12 to about 20 inches above the surface of the body of water, and the curvature of the lower end of the chute being at least about 16 feet in radius, with the rollers being closely spaced at least in the curved lower portion of the chute;
the body of water extends a distance in feet beyond the bottom of the chute which is at least about three times the velocity in feet per second at which a toboggan will leave the chute; and
each toboggan is moulded from synthetic plastics material, has a continuous bottom wall defining the longitudinally ribbed under surfaces inclined upwardly at its front end to a prow, raised side walls, a resilient backless seat member at the rear of the toboggan extending between the side walls and maintained spaced from the bottom wall by a filling of foamed plastic material, a leg space extending forwardly of the seat to, and including a foot rest near the prow of the toboggan, and individual hand grips extending from the toboggan structure and located inwardly of the side walls to either side of the leg space, and between the seat and the foot rest whereby to constrain a rider to assume a position with the rider's hands within the walls and the rider's legs between the rider's arms.

4,391,202

PAPERBOARD LOAD-SUPPORTING PALLET

Leewood C. Carter, 18 Upper Warren Way, Warren, N.J. 07060,
and Robin P. Neary, 53 Castle Way, Basking Ridge, N.J. 07920

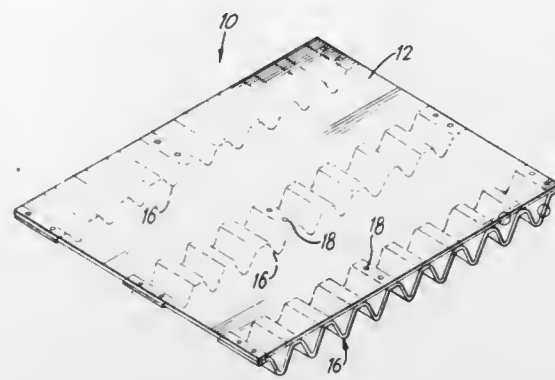
Filed Feb. 6, 1981, Ser. No. 231,930
Int. Cl.³ B65D 19/34

U.S. Cl. 108—51.3

28 Claims

1. A paperboard load-supporting pallet, comprising:
a flat deck formed of a plurality of layers of paperboard;
a plurality of runners extending in a longitudinal direction and attached to the bottom surface of said deck;
each of said runners being formed of a plurality of layers of

paperboard and each of said runners including a plurality of spaced, parallel corrugation sections;
each of said corrugation sections including a flat section A attached to said deck, two leg sections B each connected to opposite ends of said flat section, and radius of curvature sections C each having a transverse axis; and



said paperboard runners having a main grain direction in which a majority of the paperboard fibers extend in said longitudinal direction and perpendicular to said transverse axes to provide substantially improved structural rigidity to said runners.

4,391,203

SECURITY APPARATUS

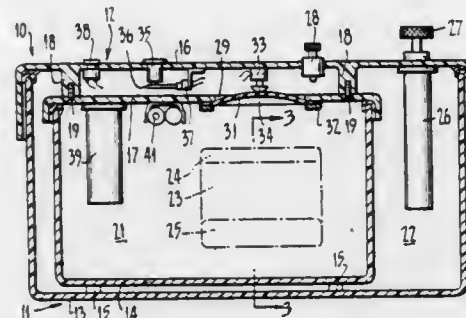
Frederick W. Millar, 3 Fenton Crescent, Frankston 3199,
Victoria, Australia
PCT No. PCT/AU80/00025, § 371 Date Feb. 26, 1981, § 102(e)
Date Feb. 26, 1981, PCT Pub. No. WO81/00043, PCT Pub.
Date Jan. 22, 1981

PCT Filed Jun. 25, 1980, Ser. No. 243,910

Claims priority, application Australia, Jun. 2, 1979, PD9421
Int. Cl.³ E05G 1/12; G08B 13/20

U.S. Cl. 109—25

12 Claims



1. A transportable security container comprising: a hollow receptacle for receiving valuables; an enclosure surrounding the hollow receptacle such as to form between the enclosure and the receptacle a chamber enveloping the receptacle; a chute extending from an opening in the enclosure and through the chamber and into the interior of the receptacle through which to deposit valuables into the receptacle; a flexible diaphragm incorporated in the wall of the receptacle and movable in response to changes of pressure within the chamber; a pack of dye disposed within the receptacle; and means to cause discharge of the dye in response to movement of the diaphragm on change of pressure within the chamber.

4,391,204

SECURITY CABINETS FOR HOTEL ROOMS

Ernst K. Mitchell, Mt. Clemens, and Richard H. Terry, Bloomfield Hills, both of Mich., assignors to Safekeeper Systems, Inc., Troy, Mich.

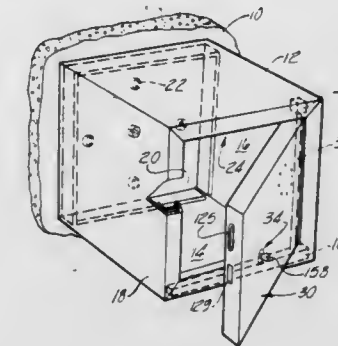
Filed Sep. 9, 1980, Ser. No. 185,653
Int. Cl.³ E05G 3/00, 1/04

U.S. Cl. 109—39

4 Claims

1. A security cabinet including a door frame and a door hingedly mounted thereon,
said door having front and rear panels in spaced relation,

a latch keeper in said door frame,
a tamper detector alarm mounted inside said door,
a latch mechanism mounted in the door and having a movable latch plate and a bolt movable therewith adapted to engage said latch keeper when the door is closed and the latch plate is moved from a retracted position to an extended position,
a key-lock mounted in said latch mechanism and having a cylinder adapted to receive a user's key through the front panel of said door,
said key-lock including a cam coacting with said latch bolt and adapted to move it between said retracted and extended positions,



a coin detector mounted in the door and including a detaining lever adapted to engage said latch plate for blocking movement thereof to the extended position unless a valid coin is deposited in said coin detector, whereby said latch plate may be actuated to the fully extended position by rotation of the user's key only when a valid coin is deposited,

a coin box mounted in the door and adapted to receive coins from said coin detector,
said rear panel of said door being movably mounted on said front panel for movement between closed and open positions whereby said rear panel may be opened for servicing of said latch mechanism, coin box and coin detector,
a lock means for said rear panel.

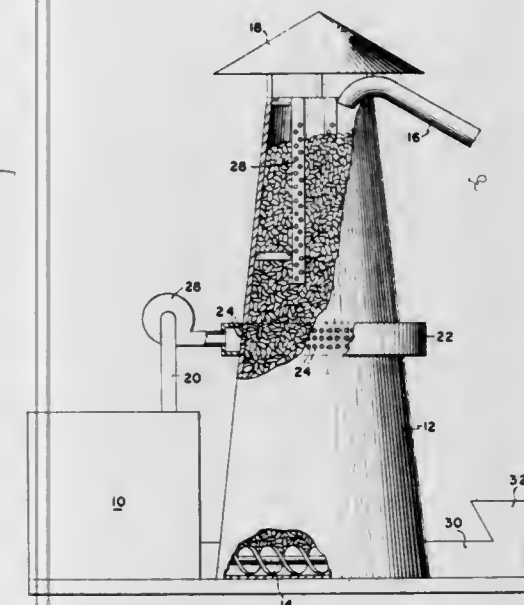
4,391,205

METHOD AND APPARATUS FOR BURNING GREEN WOOD CHIPS

Norval K. Morey, Box 97, Winn, Mich. 48896
Filed Feb. 6, 1981, Ser. No. 231,947
Int. Cl.³ F23G 5/04

U.S. Cl. 110—224

5 Claims



1. Apparatus for burning wood chips comprising a wood chips combusting furnace with an exhaust conduit communicating therewith and leading out of said furnace, a top vented vertically extending silo, separate from said furnace to prevent

combustion of its contents but adjacent thereto, filled with a stack of porous cellular wood chips to provide a silo-encased continuous vertical chip column of substantial height, feed means for feeding wood chips from the lower end of said stack to said furnace, supply means for supplying moisture laden wood chips to the upper end of said silo to replenish chips withdrawn from said silo by said feed means, and manifold means on said silo to which said exhaust conduit leads communicating with the exhaust conduit of said furnace for peripherally discharging combustion gases from said furnace into the periphery of the stack of chips in said silo at a location below the top of said stack of chips contained therein to dry the chips in the upper portion of said stack as said gases pass upwardly therethrough to be vented from the top of said silo and to filter contaminants from said gases, said manifold means comprising a manifold band substantially surrounding said silo above the said feed means and substantially below and remote from the said wood chips supply means, there being perforations in the wall of said silo at said band placing the interior of said silo in communication with said manifold whereby combustion gases pass from said manifold into said stack perimetally through said perforations.

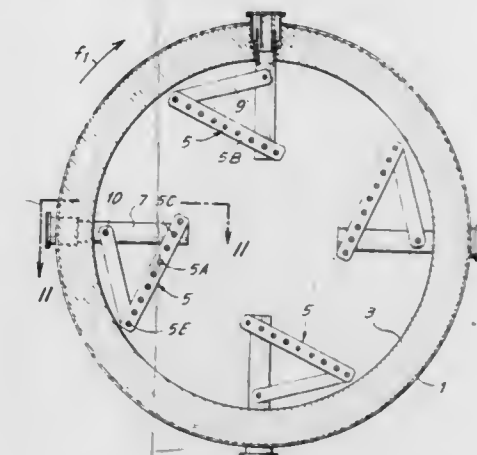
4,391,206

TUBULAR ROTARY FURNACE FOR INCINERATING REFUSE AND THE LIKE, WITH INNER DEMOUNTABLE GRID

Silvano Matteini, Via Bellosguardo 4A, Florence, Italy
Continuation of Ser. No. 3,906, Jan. 16, 1979, abandoned. This
application Oct. 31, 1981, Ser. No. 202,897
Claims priority, application Italy, Jan. 18, 1978, 11535/78[U]
Int. Cl.³ F23G 5/06

U.S. Cl. 110—246

5 Claims



1. A rotary cylindrical furnace for incinerating refuse and the like comprising:
an outer wall;
grid means mounted about the inner periphery of said outer wall;
with respect to the direction of rotation of said furnace, the forward edge of said grid means being spaced a greater distance apart from said outer wall than the rearward edge of said grid means so that said grid means are inclined with respect to said wall; and
said grid means not extending into the central area of said furnace.

4,391,207

METHOD OF CONDITIONING EXHAUST GASES FROM COAL FIRING

Helge H. Petersen, Copenhagen, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.

Continuation of Ser. No. 60,598, Jul. 25, 1979, abandoned. This application Oct. 22, 1981, Ser. No. 313,795

Claims priority, application United Kingdom, Jul. 25, 1979, 31061/78

Int. Cl.³ F23B 7/00

U.S. Cl. 110—342

10 Claims

1. A method of conditioning exhaust gases, containing substantial amounts of dust and lesser amounts of fly ash, from burning processes in a kiln plant, with an electrostatic precipitator, for the treatment of mineral materials which produce the substantial amounts of dust during treatment comprising:

- taking a solid fuel;
- adding to said fuel at least one alkali-metal compound;
- grinding said solid fuel and alkali-metal compound such that at least a portion of the fuel assumes a solid pulverized condition;
- feeding into a rotary kiln mineral materials which, upon burning, produce substantial amounts of dust;
- introducing said fuel into the rotary kiln in its ground condition;
- firing the treated, solid ground fuel in the kiln to burn the mineral materials thereby producing a mineral product and exhaust gases containing the substantial amounts of dust and lesser amounts of fly ash which now contain alkali-metal to reduce resistance;
- separating the exhaust gases and the alkali-metal and dust and fly ash by precipitation in the electrostatic precipitator; and
- recovering the conditioned exhaust gases.

4,391,208

METHOD FOR CONTROLLING TEMPERATURES IN THE AFTERBURNER AND COMBUSTION HEARTHES OF A MULTIPLE HEARTH FURNACE

Frederick M. Lewis, Mountain View, Calif., assignor to Sterling Drug, Inc., New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 192,021

Int. Cl.³ F23G 5/04

U.S. Cl. 110—346

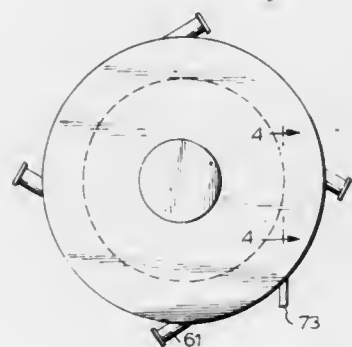
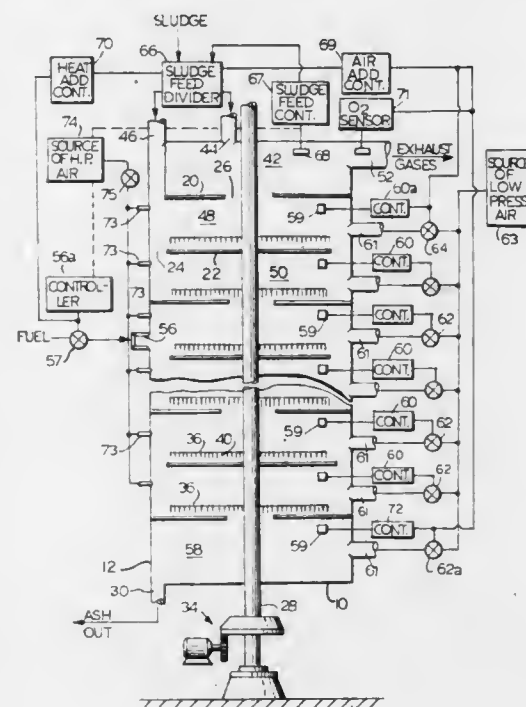
23 Claims

1. In a method of incinerating combustible waste in a multiple hearth furnace containing a series of superimposed hearths which comprises feeding the combustible waste at the upper end of the furnace and passing the waste downward through a series of combustion hearths, supplying air to the combustion hearths to combust the waste material, and discharging the inert solid products of combustion at the lower end of the furnace, while the gaseous products of combustion flow upward countercurrent to the flow of waste material through the hearths and into an afterburner to remove the malodorous gases and/or pollutants, said afterburner being located after the uppermost waste handling hearth, the improvement wherein the temperatures of the afterburner and individual combustion hearths of the multiple hearth furnace are simultaneously controlled by:

- splitting the waste feed between (1) the uppermost waste handling hearth and (2) the hearth directly below the uppermost waste handling hearth in such proportions as to control the temperature of the afterburner to a temperature within preselected limits; and
 - controlling the supply of combustion air to the individual combustion hearths in sufficient quantities so as to operate the combustion hearths at a temperature at or below a preselected maximum temperature;
- wherein said steps (A) and (B) are synchronized in response to the temperature of the afterburner and also in response to the temperatures in the individual combustion hearths by (I) controlling the temperature of the uppermost waste handling hearth below temperatures which would result in thermal stress of the furnace parts beyond safe operating limits and yet

high enough to maintain the temperature of the afterburner within preselected limits to remove malodorous exhaust gases, and (II) controlling the temperatures of the combustion hearths by supplying air to the individual hearths in amounts sufficient to control the temperatures of said individual hearths at temperatures at or below preselected maximum temperatures, which temperatures are below that which would cause thermal stress in the furnace parts.

18. In a method of incinerating combustible waste in a multiple hearth furnace containing a series of superimposed hearths which comprises feeding the combustible waste at the upper end of the furnace and passing the waste downward through a series of combustion hearths, supplying air to the combustion hearths to combust the waste material and discharging the inert solid products of combustion at the lower end of the furnace, while the gaseous products of combustion flow upward countercurrent to the flow of waste material through the



hearth and into an afterburner to remove the malodorous gases and/or pollutants, said afterburner being located after the uppermost waste handling hearth, the improvement comprising directing high velocity jets of small amounts of air into the respective individual combustion hearths at constant air flow rates in amounts sufficient to promote a cyclonic gas flow and create turbulence to ensure uniform mixing of the air and combustion gases so that the temperature in an individual hearth accurately represents the combustion conditions therein and directing large cross-section low velocity streams of air from main air combustion jets into the respective individual combustion hearths for supplying the bulk of the combustion air to control the combustion in the hearths, said air flow rates from the main combustion jets being varied in accordance with the amount of air needed to control the temperatures of the individual hearths in response to the respective temperature of the individual hearths.

4,391,209

EXOTHERMIC CUTTING ELECTRODE

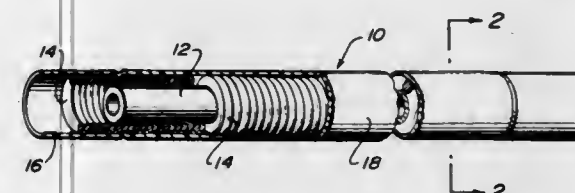
Paul E. Moore, Lancaster, Ohio, assignor to Arcair Company, Lancaster, Ohio

Filed Jun. 16, 1981, Ser. No. 274,118

Int. Cl.³ F23B 7/00

U.S. Cl. 110—349

16 Claims



1. An exothermic cutting electrode for use on land or under-water of the type comprising a metal tube within which are disposed a plurality of elongated metallic rods or wires the electrode adapted to be held by a torch for conducting electrical current to said electrode and a gaseous oxidant through said electrode for ignition and continuation of combustion of the free end of said electrode producing a high temperature flame whereby said electrode and said flame can be brought into contact with a workpiece for performing a cutting operation thereon the improvement comprising:

an inner tube of a metal of the same general type as said outer tube, said inner tube disposed within and spaced apart from said outer tube thus defining an annulus between said tubes;

a mass of metal disposed in said annulus said metal being of the same general type of metal as said inner and outer tubes said electrode constructed to cause flow of gaseous oxidant through said inner tube to produce a jet of oxygen and flame at the free end of said electrode.

4,391,210

TAG ATTACHING MACHINE

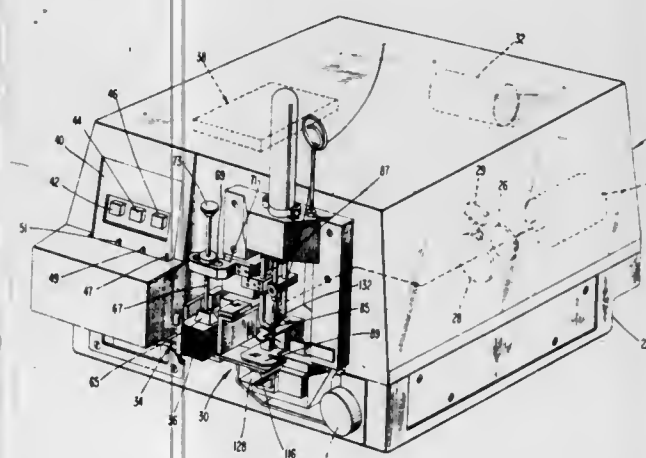
Michitoshi Watanabe, Nagoya, Japan, assignor to Tomoe Special Machine Co., Ltd., Nagoya, Japan

Filed Nov. 13, 1980, Ser. No. 206,613

Int. Cl.³ D05B 3/20

U.S. Cl. 112—104

18 Claims



1. A tag attaching machine comprising:
- a feed assembly for feeding tags one at a time from a tag supply to a tag attaching station;
 - a tag attaching assembly for attaching a tag to an article at the tag attaching station; and
 - a control network for controlling the sequence of operations performed by the feed assembly and the tag attaching assembly;
- said feed assembly comprising:
- transport means for moving a tag from the tag supply toward the tag attaching station;
 - means coupled to said transport means for controlling the

distance said transport means moves said tag from said tag supply; and gauge means coupled to said distance controlling means and adjustable to accommodate the width of said tag, adjustment of said gauge means causing proportional adjustment of said distance controlling means such that the distance said transport means moves said tag is precisely that required to bring the same to said tag attaching station.

4,391,211

AUTOMATIC SEWING MACHINE

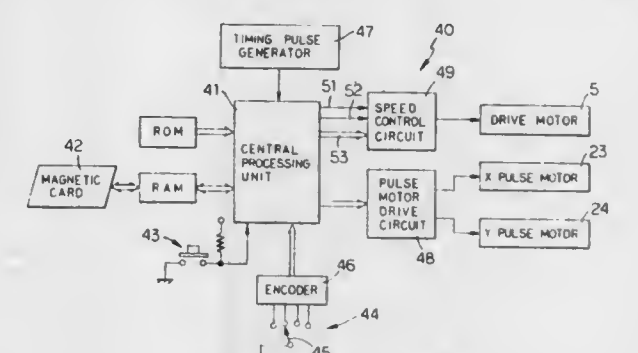
Yoshikazu Yamamoto, and Toshiaki Yanagi, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Nov. 7, 1980, Ser. No. 204,993

Claims priority, application Japan, Nov. 28, 1979, 54-154055 Int. Cl.³ D05B 21/00

U.S. Cl. 112—121.12

9 Claims



1. In an automatic sewing machine having stitch forming instrumentalities including an endwise reciprocating needle, the combination comprising a drive motor for reciprocating the needle to produce stitches in a workpiece, drive means operative to vary the relative position between the needle and the workpiece, stitch instruction storage means for storing stitch instructions capable of influencing the relative positions to form a stitch pattern, means operative synchronously with reciprocation of the needle for extracting the stitch instruction from the stitch instruction storage means in a predetermined sequence, position control means responsive to the extracted stitch instruction for controlling operation of the drive means between successive stitches in the stitch pattern, processing means for scanning all of said stitch instructions in said stitch instruction storage means to determine a maximum permissible speed of said drive motor depending on the variation of said relative position between successive stitches in said stitch pattern and for starting said drive motor to form said stitch pattern after determination of the maximum permissible speed, and speed control means for limiting the actual speed of said drive motor to no more than said maximum permissible speed during formation of said stitch pattern.

4,391,212

ELECTRONIC CONTROL SEWING MACHINE

Yoshimichi Tamiya, Narita-Higashi; Yasukata Eguchi, Kunitachi, and Hachiro Makabe, Fussa, all of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Oct. 6, 1980, Ser. No. 194,289

Claims priority, application Japan, Oct. 5, 1979, 54/128660 Int. Cl.³ D05B 3/02

U.S. Cl. 112—158 E

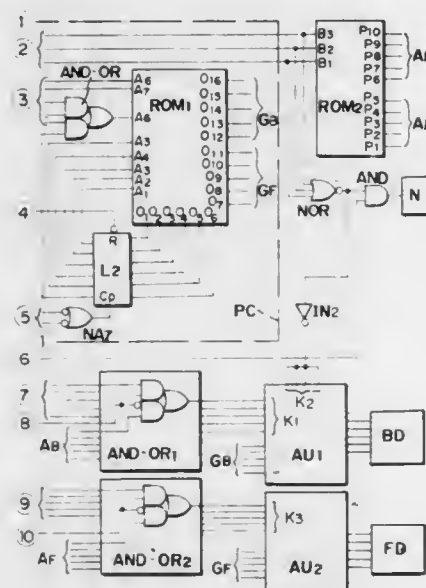
3 Claims

1. A sewing machine having electronically controlled means to change the lateral position of the needle relative to the fabric to be sewn, comprising

a first memory (ROM1) for storing control data for producing different patterns of stitches including data for producing straight stitches, said first memory having input terminals for receiving address signals and output terminals for releasing control signals for lateral swing of the needle and fabric feed control signals;

stitch pattern selecting means coupled to the input terminals of said first memory to release at the output terminals of the same a set of selected control signals;

a second memory (ROM2) for storing automatic setting data specific to individual stitch patterns stored in the first memory, said second memory having input terminals connected to said pattern selecting means and output



terminals for releasing automatic setting data for the lateral swing of the needle and fabric feed automatic setting data;

operator controlled setting means (VR1, VR2) for releasing optional needle swing setting data and fabric feed setting data for the selected stitch patterns independently from the automatic setting data in the second memory; and

calculating means (AU1, AU2) having input terminals for receiving the control signals from the first memory (ROM1), the automatic setting data from the second memory (ROM2) or the setting data from the setting means (VR1, VR2) to calculate the stitch coordinates for each of the stitches of the selected pattern, and output terminals connected to said electronically controlled means.

4,391,213

NEEDLE THREAD GUIDE DEVICE

Ernst Dreier, Steckborn, and Kurt Spring, Kreuzlingen, both of Switzerland, assignors to Fritz Gegauf Aktiengesellschaft Bernina-Nähmaschinenfabrik, Steckborn, Switzerland

Filed Nov. 5, 1980, Ser. No. 204,281

Int. Cl.³ D05B 49/02

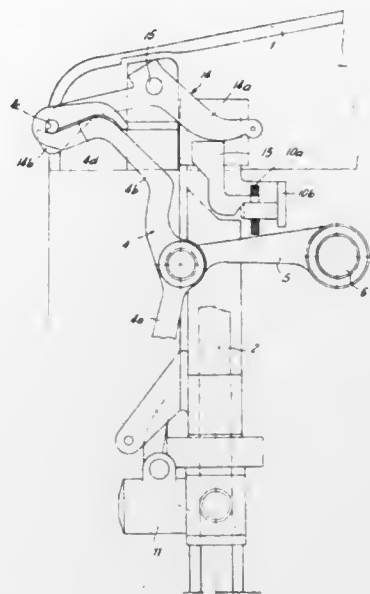
U.S. Cl. 112-246

8 Claims

1. A needle thread guide device for use with a sewing machine provided with a skip stitch mechanism operating at intervals to form stitches of varying lengths comprising:

- a thread feeder being operatively, articulated mounted to oscillate in a vertical plane;
- drive means operatively connected to said thread feeder for imparting oscillating motion thereto;
- a thread catcher operatively mounted adjacent to said thread feeder;
- lever means operatively connected to said thread catcher for engaging and disengaging said thread catcher in synchronism with the skip stitch mechanism;
- said thread feeder including a hook eye disposed at one end thereof;
- oscillating means operatively connected to said thread

feeder for moving said hook eye in an ascending path having an upper reversal point and a descending path;



said thread catcher including a hook eye being aligned in an operative position with the hook eye of said thread feeder at said upper reversal point of said ascending path for catching a thread loop being fed by said thread feeder.

4,391,214

METHOD AND DEVICE FOR FORMING AN OVERCAST SEAM BY MEANS OF A ZIGZAG SEWING MACHINE

Helmar Holl, and Rolf Kessler, both of Karlsruhe, Fed. Rep. of Germany, assignors to Dorina Nähmaschinen GmbH, Fed. Rep. of Germany

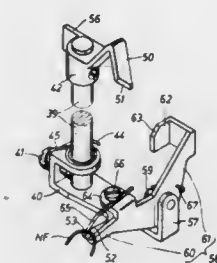
Filed Aug. 28, 1981, Ser. No. 297,415

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1980, 80105642[U]

Int. Cl.³ D05B 1/20, 3/02

U.S. Cl. 112-269.1

7 Claims



1. In a method for the formation of an overcast seam using a zigzag sewing machine of the type having a fabric presser, a needle bar carrying a needle with a needle thread movable into first and second over stitch positions, the needle being movable in axial reciprocating motions and pendulum motions selectively oriented transverse thereto between the first and second over stitch positions, a looper carrying a looper thread and a fabric feeder for feeding a fabric in a feed direction, the method being of the type having the steps of forming a first intertwining of the needle thread and the looper thread in the first over stitch position, then moving the needle bar with the needle

thread into the second over stitch position thereby slackening the needle thread, then forming a second intertwining needle thread and looper thread in the second over stitch position whereby the slackened needle thread leading from the first to the second thread loop is pulled into the first over stitch position to form an over stitch loop into which the needle is inserted to form a subsequent loop and then released, the improvement, in combination therewith, comprising the steps of moving the needle bar into the second over stitch position and concurrently feeding the fabric being sewn by one stitch length in the feed direction.

2. In a zigzag sewing machine of the type having a fabric presser, a needle bar carrying a needle with a needle thread movable into first and second over stitch positions, the needle being movable in axial reciprocating motions and pendulum motions selectively oriented transverse thereto between the first and second over stitch positions, A looper carrying a looper thread, and a fabric feeder for feeding a fabric in a feed direction, an improved device for forming an overcast seam, the device being of the type having an oversew mandrel with first and second means for respectively moving the mandrel into two successive positions responsive to rotary and axial movement of the needle to form an over stitch loop in the needle path, and a loop stripper for disengaging the over stitch loop from the oversew mandrel, comprising the improvement wherein the loop stripper is movably mounted to the oversew mandrel for movement responsive to the axial movement of the needle bar in the first over stitch position, the loop stripper including a first arm portion adjacent to the oversew mandrel to supplement the formation of an over stitch loop.

4,391,215

SELF COMPENSATING OPTOELECTRONIC PLY AND EDGE DETECTOR FOR SEWING MACHINE

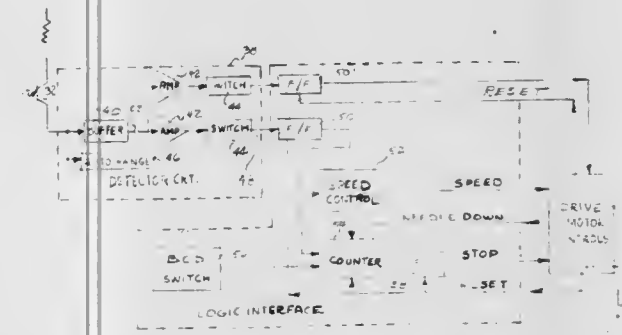
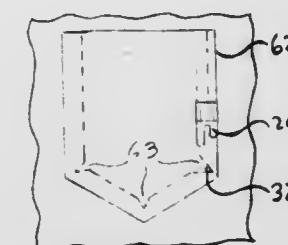
Eugene A. Sansone, Belle Meade, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Sep. 18, 1981, Ser. No. 303,660

Int. Cl.³ D05B 69/26, 69/20

U.S. Cl. 112-275

12 Claims



1. A self compensating fabric ply and edge detector for a sewing machine having a frame including a work supporting bed, said frame supporting a needle bar for endwise reciprocation, a sewing needle fastened to one end of said needle bar, a throat plate, a needle accommodating orifice extending through said throat plate, a loop taker supported beneath said throat plate for cooperation with said sewing needle extending through said needle accommodating orifice in the formation of stitches, means for feeding a work fabric through said sewing machine beneath said sewing needle, said fabric ply and edge

detector comprising: a light sensing device, means for supporting said light sensing device in said work supporting bed before said needle accommodating orifice in the direction of feed of said work fabric, a source of light for said light sensing device, means for establishing a DC level related to average light reaching said light sensing device, means for passing an AC component of a change in incident light reaching said light sensing device, means for variably diverting current in response to said AC component from said passing means, means for supplying current related to said average light for diversion by said diverting means, and means for initiating a selected response on diversion of current by said diverting means substantially greater than that related to said average light.

4,391,216

FEED MECHANISM FOR SEWING MACHINES

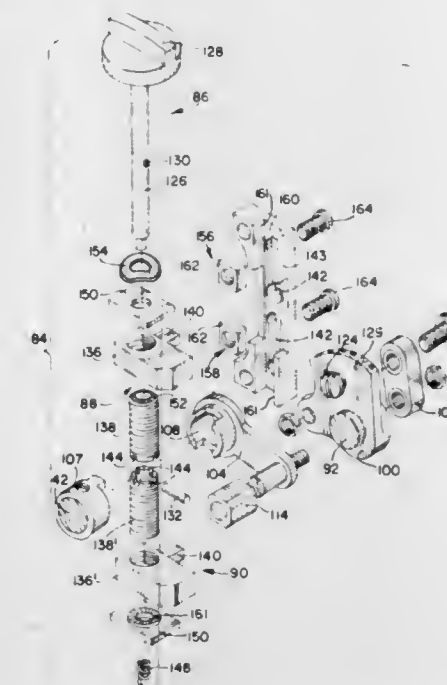
James C. Hsiao, Morton Grove, Ill., assignor to Union Special Corporation, Chicago, Ill.

Filed Nov. 6, 1980, Ser. No. 204,410

Int. Cl.³ D05B 27/02, 27/22

U.S. Cl. 112-316

27 Claims



9. A sewing machine having a frame, work support means, revoluble shaft means arranged in the frame beneath the work support means, eccentric means arranged on said shaft means and a work feeding mechanism capable of forward and reverse feeding comprising:

- elongated feed bar means having feed dog means arranged at the distal end thereof for movement in a generally orbital path, said feed dog means being adapted to engage and convey a workpiece over said support means;
- drive mechanism means including a series of interconnected linkages operatively associated with said eccentric means and said feed bar means;
- operator actuated shiftable means associated with said drive mechanism means for translating movement between said eccentric and the feed bar means and capable of selectively varying the direction and amount of workpiece movement as a function of its disposition; and
- feed regulating means including an aligned spaced pair of limit means provided with a singular adjustment member for independently controlling both limit means whereby controlling the degree of movement and disposition of said shiftable means and thereby the direction and amount of workpiece movement.

4,391,217

SIZE PRESS WITH COATING POOL SUPPRESSING ARRANGEMENT

Erkki Koski, Jyväskylä, Finland, assignor to Valmet OY, Finland

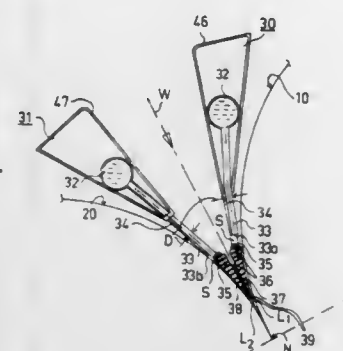
Filed Nov. 20, 1981, Ser. No. 323,426

Claims priority, application Finland, Nov. 28, 1980, 803708

Int. Cl.³ B05C 3/12

U.S. Cl. 118—405

10 Claims



1. A size press having at least two coating rollers forming with each other at least one coating nip through which the web to be treated is arranged to run and coating pools at the entrance of the nip between the coating rollers and the web entering said nip, said size press comprising

coating supply apparatus for supplying a coating agent to said coating pools, said coating supply apparatus including filling pieces at said entrance of said nip placed in said coating pools in operation, said filling pieces consisting of one of a liquid permeable porous, and perforated material and suppressing said coating pools and substantially decreasing and preventing splashing of the coating agent.

4,391,218

METHOD AND APPARATUS FOR FORMING CORROSION-RESISTANT LAYER AND SURFACE ELECTRICALLY CONDUCTIVE LAYER ON CABLE AND APPARATUS FOR PRACTICING SAME

Takahiro Horikawa, Yutaka Hibino, and Seichi Maki, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 152,959, May 23, 1980, Pat. No. 4,315,883.

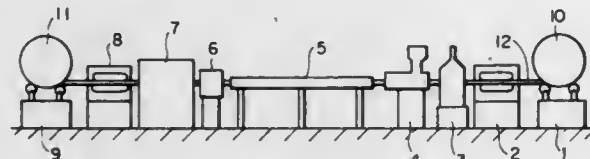
This application Oct. 19, 1981, Ser. No. 312,457

Claims priority, application Japan, May 25, 1979, 54-65147

Int. Cl.³ B05D 3/12, 1/24

U.S. Cl. 118—621

6 Claims



1. Apparatus for forming an electrically conductive layer on a corrosion-resistant surface of a cable comprising:

a powder accumulating tank having an inlet and outlet for passing a cable through said tank through a layer formed by accumulating electrically conductive powder therein to allow said powder to adhere to the surface of said cable, and a cloth pipe in said outlet for pressing said powder against said cable at the cable outlet of said powder accumulating tank;

powder applying means for pressing said powder against said cable with a powder applying belt to cause said powder to more firmly adhere to said cable, said powder applying means comprising a rotary unit rotated at a speed in proportion to the speed of passage of said cable through said powder applying means and an endless powder applying belt arranged in said rotary unit in such a manner that

said endless powder applying belt is tensioned and presses against at least a portion of the surface of said cable; heating means for heating without surface contact the surface of said cable to melt binder powder mixed with said electrically conductive powder; and cooling means for blowing air onto the surface of said cable for cooling said cable; said powder accumulating tank, said powder applying means, said heating means and said cooling means being arranged in the stated order.

4,391,219

IONIC STRIP COATER

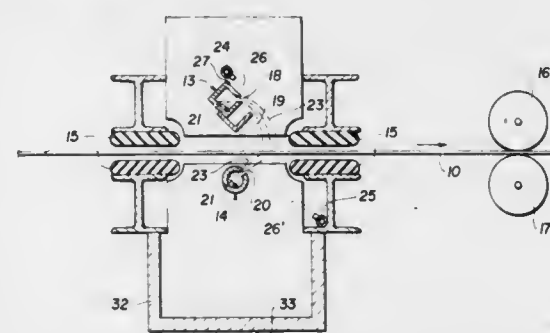
Edward J. Schaming, P.O. Box 1070, Butler, Pa. 16001

Filed Jul. 15, 1981, Ser. No. 283,643

Int. Cl.³ B05B 5/04, 7/08

U.S. Cl. 118—630

5 Claims



1. An apparatus for coating a high speed moving strip with a liquid comprising liquid header delivery means for positioning on at least one side of the strip in spaced relation thereto so as to deliver multiple streams of liquid onto the strip, and simultaneously operable pressurized air spray delivery means directing an air spray onto said streams and dispersing the streams into a multitude of much finer liquid streams in a crossing pattern to completely and uniformly coat said strip, the air spray delivery means substantially surrounding the liquid header and having an outlet substantially in registration with the outlet of the header, and the liquid header and air spray delivery means comprising eccentrically interfitting cylindrical bodies, and means to adjust the eccentric relationship of the bodies one with respect to the other.

4,391,220

APPARATUS FOR APPLYING FLUID TO ARTICLES

William C. Kent, Garland, Tex., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 10, 1982, Ser. No. 376,875

Int. Cl.³ B05C 3/10, 11/00, 13/02

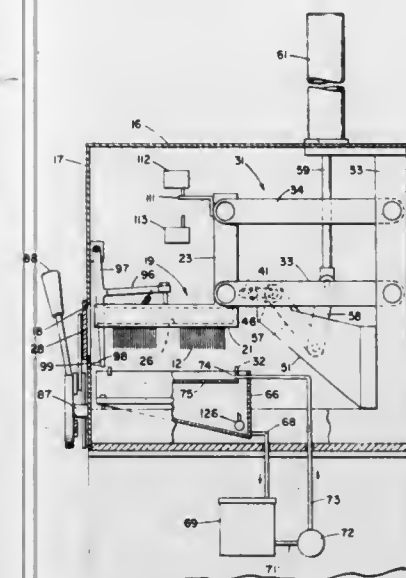
U.S. Cl. 118—707

10 Claims

1. An apparatus for applying liquid to an article, which comprises:

an enclosure having an entry door movable from an open to a closed position;
a tank within the enclosure for receiving a quantity of liquid;
a holder for supporting an article with a section extending downwardly toward said tank;
an elevator mechanism for lowering the holder from a load position toward said tank to move the extending section of the article within said tank, and then return said holder to the load position;
means responsive to the closure of said entry door for operating said elevator mechanism;

means responsive to the closure of said entry door for filling said tank with liquid; and



means rendered effective during the return of said elevator mechanism to the load position for draining the liquid from said tank.

4,391,221

METHOD FOR MECHANICAL MILK REMOVAL

Tilman Hoefelmayer, Niederteufen, Switzerland, and Jakob Maier, Türkheim, Fed. Rep. of Germany, assignors to Biomelktechnik Hoefelmayer & Co., Niederteufen, Switzerland

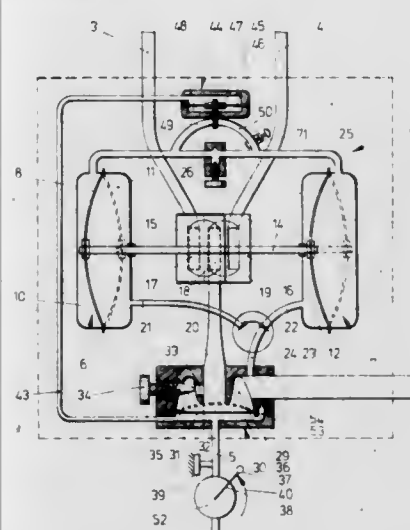
Filed Jan. 19, 1981, Ser. No. 225,938

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1980, 3001963; Dec. 17, 1980, 3047579

Int. Cl.³ A01J 5/16

U.S. Cl. 119—14.08

35 Claims



1. In a method for mechanical milk removal in which a predetermined underpressure is applied to the interior of a milking cup applied to a teat to remove the milk and a pulsation of a teat rubber is effected at a predetermined frequency and intensity, and while the milking cup is in place the teat is stimulated during a stimulation phase for a predetermined interval prior to the principal milking operation, the improvement comprising wherein no milk is removed for an interval in the range of 40 to 90 seconds after commencement of the stimulation phase and only immediately subsequently thereto is milk removal begun and wherein the pulsation frequency during the stimulation phase is higher than in the milk removal phase.

4,391,222

MILK METER FOR MEASURING THE TOTAL AMOUNT OF MILK FROM A COW IN THE COURSE OF A MILKING

Friedrich Icking, Oelde, and Friedrich Stolte, Halle, both of Fed. Rep. of Germany, assignors to Westfalia Separator AG, Oelde, Fed. Rep. of Germany

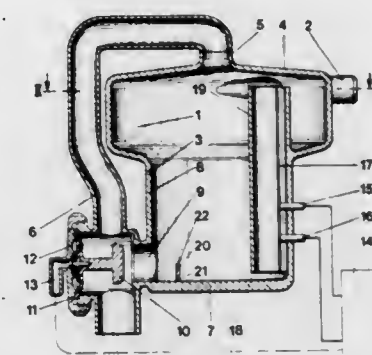
Filed Jan. 7, 1982, Ser. No. 337,646

Claims priority, application Fed. Rep. of Germany, Feb. 4, 1981, 3103669

Int. Cl.³ A01J 7/00

U.S. Cl. 119—14.17

11 Claims



1. In a milk meter for milking installations, for the direct measurement of the amount of milk given by a cow during milking, having a separating chamber including a floor, a roof and an outside wall, means for creating a partial vacuum in the separating chamber to effect the separation of the air from the milked milk-air mixture, a measuring chamber, means providing fluid communication between the measuring chamber and the separating chamber including a permanently open inlet aperture in the measuring chamber, two sensors situated at different levels, one above the other, in the measuring chamber for effecting discrete quantity measurements while milk is constantly being fed to the separating chamber, an outlet opening in the separating chamber adjacent the floor thereof and an actuable valve for opening and closing the outlet opening, the improvement wherein:

the inlet aperture of the measuring chamber is disposed adjacent the floor of the separating chamber and the fluid communication means comprises means forming a weir extending from the floor of the separating chamber upwardly into the separating chamber with the upper edge thereof disposed at a higher level than the inlet aperture, terminating at the outside wall of the separating chamber and having means defining at least one drain hole there-through.

4,391,223

CARDBOARD HOUSE FOR PETS

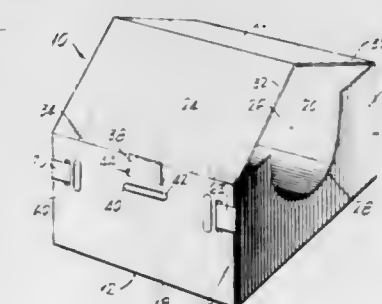
Gwendolyn B. Holland, and John W. Holland, both of 97 Gay Bower Rd., Monroe, Conn. 06468

Filed Jul. 21, 1982, Ser. No. 400,345

Int. Cl.³ A01K 1/00

U.S. Cl. 119—19

10 Claims



1. A one-piece cardboard house for an animal or pet, comprising in combination:

(a) a bottom panel constituting a floor,

- (b) front and rear panels, and two side panels, each of said panels having two substantially vertical edge portions and being integral with the bottom panel, thereby being adapted to form the four walls of the house,
- (c) a pair of roof panels having free edge portions, said roof panels being integral with each other and with one of the side panels of the house, and being hingedly connected with each other and adapted to form a peaked roof,
- (d) means releasably joining one free edge portion of one roof panel to the other of said side panels,
- (e) means releasably holding the vertical edge portions of the front and rear panels adjacent to corresponding edge portions of the side panels of the house, and
- (f) means providing an entrance passage at the front of the house, said entrance passage being defined by edge portions of the front panel and by adjacent front edge portions of the said roof panels,
- (g) said front panel having a deep and wide notch in its top edge portion, outlining the bottom of said entrance passage.

4,391,224

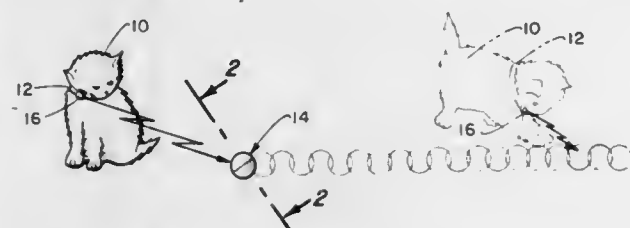
ANIMAL AMUSEMENT APPARATUS

Harold A. Adler, 1457 Eastwind Cir., Westlake Village, Calif. 91361

Filed Jul. 27, 1981, Ser. No. 287,191
Int. Cl.³ A01K 29/00

U.S. Cl. 119—29

3 Claims



1. Animal attraction apparatus comprising: motor means for operating only when actuated; transmitter means for transmitting a signal; receiver means having an output coupled in actuation relationship to said motor means, said receiver means being for receiving said signal and, when said signal as received is of predetermined power, for causing actuation of said motor means; attachment means for carrying said transmitter means and for mounting on a domesticated animal of the predator type; and simulated prey means which is normally unmoving and which, when in motion, tends to attract such animal, said prey means being for carrying said motor means and coupled to said motor means so that said motor means, when actuated, operates to cause said prey means to move; said transmitter means and receiver means having a signal transmitting and receiving power relationship such that, when said transmitter means is carried by such animal to within a predetermined distance of said prey means, said receiver means actuates said motor means to cause said prey means to move.

4,391,225

SPRINGLESS NIPPLE WATERER VALVE

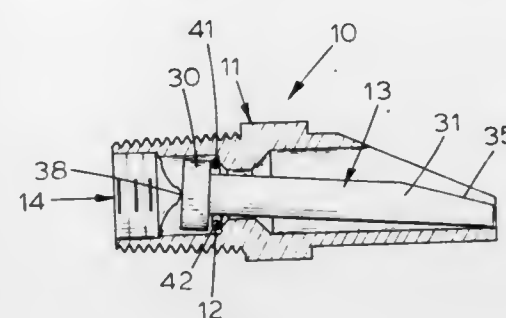
Jacob D. Sparks, 1005 W. Third, Indianola, Iowa 50125
Filed Feb. 18, 1982, Ser. No. 350,052Int. Cl.³ A01K 7/00

U.S. Cl. 119—72.5

4 Claims

1. A springless nipple waterer valve that is actuable by an animal to provide fluids thereto, comprising:
- (a) A valve body having

- (1) one end having means for attaching said valve to a source of fluid supply;
- (2) a fluid conducting passageway;
- (3) a valve seat located in said passageway; and
- (4) an opposite end having a cut away portion to expose a portion of said passageway;
- (b) a valve member positioned in said passageway and having a valve head and valve stem that extends through said valve seat and has a free end that projects into said exposed portion of said passageway;
- (c) a resilient seal member positioned between said valve head and said valve seat;



- (d) an abutment member secured in said one end of said passageway and having at least one fluid conducting throughbore and a cone shaped apex end in engagement with the head of said valve member to normally bias said head in sealing contact against said sealing member preventing fluid flow through said valve but permitting said valve head to pivot about said apex;
- (e) said valve being actuable by an animal pressing on the free end of said valve stem to pivot said valve head from sealing contact with said sealing member by compressing a portion of said seal member, to thereby permit fluid flow through said valve.

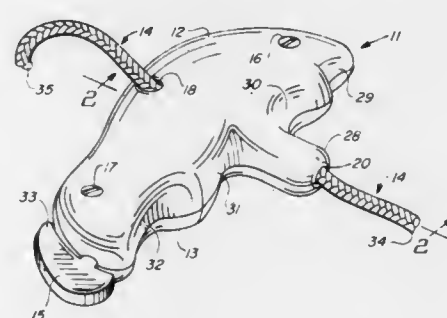
4,391,226

DOG LEASH

Richard A. Guthrie, 652 N. 94th Pl., Mesa, Ariz. 85207
Continuation of Ser. No. 63,661, Sep. 10, 1979, abandoned, and Ser. No. 199,439, Oct. 22, 1980, abandoned. This application
Jan. 25, 1982, Ser. No. 342,186Int. Cl.³ A01K 27/00

U.S. Cl. 119—109

10 Claims



1. In a leash device:
- (a) a leash line having an entrance end and an exit end;
 - (b) a housing constructed and arranged to lodge in the palm of a user's first hand;
 - (c) said housing comprising a leash line entrance opening situate in a first surface of said housing facing away from the palm of a user's first hand, a leash line exit opening situate in a second surface of said housing facing away from the user, and a leash line passageway between said entrance opening and said exit opening, said leash line passageway comprising a bearing surface for said leash line;
 - (d) within said housing, adjacent said bearing surface, variable mechanical compression means for compressing said leash line against said bearing surface;

- (e) outside said housing and adjacent thereto, mechanical control means for controlling the compression of said variable mechanical compression means;
- (f) said leash line being constructed and arranged to pass through said housing in either direction by passing through said entrance opening, then through said passageway adjacent said bearing surface and said variable mechanical compression means, then out of said housing through said exit opening; and
- (g) said leash device being constructed and arranged so that a user's second hand, by controlling said entrance end of said leash line, will control an animal connected to said exit end of said leash line when said mechanical control means is in a non-compression position.

4,391,227

FLUID-HEATING APPARATUS

Siegfried Förster, Alsdorf; Peter Quell, Aachen-Haaren, and Huber Jaegers, Jülich-Wellendorf, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

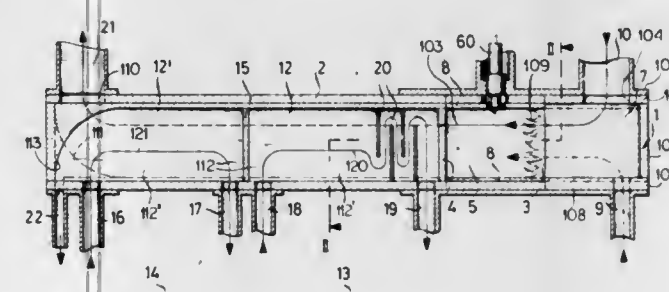
Filed Apr. 13, 1981, Ser. No. 253,258

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1980, 3014245

Int. Cl.³ F22B 5/00

U.S. Cl. 122—16

13 Claims



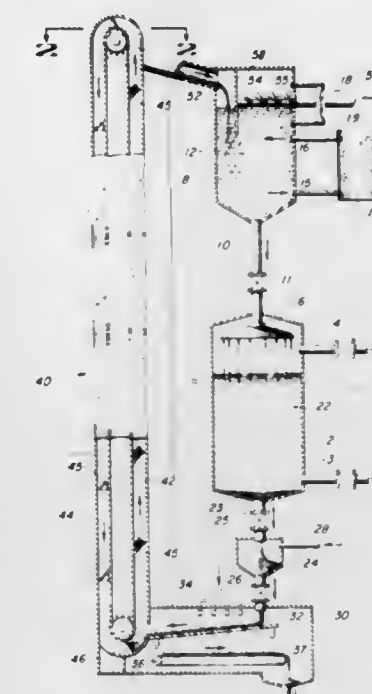
1. A heating unit comprising: a ceramic burner body formed with a plurality of parallel slit-like passages at least some of which open at a side of said body; means for supplying a fuel to alternate ones of said passages of said burner body and for supplying a combustion-sustaining gas to the remainder of said passages whereby a combustible gas mixture is formed at said side of said body; means defining a combustion chamber at said side of said body and into which said some of said openings discharge whereby hot combustion gases are formed in said combustion chamber; a ceramic recuperator body constituting a unitary ceramic structure with said ceramic burner body and said means defining said combustion chamber, said recuperator body being formed with mutually parallel slit-like channels, alternate ones of said channels communicating with said combustion chamber for conducting said hot combustion gases therefrom; and means for passing a fluid to be heated through others of said channels in a direction counter to the flow of said combustion gases for heat exchange between said fluid and said combustion gases through walls of said recuperator body between said channels.

4,391,228

FALLING SHOT HEATING METHOD AND APPARATUS
A. Joe Reinert, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.Filed Aug. 31, 1981, Ser. No. 297,652
Int. Cl.³ F22B 1/02

U.S. Cl. 122—28

15 Claims



1. A process for the heating of an aqueous fluid comprising:
- (a) circulating an aqueous fluid into a heating zone;
 - (b) heating a heat-transfer medium to a temperature above its melting point to produce molten heat-transfer medium at an elevation above said heating zone and establishing a reservoir of said molten heat-transfer medium above said heating zone;
 - (c) sparging said molten medium downwardly through said heating zone whereby the sparged molten medium solidifies to form shot particles and said fluid is heated by said medium as it is cooled and solidified;
 - (d) recovering hot aqueous fluid from said heating zone;
 - (e) recovering cooled shot particles from said heating zone; and
 - (f) recirculating said shot particles and heating said shot particles to produce molten heat-transfer medium in accordance with step (b).

4,391,229

STEAM INJECTION APPARATUS

Larry G. Turner, 1005 Vine St., Collinsville, Ill. 62234
Filed Dec. 29, 1980, Ser. No. 220,739Int. Cl.³ F02D 19/00

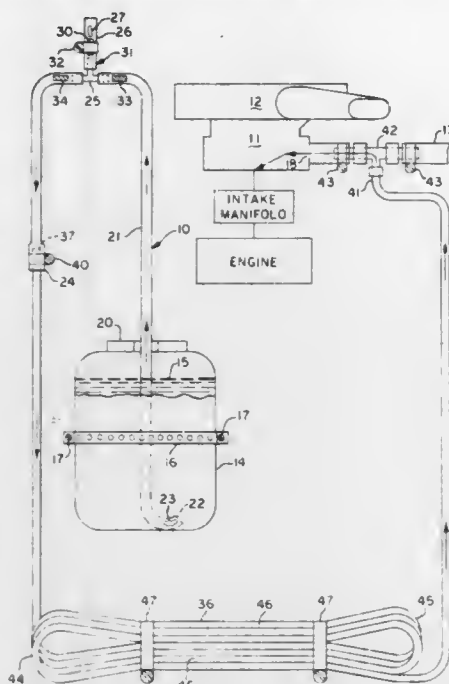
U.S. Cl. 123—25 B

4 Claims

1. A steam injection apparatus for an internal combustion engine having an exhaust system, and a vacuum line communicating with the engine, comprising:

- (a) a reservoir of liquid water,
- (b) conduit means communicating with the reservoir,
- (c) heater means, including a coil of metallic tubing having an inlet communicating with the conduit means, and an outlet communicating with the vacuum line, the coil being placed in heat-receiving relation to the engine exhaust system for heating water in the coil, and
- (d) metering means including an air inlet connected in the conduit means for mixing air with water from the reservoir, and means carried by the air inlet for selectively

controlling the amount of air entering the conduit means at a predetermined engine vacuum and thereby solely and



selectively regulating the amount of water flow through the conduit means.

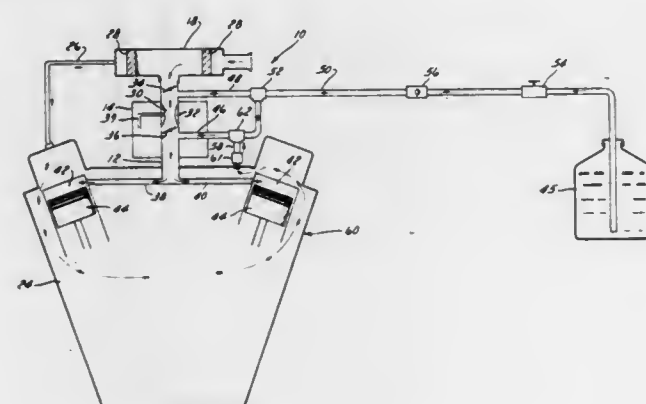
4,391,230

WATER-ALCOHOL INJECTION APPARATUS FOR I.C.E.
Eugene B. Pesce, 1724 S. Quince St., Escondido, Calif. 92025,
and James A. Krikava, 1110 Lancer La., West, Tarpon
Springs, Fla. 33589

Filed Mar. 9, 1981, Ser. No. 242,021
Int. Cl.³ F02D 19/00; F02M 25/02

U.S. Cl. 123—25 E

5 Claims



1. An injection apparatus for injecting a fluid mixture of water and alcohol into a fuel distribution system for an internal combustion engine, the fuel distribution system including a carburetor having a throttle valve, the carburetor being connected to the intake manifold of an internal combustion engine which includes a crankcase, said apparatus comprising a reservoir for said fluid mixture, first conduit means connected to said manifold downstream from said throttle valve, second conduit means connected to said manifold upstream from said throttle valve, main passage means connecting said first and second conduit means to said reservoir, one way flow control means in said main passage means for controlling the flow of fluid mixture to the manifold, and a third conduit means connected between said first conduit means and the crankcase of the engine, said third conduit means including a pressure-compensating valve positioned to vent crankcase emissions to said first conduit means.

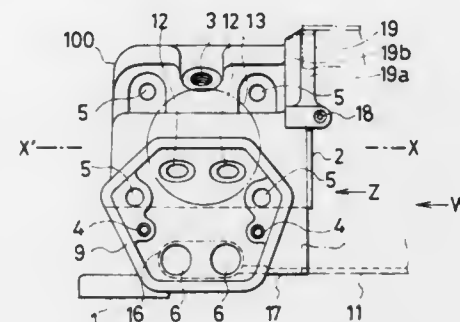
4,391,231
CYLINDER HEAD FOR AIR-COOLED ENGINES
Yoshikazu Tatebe, Masafumi Egami, and Toshimitsu Miyawaki, all of Nagoya, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

Filed Jan. 21, 1981, Ser. No. 226,593

Claims priority, application Japan, Mar. 4, 1980, 55-27882[U]
Int. Cl.³ F01P 1/02

U.S. Cl. 123—41.69

2 Claims



1. A cylinder head with a head body for an overhead valve, air-cooled engine having a rocker arm chamber (c), a suction port (21) and an exhaust port (7), comprising a part of a top wall of the cylinder head being depressed downwardly to form said rocker arm chamber (c) and defining a top of a first cooling wind passage (H) which extends over an upper part (15) of said suction portion, said part of the top wall of the cylinder head extending from a side of said exhaust port (7), said first passage (H) formed between a bottom wall (14) of said rocker arm chamber (c) and an upper wall of a cylinder fitting surface (10) of said head, said suction port (21) extending from a top of said upper wall of said cylinder fitting surface, a fin (17) extending around said first passage on a side thereof opposite said exhaust port (7), and a cooling wind guide (19) for guiding a cooling wind to a spark plug side of head, formed integrally with said cylinder head body on a side thereof opposite said cooling first cooling wind passage (H) and near said exhaust port (7) to form a second cooling wind passage (K), said first and second passages passing on opposite sides of said exhaust port.

4,391,232
INTERNAL-COMBUSTION ENGINE WITH OPPOSED PISTONS

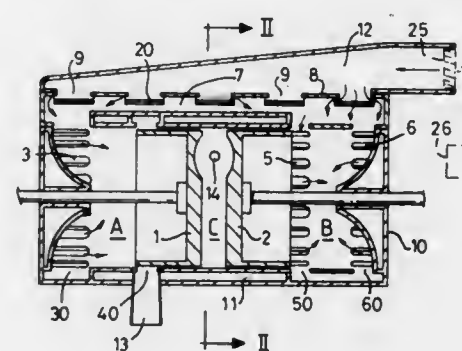
Marcel J. Geirnaert, Assesteenweg 360, B-1741, Wambeek-Ternat, Belgium

Filed Mar. 25, 1981, Ser. No. 247,317

Claims priority, application Belgium, Mar. 27, 1980, 199984
Int. Cl.³ F02B 75/28

U.S. Cl. 123—51 BA

3 Claims



1. An internal-combustion engine comprising a housing including at least one cylinder unit comprising a cylinder bore with two opposed pistons each having two working faces slidably mounted therein and with fuel admission means, first, second, third and fourth annular channels extending around and adjacent the wall of the cylinder bore over a portion of the

length thereof, each of said annular channels being in communication with the interior volume of the cylinder bore through spaced apart openings, the first and fourth annular channels being located at one end of the cylinder bore and the second and third annular channels being located at the opposite end of the cylinder bore; transfer channel means having a length extending lengthwise of the cylinder bore and extending around and adjacent a portion of the wall of the cylinder bore, said transfer channel means being in direct communication with said first second and third annular channels; air intake pipe means extending lengthwise adjacent and along the length of said transfer channel means, a common partition between the air intake pipe means and the transfer channel means along the length of said transfer channel means, said common partition having a plurality of spaced apart apertures therethrough distributed lengthwise of the transfer channel means, said apertures having one-way low-inertia gate means allowing a high rate of air flow from the air intake pipe means through the transfer channel into the cylinder bore and substantially no air flow back from the cylinder bore through the transfer channel means into the air intake pipe means; and an exhaust pipe connected to said fourth annular channel for discharge of the spent products of combustion.

4,391,233

INTERNAL-COMBUSTION ENGINE

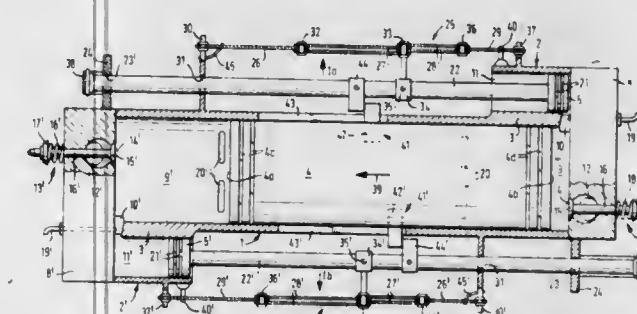
Rudolph Jackisch, 3927 N. Elston Ave., Chicago, Ill. 60618

Filed Apr. 3, 1981, Ser. No. 250,874

Int. Cl.³ F02B 75/16

U.S. Cl. 123—61 R

13 Claims



1. An internal combustion engine, having an entire working cycle including combustion air therewith capable of being brought to a compression pressure and being suitable for various types of fuel and for single and dual piston operation, comprising in combination:

at least one working cylinder, which includes a shell provided with a combustion chamber and a working piston having a working cycle including bottom and top dead center therewith;

a crankshaft to which said working piston is operatively connected, said crankshaft including a bent section, which includes a crank bearing rotatably mounted on said bent section, and a crank arm connected to said working piston and to said crank bearing;

at least one auxiliary cylinder associated with each working cylinder and provided with a wall, each of said auxiliary cylinders including an auxiliary chamber and an auxiliary piston which has a piston rod and a working cycle including a decompression phase and a compression stroke as well as having bottom and top dead center positions in which said top and bottom dead center positions of said auxiliary piston are determined by at least one stop device and which moves back and forth and is forcibly controlled in the working cycle of said working piston in which the compression stroke takes place up to approximately 45° after top dead center of said working piston wherein said auxiliary piston compresses the combustion air to the compression pressure necessary for spontaneous ignition just prior to completion of the compression stroke, the combustion chamber and the auxiliary chamber having a

volume ratio of approximately 6:1 to approximately 12:1 as to each other;

said working piston being provided with an engaging piece with which a stop on the piston rod of said auxiliary piston coacts so that during at least part of the decompression phase thereof, said working piston drives said auxiliary piston;

an intermediate space connecting each auxiliary chamber with an associated combustion chamber in which said intermediate space widens out from said auxiliary chamber toward said combustion chamber like a Venturi tube, each auxiliary chamber being in constant open communication with its associated combustion chamber via said intermediate space during the entire working cycle of said engine;

an inlet nozzle for each of said combustion chambers for supplying fuel thereto, each inlet nozzle opening into an associated intermediate space and being controlled in the working cycle of said auxiliary piston, and

wherein during the return in the decompression phase, said auxiliary piston is forcibly controlled by said working piston and, during the compression stroke, is moved by means of action of a spring acting on said auxiliary piston which is greater than the maximum compression pressure.

4,391,234

INTERNAL COMBUSTION ENGINE COMPRISING MEANS FOR CONTROLLING THE AXIAL EXTENT OF A PORT IN A CYLINDER

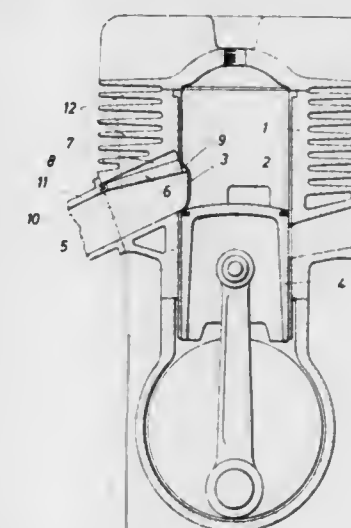
Johann Holzleitner, Gunskirchen, Austria, assignor to Bombardier-Rotax G.m.b.H., Gunskirchen, Austria

Filed Nov. 16, 1981, Ser. No. 321,939

Claims priority, application Austria, Dec. 18, 1980, 6172/80
Int. Cl.³ F02D 9/06; F02B 75/02

U.S. Cl. 123—65 V

4 Claims



1. In a two-stroke-cycle internal combustion engine comprising

cylinder structure having an inside peripheral surface which defines a cylinder bore and is formed with a port which has an axial extent along the axis of said cylinder bore, said cylinder structure being formed with a flow passage which at one end adjoins said port and has a boundary surface portion which adjoins said port at one end of said axial extent,

a piston, which is axially reciprocable in said cylinder bore and adapted to open and close said port, and

a pivoted restricting member which defines said flow passage on one side thereof adjacent to said port and has a restricting edge which faces said port and extends generally in the peripheral direction of the adjacent portion of said inside peripheral surface, said restricting member being angularly movable between a full-flow position, in which said restricting edge is clear of said port, and a restricting position, in which said restricting edge extends

across said port intermediate said axial extent and is substantially flush with said inside peripheral surface, the improvement residing in that said restricting member constitutes a hinged member, which is formed with said restricting edge at one end and is pivoted at its end that is opposite to said restricting edge.

4,391,235

VEHICLE EXHAUST GAS WARM-UP HEATER SYSTEM

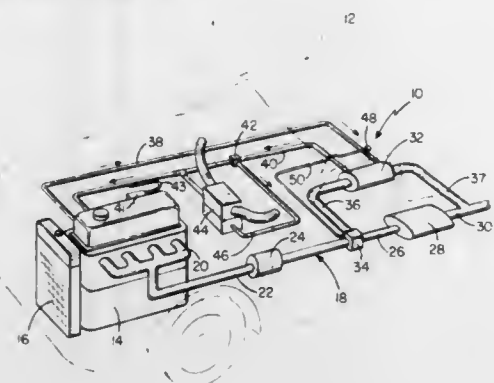
David S. Majkrzak, 345 Cherry Ct., West Fargo, N. Dak. 58078

Filed May 28, 1981, Ser. No. 267,797

Int. Cl.³ F02N 17/02

U.S. Cl. 123—142.5 R

11 Claims



1. A motor vehicle exhaust gas warm-up system in combination with a motor vehicle, the motor vehicle having an engine with a single cooling system having a liquid coolant for cooling the engine and a conventional exhaust system with a plurality of exhaust pipes and a muffler for conveying hot exhaust gases from the engine, the system comprising:

heat exchanger means for transferring heat from the hot exhaust gases to the coolant;

means for conveying only a portion of the coolant from the engine to the heat exchanger means and back to the engine, the portion being of an amount that substantial interruption of normal coolant flow in the cooling system is avoided;

means for conveying the exhaust gases from the exhaust system to the heat exchanger means;

a diverter valve for diverting the exhaust gases from the exhaust system to the heat exchanger means; and

means for sensing the temperature of the coolant and for actuating the diverter valve at a predetermined coolant temperature to control the flow of exhaust gases to the heat exchanger means.

4,391,236

CD IGNITION WITH AUTOMATIC SPARK RETARD

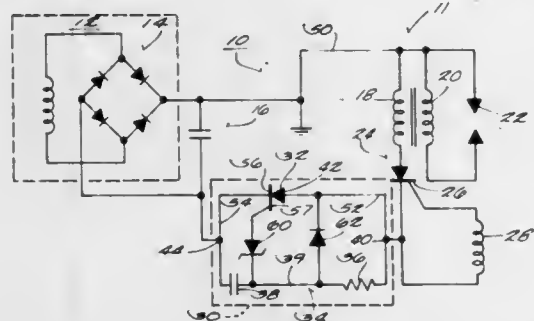
Philip A. Anderson, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Jul. 24, 1981, Ser. No. 286,699

Int. Cl.³ F02D 5/04; F02P 1/00, 3/06, 1/08

U.S. Cl. 123—149 C

22 Claims



1. A capacitor discharge ignition circuit adapted for use with an internal combustion engine and for connection to an ignition coil primary winding, said circuit comprising a charge capacitor, an ignition SCR, and spark retard circuit means connect-

ing said charge capacitor and said ignition SCR in series relationship with said primary winding and operative for selectively preventing full discharge of said capacitor through said primary winding for a predetermined period of time after said ignition SCR is rendered conductive, thereby providing for automatic spark retard at higher engine rpm.

4,391,237

APPARATUS FOR USE IN STARTING A DIESEL ENGINE

Yoshiaki Abe, Higashimatsuyama; Yutaka Kubota, Kawagoe, and Hitoshi Sugimoto, Higashimatsuyama, all of Japan, assignors to Diesel Kiki Co., Ltd., Japan

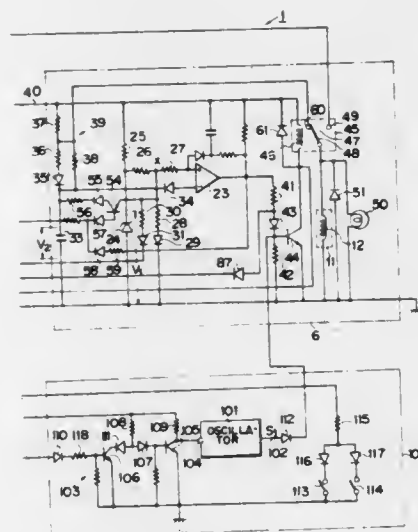
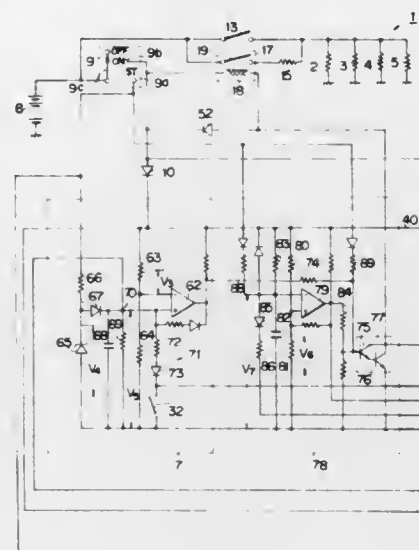
Filed Mar. 10, 1981, Ser. No. 242,384

Claims priority, application Japan, Mar. 12, 1980, 55/31049

Int. Cl.³ F02N 17/00

U.S. Cl. 123—179 H

13 Claims



1. An apparatus for use in starting a diesel engine having at least one glow plug energized by actuation of an ignition switch having an OFF position, an ON position for connecting said apparatus to a voltage source and an ST position for starting the diesel engine, said apparatus comprising:

means including a first switch for connecting each said glow plug to the voltage source to supply a first level of current to each said glow plug;

means including a second switch for connecting each said glow plug to the voltage source through a resistance adapted to limit the current from the voltage source to supply a second level of current below said first level to each said glow plug;

preheating means for activating said first switch for a first predetermined time period beginning from switching of said ignition switch from the OFF position to the ON position;

afterglow means for activating said second switch for a second predetermined time period beginning from the switching of said ignition switch from the ST position to the ON position; and

controlling means for periodically activating and de-activating said first switch to periodically supply said first level of current and maintain the temperature of each glow plug within a predetermined range during a period of time occurring when said ignition switch is in the ST position.

4,391,238

AIR-COOLED INTERNAL COMBUSTION ENGINE

Josef Greier, and Colin T. Pomfret, both of Graz, Austria, assignors to Hans List, Graz, Austria

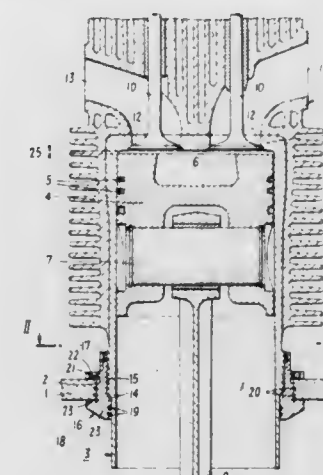
Filed Mar. 26, 1981, Ser. No. 247,745

Claims priority, application Austria, Mar. 31, 1980, 1747/80

Int. Cl.³ F02F 1/02

U.S. Cl. 123—193 C

6 Claims



1. An air-cooled internal combustion engine which comprises a crankcase which defines an inner space and an outer space, said crankcase including at least one opening therein which communicates between the inner space and the outer space; a cylinder barrel fitted in each opening to extend from the inner space to the outer space, each cylinder barrel including a first external threaded portion located along the length thereof in the region of the associated opening and a second external threaded portion located along the length thereof in the outer space; a bearing ring positioned between each cylinder barrel and the associated opening in which it fits, each bearing ring extending from the inner space to the outer space and including a flange portion located in the inner space which is abutable against the portion of the crankcase forming the associated opening, an internal threaded portion which is co-operable with at least said first external threaded portion of the associated cylinder barrel, and an outer threaded portion located on a portion thereof which is in the outer space; a ring nut screwed on said outer threaded portion of each bearing ring to brace the cylinder barrel to the associated bearing ring.

4,391,239

INVERSION PROTECTION OF OUTBOARD MARINE ENGINES

Michael B. J. Brinton, East Cowes; John Barnes, and Peter D. Chandler, both of Newtown, all of England, assignors to R.N.L.I. (Trading) Limited, Dorset, England

Filed Aug. 4, 1980, Ser. No. 174,766

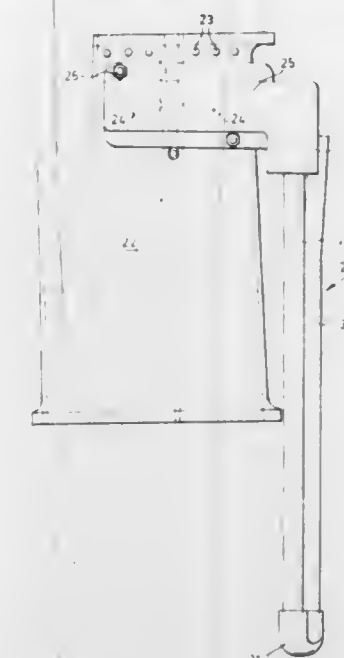
Int. Cl.³ F02B 77/00

U.S. Cl. 123—198 E

10 Claims

1. A method of inversion-protecting an outboard marine engine having a starter motor, spindle, and solenoid and engine power pack including a coil and terminal blocks located in a main engine casing, wherein all of the water-sensitive electrical equipment within the main engine casing is enclosed in one or

more watertight boxes fitted inside the casing, the casing itself being open to ingress of water and protecting all other water



sensitive engine regions from ingress of water upon inversion of the engine.

4,391,240

INTERNAL COMBUSTION ENGINE

Fukashi Sugawara, Yokohama, and Haruhiko Iizuka, Yokosuka, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

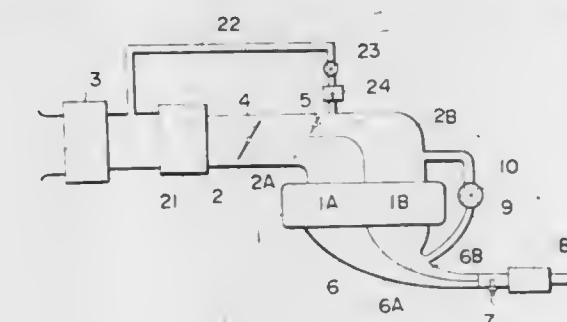
Filed Mar. 26, 1980, Ser. No. 134,314

Claims priority, application Japan, Mar. 27, 1979, 54-35015

Int. Cl.³ F02D 17/03

U.S. Cl. 123—198 F

26 Claims



1. An internal combustion engine comprising:

(a) first and second cylinder units each including at least one cylinder;

(b) an intake passage provided therein with a throttle valve and divided downstream of said throttle valve into first and second branches leading to said first and second cylinder units, respectively, said second intake passage branch having therein a first valve means which is normally open;

(c) an exhaust passage divided into first and second branches leading from said first and second cylinder units, respectively;

(d) a first passage having one end opening into said second exhaust passage branch and another end opening into said second intake passage branch, said first passage having therein a second valve means which is normally closed;

(e) fuel supply means for supplying an optimum amount of fuel to said first and second cylinder units under varying conditions;

(f) a load detector responsive to engine load for providing a low load indicative signal when the engine load is below a predetermined value;

- (g) means responsive to the low load indicative signal to inactivate said second cylinder unit;
 (h) delay means responsive to the low load indicative signal from said load detector for providing a drive signal a predetermined time after the arrival of the low load indicative signal thereto; and
 (i) first valve drive means responsive to the drive signal from said delay means for closing said first valve means and opening said second valve means.

4,391,241

STOPPING DEVICE FOR ENGINE SUPPLIED WITH FUEL BY FUEL INJECTION PUMP

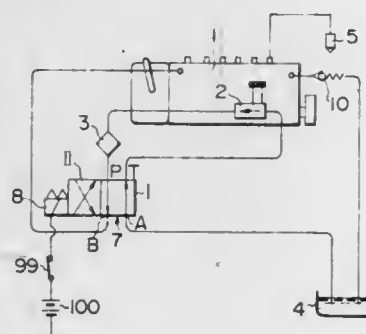
Hidetoshi Dohshita, Okazaki; Yoshiya Ishii, Toyota, and Nobuyuki Fujitani, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. 19, 1980, Ser. No. 208,415

Claims priority, application Japan, Dec. 21, 1979, 54-166333
 Int. Cl.³ F02D 17/00

U.S. Cl. 123—198 DB

7 Claims



1. A stopping device for an engine which has a key switch and which is supplied with fuel by a fuel injection pump connected to a fuel tank by a fuel supply pump driven by the engine, comprising:

- a change-over valve movable between a first position and a second position,
 said change-over valve connecting said fuel tank with an inlet of said fuel supply pump and connecting an outlet of said fuel supply pump with an inlet of said fuel injection pump when disposed in the first position, and
 said change-over valve connecting the inlet of said fuel injection pump with the inlet of said fuel supply pump and connecting the outlet of said fuel supply pump with said fuel tank when disposed in the second position; and
 an electromagnetic actuator for electromagnetically actuating said change-over valve in response to the position of said engine key switch so that said change-over valve is held in the first and second positions during engine operation and engine shutdown, respectively.

4,391,242

CONTROL DEVICE FOR AUXILIARY MEMBERS OF A VEHICLE

Sakae Mashio, Tatebayashi, Japan, assignor to Tama Manufacturing Co., Limited, Gumma, Japan

Filed May 20, 1981, Ser. No. 265,359

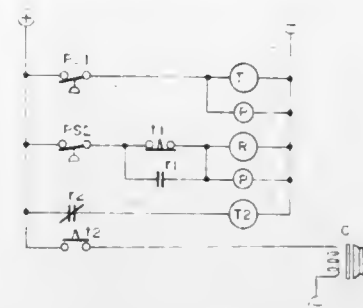
Claims priority, application Japan, May 23, 1980, 55-68758
 Int. Cl.³ F02D 11/08; B60H 3/04; F02B 77/00

U.S. Cl. 123—198 R

9 Claims

1. A control apparatus for a vehicle-mounted auxiliary device to be driven by an engine, comprising:
 a pair of pressure switches to detect the load through the negative pressure intake of the engine;
 means to detect the rate of acceleration of the load by the difference in operation time between the pressure switches;
 control means to control the driving of said auxiliary device, and
 means to transmit a signal to the control means of said auxiliary device to suspend operation of the auxiliary device for the time period from when the acceleration rate of the

load on the driving system of the vehicle exceeds a predetermined level until the time the load of the driving system of the vehicle returns to the predetermined level.



4,391,243

METHOD AND APPARATUS OF SUPPLYING FUEL IN ELECTRONIC CONTROL FUEL INJECTION ENGINE

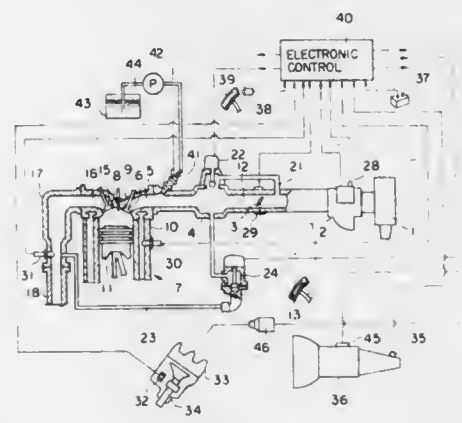
Hironori Bessho, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Feb. 12, 1982, Ser. No. 348,179

Claims priority, application Japan, Sep. 11, 1981, 56-142535
 Int. Cl.³ F02D 5/02

U.S. Cl. 123—325

6 Claims



1. A fuel supply method for an electronic control fuel injection engine in which a fuel injection valve is operated by electric signals to control an amount of fuel supply from the fuel injection valve to an intake system, characterized in that, when a brake device is operated or vehicle speed is higher than a predetermined value, the rotational speed of the engine with the fuel cut-off being completed in the deceleration of the vehicle and the fuel supply being resumed is set to a value smaller than that otherwise set.

4. An apparatus for supplying fuel to an electronic control fuel injection engine in which a fuel injection valve is operated by electric signals to control an amount of fuel supply from the fuel injection valve to an intake system, characterized in that said apparatus comprises a first detecting means for detecting the operation of a brake device, a second detecting means for detecting vehicle speed, a comparator means for comparing the rotational speed of the engine with a reference value to allow the fuel injection valve to be operated when the rotational speed of the engine is lower than the reference value and a control means for receiving detecting signals from the first and second detecting means to set thereby the reference value of the comparator means lower than that set otherwise when the brake device is operated or the vehicle speed is higher than a predetermined value.

4,391,244

DEVICE OF CONTROLLING THE IDLING SPEED OF AN ENGINE

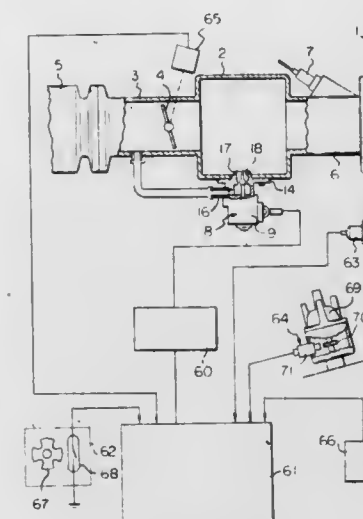
Mamoru Kobashi, Aichi; Shinichiro Tanaka, Susono, and Hideo Saji, Aichi, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota and Nippondenso Co., Ltd., Kariya, both of Japan

Filed Jun. 11, 1982, Ser. No. 387,755

Claims priority, application Japan, Jun. 22, 1981, 56-95213
 Int. Cl.³ F02D 11/10

U.S. Cl. 123—339

10 Claims



1. A device of controlling the idling speed of an engine comprising a main intake passage, a throttle valve arranged in the main intake passage, a bypass passage branched off from the main intake passage upstream of the throttle valve and connected to the main intake passage downstream of the throttle valve, and a control valve arranged in the bypass passage, said device comprising:

- a step motor actuating the control valve for controlling the amount of air flowing within the bypass passage;
 first means for detecting the engine speed to produce an output signal indicating the engine speed,
 second means for detecting the operating condition of the engine to produce an output signal indicating that the engine is operating in an idling state,
 electronic control means operated in response to the output signal of said first means and the output signal of said second means and producing continuous control pulse signals at predetermined first time intervals for rotating the step motor in a stepping manner at a first speed in a direction wherein the engine speed approaches a desired engine speed when the engine is operating in an idling state, and;
 power supply control means including an ignition switch and inserted between said electronic control means and a power source, said electronic control means producing continuous control pulse signals at predetermined second time intervals which are longer than said first time intervals for rotating the step motor in a predetermined direction at a second speed which is lower than said first speed when the ignition switch is turned to the OFF position.

4,391,245

PRESSURE OPERATED THREE-POSITION THROTTLE STOP ASSEMBLY

William C. Larson, Rochester, Mich., assignor to Colt Industries Operating Corp., New York, N.Y.

Filed Oct. 19, 1981, Ser. No. 312,392

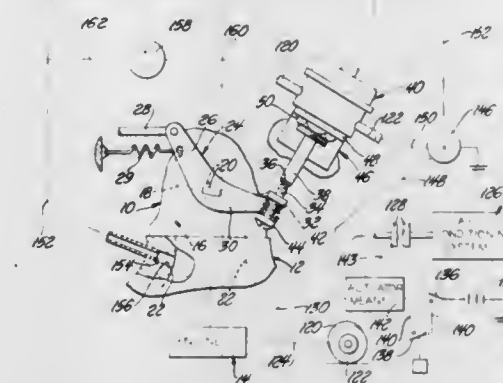
Int. Cl.³ F02M 3/00

U.S. Cl. 123—339

18 Claims

1. Apparatus for variably stopping the closing movement of throttle valve means controlling the flow of motive fluid to an associated combustion engine, comprising variably positionable abutment means effective for operative engagement with said throttle valve means when said throttle valve means is

moved toward a closed position, said abutment means when in a first position being operatively engagable by said throttle valve means when said throttle valve means is moved to a normal idle throttle position, said abutment means being effective when in said first position to hold open said throttle valve means a relatively small first amount, pressure responsive movable wall means effective upon being exposed to a first vacuum generated by said engine for moving said abutment means to a second position whereat said throttle valve means when moved toward said closed position operatively engages said abutment means to thereby be held open a relatively larger second amount, said pressure responsive movable wall means



4,391,246

THROTTLE OPENER DEVICE FOR VEHICLE ENGINES

Etsuo Kawabata, Wakoh; Masahiko Ogura, Sakado; Akinobu Takagi, Yokohama, and Akira Fujimura, Niiza, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 144,325, Apr. 28, 1980, abandoned.

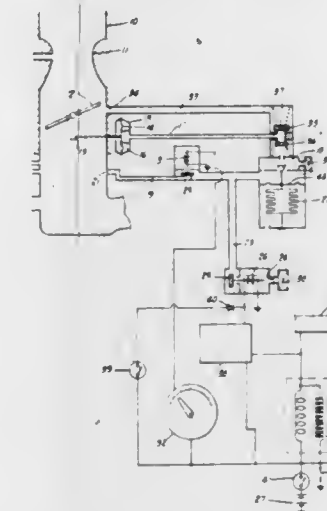
This application Jun. 7, 1982, Ser. No. 385,488

Claims priority, application Japan, May 7, 1979, 54-54705;
 Nov. 20, 1979, 54-151264

Int. Cl.³ F02S 11/10; F02D 1/04; F02M 19/12

U.S. Cl. 123—391

7 Claims



1. For use with an internal combustion engine for driving a vehicle, the engine having an intake passage provided with a

throttle valve and a throttle valve opener, the improvement comprising, in combination: a suction passage connecting said throttle valve opener with a vacuum port on the intake passage downstream from said throttle valve, a vacuum responsive throttle opener control valve in said suction passage which transmits a controlled vacuum pressure into said throttle valve opener when the vehicle speed is above a predetermined speed, vacuum pressure regulating means positioned in said suction passage between said vacuum port and said throttle opener control valve, said vacuum pressure regulating means including restriction means and including atmospheric intake valve means, said vacuum pressure regulating means acting to reduce vacuum pressure transmitted from said vacuum port to said throttle opener control valve in response to an operative state of the engine.

4,391,247

AIR FLOW DETECTION ARRANGEMENT

Giichi Shioyama, Yokosuka; Yoshitaka Hata, Fujisawa, and Masao Nakajima, Atsugi, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

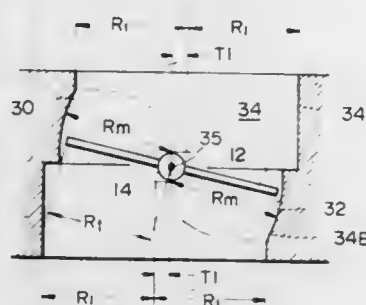
Filed Oct. 14, 1980, Ser. No. 196,524

Claims priority, application Japan, Oct. 15, 1979, 54-132624

Int. Cl.³ F02D 9/08

U.S. Cl. 123—403

9 Claims



1. In an internal combustion engine, having a cylinder and an induction passage leading from the ambient atmosphere to said cylinder, an air flow sensor comprising:

- a manually controlled butterfly valve operatively disposed in said induction passage and rotatable for controlling the amount of air inducted through said induction passage;
- a position sensor operatively connected to said butterfly valve for sensing the angular position thereof and producing an output signal indicative of said sensed position; and
- means defining a curved wall on one of said butterfly valves and said induction passage for restricting the air flow past said butterfly valve as it opens from a closed position and for causing said air flow to be essentially proportional to the opening degree of said butterfly valve whereby said signal outputted by said sensor accurately indicates said air flow.

4,391,248

METHOD FOR CLOSED-LOOP CONTROL OF THE IGNITION ANGLE OR THE COMPOSITION OF THE OPERATIONAL MIXTURE FURNISHED AN INTERNAL COMBUSTION ENGINE

Reinhard Latsch, Vaihingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 191,743

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939590

Int. Cl.³ F02D 33/00; F02P 5/10

U.S. Cl. 123—425

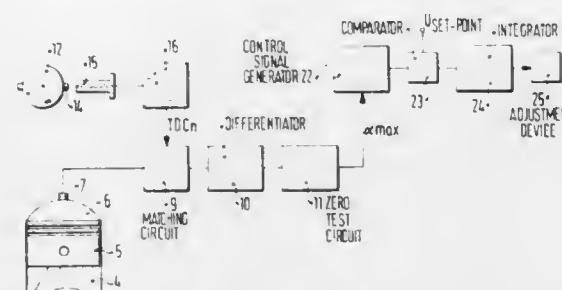
6 Claims

1. A method of closed-loop control for the composition of an operational mixture furnished to an internal combustion engine for combustion therein, comprising the steps of:

- ascertaining the occurrence of the top dead center in sequential work cycles of at least one combustion chamber of the engine;
- measuring the magnitude of the combustion chamber pressure of said at least one combustive chamber with a pressure probe;

ascertaining the occurrence of the peak combustion chamber pressure from the measured magnitude of the combustion chamber pressure, relative to the ascertained top dead center occurrence in sequential work cycles of said at least one combustion chamber;

generating a control signal as a function of the difference between two successive occurrences of the peak combustion chamber pressure relative to the occurrence of the top dead center in sequential work cycles of said at least one combustion chamber;



generating a set-point value for the control signal; comparing the generated control signal to the generated set-point value and generating a difference signal; and adjusting the proportion of at least one component of the operational mixture in accordance with the generated difference signal.

4,391,249

METHOD OF OPERATING A COMBUSTIBLE MIXTURE GENERATOR OF AN INTERNAL COMBUSTION ENGINE AND APPARATUS FOR CARRYING OUT THE METHOD

Valerio Bianchi, Neuss-Hoisten; Franz-Josef Ehrentauf, Mönchengladbach, and Peter Wöbky, Dormagen, all of Fed. Rep. of Germany, assignors to Bosch und Pierburg System oHG, Neuss, Fed. Rep. of Germany

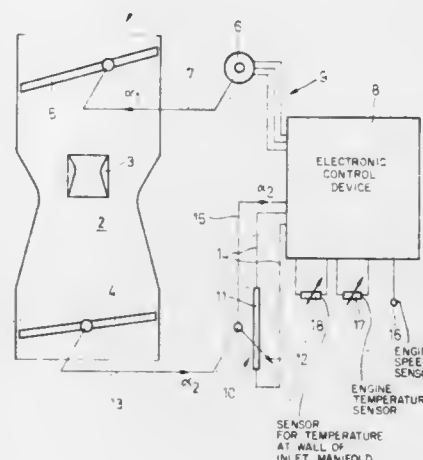
Filed Jun. 30, 1980, Ser. No. 163,992

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2927881

Int. Cl.³ F02M 7/06

U.S. Cl. 123—438

17 Claims



1. In a method of operating a combustible mixture generator of an internal combustion engine to produce a transition mixture enrichment during acceleration of said engine, said mixture generator including means defining a mixing chamber, a main throttle downstream of said chamber, a choke valve upstream of said chamber, an electric drive for operating said choke valve, means for sensing at least one operating parameter of said engine, and a control device which is controlled by said sensing means and controls said electric drive to move said choke valve into positions for cold starting, running-up and hot-running mixture enrichment, said method comprising the steps of holding said choke valve open in steady operation of

said engine, sensing the instantaneous degree of opening of said main throttle valve with the sensing means, and when the speed of opening said main throttle exceeds a predetermined threshold value conveying respective signals from the sensing means to the control device and from the control device to the electric drive for temporarily abruptly at least partly closing said choke valve by a predetermined magnitude by means of said electric drive and measuring at least one of a plurality of operating parameters of said engine and making said predetermined magnitude and the duration of said closing of said choke valve dependent upon the measurements of said at least one parameter.

4,391,250

SYSTEM FOR DETECTING THE OPERATION OF THE THROTTLE VALVE

Fujio Matsui, Mitaka, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo and Nissan Motor Co., Ltd., Yokohama, both of Japan

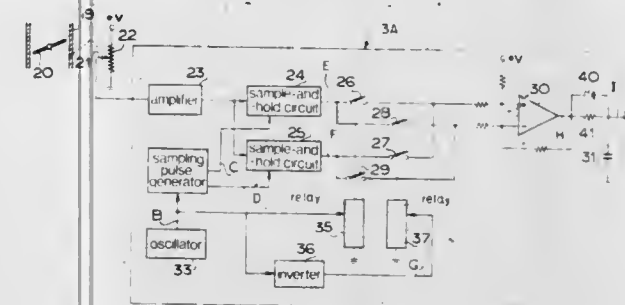
Filed Aug. 1, 1980, Ser. No. 174,373

Claims priority, application Japan, Aug. 2, 1979, 54-98918

Int. Cl.³ F02D 35/00

U.S. Cl. 123—438

11 Claims



1. A system for detecting the operation of a throttle valve of an internal combustion engine, comprising means comprising a transducer for converting a physical parameter of the operation of the throttle valve into an electrical signal constituting an output voltage of said transducer,

holding circuit means for periodically operatively receiving the output voltage of said transducer with respect to time and holding constant a value proportional to the periodically received output voltage of said transducer, an output circuit means for continuously producing a resulting voltage corresponding to the change of said value, at every periodic time interval of the operation of said holding circuit means, from said value at the respective prior time interval and proportional to angular velocity of the throttle valve respectively.

4,391,251

ELECTRONIC CONTROLLER FOR CONTROLLING THE AIR/FUEL RATIO OF THE MIXTURE SUPPLIED TO AN INTERNAL COMBUSTION ENGINE

Pierre Plantelaine, and Roger Machetel, both of Paris, France, assignors to Groupement d'Interet Economique de Recherche et de Developpement PSA, Paris, France

Filed Oct. 16, 1980, Ser. No. 197,604

Claims priority, application France, Oct. 19, 1979, 79 26045

Int. Cl.³ F02B 3/00

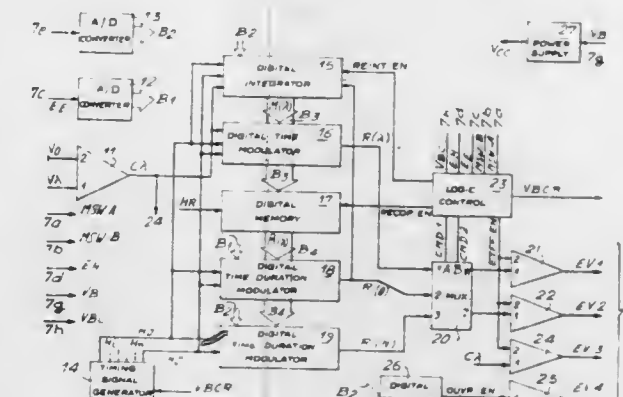
U.S. Cl. 123—440

10 Claims

1. A digital electronic controller for regulating the air/fuel ratio of the mixture supplied to the cylinders of an internal combustion engine, having an EGO sensor situated on the exhaust path of the burned gases, at least one fuel supply device, such as a carburetor, whose fuel flow rate can be modified by an electrovalve controlled on the basis of an opening/closing cycle and a plurality of sensors for measuring operating conditions of this engine, said electronic controller comprising:

a clock signal generator providing synchronous signals and a clock signal at the electrovalve cycle frequency;

a closed loop digital circuit of the proportional integral type with variable gain, said closed loop being connected between said EGO sensor and said electrovalve and including a digital integrator having a gain control input receiving a digital signal representative of the rotation speed of the



motor, a digital time duration modulator having a control input connected to the EGO sensor, and a multiplexer for opening said closed loop, said multiplexer having a command input connected to a logic circuit sensitive to operating conditions of said motor and at least a second input receiving a command signal sensitive to a motor physical parameter such as the temperature or the rotation speed of the motor.

4,391,252

FUEL INJECTION SYSTEM

Günther Jäggle, Stuttgart; Klaus-Jürgen Peters, Affalterbach, and Klaus Riel, Möglingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

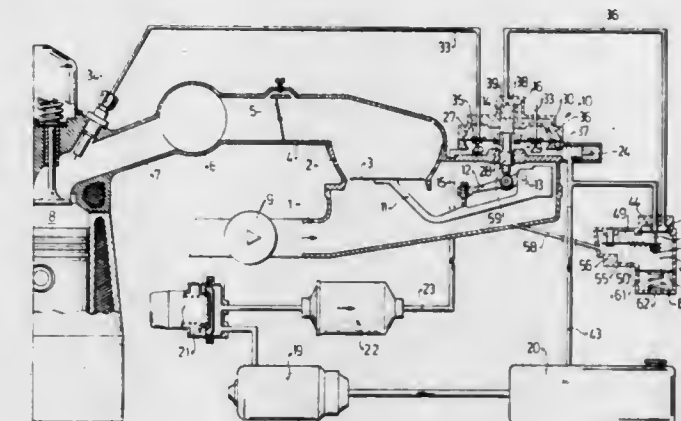
Filed Jun. 3, 1981, Ser. No. 270,210

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1980, 3021561

Int. Cl.³ F02M 39/00

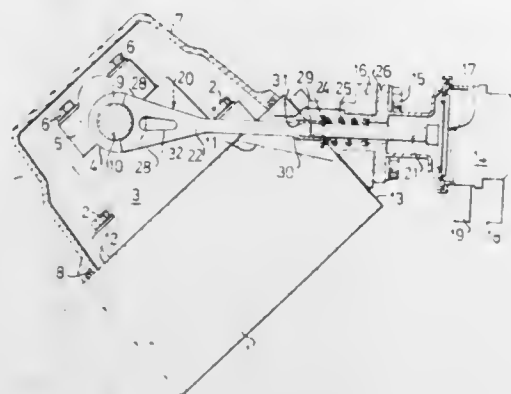
U.S. Cl. 123—454

5 Claims



1. A fuel injection system for compressor-equipped internal combustion engines having injection into an intake tube, in which a flow rate member and an arbitrarily actuatable throttle valve are disposed in sequence downstream of a compressor, the flow rate member being movable counter to a restoring force in accordance with a quantity of air flowing there-through, and a valve disposed in a fuel supply line having a movable element for metering a fuel quantity corresponding to the quantity of air, characterized in that said restoring force is generated by means of pressure fluid, which is exerted continuously upon a control slide under a constant but arbitrarily variable pressure supplied by a control pressure line, said restoring force, and the variation of the pressure of the pressure fluid being effected by means of at least one pressure control

fork configuration including two extensions which are oriented radially on either side of the cam surface and, between said extensions, a curved surface engaging said cam surface so that rotation of said shaft imparts oscillating axial motion to said push rod and swinging movement to said second end of said push rod, said two extensions residing in said groove and being engageable with the side walls of said groove whereby said swinging movement of said second end of said push rod is accommodated, whereby said second end of said push rod is



guided by said side walls in the longitudinal direction of said shaft and whereby no extra guidance is needed in the axial direction of said push rod, wherein said push rod comprising first and second longitudinal portions and means connecting said first and second portions in end-to-end relationship in a manner to accommodate angular play during said transverse movements of said first end, said first longitudinal portion incorporating said first end and said second longitudinal portion incorporating said second end.

4,391,259

FUEL CONDITIONER AND METHOD OF CONDITIONING FUEL TO AN INTERNAL COMBUSTION ENGINE THEREWITH

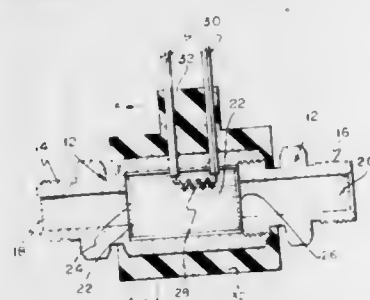
Milfred W. Urban, 1819 N. Edwards, Wichita, Kans. 67203

Filed May 22, 1981, Ser. No. 266,332

Int. Cl.³ F02M 15/00

U.S. Cl. 123—557

3 Claims



1. A fuel conditioner comprising a conduit shell body having a pair of compression connection ends; said shell body having a structure defining a fuel entrance conduit, a fuel exit conduit and a heating chamber interposed between the entrance conduit and the exit conduit and in communication with each; a first agitating screen means and a second agitating screen means respectively covering the point of communication opening of the entrance conduit and the exit conduit with the heating chamber; a pair of electrical conduit means passing through said shell body into said heating chamber; a heating coil means electrically attached in series to the ends of said pair of electrical conduits in said heating chamber; and electrical power means engaging the other ends of said electrical conduits for energizing the heating coil means, said fuel entrance conduit and said fuel exit conduit are essentially aligned in the same plane and directly opposed with respect to each other; said heating chamber is generally cylindrical, said point of communication opening of said fuel entrance conduit has a diameter smaller than the diameter of said generally cylindrical heating

chamber in order to additionally agitate the fuel through expansion and to lower the flow velocity of same as the fuel flows through said first agitating screen means into the heating chamber, said lowering of said flow velocity allows the fuel to spend adequate time in said heating chamber to be heated by the heating coil; said point of communication opening of the fuel exit conduit has a diameter smaller than the diameter of the generally cylindrical heating chamber in order to increase the velocity of the heated fuel as it passes through the second agitating screen means into the exit conduit of the shell body; an overmold means circumscribing the shell body, said electrical conduit means passing through said overmold means; and said overmold means circumscribes the structural portion of said shell body that defines the heating chamber.

4,391,260

FLUID PRESSURE RESPONSIVE VALVE DEVICE

Kiyonobu Asahi, Anjo, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

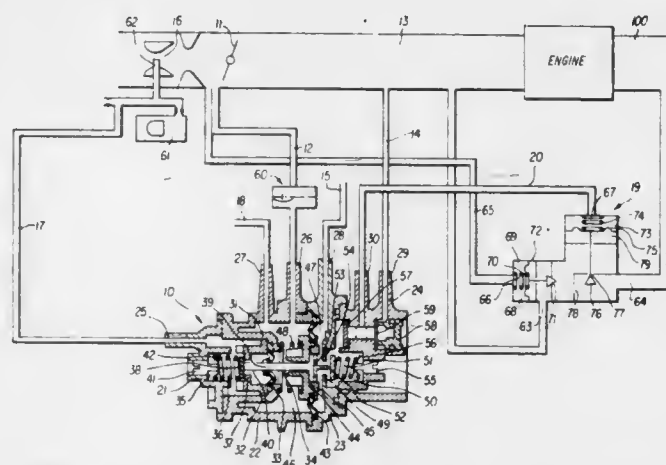
Filed Dec. 9, 1980, Ser. No. 214,786

Claims priority, application Japan, Dec. 17, 1979, 54-164322

Int. Cl.³ F02M 25/06

U.S. Cl. 123—568

8 Claims



1. A fluid pressure responsive valve device including an exhaust gas recirculation device, said fluid pressure responsive valve device comprising:

- a body having an inlet port, at least one signal pressure port connected to an engine intake means and first and second outlet ports formed therein,
- means disposed within said body movable in response to fluid pressure communicated to said signal pressure port,
- a hollow rod secured to said movable means and comprising a part of a first passage member connecting said inlet port and said first outlet port,
- a second passage member for connecting said inlet port and said second outlet port, said second passage member including restriction means, said second outlet port being in fluid communication with said exhaust gas recirculation device, and
- a plurality of first valve means arranged within said first and second passages, respectively, to thereby control fluid communication through said first and second passage members in response to movement of said movable means, wherein said exhaust gas recirculation device comprises a third passage member connected between an engine exhaust manifold and said intake means, said third passage member including parallel flow portions, wherein said exhaust gas recirculation device further comprises second valve means connected to said intake means for selectively closing said third passage member and third valve means connected to said third passage member for selectively closing one of said parallel flow portions of said third passage member.

4,391,261

CARBURETOR ACTUATING SYSTEM FOR V-ENGINES

Yoshiaki Tomita, Hamakita, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

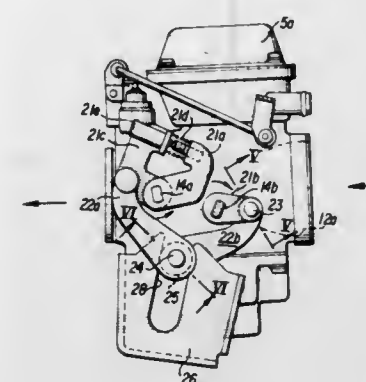
Filed Jul. 16, 1981, Ser. No. 283,932

Claims priority, application Japan, Jul. 8, 1980, 55-107649

Int. Cl.³ F02B 13/00

U.S. Cl. 123—584

8 Claims



1. A dual carburetor system for a V-engine utilizing two carburetors, each having a throttle valve stem protruding through at least one side, the protruding valve stem of one having connected to it a drive arm, and the protruding valve stem of the other having connected to it a driven arm, characterized in that the carburetors are positioned side by side in the V-shaped space between two engine cylinders with said valve stems having said drive arm and driven arm fixed thereto protruding toward each other; said drive arm being connected to said driven arm by means of two connecting links hinged to the respective drive and driven arms at one end of each and hinged to each other at their other ends; and a slot in a plate between the carburetors to constrain motion of said hinge between the links along a perpendicular bisector of a line passing through the axes of the protruding valve stems of the two carburetors.

4,391,262

IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Richard Schleupen, Ingersheim, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

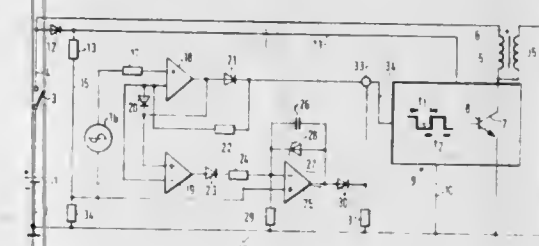
Filed Oct. 20, 1981, Ser. No. 313,358

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1980, 3040509

Int. Cl.³ F02P 1/00

U.S. Cl. 123—618

8 Claims



1. Ignition system for an internal combustion engine having means (16) operating similarly to an a-c generator for generating an ignition signal (U16); an ignition coil (5, 6); a controlled switch (7, 8) controlling current flow through the ignition coil; and a signal processing stage (32, 9) interconnecting the

signal generating means (16) and the controlled switch (7, 8) for rendering the controlled switch conductive, to store electromagnetic energy in the coil, at an instant of time during which the ignition signal changes in value in a first predetermined direction, and rendering the controlled switch non-conductive, and hence interrupting current flow through the coil and cause a high-voltage ignition pulse to appear thereacross, at an instant of time during which the ignition signal changes values, and in opposite direction,

wherein, in accordance with the invention, the signal processing stage includes means (32) deriving a first control signal portion (Ua-Ub) occurring in advance of the peak value of the ignition signal, and having an at least approximately uniformly changing rate in said first direction during at least part of the time when the ignition signal changes level or value in the opposite direction; and means (33) combining said first control signal portion and the ignition signal at a time (Ub) when both the ignition signal and the first portion of the control signal are changing in said first direction, and said ignition signal is at a level below its peak value (Us), so that the differential, in a voltage-time diagram of the control signal portion (Ua-Ub) and the ignition signal portion below the peak thereof (Ub-U_s) will have the same sign.

4,391,263

BOWSTRING RELEASE DEVICE

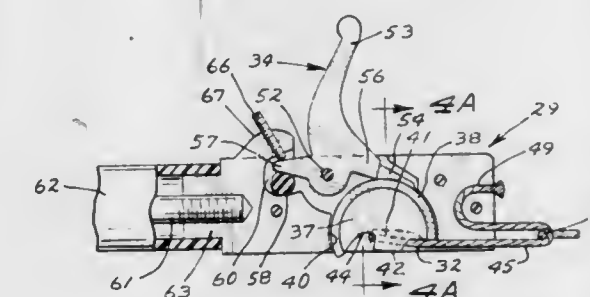
Paul A. Dodge, Rte. 3, Menomonie, Wis. 54751

Filed Mar. 19, 1981, Ser. No. 245,355

Int. Cl.³ F41B 5/00

U.S. Cl. 124—35 A

27 Claims



1. A bowstring release device useable by an archer in conjunction with an arrow and a bowstring mounted on a bow to effect release of the bowstring to discharge the arrow along an intended forward longitudinal path of travel, said device comprising:

- a housing having interior walls defining an interior cavity with a latch opening and a trigger opening;
- a latch member having a generally flat central base located in the cavity for rotation about an axis generally perpendicular to the intended longitudinal path of travel of the arrow and having a generally segmented circular arcuate rib portion outwardly extended from both sides of the base in a direction parallel to said axis of rotation;
- said interior walls defining said cavity shaped to closely conform to the latch member and having generally segmented circular arcuate groove means on both sides of the base located to define the path of travel of the rib portion of the latch member upon rotation of the latch member in the cavity, said rib portion of the latch member being movably located in said groove means to support the latch member and to guide rotation of the latch member about said axis generally perpendicular to the intended longitudinal path of travel of the arrow;
- said latch member having a generally rearwardly facing shoulder accessible through the latch opening defining a cord retaining seat rotatable between a cord retaining

position and a cord release position upon rotation of the latch member;
trigger means in said cavity having a trigger finger extended through the trigger opening for engagement and movement by an archer, said trigger means operatively connected to the latch member for rotation of the latch member from the cord retaining position to the cord release position upon movement of the trigger finger; and handle means connected to the housing.

4,391,264

BALL PITCHING APPARATUS

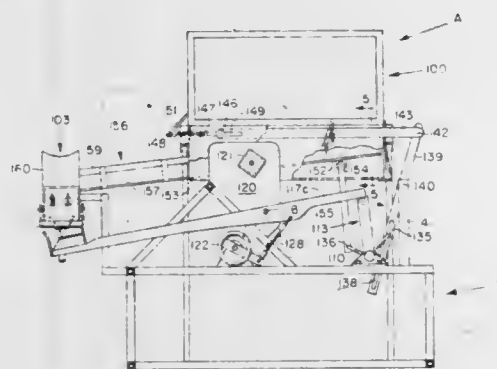
Jeffrey L. Abraham, 218 Maplewood, San Antonio, Tex. 78216,
and Gary D. Banse, 546 Gilbert, San Antonio, Tex. 78213

Filed Feb. 23, 1981, Ser. No. 236,660

Int. Cl.³ F41B 7/00

U.S. Cl. 124—50

4 Claims



1. A ball feeding apparatus for an automatic ball pitching machine, comprising:

- a power drive means for driving the machine;
- a ball de-jammer means operated by the power drive means for preventing the clogging of balls being delivered to a ball throwing arm,
- a ball container having a stationary sloping floor member for holding a plurality of balls for delivery to said ball de-jammer means which is adjacent said container;
- said ball de-jammer means having a ball de-jammer operated by the drive means to engage balls for preventing jamming of balls to a ball feed channel to allow at least one ball to be supplied from the ball container at predetermined intervals;
- said de-jammer means having a tilting floor member movable between horizontal rest and inclined positions to selectively roll balls to a ball feed channel;
- said de-jammer means having a horizontally reciprocating member to engage and remove balls so as to prevent a plurality of balls in the ball container from engaging and jamming a ball which is to be released by the tilting action of said tilting floor member upon operation of the de-jammer means by the power drive means.

4,391,265

KEY-(TOUCH-) CONTROLLED GAS RANGE

Si-Yu Chen, 37 Kueiyang St. Sec. 1, Taipei, Taiwan

Filed Jan. 26, 1981, Ser. No. 228,181

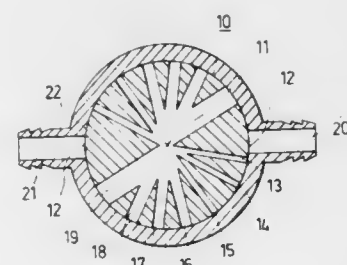
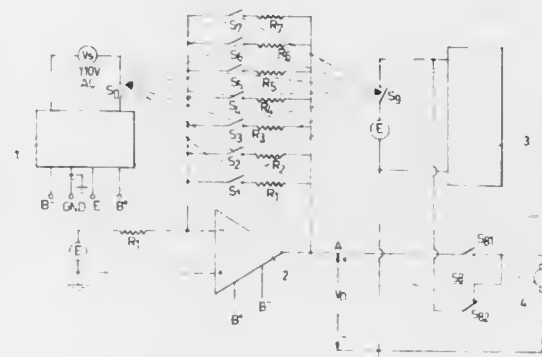
Int. Cl.³ F24C 3/00

U.S. Cl. 126—39 E

3 Claims

1. A controlled gas range comprising:
means for adjusting the flame intensity in a controlled manner;
a continuous electronic ignition circuit;
a valve; and
a burner,
characterized in that said valve includes a rotor defining a plurality of channels therein, a housing and a servo-motor connected to said rotor, a gas inlet and a gas outlet said gas outlet having a diameter slightly greater or equal to that of the largest channel within the rotor, said gas inlet and said gas outlet being respectively provided on said housing in

an opposing relationship to each other, said gas inlet further being connected to a gas source and said gas outlet further being directed to the burner;
said housing further including an upper face defining a small orifice with a diameter sufficient to supply the amount of gas for a base fire, said orifice being connected to and adjacent to said electronic ignition circuit of said burner by a tube;
said plurality of channels including communicating channels and at least one blocked channel at symmetrical positions in said rotor, the size of said communicating channels being different for each symmetrical position, said com-



municating channels communicating with the center of said rotor so that there are channels with different sizes connected between said gas inlet and outlet under different rotating angles of said rotor thereby directing various amounts of gas to said burner, said gas inlet and said outlet both being blocked by said rotor when said rotor is rotated with an angle for said blocked channel to cut off the gas supply, said channels including one base fire channel which is blocked at one end so that the base fire channel is only connected between said gas inlet and said orifice when said rotor is rotated with an angle for said base fire channel.

4,391,266

STOVE APPARATUS

Arthur J. Leffers, 13004 Tonkel Rd., Fort Wayne, Ind. 46825

Filed Jan. 12, 1981, Ser. No. 224,431

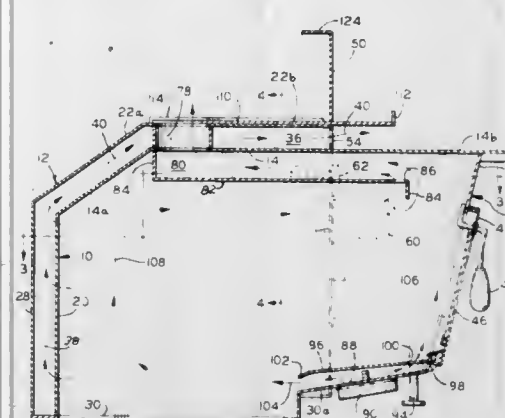
Int. Cl.³ F24B 7/00

U.S. Cl. 126—123

16 Claims

1. Stove apparatus comprising a firebox, a heat-exchange housing enclosing said firebox and spaced therefrom to provide air circulating passages, said firebox having a top, lateral sides and a rear end, said housing also having a bottom, top, lateral sides and a rear end respectively spaced in substantial parallelism from the corresponding parts of said firebox, a front closure on said firebox having an access door, said spaced lateral sides of said firebox and housing defining air inlet passages having at the front ends thereof air inlet ports, said spaced tops defining an air outlet passage in communication with said inlet passages and having at the front end thereof an air outlet port, means connected to said inlet ports for supplying a flow of air to said inlet passages, means for admitting combustion air to said firebox, and means for venting smoke from said firebox in by-passing relation to said housing and said

top air outlet passage, said firebox projecting beyond the front portion of said housing, said top of said firebox being in the form of a plate having a flat horizontal portion which projects forwardly of said housing and is exposed thereby providing a



stove top, said top plate of said firebox engaging at the lateral edges thereof said housing sides thereby further defining said inlet passages, the space between said housing and firebox rear ends serving to connect said inlet passages to said outlet passage.

4,391,267

HEAT STORAGE MATERIAL

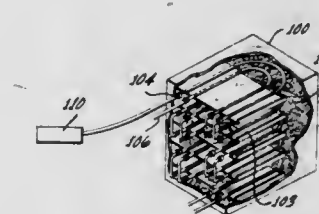
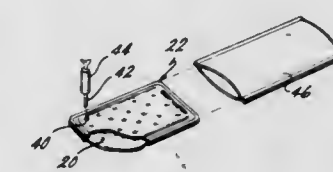
Gustaf O. Arrhenius, La Jolla, Calif., assignor to Kay Laboratories, Inc., San Diego, Calif.

Filed Apr. 15, 1981, Ser. No. 254,547

Int. Cl.³ F24H 7/00; C09K 3/18; F28D 17/00

U.S. Cl. 126—400

15 Claims



1. In combination,
a melt formed from at least one of sodium thiosulfate pentahydrate and sodium sulfate decahydrate and having properties of crystallizing into a monolithic mass when nucleated, and
an additive material having properties of dissolving stably in the melt and metastably in the growing crystals and exsolving to separate the resulting crystallites and limit their size and having properties of providing the solution of the additive material in the melt with chemically basic properties,
the additive material consisting of at least one of disodium hydrogen phosphate, trisodium phosphate and their potassium and ammonium analogs.

4,391,268

SOLAR WATER HEATER CONTROL AND PROTECTION SYSTEM

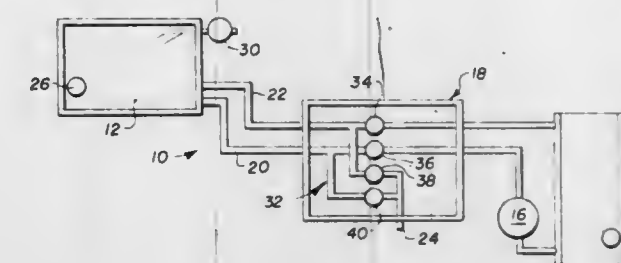
Donovan B. Mathes; Floyd B. Hamilton, and Douglas C. Spreng, all of Lake Havasu City, Ariz., assignors to Solar Dynamics Inc., Lake Havasu, Ariz.

Filed Feb. 24, 1981, Ser. No. 238,108

Int. Cl.³ F24J 3/02

U.S. Cl. 126—437

2 Claims



1. A solar water heater system wherein a collector receives a liquid from a tank through a feed conduit and provides said liquid to said tank through a return conduit, and first and second drain down valves connected to said first and second conduits, respectively, are operable to drain said liquid from said system, comprising:

- first and second isolating valves respectively situated in said feed and return conduits that isolate said tank from said conduits when said fluid is being drained;
- a venting valve connected to said collector and to the atmosphere that allows a flow of air therethrough into said conduits and said collector in response to said system being drained;
- a reversible gear motor; and
- linkage means for sealing said isolating valves prior to opening said drain down valves and for closing said drain down valves prior to opening said isolating valves.

4,391,269

CONTROLLED SOLAR HEATING AND HEAT RETENTION OF LIQUID

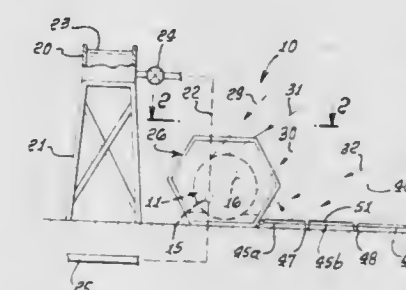
W. Keith R. Watson, P.O. Box 1537, Rancho Santa Fe, Calif. 92067

Filed Sep. 28, 1981, Ser. No. 305,970

Int. Cl.³ F24J 3/02; G02B 5/08

U.S. Cl. 126—437

11 Claims



1. In solar heating apparatus:
(a) a generally horizontally elongated tank to contain liquid, the tank being solar radiation absorbing,
(b) a generally longitudinally extending horizontally elongated container extending about said tank, the container defining glazing facing one side of the tank and top portion of the tank, adapted to received impingement of solar radiation, the glazing spaced from the tank, and being insulative,
(c) and solar radiation auxiliary reflecting panels including at least one panel projecting generally away from a region below the level of the lower extent of the tank and exteriorly of the container to reflect solar radiation toward and through said glazing for impingement on the tank, said

panels being hinge supported and having alternate positions in which they have been swung to extend adjacent the glazing facing the side and top portion of the tank to block heat loss from the tank at night,

(d) the container being polygonal in lateral upright planes, and having planar generally rectangular sections of said glazing, the panels sized in correspondence to said glazing sections to which they extend respectively adjacent, in said alternate positions.

4,391,270

MAGNETIC MEDICAL TREATMENT MEMBER

Hideaki Urugami, 12-12, Mefugaoka, Takarazuka-shi, Hyogo 665, Japan

PCT No. PCT/JP80/00115, § 371 Date Apr. 6, 1981, § 102(e) Date Feb. 17, 1981, PCT Pub. No. WO81/00357, PCT Pub. Date Feb. 19, 1981

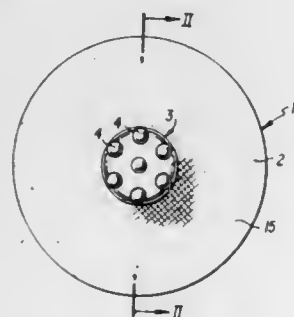
PCT Filed May 28, 1980, Ser. No. 237,165

Claims priority, application Japan, Aug. 6, 1979, 54-100519; Jan. 24, 1980, 55-7860[U]

Int. Cl.³ A61N 1/42

U.S. Cl. 128—1.3

13 Claims



1. A magnetic treatment member comprising a generally flat magnetic press element mounted on a sticking surface of a sticking member, said magnetic press element having a generally flat surface extending to an outer peripheral edge of said magnetic press element, said magnetic press element having an outer peripheral wall along said outer peripheral edge, and a plurality of projections protruding from said flat surface, said projections extending substantially to said outer peripheral edge such that said projections are substantially continuous with said outer peripheral wall, whereby the lines of magnetic force are concentrated on said projections.

4,391,271

RESPIRATOR CIRCUIT

Albert Blanco, 3315 SW. 127th Ave., Miami, Fla. 33175

Filed Apr. 6, 1981, Ser. No. 251,358

Int. Cl.³ A61M 16/00

U.S. Cl. 128—203.12

24 Claims



1. A respirator circuit comprising:

first and second conduit tubes, the cross-section of which has opposed planar lower side portions that are angled oppositely downwardly and inwardly toward drainage means connected thereto, said first and second conduit tubes in open connection respectively to first and second branches of a generally Y-shaped conduit tube portion, including a leg portion for open connection to a conventional endotracheal tube;

a respirator connected to an end of the first conduit tube through a water cascade to humidify air, oxygen enriched

air or pure oxygen passing from the respirator into the first conduit tube;

the drainage means disposed at a lowermost point of and extending longitudinally along the bottom portions of the first and second conduit tubes, said drainage means being in fluid communication with said first and second conduit tubes through a plurality of perforations opening into the drainage means from the first and second conduit tubes; and

means to dispose of moisture passing through said perforations into the drainage means from the first and second conduit tubes.

4,391,272

DISPOSABLE SYRINGE

Jackie Staempfli, Paris, France, assignor to Tulcea, S.A., Vaduz, Liechtenstein

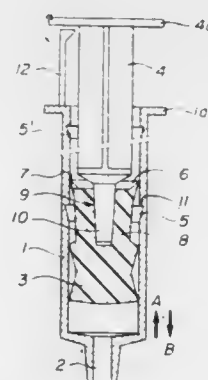
Filed Mar. 9, 1979, Ser. No. 19,251

Claims priority, application Switzerland, Mar. 10, 1978, 2624/78

Int. Cl.³ A61M 5/00

U.S. Cl. 604—110

10 Claims



1. A disposable syringe comprising:

a cylinder, one end of which cylinder is formed with a nozzle whereby a syringe needle can be fixed to the cylinder;

an intake and delivery piston capable of sliding inside said cylinder comprising a body arranged so as to form a tight movable partition, said body having a circular groove or channel;

a rod connected with the piston body so as to permit said body to be displaced by sliding movement in the cylinder;

at least one resilient member provided in said piston body and having at least one peripheral rim or flange tending to be applied to the inside wall of said cylinder;

at least one resilient sealing joint provided in said piston of which at least one peripheral part in the form of an O-ring is retained by a wedging action between the inside wall of the cylinder and said circular groove or channel of said piston body;

at least a first circular groove, in the inside wall of said cylinder, perpendicular to the axis of the cylinder and having an edge capable of retaining the rim of the resilient member; and

at least one second circular groove, in the inside wall of said cylinder, perpendicular to the axis of the cylinder and arranged in such a way as to receive the toroidal part of the sealing joint;

whereby the said first groove and said second groove are so disposed as to cause, when the piston body is pulled in a rearward direction, the disconnection of the sealing joint from the piston body and the retention thereof in the second groove, and then the locking of the rim or edge of the resilient member against the edge of the first groove opposite to that end of the cylinder which has the nozzle.

4,391,273

NON-REUSABLE, DISPOSABLE SYRINGES

Marcelo Chiquiar-Arias, Mexico City, Mexico, assignor to Mercantile & Technical Promotions Inc., New York, N.Y.

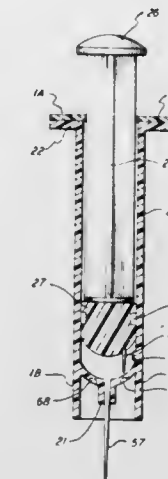
Filed Jul. 30, 1981, Ser. No. 288,264

Claims priority, application Mexico, Aug. 8, 1980, 183508

Int. Cl.³ A61M 5/00

U.S. Cl. 604—110

9 Claims



1. A disposable syringe which renders itself non-reusable which comprises a rigid cylinder having a bottom wall at one end with an opening for the exit of the solution to be injected, and having the other end open, support flanges being affixed to said cylinder adjacent the open end and extending outwardly from the axis of the cylinder, an injection needle integrally attached to the bottom wall of the cylinder and extending outwardly beyond said bottom wall and communicating with said opening, and a plunger with a piston slidably positioned within the cylinder with the piston adjacent the closed end of the cylinder and the other end of said plunger being adapted for pressing to force the piston toward the bottom wall, the piston having puncturing means extending longitudinally therefrom and adapted to puncture the bottom wall of said cylinder so as to prevent reuse, and an annular protrusion extending beyond the bottom wall of the cylinder and integral therewith and having such dimensions as to prevent the user's fingers from being pricked by the puncturing means extending through the bottom wall of the cylinder, said needle extending a sufficient distance beyond said annular protrusion to permit insertion of said needle in said patient, and which includes a cover plate for the opening at the forward end of the annular protrusion, said cover plate having a centrally disposed opening, said injection needle having a diameter less than the inner diameter of said opening in said cover plate and passing through said opening.

4,391,274

FILTERED HUB DEVICE FOR ASPIRATING AND INJECTING LIQUIDS

Jonathan Kagan, Fairview, Pa., assignor to Becton, Dickinson and Company, Paramus, N.J.

Filed Jun. 26, 1981, Ser. No. 277,475

Int. Cl.³ A61M 5/00

U.S. Cl. 604—190

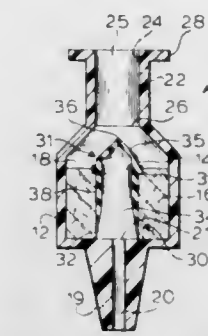
1 Claim

1. A hub device for use in aspirating and injecting liquids comprising:

a housing having a chamber therein, a first opening for aspirating liquid into the chamber and for injecting liquid out of the chamber and a second opening extending through a mouth portion which is adapted to connect to a mating portion of a liquid movement device which serves as a driving force for aspirating liquid into and injecting liquid out of said device, said openings being located on opposite sides of said housing in substantially axial alignment with each other;

a tubular valve in said chamber having a flexible, operable closure element on opposite ends thereof; and

a filter in said chamber adapted to filter particulate matter from liquids passing therethrough, said filter also serving as a support member to maintain said valve in position in said chamber, said filter surrounding said valve including the first operable closure element thereof, said first element of said valve being positioned directly over said first opening and normally closing radially outwardly against said surrounding filter in an orientation substantially parallel to the axial alignment of said openings so that the interior of said tubular valve is in liquid communication



with said first opening whereby liquid flowing through said first opening during aspiration is directed through said tubular member, said first element adapted to flexibly move away from said filter to thereby open and place said first opening in liquid communication with the chamber exterior to said tubular valve during injection of liquid into the chamber through said second opening, said second element including an operable slot adapted to open during aspiration of liquid inwardly through said first opening and normally close under static conditions and remain closed upon injection of liquid into said chamber through said second opening.

4,391,275

METHOD FOR THE SURGICAL TREATMENT OF THE EYE

Franz Fankhauser, Eugen van der Zypen, both of Bern, and Philippe Roussel, Thun, all of Switzerland, assignors to Lasag AG, Thun, Switzerland

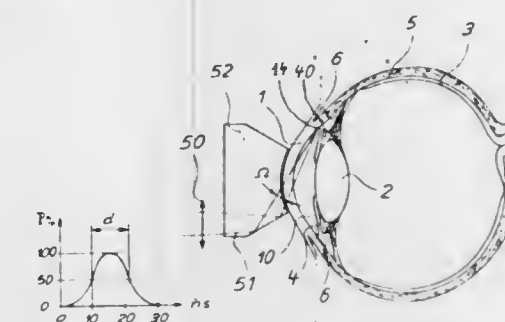
Filed Nov. 28, 1980, Ser. No. 211,202

Claims priority, application Switzerland, Nov. 28, 1979, 10570/79; France, Mar. 5, 1980, 80 04994

Int. Cl.³ A61B 17/36

U.S. Cl. 128—303.1

13 Claims



1. For a method of non-invasive surgical treatment of the eye which comprises the steps of forming a convergent treatment laser beam, directing the focus of the convergent treatment laser beam onto the structure to be treated, shifting the focus with respect to the structure to be a certain distance in front of or behind the structure, delivering the treatment laser beam into said focus where the radiation intensity performs the surgery, an improvement to prevent damage to the structure of the eye not being treated, the improvement comprising the steps of: generating visible ancillary lower power laser observation

beams to sense the outside envelope of the treatment laser beam,
 rotating said laser observation beams around the optical axis of said laser treatment beam, said laser observation beams intersecting in the focus position of the laser treatment beam,
 shifting the focus position of the treatment beam along the optical axis with respect to the intersection point of said laser observation beams,
 directing the laser observation beams onto treatment point of the structure to be irradiated so that they intersect said structure and provide dots of light thereon for observation purposes,
 inspecting the path of the observation laser beams to determine if the treatment beam on its pass into the focus will touch eye structure not being treated,
 adjusting the treatment laser beam in accordance with the results of the inspection step to ensure that the treatment beam does not touch structures not to be treated, and
 delivering the treatment laser beam into the focus to cause the surgery.

4,391,276

PERITONEAL CATHETER

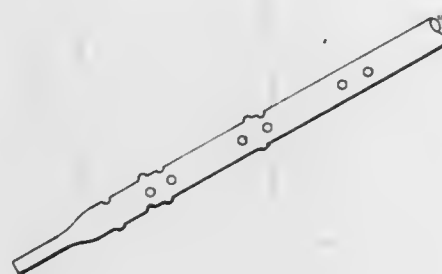
Harrison Lazarus, 1474 Penrose Dr., Salt Lake City, Utah 84103, and James A. Nelson, 1708 Forest Hills Dr., Salt Lake City, Utah 84106

Filed Dec. 16, 1980, Ser. No. 217,127

Int. Cl.³ A61M 25/00

U.S. Cl. 604—266

5 Claims



1. A catheter comprising:
 a thin-walled, hollow-bore tubular member having an opening on an extraction end, said tubular member having a hollow-bore diameter of from about 1.0 to about 3.5 millimeters and an external diameter of from about 2.0 to about 4.0 millimeters;
 a plurality of sidewall openings in said tubular member, said openings having protrusions associated therewith protruding from the exterior sidewall, at least a substantial portion of said protrusions being longitudinally aligned with a substantial portion of said sidewall openings, said sidewall openings having a diameter of from about 0.01 to about 2.0 millimeters and said sidewall protrusions project from about 0.01 to about 1.0 millimeter from the exterior wall surface.

4,391,277

BREAST SUPPORT

Marian L. Horvat, 3811 W. Pleasant Valley Rd., Parma, Ohio 44134

Filed Mar. 6, 1981, Ser. No. 238,880

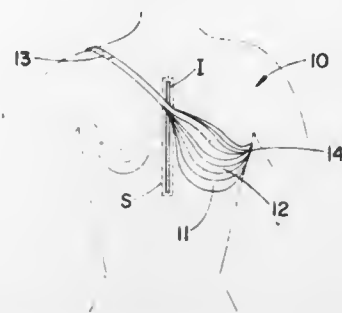
Int. Cl.³ A41C 3/00

U.S. Cl. 128—492

4 Claims

1. A breast support comprising a long narrow cloth strip, said cloth strip having a middle pleated portion which is adapted for expanding open into a cup for automatically adjusting to any breast size, and means for adjusting said strip to various lengths, said middle pleated portion adapted for expanding into a cup at one end near a vertical wound in the

middle of the chest of the user for supporting the breast in a first mode when the breast is positioned there from gravity and said opposite end of the pleated portion being closed, and said middle pleated portion being adapted for expanding into a cup



at the other end away from said vertical chest wound for supporting the breast in a second mode when the breast is positioned there from gravity and said opposite end of said pleated portion being closed.

4,391,278

TAPE ELECTRODE

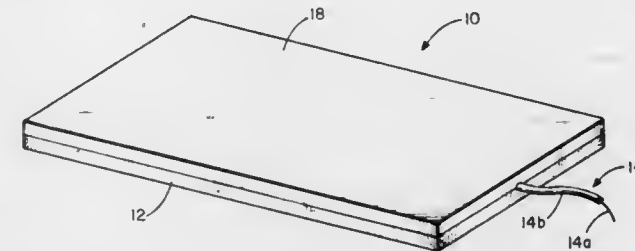
Patrick T. Cahalan, Champlin, and Arthur J. Coury, St. Paul, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 968,489, Dec. 11, 1978, abandoned. This application Feb. 14, 1980, Ser. No. 121,387

Int. Cl.³ A61B 5/04

U.S. Cl. 128—640

15 Claims



1. A skin electrode consisting essentially of:
 an adhesive electrically conductive skin-contacting member consisting essentially of a polymer component selected from the group consisting of polymerized 2-acrylamido-2-methylpropanesulfonic acid, its salts, copolymers of the acid, copolymers of the salts of the acid, and mixtures thereof, and a second component selected from the group consisting of water, alcohols and mixtures thereof, sufficient relative amounts of the polymer component and the second component being included to provide adhesiveness and flexibility to the member, and
 electrical contact means connected to the conductive member for establishing electrical contact therewith.

4,391,279

ELECTRODE BELT

Israel M. Stein, Brookline, Mass., assignor to Clinical Data, Inc., Brookline, Mass.

Filed Dec. 11, 1981, Ser. No. 329,646

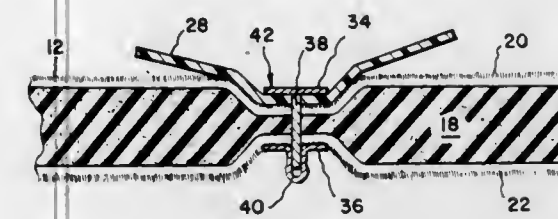
Int. Cl.³ A61B 5/04

U.S. Cl. 128—643

8 Claims

1. An electrode belt which comprises a belt of soft pliable material, a sheet of conductive, flexible, compliant, impervious material providing an electrode pad having opposite surfaces, one of which is disposed upon said belt and the other against the wearer when the belt is on the wearer, a fastener of conductive material having opposed plates disposed in clamping relationship with said pad and belt therebetween to form a

depression in said pad of cup shape to provide a suction area between the skin of the wearer, the pad and one of said plates,



said fastener having means providing an attachment for an electrode lead.

4,391,280

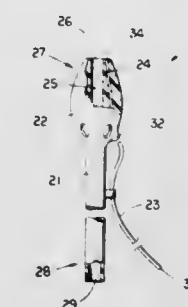
ENEMA APPARATUS IMPROVEMENTS RELATING TO DOUBLE CONTRAST STUDIES

Roscoe E. Miller, 7400 W. 88th St., Indianapolis, Ind. 46278
 Division of Ser. No. 131,965, Apr. 4, 1980, Pat. No. 4,333,460, which is a continuation-in-part of Ser. No. 39,502, May 16, 1979, abandoned. This application Nov. 30, 1981, Ser. No. 326,015

Int. Cl.³ A61B 5/00

U.S. Cl. 128—654

1 Claim



1. An enema-administering apparatus insertable into the rectum for delivery of a contrast medium to internal portions of a patient's anatomy, for the subsequent removal of said contrast medium, and for the delivery of air to said internal portions of the anatomy after the contrast medium has been removed, said enema-administering apparatus comprising:

a generally tubular stem having a free end, an opposite insertable end and a first contrast medium passageway extending therethrough from a contrast medium inject location adjacent said free end to a contrast medium discharge location adjacent said insertable end, said tubular stem further having a first air passageway disposed completely external of said first contrast medium passageway, said first air passageway extending through said tubular stem from an air inject location adjacent said free end to an air discharge location adjacent said insertable end;

an enlarged hollow tip cooperatively arranged with said stem and disposed adjacent said insertable end, said hollow tip having a contrast medium exit aperture disposed therein and defining a second contrast medium passageway arranged in flow communication with and disposed between said first contrast medium passageway and said contrast medium exit aperture, said tip further having an air delivery outlet opening disposed therein and defining a second air passageway which is disposed completely external of said first contrast medium passageway and arranged in flow communication with and disposed between said first air passageway and said air delivery outlet opening;

said air delivery outlet opening is spaced apart from said contrast medium exit aperture so as to avoid the entry of said contrast medium into said second air passageway.

4,391,281

ULTRASONIC TRANSDUCER SYSTEM AND METHOD

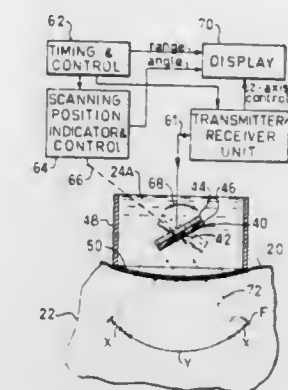
Philip S. Green, Atherton, Calif., assignor to SRI International, Menlo Park, Calif.

Filed Jan. 6, 1977, Ser. No. 757,132

Int. Cl.³ A61B 10/00

U.S. Cl. 128—660

13 Claims



1. A medical ultrasonic system for the non-invasive examination of a soft tissue region within a subject's body comprising, focusing transducer means,

a container for said focusing transducer means having a liquid tight acoustically transparent rigid diaphragm for acoustically coupling directly to the subject's skin, sonic coupling liquid within the container for acoustically coupling the focusing transducer means to said diaphragm,

pulse operated transmitter/receiver means connected to said transducer means for energization of said transducer means for producing ultrasonic waves which are coupled to the subject's skin through said coupling liquid and diaphragm and for processing electrical signals produced by said transducer means upon receipt of ultrasonic waves reflected from discontinuities within the tissue of the subject, and

indicating means for the display of echo signals received from discontinuities within the subject's body,

the material of said coupling liquid being selected so that the velocity of propagation of acoustic waves therein is substantially less than the velocity of propagation of acoustic waves in said soft tissue,

the acoustic path between the transducer means and diaphragm being substantially less than the maximum distance in soft tissue within the subject's body from which echo signals are received and displayed without interference by display of multiple reflections from the diaphragm.

4,391,282

COELIAC CAVITY ULTRASONIC DIAGNOSIS APPARATUS

Otaro Ando, Hino, and Toshitaka Suwaki, Hachioji, both of Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

Filed Oct. 17, 1980, Ser. No. 198,246

Claims priority, application Japan, Oct. 24, 1979, 54-136442; Oct. 24, 1979, 54-136443; Sep. 12, 1980, 55-126966

Int. Cl.³ A61B 5/02

U.S. Cl. 128—660

22 Claims

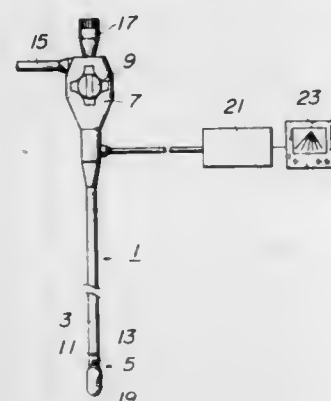
1. A coeliac cavity ultrasonic diagnosis apparatus including a scanner portion insertable into a physical body of a patient and operative to effect a B-mode sector scan of an ultrasonic wave to produce a tomographic image, comprising

(a) an endoscope including at least an observation means and illumination means and provided at its side surface near the distal end portion thereof with an opening;

(b) an ultrasonic signal transducer fixed to the distal end portion of the endoscope for generating and transmitting ultrasonic wave radiation in a direction substantially

aligned with the axial direction of an insertable portion of said endoscope;

- (c) a reflecting mirror opposed to and inclined at substantially a constant angle with respect to the ultrasonic wave radiation surface of the ultrasonic signal transducer and rotatably mounted at the opening provided at the distal end portion of said endoscope;
- (d) a power means provided in an operating portion located in the rear of said endoscope and operative to rotate said reflecting mirror;
- (e) a flexible shaft extending through a flexible portion of said endoscope and transmitting the rotation of said power means to said reflecting mirror;
- (f) an initial pulse generating means rotatable together with said reflecting mirror at the distal end portion of said endoscope to generate a pulse just prior to the arrival of said reflecting mirror at a given position so as to define a display starting point at every ultrasonic scanning frame;



- (g) an angle detecting means arranged in said operating portion located in the rear of said endoscope and rotatable in synchronism with said rotary shaft of said power means to detect the rotary angle of said power means and generate a pulse each time said rotary shaft rotates by a constant angle;
- (h) means for obtaining a reflecting signal for reproducing an ultrasonic image from a pulse delivered from said initial pulse generating means and from a pulse delivered from said angle detecting means;
- (i) a brightness modulating means operative to transmit the ultrasonic wave to said ultrasonic signal transducer and receive the ultrasonic wave therefrom to effect brightness modulation of the signal received; and
- (j) means for displaying the ultrasonic image from said deflecting signal and brightness modulating signal.

4,391,283

INCENTIVE SPIROMETER

Edward N. Sharpless, Somerville; Marvin Gordon, East Winsor, and Joseph Lichtenstein, Colonia, all of N.J., assignors to Whitman Medical Corporation, Clark, N.J.

Filed Mar. 24, 1981, Ser. No. 247,097

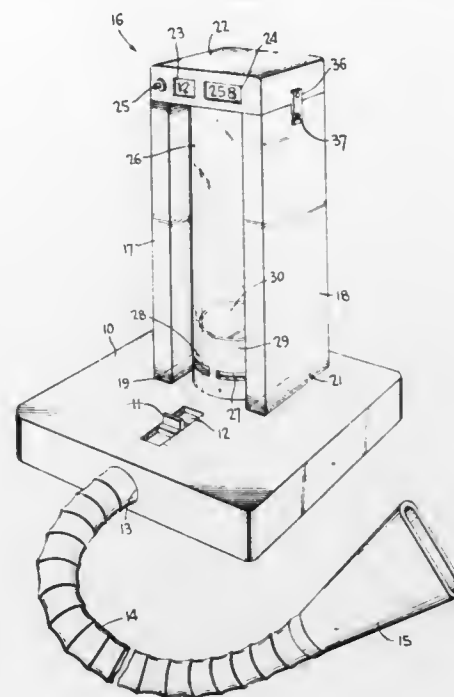
Int. Cl. A61B 5/08

U.S. Cl. 128-725

29 Claims

1. An incentive spirometer comprising: a flow path through which a patient can inhale air; means responsive to air flow in said flow path for providing

a visually-perceptible incentive indication for the patient; and



inhibiting means responsive to inhalation suction force above a predetermined force for inhibiting said incentive indication.

4,391,284

USE IN MODIFYING SMOKING TOBACCO AROMA AND FLAVOR OR MONO-OXOMETHYL SUBSTITUTED POLYHYDRODIMETHANONAPHTHALENE DERIVATIVES

Mark A. Sprecker, Sea Bright; Marie R. Hanna, Hazlet; Richard J. Tokarzewski, Keyport; Robert P. Belko, Woodbridge; Hugh Watkins, Lincroft, and Manfred H. Vock, Locust, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

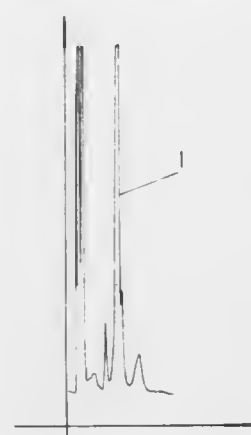
Filed Mar. 2, 1982, Ser. No. 354,387

Int. Cl. A24B 3/12, 15/30

U.S. Cl. 131-276

10 Claims

GLC PROFILE FOR EXAMPLE I



1. A process for augmenting or enhancing the aroma or taste of a consumable material selected from the group consisting of smoking tobacco compositions and smoking tobacco articles comprising the step of adding to said consumable material an aroma or taste augmenting or enhancing quantity of at least one compound defined according to the structure:

4,391,286

HAIR CONDITIONING AND COMPOSITION THEREFOR

Du Y. Hsiung, Park Forest; Chester A. Davis, Berwyn, and Harold J. Nicholson, Roselle, all of Ill., assignors to Helene Curtis Industries, Chicago, Ill.

Filed Feb. 19, 1981, Ser. No. 236,127

Int. Cl. A45D 7/00

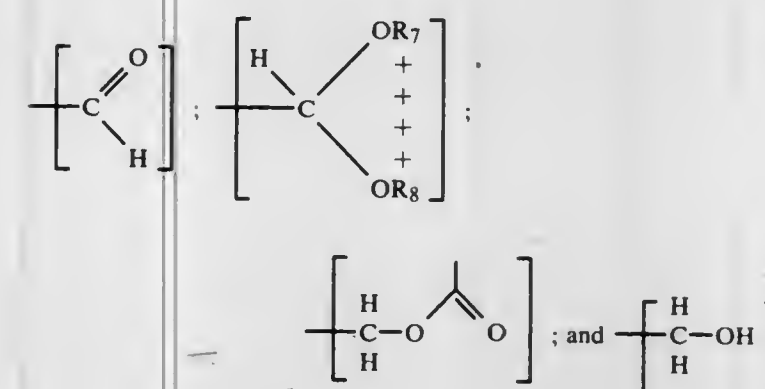
U.S. Cl. 132-7

16 Claims

wherein the dashed line represents a carbon-carbon double bond or a carbon-carbon single bond; wherein R_1 , R_1' , R_1'' , R_1''' , R_3 , R_5 , R_5' , R_5'' , R_5''' , R_5'''' and R_6 represent hydrogen or methyl; with the provisos:

- (i) at least four of R_1 , R_1' , R_1'' , R_1''' and R_1'''' represent hydrogen; and
- (ii) at least four of R_5 , R_5' , R_5'' , R_5''' , R_5'''' represent hydrogen;

with Z being a moiety selected from the group consisting of:



with the line:

[+ + + +]

representing a carbon-carbon single bond or no bond at all; and R_7 and R_8 being separately C_1 - C_4 lower alkyl or, taken together, being C_2 - C_4 alkylene.

4,391,285

SMOKING ARTICLE

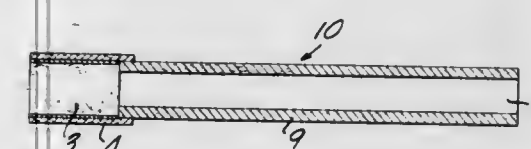
George H. Burnett, Richmond; Warren E. Clafflin, Bon Air; Harry V. Lanzillotti, Midlothian; A. Clifton Lilly, Jr., Richmond; John F. Nienow, Midlothian; Thomas S. Osden, and Alline R. Wayte, both of Richmond, all of Va., assignors to Philip Morris, Incorporated, New York, N.Y.

Filed May 9, 1980, Ser. No. 148,124

Int. Cl. A24B 3/14; A24F 1/00, 5/00

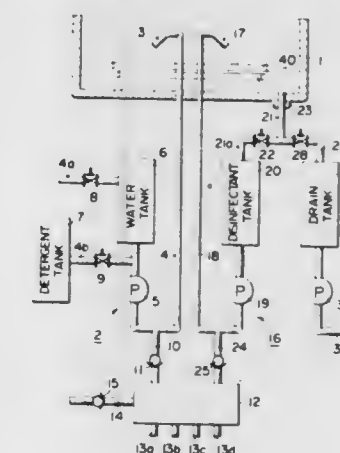
U.S. Cl. 131-364

27 Claims



1. A smoking article comprising a coherent mass of combustible tobacco-containing material, said mass having at least one through passage extending from a first opening in the surface of said mass to a second opening remote from the first, said mass having a porosity such as to support combustion of said mass when ignited, said mass being of a density and porosity such as to substantially occlude gas flow therethrough, thereby providing that puff induced air flow through the smoking article is through the passage and said mass further being of a density, porosity and cross-sectional surface area such as to produce from 0.1 mg to 0.3 mg of tar per puff.

1. A cleaning apparatus for an endoscope, comprising: a cleaning vessel; a cleaning liquid supply mechanism for supplying a cleaning liquid including liquid detergent or the like to the cleaning vessel in which an endoscope to be cleaned may be disposed;
- a drain pipe connected to the cleaning vessel and through which the cleaning liquid may be drained after it has been supplied to the cleaning vessel;
- a liquid disinfectant circulating mechanism for supplying a liquid disinfectant including a tank for containing the disinfectant and being connected to the cleaning vessel to supply disinfectant to disinfect the endoscope after the cleaning liquid has been drained from the cleaning vessel, and the drain pipe being connectable to the tank for returning the liquid disinfectant from the cleaning vessel to the tank via the drain pipe, whereby residue detergent is mixed with the disinfectant as the disinfectant passes through the drain pipe; and
- means disposed within the liquid disinfectant circulating mechanism for supplying an anti-foaming agent there-through which is effective to prevent a foaming from occurring in the presence of any residue of detergent which has mixed with the disinfectant.



4,391,288

METHOD AND A DEVICE FOR EFFECTING RINSING OF AN INVERTED SIPHON, WHICH FORMS PART OF A SEWER

Gösta Nilsson, Aratorpsvägen 38, Fritsla, Sweden (510 20)
PCT No. PCT/SE80/00163, § 371 Date Feb. 11, 1981, § 102(e)
Date Feb. 9, 1981, PCT Pub. No. WO80/02855, PCT Pub.
Date Dec. 24, 1980

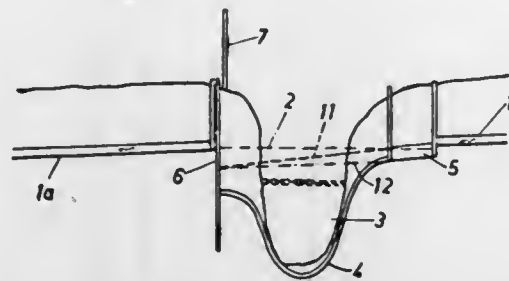
PCT Filed Jun. 10, 1980, Ser. No. 237,143

Claims priority, application Sweden, Jun. 11, 1979, 7905094

Int. Cl.³ E03D 1/00; B08B 3/02

U.S. Cl. 137-15

10 Claims



1. A method for effecting rinsing of an inverted siphon which forms part of a sewer by interconnecting two separated sections of a sewer line comprising, arranging upstream of the inverted siphon a fluid reservoir having a volume which at least corresponds to the volume of the siphon for the length thereof requiring rinsing, and at least once every twenty-four hours applying a jet force in said siphon to cause the fluid contents of the reservoir to flow through the inverted siphon with a flow velocity which at least corresponds to the rinsing velocity required for removing sludge which has accumulated in the inverted siphon.

4,391,289

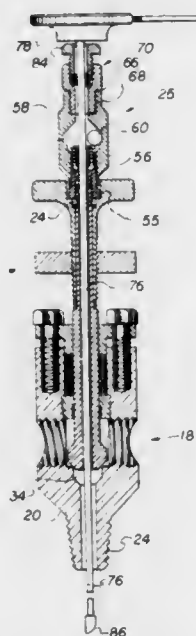
CHECK VALVE FOR ROD OUT

Donald L. Adams, P.O. Box T, Tulia, Tex. 79088
Filed May 18, 1981, Ser. No. 264,578

Int. Cl.³ B08B 1/02; F16K 51/00

U.S. Cl. 137-15

14 Claims



1. The process involving an opening such as a nozzle with a duct extending to the opening with the duct being closed by a main valve, wherein the improved method comprises:

- cleaning debris from the duct and the opening below the main valve by
- inserting a rod through a check valve on the distal end of the duct, through the main valve while the main valve is closed and through the duct,
- opening and unseating the check valve with said rod,

- mounting a packing gland upon said rod, and
- attaching said packing gland to the check valve before inserting the rod through the check valve and before unseating the check valve.

4,391,290

ALTITUDE SENSING CONTROL APPARATUS FOR A GAS TURBINE ENGINE

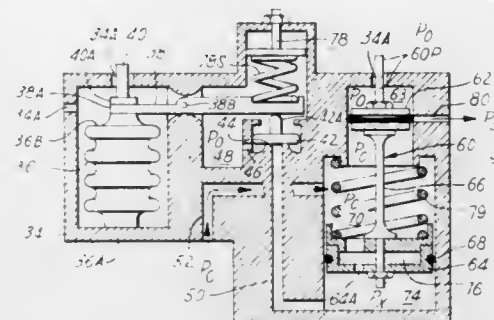
Raymond L. Williams, Evendale, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Oct. 23, 1980, Ser. No. 200,221

Int. Cl.³ F16K 31/12, 49/00, 37/00

U.S. Cl. 137-81.1

6 Claims



1. Altitude sensing control apparatus for a gas turbine engine of the type including a compressor section which receives an input airflow and develops a pressurized output airflow, which comprises:

- means coupled to ambient air for developing a first pneumatic signal representative of ambient air pressure;
- means coupled to said compressor section for receiving a portion of said pressurized output airflow and developing a second pneumatic signal representative of said pressurized output airflow; and
- pneumatic valve switching means for receiving said first and second pneumatic signals and developing a control apparatus pneumatic output signal in which said pneumatic valve switching means includes a first stage having a poppet valve for driving a second stage, including a drive piston, said piston being driven in a first direction for ambient air pressures greater than said predetermined value and being driven in a second opposing direction for ambient air pressures less than said predetermined value, said piston second stage including an output port, said pneumatic output signal at said output port comprising said first pneumatic signal when said piston is driven in the first direction and comprising said second pneumatic signal when said piston is driven in the second direction, said poppet valve being coupled to a bellows through a medially pivotable connecting link, said piston including a pair of opposing head portions separated by a rod portion and being sealingly located in said housing, a first region being defined between one of the opposing head portions of said piston and said housing, a second region being defined between said opposing head portions of said housing and a third region being defined between the other opposing head portion of said housing, wherein said second region is coupled to receive said second pneumatic signal, said first region is coupled to receive said first pneumatic signal, said third region is coupled through said poppet valve to a region in said housing at ambient air pressure, said one opposing head portion including a servo orifice therethrough coupling said second region to said third region with said third region developing a third pneumatic signal representative of a servo pressure for controlling the movement of said piston, wherein:
 - said pneumatic output signal comprises said first pneumatic signal for ambient air pressures greater than a predetermined value which is representative of a predetermined altitude, and
 - said pneumatic output signal comprises said second

pneumatic signal for ambient air pressures less than said predetermined value.

4,391,291

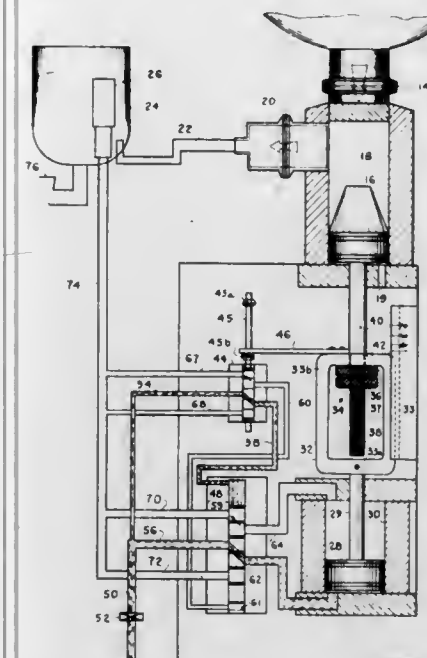
APPARATUS FOR RECONSTITUTING A CONCENTRATE

Ronald W. Hume, 848 Harbor Island, Clearwater, Fla. 33515
Filed Feb. 24, 1981, Ser. No. 237,757

Int. Cl.³ F16K 19/00

U.S. Cl. 137-99

8 Claims



1. An apparatus of the type designed to reconstitute a liquid concentrate, said apparatus including a first reservoir for storing the concentrate and a second reservoir for storing the reconstituted concentrate, and said apparatus further comprising, in combination,

- a pumping means operable to transfer predetermined amounts of concentrate from said first reservoir to said second reservoir,
- said pumping means including a first piston means carried by a first piston rod means,
- a motor means operable to deliver predetermined amounts of a reconstituting fluid to said second reservoir,
- said motor means including a second piston means carried by a second piston rod means,
- a yoking means for interconnecting said motor means in driving relation to said pumping means,
- said first and second piston rod means disposed in axial alignment with one another and operably interconnected to one another through said yoking means,
- a pair of multi-port, bi-directional valve means for operably interconnecting an external source of fluid under pressure in driving relation to said motor means,
- said pair of valve means operably interconnected to one another so that one of said pair is a driving valve and the other of said pair is a driven valve,
- said driving valve being operably interconnected to said yoking means so that the position of said yoking means determines the opening and closing of the ports of said driving valve,
- said first piston rod means having a reduced diameter portion to provide a shoulder means between the reduced and un-reduced portions of said first piston rod means,
- said yoking means provided with an aperture means for receiving only the reduced diameter portion of said first piston rod means so that travel of said first piston rod means in a first direction toward said yoking means displaces and yoking means by abutting a leading portion of said yoking means, but travel of said first piston rod means in a second direction away from said yoking means does not displace said yoking means.

4,391,292

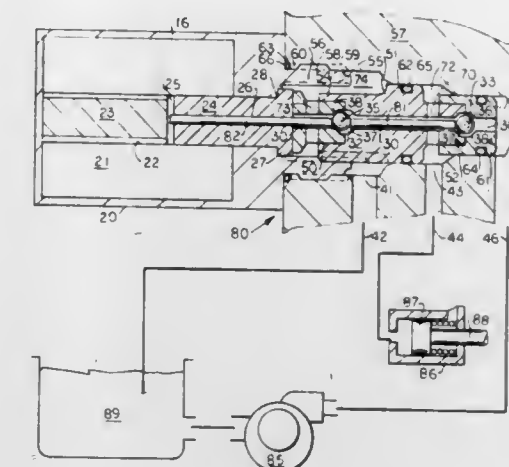
FAST-RESPONSE THREE-WAY SOLENOID VALVE

Robert W. Millar, San Diego, Calif., assignor to Orshansky Transmission Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 159,469, Jun. 16, 1980, abandoned. This application Jul. 28, 1980, Ser. No. 172,661

Int. Cl.³ F15B 13/044

U.S. Cl. 137-269

21 Claims



19. A fast-response three-way solenoid valve, comprising: a housing having a first opening, a second opening, and a third opening interconnected by a linear fluid pathway, a first chamber disposed in said pathway between said first opening and said second opening, each end of said first chamber forming a first valve seat, one an inner valve seat and one an outer valve seat, with respect to said second opening,

- a first ball in said first chamber movable toward and away from a said first valve seat to open and to close off the flow of fluid through the pathway at said first valve seat,
- a second chamber disposed in said pathway in line with said first chamber and between said second opening and said third opening, each end of said second chamber forming a second valve seat, one an inner valve seat and one an outer valve seat, with respect to said second opening,
- a second ball in said second chamber movable toward and away from a said second valve seat to open and to close off the flow of fluid through the pathway at that said second valve seat,
- a separator pin disposed, with clearance, within said linear pathway between said first and second chambers and bearing against both said first and second balls at substantially all times, said valve seats, balls, and separator pin being so related that when one said ball is seated against its said seat the other ball is not seated by said separator pin,
- a solenoid having a coil, a plunger which moves upon energization of the solenoid, and a guide passage between said plunger and said first chamber, aligned with both said first and second chambers and said first and second balls,
- a plunger pin disposed in said guide passage, one end of said plunger pin bearing against said first ball on the side thereof opposite to said separator pin, the other end of said plunger pin bearing against said plunger when said solenoid is energized,
- movement of said plunger upon the energization of said solenoid causing said plunger to contact and move said plunger pin, in turn moving said first ball, said separator pin, and said second ball so that one of said balls is seated against the said seat when the solenoid is energized and the other ball is seated against its said seat when the solenoid is de-energized.

4,391,293

PACKING FOR EQUALIZING RESERVOIR CUT-OUT VALVE

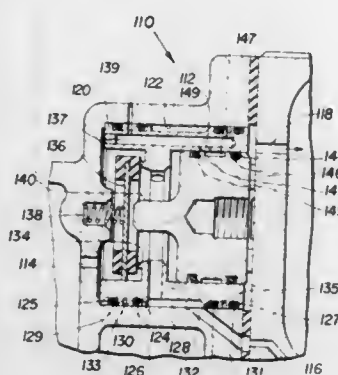
John R. Keenan, Watertown, N.Y., assignor to General Signal Corp., Stamford, Conn.

Filed Dec. 18, 1980, Ser. No. 217,872

Int. Cl.³ F16K 51/00, 31/122

U.S. Cl. 137-312

15 Claims



1. In a valve having a housing, a bore in said housing, a valve seat in said bore, a first packing means providing a seal between said valve seat and said housing, said first packing means being subjected to differential pressure reversals across that packing means, the improvement comprising:

a second, separate packing means spaced from said first packing means and adjacent thereto between said valve seat and said housing and providing a seal between said valve seat and said housing; and

means for eliminating differential pressure reversals across said first and second packing means when said valve experiences differential pressure reversals therein by connecting the space between said first and second packing means to a fixed value of pressure such that said first and second packing means do not oscillate in response to said differential pressure reversals.

4,391,294

DUMP DELAY VALVE

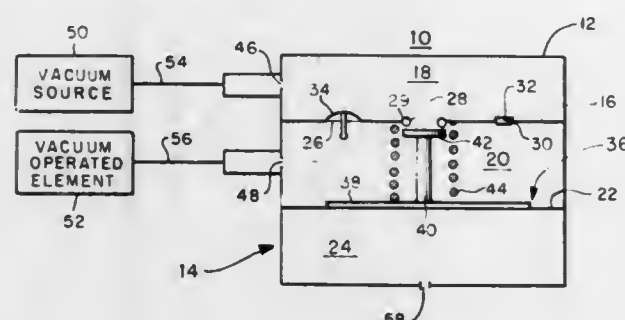
John A. Auel, Decatur, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Nov. 30, 1981, Ser. No. 326,231

Int. Cl.³ F16K 17/18; F02M 3/00

U.S. Cl. 137-493.8

13 Claims



1. A dump delay valve, comprising:

a wall structure defining an enclosure, a separating plate mounted in said enclosure, defining an input chamber and an output chamber, which separating plate defines a port, an aperture and an umbrella valve opening between the input and output chambers, an umbrella valve mounted in said input chamber on the separating plate, to cover said umbrella valve opening, a diaphragm operator, mounted in the output chamber defining a third chamber, with the output chamber adjacent the separating plate, which diaphragm operator separates and seals the output and third chambers from each other,

a mounting plate affixed to the diaphragm operator in said output chamber, said wall structure defining an input port for the input chamber, an output port for the output chamber, and an aperture to communicate said third chamber to atmosphere, a stem positioned in the output chamber, which stem is affixed to said mounting plate and operable by the diaphragm operator, a seal means affixed near one end of the stem and positioned to abut said separating plate port, and a bias spring with a known bias force, positioned in the output chamber to bias the diaphragm operator and stem to open the separating plate port when the pressure difference between the output and third chambers is less than the bias force of the spring.

4,391,295

HOT WATER SYSTEM AND VALVE

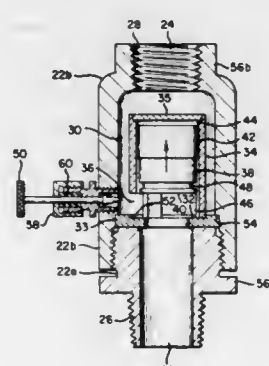
Lester E. Stipe, Portland, Oreg., assignor to Precision Plumbing Products, Inc., Portland, Oreg.

Filed Dec. 14, 1981, Ser. No. 330,263

Int. Cl.³ F24H 1/00

U.S. Cl. 137-522

3 Claims



1. A gravity operated valve comprising:

(a) a valve casing comprised of lower and upper sections secured together detachably, the lower section having an inlet fluid passage and the upper section having an outlet fluid passage and a vertically elongated communication passage communicating the outlet passage with the inlet passage,

(b) a valve seat ring secured removably between the lower and upper valve casing sections and having an upwardly facing annular valve seat facing said communication passage,

(c) a hollow vertically elongated cylinder secured to said valve seat ring outwardly of the annular valve seat and extending vertically upward into said communication passage, the cylinder having a cylinder wall having an outer diameter substantially smaller than the diameter of the communication passage, the cylinder having a closed top and an open bottom communicating with the valve seat ring opening, the cylinder wall having an opening therethrough adjacent the valve seat ring,

(d) a weighted piston slidably fitted within said cylinder for vertical movement therein, said piston defining an upper cavity within said cylinder above said piston, said piston having a valve face on the bottom thereof for sealingly fitting on the upwardly facing valve seat on the valve seat ring when the fluid pressures at said inlet passage and said outlet passage are in substantial equilibrium, said piston being free to rise off said valve seat toward the closed top of said cylinder when the fluid pressure at said inlet passage is greater than the fluid pressure at said outlet passage, and

(e) a flow limiting passage communicating the communication passage in the upper valve casing section with said upper cavity in the cylinder for dampening the speed of movement of the piston in the cylinder.

4,391,296

BY-PASS PILOT OPERATED HYDRAULIC CHECK VALVE

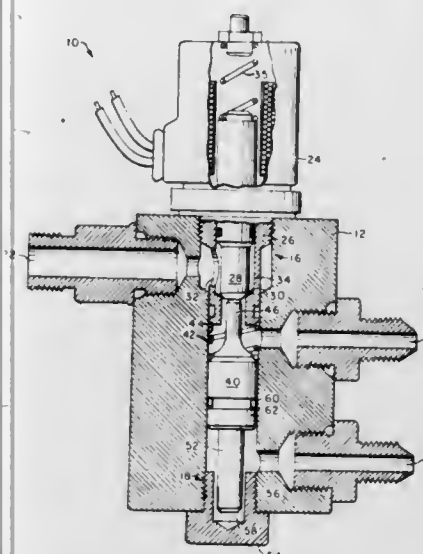
John D. Abbott, 26395 S. Corral Hollow Rd., Tracy, Calif. 95395

Filed May 7, 1981, Ser. No. 261,458

Int. Cl.³ F16K 17/32, 31/06

U.S. Cl. 137-523

4 Claims



1. A valve comprising means defining a housing, means defining a main bore in said housing having a first end and a second end, means defining an inlet port in fluid communication with said first end of said main bore, means defining an outlet port in fluid communication with said first end of said main bore, a solenoid valve having a valve plug and a valve seat disposed in said main bore between said inlet port and said outlet port, said plug of said solenoid valve biased against said seat of said solenoid valve when said solenoid valve is unenergized, means defining a second fluid flow channel in fluid communication with said second end of said main bore, a piston disposed in said main bore between said first and said second ends, means for applying hydraulic fluid pressure in said second channel whereby said piston moves toward and engages said solenoid valve plug and moves said plug away from said seat to permit the flow of fluid from said inlet port to said outlet port, and means for decelerating said piston when said piston moves away from said solenoid valve plug upon release of said hydraulic fluid pressure in said second channel.

4,391,297

MONO-RAIL BOOM SUPPORTED ARTICULATED SERVICE LINE

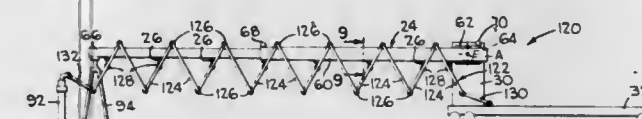
Houston W. Knight, Whittier, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Nov. 20, 1980, Ser. No. 208,767

Int. Cl.³ F16L 3/00

U.S. Cl. 137-615

20 Claims



1. A mono-rail boom supported articulated well service line for use in well service operations to interconnect a supply of pressurized fluid to a wellhead, comprising: an extendible mono-rail boom having a plurality of boom sections with an inboard boom section mounted on a mobile transport means and with the other boom sections extendible outward from said inboard boom sections;

means for supporting an outer portion of said boom when said boom is in an extended position; an articulated pipe well service line; a plurality of trolleys mounted for relative independent movement along the length of said boom with the movement of said trolleys independent of the extendible movement of said boom sections; means for connecting said service line to said trolleys for movement of said service line between a retracted position and an extended position when said boom is in an extended position; and means for disconnecting said service line from said trolleys for supporting said service line on the ground when said service line is at least partially extended.

4,391,298

MULTILINE PIGGABLE FLUID SWIVEL

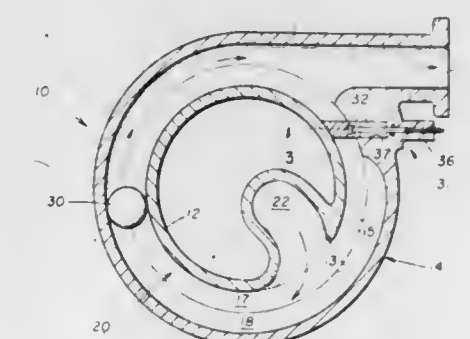
John E. Orloff, Houston, Tex., assignor to Exxon Production Research Co., Houston, Tex.

Filed Dec. 31, 1980, Ser. No. 221,738

Int. Cl.³ F16L 27/06

U.S. Cl. 137-615

13 Claims



1. A piggable fluid swivel comprising:

a first element having a first surface; a second element rotatably mounted on said first element so that said first and second elements rotate with respect to one another about a common axis, said second element having a second surface which rotatably mates with said first surface of said first element; a continuous fluid passage in said swivel defined by a first groove in said first surface and a second groove in said second surface which align opposite each other when said first and second elements are assembled; seal means for preventing flow from said fluid passage between said first and second surfaces; a first opening through said first element into said first groove to provide fluid communication between the exterior of said swivel and said fluid passage; a second opening through said second element into said second groove to provide fluid communication between the exterior of said swivel and said fluid passage; and fluid barrier means mounted on one of said elements for substantially blocking fluid flow in said continuous flow passage at the point of said barrier means, said fluid barrier means comprising:

a housing on said one of said elements having a recess therein which opens into said groove of said one of said elements; a baffle plate slidably positioned in said recess and being movable between (a) an open position wherein said baffle plate is sufficiently retracted within said recess so that substantially no part of said baffle plate extends into said groove on said one of said elements and (b) a closed position wherein said baffle plate sufficiently extends from said recess into said other groove on said other element to substantially block fluid flow through said continuous passage past said baffle plate, said baffle plate movement occurring substantially along a straight line coinciding with the longitudinal axis of said baffle

plate, said baffle plate having a sealing edge conforming to a corresponding portion of said other groove on said other element, whereby in response to said baffle plate being in said closed position, said continuous fluid passage is substantially completely sealed from fluid flow past said baffle plate; and means in said housing for moving said baffle plate back and forth between said open and closed positions.

4,391,299

ELECTRO FLUIDIC ACTUATOR

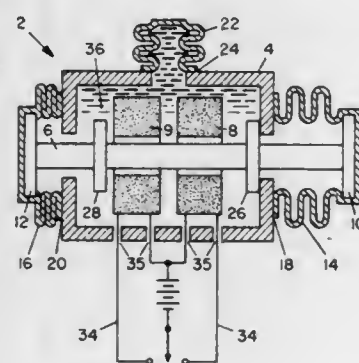
Allen B. Holmes, Rockville, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 21, 1980, Ser. No. 142,547

Int. Cl.³ G01V 1/04

U.S. Cl. 137-831

5 Claims



1. An actuator for converting electrical signals into power pulses in a working fluid, comprising a sealed, fluid-tight enclosure, including:

- a housing having a plurality of openings therein, and
- a like plurality of lightweight, low inertia bellows having open end portions which adjoin the housing in intimate contact therewith and which are aligned respectively with the housing openings, opposite closed end portions having one side in contact with the working fluid, and intermediate side portions which are highly compliant to movement of the closed end portions relative to the opposite open end portions and adjoining housing, the plurality of bellows including first and second working bellows and a pressure equalizing bellows;

electromechanical means, connected within the sealed enclosure between the housing and the closed end of each working bellows, for moving the closed end of each working bellows relative to the housing in accordance with the electrical signals to generate corresponding power pulses in the working fluid adjacent each working bellows, said electromechanical means comprising

- a movable shaft having one end connected to the closed end of the first bellows and an opposite end connected to the closed end of the second bellows,
 - a coil for urging said shaft in a first direction, and
 - a spring for urging said shaft in a second direction; and
- pressure equalizing means for equalizing pressure within the housing with pressure of the working fluid in contact with the pressure equalizing bellows, including
- an electrically non-conductive liquid which is disposed within and fills the sealed enclosure, and
 - the pressure equalizing bellows, which serves as a freely movable interface between the non-conductive liquid within the housing and the working fluid in contact with the pressure equalizing bellows.

4,391,300

PIPE PATCHING CLAMP

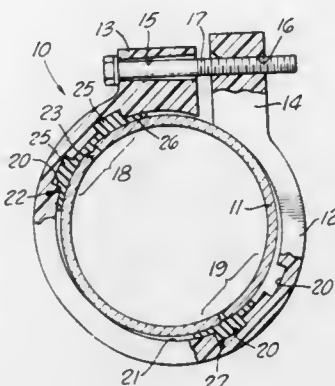
Arthur D. Saylor, Covina, and Henry L. Habegger, Anaheim, both of Calif., assignors to Habegger International, Pasadena, Calif.

Filed Sep. 2, 1980, Ser. No. 182,942

Int. Cl.³ F16L 55/16

U.S. Cl. 138-99

8 Claims



1. A pipe patching clamp for repairing fissures in pipes in situ, comprising:

- a one-piece non-metallic strap member formed into a cylinder and having a pair of dogs forming the respective opposite ends, said member being sufficiently resilient to enable separation of the member ends and receipt of the member about a pipe with inherent resiliency urging the strap member ends toward one another;

first and second longitudinally extending grooves on the member inner surface, the base of each groove and the groove opening at the strap member surface being of substantially same dimensions, said grooves being located at approximately 180 degrees to each other;

threaded means for securing the strap member dogs together and hold the strap member about the pipe; and

- a sealing strip of a resilient material, one side of the strip curved to conform to the inner surface of said strap member and including at least one integral tongue of such geometry enabling fitting receipt within a groove, the other side of said strip extending outwardly of the inner surface of the strap member.

4,391,301

HOLE REINFORCEMENT

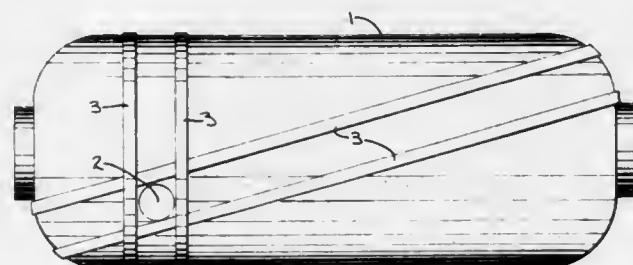
Fred R. Pflederer, Wauwatosa, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed Aug. 27, 1981, Ser. No. 296,809

Int. Cl.³ B65D 90/02; F16L 9/16

U.S. Cl. 138-103

2 Claims



1. A structural article comprising:

- a cylindrical wall having a longitudinal axis and formed of a cured thermosetting resin reinforced by fibrous material, said wall having an opening therein; and

a plurality of pairs of opening reinforcement bands, said bands comprising a series of continuous filaments encircling said wall and bonded to the outer surface of said wall, with said bands in each of said pairs being disposed

tangentially to the perimeter of said opening and on substantially opposite sides of said opening, one of said pairs of bands disposed substantially normal to the longitudinal axis of said cylindrical wall and at least one of said pairs of bands overlapping at least one other of said pairs of bands in the vicinity of said opening.

4,391,302

COUPLED TUBULAR CASING FOR FOODSTUFFS

Helmut Hubn, and Siegfried Kaiser, both of Walsrode, Fed. Rep. of Germany, assignors to Wolff Walsrode Aktiengesellschaft, Fed. Rep. of Germany

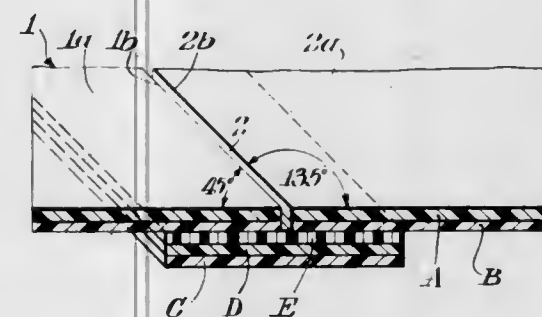
Filed Jan. 23, 1980, Ser. No. 114,655

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903117

Int. Cl.³ F16L 11/12

U.S. Cl. 138-118.1

11 Claims



1. A flexible shirtable coupled tubular casing for foodstuffs having a plurality of couplings the coupling seams of which are formed by adjacent ends of tubular casing portions to be coupled and a multilayered sealable foil, the adjacent ends of the tubular casing portions to be coupled each having a continuous circumferential edge portion which substantially lies in a plane extending at an oblique angle of 10° to 80° to the longitudinal axis of the tubular casing, and the foil placed in sealing engagement with and partially inside each of the adjacent ends of the tubular casing portions to be coupled and also extending at an oblique angle of 10° to 80° to the longitudinal axis of the tubular casing.

4,391,303

BAND-SHAPED DEVICE FOR FORMING A PIPE-SHAPED PROTECTION COVER

Stig L. Holgersson, Bredaryd, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

PCT No. PCT/SE80/00126, § 371 Date Jan. 3, 1981, § 102(e) Date Dec. 23, 1980, PCT Pub. No. WO80/02476, PCT Pub. Date Nov. 13, 1980

PCT Filed Apr. 29, 1980, Ser. No. 227,066

Claims priority, application Sweden, May 3, 1979, 7903842

Int. Cl.³ F16L 57/00

U.S. Cl. 138-166

6 Claims

1. An article for forming a tubular, protective cover around a cable, said article comprising a generally flat band of material having opposite upper and lower surfaces and end edges, one of said surfaces being planar, the other surface being provided with a plurality of spaced grooves extending parallel to said end edges, each groove having inclined sides which intersect to form an apex proximate said one planar surface to form a hinge thereat where said band can be folded to enable the band to surround a cable, said other surface of said band being relatively flat between said grooves to define a continuous planar surface, said band including elevations projecting beyond the plane of said other surface in continuation of said sides of said grooves on both sides of each groove such that with the band folded at the hinges, the elevations at the both sides of the respective grooves approach one another to provide a stiffening effect for the folded band around the cable, and locking means on said band on said band proximate said

end edges for holding the folded band around the cable, said material of the band being a soft, extruded plastic, the configu-



4,391,304

WARP TENSION STRUCTURE

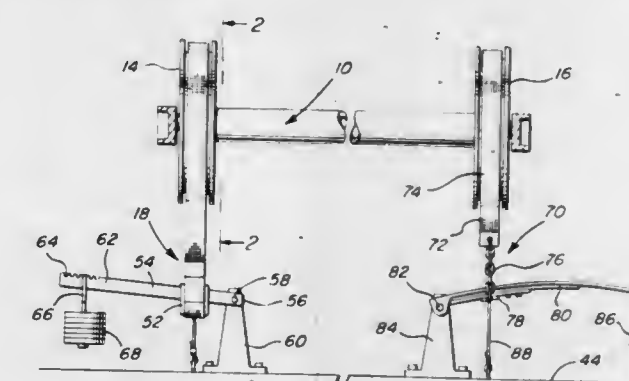
Ray M. Taylor, 1000 Park Ave., Quakertown, Pa. 18951, assignor to Ray A. Taylor, Quakertown, Pa.

Filed Apr. 16, 1981, Ser. No. 254,881

Int. Cl.³ D03D 49/04, 49/08; F16D 63/00

U.S. Cl. 139-100

8 Claims



1. A tensioning mechanism for a loom warp beam wherein the beam includes at least one cylindrical head, said mechanism defining a band including a discontinuous inner gripping ply extending about said head and an outer tensioning ply secured to and extending about the inner ply and having adjacent opposite ends, one of said ends including roller means journaled therefrom for rotation about an axis disposed transverse to the longitudinal extent of said one end, an elongated flexible tension member having one end anchored relative to the other end of said tensioning ply and extending therefrom and about said roller means and thereafter generally tangentially of said roller means in a direction generally opposite to the direction in which said tension member extends from said tension ply one end toward said roller means, means non-yieldingly anchoring the other end of said tension member relative to the axis of rotation of said head, said one end of said outer tensioning ply being anchored to the corresponding end of said inner ply, the other end of said outer ply extending from the side of said head opposite from the head side from which the other end of said tension member extends toward its anchored position relative to the axis of rotation of said head, said outer ply other end generally paralleling said tension member other end and variable force means oppositely connected to said other

end of said outer ply yieldingly biasing said other outer ply end in a direction in which it extends from said head.

4,391,305

WEFT PICKING DEVICE OF AIR JET TYPE WEAVING LOOM

Takao Takahashi, Hachioji, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

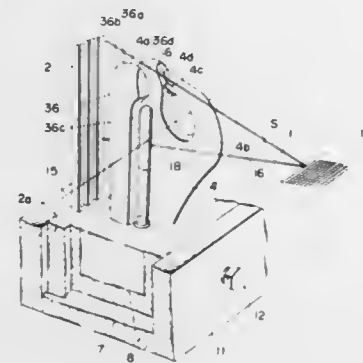
Filed May 12, 1980, Ser. No. 149,083

Claims priority, application Japan, May 18, 1979, 54-61767; Oct. 19, 1979, 54-134242; Jan. 14, 1980, 55-2121

Int. Cl.³ D03D 47/30

U.S. Cl. 139—435

15 Claims



1. A weft picking device of an air jet type weaving loom, comprising:

- a weft inserting nozzle for injecting a weft yarn under the influence of an air jet therefrom to insert the weft yarn into the shed of warp yarns;
- a plurality of air guide members each having a generally looped section defining at the inner peripheral surface thereof an air guide opening, said loop section having a slit through which the weft yarn can leave said air guide opening, said air guide openings forming an air guide channel through which the weft yarn is picked into the warp yarn shed;
- an auxiliary nozzle in the shape of a pipe and having a nozzle opening through which an auxiliary air jet is ejected to enhance an air stream produced by the air jet from said weft inserting nozzle so as to assist weft picking, said nozzle opening of said auxiliary nozzle being so formed that the extension of the axis thereof intersects the axis of said air guide channel at a predetermined angle and is perpendicular to a tangent line of said air guide opening of one of said air guide members at a point on said inner peripheral surface of said loop section thereof; and
- means for pushing aside the warp yarns when said auxiliary nozzle enters the array of warp yarns, said pushing aside means being located in the vicinity of said auxiliary nozzle and the dents of a reed.

4,391,306

COIL WINDING APPARATUS

Tokubito Hamane, Hirakata; Toshio Kinoshita, Katano; Masafumi Kihira, Hyogo; Hitosi Hamada, Yawata, and Mikio Gotou, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Feb. 23, 1981, Ser. No. 237,403

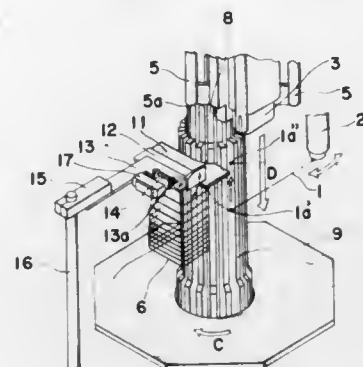
Int. Cl.³ B21F 3/00

U.S. Cl. 140—92.1

3 Claims

- A coil winding apparatus comprising:
 - a coil winding spool on which coils are to be wound;
 - a flyer member for winding electric wire around said coil winding spool to form the coils;
 - a coil inserting jig which is positioned adjacent said spool member for receiving thereon coils formed on said spool member and rotatably supported for rotation with respect to said coil winding spool for having portions moved past

said winding spool for receiving respective coils on the different portions of said winding spool; coil depressing means movable past said winding spool toward said coil inserting jig for moving coils off said winding spool onto said coil receiving jig; and a stop disposed beside said coil inserting jig and being reciprocally pivotable around an axis perpendicular to the



direction of movement of said coil depressing means only between a position in which it extends directly toward said coil inserting jig and a position in which it is pivoted away from said coil depressing means to leave space between said stop and said coil inserting jig for passage of a coil onto said coil inserting jig, whereby coils already accommodated on said coil inserting jig are prevented from moving past said stop toward said winding spool.

4,391,307

WIRE STRAIGHTENING AND CUTTING MECHANISM

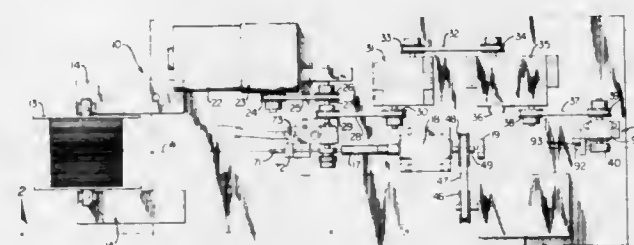
George W. Levi, Littleton, and Kalman Kanyo, Westminster, both of Colo., assignors to G&D, Inc., Denver, Colo.

Filed Jan. 30, 1981, Ser. No. 229,781

Int. Cl.³ B21F 1/02

U.S. Cl. 140—140

18 Claims



- In a wire straightening and cutting apparatus adapted to cut wire of varying lengths from a supply source having a continuous length of wire, wire feeding means for advancing said continuous length of wire in a lengthwise direction from said supply source, wire straightening means downstream of said feeding means through which said continuous length of wire is advanced, and guide means downstream of said wire straightening means to permit said continuous length of wire to float unrestrained from said wire straightening means, and a cutter mechanism including a cutter blade and rotary drive means for rotating said cutter blade in correlated relation to said wire feeding means including means to vary the speed of rotation of said cutter blade in relation to the rate of advancement of said wire as established by said feeding means in regulating the length of wire which is cut by said cutter blade.

4,391,308

SOAP DISPENSING SYSTEM

Robert L. Steiner, Chicago, Ill., assignor to Steiner Corporation, Salt Lake City, Utah

Filed Apr. 16, 1981, Ser. No. 255,034

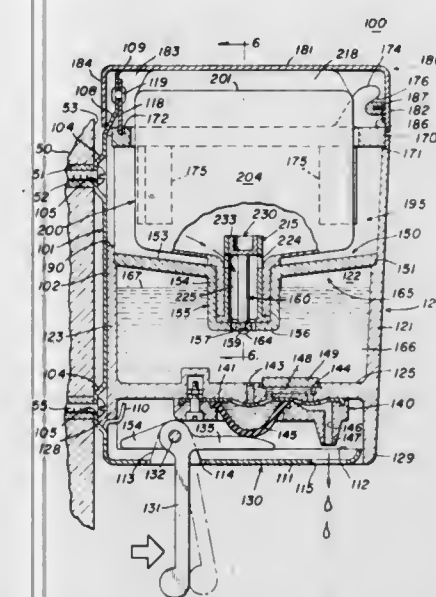
Int. Cl.³ B65B 3/04

U.S. Cl. 141—18

49 Claims

- A system for dispensing liquid soap comprising a closed

wall structure defining a container, partition means separating said container into a lower liquid soap reservoir and an upper refill compartment, dispensing means carried by said container for dispensing liquid soap from said reservoir, a refill well having a refill aperture therethrough providing communication between said reservoir and said refill compartment and dimensioned to permit the free flow of liquid soap there-through, a pusher member disposed in said refill well extending upwardly toward said upper refill compartment, a refill cartridge containing liquid soap and having an outlet, a tubular drain adaptor in said refill cartridge in sealing relation with said outlet providing communication through said tubular



drain adaptor between the inside and outside of said cartridge, and a stopper in said tubular drain adaptor slidable between a sealed position thereof wherein liquid in said refill cartridge is sealed therein and an open position thereof wherein said stopper is positioned away from said outlet to permit free flow of soap therefrom, said refill cartridge being removably enclosed within said refill compartment in a refill configuration with said outlet disposed for cooperation with said refill well, said pusher member sliding said stopper within said tubular drain adaptor to the open position thereof when said refill cartridge is in the refill configuration thereof to permit the free flow of liquid soap from said refill cartridge to said reservoir thereby to refill same.

4,391,309

SOAP DISPENSING SYSTEM

Robert L. Steiner, Chicago, Ill., assignor to Steiner Corporation, Salt Lake City, Utah

Filed Apr. 16, 1981, Ser. No. 255,035

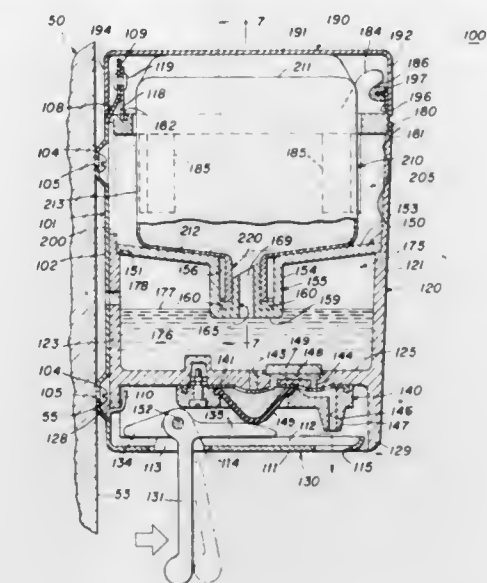
Int. Cl.³ B65B 3/04

U.S. Cl. 141—18

35 Claims

- A system for dispensing liquid soap comprising a closed wall structure defining a container, partition means separating said container into a lower liquid soap reservoir and an upper refill compartment, dispensing means carried by said container for dispensing liquid soap from said reservoir, a refill aperture in said partition means providing communication between said reservoir and said refill compartment, a refill cartridge containing liquid soap and having an outlet, and slot and key mechanism carried by the end of said refill cartridge outlet and said container for maintaining said cartridge in a predetermined refill configuration and in communication with said refill aperture, said refill cartridge being removably enclosed within said

refill compartment in a refill configuration with the end of said refill cartridge outlet disposed for cooperation with said refill



aperture to permit flow of liquid soap from said refill cartridge to said reservoir thereby to refill said reservoir.

4,391,310

BAG FILLER SPOUT

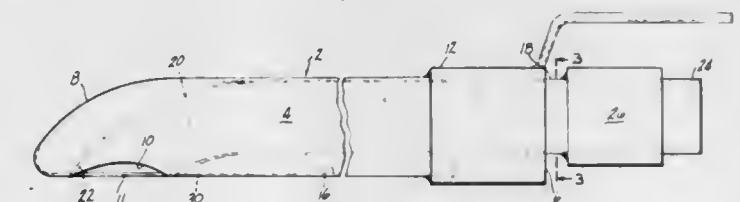
J. George Lepisto, Middletown, Ohio, assignor to Champion International Corporation, Stamford, Conn.

Filed Sep. 22, 1981, Ser. No. 304,358

Int. Cl.³ B65B 1/18

U.S. Cl. 141—286

3 Claims



- A filler spout for use in feeding a stream of flowable material into a closed end multi-wall bag to facilitate insertion of the spout into the bag without damaging the inner wall thereof, and to ensure a constant volume passage for exhaust from the bag as the bag is filled by the flowable material, said spout comprising:

- an outer tubular shroud member having a blunt curvilinear closed end and an opposite open end, an exhaust port formed in the side wall of the shroud member, and a discharge opening formed in the side wall of said shroud member intermediate said blunt curvilinear closed end and said exhaust port; and
- an open ended material delivery tube disposed within the bore of said shroud member and spaced from the wall thereof so as to define an exhaust passage, one end of said exhaust passage being in communication with said exhaust port and the other end of said exhaust passage opening to ambient surroundings through the open end of said shroud member, said delivery tube having an inlet end adapted for connection with a material impelling machine, and an outlet end disposed contiguous to said discharge opening of said shroud member, said inlet end of said delivery tube projecting outwardly beyond said open end of said shroud member, said delivery tube having a first straight line portion extending from said inlet end into said shroud member and a second curvilinear portion extending from said first portion to said outlet end, said delivery tube being operable to divert the direction of a stream of material impelled therethrough approximately 90° from said inlet end to said outlet end whereby said exhaust passage

is maintained at a constant volume by said shroud member and whereby said closed curvilinear blunt end of said shroud facilitates entry of the spout into the bag without damaging the inner wall thereof.

4,391,311

LOG SPLITTING DEVICE

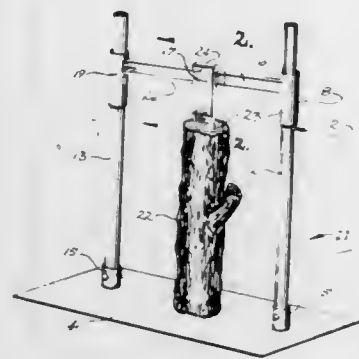
Warren Levercom, 3901 Main St. NE., Blaine, Minn. 55434

Filed Mar. 16, 1981, Ser. No. 244,251

Int. Cl.³ B27L 7/00

U.S. Cl. 144—193 D

9 Claims



1. A log splitting device comprising:
 - a pair of vertical rails spaced apart and parallel to one another,
 - a splitting blade slideably connected between the rails,
 - a wedge secured to the splitting blade and extending below the lower level thereof with its cutting surface facing downward, and
 - a base plate adapted for securing the rails in vertical position with the splitting blade mounted thereon.

4,391,312

LOG SPLITTING HEAD

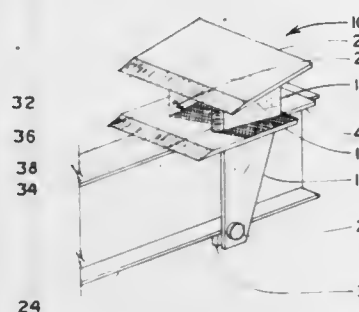
Gerard J. Sakraida, Jr., R.D. #2, Douglas Rd., Beaver Falls, Pa. 15010

Filed Jun. 1, 1981, Ser. No. 268,783

Int. Cl.³ B27L 7/00

U.S. Cl. 144—193 E

16 Claims



1. A log splitting head comprising:
 - A. a baseplate;
 - B. first and second vertical cutting plates opposed and spaced from each other and mounted to and perpendicular with the baseplate, each including a cutting edge;
 - C. a horizontal cutting plate mounted to and supported by the first and second cutting plates, and also including a cutting edge; and
 - D. means for securing the baseplate to the main frame of a log splitting machine.

4,391,313

TIRE CHAIN

Erhard A. Weidler, Aalen-Unterkochen, Fed. Rep. of Germany, assignor to RUD-Kettenfabrik Rieger & Dietz GmbH u. Co., Aalen, Fed. Rep. of Germany

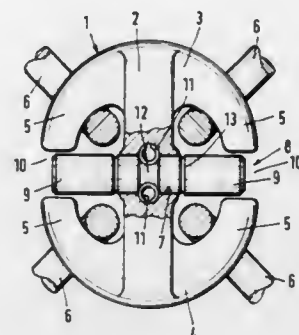
Filed Sep. 9, 1982, Ser. No. 416,153

Claims priority, application Fed. Rep. of Germany, Sep. 17, 1981, 3137310

Int. Cl.³ B60C 27/00

U.S. Cl. 152—171

18 Claims



1. Tire chain with a net configuration having nodal points, in which at least three chain links are mutually connected in the region of the nodal points via a component which is arranged horizontally, that is to say parallel to the tire surface, and is provided with hook-shaped holding arms and insertion slots for hanging the chain links in and with at least one closure element for the insertion slots, characterised in that the component (1;14;21;24;30;33;36;38;41;47;48) has at least one substantially T-shaped section, of which the transverse bar (3,4;16) has curved legs which form holding arms (5;17,18) and the longitudinal bar (2;15) is provided with a bore (7), the axis of which runs substantially in the centre plane of the holding arms (5;17,18) and which serves to receive the centre part of a bolt-shaped closure element (8;20;22;25;28;31;32;34;35;39;42;45;49;50), the mutually opposite ends of which form locking pins (9) for the chain links (6) hung into the holding arms (5;17,18) of the T-shaped section and into at least one further holding arm (19).

4,391,314

SNOW TIRE SPIKES

Jiro Inamoto, Amagasaki, and Naobiro Hayata, Kakogawa, both of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka and Sumitomo Rubber Industries, Ltd., Kobe, both of, Japan

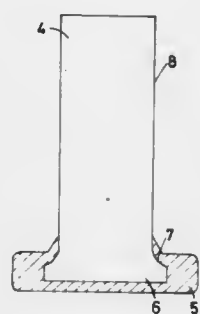
Filed Apr. 2, 1981, Ser. No. 250,302

Claims priority, application Japan, Apr. 7, 1980, 55-45423

Int. Cl.³ B60C 11/00

U.S. Cl. 152—210

6 Claims



1. A snow tire spike which comprises:
 - a single, integral spike body made of a ceramic material, said spike body having a first end, defined by a first radially outer annular surface, for anchoring said spike in a tire, and a second end, defined by a second radially outer annular surface, for contacting the ground when said spike

is in use in the tire, said first end having a diameter larger than, but smaller than 1.5 times, the diameter of said second end, said first and second radially outer annular surfaces being joined by a third radially outer annular surface to form a continuous smooth surface at least from said second end to said first surface; and
a flange made of a plastic material coated directly on at least said first surface of said spike body, on the entirety of said first surface.

4,391,315

TIRE CHAIN WITH ATTACHING DEVICE

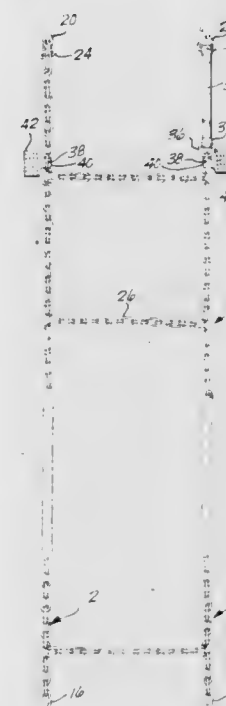
Gerald D. Jacobson, 1816 113 Dr. SE., Everett, Wash. 98205

Filed Jul. 13, 1981, Ser. No. 282,505

Int. Cl.³ B60C 27/00

U.S. Cl. 152—213 A

5 Claims



1. An anti-skid tire appliance adapted to be installed onto and removed from a vehicle tire, comprising:
 - a first elongated flexible side member adapted to extend circumferentially of the tire along the outer sidewall of the tire;
 - a second elongated flexible side member adapted to extend circumferentially of the tire along the inner sidewall of the tire;
 - a series of spaced apart cross members, connected at their ends to the side members and extending laterally across the tread of the tire, from one side member to the other; said appliance having first and second ends;
 - each said side member having ring means at the first end of the appliance;
 - each said side member having an end portion at the second end of the appliance which extends outwardly beyond the end-most cross member at the second end of the appliance;
 - each said end portion having a hook at its outer end engageable with the ring means at the first end of the appliance, for securing the two ends of the appliance together and the appliance on the tire;
 - a first sidewall gripping member at the second end of the appliance, connected to the first side member adjacent said end-most cross member;
 - a ring adjacent said first sidewall gripping member;
 - a second sidewall gripping member at the second end of the appliance, connected to the second side member of the appliance adjacent said end-most cross member;
 - each said sidewall gripping member comprising sharply pointed members adapted to dig into and grip a sidewall portion of the tire when placed against such sidewall portion and pulled on towards the tread; and
 - said end portion of said second side member extending out-

wardly from the second sidewall gripping member and being constructed from an elastic material, and being adapted to be extended across the tire and stretched, to engage the hook at its end onto the ring means adjacent the first tire gripping member, so that when stretched said elastic end portion will exert a drawing force on the two tire gripping members, in the direction of the tread, for forcing the sharply pointed members into gripping engagement with the sidewalls of the tire.

4,391,316

ANTI-SKID DEVICE FOR VEHICLE WHEELS

Gianfranco Seggio, Via Tracia 7, Milan, Italy

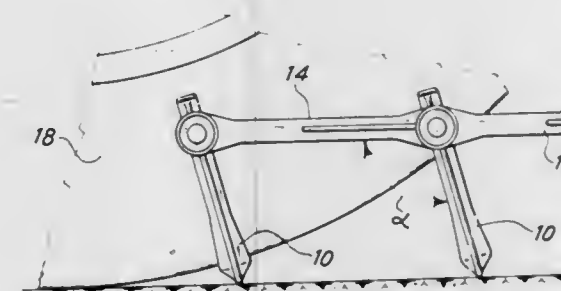
Filed Sep. 16, 1981, Ser. No. 302,770

Claims priority, application Italy, Sep. 17, 1980, 22768/80[U]

Int. Cl.³ B60C 27/00

U.S. Cl. 152—213 A

10 Claims



1. An anti-skid device or skid chain for vehicle tires mounted on wheels comprising:
 - a plurality of U-shaped elements for radial mounting on said tires, each of said U-shaped elements including a base portion and first and second arm portions;
 - a first series of connecting levers each disposed between and pivotally affixed on the ends thereof to adjacent ones of said first arm portions;
 - a second series of connecting levers each disposed between and pivotally affixed on the ends thereof to adjacent ones of said second arm portions;
 - interlocking means for selectively substantially interlocking said U-shaped elements to said levers of said first and second series of levers in a range of positions such that said first and second arms of said U-shaped elements are disposed within a preselected range of angles relative to said levers of said first and second series; and
 - locking means for locking said levers of said first series to adjacent said levers of said first series within a preselected degree of movement, and for locking said levers of said second series to adjacent said levers of said second series within a preselected degree of movement.

4,391,317

BAND DEVICE FOR RETAINING A TIRE ON A WHEEL RIM

Bernard J. Savage, 7 Seymour Mews, London W.1, England

Filed Aug. 13, 1981, Ser. No. 292,706

Claims priority, application United Kingdom, Aug. 15, 1980, 8026636

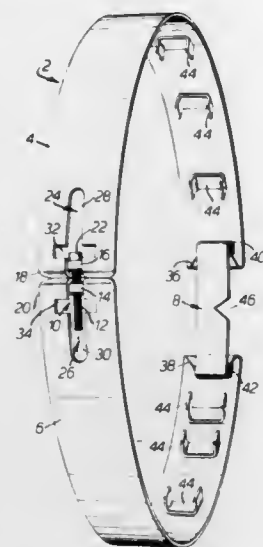
Int. Cl.³ B60B 25/12, 21/10; B60C 29/00

U.S. Cl. 152—330 RF

6 Claims

1. A band device for retaining a tire on a wheel rim in the event that the tire should become deflated, which band device comprises a first band portion which is part circular for substantially its entire length, a second band portion which is part circular for substantially its entire length and which is substantially the same size as the first band portion, a link portion which is part circular for substantially its entire length and which is for joining the first and second band portions together at one end, and fastener means for joining the first and

second band portions together at their other ends whereby the band portions and the link portion are retainable in position around a base of a wheel rim, the link portion having an apertured part for receiving a valve of a tube of a tire, the link portion being hooked at each end for connecting to inwardly directed ends of the first and second band portions whereby the link portion is positioned in use on the side of the band device that is adjacent the base of the wheel rim so that the inwardly directed pressure of the tire serves to bind the first



and second portions and the link portion tighter around the base of the wheel rim with increasing pressure, and the band device including a plurality of legs which are secured at spaced apart intervals to the first and second band portions on the side of the band device that is adjacent the base of the wheel rim, the base of the wheel rim having a well with an open mouth, and the legs being locatable in the well such that they support the first and second band portions in a well-blocking position at the mouth of the well and such that they allow the first and second band portions to flex with the wheel rim.

4,391,318

COMPOSITE OF RUBBER AND METAL REINFORCEMENT THEREFOR

Frank S. Maxey, deceased, late of Uniontown, Ohio (by Gertrude Maxey, legal representative), and Syed K. Mowdood, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 11, 1981, Ser. No. 262,163

Int. Cl.³ B60C 1/00; B32B 25/02

U.S. Cl. 152—359

17 Claims

1. A composite of rubber composition containing zinc oxide, carbon black, optionally and/or mineral fillers, cure accelerator(s), fatty acid and/or metal salt thereof, and filament reinforcement therefor where said filament is selected from at least one of steel, organic and inorganic filaments, optionally as a multiple of filaments cabled together to form a cord, characterized in that (i) when said filament or cord thereof is steel, said rubber composition contains (A) about 0.05 to 8 phr of a compound selected from at least one of diallyl cyanurate, triallyl cyanurate, tris(2-hydroxyethyl) cyanurate, triphenyl cyanurate, diallyl isocyanurate, triallyl isocyanurate, and 4-ketobenz triazine and, optionally, (B) about 0.05 to about 10 phr of at least one borate as the product of (i) a metal selected from Groups IA, IIA, IIB, IVA, IVB, and VIII of the Periodic Table of the Elements, and (ii) an acid selected from the group consisting of boric, orthoboric, metaboric or polyboric acid; and when said filament or cord thereof is not steel the rubber composition contains both the (A) compound and the (B) borate.

4,391,319

APPARATUS FOR INTRODUCING ELEMENTS INTO MOLTEN METAL STREAMS AND CASTING IN INERT ATMOSPHERE

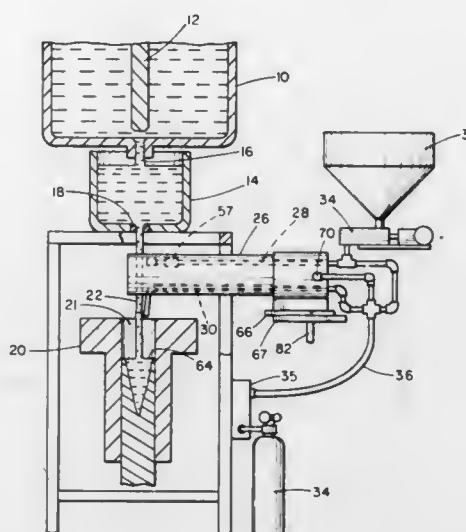
Lawrence J. Heaslip, Toronto, Canada; Alpha L. Hohulin, Tremont, and Joseph R. Mitchell, Peoria, both of Ill., assignors to Keystone Consolidated Industries, Inc., Peoria, Ill.

Continuation of Ser. No. 70,347, Aug. 27, 1979, abandoned. This application Jun. 29, 1981, Ser. No. 278,719

Int. Cl.³ B22D 35/04, 11/10

U.S. Cl. 164—259

4 Claims



1. In a casting system including a casting mold and a tundish arranged above the casting mold, the improvement of apparatus for adding an alloy material to a molten metal stream flowing from the tundish into the casting mold comprising in combination:

a hollow tube generally extending in a horizontal direction, said tube having a closed end and an open end; means associated with the hollow tube for positioning the open end of the hollow tube between the tundish and the casting mold and adapted to be in opposed relation to and on one side of a molten metal stream and for maintaining the tube generally transverse to a direction of travel of a molten metal stream from the tundish to the casting mold; means associated with the closed end of the hollow tube for supplying inert gas to said hollow tube for discharge from the open end toward and around a molten metal stream, said open end being unblocked to permit visual observation of a molten metal stream on a side opposite the open end;

means mounted in the hollow tube to reduce the velocity of the inert gas supplied to the hollow tube to produce a low velocity gas exiting the open end of the hollow tube;

an alloy feed tube positioned within the hollow tube, said alloy feed tube including an inert gas inlet, and alloy inlet for receiving pellets of alloy material and a discharge nozzle arranged at the open end of the hollow tube and having an outlet directed toward the open end of the hollow tube;

means associated with the alloy feed tube for supplying a mixture of alloy material and inert gas at a relatively higher velocity than the velocity of said low velocity gas to the alloy feed tube;

a gas feed tube in the hollow tube having an outlet at the open end of the hollow tube, said outlet being arranged to direct inert gas toward said casting mold; and means in the alloy feed tube for directing the alloy pellets by flow of said relatively higher velocity inert gas into the molten metal stream simultaneous with the low velocity inert gas flow which envelopes the molten metal stream.

4,391,320

METHOD AND AN APPARATUS FOR AIR CONDITIONING FOR VEHICLES BY CONTROLLING CIRCULATION OF INSIDE AIR AND INTRODUCTION OF OUTSIDE AIR

Yozo Inoue, Chiryu; Yoji Ito; Kiyoshi Hara, both of Kariya; Kiyoshi Usami, Oobu, and Yasuhiro Iwata, Aichi, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

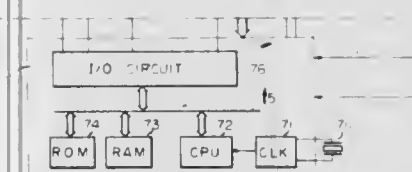
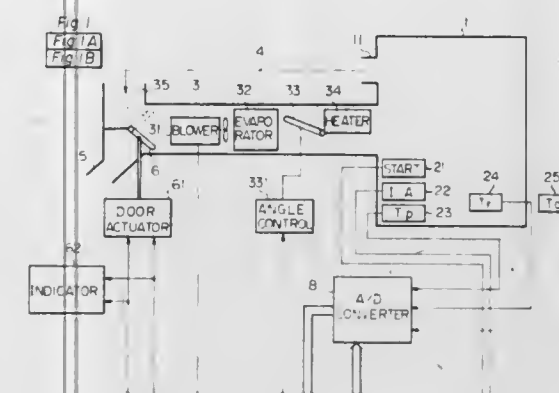
Filed Jul. 22, 1980, Ser. No. 171,030

Claims priority, application Japan, Jul. 24, 1979, 54-94769

Int. Cl.³ F25B 29/00

U.S. Cl. 165—2

3 Claims



1. A method for air conditioning for vehicles with passenger compartments by controlling circulation of inside air and introduction of outside air in which an inlet for inside air and an inlet for outside air are selectively opened and closed, and the circulation of inside air and the introduction of outside air are selectively effected, characterized in that said method comprises: a step of detecting a temperature of a vehicle passenger compartment, atmospheric temperature and a preset temperature in an initial period of air conditioning, a step of judging the results of comparisons between said temperatures, a step of switching between air conditioning by the circulation of inside air and air conditioning by the introduction of outside air, a step of producing an instruction for the introduction of outside air if either the passenger compartment temperature is higher than the atmospheric temperature and higher than a preset temperature or if the passenger compartment temperature is lower than the atmospheric temperature and lower than a preset temperature, and a step of producing an instruction for the circulation of inside air if one of the following conditions is established:

- the passenger compartment temperature is higher than the atmospheric temperature and lower than a preset temperature,
- the passenger compartment temperature is lower than the atmospheric temperature and higher than a preset temperature.

4,391,321

HEAT EXCHANGER IN PLANTS FOR VENTILATING ROOMS OR BUILDINGS

Svante Thunberg, Observatoriegatan 12, S-113 29 Stockholm, Sweden

PCT No. PCT/SE80/00085, § 371 Date Nov. 20, 1980, § 102(e) Date Nov. 20, 1980, PCT Pub. No. WO80/02064, PCT Pub. Date Oct. 2, 1980

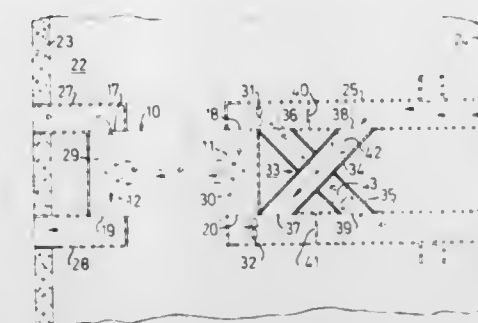
PCT Filed Mar. 21, 1980, Ser. No. 217,019

Claims priority, application Sweden, Mar. 21, 1979, 7902549

Int. Cl.³ F24H 3/06

U.S. Cl. 165—54

2 Claims



1. In a ventilating system for a building: first and second duct systems separated by partition walls and arranged in heat-exchange relationship such that heat may be transmitted from air flowing through one duct system, through the partition walls, to air flowing through the other duct system; reversible fan means associated with each duct system for passing air through the two duct systems countercurrently; a first outside air duct placing one end of the first duct system in communication with outside air and a first inside air duct placing the other end of the first duct system in communication with inside air; a second outside air duct placing one end of the second duct system in communication with outside air and a second inside air duct placing the other end of the second duct system in communication with inside air; and valve means for controlling air flow including first and second branch ducts arranged in crossing relationship, each branch duct having a first end connected to said first inside air duct and a second end connected to said second inside air duct, a non-return valve in each said first and second inside air ducts at locations between the connections of the branch ducts to said first and second inside air ducts, and a non-return valve in each said branch duct, the arrangement being such that in one mode of fan operation outside air flows through said first outside air duct, said first duct system, said first branch duct and into said second inside air duct while inside air flows through said first inside air duct, said second branch duct, said second duct system into said second outside air duct, and in another mode of fan operation outside air flows through said second outside air duct, said second duct system into said second inside air duct while inside air flows through said first inside air duct, said first duct system into said first outside air duct.

4,391,322

WIRE GUIDE FOR USE WITH A HEAT EXCHANGE UNIT

Joseph A. Ciarlei, Brewerton; Curtis L. Tobin, Chittenango, and William B. Jennings, Clay, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 3, 1980, Ser. No. 202,980

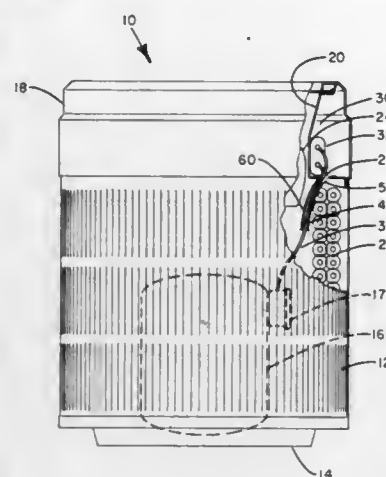
Int. Cl.³ F28F 13/12

U.S. Cl. 165—125

6 Claims

1. A heat exchange unit comprising: support means for supporting the unit; a heat exchanger mounted to the support means and extending about at least a portion of the periphery of the unit; a fan for circulating air in heat exchange relation with the heat exchanger; means defining a control area circumferentially spaced about the fan and adjacent the heat exchanger wherein at least

one electrical component of the heat exchange unit may be mounted, said means additionally defining a wire guide opening; and



a wire guide connected to extend through the wire guide opening and between the fan and the heat exchanger, said wire guide defining a wire securing cavity and including means for connecting the wire guide to the means defining the control area.

4,391,323

BAFFLE FOR HEATING PIPES

Erhard Schnier, Roemerstr. 18, D-7143 Vaihingen/Enz 7 (Württemberg), Fed. Rep. of Germany

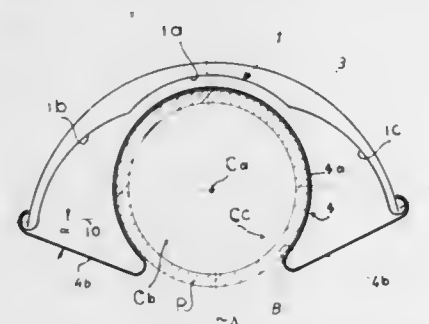
Filed Jan. 7, 1981, Ser. No. 223,097

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1980, 8000478[U]

Int. Cl.³ F28F 1/20; F24D 19/06

U.S. Cl. 165—183

9 Claims



1. A reflector, particularly for mounting above a heating pipe to reflect heat radiated upwardly by the pipe, comprising an elongated sheet-material reflector body having at least three parallel longitudinally extending concave sections each of which is arcuately curved in transverse direction; each of said arcuately curved sections having a center of curvature, the center of curvature of a center one of said sections being located in a vertical longitudinal plane of symmetry of said reflector body; and the centers of curvature of the sections which flank said center section being laterally spaced from said vertical plane in mutually opposite direction and being spaced from the center of curvature of said center section in a direction away from the center section.

4,391,324

GEOTHERMAL WELL HEAD AND ACTUATOR ASSEMBLY

Lehman T. Reed, Bakersfield, Calif., assignor to Midway Fishing Tool Co., Long Beach, Calif.

Filed Aug. 10, 1981, Ser. No. 291,377

Int. Cl.³ E21B 37/04

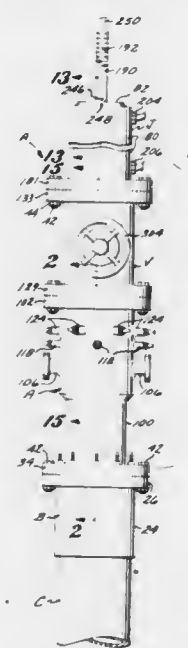
U.S. Cl. 166—70

8 Claims

1. In combination with a geothermal well that has a string of casing that extends to a producing zone, said string of casing having an upper end, a device in communication with said

upper end that controls the flow of geothermal fluid from said well, said device capable of having solid deposited material scraped from the interior surface thereof without shutting down said well, said device including:

- a first assembly that includes an elongate tubular body that has upper and lower ends and is vertically disposed; first means that effect communication between said lower end of said tubular body and said upper end of said casing; upper and lower longitudinally spaced sets of pins supported on said tubular member that may be moved inwardly and outwardly relative thereto, each of said upper and lower pins having an inner end portion; at least one tubular boss that projects outwardly from said tubular body below said lower set of pins; and a valve in communication with said tubular boss for controlling the flow of geothermal fluid therefrom;
- a gate valve that includes an elongate valve body that when vertically disposed has upper and lower ends, a transversely movable valve member, and said valve body having a longitudinally extending interior passage of at least as great transverse cross section as that of the interior of said tubular body;
- second means for securing said lower end of said gate valve to said upper end of said tubular body;
- a hydraulic cylinder assembly that includes a hydraulic cylinder that has a top and bottom; a piston slidably



mounted in said cylinder; third means for discharging hydraulic fluid under pressure into and out of said cylinder to move said piston upwardly and downwardly therein; fourth means for removably securing said bottom of said hydraulic cylinder to said upper end of said gate valve; a graduated rod that extends upwardly through a seal defining opening in said top of said hydraulic cylinder; an actuating member that extends downwardly from said piston through a seal defining opening in said bottom of said hydraulic cylinder, downwardly through said gate valve body when said valve member is in an outwardly disposed position; a transverse pin on a lower portion of said actuating member, which pin has projecting end portions; and a force exerting member supported from said actuating member above said pin;

- a plug assembly that includes a rigid body that has a cylindrical sidewall, a top surface, and a bottom surface that may be disposed in said tubular body; a circular recess in said sidewall that extends downwardly from said top surface to terminate in a circular body shoulder; resilient packing means in said recess; a cavity that extends downwardly from said top surface into rigid body to terminate in a bottom, said cavity having a pair of vertical grooves extending outwardly from the portion thereof adjacent said top, said pair of grooves that extend from intermediate positions of said vertical grooves, said vertical and

horizontal grooves being removably engageable by said projecting end portions of said transverse pin; a plurality of slots that extend upwardly in said cylindrical sidewall from said bottom surface that may be radially aligned with said lower pins; a rigid force receiving ring that has a downwardly extending first leg that abuts against said packing means and an inwardly extending second leg that may be contacted by said force exerting ring, said force receiving ring having a plurality of circumferentially spaced grooves therein that may be engaged by said upper pins when said packing means is compressed by downward movement of said first leg of said force receiving ring; spring means in said cavity that exert an upward force on said actuator member that tends to maintain said end portions of said transverse pin above said horizontal slots when said end portions are in said vertical grooves; and fifth means that slidably connect said force receiving ring to said body of said plug assembly, with said force receiving ring only compressing said packing means into sealing contact with the interior surface of said tubular body of said first assembly until after said transverse pin end portions have moved downwardly in said vertical grooves below said horizontal grooves; with said graduated rod visually indicating the position of said plug assembly in said tubular body;

- first and second insignias on said graduated rod and said top of said hydraulic cylinder which when in a predetermined position relative to one another indicate said slots and grooves are radially with said upper and lower pins; and

g. sixth means for rotating said graduated rod together with said piston and actuating member, with said plug assembly being in a sealing position in said tubular body when said lower pins have said inner end portions in engagement with said slots and said inner end portions of said upper pins engage said grooves; with said plug scraping said foreign material from the interior of said tubular body of said first assembly when said graduated rod, piston and actuating member are rotated to dispose said transverse pin end portions in said horizontal slots, said lower pins are moved outwardly from disengagement from said slots, and said piston is caused to move said actuating member and plug assembly downwardly in said tubular member for said teeth to scrape said foreign material therefrom; said plug assembly being returned to a sealing position when said first and second insignias are aligned, said plug is moved upwardly in said tubular body to a position where said slots are above said lower pins, said lower pins are moved inwardly, said plug assembly is moved downwardly for said inner end portions of said pins to engage said slots, said actuating member, piston and graduated rod are rotated to dispose said transverse pin end portions in said vertical grooves, said actuating member is moved downwardly to move said force exerting ring and force receiving ring downwardly until said grooves are below said upper pins, said upper pins are moved inwardly to engage said grooves to maintain said packing means in compressed sealing contact with the interior surface of said tubular body of said first assembly; and said plug assembly, actuator rod and hydraulic cylinder assembly capable of being removed from said first assembly by rotating said actuator rod to dispose said inner end portions of said transverse pins in said horizontal slots, moving said upper pins outwardly from engagement with said grooves, moving said plug assembly upwardly in said elongate body of said gate valve above said transversely movable valve member, and moving said valve member to an inwardly disposed position whereupon said hydraulic cylinder assembly, actuator member and plug assembly may be removed from said gate valves without shutting down said well.

4,391,325

LINER AND HYDRAULIC LINER HANGER SETTING ARRANGEMENT

Samuel F. Baker, Conroe, and Ronald D. Arnold, Missouri City, both of Tex., assignors to Texas Iron Works, Inc., Houston, Tex.

Filed Oct. 27, 1980, Ser. No. 201,309

Int. Cl.³ E21B 23/04

U.S. Cl. 166—208

10 Claims



1. In a hydraulic liner setting arrangement for setting a liner in a well bore casing wherein the setting arrangement includes a setting tool with a tubular mandrel forming part of a pipe string which is connected to, and extends into, the liner including a housing which surrounds and extends longitudinally of the liner so that the liner and housing form inner and wall portions defining an annular recess, the invention comprising:

- longitudinally extending piston means including seal means to sealably engage said piston means in the recess and said piston means having a cone shaped end;
- means to secure said piston means against premature upward movement into the recess;
- slip means;
- means releasably securing said slip means to the liner;
- port means in the liner for communicating fluid from the tubular mandrel to the recess to move said piston means downwardly in the recess and engage said cone shaped end with said slip means and thereby urge said slip means into engagement with the well bore casing for securing the liner to the casing; and
- said seal means on said piston means including spaced seal means sealably engaging the inner wall of the recess, said piston means being retractable into the recess by lowering the setting tool and liner relative to said piston means after said slip means engages the casing, said spaced seal means being located on said piston means so as to span the housing port means to thereby seal off communication between the port means and recess.

4,391,326

STINGER ASSEMBLY FOR OIL WELL TOOL

Donald R. Greenlee, Cedar Hill, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jan. 22, 1981, Ser. No. 227,291

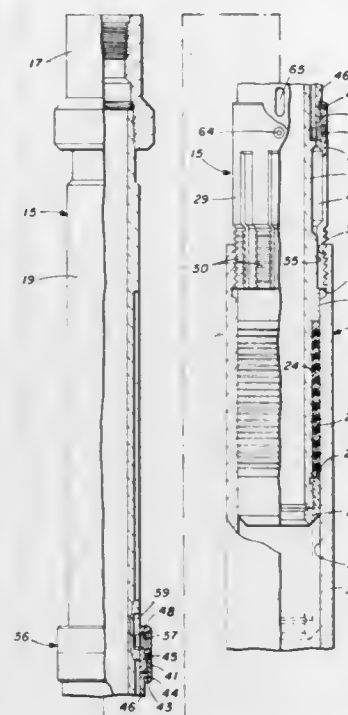
Int. Cl.³ E21B 23/00

U.S. Cl. 166—240

12 Claims

2. A stinger assembly for use in releasably connecting an upper section of a tubing string to a tool in a well including a mandrel having a master cam slot therein defining upper and lower support shoulders, an indexable collar telescoped onto

said mandrel, a follower connected to said collar and extending into said master cam slot, a collet journaled on said collar and having a plurality of radially flexible spring-fingers connected thereto for latching said mandrel to the tool, said mandrel having an outer surface for blocking said fingers from deflect-



ing inwardly and a recess wherein said fingers are free to deflect radially inwardly for connecting to and releasing from the tool, said upper support shoulder locating said spring-fingers vertically in registry with said recess when engaging said follower.

4,391,327

SOLVENT FOAM STIMULATION OF COAL DEGASIFICATION WELL

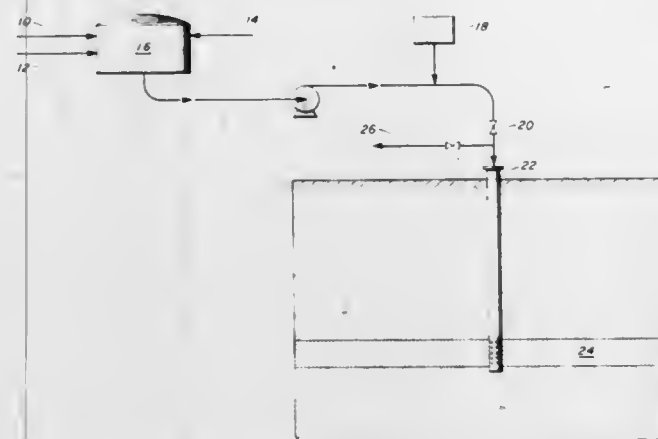
Leonard J. De Carlo, Morgantown, W. Va., assignor to Conoco Inc., Ponca City, Okla.

Filed May 11, 1981, Ser. No. 262,575

Int. Cl.³ E21B 43/26, 43/27

U.S. Cl. 166—307

5 Claims



1. A method for improving the gas drainage characteristics of a coal seam comprising:

- injecting into said coal seam a foamed fluid comprised of a liquid solvent selected from the group consisting of toluene, pyridine, xylene, tetralin, anthracene, coal tar and mixtures thereof, a foam-producing surfactant and a high pressure gas, said foamed fluid containing an amount of said solvent effective to partially dissolve coal contacted by said foamed fluid;
- maintaining said foamed fluid in contact with said coal seam for a period of time sufficient for said solvent to partially dissolve coal contacted therewith thereby im-

proving the gas drainage characteristics of said coal seam; and
(c) recovering injected material and naturally occurring gas from said coal seam.

4,391,328

DRILL STRING SAFETY VALVE

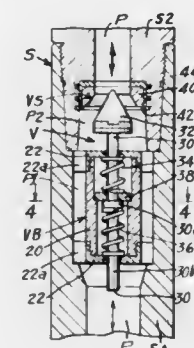
James T. Aumann, Salt Lake City, Utah, assignor to Christensen, Inc., Salt Lake City, Utah

Filed May 20, 1981, Ser. No. 265,716

Int. Cl.³ E21B 34/08

U.S. Cl. 166—325

6 Claims



- A safety valve for allowing controlled normal flow and preventing uncontrolled abnormal back flow of fluid pressure through an internal passage of a drill string casing comprising:
 - a valve seat situated in and around a portion of the internal passage in a portion of the drill string casing;
 - a valve body retained within an adjoining portion of the internal passage in the drill string casing and adapted to allow fluid to pass around and through the internal passage comprising
 - a cylinder including an outer sidewall and an internal chamber within the outer side wall extending between opposite ends of the cylinder, and
 - closure means attached to and closing off opposite ends of the cylinder and internal chamber;
 - a movable valve stem including opposite end portions each slideably mounted in an aperture extending through each of the closure means of the valve body;
 - a valve head attached to an opposite end portion of the valve stem, adapted for sealing engagement with the valve seat and normally maintained in a partially open position relative to the valve seat sufficient to allow passage of fluid and suspended cuttings during tripping of the drill string casing into and out of the borehole, but displaceable to a wide open position in response to a predetermined normal amount of differential fluid pressure in the internal passage directed downstream against one side of the valve head and movable into sealing mating engagement with the valve seat in response to a predetermined abnormal amount of differential fluid back pressure in the internal passage directed back upstream against an opposite side of the valve head; and
 - biasing means of predetermined opposing force comprising abutment means projecting from an intermediate portion of the movable valve stem within the internal chamber, and
 - resilient means extending about each of the opposite end portions of the valve stem and compressible between each of the closure means and the abutment means on and movable with the valve stem for opposing movement of, returning and maintaining the valve stem in a predetermined normal position and the attached valve head in the partially open position in absence of and until the predetermined amount of differential fluid pressure directed against one side of the valve head is sufficiently greater than the opposing force of the resilient means and any fluid pressure directed against an opposite side of the valve head and thereby displace the

valve head from the partially open position toward either the wide open position or a closed position.

4,391,329

USE OF MARKER FLUID IN CEMENTING OFFSHORE WELLS

Julius P. Gallus, Anaheim, Calif., assignor to Union Oil Company of California, Brea, Calif.

Filed May 14, 1981, Ser. No. 263,510

Int. Cl.³ E21B 33/14

U.S. Cl. 166—336

12 Claims

- Method for cementing casing in an offshore well completed under water comprising sequentially:
 - drilling a borehole,
 - positioning a drilling fluid in the borehole,
 - positioning one or more connected sections of casing in the borehole,
 - injecting into the casing, out the bottom thereof, up the annular space between the casing and the borehole and out into the surrounding water a slug of about 2 to 20 barrels of a black colored marker fluid comprising:
 - 100 parts by weight cement;
 - about 35 to 56 parts by weight water,
 - about 5 to 8 parts by weight particulate carbon black,
 - about 4 to 6.4 parts by weight coal dust, and
 - about 0.52 to 0.84 parts by weight surface active agent,
 - injecting into the casing via the same route a cement slurry,
 - observing the displaced fluid emerging into the surrounding water from the annular space,
 - observing when the black colored marker fluid begins to emerge from the annular space,
 - removing the cement slurry from the casing, and
 - shutting in the well for sufficient time to allow the cement slurry to set.

4,391,330

APPARATUS AND METHOD FOR INSTALLING AND ENERGIZING SUBMERSIBLE PUMP IN UNDERWATER WELL

Karl Kiefer, Bartlesville, Okla., assignor to TRW Inc., Cleveland, Ohio

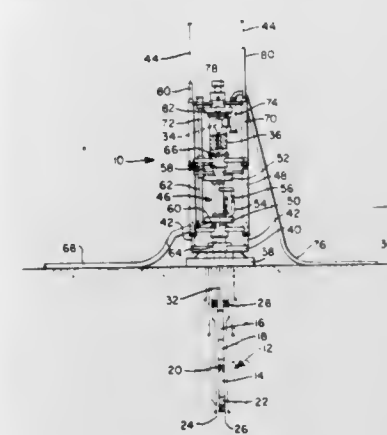
Division of Ser. No. 78,907, Sep. 25, 1979, Pat. No. 4,304,452.

This application Sep. 1, 1981, Ser. No. 298,503

Int. Cl.³ E21B 33/043

U.S. Cl. 166—341

5 Claims



- A method of installing and energizing an electric submersible pump in an underwater well, comprising providing at an underwater wellhead a spool having a bore aligned with the well and having a first set of electrical contacts at a contact region of the bore, suspending the pump from a suspension head having a second set of contacts adapted to engage corresponding contacts of the first set, lowering the suspension head and the pump into the bore with the pump passing through the bore into the well, and with the contacts of the second set positioned for engagement with the corresponding contacts of the first set, introducing a cleaning fluid into the contact region

of the bore through the suspension head, exhausting the cleaning fluid from the contact region through the bore in the spool, fixing the suspension head in the bore, and sealing the contact region of the bore so as to exclude well fluid therefrom.

4,391,331

GUIDES FOR USE IN FORMING PIPE CONNECTIONS AND A PROCESS OF FORMING PIPE CONNECTIONS

Keith Shotbolt, Gerrards Cross, England, assignor to Constructors John Brown Limited, London, England

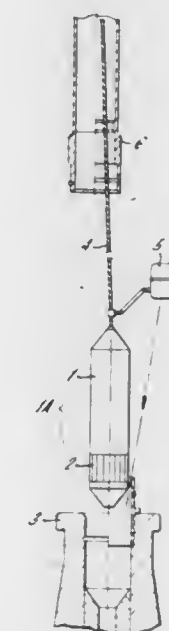
Filed Aug. 8, 1980, Ser. No. 176,293

Claims priority, application United Kingdom, Aug. 10, 1979, 7928006

Int. Cl.³ E21B 7/128

U.S. Cl. 166—342

8 Claims



- A guide for use in connecting a pipe to a connector of a sub sea wellhead, which guide comprises a guide post having a reversibly radially expandable portion to locate in and rigidly attach the guide post to the sub sea wellhead, and an elongate portion to be received in the pipe wherein the elongate portion comprises an elongate sleeve freely rotatable about the axis of the post for supporting the pipe for rotation to connect to the wellhead and suitable to constrain the pipe to an orientation in which it is concentric and coaxial with the wellhead connector.

4,391,332

OFFSHORE FACILITY FOR RECOVERY HYDROCARBON DEPOSITS FROM DEEP SEA BEDS

Jose M. Fayren, Madrid, Spain, assignor to Astilleros y Talleres del Noroeste, S.A., Madrid, Spain

Filed May 18, 1981, Ser. No. 264,951

Claims priority, application Spain, May 20, 1980, 491.645

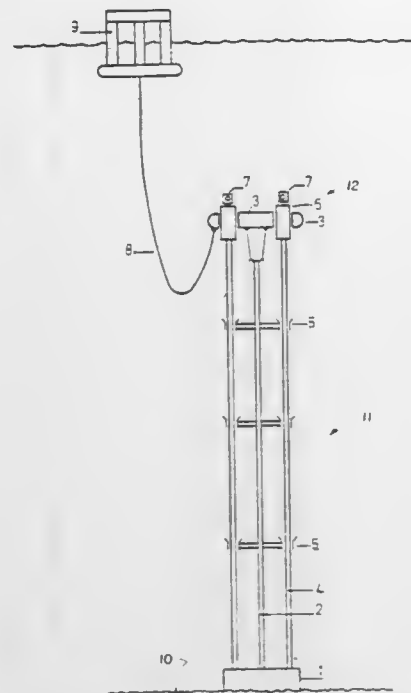
Int. Cl.³ E21B 43/00

U.S. Cl. 166—350

4 Claims

- An improved facility, for the drilling and production of hydrocarbon deposits located in a deep sea bed, of the type having a submarine base secured to the deep sea bed, a bundle of tubular conduits connected to the submarine base and vertically extended therefrom to a moderate depth where the effect of surface sea waves is negligible, a subsea buoy connected to the top end of the bundle of tubular conduits at the moderate depth to thereby exert an ascensional force which places the tubular conduits under a vertical tension, well heads mounted on at least some of the tubular conduits, control means mounted on the subsea buoy for controlling the well heads for drilling and producing hydrocarbons, a floating plant adapted to float at sea level, and a top conductor connected to the

subsea buoy and the floating plant, the improvement, in combination therewith, wherein the bundle of tubular conduits comprises a central structural column having a bottom end secured to the submarine base and a top end secured to the subsea buoy, a plurality of peripheral tubular conduits located around said



central structural column, guide means for securing said peripheral tubular conduits to said central structural column at vertically spaced intervals, said peripheral tubular conduits being mounted to said guide means for sliding movement relative thereto and in a parallel position relative to said central structural column.

4,391,333

WELL CASING JACK MECHANISM

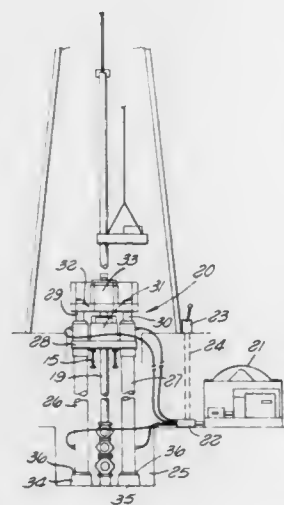
George I. Boyadjieff, Anaheim, and Andrew B. Campbell, San Marino, both of Calif., assignors to Varco International, Inc., Orange, Calif.

Filed Jul. 17, 1980, Ser. No. 169,718

Int. Cl.³ E21B 7/20

U.S. Cl. 166—379

10 Claims



1. The method that comprises: drilling a well utilizing a rig which includes a mast projecting upwardly above the well in a predetermined drilling position, and utilizing a drill string extending along a predetermined axis relative to said mast and downwardly into the well; removing said drill string from the rig after completion of the drilling operation; then lowering along said axis and into the well, while said mast remains in said drilling position above the well, a string of casing which, during at least a portion of the

casing lowering operation, has a weight greater than the load supporting capacity of said mast used in drilling; effecting the downward movement of said casing string, during at least said portion of the casing lowering operation when the weight of the string exceeds the capacity of the mast, by relatively vertically actuating two casing supporting units of a jacking mechanism positioned in the rig, with the casing string being supported alternately by the two units respectively; and transmitting downward load forces resulting from the weight of said casing string from each of said supporting units to the earth without transmission of said forces through said mast, but while said mast used in drilling remains in said drilling position above the well.

4,391,334

HITCH ASSEMBLY

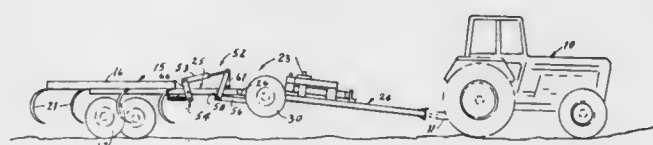
Lawrence K. Carrick, Spokane, Wash., assignor to Calkins Manufacturing Company, Spokane, Wash.

Filed Jan. 2, 1981, Ser. No. 222,127

Int. Cl.³ A01B 59/04

U.S. Cl. 172—326

20 Claims



1. A ground-working tool for attachment to a towing vehicle, comprising: a first longitudinal hitch frame having a front end adapted for connection to the towing vehicle, and a rear end; a second longitudinal hitch frame; hinge means mounting the rear end of the first longitudinal hitch frame to the second hitch frame for relative pivotal movement about a horizontal transverse axis; a ground-working implement operatively mounted to the second hitch frame; lift means on the second hitch frame for moving the ground working implement between an elevated inoperative position above the ground-working surface and an operative position engaging the ground wherein the lift means is comprised of a ground-engaging wheel and hydraulic cylinder means on the second hitch frame, mounting the wheel to the second hitch frame and selectively operable to raise and lower the second hitch frame and attached implement between the operative and inoperative positions; control means operably connected with the hydraulic cylinder means to operate in conjunction with operation of the hydraulic cylinder means for alternately operating to (a) lock the first and second hitch frames together when the ground-working implement is in the elevated inoperative position; (b) tip the second hitch frame and ground-working implement downward and forwardly as the support means is operated to move the ground-working implement to its operative position engaging the ground; and (c) permit pivotal movement between the hitch frames relative to one another about the hinge axis after the ground-working implement has been moved to its operative position; wheels movably holding the first hitch frame at a selected elevation; and suspension means between the wheels and first hitch frame mounting the wheels to the first hitch frame for pivotal movement about a longitudinal axis.

4,391,335

ROTARY HOE WHEEL

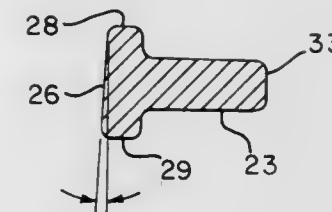
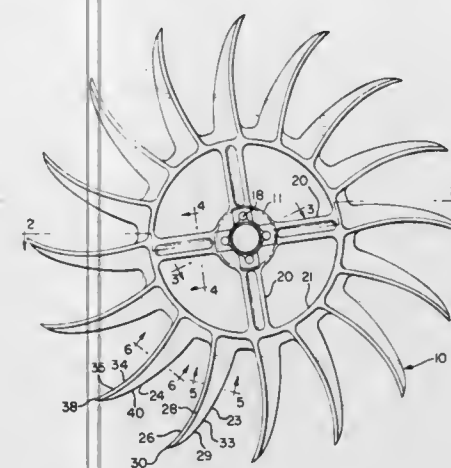
Eugen J. Birkenbach, Kildeer, Ill., assignor to International Harvester Co., Chicago, Ill.

Filed Feb. 2, 1981, Ser. No. 230,979

Int. Cl.³ A01B 21/04

U.S. Cl. 172—540

8 Claims



1. A rotary hoe wheel adapted to be drawn over the soil and comprising a hub adapted to be rotationally connected to a supporting member, a plurality of spokes extending radially from said hub, a generally circular flange connected to said spokes outward of said hub and a plurality of radially extending rearwardly curved to the direction of travel teeth connected to said flange and extending to a distal end adapted to work the soil, a tooth of said plurality having a rearward surface that is tapered at substantially 3° generally from one lateral surface rearwardly to the other from said distal end radially inwardly for the entire soil working portion of said tooth to engage, lift and move soil to one side of the wheel but rearwardly and the adjacent tooth rearward surface similarly and oppositely tapered at substantially 3° but also rearwardly to similarly move soil to the other side of the wheel but rearwardly with the teeth alternating in this sequence around the flange.

4,391,336

ACOUSTIC SYSTEM TO GUIDE A COAL SEAM AUGER
Julian B. Coon, Ponca City, Okla.; James C. Fowler, Burke, Va.; Charles E. Payton, Houston, Tex., and Kenneth H. Waters, Cape Town, South Africa, assignors to Conoco Inc., Ponca City, Okla.

PCT No. PCT/US80/01565, § 371 Date Aug. 21, 1981, § 102(e)
Date Aug. 21, 1981, PCT Pub. No. WO82/01908, PCT Pub. Date Jun. 10, 1982

PCT Filed Nov. 24, 1980, Ser. No. 301,993

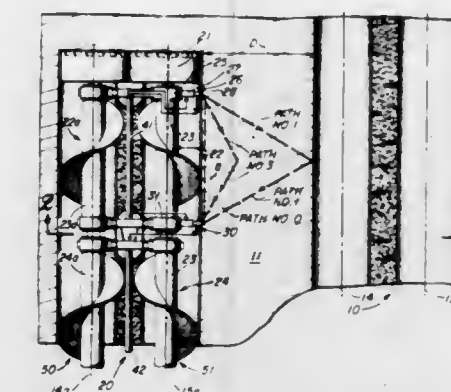
Int. Cl.³ E21B 47/09

U.S. Cl. 175—45

4 Claims

1. Method for boring a hole so that its axis is substantially parallel to the axis of a previously bored hole comprising: (a) positioning an acoustical transmitter and receiver in acoustical communication with the wall of the hole being bored so that their position on the said wall lies on a plane

- through the axis of said hole being bored and the axis of the previously bored hole;
- (b) transmitting a continuous frequency acoustical signal into the wall of said hole;
- (c) receiving the reflected signal from the adjacent wall along with other unwanted acoustical reflections;



- (d) determining the phase shift between said transmitted signal and said first received signal; and
- (e) determining the changes in the distance between the wall of said bored hole and said hole being bored.

4,391,337

HIGH-VELOCITY JET AND PROPELLANT FRACTURE DEVICE FOR GAS AND OIL WELL PRODUCTION

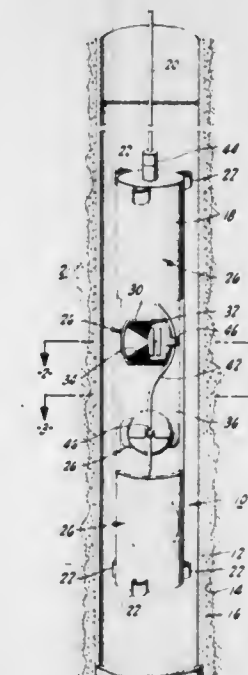
Franklin C. Ford, 3459 Edison Way, Fremont, Calif. 94538; Gilman A. Hill, 6200 Plateau Dr., Englewood, Colo. 80110, and Coye T. Vincent, 1201 Eva Ave., Los Altos, Calif. 94022

Filed Mar. 27, 1981, Ser. No. 248,322

Int. Cl.³ E21B 43/117

U.S. Cl. 175—4.6

9 Claims



1. An integrated jet perforation and controlled propellant fracture device for use in combination with a conventional tamping means to enhance gas and liquid wells by perforating and fracturing well formation materials comprising: a housing having suspension means for locating said housing at a predetermined location in a well; at least one jet perforation unit contained in said housing having a launchable projectile jet and an explosive charge means for launching said projectile jet; a controlled-burn, gas propellant material contained in said housing proximate said jet perforation unit; and firing means for igniting said propellant material and detonating said charge means in a substantially simultaneous manner, said propellant material having the characteristic

on ignition of generating gases which instantaneously follow said jet, said gases having a pressure pulse to augment and enhance fractures in a geological structure around the well which are initiated by said jet, wherein in use in a well having tamping means said device is constructed and arranged to produce gases having a pressure pulse peak below the plastic flow limit of the well formation materials.

4,391,338

MICROBALANCE AND METHOD FOR MEASURING THE MASS OF MATTER SUSPENDED WITHIN A FLUID MEDIUM

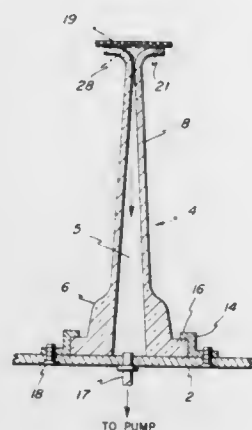
Harvey Patashnick, 27 Crow Ridge Rd., Voorheesville, N.Y. 12186, and Georg Rupprecht, R.D. #3, Apartment 67, Altamont, N.Y. 12009

Filed Apr. 4, 1980, Ser. No. 137,424

Int. Cl.³ G01G 3/14; G01N 31/00

U.S. Cl. 177—210 FP

14 Claims



1. Apparatus for measuring the mass of matter suspended in a medium comprising:
an elongate elastic element having a first end which is anchored and a second end free to oscillate;
filter means attached to the free end for receiving matter whose mass is to be measured;
means for driving said element so that its second end with the filter means attached will oscillate at a resonant frequency;
means for passing the medium containing the matter through the filter means as it oscillates in order to deposit the matter thereon; and
means for sensing changes in the resonant frequency of oscillation of said element and filter as they oscillate.

4,391,339

CAVITATING LIQUID JET ASSISTED DRILL BIT AND METHOD FOR DEEP-HOLE DRILLING

Virgil E. Johnson, Jr., Gaithersburg; T. R. Sundaram, Columbia, and Andrew F. Conn, Baltimore, all of Md., assignors to Hydronautics, Incorporated, Laurel, Md.

Continuation of Ser. No. 931,244, Aug. 4, 1978, Pat. No. 4,262,757. This application Dec. 1, 1980, Ser. No. 211,662

Int. Cl.³ E21B 10/60

U.S. Cl. 175—393

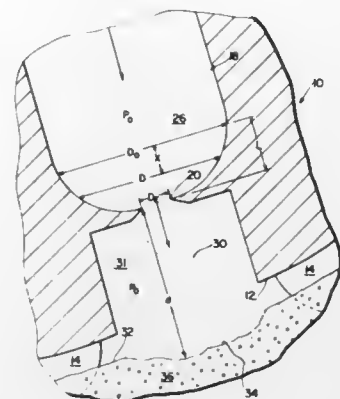
4 Claims

1. A cavitating liquid jet nozzle for causing cavitation erosion of a solid surface comprising a housing for receiving a liquid and having an inlet end and an outlet end, said housing having an interior chamber tapering from the inlet end toward a narrower orifice at the outlet end and being shaped in accordance with the following formula:

$$\frac{D}{D_0} = 1 - \left(1 - \frac{D_E}{D_0}\right) \left(\frac{D_0}{L} \times \frac{x}{D_0}\right)^n$$

wherein D_0 is the initial diameter of the chamber; D_E is the

diameter of the outlet orifice; L is the distance between D_0 and D_E ; and D is the diameter of the chamber at any point between



D_0 and D_E at a distance X from D_0 and wherein D_0/L is 2 or greater; D_0/D_E is 3 or greater; and n is 2 or greater.

4,391,340

DITHER ASSISTED STEERING

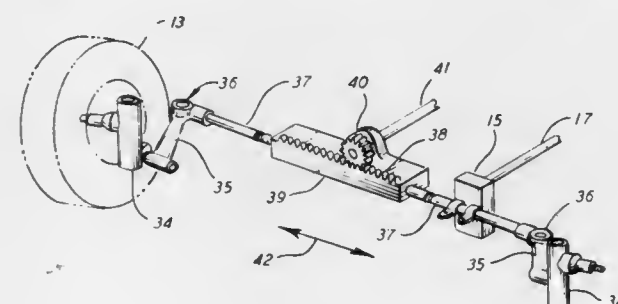
John Z. DeLorean, 280 Park Ave., New York, N.Y. 10017

Filed Feb. 4, 1981, Ser. No. 231,399

Int. Cl.³ B62D 3/00

U.S. Cl. 180—79

12 Claims



3. In combination with a steering system linkage coupling a steering wheel to wheels having tires thereon, apparatus for reducing steering effort at low speeds by introducing a low amplitude dither into the steering linkage, comprising:
(a) means including an oscillating system attached to the steering linkage; and
(b) means to input energy to said oscillating system.

4,391,341

SUPPORTING CHASSIS FOR A WORKING MACHINE, SUCH AS A HYDRAULIC SHOVEL

Daniel Taghon, Cinqueux, France, assignor to Poclain, Le Plessis Belleville, France

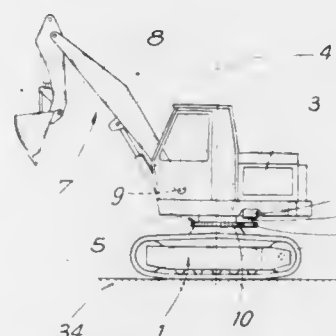
Filed Oct. 1, 1980, Ser. No. 192,924

Claims priority, application France, Oct. 11, 1979, 79 25381

Int. Cl.³ B62D 55/00

U.S. Cl. 180—9.2 R

10 Claims



1. Supporting chassis for a working machine such as a hydraulic shovel, comprising two longitudinal side-members, preferably two lateral side-members, each side member being

essentially constituted by a metal sheet which is bent in such a way that its cross-section presents a downward oriented concavity, and by a plate closing off the bent metal sheet, the lower edges of said metal sheet being secured to said plate; the improvement wherein said plate is monobloc and obtained by rolling and comprises a central zone of predetermined thickness, which is flanked on each one of its sides with a monobloc rim of material of thickness between opposite lateral surfaces of each rim substantially greater than the predetermined thickness adequate to receive upwardly directed fixing screw screwed therein, and wherein the lower edges of the said metal sheet are in contact with the upper faces of the thick rims bordering longitudinally the closing plate.

4,391,342

STEERING MECHANISM FOR VEHICLES EQUIPPED WITH POWER STEERING SYSTEM

Masao Nishikawa, Tokyo; Yoshihiko Toshimitsu, Asaka; Toshihiko Aoyama, Saitama; Tokuro Takaoka, Tokyo; Takashi Aoki, and Yoichi Sato, both of Wako, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

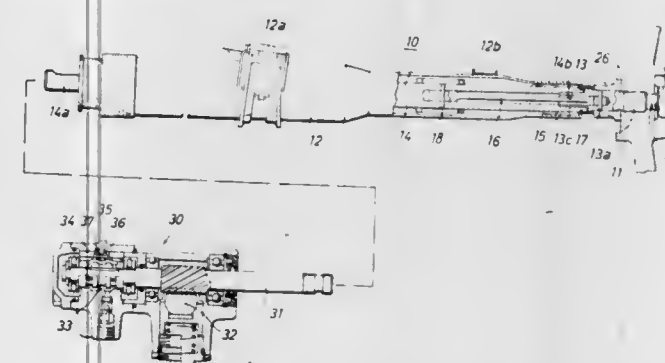
Filed Mar. 2, 1981, Ser. No. 239,492

Claims priority, application Japan, Mar. 10, 1980, 55-30729[U]

Int. Cl.³ B62D 5/06, 1/16

U.S. Cl. 180—143

7 Claims



1. A steering mechanism for a vehicle equipped with a power steering unit producing an increased steering reactive force in proportion to vehicle speed and a resilient element interposed in a path of torque transmission between a steering wheel and said power steering unit, comprising:

a damper means provided between two relatively rotatable members operably associated with each other through said resilient element, whereby torsional vibrations of a first one of said members disposed on the side of said steering wheel, caused by the resiliency of said resilient element and the moment of inertia of said steering wheel, are attenuated;
said damper means comprising two elements adapted to produce a frictional force when one of said elements rotates relative to the other of said elements; and
said two elements of said damper means comprising a ring and a cover fitted on the outer periphery of said ring.

4,391,343

RETRACTABLE TRACTED CART

Frederick A. Deare, 5 Kitchener Ave., Parry Sound, Ontario, Canada (P2A 1R7)

Filed Oct. 27, 1980, Ser. No. 201,035

Claims priority, application Canada, Nov. 29, 1979, 340896

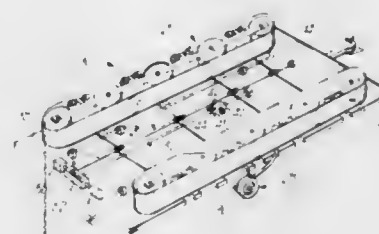
Int. Cl.³ B62D 55/08, 55/26

U.S. Cl. 180—198

12 Claims

1. A convertible traction device for use with a vehicle having at least two drive wheels, comprising:
a trailer for towing behind said vehicle and having a platform sized to receive the vehicle, hitch means and a road wheel assembly;
first means for selectively moving said road wheels between

an operative ground engaging position and a retracted position, relative to said platform;
traction means for each side of said trailer and including a traction belt and belt supporting means;
second means for selectively pivotally moving the traction means between a retracted position above said platform and an operative ground engaging position outboard of the adjacent road wheel;



means for locking said traction means and said road wheels in their respective operative and retracted positions; and drive means in said platform, engageable by the vehicle drive wheels, for driving said traction means when the vehicle is on the platform and the traction means are in their operative position.

4,391,344

LOADER OPERATOR RESTRAINT

Henry J. Weber, Oaks; Lonnie D. Hoechst, Gwinner; James R. Christensen, and Verne C. Watts, both of Lisbon, all of N. Dak., assignors to Clark Equipment Company, Buchanan, Mich.

Filed Jan. 26, 1981, Ser. No. 228,534

Int. Cl.³ B60R 21/10, 25/06

U.S. Cl. 180—271

17 Claims



1. A loader including:
a power operated working implement;
control apparatus having a plurality of operative positions for supplying power to the working implement and at least one neutral position where power is not supplied to the working implement, the control apparatus capable of manipulation by the operator of the loader for placing the control apparatus in any one of the operative positions or the neutral position;

an operator restraint member having an engaged position for securing the operator in the loader during operation and a disengaged position for releasing the operator to permit him to leave the loader;

a lock assembly in operative cooperation with the control apparatus and the restraint member for locking the control apparatus in the neutral position when the restraint member is in its disengaged position, the locking assembly including a locking member connected with the restraint member, the locking member having a terminal end that is moved in a first direction when the restraint member is moved from its disengaged position to its engaged position and moved in a second direction when the restraint member is moved from its engaged position to its disengaged position, the locking assembly further including a locking device in operative association with the locking member for selective locking engagement with the control apparatus, the locking device being pivotally movable to an unlock position with the control apparatus when the terminal end of the locking member is moved in its first direction, the locking device being pivotally movable to a lock position spaced from the control apparatus when the terminal end of the locking member is moved in the second direction;

a cab portion;

a cab seat for the operator located in the cab portion;

the restraint member including a generally U-shaped seat bar having two end portions and a bent center section, each of the end portions of the seat bar being pivotally connected to the cab portion at axially aligned pivot points, and the bent center section being radially displaced from an axis defined by the pivot points;

a friction device operatively associated with one of the pivot points;

said one pivot point including aligned openings in the cab portion and the seat bar and further including a pin inserted through the aligned openings;

the friction device including a spring mounted on the pin and a friction washer urged by the spring into engagement with the seat bar;

the bar including a pair of mounting ears rigidly mounted to one end of the bar and one of said mounting ears having an opening therethrough;

the cab portion including a rigidly attached bracket mounted on a side post of the cab portion;

the bracket having first and second sections;

the first section mounted on the side post and the second section disposed angularly from the first section and the side post;

said second section having an opening therethrough alignable with the opening in said one mounting ear;

the pin being insertable through the aligned openings in said one mounting ear and the second section of the bracket; and

the spring mounted on the pin biasing the second section and said one mounting ear together so that the bar remains in the rotative position selected by the operator until repositioned by the operator.

4,391,345

ELEVATABLE SCAFFOLD

Jim N. Paul, 2737 S. Broadway, Tyler, Tex. 75701

Filed Feb. 13, 1981, Ser. No. 234,353

Int. Cl.³ E04G 1/22; B66F 3/22

U.S. Cl. 182-141

16 Claims

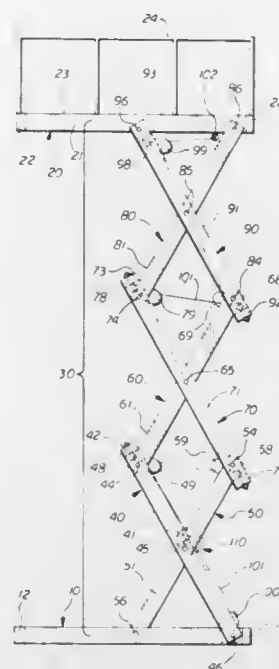
1. An elevatable scaffold including a base and a platform connected therebetween by a lift assembly movable between a collapsed position and extended positions for elevating said platform above said base, said lift assembly comprising:

a series of elongated structural assemblies each pivoted at one end and the middle thereof to some other structural assembly in said series;

a cable passing substantially parallel with some of said structural assemblies and between the ends of mutually pivoted

structural assemblies, one end of said cable being secured near the end of one of said structural assemblies; winch means mounted on said base and the other end of said cable wound thereon so that operation of said winch means may effect said elevating of said platform by further winding of said cable thereon; and

means engageable by said cable when said lift assembly is in said collapsed position for providing a mechanical advantage in initiating the movement of said lift assembly toward said extended positions, comprising a sheave assembly mounted near the midpoint of one of the lower-



most of said elongated structural assemblies and including at least first and second sheave members engageable by said cable between said winch means and one end of said one of the lowermost of said elongated structural assemblies, forcing a portion of said cable to assume an inclined path from said first sheave member toward said one end of said one of the lowermost of said elongated structural assemblies for creating a vertical force, upon operation of said winch means, to initiate movement of said lift structure from said collapsed position toward said extended positions.

4,391,346

LOUD-SPEAKER

Naoyuki Murakami, 12-2-704, Kyuden 2-Chome, Setagaya-Ku, Tokyo-To, Japan, and Hiroshi Zyo, Tokyo, Japan, assignors to Naoyuki Murakami, Tokyo, Japan

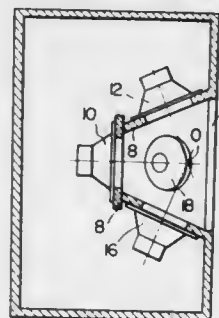
Filed Sep. 30, 1980, Ser. No. 192,187

Claims priority, application Japan, Oct. 4, 1979, 54-127325; Aug. 30, 1980, 55-120187

Int. Cl.³ H05K 5/00

U.S. Cl. 181-147

2 Claims



1. A loudspeaker, comprising:

(a) a casing for accommodating therein speaker units, said casing being enclosed by walls on all four sides and back side, except for the front part;

(b) a baffle board provided at the open front part of said casing, said baffle board having an opening formed therein opening into the ambient, said opening lying in a plane substantially parallel to the said back wall and being symmetrical about a line perpendicular to said back wall;

(c) a plurality of speaker fitting panels mounted around and behind said opening formed in said baffle board at an angle to said baffle board diverging in the direction of said opening, and a back fitting panel mounted on said speaker fitting panels parallel to said back wall; and

(d) a plurality of speaker units intensively mounted on said speaker fitting panels around and behind said opening in said baffle board, and a back speaker unit mounted on the said back fitting panel, the total area of the entire diaphragms of said speaker units being substantially equal to, or larger than, the area of said opening in said baffle board, the sound wave radiating direction of said speaker units mounted on said speaker fitting panels being concentrated on a single imaginary point behind the plane of said opening in the baffle board, hence within the ambit of the space defined by said speaker fitting panels and on the said line perpendicular to the back about which the said opening is symmetrical, and the sound wave radiation direction of said back speaker unit being along said line.

4,391,347

SAFETY DEVICE FOR LADDER ACCESS OPENING TO AN ELEVATED PLATFORM

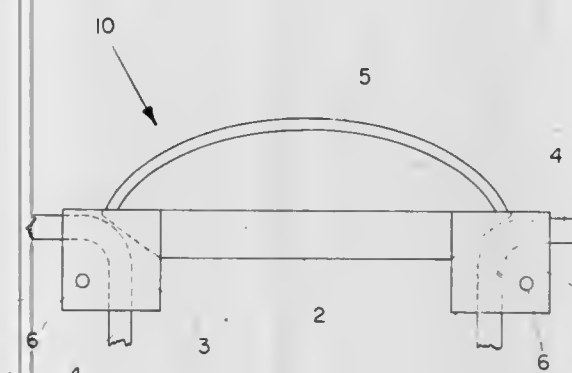
John M. Cronan, Baton Rouge; Joseph M. Haynes, Baker, and Darrell D. Jones, Brusly, all of La., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 18, 1981, Ser. No. 264,878

Int. Cl.³ E04G 9/10, 5/00

U.S. Cl. 182-113

2 Claims



1. A safety device for that portion of an elevated platform, including a horizontal guard railing, to which an open access ladder is attached, comprising an elongated, rigid member adapted to form an extension of the horizontal portion of the guard railing, and means for connecting the elongated member to the platform railing including a pair of plates rigidly fastened to each end of the elongated member, and means for securely connecting each pair of plates at each end of the elongated member together below the guard railing at a point where the horizontal sections of the railing bend down to attach to the platform or where the vertical support posts converge together with the horizontal section of the railing, whereby the ends of the safety device can be locked to the railing above and on each side of the platform access opening of the platform ladder.

4,391,348

SCAFFOLD SAFETY PIN

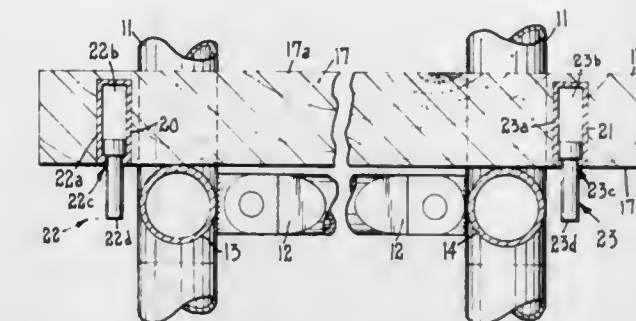
Ronald L. Rieland, 963 S. Orient Ave., Fairmont, Minn. 56031

Filed Sep. 16, 1981, Ser. No. 302,843

Int. Cl.³ E04G 5/08, 1/15

U.S. Cl. 182-119

9 Claims



1. Safety apparatus for scaffolds, comprising:

(a) a scaffold having a platform and at least a pair of generally horizontally extending support members beneath said platform spaced a first distance apart, said platform having opposing surfaces;

(b) a pair of openings in said platform through one surface extending generally normal to said one surface;

(c) safety pin means mounted within each said opening comprising a hollow cylinder having a pin freely mounted therein for limited movement between a retracted position with respect to said one surface and an operative position extending out of said opening beyond said one surface such that with said platform disposed with said one surface facing downwardly said pins are moved by gravity to said operative positions, and with said platform disposed with said one surface facing upwardly said pins are moved by gravity to said retracted positions; and

(d) said openings being located a distance apart with respect to said first distance such that sliding movement of said platform in either direction will cause at least one of said pin means, in the operative position, to encounter a support member to prevent further sliding movement thereof.

4,391,349

TURBOMACHINE LUBRICATING OIL SYSTEM

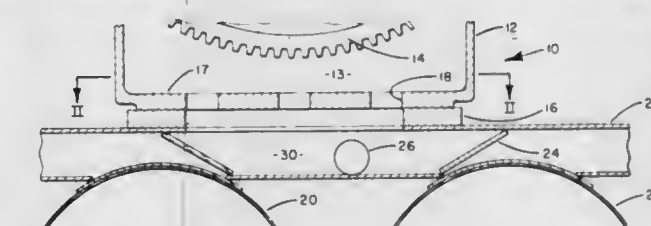
Alexander A. Carroll, Greensburg, and William F. Hannan, III, Pittsburgh, both of Pa., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,063

Int. Cl.³ F01M 1/00

U.S. Cl. 184-6.26

2 Claims



1. A turbomachine lubricating oil system comprising:

a casing defining a chamber having a plurality of apertures in the bottom;

a relatively large diameter member mounted within said chamber and rotating therein with said member being cooled and lubricated via a spray of lubricating oil which drains from said casing via said plurality of apertures;

structural support means for said casing including a generally hollow member defining a plenum having inlet means communicating with the interior of said chamber via a plurality of apertures to receive the lubricant flowing therefrom and outlet means;

a separate lubricating oil reservoir located in spaced relation to said structural support means, and means connecting said reservoir with said outlet means, the size of said plenum when compared to the size of said outlet means being such that lubricant flowing into said plenum will collect and form into a quiescent pool before draining therefrom.

4,391,350

STRUCTURE FOR MOUNTING A BRAKE PAD ABRASION DETECTOR

Michio Moriya, Hyogo, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

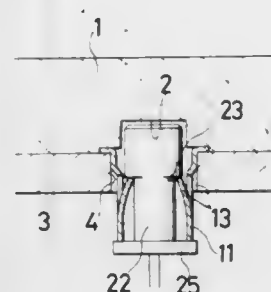
Filed Aug. 15, 1978, Ser. No. 933,941

Claims priority, application Japan, Sep. 20, 1977, 52-127282[U]

Int. Cl.³ F16D 66/02

U.S. Cl. 188—1.11

10 Claims



1. A structure for mounting an electrical brake pad abrasion detector, of the type in which a through hole is formed in a backing plate in such a manner as to communicate with a blind hole formed in a brake pad, wherein the improvement comprises:

a cylindrical holding member fixedly secured in said through hole, said holding member having at least one no-return pawl provided on the inner periphery thereof, said pawl having an end disposed within said cylindrical holding member;

a substantially cylindrical probe having head and leg sections meeting to form a shoulder at the intermediate portion of said probe, said probe being inserted into said holding member so as to allow the end of said at least one no-return pawl to engage with said shoulder to thereby hold said probe; and

the diameter of a portion of said holding member, extending from the vicinity of the end of said at least one no-return pawl to one end of said holding member adjacent said head section, being made larger than that of a remaining portion thereof.

4,391,351

PARKING DISC BRAKE ACTUATOR

Norman F. Jirousek, Garfield Heights, and William M. Shipitalo, Novelty, both of Ohio, assignors to Towmotor Corporation, Mentor, Ohio

PCT No. PCT/US80/01673, § 371 Date Dec. 12, 1980, § 102(e) Date Dec. 12, 1980, PCT Pub. No. WO82/02077, PCT Pub. Date Jun. 24, 1982

PCT Filed Dec. 12, 1980, Ser. No. 273,885

Int. Cl.³ B60T 1/06

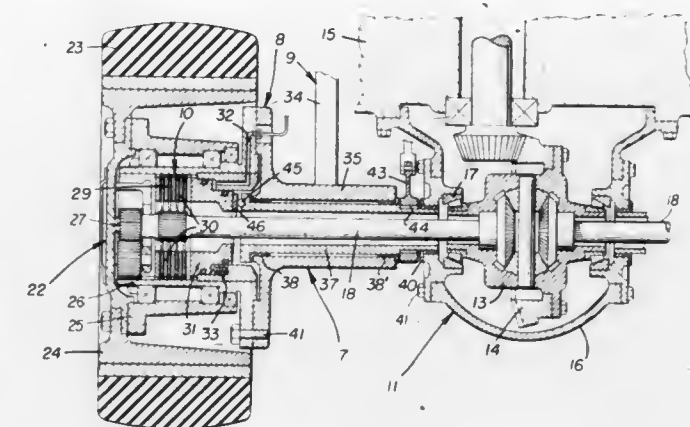
U.S. Cl. 188—18 A

7 Claims

1. In a power train subassembly (8) for a vehicle having a frame (9), a support assembly (35) rigidly affixed to the frame (9), a wheel drive assembly (22) rotatably mounted on the support assembly (35), a differential (11) having a jack shaft (18) extending therefrom and a brake (10) operatively associated with said wheel assembly (22) and actuable between an engaged and disengaged condition, comprising:

a support tube (37,50) connecting said differential (11) to said

support assembly (35), said support tube (37,50) being axially rotatable relative to said jack shaft (18); and means (45,46) for converting axial rotation of said support



tube (37,50) into lateral motion and mechanically actuating the brake (10) between said engaged and disengaged condition, said means for converting (45,46) being connected to said support tube (37,50).

4,391,352

BRAKE SYSTEM AND APPARATUS AND METHOD THEREFOR

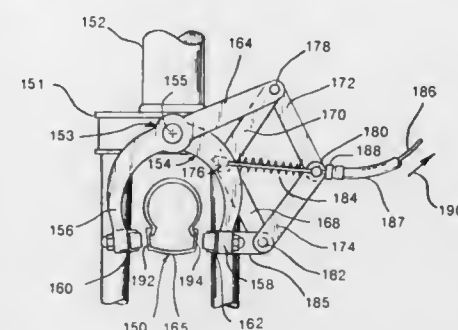
Lawrence G. Brown, 1629 Kuhlani St., Honolulu, Hi. 96816

Filed Feb. 2, 1977, Ser. No. 765,062

Int. Cl.³ B62L 1/14

U.S. Cl. 188—24.12

23 Claims



1. A brake system for a bicycle or the like, having frame means for supporting a bicycle rider and rotatable wheel means for enabling movement of frame means and bicycle rider, and comprising:

brake pad means made from a substantially incompressible non-ferrous material having an effective coefficient of friction in both dry and wet operating conditions and having a friction surface engageable with the wheel means for generating a frictional braking force against the wheel means effective in both dry and wet operating conditions;

a pair of brake pad support arm means of equal effective length and being pivotally movably mounted relative to the frame means and the wheel means in juxtaposition to the wheel means for uniform equal length movement relative thereto and for supporting said brake pad means for uniform equal length movement between a non-braking position in maximum equally outwardly spaced relationship to the wheel means with each friction surface spaced equally outwardly of the wheel means and an inwardly displaced braking position with each friction surface in frictional engagement with the wheel means to apply braking force thereto;

hand operated braking force generating means mounted on the frame means and operably connected to said brake pad support arm means for operation of said brake pad support arm means and for generation of braking force by the bicycle rider;

force increasing means operatively associated with said brake pad support arm means and said brake pad means

for uniformly equally increasing the brake force generated by the bicycle rider and for providing a relatively high uniform equal applied braking force on said brake pad means to generate sufficiently high effective braking force between said brake pad means and the rotatable wheel means in both dry and wet operating conditions;

said force increasing means comprising: linkage means and connecting means and operating means arranged and connected to said support arm means for causing relative rapid initial movement of said support arm means and said brake pad means a relatively large distance from said non-braking position toward said braking position at relatively low mechanical advantage, and for causing relatively slow final movement of said support arm means and said brake pad means a relatively short distance toward the braking position at relatively high mechanical advantage and to generate relatively high uniform equal applied braking force in the braking position; and

said force increasing means comprising formed spring wire means being operably connected to said hand operated force generating means and being operatively associated with said brake pad support arm means for movement between a non-braking position by application of braking force generated by the bicycle rider and for causing movement of said brake pad support arm means between the non-braking position and the braking position.

4,391,353

HAND OPERATED HYDRAULIC BICYCLE BRAKE

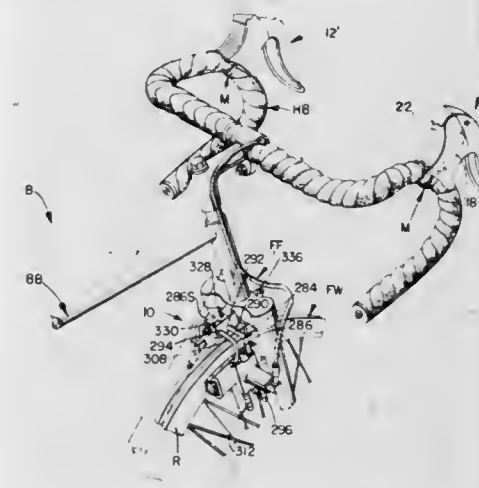
William R. Mathauser, 3000 "B" Ave., Anacortes, Wash. 98221

Filed Jan. 23, 1981, Ser. No. 227,925

Int. Cl.³ B62L 1/10, 3/02

U.S. Cl. 188—24.12

17 Claims



1. A hand actuated hydraulic brake for a bicycle comprising: a hand actuated master cylinder mounted on the handlebars of a bicycle;

a flexible fluid line connected to said master cylinder; and a brake pad holder unit mounted on the bicycle, said brake pad holder unit including a mounting fastener connected to such bicycle, a mounting clamp pivotally mounted on said mounting fastener, a bracket arm on said mounting clamp, first and second bicycle brake housings mounted on said bracket arm to be on opposite sides of a bicycle front wheel, said housings each being of a size commonly found on a bicycle, a lug mounted on said first housing, a fluid actuated brake arm moving means mounted on said first housing and a first brake pad mounted on said second housing, said brake arm moving means including a rolling diaphragm fluidly connected to said master cylinder by said flexible fluid line via said lug to exchange hydraulic fluid therewith, a movable brake pad holder having a projecting arm thereon, said arm being slidably mounted on said first housing and engaged against said rolling diaphragm for movement therewith, said rolling diaphragm including a closed bottom portion contacting said brake pad holder arm, a side portion adjacent to said first

housing and a connecting portion connecting said diaphragm bottom and side portions so that said rolling diaphragm can fold upon itself within said bicycle brake housing and a lip on an end of said side portion remote from said bottom, said lip being captured between said first housing and said lug, said sufficient flexibility to operate efficiently in a bicycle hydraulic brake unit, an arm return means engaged against said rolling diaphragm to bias said diaphragm against action of hydraulic fluid forced thereinto by said master cylinder, and a second brake pad mounted on said movable brake pad holder.

4,391,354

PISTON-AND-CYLINDER ASSEMBLY FOR HYDRAULIC DISK CLUTCH OR BRAKE

Manfred Bucksch, Friedrichshafen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

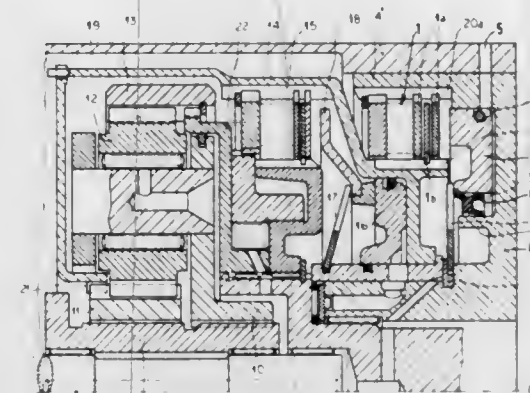
Filed Apr. 1, 1981, Ser. No. 250,025

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012791

Int. Cl.³ F16D 55/40; F01B 7/20; F16D 19/00

U.S. Cl. 188—71.5

4 Claims



1. In a fluidically operated speed-changing assembly comprising a cylinder with an annular working space, an annular piston axially slidable in said working space under pressure of an operating fluid, a stack of interleaved first and second annular friction plates confronting said piston, said first friction plates being positively linked with said cylinder, said second friction plates being positively linked with a relatively rotatable member to be coupled with said cylinder by fluid pressure forcing said piston against said stack, and spring means in said cylinder resisting a displacement of said piston toward said stack,

the improvement wherein said piston occupies only part of said working space, leaving an annular clearance radially offset from said stack, and an ancillary ring is slidable independently of said piston in said clearance under pressure of said operating fluid while bearing only upon said spring means without coming into contact with said stack.

4,391,355

SLIDING CALIPER DISC BRAKE

Anthony C. Evans, Northville, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Dec. 3, 1979, Ser. No. 99,392

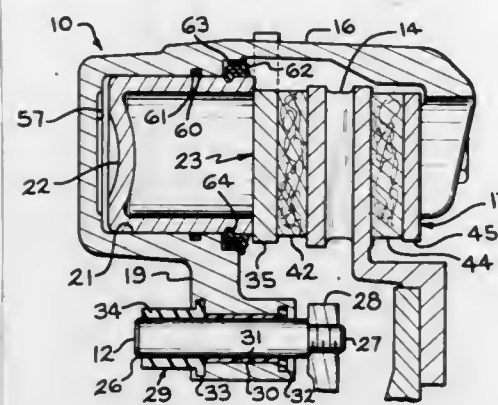
Int. Cl.³ F16D 65/00

U.S. Cl. 188—73.44

6 Claims

1. An improved disc brake for engaging a rotatable disc having an axis of rotation and inboard and outboard frictional surfaces, said disc brake comprising two pins, means for affixing said pins to a stationary structure member inboard of said disc to extended parallel to and radially spaced from said axis with said pins spaced apart, a caliper extending over the periphery of said disc and having inboard and outboard legs, means mounting said inboard caliper leg to slide axially on one

of said pins, an outboard brake pad, means mounting said outboard brake pad on said outboard caliper leg, said outboard brake pad moving into and out of frictional engagement with said outboard frictional surface as said caliper moves axially on said one pin, an inboard brake pad, means mounting said inboard brake pad to slide axially on the other of said pins into



and out of frictional engagement with said inboard frictional surface, said inboard caliper leg defining a cylinder opening towards said inboard pad, and piston means located in said cylinder for moving said inboard pad against said inboard frictional surface when a fluid is introduced into a chamber defined between said cylinder and said piston.

4,391,356

CLUTCH ENGAGEABLE/DISENGAGEABLE BY MOMENTARY ENERGIZATION OF SOLENOID MEANS
Toji Takemura, and Kenzo Hirashima, both of Yokosuka, Japan, assignors to Nissan Motor Co. Ltd., Yokohama, Japan

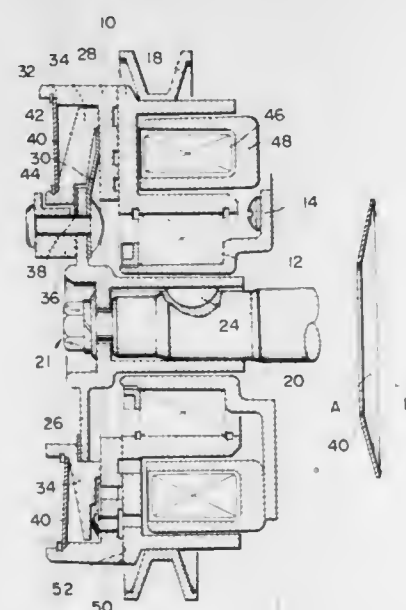
Filed Mar. 25, 1982, Ser. No. 361,809

Claims priority, application Japan, May 21, 1981, 56-76860

Int. Cl.³ F16D 27/10

U.S. Cl. 192-84 C

4 Claims



1. A clutch comprising:

an input element operatively connected to a prime mover for being driven thereby;
a first rotatable clutch element;
a second rotatable clutch element movable with respect to the first clutch element and engageable therewith, said second clutch element being connected to said input element for synchronous rotation therewith;

first biasing means for biasing said second clutch element away from said first clutch element when in a first state thereof, and for biasing said first and second clutch elements together when in a second state thereof;

an electromagnet associated with said first clutch element for attracting said second clutch element to said first clutch element and inducing said first biasing means to

assume said first state when energized with a first predetermined current; and

means responsive to the energization of said electromagnet with a second predetermined current which is higher than said first predetermined current for reversing the state of said first biasing means from said second state to said first state and for causing said first and second clutch elements to separate.

4,391,357
COUPLINGS

Ali Bindernagel, Wermelskirchen; Helmut Holthoff, Düsseldorf, and Hartmut Diel, Monchen-Gladbach, all of Fed. Rep. of Germany, assignors to Friedrich Kocks GmbH & Company, Hilden, Fed. Rep. of Germany

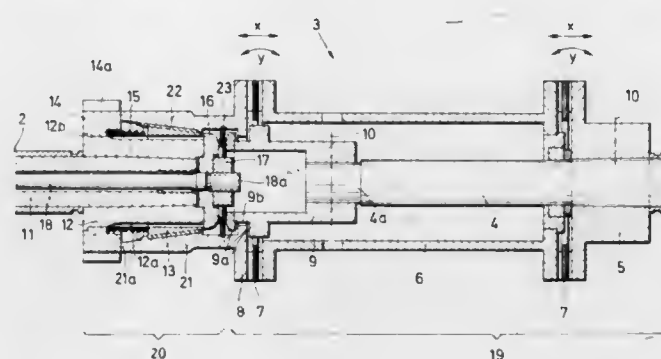
Filed Jan. 21, 1980, Ser. No. 114,114

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905560

Int. Cl.³ F16D 19/00

U.S. Cl. 192-94

22 Claims



1. An engageable and releasable rotary coupling for the non-relatively rotatable interconnection of two rotary machine parts the coupling comprising two coupling halves, one said coupling half including a screw-threaded member having an external taper thread, the other of said coupling half including a sleeve having a complementary internal taper thread screwably receiving the external taper thread of said one half to act as a coupling means for transmitting torque from one machine part to the other, the screw-threaded member and the screw-threaded sleeve being axially movable towards and away from one another, means associated with one of said machine parts axially moving one of said coupling halves generally axially relatively to the other thereby enabling a drive for one of the two machine parts and a brake device for the other machine part to be used in conjunction for engaging and releasing and coupling, said coupling having means by which the screw-threaded member and the screw-threaded sleeve can be pushed axially one into the other before the commencement of the rotary movement for the purpose of the coupling operation, one of said member and sleeve being connected to its rotary machine part so as to be non-rotatable relative thereto and being displaceable to a limited extent in an axial direction relative to its rotary machine part against the force of a spring, and the other abutting against an alignment stop on its connected rotary machine part, whereupon the displaceable screw-threaded member or the screw-threaded sleeve is screwably engaged with the respective counter-member upon commencement of the rotary movement.

4,391,358

HARDWARE PRESS AND PUNCH APPARATUS

Virgil J. Haeger, 1144 Post Rd., Oakdale, Calif. 95361

Filed Nov. 5, 1980, Ser. No. 204,200

Int. Cl.³ B23Q 11/00

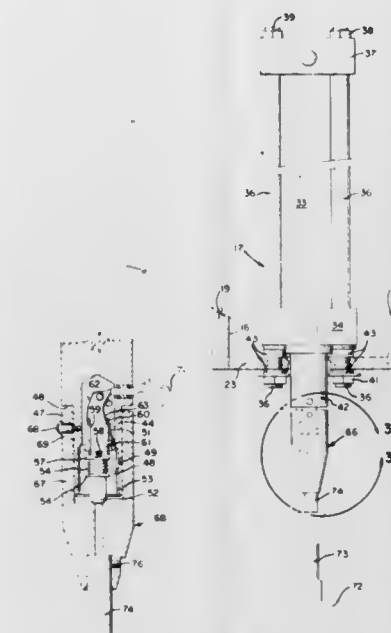
U.S. Cl. 192-130

7 Claims

1. A hardware press for assembling fastening devices or punching holes in sheetmetal hardware devices and incorpo-

rating safety provisions to prevent injury to the operator, comprising:

- a base structure;
- a pedestal assembly on the base structure and including a cantilever arm portion projecting laterally therefrom;
- a pressure-exerting ram assembly mounted on said cantilever arm adjacent the free end thereof and including a hydraulic cylinder and a double-acting ram operatively associated therewith and selectively movable through a predetermined excursion along its longitudinal axis, said ram assembly being electrically insulated from said cantilever arm on which it is mounted;
- an anvil mounted on said pedestal and underlying said ram assembly;
- an upper tool holder slidably mounted on said ram in electrically conductive interrelation therewith and adapted to removably support a selected upper tool thereon;



- a lower tool holder mounted on said anvil in electrically conductive interrelation therewith and adapted to removably support a selected lower tool thereon in cooperative relation to said upper tool; and
- control means for normally selectively advancing said ram under a predetermined high hydraulic pressure to bring said upper and lower tools together into a predetermined pressure exerting relationship upon a workpiece interposed therebetween with a pressure injurious to the operator if imposed on the operator's hand while automatically stopping advance of the ram if the operator's hand is encountered between the upper and lower tool holders;
- said control means including a normally-open safety switch operatively interposed between said ram and said upper tool holder and operable to close a circuit to stop the advance of the ram when a non-conductive element, such as the operator's hand, is encountered with sufficient force to slidably displace said upper tool holder to close said normally-open switch.

4,391,359

SAMPLE SPLITTER

Joseph A. Lapointe, 223 Sprindale Ave., Pointe Claire, Quebec, Canada

Filed Dec. 22, 1980, Ser. No. 219,268

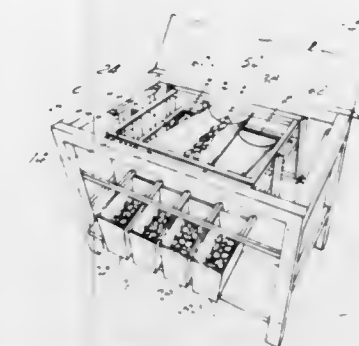
Int. Cl.³ B65G 13/00

U.S. Cl. 193-23

7 Claims

1. A sample splitter for particulates or small elements comprising at least one chute slopped downwardly from a rear end towards a discharge end, means for oscillating said chute on a substantially horizontal path substantially perpendicular to the axial center line of said chute, said chute being substantially symmetrical on opposite sides of said axial center line, side walls on said chute on opposite sides of said centre line, said

side walls being slopped upwardly in a manner such that the material forming said sample moves with a rolling or sliding action in a zig zag path on said chute and without significant bouncing of the material down said chute as said chute is



oscillated, an elongated V-shaped plow at the discharge end of said chute to intercept material issuing from said chute, the line forming the apex of said V-shaped plow being substantially in alignment with axial centre line of said chute when said chute is at the mid-point of its oscillation.

4,391,360

MACHINE FOR HANK DRAWING AND DOFFING
Federico Minnetti, Pieve A Nievole, Italy, assignor to Officine Minnetti Di Ornella Raveggi & C.S.a.s., Pieve A Nievole, Italy

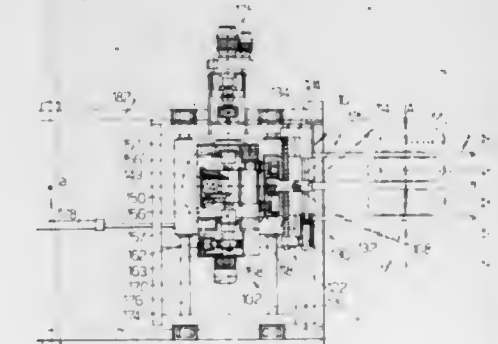
Filed Sep. 16, 1980, Ser. No. 187,638

Claims priority, application Italy, Mar. 14, 1980, 20669 A/80

Int. Cl.³ B65G 47/24

U.S. Cl. 198-412

31 Claims



1. A machine for removing yarn hanks from hank carriers and for unloading the removed hanks onto container means, said machine comprising:

plier means for removing yarn hanks from hank carriers, said plier means including a fixed center rod and two side rods, the side rods being movable towards the center rod at the two opposite sides thereof for simultaneous gripping of two hanks and being movable away from said center rod for releasing gripped hanks; and
pliers operating means for controlling said gripping and said releasing movements.

4,391,361

HOLD-DOWN APPARATUS FOR CABLE CONVEYORS

Benjamin O. Hall, and Thomas W. Arndt, both of Oskaloosa, Iowa, assignors to Intraco, Inc., Oskaloosa, Iowa

Filed Jun. 4, 1981, Ser. No. 270,629

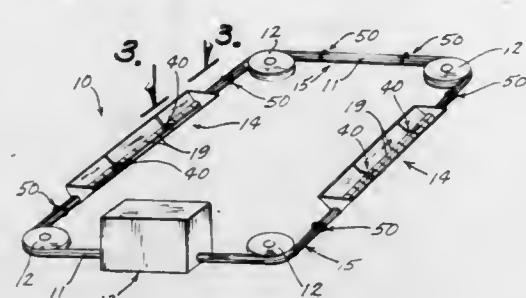
Int. Cl.³ B65G 19/28

U.S. Cl. 198-735

6 Claims

1. In a conveying apparatus of a type including a flexible endless member, material engaging means disposed on said flexible endless member for catching material and moving the

material in response to movement of the flexible endless member and said material engaging means, channel means disposed at least partially around said flexible endless member and said material engaging means for confining material for transportation from place to place, said channel means having a pair of opposed sidewalls, and means for selectively causing said flexible endless member to be pulled through said channel means, an improvement comprising:



means for resiliently engaging said material engaging means to bias said material means into said channel means, said resilient engaging means being secured to an upper portion of said pair of opposed sidewalls and comprising a mounting bracket attached to said opposed sidewalls and a loop shaped spring member secured to said mounting bracket; said spring member extending into said channel means for resiliently pushing against said material engaging means.

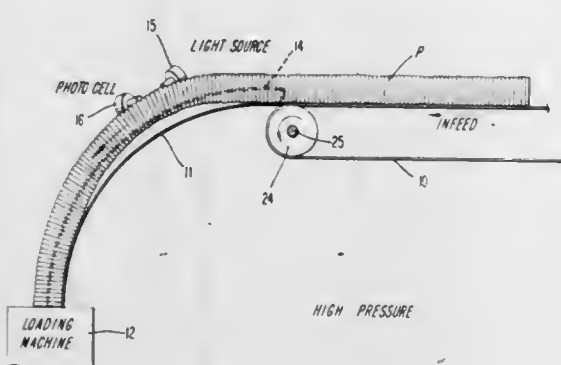
4,391,362

SPEED CONTROLLED INFEED CONVEYOR SYSTEM
Louis A. Spinelli, West Milford, N.J., assignor to Nabisco Brands, Inc., Parsippany, N.J.

Filed Feb. 17, 1981, Ser. No. 234,680
Int. Cl.³ B65G 43/08

U.S. Cl. 198—855

3 Claims



1. A speed controlled conveyor system for transporting a continuous column of abutting articles, said system comprising a generally horizontal infeed conveyor having an output end, a curved chute aligned with said output end and extending in a downward arc, a product handling device removing articles from the lower end of the chute, said chute being open on the side thereof facing upward and forward to permit the curved column of articles on the chute to bow outwardly when axial pressure within the column builds due to the infeed rate exceeding the removal rate, means for measuring the outward displacement of the curved column on the chute and producing a first electrical signal proportional to that displacement, a motor driving said infeed conveyor and speed control means responsive to the first signal for adjusting the speed of said motor, said means for measuring the displacement of said curved column including a light source directing a light beam so as to be progressively intercepted by the column as it bows outwardly, and a photocell for detecting the degree to which said light beam is intercepted by said column, said speed control means including a variable output magnetic clutch having an electromagnetic control coil, means producing a second

electrical signal proportional to the speed of the input conveyor, and means for summing said first and second signals and producing a third signal proportional to the difference between a reference voltage and the sum of said first and second signals.

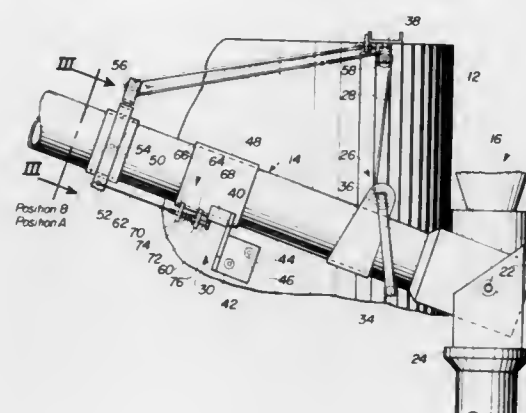
4,391,363

AUTOMATIC LATCH FOR UNLOADING AUGER
T. William Waldrop, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Feb. 18, 1981, Ser. No. 235,395
Int. Cl.³ B65G 21/10

U.S. Cl. 198—865

7 Claims



1. In combination with a container having a movable unloading auger, the improvement comprising:
means for supporting said auger, said means being a support member connected to said container and extending therefrom;
a latch arm pivotally mounted on said auger;
a latch pin connected to said latch arm;
means for guiding said latch pin to a first obstruction position relative to said support member;
means connected for raising and lowering said auger, said means including a cable operably connected to pivot said latch arm to move said latch pin between said first position, and a second obstruction free position relative to said support member;
resilient means for urging said latch pin from said second to said first position;
means for limiting movement of said latch pin to said second position;
said latch pin being moved from said first position to said second position when the tension in said cable overcomes the force of said resilient means; and
said latch pin being moved from said second position to said first position when the force of said resilient means overcomes the tension in said cable.

4,391,364

AUTOMATIC LATCH FOR UNLOADING AUGER
Terry A. Young, Lititz, and Aquila D. Mast, Lancaster, both of Pa., assignors to Sperry Corporation, New Holland, Pa.

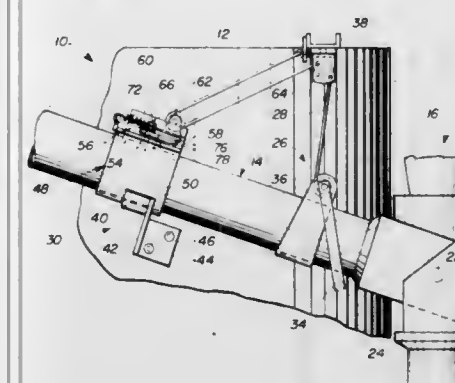
Filed Feb. 18, 1981, Ser. No. 235,396
Int. Cl.³ B65G 21/10

U.S. Cl. 198—865

11 Claims

1. In combination with a container having a movable unloading auger, the improvement comprising:
means for supporting said auger, said means being a support member connected to said container and extending therefrom;
a latch arm movably mounted on said auger;
a latch arm receiver connected to said container;
means connected for raising and lowering said auger relative to said support, said means including a cable operably connected to move said latch arm between a first position, in engagement with said receiver, and a second position, out of engagement with said receiver;

resilient means for urging said latch arm from said second position to said first position;
means for guiding said latch arm and for limiting movement of said latch arm in said second position, said means being a guide plate having a latch arm receiving slot formed therein, said latch arm extending through said slot and terminating adjacent said receiver;



said latch arm being moved from said first position to said second position when the tension in said cable overcomes the force of said resilient means; and
said latch arm being moved from said second position to said first position when the force of said resilient means overcomes the tension in said cable.

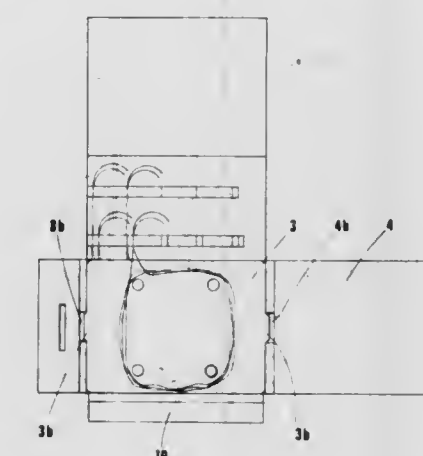
4,391,365

SINGLE DISPENSING MULTIPLE SUTURE PACKAGE
Jay A. Batchelor, Bethel, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed May 11, 1981, Ser. No. 262,159
Int. Cl.³ A61L 17/02

U.S. Cl. 206—63.3

9 Claims



1. A surgical suture package comprising a center panel; at least one foam receptacle affixed to said panel; a plurality of cards placed onto said panel adjacent to said receptacle; a plurality of sutures each singly contained in a non-tangling configuration over a major portion of each card wherein the area surrounded by said configuration comprises an area larger than the remaining portion of the card; a first flap placed onto said cards; means for attaching said first flap to said cards and to said panel; and a second flap foldably attached to said panel and placed onto said receptacle and said first flap, whereby said sutures can be contained with at least one end of each suture contained by said receptacle.

4,391,366

FOLDABLE CUP

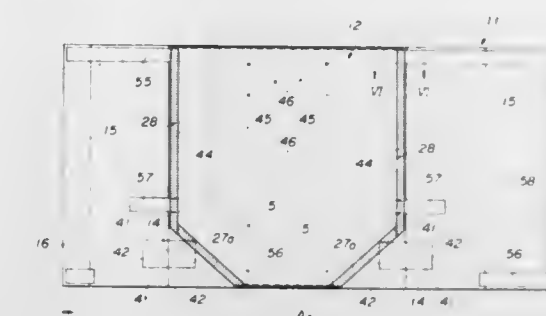
Isao Hirata, Sagami, Japan, assignor to Tokai Metals Company Limited, Yokohama, Japan

Filed May 5, 1981, Ser. No. 260,843

Claims priority, application Japan, Feb. 9, 1981, 56-16847
Int. Cl.³ B65D 5/46, 5/54, 5/56, 85/72

U.S. Cl. 206—218

7 Claims



1. A foldable cup comprising:

a substantially tubular outer shell made of a stiff material and having longitudinally spaced opposite ends and two overlapping lateral edges extending between said ends, said shell being foldable along longitudinal fold lines parallel to said lateral edges to collapse said shell to a substantially flat condition, said cup including a pouch made of a flexible material disposed within said outer shell for accommodating contents, said pouch comprising a pair of opposing body walls bonded to the inside of said outer shell and having bottom wall portions foldable to lie between said body walls when said pouch is collapsed to a flat condition, said bottom wall portions having bottom edges flexibly connected to bottom edges of said body walls, respectively, and each bottom wall portion having a common edge flexibly joining said bottom wall portions together, said body walls and said bottom wall portions each being connected along lines extending obliquely from upper portion thereof with respect to said longitudinal fold lines toward the bottom edges of said respective body walls, said pouch including longitudinal lateral edges along which said body walls are flexibly connected, said lateral edges of said pouch extending from the upper edges of said body walls to a point intersecting the obliquely extending lines, the distance between said lateral edges of said pouch being substantially equal to the distance between said lateral edges of said outer shell, the distance between the upper and bottom edges of said pouch when folded being substantially equal to the distance between the upper and bottom edges of said outer shell, the distance between said common and bottom edges of said bottom wall portions of said pouch and the length of said obliquely extending lines being such that when said outer shell and pouch are unfolded, said bottom wall portions lie within the bottom edge of said outer shell, said lateral edges of said body walls of said pouch having opposing inner surfaces which are bonded together and folded exteriorly over onto one of said body walls of said pouch, the resulting folded portion of said lateral edges of said pouch being bonded to the adjacent body wall in the vicinity of said upper edge of said body wall of said pouch.

4,391,367

PACKING CONTAINER

Lucio C. Perego, 4835 Campbell Ct., Fort Wayne, Ind. 46804

Filed Apr. 29, 1981, Ser. No. 258,876

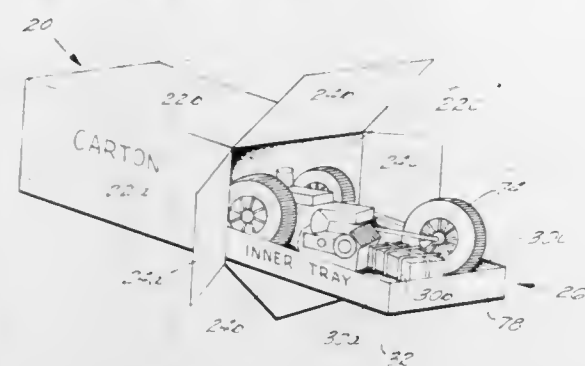
Int. Cl.³ B65D 5/50, 85/00

U.S. Cl. 206—315 R

23 Claims

1. A packing device comprising a packing container having one or more wall portions, an auxiliary packing receptacle within the volume of said packing container mounted adjacent to one of said wall portions and having a first access opening

registrable with a second access opening in said one wall portion, said receptacle includes means for retaining one or more articles therein, said one wall portion having a manipulable closure for the second opening therein, said one wall portion



including a first sheet-like element, a second sheet-like element overlying said first element and having a third opening therein, said receptacle being received by and carried within said third opening and having a laterally extending flange-like portion interposed between said elements.

4,391,368

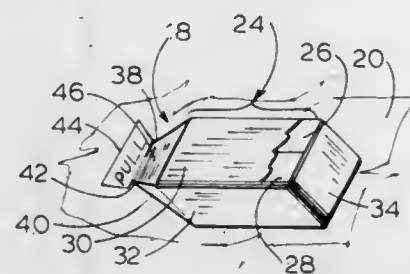
PACKAGING AND DISPENSING SYSTEM

Leroy Washington, Jr., 143 Ironwood Cir., Sierra Vista, Ariz. 85635

Filed Apr. 9, 1981, Ser. No. 252,301
Int. Cl.³ B65D 83/00, 33/00

U.S. Cl. 206—484

1 Claim



1. A system for packaging and distributing predetermined increments of flowable material, comprising: a web, a plurality of discrete containers on said web in a predetermined pattern, means for opening each container individually, means providing for separation of one or more containers with a part of said web from the remainder of said containers and web, said means for opening providing for opening to either one of two predetermined sizes of opening depending on direction of opening by said means for opening, said means for opening including a tapered side with widening and narrowing portions on said container, and a pull-tab affixed across said tapered side at a location intermediate the length of said tapered side in position for being pulled in a direction producing a widening opening by breaking free said widening portion of said tapered side, and alternatively for being pulled in a direction producing a narrowing opening by breaking free said narrowing portion of said tapered side when pulled toward said narrowing portion of said tapered side.

4,391,369

FOUR-LEVEL STACKING CONTAINER

Edward L. Stahl, Brighton, and Elmer W. Kreeger, Allegan, both of Mich., assignors to Pinckney Molded Plastics, Inc., Pinckney, Mich.

Filed Aug. 31, 1981, Ser. No. 298,063
Int. Cl.³ B65D 21/06

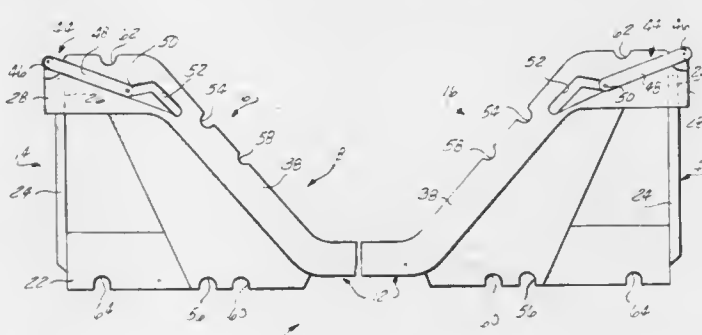
U.S. Cl. 206—506

3 Claims

1. In an open topped, stackable container including a bottom, a pair of end walls projecting upwardly from said bottom at opposite ends thereof, said end walls having means thereon

accommodating the vertical nesting of one of said containers within another like container in a fully nested storage relationship, and bale means on said end walls selectively locatable in any of a plurality of positions relative to said end walls to selectively establish different depths to which said another like container may be nested within said one container;

the improvement wherein said bale member comprises an elongate rod-like bale member extending parallel to each end wall, crank means fixed at one end to each end of said bale member, aligned pivot means for establishing a pivotal axis parallel to and offset from said bale member at the opposite end of said crank means from said bale member, coupling means on said end walls receiving said pivot means for pivotal movement of said bale member about said axis relative to the associated end wall and for sliding movement wherein said bale member is movable relative to said end walls in directions normal to said axis, said coupling means including means defining at least two spaced stable rest positions of said pivot means relative to



said end wall, means on said end wall selectively engageable with said bale member when said pivot means is in any one of said stable rest positions to establish two alternative rest positions of said bale member at different levels relative to said end wall for each of the two stable rest positions of said pivot means and

wherein one of said rest positions of said bale member locates said bale member outwardly of vertical alignment with the bottom of said container whereby a like container may be lowered downwardly past said bale member into said fully nested storage relationship, said bale member when located in any of its three other rest positions being located in overlying relationship with said bottom of said container, and means defining a series of three spaced bale member receiving notches in the bottom of said container respectively located in vertical alignment with said three other bale member rest positions, whereby a like container may be stacked upon said container at any of four different levels as determined by the rest position occupied by said bale member.

4,391,370

EMBROIDERY PROJECT ACCESSORY CARRYING CASE

Lorraine E. Dalbo, Atlanta, Ga., assignor to Dal-Craft, Inc., Tucker, Ga.

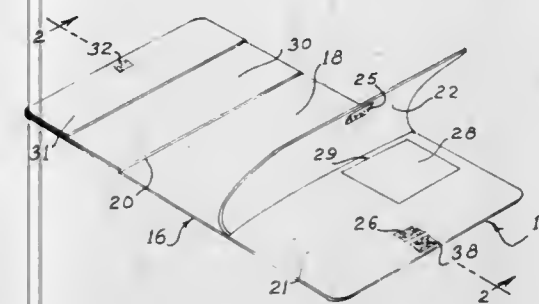
Filed Mar. 16, 1981, Ser. No. 243,895
Int. Cl.³ A45C 15/00, 7/00

U.S. Cl. 206—574

7 Claims

1. A carrying case for needlework materials including a backing sheet having an inside surface and an outside surface, said backing sheet comprising a flexible center section, a first end section at one side of said flexible center section and contiguous with said flexible center section, a second end section at the opposite side of said flexible center section and contiguous with said flexible center section, a first storage pocket carried by said inside surface of said first end section, and a second storage pocket carried by said inside surface of said second end section, said flexible center section being foldable adjacent to said storage pockets, said second end section being

foldable towards said inside surface along a line adjacent to said second storage pocket after said first end section is folded towards said inside surface along a line adjacent to said first storage pocket so that said second end section is disposed with said inside surface of said second end section overlying said outside surface of said first end section, and fastening means to



selectively retain said second end section in position over said first end section, said flexible center section having sufficient length to provide storage space between said inside surface of said flexible center section and said first storage pocket, said storage space being continuous with the inside of said second storage pocket.

4,391,371

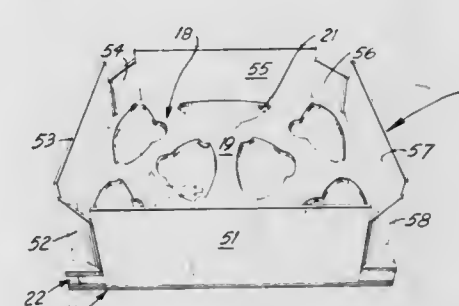
FIBERBOARD SHIPPING CONTAINER HAVING LAMINATED SPACING MEMBERS

William G. Sieffert, Joliet, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed May 13, 1982, Ser. No. 377,695
Int. Cl.³ B65D 85/42

U.S. Cl. 206—597

6 Claims



1. A fiberboard container for enclosing and protecting at least one article, said container comprising:

opposed top and bottom trays disposed in spaced parallel relationship, each said tray comprising rectangular base and article receiving pads defined by front, rear and opposed side edges, said pads being of substantially identical dimensions and being disposed in spaced parallel relationship such that the respective front, rear and side edges thereof are in register, said article receiving pads being further defined by at least one opening corresponding to the shape of the article, said trays being disposed such that the article receiving pads thereof face each other, and spacers extending between and connected to said pads in each said tray; and

an octagonal sleeve extending between and separating said top and bottom trays, said sleeve including substantially rectangular front, rear and opposed side panels extending between the front, rear and opposed side edges respectively of the base pads, four substantially rectangular connecting panels extending between said article receiving pads and angularly aligned with respect to the front, rear and opposed side edges thereof, two said connecting panels foldably connecting said front panel to said side panels, and the remaining two connecting panels foldably connecting said rear panel to said side panels, whereby the front, rear and opposed side panels of said sleeve maintain said top and bottom trays in register while said connecting

panels maintain a fixed spacing between said top and bottom trays, thereby enclosing and protecting the article.

4,391,372

VACUUM STARWHEEL

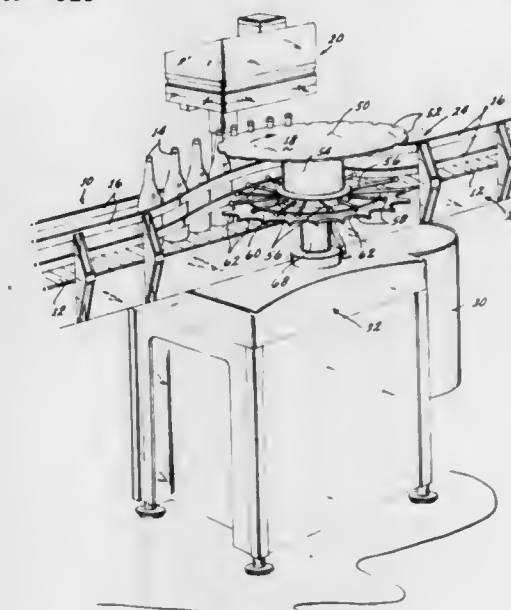
Fredrick L. Calhoun, Rolling Hills, Calif., assignor to Industrial Dynamics Company, Ltd., Torrance, Calif.

Continuation of Ser. No. 738,824, Nov. 4, 1976, abandoned. This application Apr. 3, 1978, Ser. No. 893,243

Int. Cl.³ B07C 5/00

U.S. Cl. 209—523

23 Claims



1. A mechanism for transferring individual containers from one input position to one of at least two output positions, including:

a first member continuously movable in a particular path including at least one port and including means extending from the member and communicating with the port and constructed to retain one of the individual containers for movement with the first member when a vacuum is applied to the port,

a second stationary member including at least first and second parts disposed in the path of movement of the first member for movement of the first port in the first member into sequential communication with the first and second ports in the second member,

means defining a source of vacuum,

means operatively coupled to the vacuum source and to the first and second ports in the second stationary member for producing vacuum in the first and second ports,

the first and second ports in the second member being elongated in the path of movement of the first member and the length of the port in the first member being less than the length of the first and second ports in the second member to provide a vacuum with the retaining means in the first member for holding the container during the communication of the port in the first member with the ports in the first and second members,

means for providing a source of at least atmospheric fluid pressure,

the second stationary member including at least third and fourth ports disposed in the path of movement of the port in the first member for communication with the port in the first member at least a portion of the time during the movement of the first member, the third port being intermediate the first and second ports and the fourth port being positioned after the second port in the direction of movement of the port in the first member, the third port communicating with either the vacuum means or the pressure means, the fourth port communicating with the pressure means, the movable member providing a transfer of the individual container for release at the position of the

third port when the third port communicates with the pressure means or for release at the position of the fourth port when the third port communicates with the vacuum means,

the size of the first port in the first member in the path of movement of the first member being greater than the shortest distance between the second and third ports but less than the respective distance between the first or second ports and the side of the third port on the far side of the first and second ports in the path of movement of the first member,

means for providing a continuous movement of the first member in the particular path,

means for testing particular parameters on the container for particular characteristics during movement of the first member with the first port on the first member in communication with the first port on the second member at an intermediate position along the length of the first part, and means for providing a communication of the third port on the second member with a particular one of the vacuum means and the pressure means, in accordance with the characteristics of the particular parameters tested on the container by the testing means, during the communication of the first port on the first member only with the third port on the second member.

4,391,373

METHOD OF AND APPARATUS FOR COMPENSATING SIGNAL DRIFT DURING CONTAINER INSPECTION

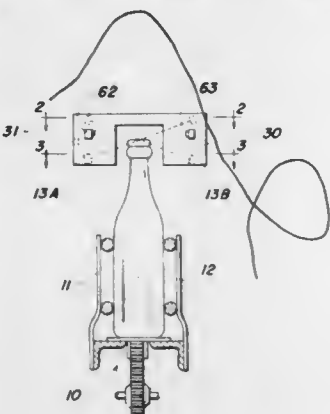
Edmund C. Wiggins, Pinellas County, Fla., assignor to Barry-Wehmiller Company, St. Louis, Mo.

Filed Nov. 10, 1980, Ser. No. 205,600

Int. Cl.³ G01N 21/32; G06M 7/00; H01J 39/12

U.S. Cl. 209-526

4 Claims



1. In apparatus for the inspection of containers movable through an inspection zone, said apparatus having a plurality of radiant energy beam emitters and detectors oriented on the container passage in the inspection zone, such that said emitters and detectors are aligned in cooperating pairs to produce output signals from said detectors corresponding to container inspection values and to values during intervals between container movement through the inspection zone, the improvement of processing circuit means connected to said emitters and detectors including:

(1) subcircuit means for storing the signal values generated each time during intervals between container movement in the inspection zone and means for adjusting the stored signal values to generate threshold signal values, said subcircuit means comprising an analog to digital signal converter, a memory circuit means connected to said analog to digital output, and a digital to analog signal converter, and

(2) subcircuit means for comparing the output signal values from said detectors during each container inspection directly with said adjusted threshold signal values, whereby each output of the analog to digital signal converter is compared with the value of the signal previously stored in said memory circuit means for determining the need to

update the stored signal values for signal drift compensation.

4,391,374

METHOD OF AND APPARATUS FOR SEPARATING ELONGATED ARTICLES BY LENGTH

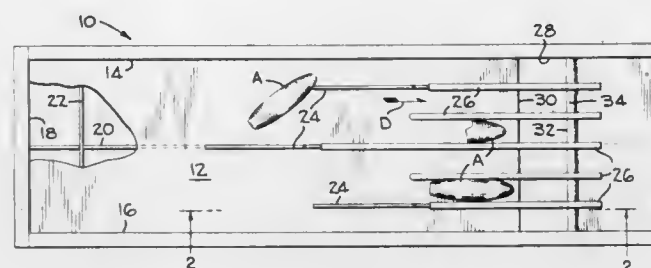
Robert A. Krynock, Indiana, Pa., assignor to FMC Corporation, Chicago, Ill.

Filed Oct. 5, 1981, Ser. No. 308,297

Int. Cl.³ B07C 5/02

U.S. Cl. 209-540

10 Claims



1. A separator comprising a vibratory surface for conveying elongated articles longitudinally thereon, said surface having a slot with upstream and downstream edges extending transversely of the direction of articles travel, a plate projecting within the slot near the upstream edge to form a surface over which articles slide, said plate having a downstream edge that together with the downstream edge of the slot defines a grading gap through which articles of short length drop, and means mounting the plate independently of the vibratory surface whereby articles conveyed by the surface decelerate when sliding across the plate before reaching the grading gap.

4,391,375

DISPLAY CARD AND ASSEMBLY HANGER

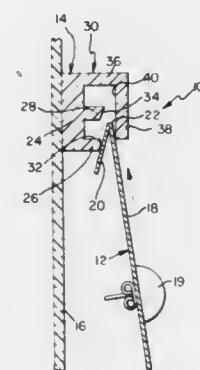
Robert D. Joyce, Greenville, R.I., assignor to Joyce Card & Display Co., Providence, R.I.

Filed Apr. 27, 1981, Ser. No. 257,908

Int. Cl.³ A47F 7/00

U.S. Cl. 211-13

9 Claims



1. A display assembly for jewelry and the like comprising:
a. a substantially vertically disposed card having a main portion and an outwardly biased flap hingedly attached to the top edge thereof extending downwardly and outwardly therefrom; and
b. a hanger for suspending said card comprising:
i. support means engageable with the bottom edge of said flap to support said card;
ii. retaining means engageable with the side of said card opposite from said flap to retain the bottom edge of said flap in engagement with said support means; and
iii. fulcrum means engageable with said flap at an intermediate point in its extension causing said flap to be hinged inwardly toward said card when said flap is pressed against said fulcrum means.

4,391,376

RESILIENT CLAMP FOR SUPPORTING ARTICLES

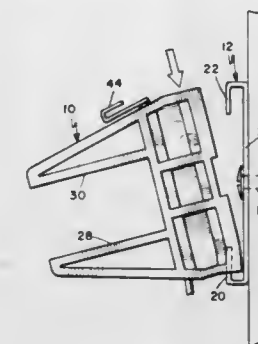
Charles C. Finnegan, Escondido, Calif., assignor to LeLasso Corporation, San Diego, Calif.

Filed Dec. 15, 1980, Ser. No. 216,620

Int. Cl.³ A47F 7/00; E21B 19/14

U.S. Cl. 211-60 SK

8 Claims



1. Apparatus for clampably supporting articles, comprising: a mounting base for being secured to a supporting structure incorporating a pair of spaced inwardly directed opposed projections, said mounting base comprising a strap member, having a flat central mounting section and end sections that are spaced from said central mounting section and comprising in their terminal portions said opposed projections; a clamping member for removable mounting on said mounting base, said clamping member comprising a resilient mounting section incorporating opposed outwardly directed openings sized to receive said projections, said outwardly opposed openings comprising a channel through said mounting section, said channel being elongated in a plane that is parallel, in the mounted position, to the plane of said central mounting section; said resilient mounting section being compressible to a length permitting said section to pass between said opposed projections and expandable to engage said opposed projections, a pair of opposed clamping elements extending from said mounting section for receiving an article therebetween, an elastic cord having end connectors for encircling said clamping elements and an article received between said clamping elements to resiliently urge said clamping members toward one another, said elastic cord being received through the channel in said mounting section, said end connectors comprising a hook member, said hook member comprising at least one deformable clamping strap means for being compressed onto an end of said cord, and having a hook section extending from said strap clamping means; said cord and strap clamping means being receivable in said channel in said mounting section, said hook section having a cross section larger than said channel and protruding therefrom when said cord and strap are received in said channel.

4,391,377

KNOCK-DOWN ASSEMBLY FOR SUPPORTING OXYGEN TANKS

Theodore Ziaylek, Jr., P.O. Box 292, Yardley, Pa. 19067

Filed Mar. 19, 1981, Ser. No. 245,408

Int. Cl.³ A47F 7/28

U.S. Cl. 211-71

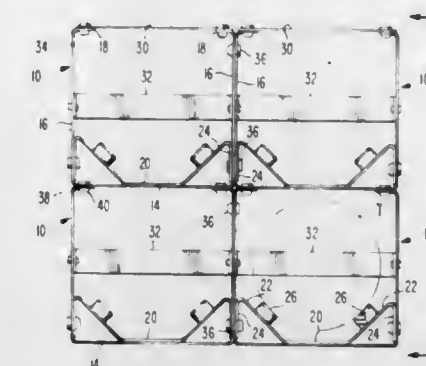
8 Claims

1. A rack assembly for supporting oxygen tanks and like cylindrical objects, comprising:

(a) a plurality of box sections each of which is of rectangular, three-sided form with one open side and includes a web portion and a pair of sidewall portions extending there-

from, said sections being adapted to be disposed in longitudinally contacting relation;

(b) at least one cradle mounted in each section and adapted to supportably engage an oxygen tank, the web portions of some of the sections closing the open side of adjacent sections;



(c) a cover plate closing the open side of the remaining sections; and
(d) connecting means extending between and fixedly secured together those sections disposed in longitudinally contacting relation.

4,391,378

SHELVING CONSOLE FURNITURE

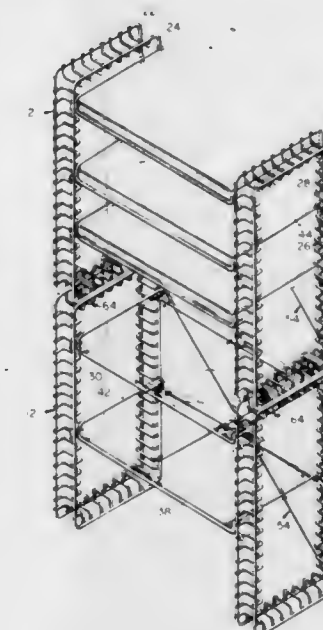
Edward Secon, Trumbull, Conn., assignor to The Sherwood Corporation, Spring City, Tenn.

Filed Oct. 9, 1981, Ser. No. 310,218

Int. Cl.³ A47F 5/01

U.S. Cl. 211-187

8 Claims



1. A shelving console furniture unit comprising a pair of laterally spaced side frame support standards for supporting the ends of at least one shelf member therebetween, each standard comprising a pair of wire frame members each frame member being identical and having spaced vertical and spaced horizontal portions interconnected to define a border about an opening, a multiplicity of rungs of finite thickness secured to and between each pair of frame members at substantially equally spaced similarly disposed locations about the border and extending into said opening, said shelf member comprising a substantially rectangular frame, a hook outstanding at each corner of said shelf frame having a downwardly disposed portion, each said hook being positionable upon a rung with the downwardly disposed portion projecting between the rung and the adjacent frame members.

4,391,379

LIFTING APPARATUS ADAPTED FOR MOUNTING IN A VEHICLE TRUNK

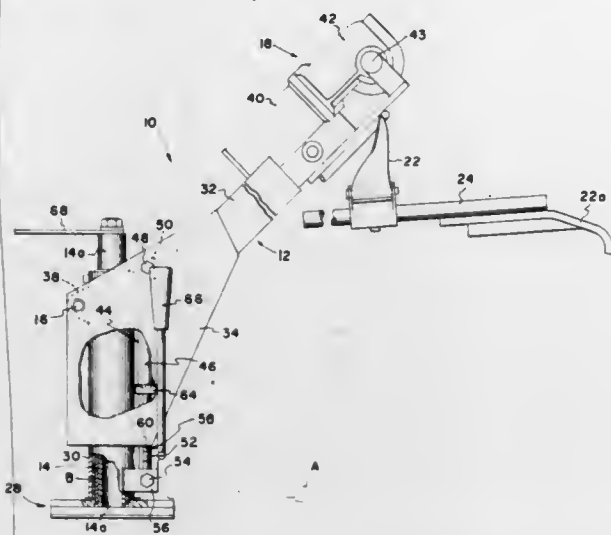
Edgar C. Paffrath, Birch Run, Mich., assignor to Amigo Sales, Inc., Bridgeport, Mich.

Filed Oct. 14, 1981, Ser. No. 311,411

Int. Cl.³ B66C 23/44

U.S. Cl. 212—187

3 Claims



1. Lifting apparatus adapted to be mounted in an automobile trunk or the like comprising a base plate, adapted to be mounted on a fixed frame, a vertical post fixedly mounted at its lower end on said base plate, a sleeve rotatably supported on said post for free rotation about a vertical axis, an elongate boom, pivot means mounting said boom upon said sleeve for pivotal movement about a horizontal axis located adjacent one end of said boom, power driven lift means mounted on the opposite end of said boom, extensible gas spring means mounted between said sleeve and an intermediate location on said boom gravitationally counterbalancing said boom about said horizontal axis, and releasable lock means mounted on said sleeve and engageable with said gas spring means to positively maintain said gas spring means at a predetermined extended position constituting an elevated lifting position of said boom; said post projecting upwardly beyond the upper end of said sleeve, and brace means for fixedly securing the upper end of said post to said fixed frame; said boom comprising an elongate boom member, a mounting bracket including a pair of spaced plates fixedly mounted on and projecting from said boom member at said one end thereof to receive said sleeve therebetween, said pivot means being coupled to said sleeve and said bracket at the side of said sleeve remote from said boom member, said gas spring comprising a cylinder pivotally mounted at its upper end between said bracket plates at the side of said sleeve opposite said pivot means and a rod projecting from the lower end of said cylinder, said lock means comprising a rigid prop member, second pivot means commonly mounting the lower ends of said rod and said prop member on said sleeve, and a cylinder seat on the upper end of said prop member supportably engageable with the lower end of said cylinder to maintain a predetermined extension of said rod from said cylinder.

4,391,380

RAIL CAR COUPLER INTERLOCK

Demetrius H. Hoose, 404 Broad St., Michigan Center, Mich. 49254

Filed Feb. 12, 1981, Ser. No. 233,879

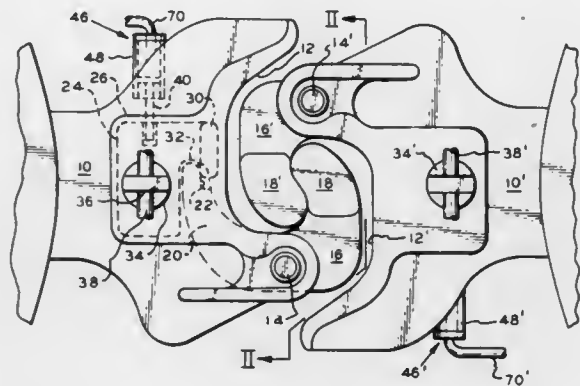
Int. Cl.³ B61G 3/04, 3/28, 5/08

U.S. Cl. 213—76

3 Claims

1. In a railroad coupler system for railroad cars utilizing a compressed air brake system wherein the coupler includes a body having a recess defined therein for receiving a coupler knuckle head, a knuckle pivotally mounted upon said body pivotal between open and closed positions with respect to said recess, a locking member mounted upon said body selectively

cooperating with said knuckle movable between knuckle locking and knuckle unlocking positions, manual means selectively translating said locking member between knuckle locking and knuckle unlocking positions, the improvement comprising, safety means mounted upon the body selectively engaging the locking member to control movement of the locking member from the locking position to the unlocking position, said safety means comprising an expansible chamber motor mounted upon the coupler body, a piston within said motor having a pressure face and a rod face, a rod affixed to said piston extending from said rod face and having an outer end projecting from said



4,391,381

PAINT-COATED BOTTLE

Akiho Ota, and Fumio Negishi, both of Tokyo, Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 253,635, filed as PCT JP79/00206, Aug. 3, 1979, published as WO81/00391, Feb. 19, 1981 § 102(e) date Mar. 3, 1980, abandoned. This

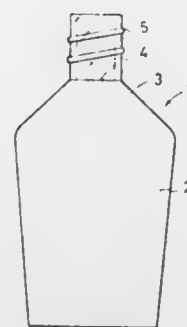
application Feb. 22, 1982, Ser. No. 351,393

Claims priority, application Japan, Feb. 2, 1978, 53-12368

Int. Cl.³ B65D 23/00

U.S. Cl. 215—1 C

3 Claims



1. A paint-coated bottle formed of a saturated polyester resin, comprising: a chlorinated primer layer applied to the exterior surface of the bottle; an acrylic undercoat layer applied to said primer layer; and a decorative paint layer applied to said undercoat layer, said paint layer being prepared by adding a pigment to titanium nitride.

4,391,382

CONTAINER HAVING A SAFETY CLOSURE

Werner Emich, Bensheim-Langwaden, Fed. Rep. of Germany, assignor to Friedrich Sanner GmbH & Co. KG, Bensheim, Fed. Rep. of Germany

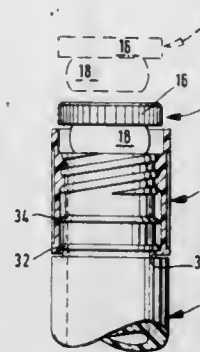
Filed Mar. 17, 1982, Ser. No. 359,072

Claims priority, application Fed. Rep. of Germany, Mar. 18, 1981, 3110514

U.S. Cl. 215—213

Int. Cl.³ B65D 55/02

20 Claims



1. In combination: a container, especially a container of glass, metal or plastic material for pharmaceutical preparations or chemicals, said container having a tubular neck and an open mouth surrounded by an end face, a stopper adapted to be pushed into the mouth of the container neck and having a grip plate with a bottom surface limiting the extent to which the stopper can be inserted into the neck and also having a circumferential surface permitting grasping of the stopper by a person, and a safety sleeve projecting above the end face of the container neck, being disposed externally on the container neck and having a projecting portion conformingly receiving the circumferential surface of the grip plate of the stopper in the closed position of the container, the bottom surface of the grip plate resting upon an annular circumferential radial surface of the safety sleeve, screw-threaded sections on said sleeve and said container neck in the complementary engagement with one another over a limited distance when looking in the opening direction of the stopper and being secured against axial separation from one another, the safety sleeve having at least one projection directed radially inwardly from an inside surface thereof, said projection being snapped over a first annular bead on the outside surface of the container neck, said first annular bead being directed radially outwardly and situated ahead of the projection when looking in the opening direction of the stopper.

4,391,383

OVERSEALING CAPS

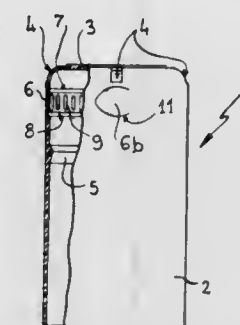
Pierre Babiol, Villefranche sur Saone, France, assignor to Societe Nouvelle de Bouchons Plastiques S.N.B.P., Anse, France PCT No. PCT/FR79/00105, § 371 Date Jul. 7, 1981, § 102(e) Date Jul. 7, 1981, PCT Pub. No. WO81/01399, PCT Pub. Date May 28, 1981

PCT Filed Nov. 13, 1979, Ser. No. 280,001

Int. Cl.³ B65D 41/48

U.S. Cl. 215—256

4 Claims



1. A capping capsule with a thin wall comprising a closed

end and an axially extending skirt including a circumferential tear-off guarantee strip which is joined at its upper and lower edges to the skirt at two rupture lines defined by two circumferential grooves extending around the inside of the skirt and separated by the height of the guarantee strip, and the guarantee strip including on its inner face multiple circumferentially spaced axially extending ribs, the thickness of each rib decreasing abruptly near its ends and blending into the rupture lines.

4,391,384

AUTOMOBILE BODY PANEL HOLE CLOSURE

Dan T. Moore, III, and Michael F. Fischer, both of Cleveland Heights, Ohio, assignors to Dan T. Moore Co., Cleveland, Ohio

Filed Dec. 14, 1981, Ser. No. 330,483

Int. Cl.³ B65D 41/00

U.S. Cl. 220—359

11 Claims



1. A closure for a hole in a panel such as a body panel in an automotive vehicle, comprising a plate having dimensions complementary to and somewhat larger than the hole, means for attaching the plate to the panel, a gasket having dimensions at least as large as the hole, the gasket being of an elastomeric material responsive to the application of heat to expand to a relatively high degree, means attaching the gasket to the plate prior to assembly with the panel hole, the heat expansion capacity of the gasket being sufficient to ensure that any gaps existing between the plate and the opposed areas of the panel surrounding the hole permitted by the plate attaching means and resulting from manufacturing tolerances in the fabrication of the panel hole and plate are closed.

4,391,385

CLOSING ARRANGEMENT

Hans Rausing, Lund, Sweden, assignor to Tetra Pak Development SA, Pully, Switzerland

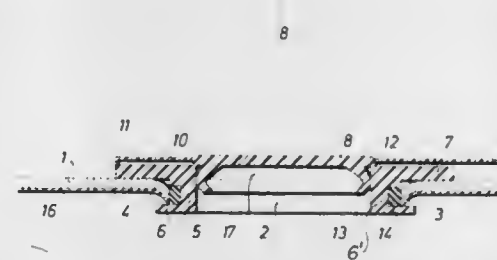
Filed Aug. 20, 1981, Ser. No. 294,440

Claims priority, application Sweden, Aug. 20, 1980, 8005840

Int. Cl.³ B65D 39/00

U.S. Cl. 220—307

15 Claims



1. A closing arrangement for containers which have at least one plane end wall and an aperture therein, comprising: a unitary closing body insertable into the aperture, said closing body including: flange means for retaining said closing body in the aperture, a container-emptying channel in said closing body, and cover means sealed to said closing body for closing said channel in said body; and a separate seal means located on an outer periphery of said closing body for sealing against an edge of the aperture, said seal means including an annular layer of a material softer than

said body in which material said edge of the aperture becomes embedded.

4,391,386

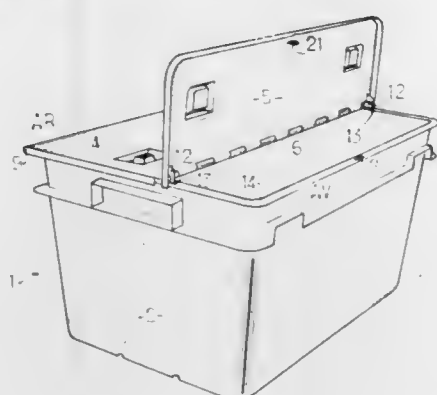
HANDLING CASE WITH INCORPORATED FOLDABLE LID

Michel Moret, Ermont, France, assignor to Allibert S.A., France
Filed Jan. 20, 1982, Ser. No. 340,926

Claims priority, application France, Jan. 21, 1981, 81 01034
Int. Cl.³ B65D 43/14, 51/04

U.S. Cl. 220—343

7 Claims



1. A handling case entailing a lid hinged to the body of the case along one of its edges along a hinge formed toward the upper edge of the case, characterized in that the said lid (3) is divided into two parts (4, 5) hinged one to the other about a second hinge (6) parallel to the first hinge (9), respectively forming a rear part (4) articulated around the said first hinge (9) on the said edge of the case, and a front part (5) hinged to the said rear part (4) of the lid about the said second hinge (6), the said front part (5) including, in the vicinity of the ends of the said second hinge (6), hook-shaped or similar parts (12) which in the tipped position of the lid are locked into slots (13) formed in corresponding positions along the edge (14) of the case, the said front part (5) also including conventional locking mechanisms (21, 22) to lock the lid onto the case.

4,391,387

MAGNETIC TICKET DISPENSER

Robert T. Bayne, Carmel, and Phillip E. Shireman, Martinsville, both of Ind., assignors to Standard Change-Makers, Inc., Indianapolis, Ind.

Continuation of Ser. No. 71,921, Sep. 4, 1979, Pat. No.

4,326,643. This application Jun. 29, 1981, Ser. No. 278,741

The portion of the term of this patent subsequent to Apr. 27, 1999, has been disclaimed.

Int. Cl.³ B65H 3/14

U.S. Cl. 221—13

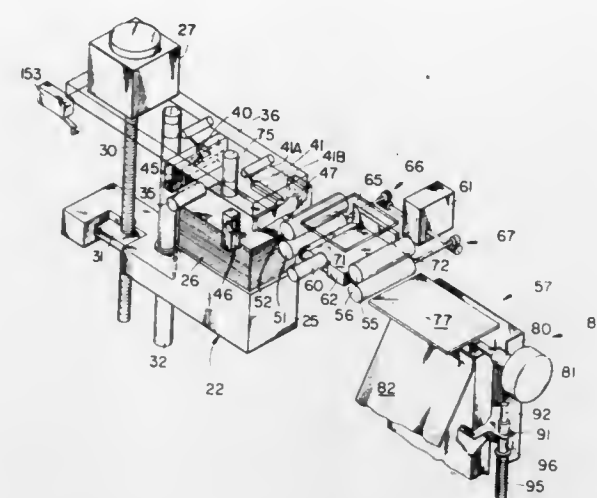
2 Claims

1. Apparatus for dispensing rectangular tickets or the like comprising:

a container having a vertically extending opening therein with a rectangular horizontal cross section adapted to loosely receive a stack of tickets, said container having a top and a ticket passage slot adjacent thereto and leading from said opening to the outside of said container;
an elevator mounted for vertical movement in said container and adapted to support the stack of said tickets;
means for operating said elevator to position the uppermost ticket thereon slightly below said top;
said container having air jet orifices therein, a first of which is located in the container side wall on the opposite side of said container from said slot, said first orifice extending toward the side of the stack of tickets below the uppermost tickets, a second of said orifices being located in said container top on the opposite side of said container from said slot, and a third of said orifices being located in said container top above said slot;

means for providing a blast of air under pressure through said first orifice to break apart the tickets in the stack and

through said second and third orifices to move a ticket from the top of the stack of tickets out of the container through said slot; and



controller means for electronically timing and sequencing the air under pressure from said air jet orifices.

4,391,388

CONTROL SYSTEM FOR INCREASING THE VERSATILITY OF AN ALL PURPOSE MERCHANDISER

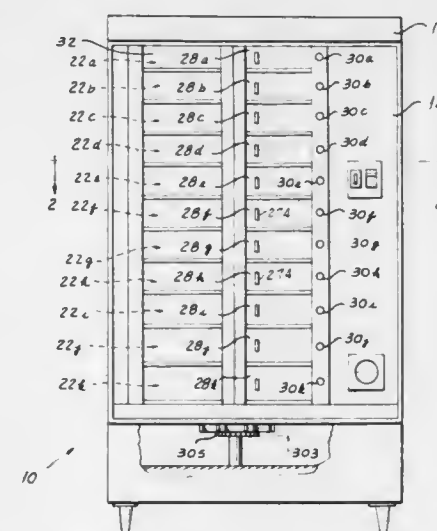
Merrill Krakauer, 1 Deer Path, Short Hills, N.J. 07078

Filed Apr. 30, 1981, Ser. No. 258,937

Int. Cl.³ G07F 11/54

U.S. Cl. 221—76

8 Claims



1. In a merchandising machine, apparatus including a cabinet formed with a plurality of vertically aligned access openings leading into the interior of said cabinet, a plurality of normally locked doors associated with said openings, a merchandise carrier comprising a plurality of levels of compartments each adapted to receive merchandise, means mounting said merchandise carrier for movement as a unit around a vertical axis with said merchandise levels respectively at the heights of said openings, drive means adapted to be energized to move said carrier, a plurality of selecting means corresponding respectively with said levels, respective first control means associated with said selecting means and adapted to be set to energize said drive means in response to actuation of associated selecting means for a period of time to move said carrier to position the next full compartment of the level corresponding to the actuated selecting means behind its associated opening and to stop said carrier in said position, respective second control means associated with said selecting means and adapted to be set to energize said drive means in response to actuation of the associated selecting means to permit the customer stationarily to position any compartment of the corresponding level behind the level opening, means for selectively setting one of said first

and second control means of each level to cause the level to operate in a first-in first-out mode or in a shopper mode, and means including said control means and coin responsive means for releasing a door behind which a compartment containing selected merchandise has been positioned.

4,391,389

ADJUSTABLE ACTUATOR FOR PLURAL DISPENSING DEVICES

Giuseppe Catalfamo, Via Sanvito, 14, Varese, Italy

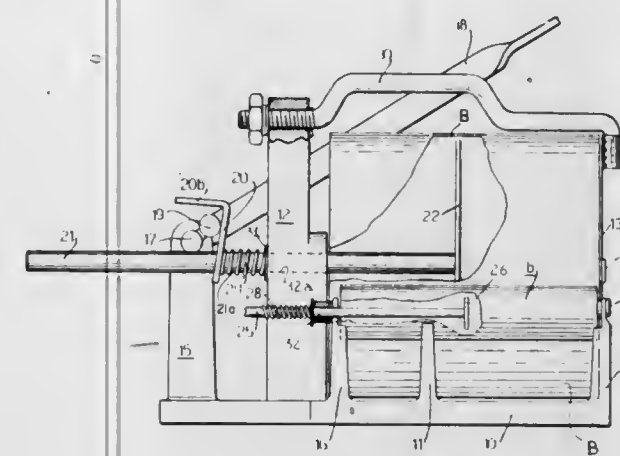
Filed Mar. 19, 1981, Ser. No. 245,392

Claims priority, application Italy, Apr. 8, 1980, 21240 A/80

Int. Cl.³ B67D 5/52

U.S. Cl. 222—135

18 Claims



1. In a dispensing device, a combination comprising:
first means for holding containers for at least two substances to be dispensed at a preselected ratio to one another, said containers each being of the type having one end provided with a stationary end wall and a second end provided with a movable end wall which is slidable toward said one end to effect expulsion of the substance of the container;
second means for effecting the dispensing of said substances, said second means comprising a plurality of linearly movable pusher members, one for each container, each pusher member having a leading end portion adapted to press against and effect movement of one of said movable end walls and further comprising for each of said pusher members an element of rigid strip material having a hole through which the respective pusher member extends, an abutment portion engaging said element spaced from and at one axial side of the pusher member, a spring engaging the element adjacent said pusher member at the opposite axial side and urging the element towards said one side so that the element tilts on the pusher member and the edge portions bounding said hole entrainingly engage the pusher member; and
third means connected with said second means and operative for changing said preselected ratio to a different ratio.

4,391,390

CHEMICAL-MIXING AND DISPENSING APPARATUS

Arthur G. Howard, 7711 Newport Way, Apt. D., Indianapolis, Ind. 46250

Filed Jan. 21, 1981, Ser. No. 226,894

Int. Cl.³ B05B 7/26

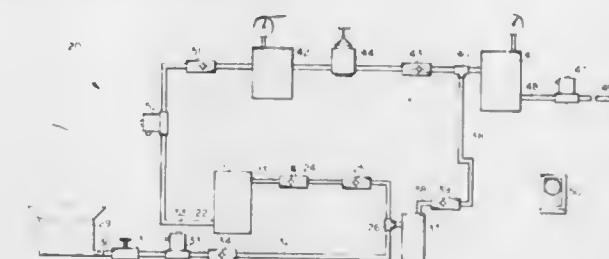
U.S. Cl. 222—136

12 Claims

1. A chemical-mixing and dispensing apparatus for providing a volume of a chemical mixture to a dispensing location, said chemical-mixing and dispensing apparatus comprising:

a first chemical container having an inlet port and an outlet port;
a first chemical disposed within said first chemical container;
a source of a second chemical;
flow conduit in flow communication with the outlet port of said first chemical container and with said source of a

second chemical, said flow conduit allowing simultaneous passage therethrough of said first and second chemicals;
a fixed-volume chemical mixture holding tank having an outlet port in flow communication with said dispensing location and having an inlet port in flow communication with said flow conduit;



4,391,391

SYRINGE FOR APPLYING ADHESIVE RESIN TO THE JUNCTIONS OF TENNIS RACKET NETTING

Aldo M. Robaldo, Corso Francia 33, Turin, Italy

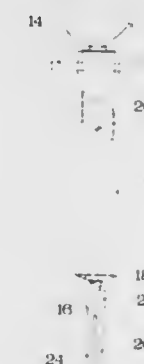
Filed Nov. 6, 1980, Ser. No. 204,586

Claims priority, application Italy, Jan. 11, 1980, 52825/80[U];
Mar. 7, 1980, 53010/80[U]

Int. Cl.³ B67D 5/00

U.S. Cl. 222—478

14 Claims



1. A syringe for applying adhesive resin to the junctions of racket netting, comprising a reservoir cylinder to contain such adhesive resin and an injecting piston to expel adhesive resin from such reservoir cylinder and at least two separate adjacent parallel tubular spray nozzles fluidically coupled with and extending from the end of the reservoir cylinder to provide simultaneous, substantially identical doses of adhesive resin therethrough to such junctions.

4,391,392

SLIDING CLOSURE UNIT

Peter Jeschke, Walluf, and Jürgen Plath, Wiesbaden, both of Fed. Rep. of Germany, assignors to Didier-Werke A.G., Wiesbaden, Fed. Rep. of Germany

Filed Aug. 12, 1981, Ser. No. 292,188

Claims priority, application Fed. Rep. of Germany, Aug. 20, 1980, 3031377

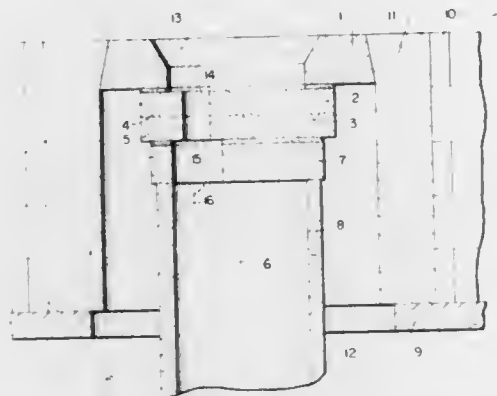
Int. Cl.³ B22D 41/08

U.S. Cl. 222—598

6 Claims

1. In a sliding closure unit for selectively discharging liquid melt from a liquid melt container of the type including an outer jacket, an inner refractory lining and a pouring opening extending through the lining, said sliding closure unit cooperat-

ing with the container for selectively blocking and unblocking the pouring opening and including a stationary refractory plate having therethrough a flow passage for communication with the pouring opening, a sliding refractory plate in abutting contact with said stationary refractory plate and having therethrough at least one flow passage to be selectively moved into and out of alignment with said flow passage of said stationary refractory plate, said stationary and sliding refractory plates having complementary, abutting relative sliding surfaces, the improvement wherein:



said stationary refractory plate consists essentially of a substantially non-wettable material having a Mohs' hardness of from 1 to 2, a thermal conductivity of greater than 40 W/km at 700° C. and a crushing strength of not greater than 25 N/mm² at about room temperature; and said sliding refractory plate consists essentially of a substantially non-porous material having a Mohs' hardness of from 6 to 7, a thermal conductivity of less than 3 W/km at 700° C. and a crushing strength of greater than 300 N/mm² at about room temperature.

4,391,393

WETTED SALT SYSTEM INCLUDING ADJUSTABLE TIMER

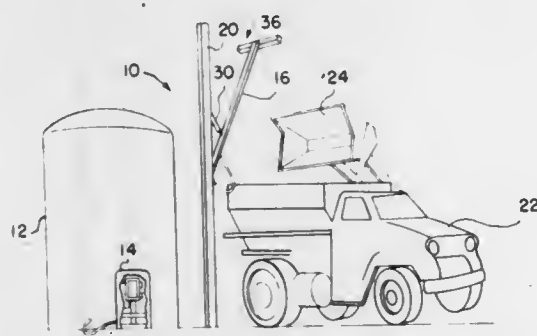
Wm. G. Filmyer, Philadelphia, Pa., assignor to Pioneer De-Icing Services, Inc., Philadelphia, Pa.

Continuation of Ser. No. 67,304, Aug. 17, 1979, abandoned. This application Feb. 4, 1982, Ser. No. 345,572

Int. Cl.³ B67D 5/02

U.S. Cl. 222-642

1 Claim



1. In a wetted salt system suitable to extend the melting range of highway salt of the type including a liquid storage tank, a wetting arm pivotally connected at one end to a stationary support and having an unconnected end, the wetting arm comprising an elongated bar and at least one nozzle supported near the unconnected end of the bar, and means to pivotally function the wetting arm relative to the support between an elevated position and a spray position; a brine pump taking its suction from the storage tank and delivering liquid under pressure to the spray nozzle; a hydraulic circuit to control the operation of the means to pivotally function the arm; an electrical control circuit including a first timer to control the time period the wetting arm remains in the said spray position and a second timer to control the time period of the flow of brine from the pump to the spray nozzle, first radio transmitter and

receiver means to initiate the operation of the first timer and second radio transmitter and receiver means to initiate operation of the second timer; the improvement comprising

a third timer connected in parallel to and being adapted to override the said second timer, the third timer including an electrically timed operation cycle and a manual timer adjustment knob, the adjustment knob being connected in the timer to vary the duration of the timed operation cycle, and

manual means connected into the electrical control circuit to bypass the first and second radio transmitter and receiver means, the manual means comprising a flexible electrical cord and a switch, the manual means being adapted to manually function the up and down pivotal movements of the wetting arm and the spray cycle through the spray nozzle from a location remote from the electrical control circuit;

whereby the timed period of brine flow can be manually adjusted without requiring tools.

4,391,394

METHOD FOR LAYING SHIRTS, ESPECIALLY MEN'S SHIRTS, FOR PURPOSES OF WRAPPING

Rolf Hoffmann, Monchen-Gladbach, Fed. Rep. of Germany, assignor to van Laack, Schmitz & Eltschig GmbH u. Co., Monchen-Gladbach, Fed. Rep. of Germany

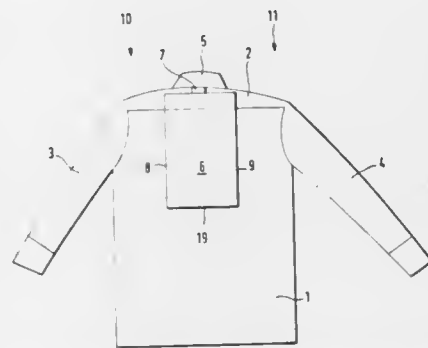
Filed Jan. 19, 1981, Ser. No. 226,100

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1980, 3036277

Int. Cl.³ A41H 33/00

U.S. Cl. 223-37

6 Claims



1. A procedure for laying a shirt, in particular a men's shirt, for purposes of wrapping, wherein the shirt yokes are folded-over along mutually parallel folding lines on the back of the shirt and the folded-over yokes lying on each other are fastened by a slipped-on clamp in the area of a beak formed between them, whereupon the shirt sleeves are layed on the folded-over yokes and then the torso end consisting of the front and rear sides and away from the collar is turned-over together with folded-over parts along a folding line extending transversely to the lengthwise direction of the shirt and is further fastened to the front side or to the folded-over parts joining same, characterized in that the folded-over yokes (2, 10, 11) are merely joined together by the clamp (15), in that the folded-over torso end (18) of the shirt (1) that is away from the collar is fastened by at least two pins (22, 23) to the folded-over parts (10, 11), and in that torso end (18) is folded-over so much that a tuck-in end (20) projecting above the upper border (13, 14) is folded about this border (13, 14) of the yokes (2) and is tucked-in behind the yokes (2, 10, 11).

4,391,395

CLOTHES HANGER

Franz Karner, Lidköping, Sweden, assignor to Karner & Co AB, Lidköping, Sweden

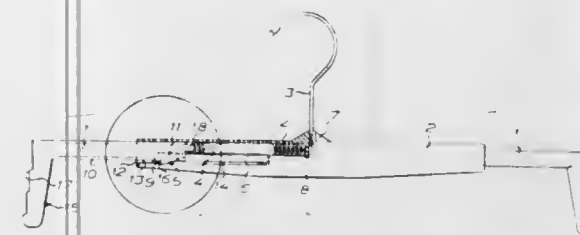
Continuation of Ser. No. 37,955, May 9, 1979, abandoned. This application Oct. 23, 1981, Ser. No. 315,303

Claims priority, application Sweden, May 11, 1978, 7805391

Int. Cl.³ A41D 27/22

U.S. Cl. 223-94

5 Claims



1. A clothes-hanger comprising a hollow central portion having an outer end and having a slot in the lower region thereof, the slot having a defining edge adjacent to the outer end thereof, said edge being spaced inwardly from the outer end of the central portion, a suspension member disposed on the central portion, said central portion having abutment means centrally therein, two end pieces, at least one said end piece being telescopically in the central portion in order to be movable between an inner and an outer position in the central portion, the outer ends of said end pieces having gripping portions for engagement with an article of clothing which is to be hung up, said one end piece at its inner end having a transverse abutment face, a compression spring disposed between and abutting said abutment means in the central portion and the abutment face of the end piece telescopically disposed in the central portion, recess means in the bottom of said movable end piece adjacent to and spaced from the transverse abutment face thereof, and a locking device resiliently connected at the inner end thereof to said one end piece with its inner end at the inner end of the one movable end piece and having a free outer end remote from said inner ends, said outer end of said locking piece having end surface means for engaging said defining edge of said slot in said central portion, said locking device extending from its inner end towards said gripping portion of the one end piece and underlying said recess means, said recess means being devoid of any obstruction to movement thereof of said locking means, the locking device having a lower surface inclined downwardly toward the outer end thereof, said locking device positioned when said inner end of said one end piece is partially inserted into said central portion for engagement of the lower surface thereof with the outer end of the central portion whereby resiliently to move said locking device into said recess means in the said one end piece upon initial insertion thereof and whereby after further insertion said locking device will be caused to snap down into said slot formed in said central portion lower region by the resilient connection, the end surface means at the free outer end of said locking device engaging the defining edge of said slot and being urged thereagainst by said compression spring.

4,391,396

CLOTHING TRAVEL BAG

Reginald D. Brady, 2524 Boyer Ave. East, Apt. 446, Seattle, Wash. 98102

Filed Jan. 26, 1981, Ser. No. 228,132

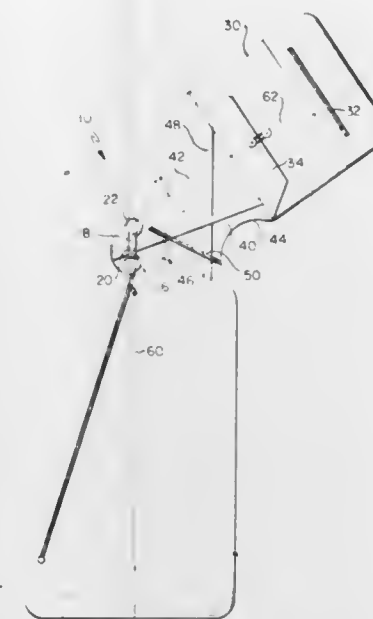
Int. Cl.³ A45F 3/02

U.S. Cl. 224-205

9 Claims

1. A travel bag for carrying objects, comprising first and second bags interconnected by a relatively thin, flexible web, said web being offset from the center of at least one of said bags to provide clearance for the neck of a user when said travel bag is carried with said web over one shoulder and the first and second bags extend downwardly along the back and chest of the user, said web being secured to said bags in a manner that causes the respective center axes of said bags to intersect each

other at an acute angle in the direction that said web is offset from said bag when said bags occupy a common plane so that



said bags are level when they are carried, with said web resting on the shoulder of said user.

4,391,397

FIREWOOD CARRIER

William D. Taylor, Jr., P.O. Box 142, King George, Va. 22485

Filed Jun. 25, 1981, Ser. No. 277,153

Int. Cl.³ A45C 11/00

U.S. Cl. 224-265

1 Claim



1. A device for carrying wood, particularly firewood, comprising a front-carried frame formed of a pair of rigid, generally S-shaped, tubular elements formed of conventional electrical conduit, spaced apart in parallel planes by a plurality of rigidly attached cross members, the upper curvatures of the S-elements being configured in downwardly-concave C-portions, padded with conventional hot water pipe insulation to rest on the shoulders of the wearer of the device, the lower curvatures of the S-elements being configured in upwardly-concave C-portions to form a receptacle for the transportation of firewood, and the lower curvatures and two cross-members being covered with canvas sleeves attaching to them a canvas sheet which forms a part of the receptacle.

4,391,398

METHOD OF TENSIONING A TAPE

Heinrich Cap, St. Georgen, Fed. Rep. of Germany, assignor to Papst Motoren GmbH & Co. KG, St. Georgen, Fed. Rep. of Germany

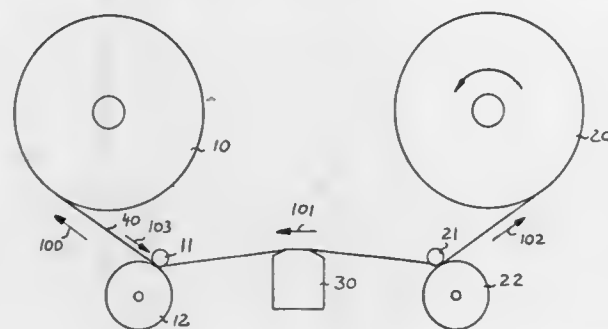
Filed Feb. 19, 1980, Ser. No. 122,684

Claims priority, application Switzerland, Feb. 26, 1979, 1886/79

Int. Cl.³ B65H 23/22

U.S. Cl. 226—4

5 Claims



1. A method of tensioning a tape in a tape recording device, comprising the steps of passing a tape between a braking roller, a first sound shaft, a second sound shaft, and a pulling roller located one after the other so that the tape runs with counter-acting pulling forces and slips over the sound shafts; and adjusting the pulling forces of the rollers and the slip of the tape on the sound shafts so that one pulling force of the tape between the braking roller and the first sound shaft, and another pulling force of the tape between the first and second sound shafts act in a direction toward the braking roller, whereas a further pulling force of the tape between the second sound shaft and the pulling roller acts opposite to said direction, and also so that the first sound shaft reduces the one pulling force between the braking roller and the first sound shaft and thereby the other pulling force between the first and second sound shafts is smaller than said one pulling force, and the second sound shaft smaller reduces the other pulling force between the first and second shafts so that the further pulling force between the second sound shaft and the pulling roller is smaller than said other pulling force.

4,391,399

MANUALLY ASSEMBLABLE SHEET-FEED TRACTOR

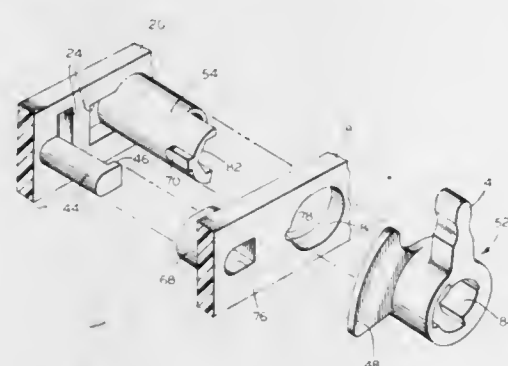
Alan F. Seitz, New Hartford, Conn., assignor to Data Motion, Incorporated, Torrington, Conn.

Filed Sep. 25, 1981, Ser. No. 305,492

Int. Cl.³ B65H 17/38

U.S. Cl. 226—74

26 Claims



1. A sheet-feed tractor adapted to be slidably mounted on spaced apart and substantially parallel extending elongated support and drive shafts comprising:

- a first frame member having a support-shaft opening therein;
- a second frame member assembled on said first frame member to form a tractor frame therewith;
- a drive sprocket mounted on said tractor frame for rotation about the axis of said drive sprocket and having an

aperture therethrough adapted to receive the drive shaft for sliding therealong and for driving thereby upon rotation of the drive shaft about its longitudinal axis;

- an endless belt disposed about said tractor frame in engagement with said drive sprocket to be driven thereby upon driving movement of said sprocket by the drive shaft, said drive belt including sheet engagement teeth adapted to engage in the perforations of sheet material perforated against the side margins thereof for advancement thereof upon driving of said belt by said sprocket;
- clamp means, having an aperture therethrough adapted to receive the support shaft therein, for clamping the support shaft received therein, said clamp means including a first clamp part on said second frame member and extending through said support-shaft opening in said first frame member to the side of said first frame member opposite that on which said second frame member is disposed, said clamp means also including a second clamp part disengageably mounted on said first clamp part and movable relative thereto to clamp a support shaft received in said aperture in said clamp means, said second clamp part bearing against the side of said first frame member opposite said second frame member to retain said first and second frame members in assembly, said frame members being held in assembly by said clamp parts, removal of said second clamp part from said first clamp part permitting ready disassembly of said frame members from each other.

4,391,400

APPARATUS FOR STORING A VARIABLE LENGTH OF STRIP

Daniel Sylvain, Saint Etienne, France, assignor to Clesid, St. Chamond, France

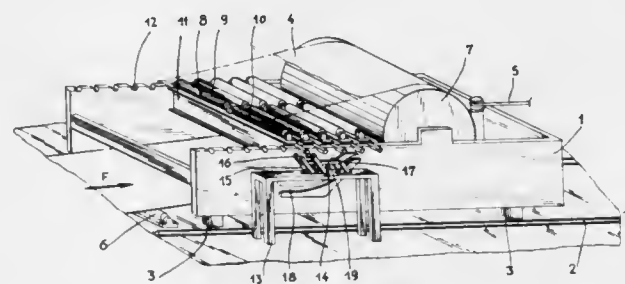
Filed May 1, 1981, Ser. No. 259,642

Claims priority, application France, May 7, 1980, 80 10215

Int. Cl.³ B65H 17/42

U.S. Cl. 226—113

5 Claims



1. A strip accumulator system of the horizontal type, comprising:

- a cart having means for engaging a strip in a fashion to form a horizontal loop, and constructed and arranged to be motivated along a path of travel to increase or decrease the length of said loop,
- a number of roller assemblies for supporting and separating an upper portion from a lower portion of said strip of said formed loop,
- said cart including means for storing said roller assemblies thereon,
- a number of stationary cooperative sets of frames transversely opposed relative to said strip and spaced at selected locations parallel to and on opposite sides of said path of travel in a manner to permit free movement of said cart therealong, and
- means activated by said motion of said cart, for the successive removal of said roller assemblies off of said cart and placement thereof onto a different one of said sets of transversely opposed frames and into a working position to support said upper portion of said strip upon said increase of said loop and for successive removal of said

roller assemblies from said sets of frames onto said cart upon said decrease of said loop.

4,391,401

SURGICAL STAPLERS AND STAPLE

Jerome F. Moshofsky, Portland, Oreg., assignor to Lawrence M. Smith, Lake Oswego, Oreg.

Continuation of Ser. No. 26,071, Apr. 3, 1979, Pat. No.

4,256,251, which is a continuation-in-part of Ser. No. 899,350, Apr. 24, 1978, abandoned. This application Jan. 26, 1981, Ser.

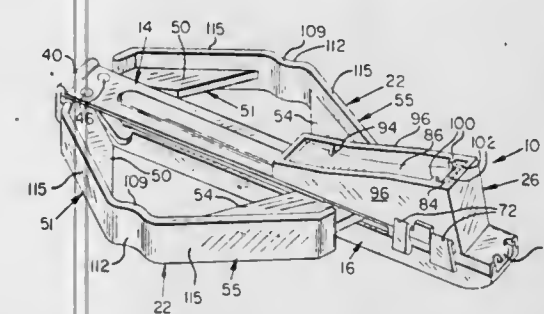
No. 228,620

The portion of the term of this patent subsequent to May 17, 1998, has been disclaimed.

Int. Cl.³ A61B 17/04

U.S. Cl. 227—19

2 Claims



1. A surgical stapler comprising:

- an elongate body having forward and rearward ends, and having a longitudinally extending guideway opening through its forward end;
- a ram having a forming end portion and being mounted in said guideway with said forming end portion adjacent the forward end of the body for sliding movement along the guideway between a forward position with its forming end portion at said forward end and a retracted position with its forming end portion spaced from said forward end;
- staple-holding means attached to said body for feeding a staple into said guideway when said ram is in its retracted position;
- at least one toggle-joint linkage, said toggle-joint linkage comprising first and second arms of generally equal length, said arms having adjacent ends pivotally attached together with the end of said first arm opposite said adjacent ends being pivotally attached to said body adjacent its rearward end and the end of said second arm opposite said adjacent ends projecting toward the forward end of said body and being pivotally attached to said ram, the adjacent ends of the arms of said toggle-joint linkage being opposed and projecting away from said body when said ram is in its retracted position so that pressing the adjacent ends of the arms of said toggle-joint linkage in a direction transverse of said guideway will move said ram from its retracted to its forward position; and
- an anvil fixed to the forward end of said body and projecting across said guideway, said anvil and the forming end portion of said ram being shaped to close a staple therebetween upon movement of said ram to its forward position.

4,391,402

SURGICAL STAPLING CONTROL MEANS

Jay E. Campbell, Upper Black Eddy; Richard H. Reichmann, Churchville, both of Pa., and Lehmann K. Lehmann, Fairfield, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 153,229, May 27, 1980,

abandoned. This application Sep. 26, 1980, Ser. No. 191,653

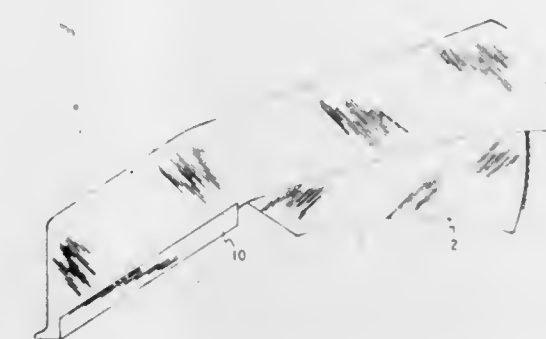
Int. Cl.³ A61B 17/04

U.S. Cl. 227—121

6 Claims

1. A surgical stapling control means comprising a handle; a trigger pivotally attached and compressible into said handle; a staple forming means contained in the forward portion of said

handle; a flexible arm mounted on the rearward portion of said trigger; a pawl and at least one guide pin attached to one end of said arm; a multi-toothed ratchet attached to the rearward portion of said handle; and guide means having upper and lower portions, said guide means positioned adjacent the rearward portion of said handle so as to coordinate with and provide tension to said guide pin, such that on partial compression



ing said trigger the lower portion of said guide means provides tension on said guide pin and flexes said arm such that the pawl engages said ratchet and such that on complete compression of said trigger, the upper portion of said guide means releases tension from said guide pin allowing said arm to relax and allowing said guide pin to cross over said guide means, thus causing said pawl to be disengaged from said ratchet.

4,391,403

METHOD OF EXPLOSION-WELDING ROLLING BILLETS INTENDED FOR PACKAGE ROLLING

Ingemar P. Persson, Striberg, Sweden, assignor to Nitro Nobel AB, Gytterp, Sweden

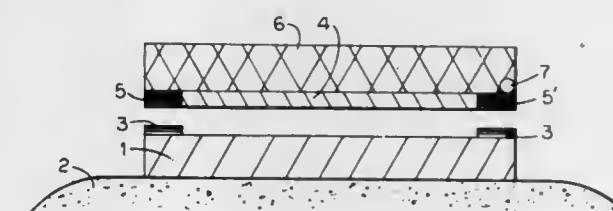
Filed Apr. 13, 1981, Ser. No. 253,822

Claims priority, application Sweden, Apr. 23, 1980, 8003071

Int. Cl.³ B23K 20/08

U.S. Cl. 228—107

5 Claims



1. A method of manufacturing a compound plate by explosion-welding, said compound plate being intended for subsequent package-rolling, characterised in that the plating material is smaller in area than the base material so that an edge is left around the periphery of the base material without any plating, that this free edge surface of the base material is protected by the attachment of metal strips, that an explosive charge is placed on top of the plating material, said charge having an area at least as great as that of the base material, after which the explosive charge is detonated.

4,391,404

SLEEVE VALVE FOR FLEXIBLE BAGS

Albert Welter, Franklin, Ohio, assignor to Champion International Corporation, Stamford, Conn.

Filed Aug. 13, 1981, Ser. No. 292,622

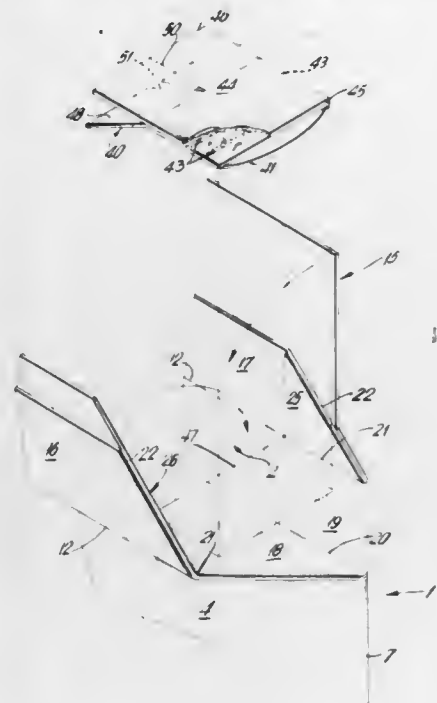
Int. Cl.³ B65D 30/24

U.S. Cl. 229—62.5

11 Claims

1. A flexible bag comprising side walls, a top wall and a bottom wall, an open mouth in the corner of said top wall comprising an end flap, a sleeve valve mounted in said open mouth, said sleeve valve comprising a tubular sleeve and a backing panel, the upper front portion of the tubular sleeve being adhered to the backing panel by an adhesive area and the

lower front portion of the sleeve adhered to the end flap of said open mouth of the bag, the upper and lower rear portions of said sleeve being unattached to the backing panel and to said end flap and being adapted to hang within the bag, and a longitudinal slit located exclusively in the upper rear portion of



said sleeve, said slit terminating short of said adhesive area to form an unslit area of said upper rear portion unadhered to said backing panel whereby the said unslit area together with the lower rear portion of said sleeve folds over the open mouth to seal the open mouth in the two-ply region of the sleeve.

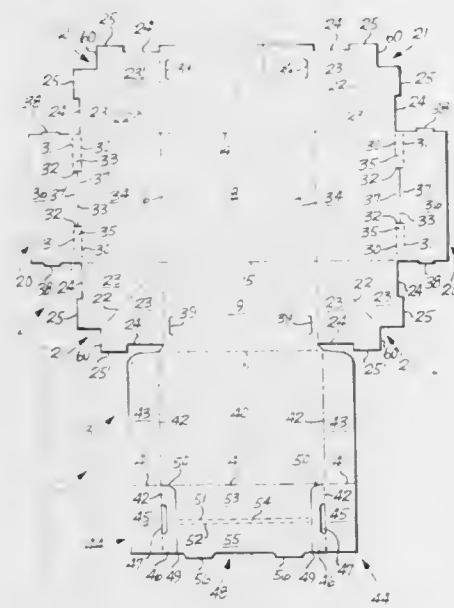
4,391,405 CONTAINER

Alva C. Drinon, Portland, Me., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Oct. 23, 1981, Ser. No. 314,262
Int. Cl.³ B65D 5/24, 5/34

U.S. Cl. 229—31 R

20 Claims



1. A blank for a container body comprising:
a rectangular base panel,
front and rear panels hinged along score lines to said base panel,
side panels hinged along score lines to said base panel,
four corner panels each hinged by score lines along two adjacent sides to said adjacent side panel and said adjacent one of said front and rear panels,
said corner panels being divided into a pair of gusset panels

by a diagonal score line extending from the juncture of said hinged score line of said corner panel
each of said gusset panels having a locking tab extending outwardly from its upper edge, said locking tabs of each pair of said gusset panels being alignable in the erect container body,
a locking panel extending outwardly from each of said side panels, said locking panel being separated from said side panel by a cut line along a portion of the width of said locking panel and said side panel, said cut line separation being alignable with said locking tabs in said erect container body,
said locking panel and said side panel being further separated along at least part of the remainder of their width by a pair of shoulder panels, each said shoulder panel being defined by a pair of parallel score lines which form the hinged joint between said shoulder panel and said side panel and said shoulder panel and said locking panel,
said score line between said side panel and said shoulder panel being aligned substantially with the upper edge of said gusset panel,
the width of said shoulder panel being substantially equal to the combined thickness of a pair of gusset panels,

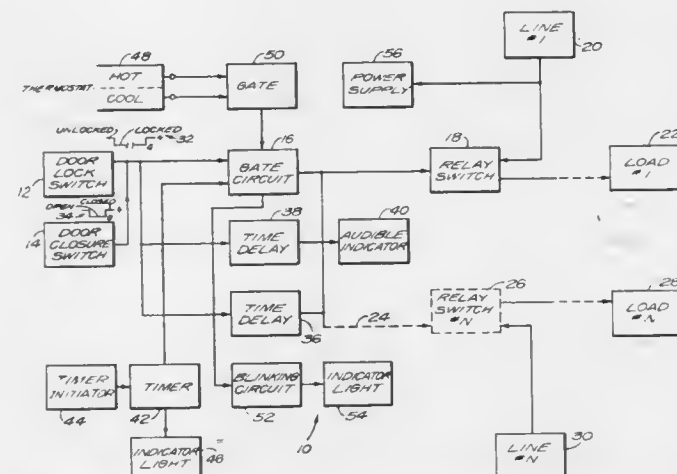
4,391,406 POWER SAVING SYSTEM WHICH ASSURES ROOM SECURITY

Morton Fried, 706 Bolton Rd., Far Rockaway, N.Y. 11691
Filed Jan. 7, 1982, Ser. No. 337,701

Int. Cl.³ E05B 65/00; G05D 23/00

U.S. Cl. 236—47

8 Claims



1. A power saving system for conserving energy consumption by electric loads in a room having a door with a locking system, and which system also assures room security, comprising:

closure switch means for coupling to the door and producing a control signal only throughout the time the door is opened;
lock switch means for coupling to the door locking system and producing a control signal only throughout the time of proper locking of the door, both said control signals being the same;
control means associated with an electric load in the room, and
wire means coupling said closure switch means and said lock switch means in parallel to said control means,
said control means comprising timing means responsive to the termination of a control signal on said wire means for producing a control signal for a preset limited interval of time, and for ceasing operations upon the presence of a control signal on said wire means, and control switch means responsive to any of the aforesaid control signals for controlling the energization of the electric load during the time that a control signal is present.

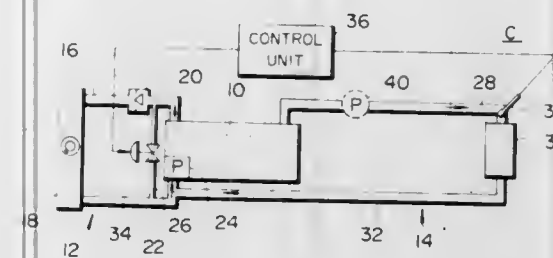
4,391,407 VEHICLE CABIN HEATER

Sadaharu Nakazawa, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan
Filed May 21, 1981, Ser. No. 265,843
Claims priority, application Japan, May 22, 1980, 55-69494[U]

Int. Cl.³ B60H 1/02

U.S. Cl. 237—12.3 B

4 Claims



1. A water circuit arrangement of an engine having a water jacket therein, comprising:

an engine cooling circuit including a thermostat valve, a radiator and a water pump connected in series by means having one end connected to an outlet of said water jacket and the other end connected to an inlet of said water jacket;
a bypass passage bypassing both said thermostat valve and said radiator;
a vehicle cabin heating circuit including a passage having one end connected to the outlet of said water jacket and the other end connected to the passage of said engine cooling circuit at a position just upstream of said water pump, and a heater core unit arranged in the passage of said vehicle cabin heating circuit to receive water from the outlet of the water jacket flowing through said heater core unit before reaching said water pump;
valve means arranged in said bypass passage for selectively opening and closing said bypass passage;
temperature sensing means for measuring the temperature of water circulating through said vehicle cabin heating circuit; and
control means for actuating said valve means to close the bypass passage when said temperature sensing means senses a water temperature in the vehicle cabin heating circuit below a predetermined level, and to open said bypass passage when said temperature sensing means senses a water temperature in the vehicle cabin heating circuit above the predetermined level.

4,391,408 LOW INSERTION FORCE CONNECTOR

Richard J. Hanlon, Attleboro, Mass., and Rudi O. H. Vetter, Pawtucket, R.I., assignors to Augat Inc., Attleboro, Mass.

Filed Sep. 5, 1980, Ser. No. 184,216

Int. Cl.³ H01R 13/639

U.S. Cl. 339—75 M

14 Claims

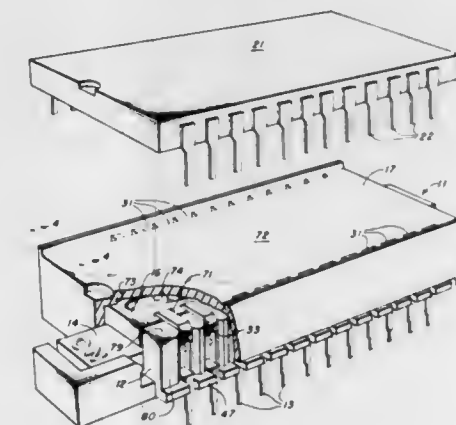
1. A low insertion force connector for an integrated circuit package having a plurality of terminals arranged in spaced parallel rows, said connector comprising:

a rectangular base member formed with a plurality of apertures along opposite edges thereof;
a spring loaded electrically-conductive contact member mounted in each of said apertures, said contact member having only one bearing surface adapted to move without flexure of the bearing surface to coact with an electrically non-conductive surface of a cover to make a single-sided contact with an inserted terminal, said bearing surface having a normal ON position and an OFF position;
a slide member on said base, said slide member being longitudinally movable and having a plurality of upstanding pins on its top surface;
a pair of actuator members on said slide member, each actua-

tor member associated with a different plurality of said apertures, said actuator members having a plurality of elongated first slots arranged at an angle with respect to the direction of longitudinal movement of said slide member, each of said first slots engaging a corresponding pin, said actuators being laterally movable with respect to said base member and said slide member; and

an electrically non-conductive cover engaging said base and enclosing said slide, actuators and a portion of said contact members including said bearing surfaces, said cover being formed with a plurality of openings aligned with said apertures and said contact members in said apertures, said cover being further formed with electrically non-conductive surfaces confronting said contact members and said apertures in said base;

said actuators each having a plurality of second slots arranged in a row along one edge thereof, each of said



contact members being formed with a hook portion engaging a corresponding one of said second slots;
whereby longitudinal movement of said slide member in one direction moves said actuators away from each other to the normal or ON position whereby said bearing surfaces of said contact members are closely adjacent said confronting surfaces of said cover, and longitudinal movement of said slide in a second direction moves said actuators toward each other to the OFF position whereby said bearing surfaces are moved laterally away from said confronting surfaces of said cover; and
whereby the terminals of said integrated circuit package may be easily inserted through said openings and between said bearing surfaces and said confronting surfaces when said connector is in the OFF condition and the terminals are positively confined between said bearing surfaces and said confronting surfaces when said connector is in the ON condition.

4,391,409 POSITIONING AND CONTROL SYSTEM FOR FAN THRUST REVERSER COWLS IN A TURBOFAN ENGINE

Klaus H. Scholz, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1980, Ser. No. 192,247

Int. Cl.³ F02K 1/60

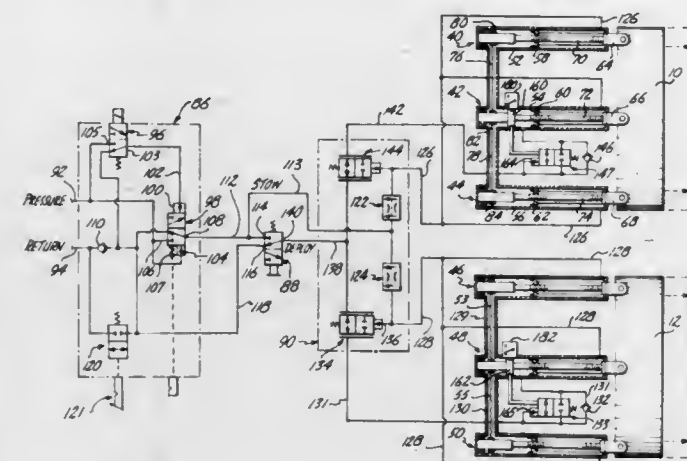
U.S. Cl. 239—265.29

5 Claims

1. A pressurized hydraulic fluid positioning and control system for moving first and second fan thrust reverser cowls in a turbofan engine, said fan thrust reverser cowls being movable in retraction and deployment between a retracted position and a deployed position, respectively, comprising:

first and second hydraulic actuator means coupled respectively to said first and said second reverser cowls for moving said cowls between said retracted and deployed positions, each of said first and second hydraulic actuator means including at least one double-acting hydraulic actuator having cooperative piston and cylinder members and a movable piston rod, said piston rod of said hydraulic

actuator of said first hydraulic actuator means being coupled to said first reverser cowl, and said piston rod of said hydraulic actuator of said second hydraulic actuator means being coupled to said second reverser cowl, each said cylinder member being affixed to said turbofan engine and having a rod end pressurizable to retract said cowls and a head end pressurizable to deploy said cowls; means for supplying pressurized hydraulic fluid to said first and said second hydraulic actuator means; directional control valve means for selectively controlling flow of said pressurized hydraulic fluid to and from said first and second hydraulic actuator means to retract or deploy said thrust reverser cowls; and,



first and second flow regulator means respectively coupled to said first and second actuator means for regulating flow of said pressurized hydraulic fluid to and from said first and second actuator means during deployment and retraction of said first and second reverser cowls, said first and second flow regulator means being operable to regulate the respective rates of flow of hydraulic fluid to and from said first and second hydraulic actuator means to provide substantially synchronous and independent movement of said first and second reverser cowls during retraction and deployment.

4,391,410

SPRINKLER WITH TRANSVERSELY MOUNTED SPLASH PLATE

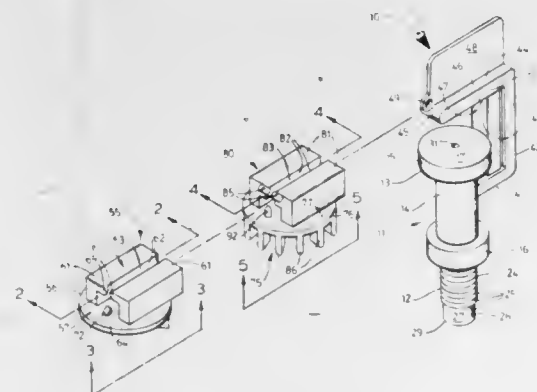
Allan L. Smith, 26591 Road 196, Exeter, Calif. 93221

Filed Mar. 30, 1981, Ser. No. 248,959

Int. Cl.³ B05B 1/26

U.S. Cl. 239-498

12 Claims



1. A sprinkler comprising a body having a fluid passage extending therethrough and communicating with the exterior thereof for the release of a fluid stream therefrom substantially along a predetermined axis, an arm mounted on the body having a portion defining a track disposed in substantially right angular relation to said axis, a splash plate having a predetermined impact point for contact by said fluid stream when the splash plate is in an operating position and a mount engageable with the portion of the arm defining the track for movement of

the splash plate along the track to carry said impact point along a path substantially intersecting said axis, and means for interlocking the splash plate and the arm in fixed position relative to each other when said impact point is in substantial coincidence with said axis.

4,391,411

METHOD AND APPARATUS FOR PULVERIZING MATERIALS BY VACUUM COMMINUTION

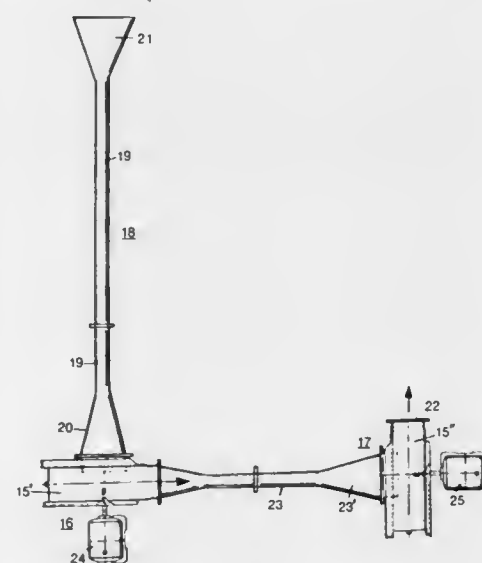
William A. Colburn, Denver, Colo., assignor to Process Development Corporation, Denver, Colo.

Filed Dec. 18, 1980, Ser. No. 217,679

Int. Cl.³ B02C 19/18

U.S. Cl. 241-1

10 Claims



1. In a vacuum system for effecting the comminution of minerals and other frangible substances, the method for increasing the rate of pulverization and the fineness of the product which comprises:

producing a low-pressure zone and a continuous flow of air into the zone and a discharge of air from the zone; providing a mass of material to be pulverized; and injecting the material into the low-pressure zone at a significant initial velocity produced by a force independent of the force utilized for producing said low-pressure zone, whereby the material is subjected to a sudden corresponding increased rate of change of pressure upon entering said low-pressure zone.

4,391,412

APPARATUS FOR LIMITING FILLING HEIGHT OF CONTAINERS

Albert Goldhammer, Zum Hecht 46, 7770 Überlingen, Fed. Rep. of Germany

Filed Oct. 10, 1980, Ser. No. 195,767

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 2942241

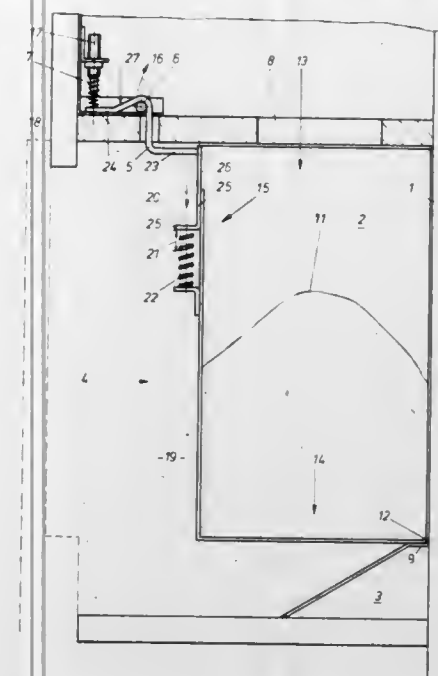
Int. Cl.³ B02C 23/00

U.S. Cl. 241-36

7 Claims

1. An apparatus for limiting the filling height of a container for a cutting or shredding machine for the destruction of documents and microfilms, a container pivotally mounted in a housing and having a base, a rear end and a front end, the housing supporting the rear end of the container on a horizontal portion of an inclined support extending upwards from the

base of the housing, an upper end of the front end of the container being supported by a spring catch actuating switch falls downwardly away from said impact member and through said generally annular space.



4,391,414

CONE CRUSHER

Rudolf Reiter, Via Fratelli Cervi, 7 - Vimercate (Province of Milan), Italy

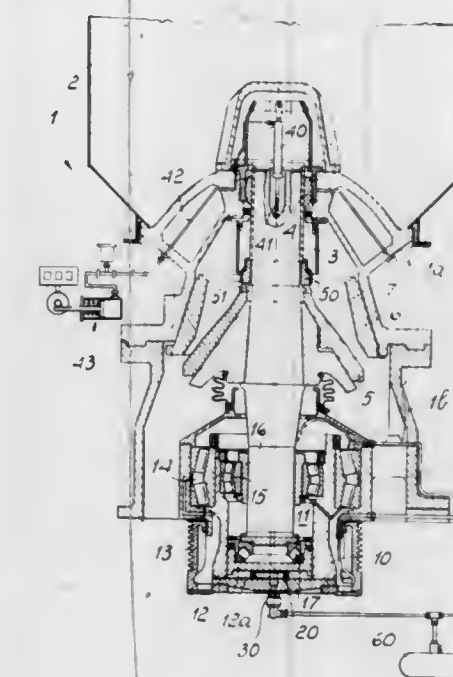
Filed Jun. 30, 1980, Ser. No. 164,409

Claims priority, application Italy, Jul. 10, 1979, 24224 A/79

Int. Cl.³ B02C 2/06

U.S. Cl. 241-213

1 Claim



4,391,413

APPARATUS FOR BREAKING ARTICLES

Ernest A. Pack, Uxbridge, England, assignor to B.H.F. (Engineering) Limited, Middlesex, England

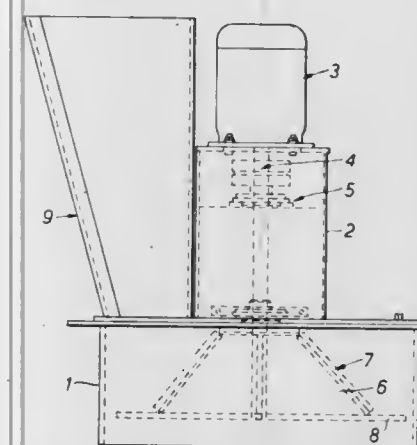
Filed Oct. 15, 1980, Ser. No. 197,237

Claims priority, application United Kingdom, Oct. 16, 1979, 7935961

Int. Cl.³ B02C 19/14

U.S. Cl. 241-99

5 Claims



1. Apparatus for fracturing glassware into cullet comprising: an upwardly and inwardly tapering impact member of noncircular horizontal cross-section mounted for rotation in a given direction about a vertical axis, said impact member including generally vertically extending ribs which have side surfaces facing generally in said given direction; a housing having a side wall with a generally smooth inner surface, said side wall surrounding and horizontally spaced from said impact member and extending downwardly beyond the lower edge of said impact member whereby a generally annular space is formed between said side wall and the lower edge of said impact member; means for rotating said impact member about said vertical axis in said given direction; and glassware feed means including a guide chute having a guide surface inclined downwardly and inwardly toward the side of said impact member for directing glassware issuing from the chute onto the side of said impact member, the arrangement of impact member, housing side wall and chute being such that the glassware is fractured into cullet upon contact with said impact member and

1. A cone crusher for crushing stones and the like, comprising an outer shroud enclosing a space, a substantially vertical shaft within said space and driven with a conical swinging motion, said shaft having a downwardly diverging crushing cone at a middle portion thereof, on said shroud a conical ring spacingly arranged around said crushing cone and having a smaller taper than said crushing cone to define an upwardly widening space therebetween, a rotatory bushing member surrounding said shaft below said crushing cone and rotatably supported on said outer shroud, said bushing member having a circular outer periphery defining an axis of rotation and a cylindrical inner cavity having an axis eccentric with respect to said axis of rotation, said cavity receiving a lower end portion of said shaft and having a closed bottom, a piston axially slidable within said inner cavity and arranged below said shaft, bearing means between said shaft and said piston for rotatably supporting said shaft on said piston on one side thereof facing said shaft, said piston having another side thereof opposite to said one side and forming a cylinder chamber with said closed bottom, a hydraulic system for supplying pressure fluid into said cylinder chamber thereby to hydraulically support said piston and said shaft thereon, transmission means on said rotatory bushing member for imparting rotation thereto thereby to impart rotation to said bushing member about said axis of rotation thereof and to impart an eccentric rotatory movement to said piston and said shaft thereon, said hydraulic system including a rotary joint connected to said rotatory bushing member, said rotary joint having a mounting flange for connection to said closed bottom of said cavity, a fixed channel extending through said mounting flange for the passage of pressure fluid from said hydraulic system into said cylinder chamber of said cavity, a seat in said mounting flange, rotary seals in said seats and interposed between said fixed channel and said mounting flange, a plate member surrounding said fixed channel and providing a clearance therebetween for bleeding off pressure fluid therethrough.

4,391,415

FACILITATING THE EXCHANGE OF A FINISHED PACKAGE WITH A NEW CORE

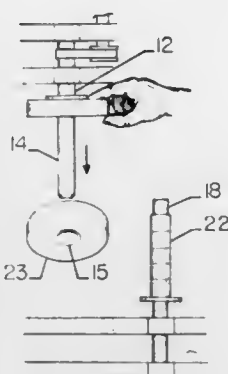
Joseph H. Hollier, Jr., Pearcy, Ark., assignor to Sutco, Inc., Hot Springs, Ark.

Filed Apr. 23, 1981, Ser. No. 256,847

Int. Cl.³ B65H 19/04

U.S. Cl. 242—56.9

1 Claim



1. In a device for winding a plurality of endless webs of stock material on individual cores on a driven cantilevered support shaft to prepare finished packages of the stock material, the improvement therein for facilitating the exchange of finished packages on the driven cantilevered support shaft with new cores upon completion of a winding operation; the improvement comprising:

- a secondary, non-driven cantilevered support shaft located in a first position in proximity to, but spaced from the driven support shaft, the secondary support shaft having a diameter which is substantially equal to the diameter of the driven support shaft, the secondary support shaft mounted for movement from the first position thereof to a second position thereof wherein the secondary support shaft and the driven support shaft are in a longitudinal, end-to-end alignment, and are contiguous;
- means for loading a plurality of unused cores onto the secondary support shaft during the winding operation, while the secondary support shaft is located in the first position thereof;
- means for removing the finished packages from the driven support shaft upon conclusion of the winding operation, while the secondary support shaft is located in the first position thereof;
- means for moving the secondary support shaft from the first position thereof to the second position thereof;
- means for conveying the unused cores from the secondary support shaft onto the driven support shaft and securing the cores on the shaft; and
- means for moving the secondary support shaft from the second position thereof to the first position thereof, whereupon a new winding operation is allowed to commence.

4,391,416

REEL SHAFT DEVICE OF A MAGNETIC RECORDING TAPE RUNNING APPARATUS

Akira Osanai, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 13, 1981, Ser. No. 243,602

Claims priority, application Japan, Mar. 21, 1980, 55-35826; Mar. 21, 1980, 55-36990[U]; Mar. 21, 1980, 55-36991[U]; Mar. 21, 1980, 55-36992[U]

Int. Cl.³ B65H 17/02

U.S. Cl. 242—68.1

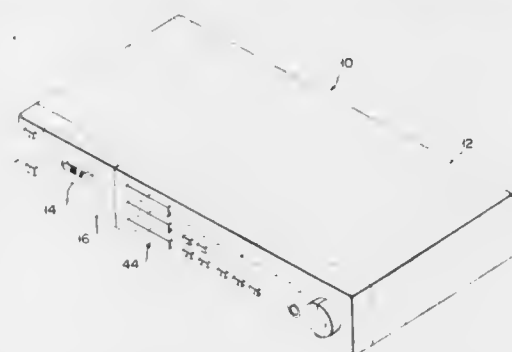
17 Claims

1. A reel shaft device of a magnetic recording tape running apparatus comprising:

- a rotatable reel hub engaging member to be engaged with a reel hub to rotate therewith;
- a rotating member capable of rotating with respect to said

reel hub engaging member, said rotating member having a circumferential surface;

- a rotatable driving member having a circumferential surface facing said circumferential surface of said rotating member and being capable of rotating concentrically with said reel hub engaging member, said driving member being adapted to be selectively rotated in either of two directions by a rotary power supply means;
- a plurality of rolling members having axes about which they are rotatable, said rolling member being disposed between said circumferential surface of said rotating member and said facing circumferential surface of said driving member so as to be rotatable about their own axes;
- a cam member disposed on one of the respective circumferential surfaces of said rotating member and said driving member, said cam member holding said plurality of rolling members in cooperation with the other of the respective circumferential surfaces of said rotating member and said driving member to rotate said rotating member together with said driving member in one direction when said driving member rotates in said one direction, and releasing



said hold on said plurality of rolling members to allow said rotating member to rotate independently of said driving member when said driving member rotates in the other direction; and

- a variable rotation transmitting means for transmitting rotation between said reel hub engaging member and said rotating member such that the rotation transmissibility between said reel hub engaging member and said rotating member increases substantially in inverse proportion to a decrease of the magnitude of a torque applied to said reel hub engaging member;
- said rotating member having a sliding surface touching and in sliding contact with said reel hub engaging member along the rotating axis of said reel hub engaging member and along the circumferential direction, respectively;
- and
- said plurality of rolling members being held within the same plane with said sliding surface by the other of said circumferential surface of said rotating member and said circumferential surface of said driving member and said cam member when said driving member rotates in said one direction.

4,391,417

UNCOILER FOR METALLIC STRIP MATERIAL

Robert W. Gronbech, Sheffield, England, assignor to Davy-Loewy Limited, Sheffield, England

Filed Apr. 10, 1981, Ser. No. 252,866

Claims priority, application United Kingdom, Apr. 10, 1980, 8011895

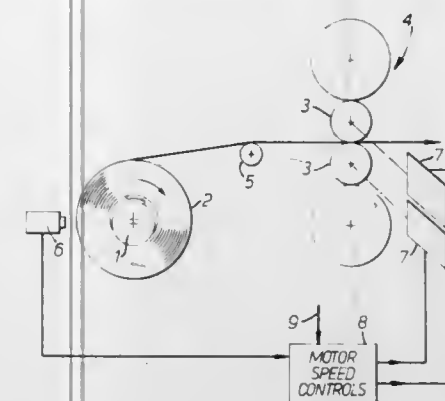
Int. Cl.³ B21C 47/16; B65H 75/00

U.S. Cl. 242—78.6

6 Claims

1. An uncoiler for metallic strip material, comprising: mandrel means; a coil of strip material, which is characterized by some degree of eccentricity, disposed upon said mandrel means; means for moving said strip material so as to uncoil said strip material from said mandrel means; and

means interacting with at least one of said eccentrically mounted coil of strip material disposed upon said mandrel means, or said mandrel means, for detecting said degree of eccentricity of said coil of strip material disposed upon said mandrel means, or the rotational effects of said eccentrically



mounted coil of strip material, respectively, as said coil of strip material and said mandrel means are rotated by said moving means, and for controlling the speed of said moving means in response to said degree of eccentricity, or rotational effects, detected.

4,391,418

SILENT, ANTI-REVERSE ACTUATOR MECHANISM

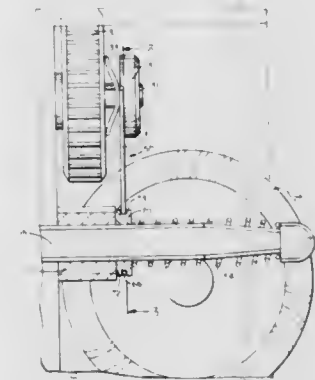
John W. Puryear, Tulsa, Okla., assignor to Brunswick Corporation, Skokie, Ill.

Filed Dec. 21, 1981, Ser. No. 333,118

Int. Cl.³ A01K 89/01

U.S. Cl. 242—84.2 A

14 Claims



1. In a spin cast type reel having a longitudinally-movable center shaft (15) operable to control operation of the reel and a control spring (54) surrounding said shaft for yieldably holding the center shaft in one position, a selectively-operable anti-reverse device (40), an actuator (50) associated with said center shaft for rotation about the rotation axis of the center shaft for actuating said anti-reverse device in response to rotation of the center shaft, the improvement comprising: means (70, 80, 90, 65, 66) for yieldably holding said actuator in rotatable association with said center shaft with a force which is independent of the force of said control spring (54).

4,391,419

SPINNING REEL BRAKE

Shinichi Iwama, and Takashi Egasaki, both of Higashikurume, Japan, assignors to Daiwa Seiko Inc., Tokyo, Japan

Filed Jul. 9, 1981, Ser. No. 281,641

Claims priority, application Japan, Aug. 29, 1980, 55-122524

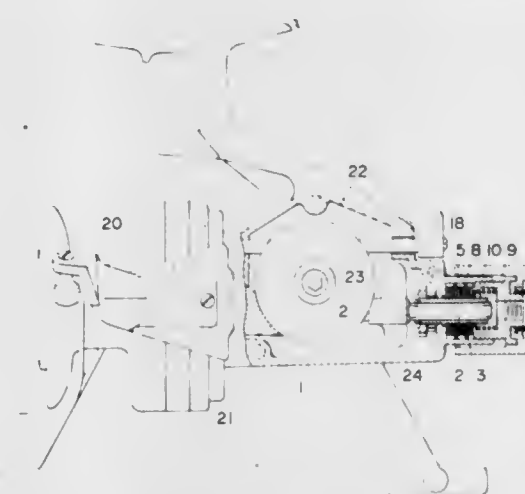
Int. Cl.³ A01K 89/02

U.S. Cl. 242—84.5 A

4 Claims

1. A drag adjusting device for a spinning reel comprising: a cylinder rearwardly projecting from a housing of a spinning reel and provided at its inner peripheral surface with an axial groove; a spool slide shaft having a spool fixed to the end

thereof and projecting into said cylinder through the the bottom end of said cylinder; a braking member comprising a washer fitting said spool slide shaft within said cylinder and rotatable as a unit with said spool slide shaft and a non-rotatable washer fitting said spool slide shaft and engaging said groove of said cylinder; an adjusting sleeve screwed to the outer end opening of said cylinder so as to be able to move back and forth relatively to the latter; a spring acting between the inner bottom surface of said adjusting sleeve and the rear end surface of said braking member and adapted to press said braking member to provide a drag braking force, a handle sleeve coaxially positioned about said adjusting sleeve, said adjusting sleeve and said handle sleeve together defining two cooperating members which are circumferentially adjustable relative to each other to provide a plurality of different ranges of drag braking force, said adjusting sleeve having a range of



4,391,420

EMERGENCY LOCKING MEANS FOR DUAL SPOOL SAFETY BELT RETRACTOR

Munir J. Ahad, Newhall; William Hollowell, Pacific Palisades; Akira Tanaka, Northridge, and Avraham Ziv, Sepulveda, all of Calif., assignors to American Safety Equipment Corporation, San Fernando, Calif.

Filed Mar. 9, 1981, Ser. No. 241,531

Int. Cl.³ A62B 35/02; B65H 75/48

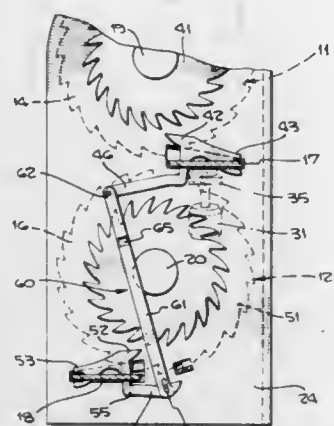
U.S. Cl. 242—107.4 A

15 Claims

1. An improved dual locking pawl emergency locking means for a dual spool safety belt retractor having first and second belt storage spools, said spools having first and second ratchet means respectively for preventing spool rotation when engaged by the locking means comprising the provision of:

- an action pawl means for engaging only said first ratchet means of said first spool;
- inertia sensing means for moving said action pawl means into engagement with said first ratchet wheel in response to

changes in vehicle inertia of more than a predetermined amount;
reaction pawl means separate from said action pawl means and so provided as to react in response to movement of said action pawl means to engage said second ratchet wheel of said second spool in response to spool locking action of said action pawl means; and



connecting means interposed between said action pawl means and said reaction pawl means for urging said reaction pawl means into engagement with said second ratchet wheel whereby spool locking movement of said action pawl means urges said reaction pawl means into locking engagement with said second ratchet wheel.

4,391,421

RETRACTOR FOR SEAT BELT WITH AN ALLEVIATING DEVICE

Katsumi Naitoh, and Hideo Yanagihara, both of Fujisawa, Japan, assignors to NSK-Warner K. K., Tokyo, Japan

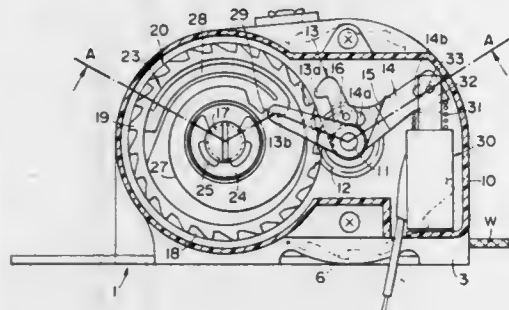
Filed Mar. 11, 1981, Ser. No. 242,535

Claims priority, application Japan, Mar. 21, 1980, 55/35772[U]

Int. Cl.³ A62B 35/00; B65H 75/48

U.S. Cl. 242—107.7

6 Claims



1. A retractor for a seat belt which is provided with a tension alleviating device, comprising a webbing take-up shaft biased in webbing take-up direction and rotatably supported on a base, a gear train consisting of a first gear member mounted on said take-up shaft for rotation therewith and a second gear member meshing with said first gear member and rotatably provided on said base, the second gear member having a greater number of teeth than the first gear member, a disc with a cam portion provided for rotation with said second gear member by frictional engagement therebetween, and a latch member movable between an engaged position in which it is engaged with a portion integral with said gear train and prevents rotation of said take-up shaft in the webbing take-up direction and a non-engaged position in which it is disengaged from said portion integral with said gear train, said latch member being biased toward said engaged position,

said disc with a cam portion having a generally circumferentially extending first guide portion for guiding said latch member from said engaged position to said disengaged position upon draw-out of webbing, a second guide portion for guiding said latch member to said disengaged

position short of said engaged position upon take-up of the webbing with said latch member remaining disengaged from said portion integral with said gear train and for holding said latch member in said disengaged position, said second guide portion being turned back from a terminal end of said first guide portion and extending generally circumferentially beyond a starting end of said first guide portion, and a third guide portion for guiding said latch member held in said second guide portion to said engaged position upon draw-out of the webbing, said third guide portion extending from the terminal end of said second guide portion to the starting end of said first guide portion.

4,391,422

WEIGHT BALANCED SPOOL CARRIER

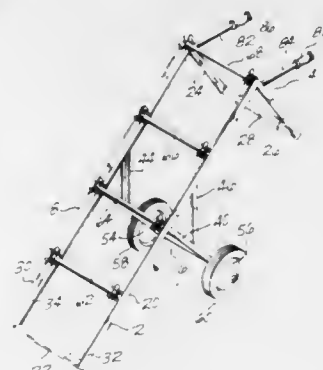
Colin McDonald, 20241 SE. 232 St., Maple Valley, Wash. 98038

Filed Apr. 6, 1981, Ser. No. 251,257

Int. Cl.³ B65H 49/00, 17/46

U.S. Cl. 242—129.6

14 Claims



1. A carrier for a plurality of spools of wire or the like, adapted to receive and support the ends of a plurality of spool support shafts which extend laterally across the carrier, through center openings in the spools, and on which the spools rotate, said carrier comprising:

a rectangular main frame having first and second ends and comprising a pair of spaced apart elongated side members, a cross member at said first end connecting the two side members together, said first end presenting a first ground contacting support;

a support stand frame at second end, connecting the two side members together at such end and extending downwardly from the main frame to function as a stand at such second end, and presenting at the its lower end a second ground contacting support;

a wheel supporting frame depending from a midportion of the main frame and including ground contacting wheels at its lower end;

handle means at the second end of the main frame; journal means carried by the side members of the main frame, for detachably securing the ends of the spool support shafts to said side members;

wherein the journal means for at least one of the spool support shafts is spaced towards the first end of the main frame from the wheels and the journal means for at least one other of the spool support shafts is spaced from the wheels toward the second end of the main frame; and

wherein said carrier has a first dispense position wherein the first ground contacting support and the wheels contact the ground and the main frame slopes upwardly from its first end to its second end, and a second dispense position in which the second ground contacting support and the wheels contact the ground and the main frame slopes downwardly from its first end to its second end.

4,391,423

SATELLITE RETRIEVAL SYSTEM

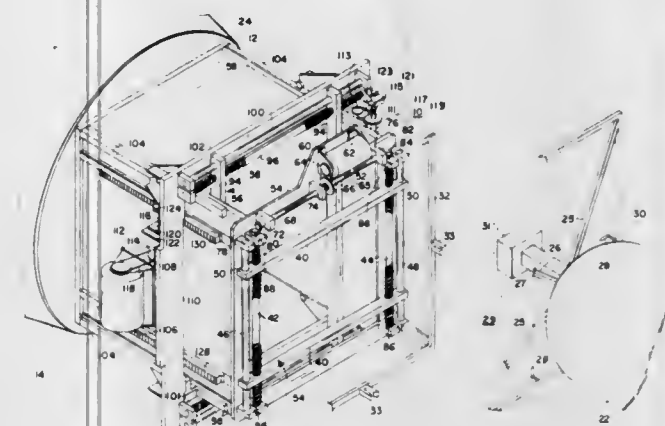
Edwin C. Pruett; Kem B. Robertson, and Tomas E. Loughead, all of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 30, 1981, Ser. No. 248,745

Int. Cl.³ B64G 1/64

U.S. Cl. 244—161

5 Claims



1. A satellite retrieval system for employment with a spacecraft comprising:

a cubical first frame adapted to be fixedly attached to a spacecraft;

a rectangular second frame positioned around said cubical first frame and including support means for movably supporting said second frame on said cubical first frame; a first pair of parallel bars movably mounted on said cubical first frame for balanced relative movement with respect to a center line through said cubical first frame and normal to a plane of said second frame, being movable across said first frame;

a second pair of parallel bars, orthogonal to said first pair of parallel bars, movably mounted on said second frame for balanced relative movement with respect to said center line, and positioned within said cubical first frame;

first operating means for selectively moving bars of said first pair of parallel bars toward and away from each other; second operating means for selectively moving bars of said second pair of parallel bars toward and away from each other; and

retracting means including drive means coupled between said cubical first frame and said second frame for selectively moving said second frame along said center line and between extended and retracted positions.

4,391,424

METHOD AND STRUCTURE FOR AIRFOIL THRUST AND LIFT CONTROL

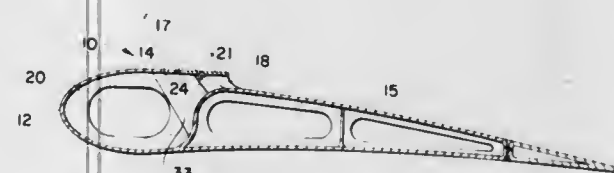
Otto E. Bartoe, Jr., Boulder, Colo., assignor to Ball Brothers, Boulder, Colo.

Filed Aug. 30, 1976, Ser. No. 718,739

Int. Cl.³ B64C 21/08

U.S. Cl. 244—207

3 Claims



2. An aircraft comprising: a power source adapted to produce gases under pressure through a power source exhaust, airfoils, plenum chambers defined spanwise through the airfoils, ducting means to connect the plenum chambers to at least a portion of the exhaust of the power source, an outlet communicating with the plenum chamber defined in the upper leading

surface of each airfoil and extending spanwise across the major portion of the airfoil, a gate positioned in each outlet and spanwise pivoted at the middle of the gate for movement to selectively define rearward and forward oriented apertures between the edge of the gate and the outlet, means for moving each gate to define the apertures, and a portion of each said gate is independently pivoted relative to the remainder of the gate and a second means for moving each independent portion of the gate is provided.

4,391,425

RAILROAD SWITCH HEATER

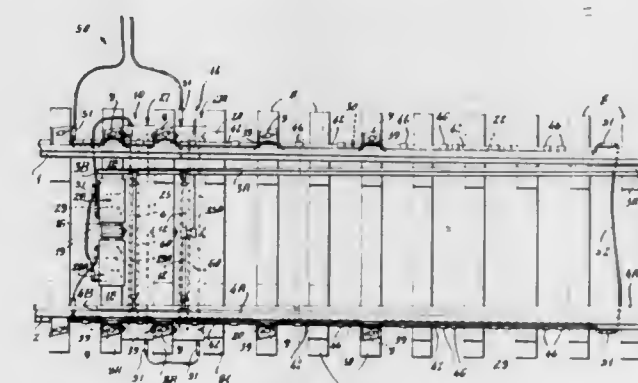
Henry Keep, Jr., 88 E. Warf Rd., Madison, Conn. 06443

Continuation-in-part of Ser. No. 107,398, Dec. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 890,637, Mar. 20, 1978, Pat. No. 4,195,805. This application May 28, 1981, Ser. No. 267,791

Int. Cl.³ E01B 7/24

U.S. Cl. 246—428

8 Claims



5. A gauge plate unit for heating a rail positioning gauge plate fastened onto a tie of a railroad switch, said unit comprising a rigid plate member having a substantially flat base wall to overlie a surface of the gauge plate adjacent to a displaceable switch rail end portion and having depending side walls fastenable to opposite sides of said tie under the gauge plate, a layer of heat insulating material fixed beneath said base wall, and a sinuously bent length of an electrical heating cable arranged on and held to said insulating layer so as to be held by said plate member directly against said surface for heat conduction into the gauge plate.

4,391,426

SUPPORT STRIP WITH U-SHAPED CROSS-SECTION OF PLASTIC MATERIAL FOR SUPPORTING CONDUITS, CABLES AND THE LIKE

Owe Göthberg, Alsätravägen 176, 127 36 Skärholmen, Sweden

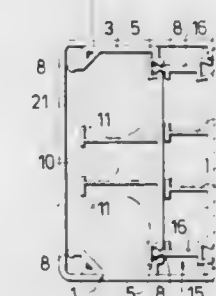
Filed Jan. 5, 1982, Ser. No. 337,260

Claims priority, application Sweden, Jan. 8, 1981, 8100077

Int. Cl.³ F16L 3/00

U.S. Cl. 248—49

3 Claims



1. A support strip of plastic material with substantially U-shaped cross-section for supporting conduits, cables etc. and comprising a substantially plane bottom (2) and side walls (3),

characterized in that the support strip (1,15) in its bottom surface at each of its longitudinal outer portions is provided with a groove (5), which extends along the entire support strip (1,15) and along its entire length is formed with opposed grip edges (6,7), that the free outer edge of each side wall (3,16) along its entire length is formed with a bead (8) constituting in cross-section almost a whole circle area, the diameter of which is slightly smaller than the width of the groove (5) and slightly greater than the distance between the grip edges (6,7), and that the beads (8) of the support strip (1,15) are located at equal distance from the bottom (2) of the support strip and in a plane (x) extending perpendicularly to the bottom (2) and in the central longitudinal line of the groove (5).

4,391,427

HOLDER FOR A BAR OF SOAP

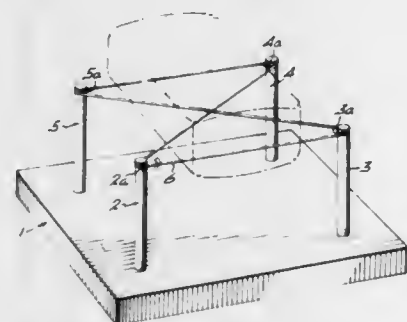
Samuel U. Foresman, 672 92nd Ave., North, Naples, Fla. 33940

Filed Dec. 4, 1980, Ser. No. 212,819

Int. Cl.³ F16M 11/00

U.S. Cl. 248—176

4 Claims



1. A holder for a bar of soap which permits rapid drying of the entire surface of a wet bar of soap comprising a base, four supports mounted on said base, each support having a notch at its upper extremity, said four notches forming the four corners of a horizontal rectangle, and a flexible endless cord passing around and supported by said four notches, said endless cord extending along the bottom and the top of the rectangle between the bottom and the top, said endless cord thereby forming a horizontal soap bar supporting member of small surface area, which enables grasping of the soap from the sides of the rectangle without interference with the cord and which provides substantial support at the center for the soap as it becomes smaller with use.

4,391,428

LANCE-TYPE FIXTURE SUPPORT AND METHOD OF USE

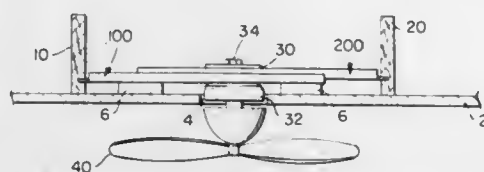
Fred K. Grimes, Tallahassee, Fla., assignor to Lance Austin Enterprises, Inc., Tallahassee, Fla.

Continuation-in-part of Ser. No. 321,630, Nov. 16, 1981, abandoned. This application Jan. 29, 1982, Ser. No. 344,008

Int. Cl.³ F16M 13/00

U.S. Cl. 248—546

17 Claims



1. A support for mounting a fixture between a pair of spaced structural members comprising:

a pair of elongated lances slidably interconnected for relative longitudinal sliding movement, each of said lances being shorter than the distance between said structural members and together forming an adjustable length sup-

port adapted to span the space between said structural members;

member engaging means at the distal end of each of said lances for engaging said structural members and supporting said lances thereon when said lances are independently driven longitudinally in opposite directions against said structural members;

at least one tool-striking element adapted to receive a longitudinally directed blow from a striking tool; and striking element coupling means on each of said lances for coupling said striking element to each lance at a fixed location intermediate the ends thereof to enable said lances to be independently driven in opposite directions when said striking element is coupled to each of said lances independently of the other and is struck with said tool, whereby said member engaging means are independently driven into engagement with said structural members.

4,391,429

FORM TIE

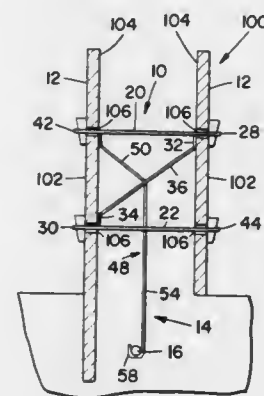
John M. Powell, P.O. Box 3200, San Jose, Calif. 95156

Filed Sep. 4, 1981, Ser. No. 299,799

Int. Cl.³ E04G 17/08

U.S. Cl. 249—84

3 Claims



1. A form tie for use in fixing a pair of form sides in a preselected spaced position with respect to each other at a given location against shear and transverse forces acting on said form sides at said given location and for locating, supporting and maintaining at least one reinforcing rod at a preselected location intermediate said form sides, said form tie comprising:

a unitary elongate member of a generally Z-shaped configuration including a pair of generally parallel elongate members having first and second end portions, the first end portion of each parallel, elongate member being positioned in an opposed, spaced apart relationship with respect to the second end portion of the other parallel elongate member and having a bight formed therein terminating in a rectilinear brace extending substantially normal to said parallel, elongate members, and

means for locating, supporting and maintaining at least one reinforcing rod at said preselected location intermediate said form sides comprising a second unitary elongate member formed integrally with said rectilinear tab of said bight of one of said second end portions and lying substantially in the plane of said generally planar structure, said second unitary elongate member having a first portion extending obliquely from said rectilinear tab to said preselected location and terminating in an L-shaped member adapted to receive said at least one reinforcing rod and maintain said rod at said preselected location.

4,391,430

HYDRAULIC SERVO CONTROL SPOOL VALVE

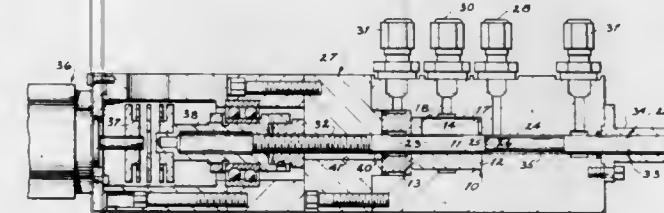
Donald M. Miller, Sunnyside, Wash., assignor to Battelle Memorial Institute, Richland, Wash.

Filed May 15, 1981, Ser. No. 264,146

Int. Cl.³ F16K 47/04, 3/32

U.S. Cl. 251—205

10 Claims



1. A valve for extremely precise variable control of high pressure, low volume fluid flow of hydraulic liquids, comprising:

a solid sleeve having an inner surface surrounding an open cavity;

a long narrow slot extending through the sleeve from an entrance defined by a pair of elongated straight sharp corner edges formed at the intersection between the sleeve inner surface and the slot;

said corner edges of the slot being progressively spaced apart from one another along its length in a linear fashion from a first closed slot end at which they intersect one another to a second open slot end;

said slot being formed by a pair of elongated opposed walls, extending through the sleeve and diverging radially outwardly from its inner surface;

a spool within the open cavity of the sleeve, said spool having an outer surface complementary in size and shape to the inner surface of the sleeve;

a fluid path on the spool, the fluid path extending from an inlet along the spool to an end wall forming a sharp corner edge at its intersection with the spool outer surface, said end wall being transversely positioned across the entrance of said slot;

and means slidably mounting said spool and sleeve relative to one another for adjustably locating the position of said end wall along the entrance of said slot.

4,391,431

DEVICE FOR TIGHTENING COARSE THREAD CONNECTIONS

July S. Maximov, ulitsa Lesnaya, 52, kv. 8, Moskovskaya oblast, poselok Pravda, U.S.S.R.

PCT No. PCT/SU79/00102, § 371 Date Feb. 23, 1981, § 102(e) Date Feb. 23, 1981, PCT Pub. No. WO81/00075, PCT Pub. Date Jan. 22, 1981

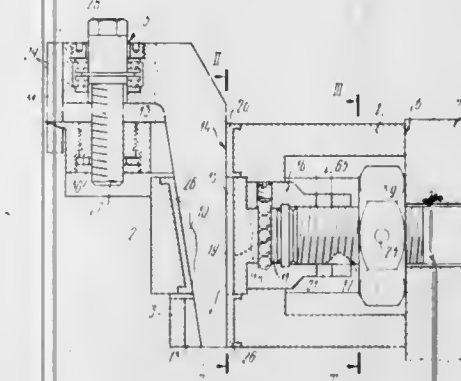
PCT Filed Oct. 29, 1979, Ser. No. 243,901

Claims priority, application U.S.S.R., Jun. 27, 1979, 2785072

Int. Cl.³ E21B 19/00

U.S. Cl. 254—29 A

16 Claims



1. A device for tightening a connection member extending between and interconnecting two connectable pieces, said

connection member having a threaded member protruding from an opening in one of the connectable pieces, said device comprising a pressure element positionable so as to thrust against said one of the connectable pieces, a tension element positionable on the threaded member and having a wedge groove, a power wedge accommodated in the wedge groove and acting against the pressure element thereby producing tension in the threaded member, a screw drive for the power wedge disposed on the pressure element, the pressure element being in the form of a hollow body provided with through grooves arranged coaxially with the wedge groove and accommodating the tension element, the tension element carrying an axially rotatable connecting piece having an axial threaded bore for fixing the connecting piece on the threaded member, the pressure element being provided in an area adjoining the connecting piece with apertures, walls of the through grooves arranged coaxially with the wedge groove of the tension element defining a guide receiving a straight working surface of the power wedge.

4,391,432

WINCH OPERATING HANDLE

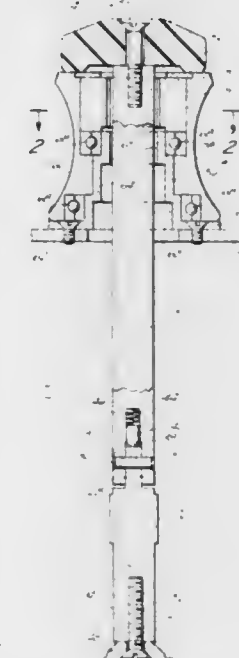
Jean F. Baud, 1295, Tannay Vaud, Switzerland

Filed May 1, 1981, Ser. No. 259,521

Int. Cl.³ B66D 1/14

U.S. Cl. 254—365

8 Claims



1. An improved winch of the type which is useful in tightening and adjusting ropes, rigging, lines and sheets comprising: a winch mounting post having a hollow interior and a through aperture from end to end, means for mounting said post to a fixed support, a winch member having a through passageway and being rotatably mounted on the post with the post extending into the passageway of the winch member, a portion of the winch member extending beyond the post and having the surfaces thereof forming part of the passageway with a non-circular cross-section, the outer surface of the winch member overlying the non-circular cross-section portion and the post extending within the passageway, the outer surface of the winch forming the operable bearing surface for adjusting of the ropes, riggings, lines and sheets, a crank member having a shaft portion which has a non-circular cross-section complementary with the shape of the non-circular portion of the passageway and interengageable therewith so that meshing of the shaft with the surfaces forming the non-circular portion of the passageway and rotation of the shaft causes rotation of the winch member, a handle member hinged to the upper end of the shaft portion so as to pivot between an operating position at right angles with the shaft portion to facilitate rotation of the shaft portion and winch member and an inoperative stowable

position projecting from the end of the shaft portion in alignment with the axis thereof, said handle portion having a size and configuration so as to fit through the passageway in the winch member so that when it is in an inoperative stowed position the crank member including the handle portion extends downwardly through the passageway in the winch member, the through aperture in the post, and a communicating opening in the support to its stowed position with only a minimum projection thereabove.

4,391,433

EXTENDABLE TORCH GUIDE

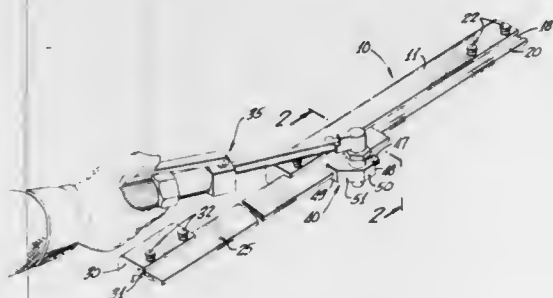
Robert L. Doan, 10362 Vic Pl., Garden Grove, Calif. 92642

Filed Jun. 10, 1982, Ser. No. 386,954

Int. Cl.³ B23K 7/10

U.S. Cl. 266—77

17 Claims



1. A guide for a torch for use in cutting metal plate comprising:

- a base member, said base member having a longitudinal channel therein and magnetic means on one side thereof for removably attaching said base member to a metal plate;
- an elongate cutting rail at least partially mounted within said channel in said base member for slidable movement relative thereto, the ends of said cutting rail being extendable beyond the ends of said base member;
- means for locking said cutting rail relative to said base member to prevent relative movement therebetween; and
- an end support member connectable to said ends of said cutting rail, said end support member having magnetic means on one side thereof for removable attachment thereof to said metal plate.

4,391,434

CERAMIC INSERT

Micheal D. LaBate, 115 Hazen Ave., Ellwood City, Pa. 16117

Continuation-in-part of Ser. No. 123,369, Feb. 21, 1980, Pat. No.

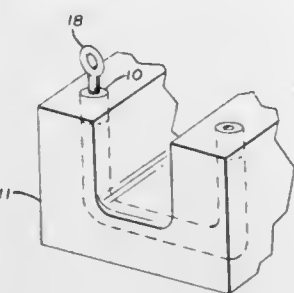
4,262,885. This application Apr. 6, 1981, Ser. No. 251,319

The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

Int. Cl.³ C21B 7/14

U.S. Cl. 266—196

5 Claims



1. The combination of a preformed hot metal runner formed of refractory material and at least one U-shaped ceramic insert embedded therein with the ends of the U-shaped insert flush with the upper surfaces of said hot metal runner, a threaded socket formed in each end of said U-shaped ceramic insert arranged to receive a threaded fastener therein.

4,391,435

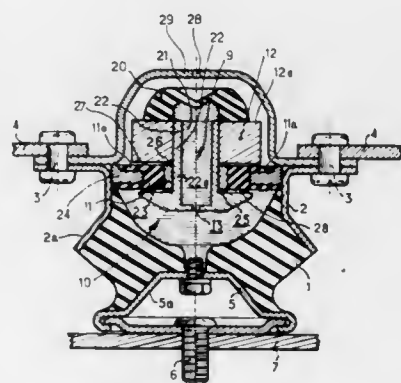
SUSPENSION DEVICE

Anh T. Pham, Elancourt, France, assignor to Chrysler France, France

Continuation-in-part of Ser. No. 53,305, Jun. 29, 1979, abandoned. This application Feb. 19, 1981, Ser. No. 236,295
Claims priority, application France, Jul. 3, 1978, 78 19797; May 23, 1979, 79 13128Int. Cl.³ F16F 1/54, 13/00

U.S. Cl. 267—140.1

2 Claims



1. In a device for mounting a carried element on a carrying element in an automotive vehicle or the like and comprising a first frame member affixed to said carried element, a second frame member affixed to said carrying element, at least one resiliently deformable support arranged between said members so as to define a fluid-tight chamber with said frame members, said chamber containing an incompressible fluid and being divided into two portions by a separating partition formed of a resilient portion affixed to said first frame member and carrying a block member immersed in said fluid which is provided with at least one orifice through which the fluid is adapted to pass from one chamber portion of the other chamber portion, the improvements comprising: said block member carried by said resilient portion has a certain substantial inertial mass such that said block member constitutes means for causing said resilient portion to oscillate substantially following the displacement of said carried element when said carried element vibrates at a frequency less than a particular frequency resulting in a first normal fluid flow pattern through said orifice between said chamber portions relative to the displacement of said carried element, and for causing said resilient portion to oscillate differently from the displacement of said carried element when said carried element vibrates at a frequency greater than said particular frequency resulting in a second fluid flow pattern through said orifice between said chamber portions relative to the displacement of said carried element which is substantially inverted relative to said first normal fluid flow pattern, and wherein a deformable cover is directly secured on said block member for movement therewith to sealingly close the fluid tight chamber and isolate the fluid from the surrounding medium, and wherein said block member forms a part of a block assembly which includes a tubular member which is affixed to said resilient partition so as to extend centrally therethrough so that end regions thereof project beyond the surface of said resilient portion, one end region of said tubular member having said orifice provided therein, said block member being affixed to an upper end region of said tubular member, whereby said block member is supported by said resilient portion through said tubular member.

4,391,436

RESILIENT MOUNTING

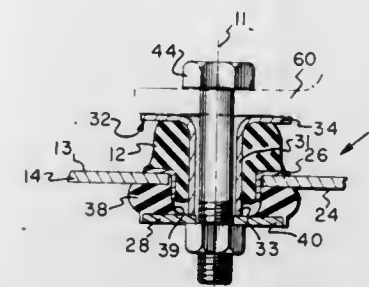
Byron L. Fishbaugh, St. Marys, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jul. 23, 1981, Ser. No. 286,399

Int. Cl.³ F16F 3/08

U.S. Cl. 267—141.1

8 Claims



1. A resilient mounting comprising:

- (a) a spacer including an elongated cylindrical portion;
- (b) an annular first insulator of elastomeric material including an upper and lower portion and having a central bore extending axially through said upper and lower portions, the upper portion including a generally cylindrical inner wall and a generally planar lower end wall, the lower portion including generally cylindrical outer and inner walls, the overall diameter of the upper portion being greater than that of the lower portion, the diameter of the bore in the upper portion being greater than the diameter of the bore in the lower portion;
- (c) a metallic annulus including a tubular portion joined at one end to the inner annular edge of a perpendicularly extending flat disc having a central bore therethrough, the flat disc of said metallic annulus being bonded to the lower end wall of the upper portion of the first insulator, the tubular portion of the metallic annulus being bonded to the outer cylindrical wall of the lower portion;
- (d) a second insulator of elastomeric material of a generally cylindrical configuration having a central bore extending axially therethrough, said bore diameter corresponding approximately to the outside diameter of the tubular portion of the metallic annulus;
- (e) a flat disc having a central bore therethrough coaxially aligned with and bonded to one axial end face of said second rubber insulator;
- (f) the cylindrical portion of said spacer having an outside diameter greater than the bore diameter of the lower portion of the first insulator, said cylindrical portion adapted to be forcibly fitted into the bore of said first insulator thereby radially compressing the lower portion of said first insulator between the cylindrical portion of said spacer and the tubular portion of said metallic annulus at least 10 percent;
- (g) said first and second insulators adapted to be drawn axially toward one another thereby placing the elastomeric material of said first and second insulators in axial compression during installation of the mount, the amount of axial compression being limited to a predetermined amount by the respective overall axial dimensions of the spacer and undeformed insulators.

4,391,437

DOOR HOLDING CLAMP

William T. Collins, Rte. 4, Box 340, Lillington, N.C. 27546

Filed Oct. 24, 1980, Ser. No. 200,231

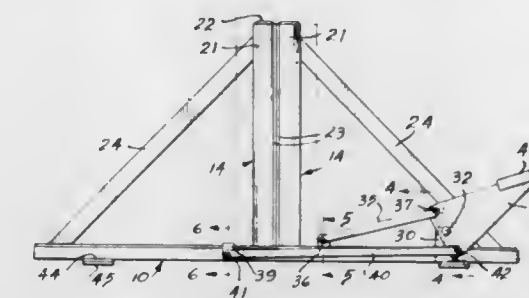
Int. Cl.³ B25B 1/00

U.S. Cl. 269—254 CS

6 Claims

1. Apparatus for clamping a workpiece in a position so that work may be performed thereon comprising an elongated hollow base having a pair of opposed flanges at the top, said flanges extending inwardly toward each other and defining an opening, a pair of clamp members slidably mounted on said

base, each of said clamp members including a body having portions underlying said flanges, each of said clamp members having a post fixed to said body and extending upwardly between said flanges of said base, spring means connecting said clamp members and urging said posts toward abutting relationship, an upstanding support plate means mounted on said base adjacent to one end, lever means rotatably mounted on said support plate means, a first link connecting one of said clamp



4,391,438

PATIENT SUPPORT ATTACHMENT FOR SURGICAL TABLES

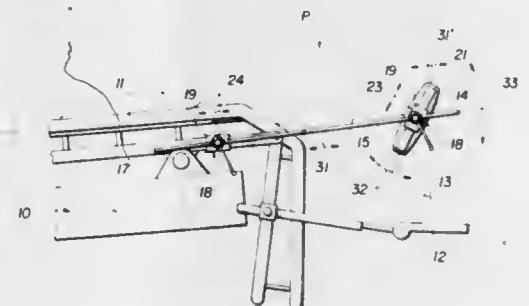
Charles A. Heffington, Jr., 123 E. College St., Murfreesboro, Tenn. 37130

Filed Jun. 12, 1981, Ser. No. 273,210

Int. Cl.³ A61G 13/00

U.S. Cl. 269—328

5 Claims



1. A patient support attachment for an operating table to facilitate surgery of the spine, the operating table having an end support portion for the arms, head and shoulders of a patient in a prone position and having an adjustable generally level support platform for the legs of a prone patient in a kneeling position with the support platform and legs spaced from the adjacent end of the operating table at an elevation below the level of said end support portion of the table, and the end support portion of the operating table carrying a pair of opposite side adjustable swivel clamps, said attachment comprising a pair of spaced substantially parallel longitudinally extending elongated support rods adjustably held in said opposite side swivel clamps of the table and extending for a substantial distance beyond the end support portion of the table in cantilevered relationship to the table, said support rods being longitudinally adjustable forwardly and rearwardly in said side swivel clamps of the table and being swingable upwardly and downwardly vertically around the transverse axes of the side swivel clamps and being lockable by such clamps in selected adjusted positions, a support panel for the buttocks and thighs of a patient disposed between said support rods in spaced relationship to said end support portion of the table and above the level of said support platform for the legs, and another pair

of opposite side adjustable swivel clamps carried by said support panel for the buttocks and thighs and being adjustably engaged with and bodily supported by said support rods and also being adjustably engaged with said support panel, whereby the support panel for the buttocks and thighs may be moved forwardly or rearwardly along the longitudinal axes of the support rods, may be rotated in either direction around the transverse axes of the last-named pair of swivel clamps and may be shifted in opposite directions on a linear path across the rotational axis of said support panel as defined by the last-named swivel clamps and locked securely in a selected adjusted position on the support rods by the last-named swivel clamps, the body of a patient utilizing the attachment being substantially unsupported between the end support portion of the table and the support panel for the buttocks and thighs.

4,391,439

METHOD AND APPARATUS FOR CALIBRATION AND ADJUSTMENT OF INSERTER FOR SHEETED MATERIAL

Lars G. Edström, Stockholm, Sweden, assignor to Malmohus Invest AB, Malmo, Sweden

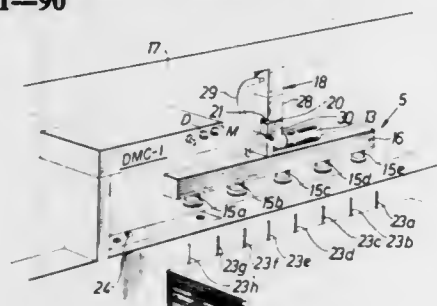
Division of Ser. No. 9,953, Feb. 6, 1979, Pat. No. 4,349,189. This application Oct. 31, 1980, Ser. No. 202,862

Claims priority, application Sweden, Feb. 7, 1978, 7801396; Feb. 7, 1978, 7801397; Feb. 7, 1978, 7801398; Feb. 7, 1978, 7801399; Jun. 15, 1978, 7806910

Int. Cl.³ B65H 7/14, 7/12

U.S. Cl. 271-90

7 Claims



1. Method for calibration and adjustment of an inserter working with air suction for picking up a sheeted or folded material one at a time from a bundle for insertion in a machine, comprising:

sensing how many sheets of said material have been picked up by means of a sensor which transmits different output signals which correspond respectively to no sheet of the material picked up, one sheet of material picked up or several sheets of material picked up;

controlling the suction of the inserter such that the suction is increased a specific amount if the output signal issued by the sensor corresponds to no sheet of material picked up, or the suction is decreased a specific amount if the output signal issued by the sensor corresponds to more than one sheet of material picked up; and

adjusting the suction in the inserter after each pick up of the material until the output signal issued by the sensor corresponds to one sheet of material in the machine.

2. Apparatus for calibration and adjustment of an inserter working with air suction for picking up a sheeted or folded material one at a time from a bundle for insertion in a machine, comprising:

an inserter (5) including means for producing air suction to pick up a sheeted or folded material one at a time from a bundle for insertion of the picked up sheeted or folded material into a machine;

a sensor (24) positioned adjacent said inserter (5) and arranged for transmitting different output signals which correspond respectively to no sheet of material picked up, one sheet of material picked up or several sheets of material picked up;

said means for producing air suction in said inserter (5)

including an individually driven variable air suction source (19); and means coupled to said sensor (24) for controlling said variable air suction source (19) responsive to the output signal from said sensor (24) such that said air suction source produces increased suction if said sensor output signal corresponds to no sheet of material picked up or decreased suction if said sensor output signal corresponds to more than one sheet of material picked up.

4,391,440

PORTABLE EXERCISING APPARATUS

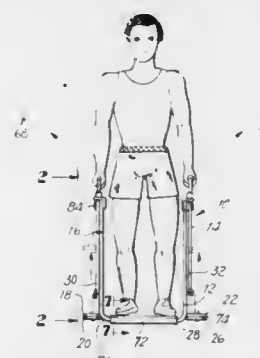
Isaac Berger, c/o Ike Berger Enter., 263 W. 38th St., New York, N.Y. 10018

Filed Feb. 9, 1981, Ser. No. 232,955

Int. Cl.³ A63B 21/06

U.S. Cl. 272-118

12 Claims



1. A portable, body-anchored exercising apparatus, comprising:

(a) an erect vertically elongated rigid frame;

(b) a pair of separate elongated, flexible ropes mounted on and being axially movable along their axes of elongation in relation to the frame at opposite sides thereof, said ropes being capable of being pulled by a user for exercise purposes, and said ropes generating a substantially upward force on the frame when so pulled, each rope of said pair of ropes having a grasp end which when idle is situated at approximately mid-body level of an adult user;

(c) separate means for resisting the pulling forces on the ropes generated by the user;

(a) a pair of separate pulley systems, each pulley system being operatively interposed between a different resistance means and an associated rope, each pulley system including at least two vertically spaced pulleys about which the associated rope is trained, the upper pulley being rotatably supported by the rigid frame and the lower pulley being rotatably supported by the associated rope, the lower pulley supporting the associated resistance means, whereby the apparatus is provided with a mechanical advantage greater than 1 to 1 in favor of the grasp ends, the mechanical advantage allowing the user to move the grasp ends through a distance greater than the distance through which the associated resistance means moves; and

(e) a base connected to the frame and on which the user rests his body weight while exercising on the same, said base exerting a force opposing the force of the pulled ropes, when the user's weight is applied to said base, said base being operative for permitting the user to hold the apparatus down using his own body weight in any desired position while exercising.

4,391,441

EXERCISE APPARATUS

Luther G. Simjian, 1750 S. Ocean La., Fort Lauderdale, Fla. 33316

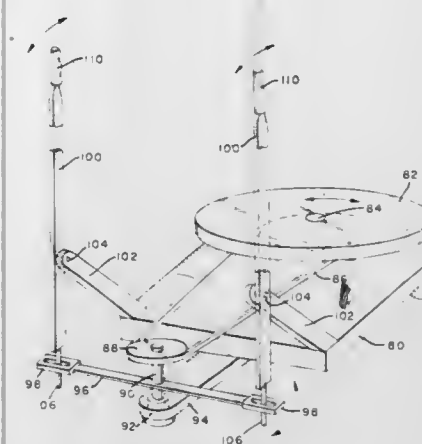
Division of Ser. No. 196,849, Oct. 14, 1980, Pat. No. 4,313,603.

This application Oct. 23, 1981, Ser. No. 314,173

Int. Cl.³ A63B 23/02

U.S. Cl. 272-126

5 Claims



1. An exercise apparatus comprising:

a stationary support;

a platform mounted upon said support for oscillating rotating motion about a centrally disposed axis and adapted to support a person in standing position;

a pair of upstanding posts mounted forward of the perimeter of said platform and pivotally supported for enabling the upper end of each post to undergo oscillating motion in a direction generally toward and away from said platform, and

means coupling said platform to said posts for causing the upper ends of said posts to move in opposition relative to each other toward and away from said platform responsive to oscillating motion imparted to said platform.

4,391,442

GAMING APPARATUS

David Levy, 360 W. 55th St., New York, N.Y. 10019

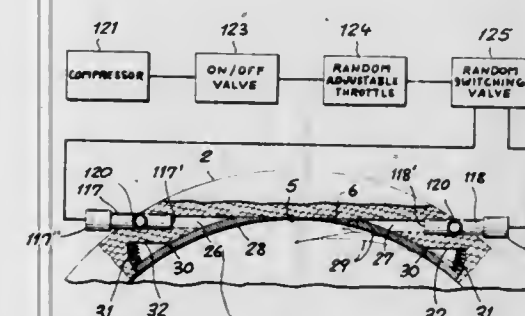
Division of Ser. No. 132,085, Mar. 20, 1980, Pat. No. 4,337,945.

This application Feb. 2, 1982, Ser. No. 345,024

Int. Cl.³ A63E 5/04

U.S. Cl. 273-142 E

3 Claims



1. A gaming apparatus comprising:

a roulette wheel having a circular rim, a downwardly converging frustoconical bowl contained within said rim and joined thereto below the upper surface of said rim to form therewith a track for a roulette ball, a rotatable wheel head centered within said bowl at the bottom thereof and formed with a plurality of numbered compartments for receiving said roulette ball;

an automatic roulette ball spinner having a pair of guide tubes directed oppositely to one another and positioned along said rim for directing said ball tangentially onto said track, said guide tubes having a roulette ball magazine communicating therewith and means including respective

powered plungers provided in said guide tubes for propelling said ball through said guide tubes; selector means for randomly activating either of said powered plungers; and means for randomly adjusting the propelling force of said powered plungers, each of said guide tubes communicating with said track by way of a respective bore formed in said rim and blocked by a pivotable arcuate flap biased into a closed position and displaceable into an open position by said ball propelled through said bore.

4,391,443

EXERCISE APPARATUS

Julian B. Beecroft, Box 57, Port Hope, Ontario, Canada (L1A 3V9)

Filed Jun. 25, 1981, Ser. No. 277,123

Int. Cl.³ A63B 23/02

U.S. Cl. 272-145

21 Claims

3. An exercise apparatus for use by a human being, which comprises:

a ring shaped cushion member, having an axis, dimensioned and configured to support one side of a human torso in generally axially aligned relationship with said cushion member and in shaped relationship to any other side of the associated human torso;

means for supporting said cushion member in a generally horizontal position for free rotational movement about the axis thereof, said cushion member being adapted to be moved rotationally only in response to forces imposed by the user; and

means for receiving and securing the feet of a user disposed in axially spaced relationship from said ring shaped cushion member.

4,391,444

ELECTRONIC GAME PROVIDING FORMATION CHANGES AND METHOD

Eric Bromley, West Simsbury, Conn., assignor to Coleco Industries, Inc., Hartford, Conn.

Filed Feb. 9, 1981, Ser. No. 232,808

Int. Cl.³ A63F 9/00

U.S. Cl. 273-94

32 Claims

27. In a method of simulating a sports-action team game, the steps of:

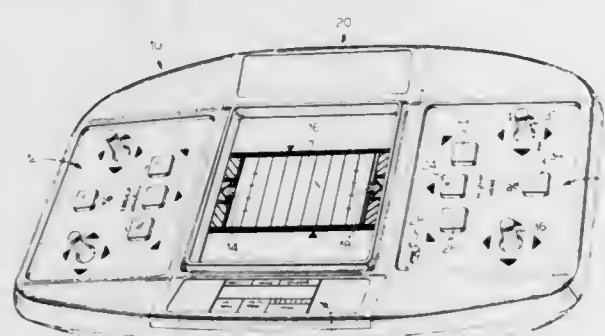
a. providing a housing;

b. providing a display panel on the upper surface of said housing that provides a visual simulation of a playing field of the type on which a ball-type game is played and is adapted to display symbols in and between side and end boundary positions on said field in response to electrical signals applied thereto;

c. providing operational-circuit means in said housing operatively connected to said display panel for generation and transmission of electrical signals to said display panel to produce offensive and defensive play symbols on said simulated playing field, one of said offensive play symbols

at a time simulating the position of the ball, said operational-circuit means step including:

- (i) moving a multiplicity of said offensive play symbols, including said ball-position symbol, along said playing field, said multiplicity of offensive play-symbols including a concurrently movable plurality thereof;
 - (ii) moving a multiplicity of said defensive play symbols along said playing field toward said ball-position symbol, movement of said offensive and defensive play symbols providing play action simulating the action of said sports-action team game;
 - (iii) detecting the coincidence of said ball-position symbol with at least a selected one of said defensive play symbols during at least a portion of a play and terminating play action upon such detection; and
 - (iv) monitoring play action to record information concerning the status of said simulated game and for producing signals indicative of said status information, said signals conveying the recorded information to an operator of said game;
- d. providing a control board on said housing that includes a multiplicity of manually operable control elements connecting said control board to said operational-circuit means for transmission of signals thereto through operation of said control elements, effecting movement of said ball-position symbol by said offensive-play-symbol-movement means in response to operation of said control elements by an operator to effect movement of said ball-position symbol through said defensive play symbols to simulate advance of the ball, terminating play action by said



detecting means upon the occurrence of said game terminating coincidence;

- e. monitoring the position of at least one of said concurrently movable plurality of offensive play symbols and assigning prohibited moves thereto based on its monitored position on said playing field;
- f. operating at least one of said manually operable control elements to transmit signals to said operational-circuit means to direct the same move to each of said concurrently movable plurality of offensive play symbols, including a prohibited move to at least one of said concurrently movable plurality;
- g. effecting all of the directed moves of said concurrently movable plurality except said at least one prohibited move, thereby changing the formation defined by the relative positions of said concurrently movable plurality;
- h. operating at least one of said manually operable control elements to transmit signals to said operational-circuit means to direct a move of said concurrently movable plurality of offensive play symbols that is not prohibited to any of them; and
- i. effecting said last-mentioned directed moves of all of said concurrently movable plurality, thereby maintaining the new formation resulting from said first-mentioned effected moves.

30. In an electronic apparatus for simulating a sports-action team game, the combination comprising:

- a. a housing;
- b. a display panel on the upper surface of said housing providing a visual simulation of a playing field of the type on

which a game between opposing teams is played, said display panel having a multiplicity of discrete visual-image-producing devices arranged along x- and y-axes of said simulated playing field and adapted to display symbols representing players of opposing teams at a multiplicity of discrete positions along said x- and y-axes on said playing field in response to electrical signals transmitted thereto;

c. operational-circuit means in said housing operatively connected to said display panel for generation and transmission of electrical signals thereto to produce symbols of said opposing teams on said simulated playing field, at least one of said teams including at least first and second symbols;

- (i) means for moving a multiplicity of said symbols of said one team along said playing field, said multiplicity of symbols including said first and second symbols;
- (ii) means for moving a multiplicity of the symbols of the other team along said playing field toward one of said symbols of said first team, movement of said symbols of said two teams providing play action simulating the action of said sports-action team game; and
- (iii) means for monitoring the position of at least one of said symbols of said first team, means assigning prohibited moves thereto based on its monitored position on said playing field, and means for preventing said prohibited moves of said at least one symbol by said first team symbol movement means;

d. a control board on said housing including a multiplicity of manually operable control elements, said control board being electrically connected to said operational-circuit means for transmission of signals to said operational-circuit means through operation of said control elements, said control elements including first and second elongated levers, respectively, associated with said first and second symbols, said levers being pivotally mounted in said control board for pivoting from rest positions in which the longitudinal axes of said levers extend generally perpendicularly to the upper surface of said housing, said pivoting being along two pivotal axes extending generally perpendicularly to the longitudinal axes of said levers, said control board further including at least three switches associated with each of said levers along said pivotal axes thereof and electrically connected to said operational-circuit means for transmission of electrical signals thereto to direct movements of said symbol associated with each of said levers, pivoting of each of said levers along one pivotal axis in first and second directions operating the associated first and second switches to direct motion of the associated symbol in first and second directions, respectively, along one axis of said simulated playing field, pivoting of each of said levers in a first direction along the second pivotal axis thereof operating the associated third switch to direct motion of the associated symbol in a first direction along the other of said axes of said playing field, each actuation of a switch causing only one step of motion of the associated symbol, each lever and its associated switches being cooperatively configured and dimensioned and each lever being pivotally mounted to permit operation of only one switch at a time by each lever.

4,391,445

LOGICAL SKILL TOY

Gábor Vizelyi, Pakozdi tér 3., Budapest 1148, Hungary

Filed Feb. 18, 1981, Ser. No. 235,528

Claims priority, application Hungary, Apr. 3, 1980, 802/80

Int. Cl.³ A63F 9/08

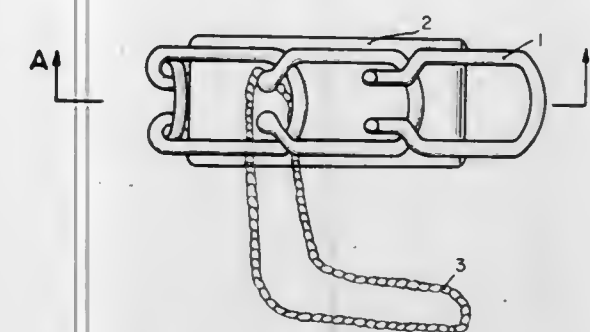
U.S. Cl. 273—158

4 Claims

1. A logical toy comprising a series of hooks with legs fixed about the perimeter of a disc, the legs of each of said hooks being fixed and connected to said disc so that the annular

closed part of each hook except the first in the series encloses the legs of the preceding hook adjacent to it to thereby form a

ing head to the ball dispensing position when said tee striking portion engages said tee.



trap with said hook; and a closed cord arranged around the legs of one of said hooks.

4,391,446

GOLF BALL DISPENSER

John Eberle, 2027 - 28th Ave. SW., Calgary, Alberta, Canada (T2T 1K4)

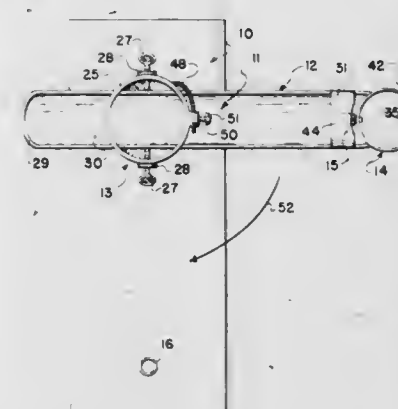
Filed Aug. 7, 1980, Ser. No. 176,116

Claims priority, application Canada, Sep. 25, 1979, 336457

Int. Cl.³ A63B 57/00

U.S. Cl. 273—201

28 Claims



1. A golf ball dispenser for use with a fixed tee comprising in combination a base, a feed tube component mounted upon said base for pivotal movement in a horizontal plane from a ball dispensing position adjacent the tee, to a position clear of the tee and vice versa, said feed tube component sloping downwardly towards the outboard end thereof to feed golf balls by gravity towards said outboard end, a dispensing head pivotally secured to said outboard end and being movable from a ball detent position to a ball dispensing position and vice versa, means normally urging said head to said ball detent position, said outboard end of said feed tube component being apertured in the base thereof to provide a ball dispensing aperture, said dispensing head being pivotally supported for fore and aft tipping movement, within said feed tube component adjacent said ball dispensing aperture, said head including a front wall and rear wall, said rear wall acting as a ball detent when in said ball detent position and preventing a ball from passing from said feed tube component to said aperture, said detent releasing the front ball in said feed tube component to a position in said aperture, when said head is moved to said ball dispensing position, said front wall holding said ball in said ball dispensing position, said detent engaging between said front ball and the ball immediately therebehind and thereby releasing said front ball through said aperture, when said head is moved back to the ball detent position, means to activate said head including means spanning said aperture and engaging the associated tee when said dispenser is moved to the dispensing position, said last mentioned means including a tee striking portion pivoted for movement to said front wall of the feed tube and extending into said aperture, and a dispensing head engaging portion connected to said tee striking portion, for moving said dispens-

4,391,447

ELECTRONIC CHESS GAME

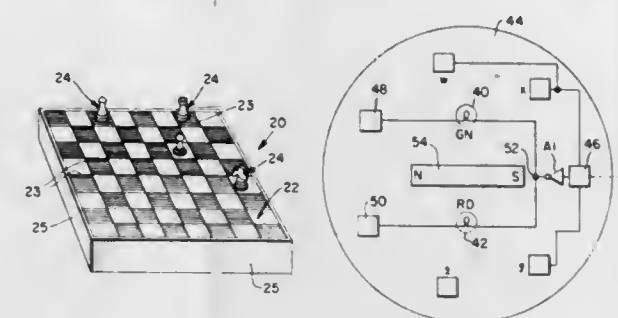
Raymond Dudley, 833 S. Cedros, Apt. 24, Solana Beach, Calif. 92075

Filed Nov. 20, 1980, Ser. No. 208,781

Int. Cl.³ G09B 19/22

U.S. Cl. 273—238

25 Claims



1. An electronic game comprising a playing board defining a plurality of playing positions, a plurality of playing pieces, at least some of which are of different types, each piece being movable between playing positions in accordance with a predetermined pattern dependent upon its type, said predetermined pattern being influenced by the locations of other ones of said pieces, means for encoding each piece according to its type, means at each position responsive to the encoding means for detecting the presence and type of a piece located at that position, and means responsive to the detecting means for illuminating each position on the board to which such piece can be moved, the illuminating means being responsive to the locations of other ones of said pieces.

4,391,448

METHOD OF PLAYING A TWO-PLAYER BOARD GAME

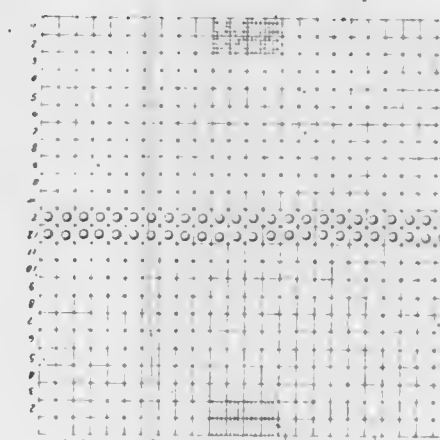
Conrad Hermann, 3rd, 1551 East Walnut La., Philadelphia, Pa. 19138

Division of Ser. No. 967,223, Dec. 17, 1978, abandoned. This application Jan. 19, 1981, Ser. No. 226,431

Int. Cl.³ A63F 3/00

U.S. Cl. 273—243

4 Claims



1. A method of playing a game for two players which comprises the steps of

- (A) providing three sets of playing pieces including means for distinguishing each of these sets from the other two and providing an equal number of pieces in each set;
- (B) providing between the players a rectangular board marked off into a plurality of equal-sized squares, wherein (B₁) the two rows of squares half-way between the players, identifiable as the MID-ZONE have placed

thereon, before commencement of play, all the pieces of one of the three sets, identifiable as the initial or BOARD set of pieces, one BOARD piece being on each square of said MID-ZONE, the said equal number of pieces in each set thus being equal to the number of squares in the MID-ZONE, and

(B₂) in the middle of each player's end of said board there is a relatively small rectangle of squares, including several squares in the first line of said player's side, marked off as a respective HOME BASE accessible only to said respective player, the remaining squares on the entire board being accessible at all times to any playing piece of either player, once said piece has been placed on the board by means hereinafter set forth;

(C) providing chance means manipulatable by said players for placing and moving said pieces on said board, said chance means comprising a device for indicating at random a number selected from zero, 1, 2, 3, 4, and 5;

(D) each of said players being provided with one of the remaining sets of playing pieces, identifiable as his OWN playing pieces in contrast to the BOARD pieces which are never possessible by either player;

(E) selecting one of said two players as the one to commence play, this play being identifiable as the FIRST PLAYER;

(F) manipulating said chance means to determine the number of spaces which the FIRST PLAYER may move any of the BOARD pieces toward his own HOME Base;

(G) manipulating said chance means to determine the number of spaces which the SECOND PLAYER may move any of the BOARD pieces to his own HOME BASE;

(H) manipulating said chance means to determine the successive alternate moves of the players who may use the indicium number to (i) move the same or other BOARD pieces, removing from the Board any BOARD piece which reaches his HOME BASE and replacing it with one of his OWN pieces, or (ii) move one of his thus-placed OWN pieces from his HOME BASE on to the open board, or (iii) move either a BOARD piece or one of his OWN pieces in such a manner as to have said two pieces occupy an identical otherwise unoccupied square, replacing the BOARD piece by another of his off-the-board OWN pieces (leaving two identical pieces temporarily on the same square) and removing the BOARD piece from the board, or (iv) move one of the player's OWN pieces to the same space already occupied by an opponent's OWN piece or pieces, removing said opponent's piece or pieces from the board and placing anywhere in the MID-ZONE a BOARD piece (From off the board) for each opponent's thus removed OWN piece,—all of such possible moves being such that the total number of pieces on the board remains constant;

(I) and repeating the alternating steps set forth in (H) until one of the players has the complete set of his OWN pieces on the board.

4,391,449

BOARD GAME

Robert L. Johnson, 3655 Pruneridge, Apt. 261, Santa Clara, Calif. 95051

Filed Jun. 8, 1981, Ser. No. 271,626

Int. Cl.³ A63F 3/02

U.S. Cl. 273—260

11 Claims

1. A board game comprising:

a playing surface provided with indicia including:

(A) a first plurality of spaced apart parallel lines;

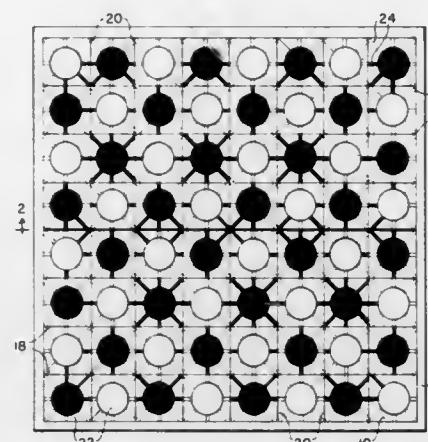
(B) a second plurality of spaced apart parallel lines substantially perpendicular to said first plurality of lines, whereby said playing surface is divided into a number of four-sided spaces;

(C) a plurality of positioning marks located, one each, within each of said spaces;

(D) a plurality of directive lines located, eight each, within each of said spaces such that, within each space, four of said directive lines extend from said positioning

mark to the corners of said space, and the other four of said directive lines extend from said positioning mark to the four sides of said space;

(E) directive line distinguishing means wherein a first group of said plurality of directive lines have a first visual appearance, and a second group of said plurality of directive lines have a second visual appearance;



(F) a plurality of first player pieces, each of which has a first side having a first distinguishing characteristic, and a second side having a second distinguishing characteristic; and

(G) a plurality of second player pieces, each of which has a first side having a first distinguishing characteristic, and a second side having a second distinguishing characteristic.

4,391,450

SHAFT SEAL RESISTANT TO ELECTROKINETIC CORROSION

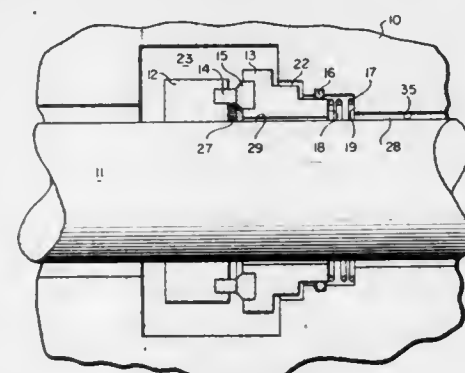
Theodore R. Beck, Seattle, Wash., assignor to Electrochemical Technology Corp., Seattle, Wash.

Filed Aug. 30, 1982, Ser. No. 412,709

Int. Cl.³ F16J 15/16, 15/34

U.S. Cl. 277—1

15 Claims



1. In combination with a shaft, a housing, and means mounting said shaft for rotation within said housing, a shaft seal for preventing the leakage of liquid between said shaft and said housing, said shaft seal comprising:

a stationary first annular seal element associated with said shaft housing;

said shaft extending through said first annular seal element;

a second annular seal element;

means mounting said second seal element on said shaft for rotation therewith;

each of said seal elements having a respective mating surface; means for urging said mating surfaces together to provide rubbing engagement between said mating surfaces during said rotation;

one of said two seal elements being composed of a material having a relatively high hardness;

the other of said two seal elements being composed of a material having a relatively low hardness which allows the

harder of the two seal elements to conform the softer seal element to the harder one;

both of said seal elements being composed of a material which will not support an electrochemical reaction;

said mounting means for said seal elements and said respective compositions of the seal elements comprising means for conforming the mating surface of said other seal element to the mating surface of said one seal element, on a macro scale, when said mating surfaces undergo said rubbing engagement, during said rotation;

and means, including the respective composition of each seal element, for substantially eliminating electrokinetic corrosion at said mating surface thereof when the shaft seal is used to prevent leakage of an electrolytic liquid.

4,391,451

EXPANSIBLE CHUCK ASSEMBLY

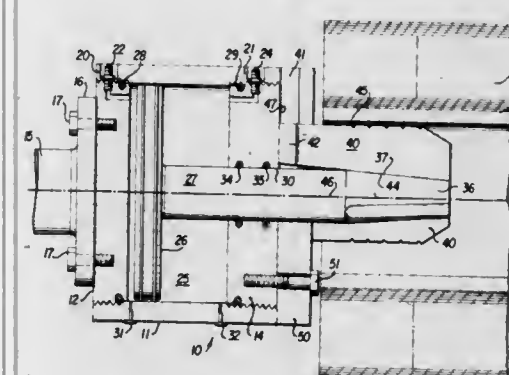
Arthur D. Secor, and Jerome G. Secor, both of Toledo, Ohio, assignors to Great Lakes Industries, Inc., Toledo, Ohio

Filed Sep. 17, 1980, Ser. No. 188,109

Int. Cl.³ B23B 31/40, 5/34, 31/10

U.S. Cl. 279—2 A

14 Claims



1. A rotatable expansible chuck assembly for use in web winding and unwinding operations which comprises a body, a hermetically sealed chamber in said body, a piston in said chamber dividing said chamber into two hermetically sealed spaces, fluid pressure check and bleed valves mounted on said body connected to said chamber through said body on opposite sides of said piston into respective said spaces, a piston rod connected to said piston extending therefrom through an aperture in said body, a plurality of inclined plane wedge surfaces provided on said piston rod where it extends out of said aperture, a plurality of gripping means, each said gripping means having an inner surface engaging a corresponding said wedge surface and an outer surface to receive a core for a roll of web material to be wound or unwound, and a slidable connection between each said gripping means and said body whereby each said gripping means is movable generally radially relative to said body in response to movement of said piston rod, resilient means retaining said gripping means in said body which is so arranged and constructed that said gripping means are readily removable from said body and replaceable by other gripping means, said valves, said chamber, said piston and said piston rod being so constructed and arranged that when the outer surface of said gripping means is engaging a core of material being wound or unwound under a predetermined tension the fluid under pressure in said space on the side of said piston urging said gripping means into engagement with said core is isolated from any other fluid pressure sources, the fluid in the other said space is in communication via its bleed valve with the atmosphere and said engagement due to the net pressure against said piston is continually sufficient to maintain said tension irrespective of minor distortions due to movement or stretching of said core.

4,391,452

CONTROL CIRCUIT FOR VEHICLE LEVELING SYSTEM

Taiji Ohmori, Kawagoe, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

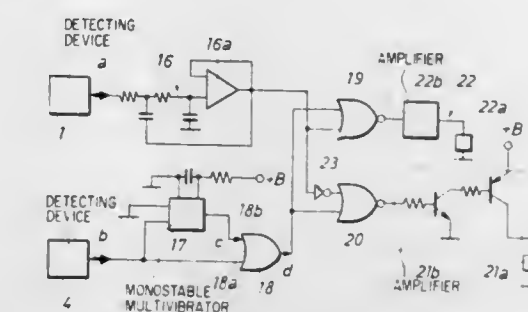
Filed Jan. 16, 1981, Ser. No. 225,777

Claims priority, application Japan, Jan. 17, 1980, 55-3965

Int. Cl.³ B60G 11/26

U.S. Cl. 280—6.1

8 Claims



1. A control circuit for a vehicle leveling system to restore a vehicle height to be within a reference vehicle height range by operating either a first drive means to raise a vehicle body or a second drive means to lower the vehicle body when said vehicle height is out of said reference vehicle height range, comprising:

a first detecting means for generating a directional signal of vehicle height change in the form of either a HIGH signal or a LOW signal;

a second detecting means for generating a command signal of vehicle height adjustment in the form of either an OFF signal or an ON signal;

main circuit means for selecting for operation either said first drive means to raise said vehicle height or said second drive means to lower said vehicle height in response to said directional signal, and for determining whether or not said drive means is to be actuated;

holding circuit means, connected between said second detecting means and said main circuit means, for increasing the duration of said OFF signal for a predetermined length of time when said OFF signal appears instantaneously, and for transmitting said OFF signal with said duration to said main circuit means; and

said holding circuit means comprising a monostable multivibrator connected so as to receive said command signal from said second detecting means, and an OR gate connected so as to receive said command signal from said second detecting means and an output from said monostable multivibrator.

4,391,453

CHILD STROLLER

Dieter Gläser, Dachau, Fed. Rep. of Germany, assignor to PEG Perego-Pines Deutschland GmbH, Dachau, Fed. Rep. of Germany

Filed Oct. 1, 1980, Ser. No. 192,920

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940302; Apr. 16, 1980, 3014674

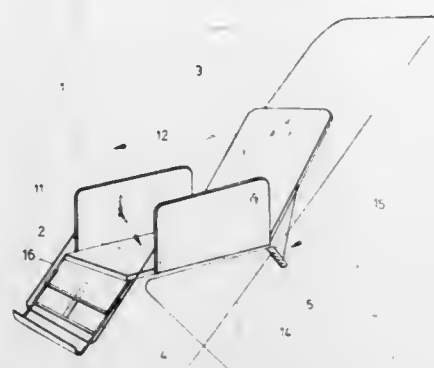
Int. Cl.³ B62B 9/10

U.S. Cl. 280—47.4

25 Claims

1. A child stroller having a frame (5), a seat (1) formed by at least one seating surface member (2, 2¹), a back rest (3), a footrest (4), supporting means (17, 18, 19) for disposing said one seating surface member on said frame relative to said back rest to support a child in a seated position, adjustment means (9) for moving said one seating surface member longitudinally relative to said back rest to provide a usable portion of said seat

of variable length corresponding to the length of the child's thigh, and locking means (8, 10) for holding said one seating



surface member in its adjusted position relative to said back rest.

4,391,454

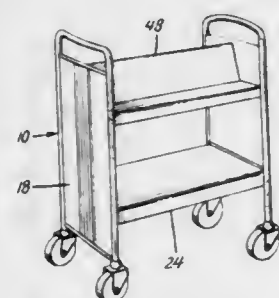
UTILITY CART WITH DETACHABLE AND REVERSIBLE SHELVES

Douglas D. Marsh, 1212 Mark Dr.; Arthur E. Feldman, 108 Iwo St., and John C. Newlin, R.R. #3, all of Auburn, Ind. 46706
Filed Apr. 4, 1980, Ser. No. 137,388

Int. Cl.³ B62B 11/00

U.S. Cl. 280—47.35

4 Claims



1. A utility cart having reversible shelves comprising a pair of end frames, each having a pair of elongated rigidly connected upright hollow supports which are parallel and spaced apart, each end frame having an end panel secured to said upright supports, an orthogonal shelf device detachably secured at the corners to said upright supports: said shelf device including two parallel flanges on opposite side edges and being essentially open at the opposite ends thereof, one mounting bracket secured to each end of each flange and having an attaching portion projecting angularly inwardly, each attaching portion engaging the respective upright support at a point within the angle defined by the shelf corners; each support having at said engagement point a threaded opening through one side thereof, and one fastener received by an opening in each attaching portion and being threaded into said threaded opening for securing said shelf device to said upright supports, said flanges extending between said pair of end frames and said panels being juxtaposed with the opposite ends of said shelf device thereby serving as end closures therefor, said shelf device also having a bottom formed with two portions angling downwardly from said two flanges, respectively; and an upstanding inverted V-shaped wall portion connected at the lower edges to the inner facing edges of said two bottom portions, respectively, said wall portion including two back panels and being provided at each end of one back panel thereof with an elongated plate like bracket which generally lies in a plane at right angles to said one back panel, each said bracket extending into the apex portion of said wall portion and having an opening for receiving a fastener, and a fastener extending through an opening in each end panel and into each said bracket opening for supporting said wall portion with respect to said end frame.

4,391,455 TRACTOR VEHICLE PROVIDED WITH A FIFTH-WHEEL PLATE

Nils Fagerstedt, Espoo, Finland, assignor to Oy Sisu-Auto Ab, Helsinki, Finland

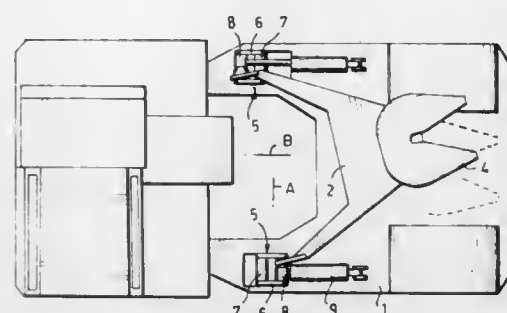
Filed Nov. 25, 1980, Ser. No. 210,444

Claims priority, application Finland, Dec. 14, 1979, 793931

Int. Cl.³ B62D 53/08

U.S. Cl. 280—407

9 Claims



1. A tractor vehicle provided with a fifth-wheel plate, comprising a chassis, a beam mounted on said chassis vertically pivotably on two fulcrums spaced apart in the transverse direction of said vehicle, and a fifth-wheel plate supported by said beam, in which the improvement comprises said fulcrums of said beam being independently displaceable in the longitudinal direction of said vehicle.

4,391,456

SKI STICK GRIP

Beat Moor, Meiringen Halteli CH3860, Switzerland

PCT No. PCT/CH80/00058, § 371 Date Feb. 7, 1981, § 102(e)

Date Jan. 22, 1981, PCT Pub. No. WO80/02649, PCT Pub.

Date Dec. 11, 1980

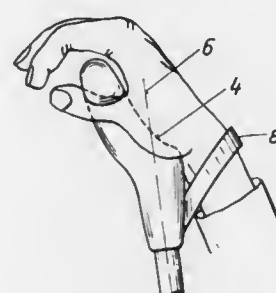
PCT Filed May 13, 1980, Ser. No. 233,605

Claims priority, application Switzerland, Jun. 7, 1979, 5292/79

Int. Cl.³ A63C 11/22

U.S. Cl. 280—821

4 Claims



1. A ski stick grip attached to a ski stick having a center portion, two side portions of substantially equal length extending from the said center portion at right angles to the longitudinal axis of the ski stick, an upper surface and a lower surface in which the force of the hand is applied substantially in the direction of the longitudinal axis of said ski stick, permitting the movement of the wrist joint substantially parallel to the movement of the hand and at right angles of the forearm to increase the force applied by the arm and the wrist to said stick;

said ski stick grip enabling the placing of the palm of the hand on said upper surface;
said lower surface arranged for accommodating the thumb of the hand, allowing the hand to surround said grip by forming substantially a fist;
said upper surface being extended outwardly and upwardly;
said lower surface of said ski stick grip curved downwardly; and
a pommel formed, extending upwardly substantially from the center portion of said grip;

allowing the force on the ski stick grip to be exerted substantially parallel to the longitudinal axis of the ski stick.

4,391,457

COMBINATION POCKET PAD AND WRITING INSTRUMENT HOLDER

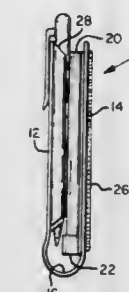
Paul B. Gassner, 0405 SW. Texas St., Portland, Oreg. 97219

Filed Aug. 3, 1981, Ser. No. 289,470

Int. Cl.³ B42D 3/06, 3/12

U.S. Cl. 281—31

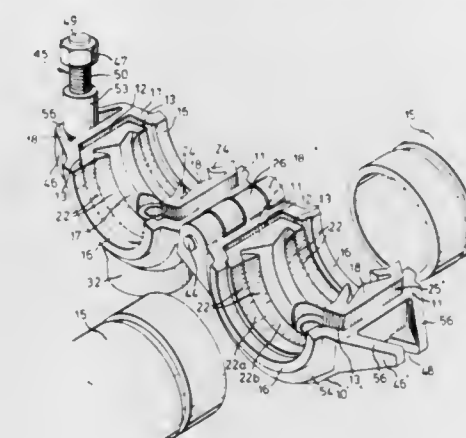
6 Claims



1. A book-type combination pocket pad and writing instrument holder comprising:

a cover foldable into front and back cover sections along a hinge portion,
retention means along an inside face of one said cover section for retaining a pad of paper sheets,
slip inhibiting means on the outside face of said one cover section for frictional contact with the material of an open pocket for resisting gravity-induced sliding movement of said cover from said pocket yet allowing easy manual removal of said cover from said open pocket, said slip inhibiting means comprising a high friction surface,
spacer means projecting from an inside face of the other said cover section toward the inside face of the one said cover section when said sections are folded together to space the cover sections one from the other, said spacer means comprising a pair of laterally spaced apart relatively rigid parallel ribs integral with said other cover section and spaced inwardly of opposite side edge portions of said other cover section in positions overlying said pad when said cover sections are folded together,
said ribs being positioned laterally on opposite sides of a center portion of said other cover section so as to define with the inside faces of said cover sections a rigid pocket therebetween when said cover sections are folded together for receiving writing instruments clipped to said other cover section and extending along the inside face thereof.

sions in the end region of the inner wall surfaces of the two opposing housing segments;
radially outwardly projecting lugs on said gasket means adjacent to and co-extensive with the enlarged free ends, wherein the lugs interact with the recess to position the gasket means within the coupling housing in the closed position of the housing segments so that the radially outer side of said sealing line is spaced circumferentially from the opposed ends of said housing segments and is in contact with the inner wall surface of one of said segments;



a sealing lip formed at axially opposite ends of the interior of the gasket means, said sealing lip comprising a radially inwardly extending portion terminating at at least one enlarged free end of the gasket means in a projection extending circumferentially from and beyond the generally planar surface of said enlarged free end, whereby circumferential retraction of said sealing lip is compensated for to maintain a complete circumferential surface to seal under internal pressure; and
releasable locking means cooperating with the housing segments for locking the segments together in the closed position.

4,391,459

INSTANT HOT WATER DISPENSER

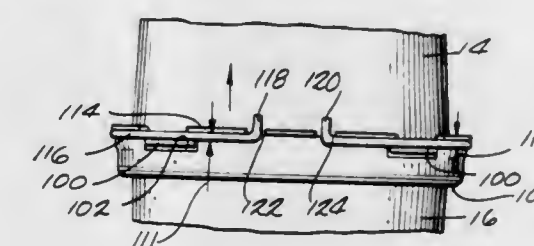
Charles A. Wicke, and Wayne C. Riley, both of Racine, Wis., assignors to Emerson Electric Company, St. Louis, Mo.

Filed Feb. 9, 1981, Ser. No. 233,221

Int. Cl.³ F16L 47/00

U.S. Cl. 285—238

6 Claims



1. In a hot water dispenser having an upper tank with a lower end and a lower tank with an upper end, the improvement wherein:

a. the lower end of the upper tank is formed with a plurality of outturned flanges and an external circumferential groove for receiving an O-ring;
b. the upper end of the lower tank is formed with a shoulder for receiving and supporting the lower end of the upper tank and for forming a seal with the O-ring, a plurality of gaps for receiving the outturned flanges of the upper tank, and a plurality of outturned flanges between the gaps, one of the outturned flanges having at least one small notch therein; and
c. a retaining ring inserted between the outturned flanges of

4,391,458

PIPE COUPLING WITH GASKET LOCATING MEANS

James Blakeley, Thornhill, Canada, assignor to Blakeley Engineering Limited, Thornhill, Canada

Filed Apr. 10, 1981, Ser. No. 252,921

Int. Cl.³ F16L 21/06, 41/00

U.S. Cl. 285—112

5 Claims

1. A pipe coupling device comprising
two arcuate housing segments, each having opposable ends and a continuous inner wall surface, said housing segments being movable from an open position to a closed position in which said opposable ends are brought into opposition, said housing segments thereby defining a generally cylindrical coupling housing which is adapted to engage the pipes to be coupled;
arcuate gasket means of generally C-shaped cross-section within the coupling housing, said gasket means having radially enlarged free ends defining substantially planar surfaces adapted to abut along an axially extending sealing line;
a recess defined in the closed position of said housing segments by adjacent radially outwardly extending depres-

the upper and lower tanks, the retaining ring having at least one upturned locking portion that protrudes into the small notch in the notched flange of the lower tank, so that the notched flange will deform under internal pressure in the dispenser to release the retaining ring and release the pressure.

4,391,460

ADJUSTABLE MULTIPLE BOLT LOCKING SYSTEM

Jose D. Bonet, Martin el Humano, 12-6 Valencia, Spain

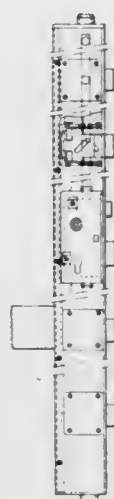
Filed May 27, 1980, Ser. No. 153,691

Claims priority, application Spain, May 25, 1980, 480.950

Int. Cl.³ E05C 1/06

U.S. Cl. 292—37

4 Claims



1. A security lock system comprising a plurality of bolts operated by a common key and a corresponding multiple strike for accommodating said bolts; a main carrier including a single box section forming a lock covering the entire vertical dimension of the door; said main carrier having at least one of the ends thereof means for adjustment in length to the vertical dimension of the door; means for common operation of the plurality of bolts; said bolts including bolts in at least one cross bar, said cross bar being adjustably locatable at any height on said door; said cross bar and said multiple strike having adjustment means therein for adjusting the lengths thereof.

4,391,461

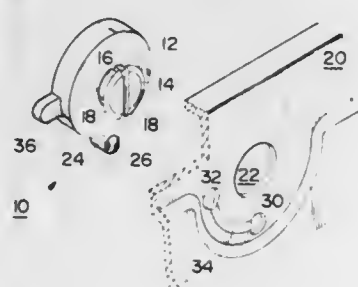
QUARTER-TURN FASTENER

Florian C. Deibele, Tigard, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Oct. 16, 1980, Ser. No. 197,438

Int. Cl.³ E05C 3/12

U.S. Cl. 292—204



1. A fastener for releasably latching a panel to a cabinet, comprising:
a generally disc-like one-piece body;
means integrally formed with said body for rotatably mounting said body to said panel;
a lip integrally formed with said body and extending radially therefrom, said lip being rotatable into latching engagement with said cabinet; and
a positioning boss integrally formed with said body, said

positioning boss comprising a projection engagable with a detent in said panel for establishing a stable position of said fastener.

4,391,462

ANTI-THEFT LOCKING DEVICE ADAPTABLE TO CONTAINERS

Guy Loreal, Teteghem, France, assignor to Societe Navale Chargeurs Delmas-Vieljeux, France

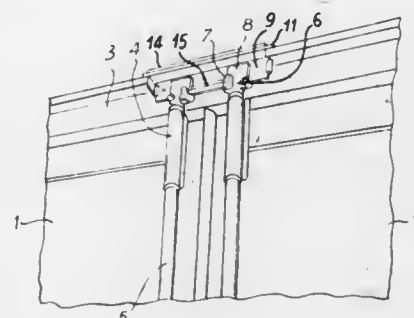
Filed Jul. 31, 1981, Ser. No. 288,831

Claims priority, application France, Aug. 8, 1980, 80 17553

Int. Cl.³ E05C 3/04

U.S. Cl. 292—207

4 Claims



1. In a container presenting hinged mounted doors maintained in tight-sealing closure position by at least one rotating vertical rod provided at its ends with locking members engaging fixed stops of the door frame, an anti-theft locking device which comprises:

a rain-strap opening provided in a front extension of the container roof in the vicinity of the upper end of said rotating vertical rod,

a lug-shaped upper extension of the rotating vertical rod being placed in front of an upper portion of the door frame and providing, in the closure position of the rotating vertical rod, a free space in relation with said door frame, and

a vertically movable plate engaging said rain-strap opening and moving downwards by gravity to lodge into the free space between said upper extension of the rotating vertical rod and said upper portion of the door frame,

whereby the rotating vertical rod can be released to open the doors only when said movable plate has been raised sufficiently, this upward movement of the movable plate being normally prevented in any container supporting another, stacked container, by this other container.

4,391,463

DOOR CATCH

Enrique Costa Bastart, Calle Mayor de Gracia, 213, Barcelona 13, Spain

Filed Jun. 3, 1981, Ser. No. 269,948

Claims priority, application Spain, Jun. 16, 1980, 251422[U]

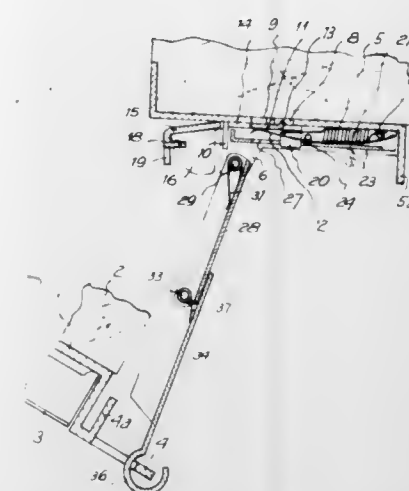
Int. Cl.³ E05C 17/32

U.S. Cl. 292—263

8 Claims

1. A catch for holding a door closed, comprising two complementary mutually engageable latching means, and respective mounting means for mounting said latching means to respective ones of a door and an element adjacent the door so that the latching means are mutually engageable when the door is closed; a first one of said mounting means comprising an extendible link and means for articulating said link to the door or element, whereby in use the door is partially inwardly openable to a predetermined extent with the latching means mutually engaged; the link being displaceable between releasable and locked configurations in which the latching means respectively are and are not mutually disengageable by opening the door; said first mounting means also including an actuating element which is displaceable between actuating and non-actuating configurations, in the former of which it is actuable to displace the link to its releasable configuration, said

actuating element being constructed and arranged to be displaceable in use to its actuating configuration from outside the



partially open door, and to be actuated by closure of the door, whereby the door is freely inwardly openable with disengagement of the latching means.

4,391,464

BUMPER FOR MOTOR-VEHICLES AND THE LIKE, MADE OF PLASTIC MATERIALS, AND HAVING ITS CROSS SECTION CLOSED BY A REAR REINFORCING PART

Maurizio Masotti, Saronno; Antonio Zentile, Paderno Dugnano, and Pasqualino Cau, Oggiono, all of Italy, assignors to Montedison S.p.A., Milan, Italy

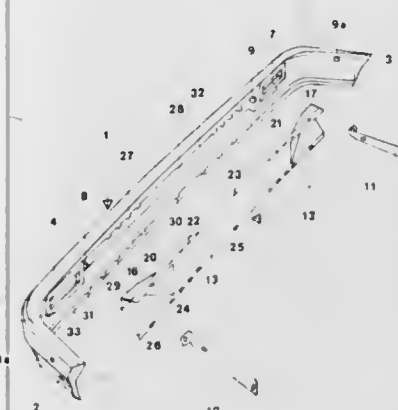
Filed Mar. 4, 1981, Ser. No. 240,299

Claims priority, application Italy, Mar. 6, 1980, 20385 A/80

Int. Cl.³ B60R 19/00

U.S. Cl. 293—120

6 Claims



1. A bumper for a motor-vehicle having a box-shaped cross-section, comprising an elongated bumper member made of plastics material and having an open cross-section substantially shaped like a "C", said bumper member being closed in the rear by one removable reinforcing wall comprising a substantially rectilinear lamina having at each end one enlargement radiused to the plane of the lamina by means of a slanting plane and provided with transversal holes for a stable anchoring of the reinforcing wall to the bumper member and to the motor-vehicle, said reinforcing wall having along its longitudinal borders first coupling means which are engageable with corresponding second coupling means provided along the opposite longitudinal borders of the bumper member, said first and second coupling means providing a solid joining of the bumper member and reinforcing wall.

4,391,465

ASSEMBLY SEPARATING A PASSENGER COMPARTMENT FROM AN ENGINE COMPARTMENT

Renzo Piano, Paris, France, assignor to Fiat Auto S.p.A., Turin, Italy

Filed May 13, 1981, Ser. No. 263,136

Claims priority, application Italy, May 20, 1980, 67794 A/80

Int. Cl.³ B62D 25/08

U.S. Cl. 296—208

8 Claims



8. An assembly of elements having the function of separating the passenger compartment from the engine compartment of a motor vehicle, characterized in comprising:

a first panel-shaped element made of a first plastic material, having a width and a height which are substantially equal to the width of the bodywork and to the distance between the floor and windshield of the passenger compartment, respectively, the said first element being provided with fastening means for connecting the said assembly to the said bodywork,

a second element made of a second plastic material having mechanical characteristics different from those of the said first element, the said second element having a width substantially equal to that of the said bodywork, being provided with housings for the indicator and control instruments of the motor vehicle and being arranged to be fixed to the said first element in a stage prior to the stage of fastening of the complete assembly on the said bodywork; and

a third element, having U-shaped cross-sections and arranged to be fixed to the said first element and to form together with this latter a closed channel communicating with at least one of the said chambers or channels formed by the union of the said first element with the said second element.

4,391,466

WATER CHAIR

Peter A. Smith, 102 Evelyn St., Sylvania 2224, N.S.W., Australia

Filed Feb. 6, 1981, Ser. No. 231,970

Int. Cl.³ A47C 7/02, 7/36

U.S. Cl. 297—452

7 Claims



1. A chair for one or more persons, comprising a frame, a seating portion and a back supporting portion being defined by

the frame, the chair back comprising a plurality of cushions arranged to be partially filled with water, a corresponding plurality of slings, each sling being attached along an upper margin of the back supporting portion; each cushion comprising a water impermeable bag carried within a sling, the bag being partially filled with water, the plurality of cushions being mounted one above the other to the back supporting portion of the frame, with the lowermost part of one cushion resting on the uppermost part of the cushion below it, whereby in use of the chair said cushion supports and adapts itself to the shape of the back of said one or more persons.

4,391,467

SYSTEM FOR PRODUCING A UNIFORM RUBBLE BED FOR IN SITU PROCESSES

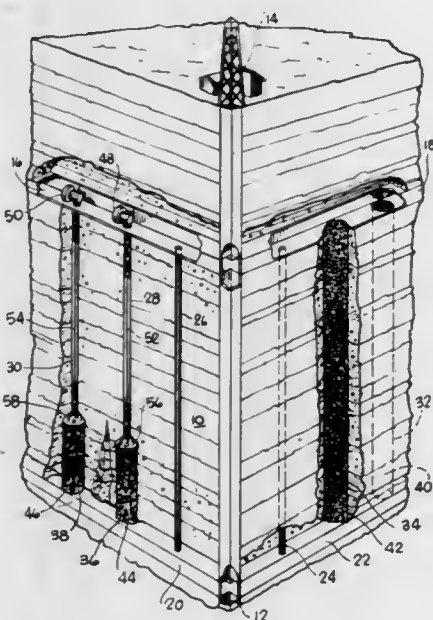
Terry R. Galloway, Berkeley, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 10, 1981, Ser. No. 253,125

Int. Cl.³ E21C 41/10

U.S. Cl. 299—2

14 Claims



1. A method of producing in an underground formation a cavity filled with a bed of uniform rubblized material, comprising: forming a substantially vertical pilot hole in the underground formation; reaming the pilot hole into a cavity, thereby forming fines and rubblized material; and drawing a flushing fluid out of the cavity to carry away the fines, leaving a bed of rubblized material in the cavity.

4,391,468

METHOD AND APPARATUS FOR RECOVERING MINERAL NODULES FROM THE OCEAN FLOOR

Erwin D. Funk, Glen Falls, N.Y., assignor to Kamyr, Inc., Glen Falls, N.Y.

Continuation-in-part of Ser. No. 894,433, Apr. 7, 1978, abandoned. This application Sep. 5, 1979, Ser. No. 72,778

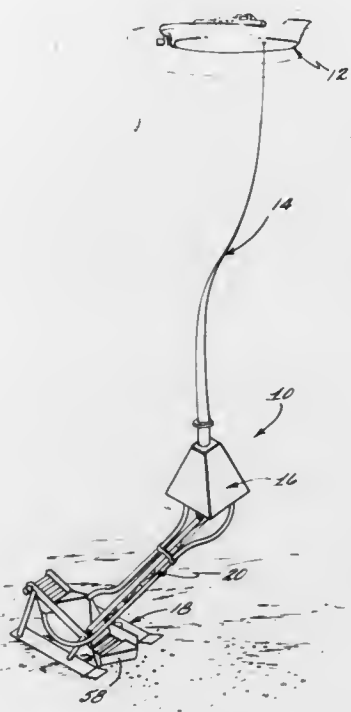
Int. Cl.³ E02F 5/00

U.S. Cl. 299—8

19 Claims

1. A method of recovering mineral nodules of a size range up to 8" nominal diameter deposited on the ocean floor which comprises the steps of pumping a continuous flow of ocean water along a first confined path extending through an exchange position within the vicinity of the ocean floor where the mineral nodules to be recovered are deposited from an ocean water inlet position out of said ocean vicinity and then upwardly to a discharge position on a surface vessel, confining ocean water within a second path within the afore-said ocean vicinity, continuously flowing ocean water in said second path by

pumping the same at a pumping position spaced downstream from an exchange position therein, continuously moving from the ocean floor to a separating position within said ocean vicinity a mixture containing deposited mineral nodules of up to 8" nominal diameter and smaller particles forming a part of the ocean floor on which the mineral nodules were deposited, continuously separating at said separating position said mixture so as to obtain a supply of separated mineral nodules up to 8" nominal diameter within ocean water separate from the remainder of said mixture which contains said smaller particles, returning said smaller particles in the remainder of said mixture to the ocean at a position within said ocean vicinity,



continuously feeding the supply of separated mineral nodules to said second path at a feeding position upstream from the exchange position therein, and continuously exchanging between the exchange positions within said first and second paths successive incremental volumes of ocean water and mineral nodules from said second path to said first path with comparable successive incremental volumes of ocean water from said first path to said second path whereby the mineral nodules within said second path are removed therefrom upstream of the pumping position in said second path and moved into said first path downstream from the pumping position in said first path for movement in said first path to said discharge position.

4,391,469

MINERAL MINING INSTALLATION

Yavier Arsuaga, Madrid, Spain, assignor to Gewerkschaft Eisenhütte Westfalen, Lunen, Fed. Rep. of Germany

Filed Oct. 19, 1981, Ser. No. 313,010

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1980, 3041101

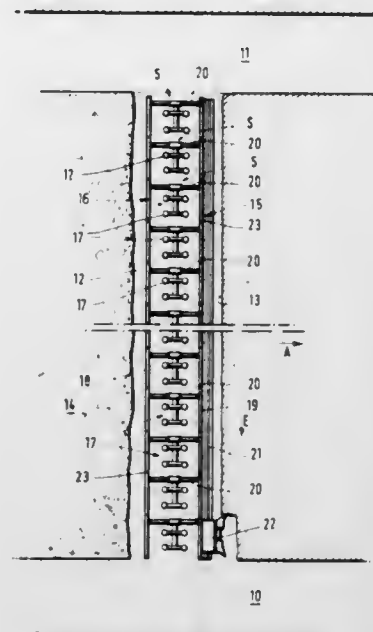
Int. Cl.³ E21C 29/02; E21D 23/04

U.S. Cl. 299—11

31 Claims

1. A mineral mining installation for use in a steeply-inclined longwall working, the installation comprising a ladder-shaped support frame and a plurality of roof support units, the support frame extending along the longwall working and having a pair of generally parallel longitudinal beams interconnected by a plurality of transverse beams, the roof support units being positioned between the longitudinal beams and being supported on the transverse beams, each of the longitudinal beams comprising a plurality of beam sections pivotably connected

together end-to-end, wherein the support frame comprises a plurality of detachably connected sub-frames, each of which



comprises a respective transverse beam and a respective beam section of each of the longitudinal beams.

4,391,470

METHOD OF, AND APPARATUS FOR, WINNING MINERAL MATERIAL

Helmut Langenberg, Lunen; Hans-Theodor Grisebach, Unna, and Heinz Weinhold, Gelsenkirchen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalen, Lunen, Fed. Rep. of Germany

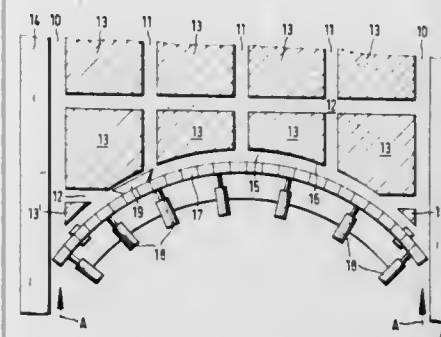
Filed Mar. 9, 1981, Ser. No. 241,483

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1980, 3009923

Int. Cl.³ E21C 27/24, 35/16

U.S. Cl. 299—11

22 Claims



1. A method of winning mineral material from pillars left between laterally spaced roadways or galleries by the bord-and-pillar mining process, the method comprising the steps of forming an arcuate longwall face which extends between the roadways across a plurality of pillars, and of winning mineral material in a non-uniform manner from said pillars using mechanical winning means.

4,391,471

GUIDES FOR MINERAL MINING MACHINES

Alois Hauschopp, Werne; Hans-Dieter Schneider, and Christoph Rassmann, both of Lunen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalen, Lunen, Fed. Rep. of Germany

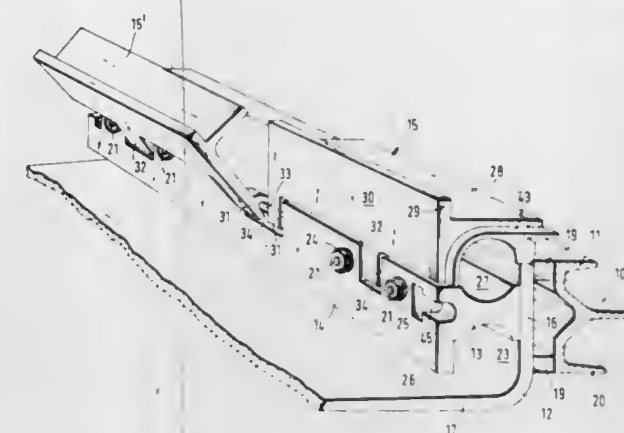
Filed Mar. 31, 1981, Ser. No. 249,315

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012884

Int. Cl.³ E21C 35/08

U.S. Cl. 299—43

31 Claims



3. A guide for mineral mining; said guide comprising means defining upper and lower chain passages for receiving a chain used to drive a plough, the defining means including spacers separating the upper and lower passages, angle plates with surfaces which form a lower support for the plough and covers which close off the upper passage and which are pivotable outwardly from the upper passage to permit access thereto, wherein the covers have flat upper surfaces which serve to contact and support a machine and a guide rail for the plough or machine is formed by projections on the covers delimiting the upper surfaces.

4,391,472

CORE ELIMINATOR FOR MINING, ROAD WORKING OR EARTH MOVING MACHINERY

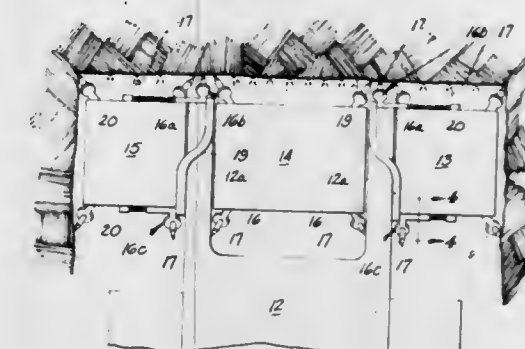
Claude B. Krekeler, Cincinnati, Ohio, assignor to The Cincinnati Mine Machinery Company, Cincinnati, Ohio

Filed Oct. 17, 1980, Ser. No. 197,892

Int. Cl.³ E21C 27/24, 35/18

U.S. Cl. 299—86

21 Claims



1. A core eliminator for mining, road working or earth moving machinery comprising at least a pair of rotatable, driven drums having a plurality of cutter bits disposed thereon, said drums being rotatably mounted on a boom strut located between said drums and between the kerfs formed by said drums and cutter bits as the machinery operates on the material being worked by it; at least one bit holder attached to one of said drums and having a bit therein normally within the confines of the kerf formed by that drum, said bit holder being movable on that drum to an extended position so as to bring said bit therein beyond the kerf formed by that drum and

towards the kerf formed by the other drum whereby to destroy the core which would otherwise form between said kerfs; and additional means to move said bit holder and bit therein to said extended position between said kerfs and to retract said bit holder and bit therein from said extended position, said additional means comprising a cam.

4,391,473

LINEAR BEARING UNIT

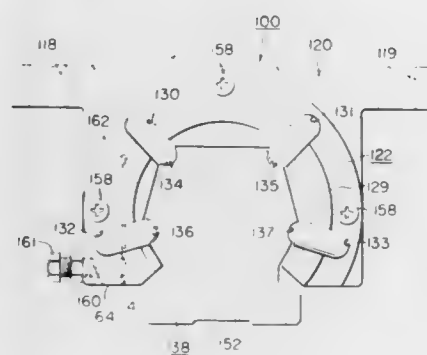
Hiroshi Teramachi, 34-8, Higashi-Tamagawa 2-chome, Setagaya-ku, Tokyo, Japan (158)

Filed Oct. 13, 1981, Ser. No. 310,662

Int. Cl.³ F16C 29/06

U.S. Cl. 308—6 C

8 Claims



1. A linear bearing unit essentially comprising a bearing case having a lower open end and four non-loading ball holes having the substantially same inner diameter as the ball diameter, side covers firmly secured to both end faces of said bearing case, a track table inserted through a cylindrical inner recess of the bearing case and a number of balls arranged in line one after another through four longitudinally extending circular hollow space between semi-circular concave track grooves on the cylindrical inner recess of the bearing case and another corresponding concave track grooves on the track table as well as through the four non-loading ball holes in the bearing case, said longitudinally extending circular hollow spaces being in communication with the non-loading ball holes via U-shaped concave portions formed on both the side covers, wherein the bearing case has annular projections at both the end faces thereof which are located between the non-loading ball holes and the concave track grooves on the cylindrical inner recess and further it has a longitudinally extending deep slit at one side thereof so as to prestress or preload some of the concave track grooves on the cylindrical inner recess, while the side covers contain annular grooves corresponding to said annular projection, U-shaped concave portions and ball guide tongue portions in communication with the longitudinally extending circular hollow space at the innermost end of said U-shaped concave portions.

4,391,474

THRUST SHAFT SEAL WITH SLIDABLY MOUNTED BEARING SLEEVE

Leonard J. Martini, 2801 Ocean Front Walk, F, San Diego, Calif. 92109

Filed Feb. 26, 1981, Ser. No. 238,334

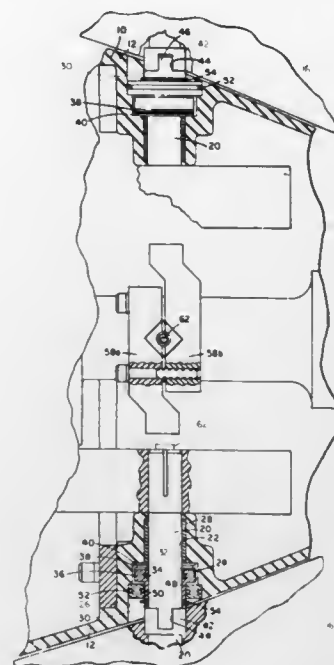
Int. Cl.³ F16J 15/26, 15/56; F16C 33/74

U.S. Cl. 384—152

8 Claims

1. A seal for a thrust shaft in a body wherein the body has a bore and a counterbore, comprising:
a bearing sleeve slidably mounted on the shaft, said bearing sleeve having a static O-ring which seals the interior of the sleeve to the shaft and a flange which extends into the counterbore;
means radially fixing the bearing sleeve to the shaft;
a ring-shaped seal housing mounted about the bearing sleeve

and extending into the counterbore, said seal housing having an interior dynamic O-ring sealing the housing to



the bearing sleeve and an exterior static O-ring sealing the housing to the counterbore.

4,391,475

COLUMN INSERT BEARING HOUSING

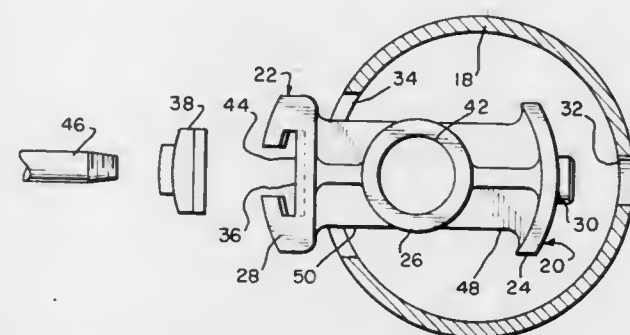
Arthur C. Reph, Cherryville, Pa., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jan. 30, 1981, Ser. No. 229,964

Int. Cl.³ F16C 23/02

U.S. Cl. 384—226

7 Claims



1. A column and bearing assembly comprising:
 - a. a column having a side with an opening and an inside surface;
 - b. a shaft in the column; and
 - c. a guide bearing means disposed in the column to support the shaft, the guide bearing means comprising:
 - (1) a removable housing having a size enabling insertion through the opening in the column and extending into the column, the housing having a first surface contacting the inside surface of the column;
 - (2) a wear surface for enclosing and supporting the shaft; and
 - (3) a locking means for attaching and receiving the guide bearing means within the opening to the column.

4,391,476

ROLLER BEARING

Richard Negele, Esslingen, and Dieter Pfeifle, Filderstadt, both of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

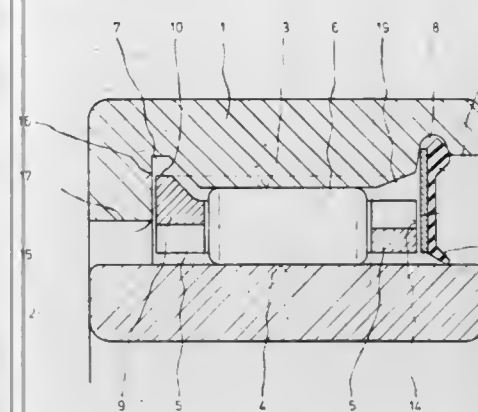
Filed Aug. 1, 1980, Ser. No. 174,641

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932290

Int. Cl.³ F16C 33/46

U.S. Cl. 308—207 R

5 Claims



1. In a rolling bearing with rolling means guided in a cage between inner and outer bearing rings, wherein the cage has a radially extending annular projection on a lateral ring, the projection extending into a first annular groove of one of the bearing rings for restraining the cage in one axial direction, the improvement comprising a second annular groove on the side of said one bearing ring opposite to said first annular groove, said first groove receiving said radial projection of said cage, and a separately formed restraining element inserted in said groove, said restraining ring being positioned to axially restrain said cage with respect to said one of said bearing rings in the axial direction opposite said one axial direction, said one bearing ring having a partial conical shape over which said projection may be pushed to enable insertion of said cage therein to facilitate assembly of said cage in said one bearing ring.

4,391,477

QUICK RELEASE MOUNTING FOR A TURNTABLE BEARING

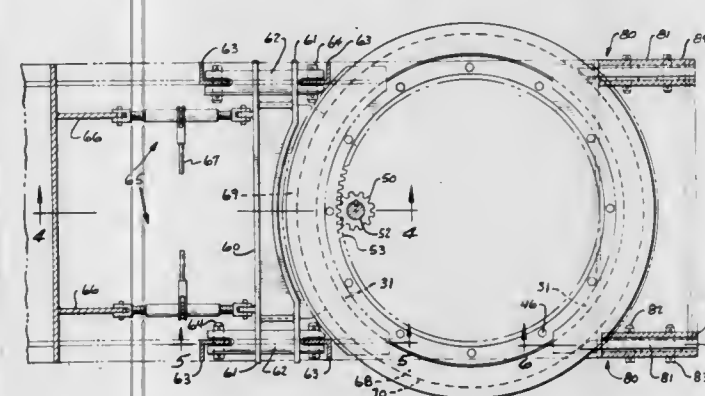
James G. Morrow, Sr., Manitowoc, Wis., assignor to The Manitowoc Company, Inc., Manitowoc, Wis.

Filed Dec. 7, 1981, Ser. No. 327,883

Int. Cl.³ F16C 19/10

U.S. Cl. 308—221

9 Claims



1. A quick release mounting for a turntable bearing of a load handling device or the like comprising, in combination, upper works carried by a rotatable bed, arcuate plates fixedly secured to the bottom of the rotatable bed, a rotatable outer bearing race in engagement with the arcuate plates and providing support for the rotatable bed and upper works, a stationary inner bearing race fixed to a lower works and having gear teeth along its inner circumference, a rotatable pinion gear which engages said gear teeth, said outer bearing race being rotation-

ally supported by the inner bearing race by ball bearings so that as the pinion gear rotates it causes the upper works to rotate along with the outer race relative to the inner race, an arcuate beam slidably mounted on the rotatable bed for engagement with the outer bearing race, means for moving the arcuate beam into and out of engagement with the outer race, a clamping latch pivotably mounted on the rotatable bed so that its one end engages the outer bearing race on the side of the outer race diametrically opposite the arcuate beam, said arcuate beam and clamping latch providing engagement with the outer race to counteract tipping moments of the upper works while at the same time providing for quick engagement and disengagement with the outer race.

4,391,478

DRAWER SEAL

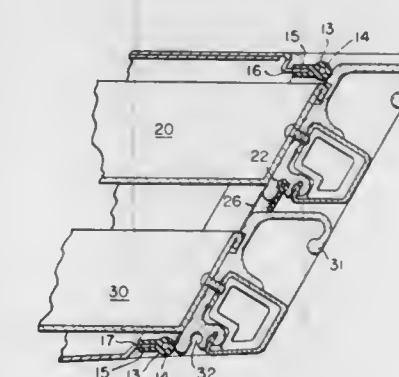
Hans C. Grunert, Adelberg, Fed. Rep. of Germany, assignor to Sybron Corporation, Rochester, N.Y.

Filed May 14, 1980, Ser. No. 149,573

Int. Cl.³ A47B 77/00, 87/00, 88/00

U.S. Cl. 312—320

5 Claims



1. In a storage unit comprising a case, a plurality of drawers arranged in the case in a vertically stacked array, each drawer having a handle for moving the drawer into and out of the case including a first handle attached to a first drawer and a second handle attached to a second drawer stacked immediately below the first, an improved system for sealing between and about the vertically stacked drawers comprising:

- (a) each of said handles extending substantially across the full width of its associated drawer and each handle having an upper portion with a relatively flat upper surface and a lower portion;
- (b) a flexible seal member carried by and depending from the lower portion of said first handle, said sealing member being adapted to contact the flat upper surface of said second handle along substantially the full width of said second handle when the drawers associated with said first and second handles are closed; and
- (c) sealing means on said cabinet extending about the periphery of said vertically stacked array of drawers, said sealing means contacting the upper portion of the upper-most handle in said drawer array, the lower portion of the lower-most handle in said drawer array and the side edges of each handle in said drawer array.

4,391,479

MINIATURE MATRIX PROGRAMMING BOARD

Kenneth R. Wessel, White Plains, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.

Filed Apr. 9, 1981, Ser. No. 252,429

Int. Cl.³ H01R 29/00

U.S. Cl. 339—18 C

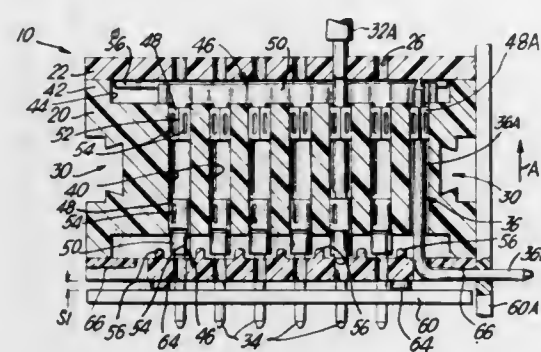
15 Claims

1. A matrix connector for selectively connecting a cross bar in a first series of parallel bars with a similar cross bar in a second series of parallel bars comprising:

- (a) an insulator block for supporting both series of parallel bars, formed with a plurality of spaced cylindrical aper-

tures connecting two planar surfaces and arranged in two orthogonal lines;

- (b) a first series of elongated conductive bars in parallel array, each bar in the first series including a strip of conductive material formed with alternate ridges and grooves along its longitudinal axis and including a plurality of depending cylindrical sockets having resilient clamping walls, said sockets positioned in one end of the cylindrical apertures in the insulator block;
- (c) a second series of elongated conductive bars also in parallel array but perpendicular to the first series, each bar in the second series including a strip of conductive material formed with alternate ridges and grooves along its longitudinal axis and including a plurality of depending cylindrical sockets having resilient clamping walls, said sockets positioned in the other end of the cylindrical apertures in the insulator block;
- (d) a first cover plate secured to one side of the insulator block for covering one series of cross bars, said cover plate formed with a plurality of apertures positioned in alignment with the apertures in the insulator block for the insertion of connecting pins;
- (e) a second cover plate secured to the other side of the insulator block for covering the second series of cross bars, said second cover plate formed with a plurality of apertures positioned in alignment with the apertures in the



insulator block for the insertion of connecting pins, said second cover plate further including termination holes, disposed adjacent the side edges thereof, said termination holes being aligned with apertures in said insulator block having only one socket of a single conductive bar therein, said termination holes for the insertion of termination pins, with the outer surface of said second cover plate further including a plurality of grooves, each groove being associated with a termination hole and being contiguous therewith, each said groove extending away from the associated termination hole to the side edge of said second cover plate;

- (f) a plurality of conducting connecting pins for insertion through the apertures in either cover plate to make contact with a socket in the first series of bars and a socket in the second series of bars; and
- (g) a plurality of termination pins being generally L-shaped in configuration having first and second legs disposed in perpendicular relationship, with the diameter of said L-shaped termination pins substantially conforming to the depth of said grooves in said second cover plate wherein one leg of said L-shaped termination pin is receivable in a termination hole making electrical contact with one socket of a single conductive bar and with the other leg of said termination pin being receivable in the associated groove in such a manner to be flush with the planar outer surface of said second cover plate.

4,391,480 ELECTRICAL TERMINAL

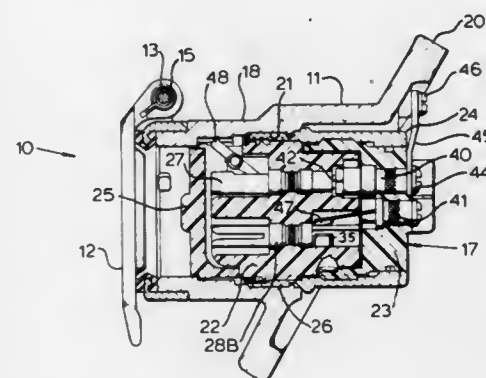
Nabil L. Mina, Roselle, Ill., assignor to Appleton Electric Company, Chicago, Ill.

Filed Nov. 10, 1980, Ser. No. 205,884

Int. Cl.³ H01R 27/00

U.S. Cl. 339—32 R

1 Claim



1. In combination with an explosionproof electrical receptacle and switch, said receptacle and switch including a faceplate with a first slot and a second slot therein, one of said slots arranged to receive a male blade contact in either of two mutually perpendicular orientations; an improved terminal block subassembly behind said faceplate and said one slot, comprising:

a terminal block having a front side and a rear side, an elongate and essentially singular piece of electrically conductive metal captivated partially within said terminal block and having a first end protruding from said terminal block front side and a second end protruding from said terminal block rear side, said first end being slotted longitudinally in two mutually perpendicular planes for receiving said male blade contact in either of said two orientations, said second end being a switch contact, and means between said first end and said second end for holding said terminal in said terminal block.

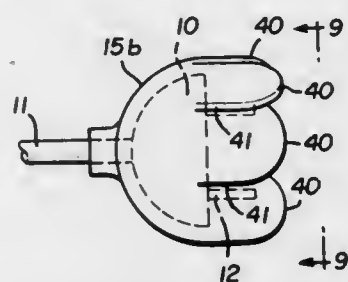
4,391,481
CHILD-PROOF ELECTRICAL PLUG SHEATH
Theodore A. Golden, 755 W. Big Beaver Rd., Suite 211, Troy, Mich. 48064

Filed Mar. 30, 1981, Ser. No. 249,198

Int. Cl.³ H01R 13/44

U.S. Cl. 339—42

1 Claim



1. A child-proof protective sheath for a conventional electrical plug of the type having a plug body with an electrical wire extending into and connected within the body, and having electrical contact prongs extending from the body for insertion within corresponding openings formed in a wall-type receptacle, comprising:

a thin wall, generally tubular shaped member, formed of a resilient, rubber-like material, and being of a size to closely surround and engage the plug body adjacent the prongs for mounting upon the plug body, and for axially extending from the plug body for substantially the full length of the prongs to a free end, so as to encircle the prongs and

form a protective wall which is spaced radially outwardly of the prongs;

said member being resiliently collapsible and extendable in its axial direction upon endwise pressure and release of endwise pressure, respectively, so that during the time that the plug prongs are inserted within and removed from the receptacle openings, the member completely encircles the space between the plug and receptacle to prevent child access to exposed portions of the prongs, and simultaneously the axial pressure between the contacting portion of the receptacle and the free end of the member results in endwise collapsing of the member during insertion of the prongs and the release of said pressure, during removal of the prongs from the openings, results in the member resiliently extending to its normal length, and the free end portion of said member at the prongs, being sufficiently resilient to spread radially outwardly in response to the pressure of contacting the receptacle during insertion of the prongs within the openings for thereby producing the axial collapse in length in the member; said member including a roughly bell-shaped end to completely receive the plug body, and said bell-shaped end having a central opening through which the plug electrical wire extends, and said bell-shaped end tightly fits around and against the plug body for frictionally securing the member upon the plug body; and said member including a plurality of separate, petal-like sections each having opposed generally straight edges connected by a curved end, the edges of each petal-like section overlapping the edges of adjacent sections, and said petal-like sections radially bending and spreading during contact with the receptacle for forming a closed wall.

4,391,482
SPRING STRIPS FOR CONNECTIONS BETWEEN
PRINTED CIRCUIT BOARD
Franz Czeschka, Talstrasse 7, Rechberghausen, Fed. Rep. of Germany (D7324)

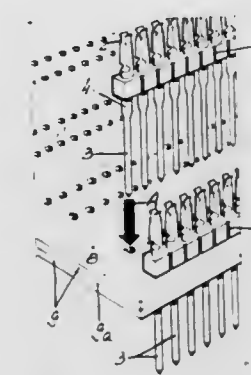
Filed Apr. 23, 1979, Ser. No. 32,126

Claims priority, application Switzerland, Apr. 21, 1978, 4318/78

Int. Cl.³ H01R 11/22

U.S. Cl. 339—59 M

3 Claims



1. A spring strip for making electrically conducting, vibration-stable and gasproof connections between the printed back wall wiring of through-contacted printed circuit boards, and the actual contact springs, the latter being combined via an insulating mount with mutual spacing to strips of at least one row, and these in turn being surrounded by a housing (10) placed thereon, characterized in that the individual strips consisting of contact springs (1) and insulating retention strip (6) clad together;

said insulating strip (6) having lines of weakness formed between pairs of adjacent contact springs, whereby the strip can be broken off at any desired number of contact springs;

said housing (10) having cross pieces (14) that bear against

said insulating retention strip (6) between each of the contact springs (1), forming chambers (11).

4,391,483 SEALING SLEEVE FOR USE WITH ELECTRICAL CONNECTORS

Dominique E. Desourteaux, Epernon, France, assignor to Societe Anonyme Francelco, Suresnes, France

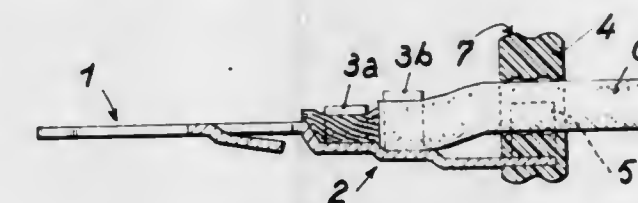
Filed Mar. 19, 1981, Ser. No. 245,493

Claims priority, application France, Mar. 28, 1980, 80 06963

Int. Cl.³ H01R 4/00

U.S. Cl. 339—94 R

3 Claims



1. An improved sealing system for use with cooperating electrical connectors for placing two cables in contact, each of said cables having an insulator sheath and being inserted in a lodging in one of said connectors with a resulting space between the outer diameter of said insulator sheath and the inner diameter of said electrical connector, said sealing system comprising:

- (a) an electrical contact having a contact element and a tail portion, said tail portion being adapted to be crimped onto one of said cables;
- (b) a flexible sealing sleeve molded onto the tail portion of said electrical contact, said flexible sealing sleeve being in the form of a cylindrical grommet with a concentric orifice therein, the outer diameter of said grommet being slightly less than the inner diameter of said lodging, and the diameter of said orifice being slightly greater than the outer diameter of said insulator sheath, wherein annular grooves encircle the outer peripheral surfaces of said grommet and said orifice, said sealing sleeve being adapted to seal the said space;
- (c) said tail portion comprising means for further securing said sealing sleeve thereon.

4,391,484
BOX CONNECTOR
Wilhelmus T. M. Foederer, Best, Netherlands, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

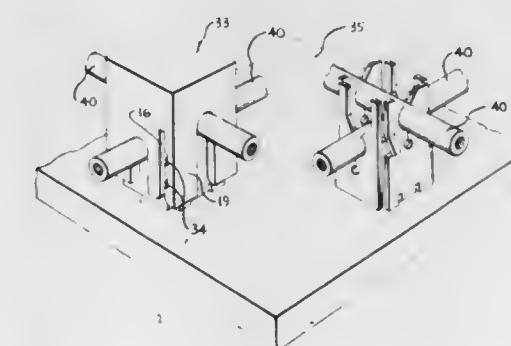
Filed Apr. 10, 1981, Ser. No. 252,881

Claims priority, application Netherlands, Jun. 26, 1980, 8003708

Int. Cl.³ H01R 13/38

U.S. Cl. 339—97 P

6 Claims



1. A box connector having insulation piercing contacts, characterized by a four side wall box made of electrically conductive sheet material, two corresponding pairs of slots in opposite side walls containing insulation piercing contacts said slots extending from the top of the box over a predetermined

length towards the bottom of said box, each pair of slots terminating in a same level but at a different level with respect to the other pair of slots, a pair of connecting strips formed adjacent the bottom edge of said box in opposite side walls, each said strip initially converging and subsequently extending downwardly and adjacent to each other to form a means for mounting in a printed circuit board hole.

4,391,485

IN-LINE FUSE HOLDER FOR MINIATURE PLUG-IN FUSE

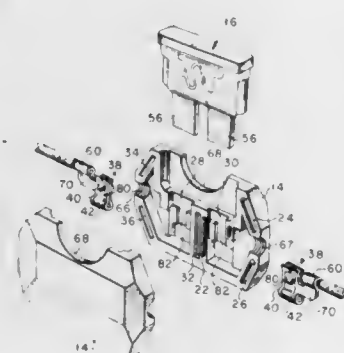
Angelo Urani, St. Louis, Mo., assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Jan. 9, 1981, Ser. No. 223,893

Int. Cl.³ H01R 13/115, 19/48

U.S. Cl. 339—191 S

10 Claims



1. An in-line fuse holder for receiving a miniature, plug-in fuse having a fusible element coupled between a pair of juxtaposed, laterally spaced co-planar, parallel generally flat fuse terminals, said in-line fuse holder including in combination:

a casing of insulative material having rigid wall surfaces, two clip assemblies mounted within said casing, each for engaging one of said flat fuse terminals of said plug-in fuse, each said clip assembly including first clip means of electrically conductive material, said first clip means being generally U shaped with legs of the U forming blades between which said flat fuse terminals are to be received, second clip means of resilient material, said second clip means being generally U shaped with the legs of the U forming blades and dimensioned for cooperating engagement with said first clip means in a tightly fitting overlying relationship with respect thereto, said second clip means including a tang extending outwardly from the surface of each of said blades of said second clip means for engagement with said rigid wall surfaces of said insulative casing, said tang and said rigid wall surfaces cooperating to increase the gripping force provided by said blades of said second clip means against the blades of said first clip means thereby to urge said blades of said first clip means into low electrical resistance contacting engagement with said fuse terminals and means extending from said first clip means for permanent external in-line electrical connection of said fuse holder.

4,391,486

ELECTRICALLY CONTROLLED ELECTRO-OPTICAL SWITCH AND INTEGRATED OPTICAL CIRCUIT INCORPORATING SUCH A SWITCH

Michel Papuchon, and Claude Puech, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Sep. 5, 1980, Ser. No. 184,616

Claims priority, application France, Sep. 6, 1979, 79 22297

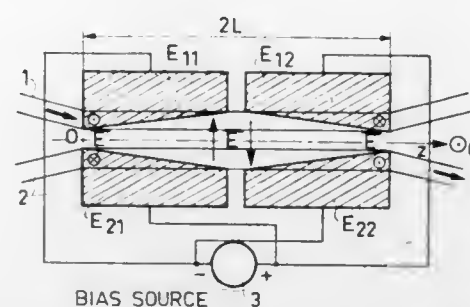
Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.14

8 Claims

1. An electrically controlled electro-optical switch incorporating two wave guides formed in an electro-optical material and electrodes producing an electrical field for modulating the velocity of the optical radiation propagated by said guides into adjacent portions in order to effect an energy transfer as a

function of a control voltage, wherein the intensity of the modulating electrical field created by the electrodes increases along said adjacent portions on moving away from the centres



4,391,487

OPTICAL FIBER CENTERING DEVICE

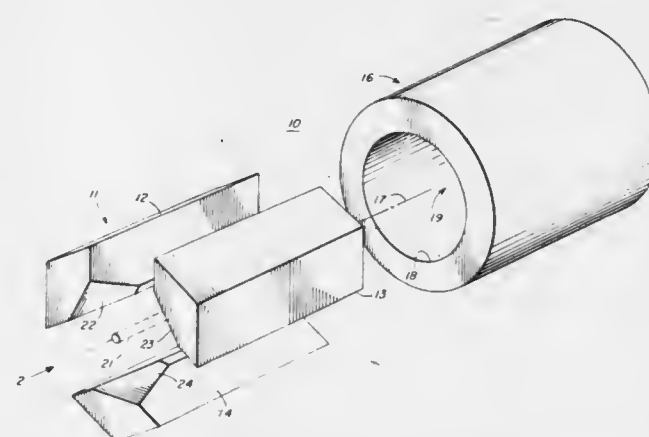
Paul Melman, Newton, and W. John Carlsen, Boston, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jan. 7, 1981, Ser. No. 223,192

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.20

11 Claims



1. An optical fiber centering device comprising

(a) fiber receiving means having three sections, wherein each of said three sections is substantially identical to each other, and wherein each of said sections has a uniform cross-sectional configuration at right angles along a major portion of its length forming a boundary of fixed perimeter, and
(b) a receiving member having an axial centrosymmetric surface of revolution with respect to a fixed axis, said member having a cylindrical, concentric recess therewithin for holding said sections in assembled relationship, wherein said boundary of one of said sections includes a first portion adapted to mate with a matable portion of said boundary of a second of said sections, said boundary of said one of said sections includes a second portion adapted to mate with a matable portion of said boundary of a third of said sections, said boundary of said one of said sections includes a third portion contiguous to said first portion and said second portion for engaging an optical fiber along said length, and said boundary of said one of said sections includes a fourth portion contiguous to said first portion and said second portion but not to said third portion for engaging the cylindrical wall defined by said concentric recess, wherein said recess terminates with a planar wall perpendicular to said axis, and wherein said fourth portion engages said cylindrical wall along a fraction of said fourth portion, said device being adapted to hold an optical fiber along said axis.

4,391,488

MOUNT DEVICE OF AN INTERCHANGEABLE LENS

Sunao Ishizaka, and Toshiaki Hozumi, both of Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

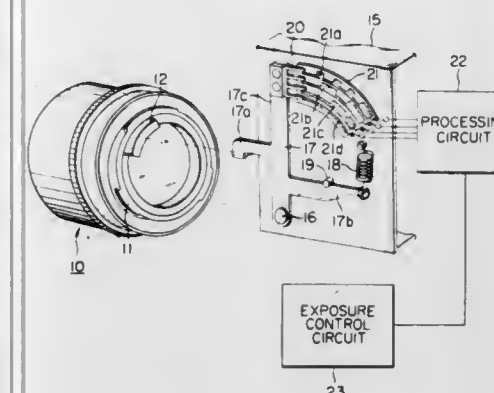
Filed Aug. 11, 1980, Ser. No. 177,356

Claims priority, application Japan, Sep. 11, 1979, 54/115752 The portion of the term of this patent subsequent to Feb. 9, 1999, has been disclaimed.

Int. Cl.³ G02B 7/02; G03B 7/20

U.S. Cl. 350—257

9 Claims



1. In a lens system comprising an interchangeable lens having a mount mountable on a camera having an electric circuit associated with exposure control and a displaceable actuating member for correcting said electric circuit so as to be accommodated to the focal length of the interchangeable lens mounted, and a conversion lens having an optical system for converting the focal length of said interchangeable lens and mountable between said interchangeable lens and the camera, the improvement comprising:

a signal member provided on said interchangeable lens projected from one end of said mount and engageable with said actuating member so as to close said displacement when said interchangeable lens is mounted on the camera through said mount, said signal member having an engaging end portion engageable with said actuating member, said engaging end portion lying at a position determined relative to said mount for displacing said actuating member by an amount proportional to the logarithm of the focal length of said interchangeable lens; and
a transmission member provided on said conversion lens and positioned between said signal member and said actuating member when said conversion lens is mounted, said transmission member being slidable by said signal member by an amount corresponding to the position of said engaging end portion and displacing said actuating member by an amount proportional to the logarithm of said focal length converted in response to said sliding and the mounting of said conversion lens onto the camera.

4,391,489

LIQUID CRYSTAL MATERIALS CONTAINING PLEOCHROIC ANTHRAQUINONE DYES

Kenneth J. Harrison, Malvern Link; Edward P. Raynes, Malvern; Frances C. Saunders, Malvern Wells, and David J. Thompson, Whitefield, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Jul. 27, 1981, Ser. No. 287,123

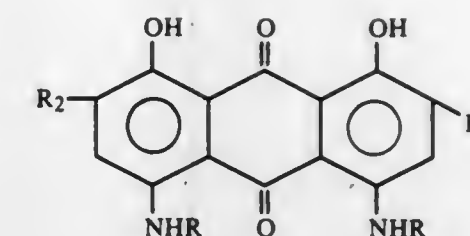
Claims priority, application United Kingdom, Jul. 29, 1980, 8024761

Int. Cl.³ G02F 1/13; C09K 3/34

U.S. Cl. 350—349

25 Claims

1. A material suitable for a guest-host liquid crystal device comprising a solution of a liquid crystal material and a pleochroic dye wherein the pleochroic dye comprises at least one compound having a formula:



wherein R is H or lower alkyl; and each of R₁ and R₂ independently represents alkyl containing between 1 and 10 carbon atoms.

4,391,490

INTERFACE FOR PROXIMITY COUPLED ELECTRO-OPTIC DEVICES

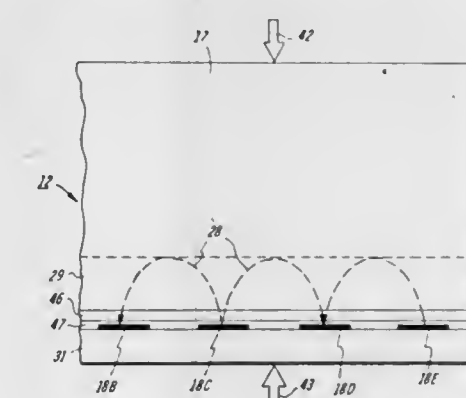
David H. Hartke, Los Angeles, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 2, 1981, Ser. No. 250,478

Int. Cl.³ G02F 1/03

U.S. Cl. 350—356

6 Claims



crystal imprisoned within said space, control electrodes respectively carried by said plates on the facing inner sides thereof and, on the inner side of each electrode, an alignment layer for alignment of the molecules of an active constituent of said liquid crystal, said frame and said alignment layers being composed of polymerizable substances said substances having been polymerized simultaneously to produce interpolymerization thereof resulting in close chemical bonding between said frame and said alignment layers which thus together form a wall which completely encloses the liquid crystal and shelters it from external influences.

4,391,492

THERMALLY ADDRESSED CHOLESTERIC-SMECTIC LIQUID CRYSTAL DEVICE

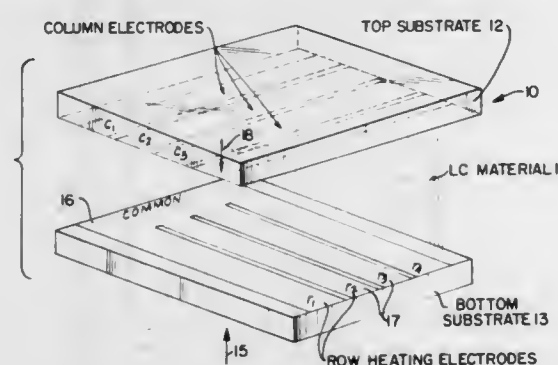
Sun Lu, San Jose, and David B. Chung, Santa Clara, both of Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 6, 1981, Ser. No. 251,247

Int. Cl.³ G02F 1/13

U.S. Cl. 350—351

134 Claims



1. A thermally addressed visual device which provides a dark image against a lighter background comprising:

A liquid crystal medium including at least one liquid crystal cholesteric compound mixed with at least one pleochroic dye of high order parameter and having dielectric anisotropy, said medium being thermally sensitive and having a transition between at least two thermal phases, an upper thermal phase being a cholesteric phase and a lower thermal phase being a smectic phase, said medium having two possible light modulating states in said smectic phase, a first light state being normally substantially light absorbing and a second light state being substantially transparent; and means to apply a sensitizing voltage to address portions of said medium to develop said second light transparent state when said medium passes rapidly into said smectic phase, the remaining portions of said medium developing said first substantially light absorbing state.

4,391,493

METHOD TO INCREASE FOCAL DISTANCE AT TELEPHOTOGRAPHIC SIDE OF A ZOOM LENS SYSTEM

Akira Tajima, Kawasaki, and Sadahiko Tsuji, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Japan

Filed Nov. 15, 1976, Ser. No. 741,789

Claims priority, application Japan, Nov. 18, 1975, 50/138500

Int. Cl.³ G02B 15/02, 15/16

U.S. Cl. 350—422

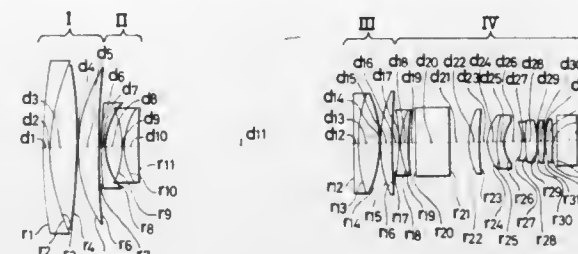
10 Claims

1. A method of increasing the focal length at the telephoto-graphic end of a zoom lens system, having first focusing means and second focusing means, and comprising the following steps:

- the step of making the lateral magnification of a zoom lens system zero with said first focusing means;
- the second step of bringing the lateral magnification of the zoom lens from zero to a definite value β by activating

the second focusing means while maintaining the first focusing means at a standstill; and

(c) the third step of providing an attachment lens having length fA in front of said zoom lens system having a lateral magnification β , and making the lateral magnification of the composite lens system of said attachment lens and the



zoom lens zero without moving a lens group in the zoom lens system,

whereby the product $fA \times \beta$ of said lateral magnification β and the focal length fA of the attachment lens is longer than the focal length at the telephotographic end of the zoom lens system.

4,391,494

APPARATUS FOR PROJECTING A SERIES OF IMAGES ONTO DIES OF A SEMICONDUCTOR WAFER

Ronald S. Hershel, Albany, Oreg., assignor to General Signal Corporation, Stamford, Conn.

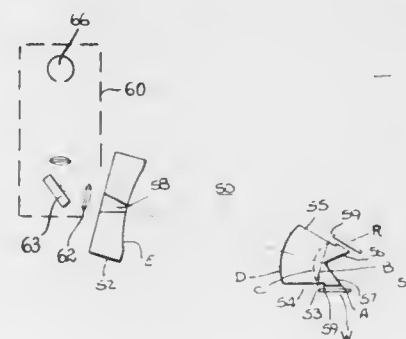
Continuation of Ser. No. 264,171, May 15, 1981, abandoned.

This application Jul. 21, 1982, Ser. No. 400,536

Int. Cl.³ G02B 17/08

U.S. Cl. 350—442

16 Claims



1. A unit magnification, achromatic, anastigmatic optical projection system of the catadioptric type particularly suited for use in microlithography, said projection system comprising:

- a concave, spherical reflecting surface having an optical axis and a first center of curvature;
- an achromatic lens positioned between said reflecting surface and said first center of curvature, said achromatic lens comprising a meniscus lens made from a light flint glass, said meniscus lens having a first convex surface facing said reflecting surface, said first convex surface having a second center of curvature on the opposite side of said first center of curvature from said meniscus lens, said meniscus lens also having a concave surface facing away from said reflecting surface, said concave surface having a third center of curvature on the same side of said first center of curvature as said meniscus lens;
- said achromatic lens also comprising a plano-convex lens made from a dense flint glass, said plano-convex lens having a second convex surface facing said concave surface, said second convex surface having a fourth center of curvature on the same side of said first center of curvature as said plano-convex lens, said plano-convex lens also having a first flat surface away from said reflecting surface, said first flat surface being positioned closer to said second convex surface than either of said third and fourth centers of curvature; and

said a chromatic lens further comprising first and second prisms for coupling light to and from separate fields on said first flat surface, said prisms being made from a dense crown glass and having an optical path length such that the image and object planes of the projection system are on the opposite side of said second center of curvature from said first flat surface, each of said prisms also comprising a second flat surface facing one of said image and object planes, said second flat surfaces being positioned closer to said first center of curvature than either of said third and fourth centers of curvature.

4,391,495

IMAGE DISPLAY SYSTEM

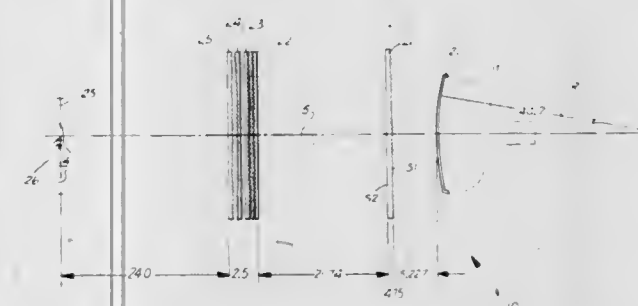
Anthony R. Mazurkewitz, Middleville, N.Y., assignor to The Austin Company, Cleveland, Ohio

Filed Jun. 2, 1981, Ser. No. 269,622

Int. Cl.³ G02B 3/08

U.S. Cl. 350—452

10 Claims



1. An optical system for a visual display comprising: means for projecting a visual image along a central axis; a first fresnel lens for receiving said visual image, said first fresnel lens having fresnel grooves facing said means for projecting;

- second and third fresnel lenses forming a liquid doublet first fresnel lens pair disposed in front of said first fresnel lens, said first fresnel lens pair having fresnel grooves facing each other and a liquid disposed therebetween, said liquid having predetermined indexes of refraction and dispersion for color correcting the system;
- fourth and fifth fresnel lenses forming a second fresnel lens pair disposed in front of said first fresnel lens pair, said second fresnel lens pair having fresnel grooves facing each other;
- said first, second, third, fourth and fifth fresnel lens being centered on said central axis and extending perpendicular thereto;
- said fresnel grooves being comprised of annular facets having a slope determined by dz/dr where:

$$z = \frac{Cr^2}{1 + \sqrt{1 - (K + 1)C^2r^2}} + Dr^4 + Er^6 + Fr^8 + Gr^{10}$$

and C equals the curvature of said annular facets; r equals the radial position of said facets; K equals a conic constant determined by the physical characteristics of said lenses; and D, E, F and G are aspheric terms which determine the aspheric characteristics of said lenses.

4,391,496

ADJUSTMENT DEVICE FOR A PANCRATIC OBJECTIVE OF A STEREO-MICROSCOPE

Albert Schilling, Aalen, and Wolfgang Schob, Oberkochen, both of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

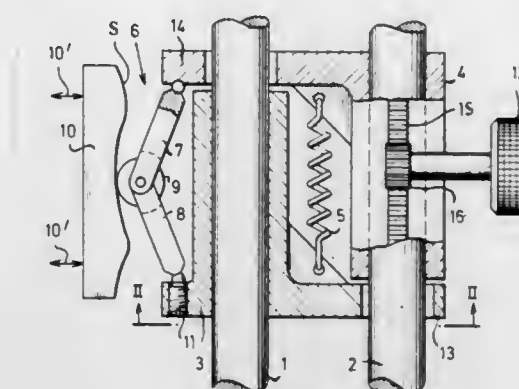
Filed Jan. 28, 1981, Ser. No. 229,194

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 8003643[U]

Int. Cl.³ G02B 15/16

U.S. Cl. 350—519

4 Claims



1. An adjustment device for pancratic objectives, particularly for stereo-microscopes, comprising:

- first and second lens group holders, said first and second holders being displaceable differing amounts in the same direction along the optical axis of said objectives;
- a variable-length connecting element coupling said first and second holders, said connecting element including a first arm pivotally joined to said first holder, a second arm pivotally joined to said second holder, said first and second arms being pivotally joined to each other to form a pivot point;
- cam follower means disposed at said pivot point of said arms;
- external cam means disposed for engagement with said cam follower means;
- means for biasing said first and second holders together and to bias said cam follower means into engagement with said cam means; and
- means for displacing at least one of said first and second holders along said optical axis.

4,391,497

APERTURE STOP FOR MICROSCOPE CONDENSERS

Michio Imada, Kodaira, and Masayuki Naito, Mitaka, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

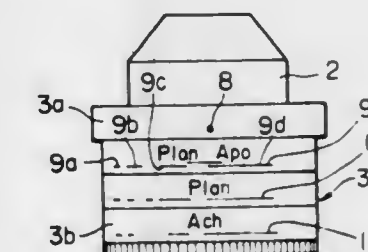
Filed Dec. 1, 1980, Ser. No. 211,949

Claims priority, application Japan, Dec. 7, 1979, 54-168762[U]

Int. Cl.³ G02B 21/08

U.S. Cl. 350—523

2 Claims



1. A microscope assembly including a plurality of objectives of different magnification, a condenser, and an aperture stop mounted to a lower part of said microscope condenser and comprising a fixed member having an index mark on the outer surface thereof and having a rotatable stop ring, each of said plurality of objectives having a unique color marking thereon, each different from the other and indicative of the respective

magnifications thereof, said rotatable stop ring of said aperture stop being provided with a plurality of unique color markings thereon equal in number to the number of the plurality of objectives and fixed in predetermined locations on said stop ring one of each of the unique color markings on said stop ring being identical in color marking to the unique color marking of one of the objectives, whereby when a particular objective having a particular unique color marking is in use, and said stop ring is positioned such that an identical one of said unique color markings on said stop ring is opposite the index mark, that the aperture diameter of said aperture stop corresponds to the numerical aperture of the particular objective in use.

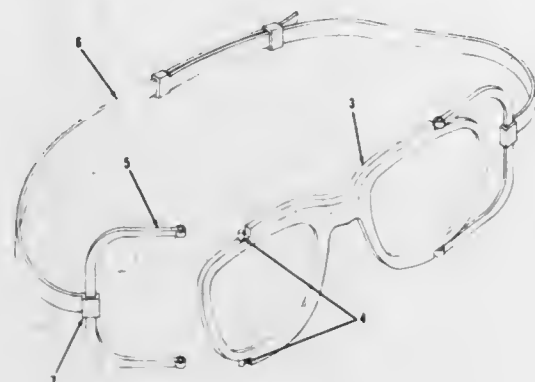
4,391,498 SPECTACLE FRAME

Roy H. Rengstorff, 4844 Austin Rd., Aberdeen Proving Ground, Md. 21010

Filed Jul. 20, 1979, Ser. No. 59,923
Int. Cl.³ G02C 5/14, 5/22

U.S. Cl. 351—121

46 Claims



1. An eye protective frame comprising:

- a rim defining a pair of spaced, side-by-side viewing windows and a bridge therebetween, said bridge adapted to engage the face of a wearer;
- temple yoke support means attached to said rim means both above and below said viewing windows and inboard of the outer extremities of said rim means opposite said bridge a distance sufficient to provide for close proximity to the temple contour of the wearer's head upon support of said rim means in position on the wearer's face; and
- securing means connected to said temple yoke support means for securing the frame to the wearer with said temple yoke support means in close proximity to the temple contour of the wearer's head.

4,391,499 IMAGE PROJECTOR

William C. Whitlock, III, 1119 Grayland St., Greensboro, N.C. 27408

Filed Mar. 8, 1982, Ser. No. 356,235
Int. Cl.³ G03B 21/00

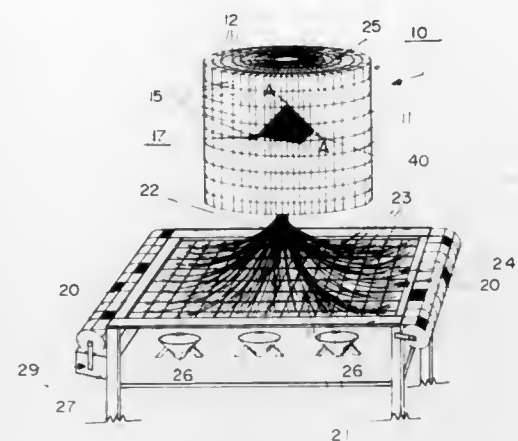
U.S. Cl. 353—122

18 Claims

1. An image projector for displaying three-dimensional forms comprising: a plurality of three-dimensional modules, at least one of said modules aligned in each of the three-dimensional directions relative to the other of said modules, said modules being constructed of unidirectional light-transmitting material, illuminating means, said illuminating means being positioned within said modules, transmission means, said transmission means for directing energy to said illuminating means, and energy input means, said energy input means communicating with said transmission means whereby illuminating certain of said modules provides a three-dimensional form.

13. A method of forming a three-dimensional image comprising the steps of: providing a plurality of three-dimensional modules having at least one module aligned in each of the

three-dimensional directions relative to the other of said modules, said modules having walls constructed of unidirectional



light-transmitting material and selectively illuminating certain of said modules to thereby form a three-dimensional image.

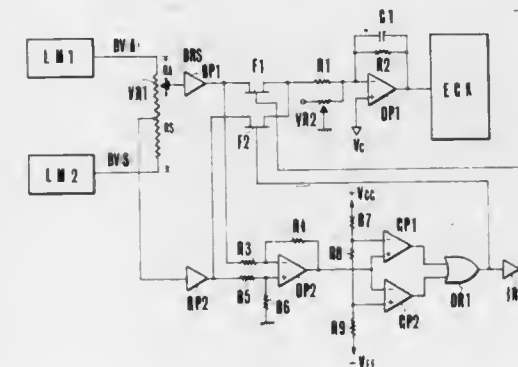
4,391,500 CAMERA WITH EXPOSURE MEASURING SYSTEM Tokuichi Tsunekawa, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Japan

Filed Nov. 20, 1981, Ser. No. 323,428

Claims priority, application Japan, Nov. 25, 1980, 55-165550; Nov. 25, 1980, 55-165551; Nov. 25, 1980, 55-165552; Nov. 25, 1980, 55-165559; Nov. 25, 1980, 55-165560; Feb. 9, 1981, 56-17819

Int. Cl.³ G03B 7/081, 17/20
U.S. Cl. 354—31

13 Claims



1. A light measuring system for a camera including:

- 1st light measuring means for measuring the brightness of an object to be photographed in a predetermined area, said means producing an electrical signal representing the brightness of the predetermined area of the object;
- 2nd light measuring means for measuring the brightness of the object in a different area from that for said 1st light measuring means, said means producing an electrical signal representing the brightness of the different area of the object from that for said 1st light measuring means;
- measuring pattern setting means;
- computing means responsive to the outputs of said 1st and said 2nd light measuring means, said means producing a 1st output representing a combination of the outputs of said 1st and said 2nd light measuring means in a certain adjusted relationship by said light measuring pattern setting means, and a 2nd output representing a combination of the outputs of said 1st and said 2nd light measuring means in a fixed relationship;
- comparing means for comparing said 1st and said 2nd outputs of said computing means with each other, said means producing a 1st signal when the difference between the computed outputs is smaller than a predetermined value, and a 2nd signal when the difference

- between the computed outputs is larger than the predetermined value;
- exposure control means for controlling exposure in accordance with either one of said 1st and 2nd computed outputs; and
 - control means for applying either one of said 1st and said 2nd computed outputs to said exposure control means, said means responsive to said 1st signal from said comparing means applying said 1st computed output to said exposure control means, and responsive to said 2nd signal from said comparing means applying said 2nd computed output to said exposure control means.

4,391,501 CAMERA WITH ATTACHABLE FLASH DEVICE Karl-Heinz Lange, Bunde, Fed. Rep. of Germany, assignor to Balda-Werke Photographische Geräte und Kunststoff GmbH & Co., KG, Bunde, Fed. Rep. of Germany

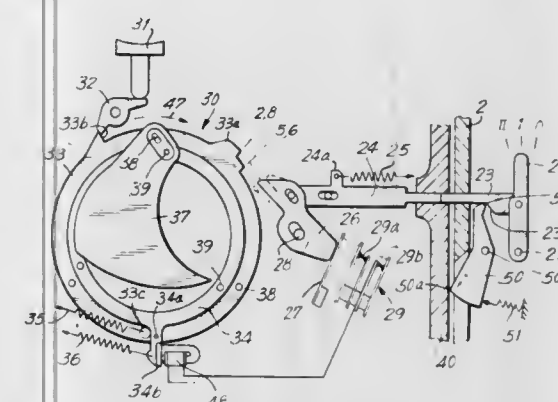
Filed Sep. 4, 1981, Ser. No. 299,455

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1980, 3033463

Int. Cl.³ G03B 15/03

U.S. Cl. 354—149

16 Claims



1. A camera and attachable flash device in combination, comprising:

- a camera body including a lens and shutter assembly; camera on-off means for placing the camera in an operational or non-operational condition;
- a flash device adapted to be mounted on the camera body and coupled to the lens and shutter assembly, the flash device including an on-off switch for placing the flash device in an operational or non-operational condition; and transfer means coupling said lens and shutter assembly to the on-off switch of the flash device for operatively setting the lens and shutter assembly at an appropriate flash setting and for placing the flash device into the off position in response to the camera on-off means being placed in a non-operational position.

4,391,502 ELECTROPHOTOGRAPHIC APPARATUS HAVING MEANS FOR ADJUSTING THE REPRODUCTION PROPERTIES OF SUBSEQUENT COPIES AFTER A FIRST COPY HAS BEEN PRODUCED

Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 940,657, Sep. 8, 1978, abandoned. This application Sep. 26, 1980, Ser. No. 191,356

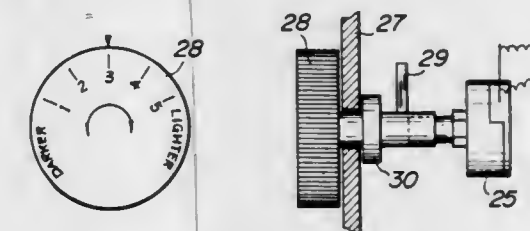
Claims priority, application Japan, Sep. 12, 1977, 52-108909
Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 DD

2 Claims

1. An electrophotographic apparatus comprising a housing, an electrostatic charge retentive member, means for forming on the charge retentive member an electrostatic charge latent image, means for developing the electrostatic latent image while applying a development bias voltage to form a toner image, means for transferring the toner image to a record medium, means for successively repeating said development

and transfer to form a plurality of duplicated copies from the electrostatic latent image formed on the electrostatic charge retentive member, means for adjusting the development bias voltage including a manually operable means accessible externally of the apparatus to enable the development bias voltage to be adjusted during the repeated development and transfer after the formation of the electrostatic charge latent image to change the density of the duplicated copies, while the electrostatic charge latent image once formed remains on the charge retentive member, and means for adjusting the amount of exposure light before the formation of the electrostatic latent image, said exposure amount adjusting means and said devel-



opment bias voltage adjusting means being coupled to a common handling member such that, when said common handling member is operated in one direction, the exposure amount is decreased and the development bias voltage is decreased and, when said common handling member is operated in another direction, the exposure amount is increased and the development bias voltage is increased, said common handling member comprising a common dial rotatably arranged on said housing and said development bias voltage adjusting means comprising a variable resistor having a rotating axis coupled to said common dial by means of a rotating shaft secured to the common dial.

4,391,503 MAGNETIC BRUSH DEVELOPER UNIT FOR PHOTOCOPIER

Robert J. Pugh, London, England, assignor to Gestetner Manufacturing Limited, London, England

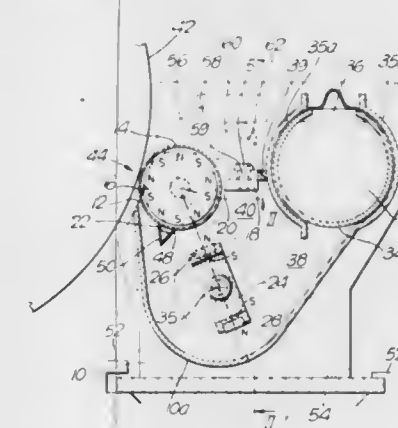
Filed Mar. 25, 1981, Ser. No. 247,309

Claims priority, application United Kingdom, Apr. 2, 1980, 8011042

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 DD

9 Claims



1. In a magnetic brush developer unit for a photocopier, comprising:

- a developer shell for supporting a magnetic brush of single component toner in use of the developer unit;
- a housing defining a sump below the level of said developer shell to contain toner for forming a magnetic brush of toner on said shell;
- aperture means to said housing defining a development zone at which the magnetic brush can project from the housing;

- (d) a magnetic roller within the developer shell, setting up a magnetic field around the developer shell;
- (e) means operable to drive at least one of the developer shell and the roller for rotation about a longitudinal axis;
- (f) a scraper blade positioned in said housing and directed so as to remove toner from said developer shell after the toner has been carried past said development zone on the developer shell;
- (g) a rotatable magnetic member positioned within the housing below the level of said developer shell; and
- (h) means for driving said rotatable magnetic member in use of the developer unit, for rotation to entrain toner received from said scraper blade; the improvement wherein:
- (i) said rotatable magnetic member includes magnet means for magnetically attracting and holding toner on a surface of said rotatable magnetic member so that a clump of loosely held toner is formed on the surface of said magnetic member, the clump being movable through said sump along a circular path in contact with the toner in said sump, to carry said toner upwardly to join a stream of toner being applied to said developer shell, said toner being conveyed to a location wherein the magnetic field around said developer shell magnetically attracts toner from exterior portions of the clump, thereby avoiding mechanical agitation and coagulation of said toner.

4,391,504

RECIRCULATING COPY DOCUMENT

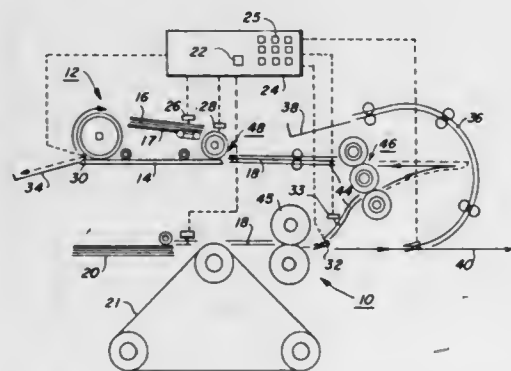
Thomas Acquaviva, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 5, 1981, Ser. No. 308,861

Int. Cl.³ G03G 21/00

U.S. Cl. 355—3 SH

7 Claims



1. In a precollation copier with a recirculating document handler in which a set of plural original document sheets is placed and normally plurally recirculated and copied once per circulation at the copier imaging station to produce a selected plural number of precollated copy sheet sets therefrom in a normal copy sheet output path with a copy fuser, the improvement comprising:

a selectable alternative copy sheet path for feeding copy sheets from said normal copy sheet output path of said copier into an input station of said recirculating document handler;

selectably actuatable copy sheet output path deflector means for diverting only a first set of copy sheets made from original document sheets from said normal copy sheet output path into said alternative copy sheet path to said recirculating document handler; in which said alternative copy sheet path extends directly from the fuser of said copier into said recirculating document handler upon the actuation of said copy sheet output path deflector means; selectably non-circulating means in said recirculating document handler for automatically ejecting the original document sheets from said recirculating document handler after said original document sheets have been copied only once, and before said original document sheets are recirculated, even though plural copy sets have been selected to be made therefrom;

and means for automatically plurally recirculating said first

set of copy sheets in said recirculating document handler in lieu of and as if they were said original document sheets to copy the remainder of the selected number of plural copy sets from said first set of copy sheets rather than said original document sheets.

4,391,505

OVER-PLATEN DOCUMENT REGISTRATION APPARATUS

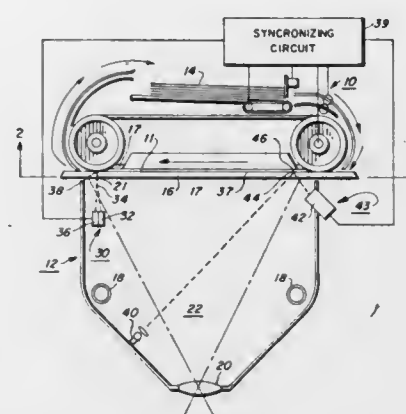
Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 19, 1981, Ser. No. 312,461

Int. Cl.³ G03G 15/04

U.S. Cl. 355—3 R

12 Claims



1. In an original document sheet feeding and registration apparatus for a copier, in which a document sheet is fed with a document feeding belt having a diffusely light reflective surface over a transparent platen imaging station of the copier, said imaging station having a document illumination exposure system and a copying lens system under the platen, the improvement comprising:

at least one minor spectrally reflective patch on said otherwise diffusely light reflective surface of said document belt,

means for feeding the document sheets onto said belt in synchronism with said spectral patches such that at least one edge of the document sheet only partially overlies said patch and a portion of said spectral patch is exposed,

and a photosensor system for detecting an edge of the document sheet while the document sheet is over said platen and within said imaging station and within the field of view of said lens system, said photosensor system being optically invisible to said copier,

said photosensor system comprising sensor illumination means distinct from said exposure illumination system and photosensor means aimed at a registration position on said platen for detecting changes in the light level from said sensor illumination means reflected from said spectral patch,

and wherein said photosensor system detects the arrival of a document sheet edge at said registration position by sensing the transition in intensity of the reflected illumination from a spectral patch at said registration position versus the reflected illumination from a document sheet partially overlying said spectral patch at said registration position.

4,391,506

DRIVING METHOD AND APPARATUS FOR ILLUMINATION TYPE IMAGING SYSTEM

Hiroshi Koide, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 23, 1981, Ser. No. 324,309

Claims priority, application Japan, Nov. 26, 1980, 55-166341

Int. Cl.³ G03G 15/00

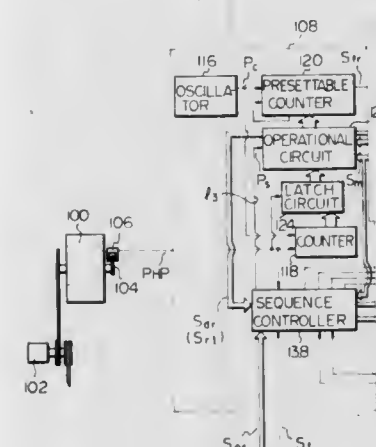
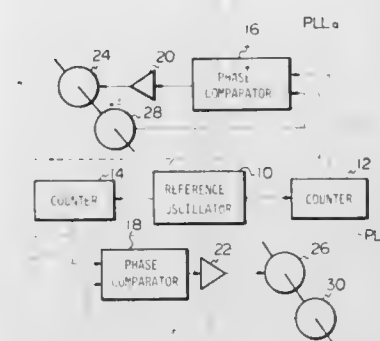
U.S. Cl. 355—8

9 Claims

1. A method of driving a movable imaging system which is

driven by a first drive source in synchronism with a movable photoconductive member which is driven by a second drive source, said method comprising the steps of:

- (a) measuring a time period necessary for the photoconductive member to move a given distance;
- (b) comparing the measured time period with a predetermined reference time period to thereby estimate a fluctuation component in the time period of movement of the photoconductive member in accordance with a result of the comparison;



- (c) presetting or determining a buildup target speed and a constant target speed during a buildup scanning speed motion and a constant scanning speed motion of the imaging system in accordance with the estimated fluctuation component respectively; and
- (d) moving the imaging system at the preset buildup and constant target speeds during buildup and constant scanning speed motions thereof, respectively;
- whereby the imaging system is moved in synchronism with the photoconductive member.

4,391,507

COPYING MACHINE CONTROL APPARATUS COMPRISING VARIABLE LENGTH PROGRAM CONTROL

Goro Mori, and Masaaki Ogura, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Mar. 5, 1981, Ser. No. 240,658

Claims priority, application Japan, Mar. 13, 1980, 55-31764

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R

8 Claims

1. A copying machine control apparatus comprising:

a moving photoconductive member;

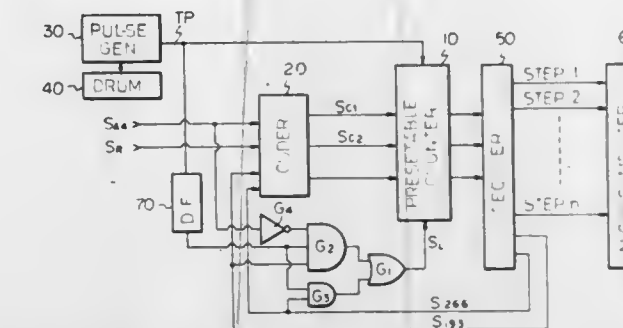
pulse generator means for producing pulses in response to incremental movements of the photoconductive member;

presettable counter means for counting the pulses;

decoder means for producing set output signals in response to counts in the counter means;

coder means responsive to the set output signals produced by the decoder means constructed to apply a first output signal to the counter means when the count in the counter means has a first value and apply a second output signal to

the counter means when the count in the counter means has a second value, said counter means being constructed to change its count from the first value to a third value in response to the first output signal and to change its count from the second value to a fourth value in response to the second output signal from the coder means;



the decoder means being further constructed to produce control output signals in response to predetermined counts in the counter means; and

copy operation control means for controlling an operation of the apparatus in response to the control output signals from the decoder means.

4,391,508

COUNTER AND TIMING MECHANISM FOR COPYING APPARATUS

Mitsuo Shibusawa, and Toshiyuki Ogawa, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

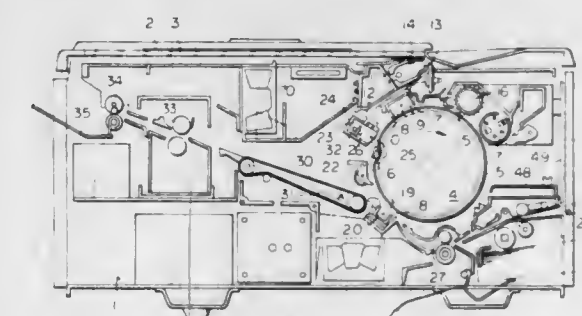
Filed Dec. 11, 1981, Ser. No. 329,980

Claims priority, application Japan, Dec. 18, 1980, 55-178083

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 CU

6 Claims



1. Electrophotographic copying apparatus comprising:

copy number input means for the desired number of copies of an original document;

first display means for indicating the set number;

second display means for indicating a copy ready condition in which the apparatus is ready to perform a copying operation;

copy starter means for commanding a start of the copying operation;

timer means for controlling the first display means to automatically return the set number of copies to one if the copy starter means fails to command the start of a copying operation during a predetermined period of time after the number of copies is set by the copy number input means; and

control means for controlling the copy number input means to permit the same to set the number of copies even during a period for which the apparatus stands ready to perform the copying operation.

4,391,509

ROLLER FUSER APPARATUS IN WHICH COPY SHEET JAMS ARE MINIMIZED

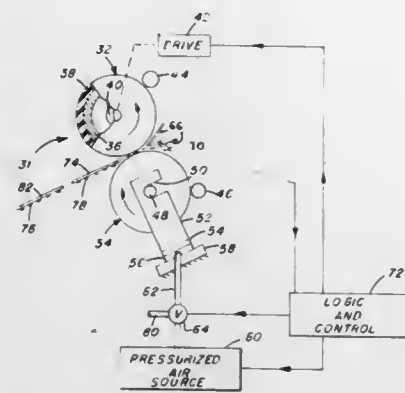
William A. Cavagnaro, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 26, 1982, Ser. No. 362,438

Int. Cl.³ G03G 15/20

U.S. Cl. 355—14 FU

7 Claims



7. Apparatus for fusing unfused toner images on copy sheets, comprising:

- first and second rotatable fuser rollers;
- drive means for rotating one of said rollers;
- expandable bladder means for moving said second roller between (i) a first position out of engagement with said first roller, and (ii) a second position in engagement with said first roller to form a sheet engaging nip for fusing toner images on copy sheets advanced through said nip;
- means for applying pressurized fluid to said bladder means to expand said bladder means and move said second roller from said first position to said second position;
- means adjacent to said nip for detecting a copy sheet jam in said nip and for producing a signal when such jam is detected; and
- means responsive to said signal for deflating said bladder means so as to move said second roller from said second position to said first position to prevent further driving of a jammed copy sheet in said nip, said deflating means including a vacuum source for accelerating the deflation of said bladder means.

4,391,510

VOICE COIL ACTUATOR REGISTRATION SYSTEM

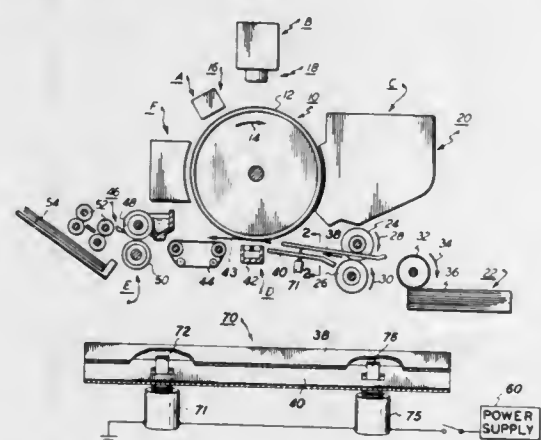
Abraham Cherian, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 30, 1980, Ser. No. 173,572

Int. Cl.³ G03G 15/14, 21/00

U.S. Cl. 355—3 SH

4 Claims



1. In a high speed copier having a photoreceptor, an imaging system for forming images of documents on said photoreceptor, a predetermined paper path, and a feeder for forwarding

sheets from a source into said paper path, the improvement comprising:

- a pair of normally spaced apart members;
- means for attracting magnetically said members toward one another so that said pair of members contact and advance the sheets therebetween along the path with precise control of the sheets;
- dual registration means adapted to stop the sheets forwarded by said feeder thereby registering and deskewing the sheets, said dual registration means including immediate response voice coil actuators with plungers of said actuators acting as registration stops, said members and said dual registration means being actuated simultaneously based upon the location of images on said photoreceptor, said members serving to positively drive the sheets past the now retracted plungers in synchronism with the images on said photoreceptor.

4,391,511

LIGHT EXPOSURE DEVICE AND METHOD

Nobuyuki Akiyama; Yukio Kembo; Yasuo Nakagawa; Susumu Aiuchi, and Mineo Nomoto, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

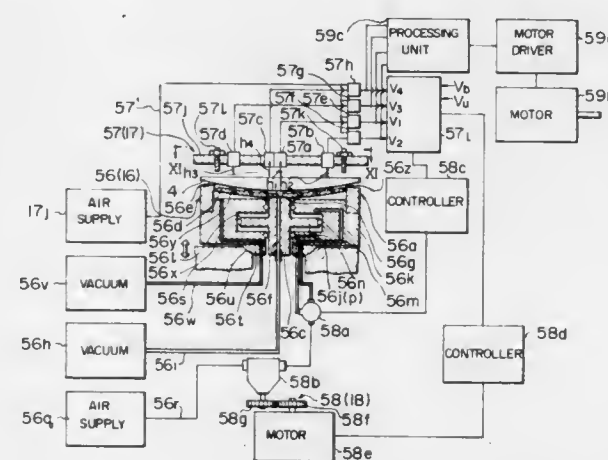
Filed Mar. 18, 1981, Ser. No. 245,193

Claims priority, application Japan, Mar. 19, 1980, 55-33882; Aug. 11, 1980, 55-109275; Sep. 26, 1980, 55-132914; Oct. 23, 1980, 55-147539

Int. Cl.³ G03B 27/52

U.S. Cl. 355—40

23 Claims



1. A device for exposing and printing a predetermined pattern on an exposure surface of a substrate, the device comprising:

- measuring means for measuring a curvature of the exposed surface of said substrate,
- a chuck including a suction and holding means having a deformable member for drawing and holding a back surface of said substrate opposite to said exposure surface of said substrate, and deforming means for imparting a force to said deformable member and said back surface of said substrate to deform said substrate,
- control means for controlling said deforming means of said chuck in accordance with the curvature of said exposure surface of said substrate measured by said measuring means such that said exposure surface of said substrate conforms to an image surface of said pattern over an entire exposure area within a predetermined allowable error, and
- means for carrying and transporting said chuck in a substantially horizontal direction from a substrate deformation correcting station to an exposure station.

4,391,512

DEVELOPING DEVICE USING MAGNETIC DEVELOPER

Shunji Nakamura, Kawasaki, and Kozo Arai, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

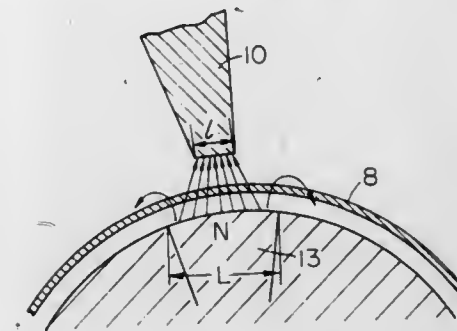
Filed Dec. 28, 1979, Ser. No. 108,058

Claims priority, application Japan, Jan. 6, 1979, 54-890; Jan. 9, 1979, 54-1634

Int. Cl.³ G03G 15/09

U.S. Cl. 355—3 DD

9 Claims



1. A developing device for forming a developed image on an image bearing member, comprising in combination:

- (a) developer holding means having a developer holding surface adapted to oppose the image bearing member;
- (b) means for supplying magnetic developer onto said developer holding surface;
- (c) fixed magnetic field generating means disposed on the side of said developer holding means opposite to said developer holding surface; and
- (d) magnetic thickness regulating means disposed on the opposite side of said developer holding means from said magnetic field generating means and within the influence of the magnetic field of a magnetic pole of said magnetic field generating means, said magnetic thickness regulating means being provided with a tip facing said developer holding surface and having a width which is smaller than the width of said magnetic pole of said magnetic field generating means, said magnetic thickness regulating means being opposed to said magnetic pole of said magnetic field generating means across said developer holding means to concentrate the magnetic lines of force extending from said magnetic pole and thereby regulate the developer layer to a thickness smaller than the gap between said magnetic thickness regulating means and said developer holding means.

4,391,513

RANGE FINDING OPTICAL MECHANISM

Makoto Fujiki, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 18, 1980, Ser. No. 217,823

Claims priority, application Japan, Dec. 25, 1979, 54-179517[U]; Dec. 25, 1979, 54-179518[U]; Dec. 25, 1979, 54-179519[U]

Int. Cl.³ G01C 3/10; G03B 7/08

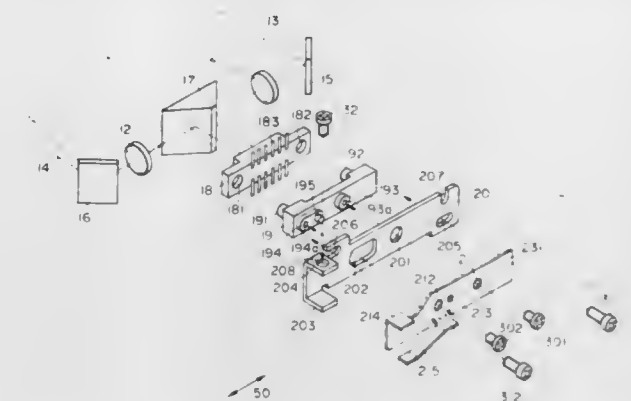
U.S. Cl. 356—1

6 Claims

- 1. A range finding optical mechanism including:
 - (a) a pair of fixed range finding optical systems each having an entrance window for introducing therethrough the light from the subject of range finding, said entrance windows being spaced a predetermined distance from each other, said range finding optical systems being adapted to form object images separately on a predetermined imaging plane, the spacing between said formed images being variable in accordance with the distance from said optical systems to the subject;
 - (b) photoelectric converter means including a plurality of photosensitive elements arranged in the form of a row on said imaging plane, said photosensitive elements comprising two sections which together define said row, each of said sections corresponding to one of said pair of range

finding optical systems, each of said optical systems being arranged to form an image of the subject on one of said two sections and said photoelectric converter means generating electrical signals corresponding to the illumination distributions of the images so formed; and

- (c) a regulating device for said photoelectric converter means, said regulating device including first regulating means for displacing said photoelectric converter means in a plane generally perpendicular to the optical axes of said pair of range finding optical systems and in a direc-



tion parallel to a line passing through the optical axes of said pair of range finding optical systems, and second regulating means for rotatively displacing said photoelectric converter means in a plane perpendicular to the optical axes of said pair of range finding optical systems and about a pivot axis substantially coincident with the center of the area of one said section of said photosensitive elements of said photoelectric converter means on which the image of the subject is formed by one of said range finding optical systems.

4,391,514

SIDELOOKING LASER ALTIMETER FOR A FLIGHT SIMULATOR

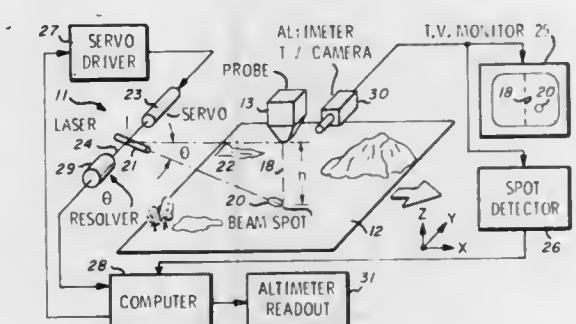
Larry D. Webster, San Jose, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 13, 1981, Ser. No. 234,224

Int. Cl.³ G01C 3/10; G09B 9/08

U.S. Cl. 356—1

11 Claims



- 1. In a method for determining the altitude of a flight simulator probe moving relative to and above the terrain of a flight simulator model wherein the imaginary line extending from the probe in a direction normal to the model is characterized as the probe plumb line, the steps of:
 - directing a pencil-like beam of radiation from said probe onto the model keeping said beam within a plane containing said probe plumb line to produce a beam spot on said model;
 - detecting the location of said beam spot relative to two orthogonal coordinates with a detector situated remote from said probe plumb line and having a linear sensitivity zone optically aligned with said probe plumb line;
 - varying the angular orientation of the beam within said

probe plumb line plane and relative to a reference plane so as to cause said beam spot to impinge on the model site intersected by said probe plumb line; determining the angular orientation of the beam relative to said reference plane; and utilizing the determined angular orientation of said beam to determine the altitude of said probe over the terrain of the model.

4,391,515

OPTICAL TRANSMITTER/RECEIVER APPARATUS SHARING COMMON OPTICS

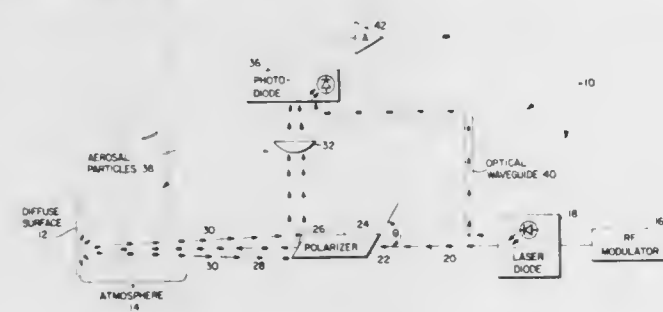
Howard M. Forrester, Ridgecrest, and John R. Crisler, China Lake, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 7, 1981, Ser. No. 261,341

Int. Cl.³ G01C 3/08

U.S. Cl. 356—5

1 Claim



1. Optical detection apparatus comprising: means for generating a beam of coherent light; a discrete optical polarizing component including a plurality of wedge shaped light transmissive plates arranged in two groups each group being arranged in a spaced apart stack, one surface of one of said wedge shaped plates from one of said groups being positioned to intercept the light from said coherent light generating means at a predetermined angle of incidence, another surface of another of said wedge shaped plates being arranged to receive incoming light reflected from an object in an ambient environment having particular polarization characteristics; a light detection element; a lens positioned between said discrete optical component upon said light detection element; and means for transmitting light from said coherent light generating means to said light detecting element, whereby it is mixed with the coherent light from said discrete optical component to produce a data signal.

4,391,516

METHOD OF DETERMINING AN INDEX OF REFRACTION PROFILE OF AN OPTICAL FIBER

Luther M. Boggs, Dunwoody, and William B. Gardner, Chamblee, both of Ga., assignors to Western Electric Co., Inc., New York, N.Y. and Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 11, 1978, Ser. No. 941,824

Int. Cl.³ G01N 21/45

U.S. Cl. 356—73.1

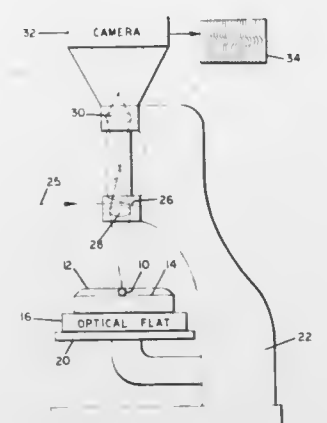
7 Claims

1. The method of determining an index of refraction profile of the core of an optical fiber having a substantially cylindrical core encased within a surrounding cladding comprising the steps of:

(a) forming an interferogram with a beam of radiant energy passing transversely through the optical fiber with the interferogram having a pattern of mutually spaced interference fringe lines shifted from a reference line distances determined by differences between indices of refraction

radially through the fiber core and that of the fiber cladding;

(b) measuring the interferogram fringe line shift at a plurality of points along a fringe line corresponding to a series of mutually parallel ray chord paths extending through the core at mutually diverse minimum radial distances from the core axis; and



(c) sequentially calculating from core peripheral region inwardly towards the core center that portion of the measured fringe line shift attributable to discrete differences in indices of refraction of cylindrical core ring portions of thicknesses defined by successive minimum radial distances in the series of ray paths and that of the cladding.

4,391,517

METHOD OF MEASURING SPLICE LOSS IN OPTICAL FIBERS

Joseph Zucker, Foster City, and Arthur H. Fitch, Redwood City, both of Calif., assignors to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

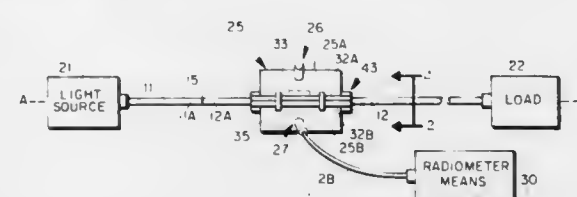
Continuation-in-part of Ser. No. 205,844, Nov. 10, 1980, Pat. No. 4,360,268. This application Apr. 27, 1981, Ser. No. 257,697

The portion of the term of this patent subsequent to Nov. 23, 1999, has been disclaimed.

Int. Cl.³ G01N 21/84

U.S. Cl. 356—73.1

13 Claims



1. The method of measuring the insertion loss of a splice between adjacent one ends of first and second optical fibers comprising the steps of transmitting reference light in the first fiber; producing a first measurement P_0 of the radiant power of the light in the first fiber, producing a second measurement P_R of the radiant power of only light radiated generally transversely out of the circumference of only the second fiber in a significant portion of the length thereof that is downstream of the splice and exhibiting substantial leaky mode radiation as a result of the occurrence of the splice, for reference light of the radiant power P_0 in the first fiber and incident on the splice, and producing an indication of the splice loss from the ratio of the two measurements.

4,391,518

DUAL LASER OPTICAL SYSTEM AND METHOD FOR STUDYING FLUID FLOW

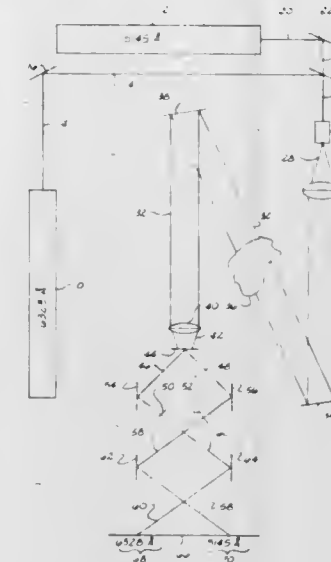
Robert B. Owen, and William K. Witherow, both of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 12, 1981, Ser. No. 224,232

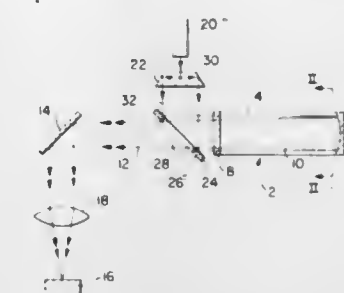
Int. Cl.³ G01N 21/41

U.S. Cl. 356—129

6 Claims



ring-shaped mirror out of the laser oscillator means in such a manner that the axis of the laser beam and axis of the light are



coincident with both the light and said laser beam from said laser oscillator means passing through said opening of said ring-shaped mirror.

4,391,520

TECHNIQUE FOR OPTICAL ALIGNMENT OF A WORKPIECE

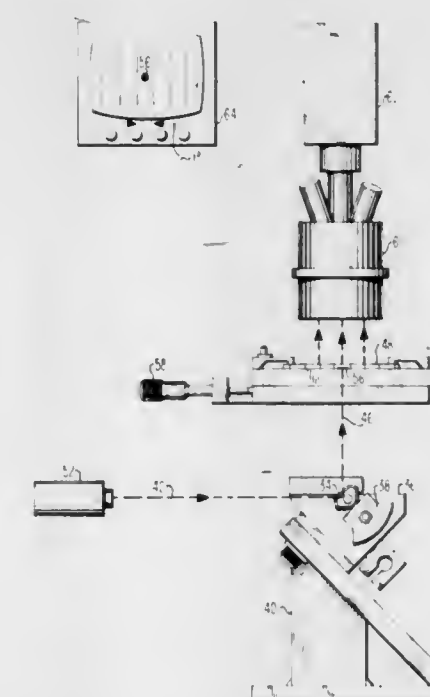
Douglas H. Ziegel, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,350

Int. Cl.³ G01B 11/26

U.S. Cl. 356—154

21 Claims



1. A method of producing and visualizing simultaneous images of perpendicular components of refractive index gradients in transparent substances comprising the steps of: providing two laser beams, each said beam having a different wave length; combining and collimating said two laser beams into a single beam containing said two different wave length components; providing a test volume which includes said transparent substance; passing said collimated beam through said test volume; separating said collimated beam into two separate beams having said different wave lengths; providing two separate knife edges arranged mutually perpendicular to one another; focusing a first of said separated beams on one of said knife edges and a second of said beams on the other of said knife edges; projecting light allowed to be passed by said knife edges onto a viewing means; and producing visual images of mutually perpendicular refractive index gradients passed by said knife edges on said viewing means for simultaneous viewing.

4,391,519

AXIS-MONITORING APPARATUS FOR A LASER BEAM

Kouji Kuwabara; Hiroyuki Sugawara, both of Hitachi; Toshiharu Shirakura, Tokai; Kouji Sasaki, and Satoshi Takemori, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 12, 1980, Ser. No. 186,731

Claims priority, application Japan, Sep. 12, 1979, 54-116195

Int. Cl.³ G01B 11/27

U.S. Cl. 356—153

11 Claims

1. A laser beam axis-monitoring apparatus, the apparatus comprising a laser oscillating means for generating a laser beam, and a light generator means for generating a light for monitoring an axis of the laser beam, characterized in that directing means are arranged between the laser oscillator means and the light generator means for directing the light from the generator means into the laser oscillator means, said directing means includes a ring-shaped mirror having an opening at a center thereof, and concave mirror means are disposed in the laser oscillator means for reflecting the light from the

1. A method of aligning a surface of a workpiece with respect to a positioning ring attached to a holder supporting said workpiece, said holder adapted to rotate said surface, with respect to said positioning ring, about a first axis, comprising the steps of:

mounting said holder on an alignment platform adjacent a positioning block attached thereto for holding said positioning ring in a predetermined position, said alignment platform being supported by a table, exposing said surface to an incident light beam, whereby said incident beam is reflected from said surface, as a reflected beam, onto a screen along a path of alignment marks disposed thereon, revolving said positioning block, with respect to said alignment platform, about said first axis, whereby the point on said surface where said beam strikes remains substantially fixed in space, and rotating said surface about said first axis to change the location where said reflected beam strikes said screen, whereby said surface is properly aligned with respect to said positioning ring when said reflected beam strikes a particular location on said screen.

4,391,521

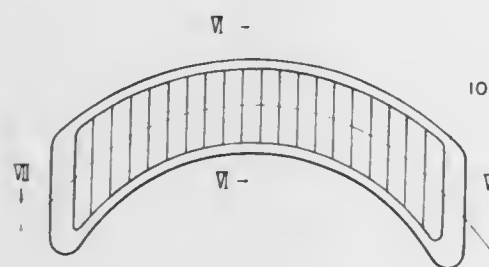
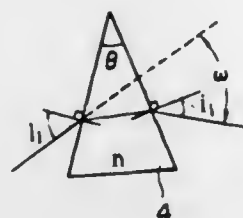
PHOTOMETER HAVING ASYMMETRICAL APERTURE AND WITH COMPENSATION FOR DIRECTION OF INCIDENCE

Toshihiro Imai, Hachioji, and Toyotaka Yamada, Hino, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Sep. 17, 1980, Ser. No. 188,146

Claims priority, application Japan, Sep. 18, 1979, 54-119832
Int. Cl.³ G01J 1/04

U.S. Cl. 356—225

6 Claims



1. A photometer comprising a photodetector, a mask having asymmetrical apertures and arranged before said photodetector, and a compensation prism arranged in the path of the light to be incident on said photodetector to compensate for the asymmetry of the light pencil which passes through said mask and is incident on said photodetector.

4,391,522

TEST APPARATUS FOR DETERMINING RESISTANCE TO LIGHT AND WEATHER INFLUENCES

Helmut Schmid, Krefeld; Martin Bock, Duisburg, and Günther Kämpf, Krefeld, all of Fed. Rep. of Germany, assignors to Original Hanau Heraeus GmbH, Hanau, Fed. Rep. of Germany

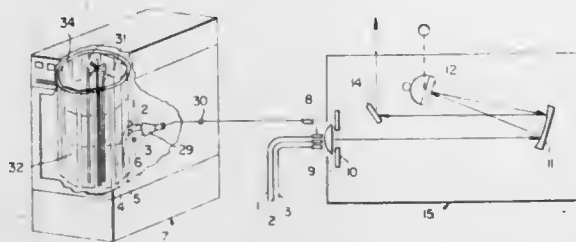
Filed Oct. 3, 1980, Ser. No. 193,465

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940325

Int. Cl.³ G01N 17/00; G01J 3/38

U.S. Cl. 356—326

5 Claims



1. Apparatus for determining resistance to light and weather influences of sample surfaces, said apparatus including, in combination, with at least one source of light disposed for irradiation of said sample surfaces:

fastening means (34) for fastening at least one sample for a period of time during which radiation from said source is incident on at least a portion of the surface of said sample, radiation measuring means (15) comprising radiation detection means (14) and radiation indicating means (24; 27, 28), and

light guiding means (1, 2, 3; 29; 8; 9), having a plurality of input terminals, each in the vicinity of one of said fastening means

(34), for guiding a portion of the radiation of said at least one light source from said input terminals to said radiation measuring means (15), said input terminals being disposed for receiving radiation from said at least one light source comparable with the radiation incident on portions of said at least one sample respectively adjacent to said input terminals,

wherein, in accordance with the invention, said radiation measuring means (15) comprises,

means (12) for producing a spectral dispersion of radiation received from said light guiding means and thereby making spectrally dispersed radiation incident on said radiation detection means (14), and

means (16) for adjusting said radiation detection means so as to selectively detect radiation in at least one of a plurality of spectral regions.

4,391,523

SCANNABLE DETECTOR SYSTEM FOR ECHELLE GRATING SPECTROMETERS

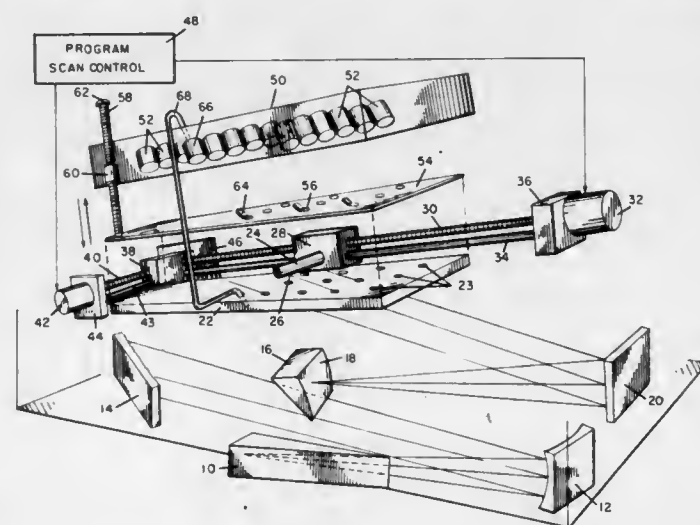
Karl J. Hildebrand, Tyngsboro, and John Leeman, Andover, both of Mass., assignors to Leeman Labs Inc., Tewksbury, Mass.

Continuation-in-part of Ser. No. 206,445, Nov. 13, 1980, abandoned. This application Mar. 23, 1981, Ser. No. 246,716

Int. Cl.³ G01J 3/34, 3/38

U.S. Cl. 356—328

4 Claims



1. A scannable detector system for echelle grating spectrometric comprising in combination:

- an echelle diffraction grating for separating radiation input energy into a spectrum of mixed orders;
- optical dispersing means for further separating said orders into a spectral array of discrete monochromatic wavelength segments;
- imaging means to image said spectral array in a focal plane;
- a first aperture plate positioned in said focal plane, said plate having a plurality of apertures corresponding to focal positions of said segments of said array;
- at least one scannable photodetector positioned behind said plate to receive and sense any of said wavelength segments transmitted by said plate;
- means to scan said detector from aperture to aperture to measure individual wavelength segments in a selected sequence;
- a photodetector array mounted behind said first aperture plate;
- means to remove said scannable detector from the field of said plate;
- a second masking aperture plate having fewer apertures than said first aperture plate; and
- mounting means for mounting said second aperture plate between said photodetector array and said first aperture plate, said mounting means arranged such that said aper-

tures in said second plate align with said apertures in said first plate.

4,391,524

METHOD FOR DETERMINING THE QUALITY OF LIGHT SCATTERING MATERIAL

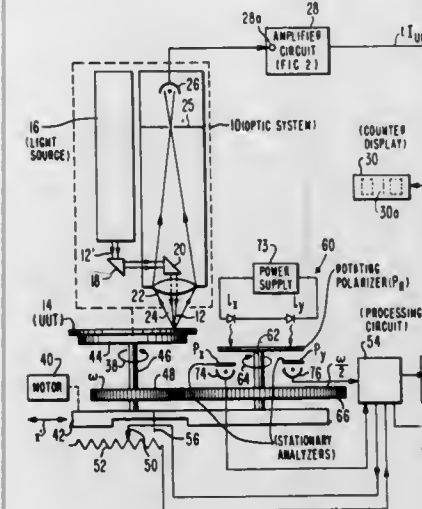
Edgar F. Steigmeier, Hedingen, and Heinrich Auderset, Horgen, both of Switzerland, assignors to RCA Corporation, New York, N.Y.

Filed Mar. 16, 1981, Ser. No. 244,060

Int. Cl.³ G01N 21/01

U.S. Cl. 356—338

12 Claims



1. The method for determining the quality of a material having a property of absorbing light to a given penetration depth comprising the steps of:

- exposing one or more regions of said material to a beam of light of a selected wavelength;
- detecting scattered light having an intensity greater than a threshold intensity from the exposed material to provide an electrical signal proportional to the intensity of detected scattered light above said threshold intensity;
- applying the electrical signal to a visual display device to control the intensity of a display beam of the device; and
- varying said threshold intensity to thereby vary the intensity of the display beam so as to provide the minimum intensity of display beam which yields a full display of the exposed material, wherein the value of the threshold intensity is a direct measure of the crystalline quality of the material.

4,391,525

INTERFEROMETER

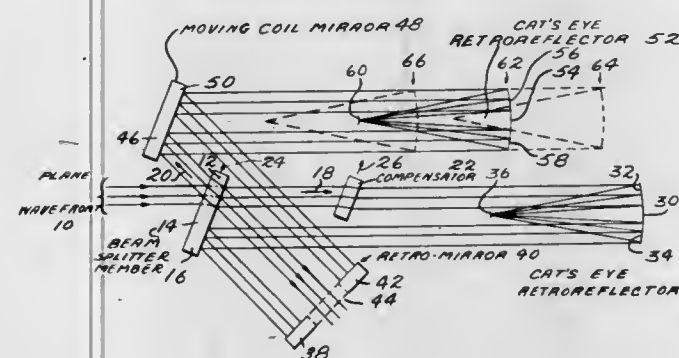
Robert A. Woodruff, Goleta, Calif., assignor to Ball Corporation, Muncie, Ind.

Filed Oct. 10, 1979, Ser. No. 83,315

Int. Cl.³ G01B 9/02; G02B 27/10

U.S. Cl. 356—346

31 Claims



1. An interferometer comprising:
a beamsplitter member including a surface;
a beamsplitting coating disposed on a first portion of said

beamsplitter member surface for splitting incident light into a transmitted beam and a reflected beam, said transmitted beam propagating along a first optical path of said interferometer and said reflected beam propagating along a second optical path of said interferometer;
a compensator positioned in said first optical path;
a first reflector for reflecting light transmitted by said beamsplitter;
a second reflector formed by a coating positioned upon a second portion of said surface of said beamsplitter member, such that said second reflector and said beamsplitting coating are substantially coplanar, said second reflector for reflecting light from said first reflector;
a retro-reflector for reflecting light transmitted thereto from said second reflector back toward said second reflector, said light retracing its optical path back to said beamsplitter;
a third reflector for reflecting light reflected by said beamsplitter;
a fourth reflector for reflecting light reflected by said third reflector back to said third reflector and then to said retroreflector, said retroreflector reflecting light back toward said third reflector, said light retracing its optical path back to said beamsplitting coating along said second optical path, said transmitted beam and said reflected beam being recombined at said beamsplitting coating.

4,391,526

INTERFEROMETRIC SURFACE CONTOUR MEASURING ARRANGEMENT

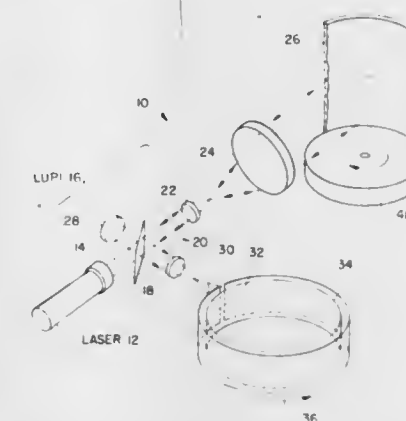
Joseph L. McLaughlin, Marblehead, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Aug. 24, 1981, Ser. No. 295,426

Int. Cl.³ G01B 11/24

U.S. Cl. 356—359

23 Claims



1. A method of interferometrically measuring the contour of a reflective surface, comprising the steps of:

- projecting a light wave onto the reflective surface such that a wave is reflected therefrom;
- interfering the reflected wave with a reference wave to form a resultant interference pattern;
- projecting a portion of the resultant interference pattern onto a recording medium;
- scanning the reflective surface with the projected wave by relatively moving the projected wave relative to the reflective surface; and
- moving the projected interference pattern relative to the recording medium synchronously with the scanning of the reflective surface, whereby the information recorded on the recording medium is a development of the contour of the reflective surface.

4,391,527

PROCESS AND DEVICE FOR THE POSITIONING OF AN OPTICAL MEASURING INSTRUMENT AND A SPECTACLE FRAME IN RELATION TO EACH OTHER
Jean-Claude Hennequin, Neuilly, France, assignor to Essilor International, Neuilly, France

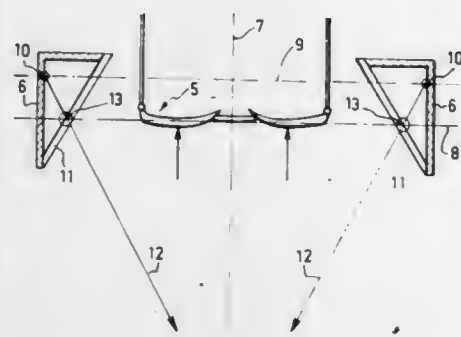
Filed Jan. 14, 1981, Ser. No. 225,035

Claims priority, application France, Jan. 23, 1980, 80 01428

Int. Cl.³ G01B 11/14; A61B 3/00

U.S. Cl. 356—375

11 Claims



1. A process for positioning an optical measuring instrument comprising a positioning device and a spectacle frame in relation to each other, wherein two positioning marks on the device are arranged in such a way as to define a reference plane, and that the positioning device and spectacle frame are moved into a position in which the reference plane and mean plane of the frame are in a given position in relation to each other, and by the fact that a semi-transparent mirror is placed between the frame and each of the positioning marks, each such mirror, separated from the other mirror, being placed symmetrically in relation to a median plane of symmetry at right angles to the reference plane, and forming a plane bisecting the angle formed by the mirrors, and by the fact that the positioning marks are observed from a point on this bisecting plane, and that the device and frame are moved in relation to each other until the reflection of the side outline of the frame in each of the mirrors coincides with the relevant positioning mark visible through each mirror.

4,391,528

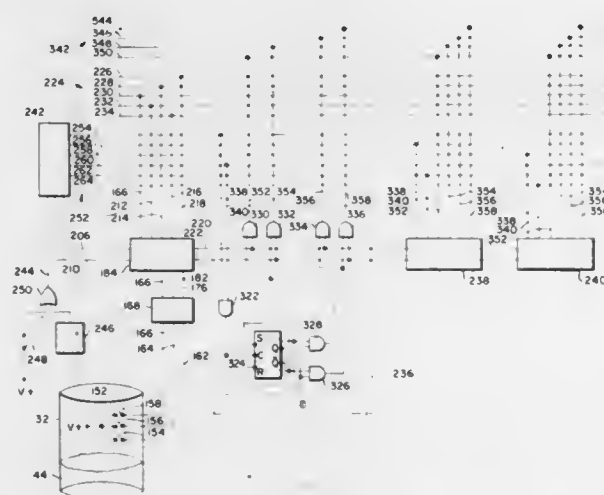
SILO SYSTEM FOR MIXING STORED MATERIAL
Heinrich Klein-Albenhausen, Hamburg, Fed. Rep. of Germany, assignor to Ibau Hamburg Ingenieurgesellschaft Endustriebau mbH, Hamburg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 811,618, Jun. 30, 1977. This application Sep. 25, 1980, Ser. No. 190,662

Int. Cl.³ B28C 5/00, 7/04

U.S. Cl. 366—15

34 Claims



1. A silo system for mixing stored material, comprising: a mixing silo having a plurality of discharge apertures; a receptacle;

conduit means for conveying material from the discharge apertures to the receptacle; a plurality of valve means for controlling material flow, each of the valve means controlling material flow through a corresponding one of the discharge apertures; level sensor means for generating level sensor signals indicative of the material level in the receptacle; and first means responsive to the level sensor signals for temporarily opening valve means in a predetermined sequence when the material level in the receptacle is rising to a first predetermined point and thereafter keeping all of the valve means closed until the material level in the receptacle falls to a second predetermined point below the first predetermined point, said first means additionally comprising means for reducing the rate of flow through temporarily opened valve means when the material level in the receptacle rises to a third predetermined point between the first and second predetermined points.

4,391,529

APPARATUS FOR MIXING AND DEGASSING COMPONENTS OF SYNTHETIC RESINS, PARTICULARLY THERMO-SETTING SYNTHETIC RESINS

Wilhelm Hedrich, Ehringshausen; Heinz Krumm, Sinn, and Erhard Haeuser, Schoeffengrund, all of Fed. Rep. of Germany, assignors to Wilhelm Hedrich Vakuumanlagen GmbH & Co. KG, Ehringshausen, Fed. Rep. of Germany

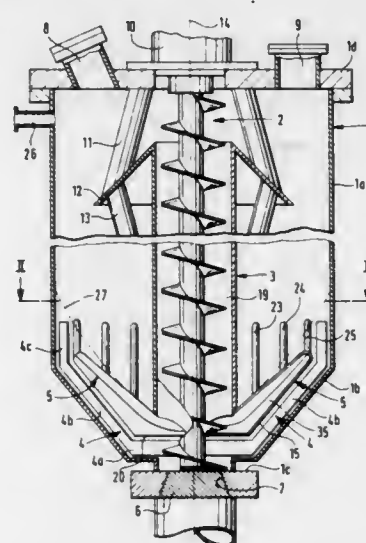
Filed Jul. 8, 1981, Ser. No. 281,524

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1980, 3026492

Int. Cl.³ B01F 5/12

U.S. Cl. 366—266

13 Claims



1. In an apparatus for mixing and degassing components of synthetic resins, comprising an evacuable, chamber means having a top wall, a cylindrical wall structure and a downwardly and inwardly tapered conical wall structure and a bottom wall structure at the lower end thereof, means defining an opening into said chamber means for facilitating an evacuation of said chamber means, a rotatable worm conveyor centrally arranged in said chamber means and closely surrounded by an elongated vertically upstanding guide tube, the ends of which are spaced from the top and bottom walls of said chamber means, securement means for fixedly securing said guide tube to said chamber means, said guide tube having at its top end a discharge plate, and including between the lower end of said guide tube and said conical wall structure of said container at least one radially extending agitating arm secured to said worm conveyor at the lower end thereof, the improvement comprising wherein at least one collecting arm is secured to and projects radially from said guide tube, said collecting arm extending above said agitating arm, is spaced a small distance from said wall structures of said chamber means, and has means defining a collecting opening which faces in a direction

opposite the direction of rotation of said agitating arm, and means defining an opening connecting an interior cavity in said collecting arm to the interior of said guide tube.

4,391,530

ELECTRONIC TIMEPIECE

Takuo Wakabayashi, deceased, late of Saitama, Japan; by Shigemasa Wakabayashi, legal representative, Nagano, Japan; Iwao Tahara, Higashiyamato, Japan; Toshiharu Aihara, Kodaira, Japan; Naoki Takahashi, Fussa, Japan, and Yushin Matsuo, Chofu, Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

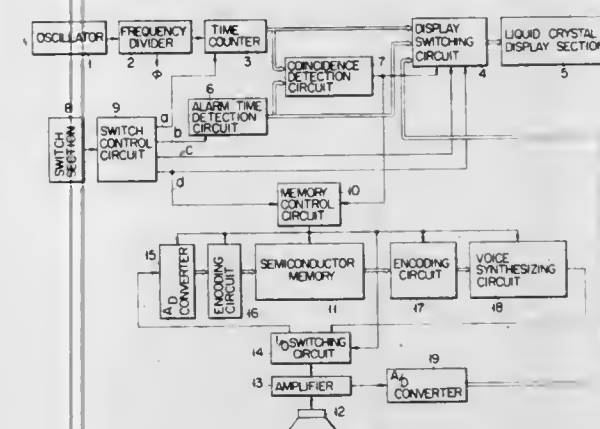
Filed Sep. 18, 1980, Ser. No. 188,515

Claims priority, application Japan, Sep. 27, 1979, 54-126264; Dec. 6, 1979, 54-158983; Dec. 6, 1979, 54-158986; Dec. 11, 1979, 54-161292; Dec. 11, 1979, 54-161293; Dec. 11, 1979, 54-161294; Dec. 12, 1979, 54-161813

Int. Cl.³ G04B 21/08; G11C 13/00

U.S. Cl. 368—63

18 Claims



1. An electronic timepiece comprising: time counter means for counting a reference frequency signal to form time data; time display means coupled to said time counter means for displaying said time data; first converting means for converting an externally provided voice sound into voice data; a semiconductor memory coupled to said first converting means for storing said voice data; address assigning means coupled to said semiconductor memory for sequentially assigning addresses of said semiconductor memory; second converting means coupled to said semiconductor memory for converting said voice data stored in said semiconductor memory into a voice signal; voice reproducing means coupled to said second converting means for generating a voice sound in accordance with said voice signal; externally operable switch means for enabling said semiconductor memory to store said voice data; voice data writing instructing means coupled to said externally operable switch means and to said address assigning means for supplying a writing instruction signal, generated by operating said externally operable switch means, to said address assigning means and to said first converting means to enable storing of said voice data from said first converting means in said semiconductor memory; alarm signal generating means coupled to said time counter means for generating an alarm signal when said time data coincides with a predetermined alarm time; and voice readout control means coupled to said alarm signal generating means for supplying said alarm signal as a readout instruction signal to said address assigning means and to said second converting means to enable said second converting means to convert said voice data stored in said semiconductor memory into said voice signal so that said voice reproducing means generates a voice sound corresponding to said voice signal.

4,391,531

ELECTROOPTICAL DISPLAY/LEAD FRAME SUBASSEMBLY AND TIMEPIECE MODULE INCLUDING SAME

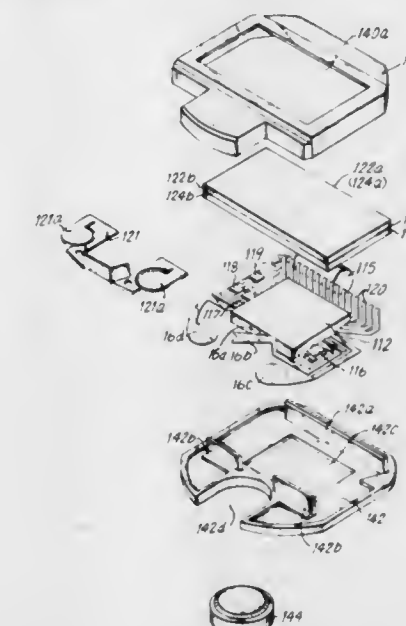
Dick Yokota, Los Gatos; David Kutty, Felton, and Malcolm Kinter, Sunnyvale, all of Calif., assignors to Timex Corporation, Waterbury, Conn.

Filed Dec. 19, 1980, Ser. No. 218,136

Int. Cl.³ H05K 5/06

U.S. Cl. 368—239

28 Claims



1. A subassembly for an electronic display device, comprising: a. a conductive lead frame carrying an integrated circuit chip and having a plurality of spaced conductor members each with an inner end connected electrically to said chip and each with an outer end formed into a resilient contact finger, the contact fingers being arranged in a preselected pattern to define an enclosure, and b. an electrooptical display having longitudinal edges positioned within said enclosure, said display having display electrodes and a plurality of contact terminals connected to said electrodes and spaced along its edges in such a pattern that each resilient contact finger of the lead frame frictionally engages a respective one of the contact terminals when the display is positioned in said enclosure, thereby establishing electrical connection therebetween and releasably holding the display between said contact fingers.

4,391,532

ELECTROMAGNETIC ACOUSTIC TRANSDUCER

Yoshiaki Hara, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

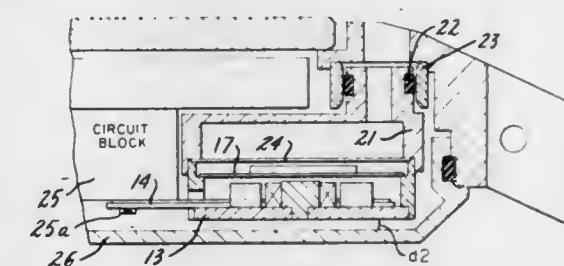
Filed Apr. 21, 1981, Ser. No. 256,161

Claims priority, application Japan, Apr. 22, 1980, 55-53189

Int. Cl.³ G04C 21/16

U.S. Cl. 368—250

11 Claims



1. In an alarm electronic wristwatch having a watchcase: an electromagnetic acoustic transducer comprising a base plate having an upper surface and an undersurface and having a

plurality of upstanding projections projecting upwardly from the upper surface, a magnetic core, an excitation coil surrounding the magnetic core, a set of permanent magnets, the core, coil and permanent magnets all being supported by the base plate, a vibratory plate mounted in spaced relation from the magnetic core to undergo vibration in response to the application of a drive signal to the excitation coil, a support frame of generally circular shape extending around the base plate and having an opening therethrough, a lead substrate comprised of flexible material mounted on the upper surface of the base plate and having a lead substrate extension projecting through the support frame opening and having a plurality of openings receiving therein respective ones of the base plate projections, the base plate projections cooperating with the lead substrate openings to position the lead substrate on the base plate at a predetermined position, an electrode pattern on the lead substrate, and means electrically connecting at least one of the terminals of the excitation coil to the electrode pattern for applying drive signals to the excitation coil; means mounting the electromagnetic acoustic transducer within the watchcase with the undersurface of the base plate disposed opposite an inner surface of the watchcase; and a circuit block connected to the lead substrate extension projecting through the opening of the support frame for generating drive signals at pre-selected alarm times and applying the drive signals to the electrode pattern to thereby activate the transducer.

4,391,533

BACK COVER FIXING STRUCTURE FOR WRISTWATCH
Masahiko Waki, Tanashi, Japan, assignor to Citizen Watch Co. Ltd., Tokyo, Japan

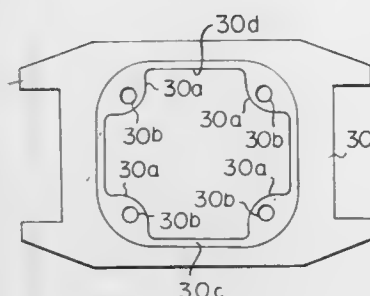
Filed Feb. 16, 1982, Ser. No. 349,167

Claims priority, application Japan, Feb. 17, 1981, 56-21049

Int. Cl.³ G04B 37/00

U.S. Cl. 368—281

5 Claims



1. A back cover fixing structure for a wristwatch comprising:
a case band having an inner wall and an outer wall and having a plurality of projecting portions on said inner wall, in which said projecting portions project inwardly toward a center of said case band, each of said inwardly projecting portions having a screw hole;
a back cover having a plurality of throughholes provided at positions corresponding to the screw holes of said inwardly projecting portions; and
a plurality of screws set in the screw holes of said inwardly projecting portions through the throughholes of said back cover for fixing said back cover to said case band.

4,391,534

GLASS MOUNTING STRUCTURE FOR WATCHES
Osamu Matsumura, and Masataka Matsumoto, both of Tanashi, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 114,743, Jan. 24, 1980. This application Aug. 4, 1981, Ser. No. 289,840

Claims priority, application Japan, Jan. 27, 1979, 54-9027[U]

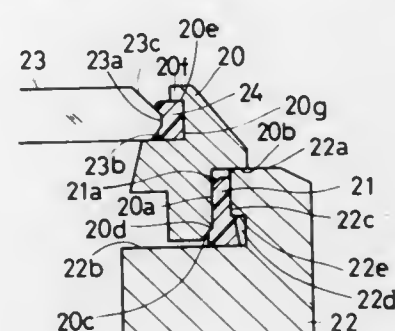
Int. Cl.³ G04B 39/02

U.S. Cl. 368—294

7 Claims

1. A glass mounting structure comprising a watch case, a bezel, a glass having beveled portions at upper and lower edges

thereof, a first packing disposed between said watch case and bezel, and a second packing disposed between said bezel and glass, said watch case having an upper receiving portion, an axially extending inside engaging portion, an annular groove provided in a lower portion of said axially extending inside engaging portion, and a lower receiving portion laterally extending from a lower portion of said annular groove, said bezel having a peripheral engaging portion for engaging said first packing, a lower portion opposite said annular groove, a beveled guiding portion at the lower end of said peripheral engaging portion which is positioned lower than the upper edge of said annular groove, an underside portion laterally extending from the upper end of said engaging portion which overlaps and contacts said upper receiving portion of said watch case,



and an inside annular groove for receiving said second packing, the upper boundary of said annular groove for receiving said second packing being spaced from said glass at all times so as not to contact the upper edge beveled portion, the lower boundary of said annular groove for said second packing being extended to the underside of said glass, said bezel being inserted from the upper edge of said first packing thereto, so that a lower portion of said first packing is expanded into said annular groove of the watch case, whereby when said bezel is removed from said watch case, said first packing is held in said watch case, said glass being downwardly inserted into the second packing, so that a periphery of the glass dents in said second packing and that the upper portion of said second packing presses down on the beveled portion of said upper edge.

4,391,535

METHOD AND APPARATUS FOR CONTROLLING THE AREA OF A THERMAL PRINT MEDIUM THAT IS EXPOSED BY A THERMAL PRINTER

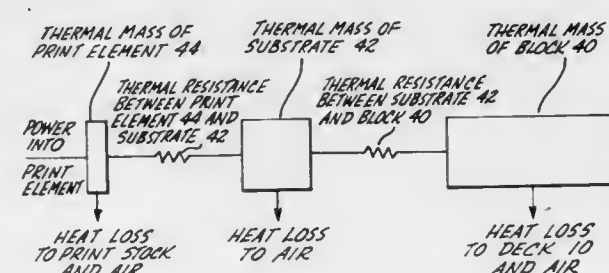
Roger C. Palmer, Edmonds, Wash., assignor to Intermec Corporation, Lynnwood, Wash.

Filed Aug. 10, 1981, Ser. No. 291,625

Int. Cl.³ B41J 3/20

U.S. Cl. 400—120

10 Claims



1. An apparatus for controlling the area of a thermal print medium that is exposed by a thermal printer, the thermal print medium being such that any portion thereof is exposed when its temperature equals or exceeds a predetermined threshold temperature, the thermal printer including an electrically-resistive thermal print element having a surface that is in good thermal contact with the thermal print medium and that has an area equal to the desired exposure area of the thermal print

medium, the thermal printer further including driver means for applying an electrical signal having a substantially constant amplitude to the thermal print element, said apparatus comprising:

- electrical energy storage means representing the thermal mass of the thermal print element, said electrical energy storage means being adapted to provide a first signal whose amplitude is proportional to the instantaneous amount of electrical energy stored in said electrical energy storage means;
first means for transferring electrical energy into said electrical energy storage means at a rate proportional to the power being supplied to the thermal print element by the application of said substantially constant amplitude electrical signal thereto;
second means transferring electrical energy to and from said electrical energy storage means in relation to the heat transferred between the thermal print element and the environment in heat transfer relationship with the thermal print element, whereby the amplitude of said first signal is proportional to the instantaneous temperature of the thermal print element;
third means providing a second signal whose amplitude is related to the threshold temperature of the thermal print medium; and,
fourth means concurrently enabling the driver means of the thermal printer and said first means, and concurrently disabling the driver means of the thermal printer and said first means whenever the amplitude of said first signal exceeds that of said second signal.

4,391,536

WORD PROCESSOR PRINT WHEEL ASSEMBLY
Michael Müller, Wädenswil; Herbert Scherrer, Uster, and Erwin Kägi, Volketswil, all of Switzerland, assignors to Franz Buttner AG, Zurich, Switzerland

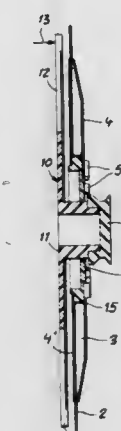
Filed Sep. 1, 1981, Ser. No. 298,307

Claims priority, application Switzerland, Sep. 2, 1980, 6608/80

Int. Cl.³ B41J 1/30, 27/04

U.S. Cl. 400—144.2

10 Claims



1. A print wheel assembly for a printer of a word processing machine or the like, comprising:
a type disk formed unitarily with a hub and a peripheral array of laterally deflectable typefaces connected to said hub;
an annular color-transfer layer connected to said disk and overlying said typefaces for juxtaposition with a paper onto which images of said typefaces are to be transferred by impact, said transfer layer being provided on a carrier rotatably mounted on said hub and angularly shiftable relative to said disk upon rotation thereof to offset successive points of contact between said typefaces and the layer; and
an annular reservoir on said carrier and rotatably mounted thereby on said disk containing flowable coloring material and connected to said layer for transferring said material

to said layer, said reservoir containing a porous material impregnated with said coloring material.

4,391,537

SELECTIVELY ALTERING THE BULK PROPERTIES OF POLYMER STRUCTURES

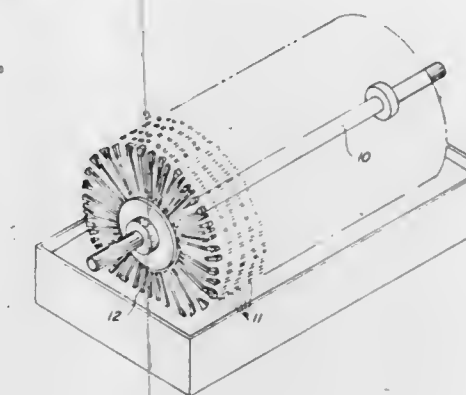
William M. Prest, Jr., and Frederick J. Roberts, Jr., both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 3, 1981, Ser. No. 327,147

Int. Cl.³ B41J 1/30; B05D 3/06

U.S. Cl. 400—144.2

18 Claims



1. A method for selectively hardening and toughening the bulk mass of the character fonts on a polymeric print wheel without adversely affecting the flexibility and strength of the remaining portions of the print wheel which comprises contacting the character fonts of the print wheel with a multifunctional monomer for a time sufficient to diffuse said monomer into said fonts and irradiating the character fonts with activating radiation to cause the bulk of the fonts to be hardened and toughened.

4,391,538

SERIAL PRINTER

Hiroshi Miyano, Yokohama, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

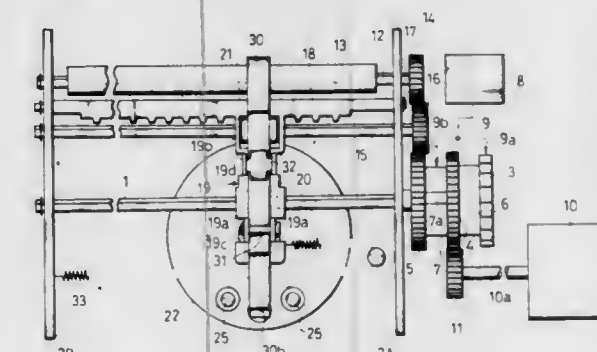
Filed Jul. 20, 1981, Ser. No. 285,299

Claims priority, application Japan, Jul. 22, 1980, 55-100409

Int. Cl.³ B41J 1/30

U.S. Cl. 400—145.1

12 Claims



1. A type wheel for a serial printer including a disc-shaped member having a plurality of apertures spaced circumferentially around the outer portion thereof, a plurality of dome members each covering a respective aperture and formed of a resilient material enabling each dome member to be deflected inwardly toward the respective aperture by a snap action substantially instantaneously upon application of a sufficient pressing force and then to be returned to its initial position by its resilience, and a plurality of type elements each connected with the inner surface of a respective dome member and movable out of the plane of said disc-shaped member upon inner deflection of the respective dome member.

4,391,539

TAPE-RIBBON PRINTING CARTRIDGE

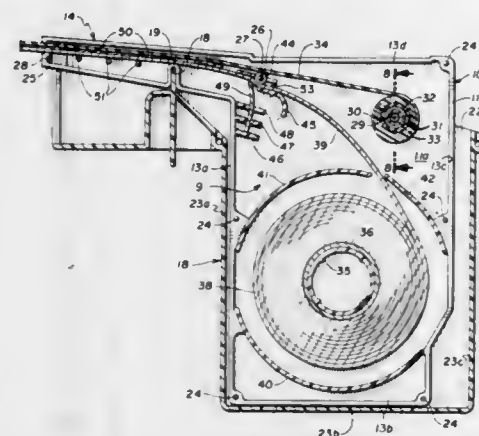
Thomas P. Connoy, Lino Lakes, Minn., assignor to Kroy Inc.,
St. Paul, Minn.

Filed May 23, 1980, Ser. No. 152,709

Int. Cl.³ B41J 33/14

U.S. Cl. 400—208

9 Claims



1. A printing cartridge for supplying image carrying tape and printing ribbon to a printing station in a printing apparatus comprising:

- a substantially closed cartridge housing having a pair of side walls and an edge wall extending about the periphery of said side walls, said cartridge housing including a tape and ribbon supply section and an elongated guide section, rigidly and integrally joined with, and extending outwardly from, said tape and ribbon supply section for guiding said image carrying tape and printing ribbon, one above the other such that a first flat face of said printing ribbon is superimposed over a first flat face of said image carrying tape, from said tape and ribbon supply section toward the printing station of said printing apparatus;
- a supply of image carrying tape disposed within said tape and ribbon supply section;
- a supply of printing ribbon disposed within said tape and ribbon supply section;

limit means for limiting movement of said image carrying tape from said tape and ribbon supply section in a generally forward direction and preventing movement of said image carrying tape in a rearward direction, said limit means including a bias resisting member disposed between and at right angles to said side walls and between a portion of said image carrying tape and said printing ribbon and bias means for biasing said image carrying tape against said bias resisting member, said bias means including a leaf spring having one end engaging and biasing said image carrying tape against said bias resisting member.

4,391,540

WITHIN-LINE COLOR CHANGE PRINTING

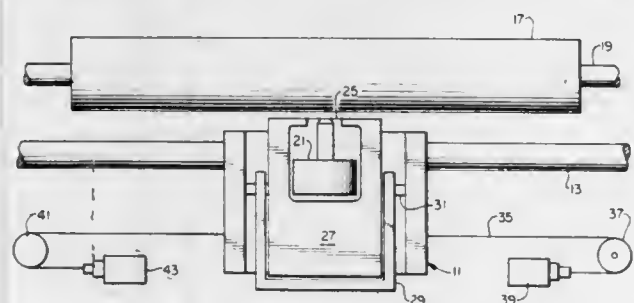
Edward C. Dougherty, Dracut, Mass., assignor to Centronics
Data Computer Corporation, Hudson, N.H.

Filed Mar. 31, 1981, Ser. No. 249,483

Int. Cl.³ B41J 35/14, 35/16

U.S. Cl. 400—212

8 Claims



1. In a printer of the type in which a carriage carrying a

printhead is traversed on stationary guide means along a paper-supporting platen to form characters by driving a printing element against an inked ribbon interposed between the printhead and the paper, apparatus for shifting the ribbon to bring different colored portions into alignment with the printing head, said apparatus comprising:

- means for effecting a change of color within a single line from at least four colors of a multi-color ribbon during carriage traverse and printing of that line entirely independent of the position of the carriage along the line including;
- a cable extending generally from one end of the platen to the other;
- mounted on said carriage, at least a pair of pulleys over which said cable passes, at least one of said pulleys being mounted so as to be movable with respect to the other as a function of the free length of said cable;
- an electromagnetically controlled attachment means for one end of said cable having first and second states, a change between said first and second states providing a predetermined change of a first value in the free length of said cable, said attachment means being fixedly mounted with respect to said guide means;
- a second electromagnetically controlled attachment means for the other end of said cable also having first and second states, a change between said first and second states of said second attachment means providing a predetermined change of a second value in the free length of said cable, said second value being different from said first value so that four different combinations of free length of said cable can be realized, said second attachment means also being fixedly mounted with respect to said guide means;
- means for variably positioning to at least four positions said multi-color ribbon of at least four colors between said printing element and said platen, said multi-color ribbon being contained in a changeable cassette; and
- means coupling said positioning means to said movable pulley whereby the position of the ribbon with respect to the printing element can be varied independently of carriage position by controlling the states of said attachment means.

4,391,541

MOSAIC PRINTER AND RIBBON GUIDE THEREFOR

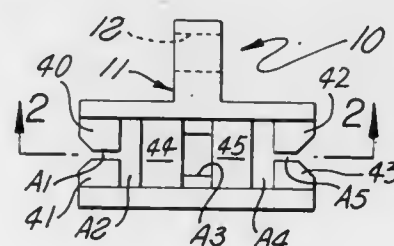
Robert E. Einem, Glendale, Calif., assignor to International
Telephone & Telegraph Corp., New York, N.Y.

Filed Nov. 23, 1981, Ser. No. 323,677

Int. Cl.³ B41J 35/06

U.S. Cl. 400—248

4 Claims



1. A printer comprising: a base having a paper support; an inked ribbon approximately parallel to said paper support; means to support each end of said inked ribbon lengthwise thereof over said paper support in a manner to permit a piece of paper to be inserted between said inked ribbon and said paper support; a print head having one end with a plurality of styli with ends in a line extending normal to the lengthwise direction of said inked ribbon thereacross and with axes normal to said inked ribbon; means to guide said one end of said print head over said inked ribbon; and a ribbon guide fixed relative to said one print head end, said ribbon guide including two parallel wings, pairs of first and second projections fixed to, at opposite ends and extending between said wings, said first pair

4,391,543

QUICK DISCONNECT PACK

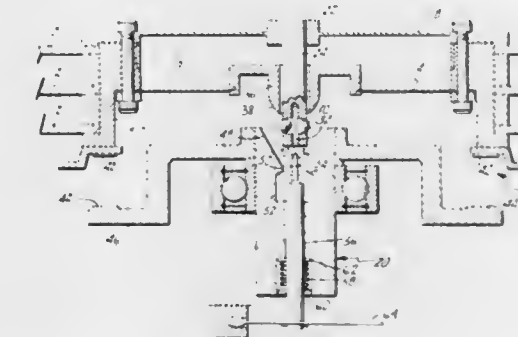
John W. Elsing, Edina, Minn., assignor to Magnetic Peripherals
Inc., Minneapolis, Minn.

Filed Jan. 12, 1981, Ser. No. 224,362

Int. Cl.³ F16B 1/00

U.S. Cl. 403—24

15 Claims



1. Apparatus for connecting a disk pack to a disk drive comprising:

- a hub adaptable for mounting thereon one or more disks; said hub having a central axis;
- a stub axially mounted on said hub;
- a spindle mounted on said disk drive and having a central bore with an open end and a central axis; said central bore adapted to receive said stub;
- an annular groove disposed in said bore and having an upper shoulder;
- at least two recesses disposed in said stub, each having a lower shoulder;
- at least two balls movably disposed in relation to both said spindle and said stub and movable between two positions, a first position adapted to allow free movement of said stub into and out of said bore, and a second position adapted to capture said at least two balls between said upper and lower shoulders and prevent said stub from being withdrawn from said bore;
- first biasing means for biasing said balls into said second position after said stub has been inserted into said bore to a predetermined extent;
- locking means for locking said balls in said second position against a force tending to withdraw said stub from said bore;
- moving means for moving said balls into said first position to allow said stub to be withdrawn from said bore; and
- restoring force means mounted on said hub and connected to said stub for providing a force tending to withdraw said stub from spindle when said stub extends into said bore said predetermined extent.

4,391,542

DEVICE FOR THE STEPWISE FEED OF PRINTING MEDIA IN AN ELECTROMECHANICAL PRINT UNIT

Günter Baitz, Berlin, Fed. Rep. of Germany, assignor to Nixdorf
Computer AG, Paderborn, Fed. Rep. of Germany

Filed Mar. 19, 1981, Ser. No. 245,300

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1980, 3014430

Int. Cl.³ B41J 11/50

U.S. Cl. 400—605

18 Claims



1. For use with an electromechanical printer (10) of the type having a print unit in which printing media (55,65) is moved through the printing unit by a stepping drive roller (12) and in which a drive take-off means (60,61) is provided down stream in the direction of printing media movement:

- a single sheet printing media conveyor (15) attached as an accessor to the printer (10); and
- a continuous form printing media conveyor (30) having drive means (28) attached to the single sheet printing media conveyor (15) as a further accessory;
- a drive belt (21) commonly interconnecting the stepping drive roller (12), the take-off means (60,61), the single sheet conveyor (15) and the continuous form conveyor drive means (28) for synchronous operation in the same feed direction; the take-off means (60,61) having rollers of such circumference in engagement with the printing media so as to maintain tension on the printing media when fed therethrough.

4,391,544

SELF-RETAINED FASTENER

James W. Cadwallader, Lansdale, Pa., assignor to SPS Technol-
ogies, Inc., Jenkintown, Pa.

Continuation of Ser. No. 533,103, Dec. 16, 1974, abandoned.

This application Jun. 22, 1976, Ser. No. 698,669

Int. Cl.³ F16B 41/00

U.S. Cl. 403—155

8 Claims

1. A positive lock self-retained fastener assembly for engagement in a workpiece, said fastener assembly comprising:

- a pin having a shank and an end segment adjacent said shank at one end of said pin, said end segment including an annular groove disposed axially inwardly from said one end of said pin, said annular groove tapering radially outwardly from the juncture of said shank and said groove axially along said pin toward said one end to a shoulder formed axially inwardly from said one end of said pin; and
- a cup-shaped ferrule including collar means formed at the open end thereof to cooperate with said groove and engage said shoulder, thereby to slideably retain said ferrule

first stabilizer arm and a second stabilizer arm being transversely spaced from each other, each stabilizer arm being vertically disposed and extending through said platform so as to be pivotally connected to its associated crossbeam, means for pivotally connecting said stabilizer arm to said crossbeam, means for maintaining said stabilizer arm in a relative vertical position, means for pivoting said stabilizer arms toward each other in a transverse plane thereby engaging the sides of a boat within said stabilizer arms, and a means providing transverse adjustment of said stabilizer arms.

4,391,551

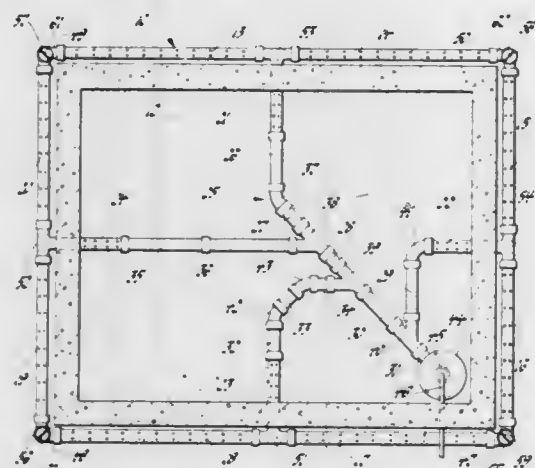
SNAKE CLEANABLE FLUID FLOW SYSTEM

Walter C. Belcher, 20221 Melvin, Livonia, Mich. 48152, assignor to Walter C. Belcher and Gloria Jeanne Belcher, both of Livonia, Mich.

Filed Mar. 3, 1980, Ser. No. 126,213
Int. Cl.³ F16L 45/00

U.S. Cl. 405—43

12 Claims



1. A snake cleanable fluid flow system comprising, in combination, a tee defined by a first passageway having first and second ends and a second passageway which intersects said first passageway; a baffle in said tee for deflecting a snake entering said tee first passageway first end and for deflecting a snake entering said tee first passageway second end into said second passageway; an elbow defined by a first passageway having first and second ends and a second passageway intersecting said elbow first passageway and having a cross section that includes first and second sides; a baffle in said elbow for deflecting a snake entering said first side of said elbow second passageway into said elbow first passageway first end and for deflecting a snake entering said second side of said elbow second passageway into said elbow first passageway second end; pipe means for connecting one of said elbow first passageway ends to one of said tee first passageway ends whereby a snake inserted in one side of said elbow first passageway is deflected by said elbow baffle through said elbow first passageway, said one elbow first passageway end, said pipe means and said one tee first passageway end and is deflected by said tee baffle into said tee second passageway.

4,391,552

APPARATUS AND METHOD FOR ELIMINATING CHAMPAGNE EFFECT IN COMPRESSED AIR ENERGY STORAGE SYSTEMS

John W. O'Hara, Concord, Calif., assignor to Bechtel International Corp., San Francisco, Calif.

Filed Aug. 24, 1981, Ser. No. 295,893
Int. Cl.³ B65G 5/00

U.S. Cl. 405—59

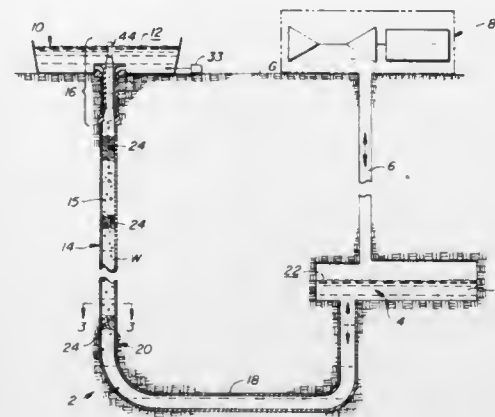
11 Claims

1. Apparatus for providing a continuous hydrostatic head in a compressed air energy storage system, said system including a water reservoir at ground level, an underground water stor-

age cavern, and a fluid path connecting the cavern and the reservoir, the apparatus comprising:

a generally vertical hydraulic compensating shaft defining at least a portion of said fluid path and having a central axis and an upper end fluidly communicating with the reservoir;

means for fluidly coupling a lower portion of said shaft to said cavern; and



at least one pressurized water discharge nozzle disposed adjacent an inner surface of said shaft at a discharge level spaced from the reservoir and oriented to discharge a stream of water into the shaft in a direction which imparts a rotary motion to a column of water in the shaft so that air bubbles in the water column collect in the vicinity of the axis of said shaft and a tubular column of water is formed which is relatively free of air bubbles and is disposed along walls of the shaft and above the nozzles.

4,391,553

HYDRAULIC CONTROL SYSTEMS FOR AND METHODS OF CONTROLLING THE OPERATION OF TUNNELLING APPARATUS

Walter Weirich, Dortmund, and Herbert Heitkamp, Werne, both of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalen, Fed. Rep. of Germany

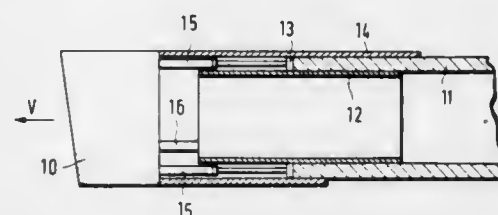
Filed Jul. 8, 1981, Ser. No. 281,385

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1980, 3025922

Int. Cl.³ E21D 11/00

U.S. Cl. 405—141

18 Claims



1. In or for tunnelling apparatus which employs a drive shield, a concrete-reception space defined rearwardly of the drive shield to receive concrete, during use, to produce a lining for the tunnel, the space being delimited at the front end by an annular member and double-acting hydraulic rams with first and second working chambers usable to position the annular member; an improved control system for controlling the operation of the rams, said system comprising pumping means for providing hydraulic pressure fluid for charging the working chambers of rams, said pumping means at least including a plurality of individual pump units and a main pump and means for selectively connecting the respective working chambers of the rams to the pump units and to the main pump, wherein the first working chamber of each ram receives pressure fluid from the main pump when the connecting means is set to make the annular member move up towards the drive shield and the second working chamber of said ram, which tends to decrease

in volume when the connecting means is thus set, is connected to a respective one of the pump units which then functions as a brake motor.

4,391,554

MOORING SYSTEM BEARING FOR A TENSIONED LEG PLATFORM

Darrell L. Jones, Ventura, Calif., assignor to Vetco Offshore, Inc., Ventura, Calif.

PCT No. PCT/US80/01025, § 371 Date Aug. 22, 1980, § 102(e)

Date Aug. 22, 1980, PCT Pub. No. WO82/00621, PCT Pub.

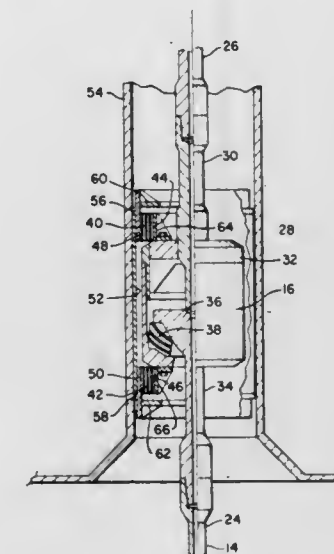
Date Mar. 4, 1982

PCT Filed Aug. 22, 1980, Ser. No. 266,023

Int. Cl.³ B63B 21/50

U.S. Cl. 405—224

10 Claims



1. A mooring system bearing apparatus for a tensioned leg platform having a vertical mooring tunnel through which the tension leg passes comprising: an upper tension leg connecting means; a lower tension leg connecting means; a universal flexible connector having an external body rigidly connected to said upper connector means, an internal body rigidly connected to said lower connector means, and means for conducting axial forces along the tension leg through the connector while permitting pivotal motion of the lower tension leg around the connector; at least one cylindrical elastomeric bearing having a first side attached to said external body; an elongated bearing sleeve surrounding said external body and attached to a second side of said elastomeric bearing, said sleeve sized and shaped to conform to the inside of said mooring tunnel.

4,391,555

PROCESS FOR CONSOLIDATING GEOLOGICAL FORMATIONS

Jacques Burger, Bougival; Charles Bardon, and Claude Gabelle, both of Rueil-Malmaison, all of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

Filed Dec. 24, 1980, Ser. No. 219,604

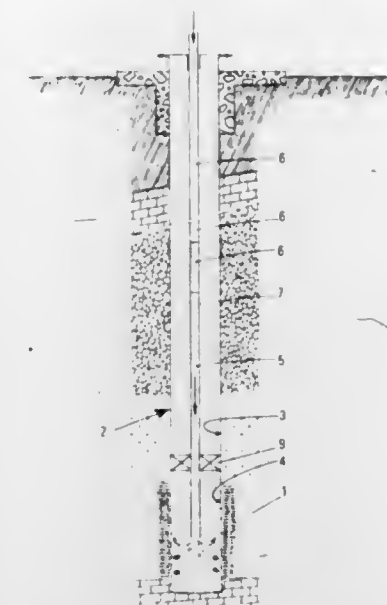
Claims priority, application France, Dec. 28, 1979, 79 32018

Int. Cl.³ E02D 3/12; E21B 33/138

U.S. Cl. 405—264

22 Claims

2. In a process for consolidating a geological formation comprising injecting into the formation a liquid organic mixture containing at least one polymerizable chemical compound, and injecting, in situ, at the contact of an oxidizing gas, to cause reactions starting at the normal temperature of the formation and leading to the production of a solid product which consolidates this formation without substantially reducing its permeability, the improvement wherein the organic



and (b) at least one of vanadium, manganese, iron, cobalt, or zinc.

4,391,556

PROCESS FOR CONSOLIDATING GEOLOGICAL FORMATIONS

Jacques Burger, Bougival; Charles Bardon, and Claude Gabelle, both of Rueil-Malmaison, all of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

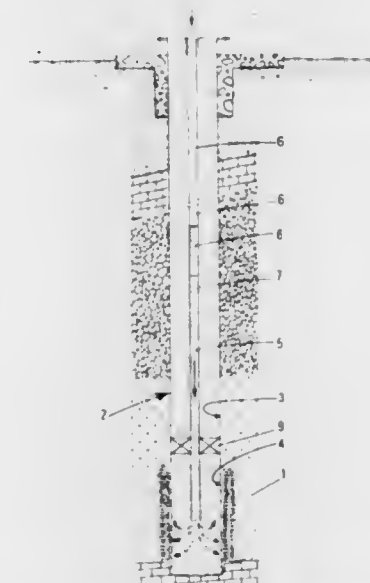
Filed Dec. 24, 1980, Ser. No. 219,605

Claims priority, application France, Dec. 28, 1979, 79 32017

Int. Cl.³ E02D 3/12; E21B 33/138

U.S. Cl. 405—264

16 Claims



6. In a process for consolidating a geological formation, comprising injecting into the formation a liquid organic mixture containing at least one polymerizable chemical compound and a catalyst, and injecting, in situ, an oxidizing gas, to cause reactions starting at the normal temperature of the formation and leading to the production of a solid product which consolidates this formation without substantially reducing its permeability, the improvement comprising employing as said catalyst, in combination: (a) lead and (b) at least one of nickel, copper or zinc.

4,391,557

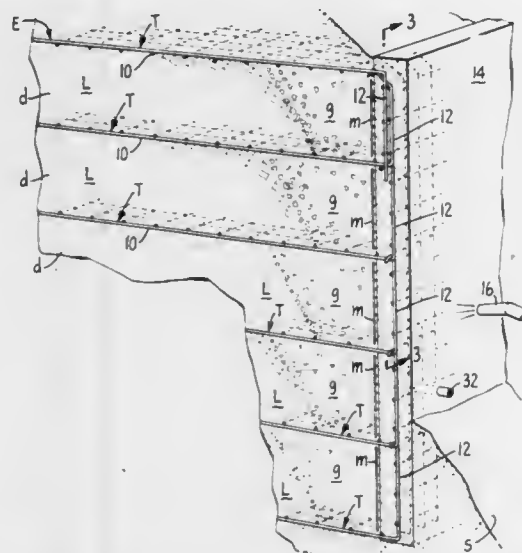
RETAINING WALL FOR EARTHEN FORMATIONS AND METHOD OF MAKING THE SAME

William K. Hilfiker, Eureka, Calif.; Harold O. Hilfiker, deceased, late of Eureka, Calif. (by Louise E. Hilfiker, executor), and William B. Hilfiker, Eureka, Calif., assignors to Hilfiker Pipe Co., Eureka, Calif.

Continuation-in-part of Ser. No. 56,826, Jul. 12, 1979, Pat. No. 4,329,089. This application Nov. 12, 1981, Ser. No. 320,326
Int. Cl.³ E02D 5/20, 29/02

U.S. Cl. 405—287

8 Claims



1. A retaining wall structure comprising: a generally rectangular steel wire tray defined by an elongate floor section extending over the length of the tray and a face section of a depth less than the length of the floor section extending at an angle relative to the floor section, said tray having longitudinal rods extending continuously over the length thereof and across said floor and face sections in spaced, generally parallel relationship to one another and cross rods welded to and extending transversely across said longitudinal rods in spaced relationship to one another; a screen disposed in spaced, generally parallel relationship to the face section to the side thereof from which the floor section extends, said screen being generally coextensive with the face section; and a concrete face coextensive with and cast around said face section, said face being disposed between the mat and face section and being of a thickness sufficient to extend beyond the side of the face section opposite that from which the floor section extends whereby the face section functions to reinforce the face.

4,391,558

DRILL JIG

LaRelle T. Perry, 104 30 W. Cut Off, Northboro, Mass. 01532
Filed Dec. 1, 1980, Ser. No. 211,505

Int. Cl.³ B23B 49/00

U.S. Cl. 408—110

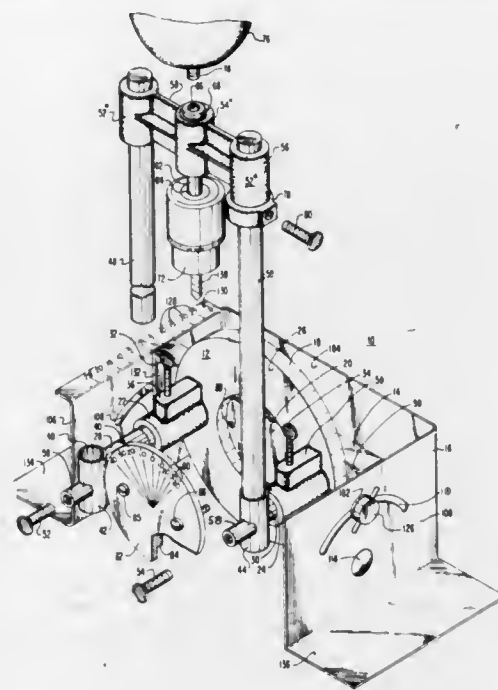
8 Claims

1. A portable drill jig for guiding a drill bit to bore holes in a surface at any preselected compound angle and supporting said drill bit and a hand drill having a driving shaft with a threaded end and an arbor for supporting said drill bit with a tapped opening for screwably engaging said threaded end for driving said drill bit comprising:

- a frame having bottom surfaces defining a bottom plane for seating upon said surface;
- a support member having a planar face, said support member being pivotally mounted on said frame for angular displacement in a first plane substantially orthogonal to said planar face;
- guide means for guiding said drill bit being linearly displaced relative to said frame in a second plane substantially orthogonal to said planar face of said support member; and
- means for pivotally mounting said guide means on said support member for angular displacement in a plane sub-

stantially parallel to said planar face of said support member,

said guide means comprising arbor extension means threaded at one end for screwably engaging the tapped opening of said arbor and tapped at the other end for screwably engaging the threaded end of said driving shaft and bearing means for rotatably supporting said arbor,



whereby linear displacement of said guide means relative to said frame with said arbor extension means screwably engaging said arbor and said drive shaft allows said drill bit to drill a hole in said surface at any preselected compound angle related to the angular displacement of said support member in said first plane and the angular displacement of said guide means in said plane substantially parallel to said planar face of said support member.

4,391,559

PLASTIC FASTENER

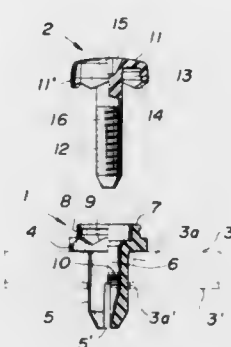
Akira Mizusawa, Fujisawa, Japan, assignor to Nifco Inc., Tokyo, Japan

Filed Jul. 28, 1980, Ser. No. 173,230

Int. Cl.³ F16B 13/04

U.S. Cl. 411—45

1 Claim



1. A plastic fastener comprising a female member provided with a flange, a leg extended downwardly from the lower side of the flange and adapted to permit increase in the outside diameter of the barrel portion thereof, and an insertion hole bored longitudinally along the axis of the leg downwardly from the upper surface of the flange and a male member provided with a head portion and a shaft portion extended downwardly from the lower side of the head portion and adapted to be inserted into the insertion hole of the female member, whereby panels put together face to face are brought into tight union by inserting the leg of the female member into through holes bored at exactly corresponding position in the panels and

subsequently forcibly driving the shaft portion of the male member into the insertion hole of the female member thereby keeping the leg in its radially expanded state, which plastic fastener is characterized by providing on the upper surface of the flange of the female member and on the lower surface of the head portion of the male member respectively a plurality of circumferentially spaced undulating cam surfaces disposed around the common axis of the two members and matched so that cam faces are brought into intimate contact at the time of forced driving of the male member and, at the time of release of the fast union of the panels, the cam faces are caused to slide on each other by a rotation of the male member and consequently the head portion of the male member is lifted from the upper surface of the flange of the female member, the shaft portion of the male member having thread configurations formed thereon and at least a portion of the internal wall of the female member including means to threadingly mate with said thread configuration to assist in the retraction of the male member, wherein the flange of the female member has a boss portion of the shape of a short circular column formed at the center on the upper surface thereof, an annular fitting recess formed on the peripheral surface of the boss portion and an undulated cam face formed in the upper surface encircling the boss portion, while the head portion of the male member is formed in the shape of a cap containing a descending rim capable of embracing said boss portion and has a fitting protuberance formed on the inner wall surface of the descending rim of the cap so as to be matched to the fitting recess and an undulated cam face formed on the lower surface of the descending rim so as to be matched to the undulated cam face on the flange, the axial dimension of the fitting recess and the fitting protuberance being substantially equal so as to be functionally interrelated with the undulating cam faces in that relative rotary movement between the male and female members releases the locking interengagement between said protuberance and recess.

4,391,560

LID INFEED FOR SPINNING ROD RESTACKER

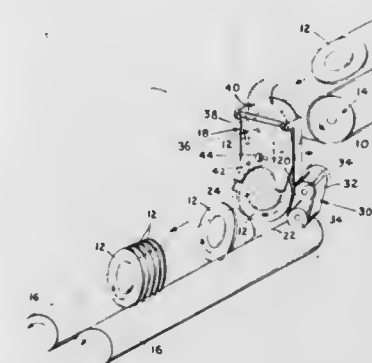
Carlos Fardin, Paterson, N.J., assignor to Van Dam Machine Corporation of America, West Paterson, N.J.

Filed Oct. 14, 1981, Ser. No. 311,217

Int. Cl.³ B65G 47/24

U.S. Cl. 414—107

15 Claims



1. An assembly for the transfer of container lids from the end-to-end prone disposition on a conveyor, to a stack thereof with the lids supported on their rims between at least two spinning rods rotating about a generally horizontal axis, comprising:

- A. at least one chute disposed adjacent and extending above said stack, having an upper and a lower vertical slideway, and an intermediate slideway defining a two dimensional forward incline, said incline in two adjacent perpendicular planes and at an acute angle with respect to the vertical dimension, to guide said container lids forward and sideways to said stack;
- B. at least one pair of side walls associated with said chute along at least a portion of the lateral periphery thereof, to

guide and retain said container lids as they pass along said slideways;

- C. at least one movable wall disposed with its longitudinal dimension at an acute angle with respect to the vertical, and proximate to one of said spinning rods, said movable wall having a movement complementary with the surface rotation of the proximate spinning rod, and positioned to receive and impart surface rotation to the rims of the descending container lids; and
- D. at least one horizontally pivotable gate located forward of said chute and in a plane generally parallel to said upper and said intermediate slideways, to retain said container lids traveling downwardly thereon.

4,391,561

SOLIDS PUMPING APPARATUS

Donald A. Smith, Haddam, Conn., and Bruce M. Pote, Playa del Rey, Calif., assignors to Combustion Engineering, Inc., Windsor, Conn.

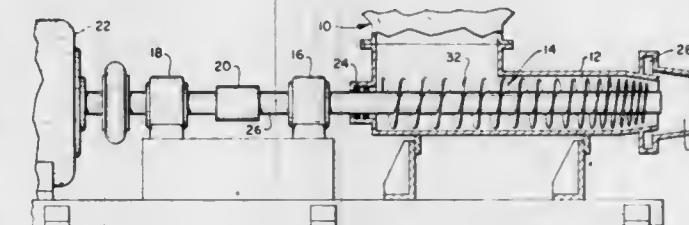
PCT No. PCT/US81/00485, § 371 Date Apr. 13, 1981, § 102(e) Date Apr. 13, 1981, PCT Pub. No. WO82/03615, PCT Pub. Date Oct. 28, 1982

PCT Filed Apr. 13, 1981, Ser. No. 343,688

Int. Cl.³ B65G 53/48

U.S. Cl. 414—218

12 Claims



1. An apparatus for feeding a granular material into a pressurized zone comprising: a stationary hollow cylinder having a bore; a frustoconical reducing nozzle located at a discharge end of said cylinder; means for feeding the granular material into said cylinder at an upstream located of said cylinder; a rotary feeder screw concentrically located within said cylinder and having helical flights thereon, said flights having a decreasing pitch towards the discharge end; means for rotating said feed screw at high speeds; said flights having an OD only slightly less than said bore through a majority of the length of said feed screw, and having a tapered decreasing OD at the discharge end, the taper being at least as great as that of said nozzle; said feed screw being located within said cylinder such that the radial clearance between the nozzle bore and the tapered flights is significantly greater than that between the bore of the cylinder and the flights through the majority of length, and the tapered flight extending through only a portion of said nozzle; and a columnar plug rotating with said screw and concentrically located with said nozzle.

4,391,562

ADJUSTABLE TRAILER DRAWBAR

Randall H. Hetzner, 6750 Holland Rd., Saginaw, Mich. 48601

Filed May 7, 1981, Ser. No. 261,734

Int. Cl.³ B60P 1/28; B60D 1/14

U.S. Cl. 414—483

8 Claims



1. In a trailer having a frame, ground engaging wheels, means mounting said wheels on said frame, a trailer bed, and a drawbar for coupling said frame to a towing vehicle, the improvement comprising an anchor member fixed to said frame

between its forward and rearward ends, said anchor member having a number of vertically spaced attachment points; means forming a fulcrum adjacent the forward end of said frame and on which said drawbar bears, said fulcrum being located at a level between those of the uppermost and lowermost of said attachment points thereby enabling said drawbar to rock about said fulcrum to a selected position in which its rearward end is at a level above, below, or corresponding to the level of said fulcrum; hitch means at the forward end of said drawbar for coupling the latter to said towing vehicle; and anchor means separably connecting said drawbar at its rearward end to said anchor member at a selected one of said attachment points, said one of said attachment points being so selected that said trailer bed is substantially horizontal when said drawbar is coupled to said towing vehicle.

4,391,563

BUCKET-POSITION INDICATOR ASSEMBLY

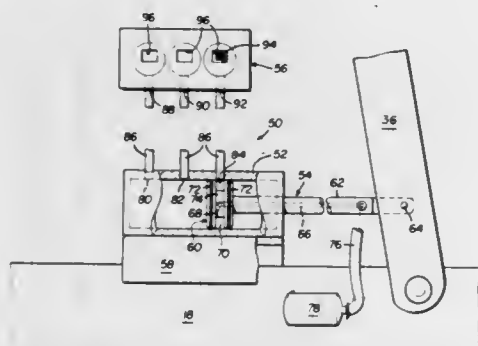
Francis H. Vietor, Terre Haute, Ind., assignor to J. I. Case Company, Racine, Wis.

Filed Aug. 31, 1981, Ser. No. 297,890

Int. Cl.³ B23Q 19/00

U.S. Cl. 414-698

1 Claim



1. In a front end loader including an elongated main body having an operator's compartment mounted thereon, a pair of lift arms pivotally connected to said main body and a bucket rotatably mounted between said lift arms, said bucket being rotated by a plural element linkage to various positions during its work cycle including rollback, level, and rollout positions, the improvement comprising:

a bucket position indicator assembly including a fluid cylinder, a slidable actuator, and an indicator panel, said indicator panel being mounted within said operator's compartment, said fluid cylinder being attached to one of said lift arms, said actuator comprising a piston which is slidably mounted within said fluid cylinder and a rod member connected to said piston and also pivotally attached to one of said linkage elements for reciprocal movement in response to rotational movement by said bucket, said piston being slidably movable within said fluid cylinder in response to rotational movement of said bucket during its work cycle, said rod member including an interior bore which is open at one end for permitting fluid pressure to escape into a sealed fluid chamber formed partially by a recess in said piston surrounded by sealing means carried by said piston and partially by said cylinder, and means for constantly communicating fluid pressure to the other end of said interior bore;

said fluid cylinder including a plurality of orifices along its length which are connected by conduits to corresponding fluid inputs at said indicator panel, said sealed fluid chamber becoming aligned with one of said orifices when said bucket is in each of the rollback, level, or rollout positions thereby permitting fluid pressure to be applied to only a corresponding one of said indicator panel inputs, indicator members movably mounted within said indicator panel, said indicator members being movable between non-visible and visible positions, each indicator member being in fluid communication with only one of said inputs to said indicator panel, only one of said indicator members be-

coming visible to an operator when fluid pressure enters a corresponding indicator panel input thereby indicating to the operator that the bucket is in either its rollback, level, or rollout position.

4,391,564

EXHAUST PIPE OF TURBINE

Anatoly V. Garkusha, ulitsa 23 Avgusta, 63, kv. 82, and Vladimir E. Dobrynin, pereulok Zernovoi, 6/4, kv. 49, both of, Khar-kov, U.S.S.R.

PCT No. PCT/SU79/00116, § 371 Date Jul. 27, 1980, § 102(e) Date Jul. 23, 1980, PCT Pub. No. WO80/01093, PCT Pub. Date May 29, 1980

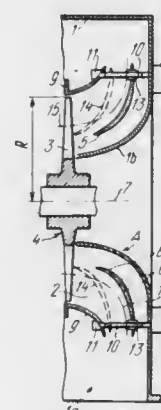
PCT Filed Nov. 27, 1979, Ser. No. 198,108

Claims priority, application U.S.S.R., Nov. 27, 1978, 2689216

Int. Cl.³ F01D 25/24, 25/30

U.S. Cl. 415-126

19 Claims



1. An exhaust pipe for a turbine having a given axial thermal expansion and a last stage including a runner terminating outwardly in blades, comprising:

a housing having walls defining a flow duct;
a baffle in said duct;
said baffle having a side surface in the form of a surface of revolution and an inlet portion having a radius shorter than the outer radius of said blades of said runner;
said baffle having the longitudinal axis thereof substantially coincident with the axis of said turbine; and
guide means mounted in said duct for adjustably supporting said baffle relative to said housing in a direction axial and transversal of said axis of said turbine.

4,391,565

NOZZLE GUIDE VANE ASSEMBLIES FOR TURBOMACHINES

Trevor H. Speak, Gloucestershire, England, assignor to Rolls-Royce Limited, London, England

Filed May 22, 1981, Ser. No. 266,493

Claims priority, application United Kingdom, May 31, 1980, 8017888

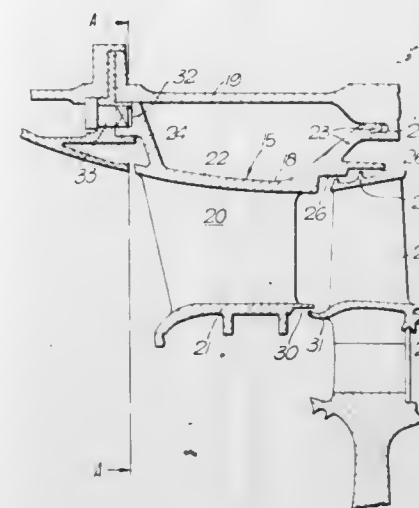
Int. Cl.³ F01D 9/04

U.S. Cl. 415-189

3 Claims

1. A guide vane assembly for a turbomachine comprising a plurality of segments, each segment having one or more guide vanes and each segment being mounted in an outercasing by means of a pin located in a slot wherein either the slot is provided in each segment and each pin is carried in the outercasing or the slot is in the outercasing and each pin is carried by each segment, each slot being angled to a radial plane relative to the segment so that, in use, forces due to the gas loads acting on each segment are reacted by a force exerted by the pin in a direction normal to the length of the slot, the radially inward component of the force exerted by each pin and the

radially outward component of the gas load produces a first couple on the segment that opposes a second couple produced



on the segment by the tangential component of the gas loads and the tangential component of the force exerted by the pin.

4,391,566

DIFFUSER AND EXHAUST GAS COLLECTOR ARRANGEMENT

Tousaku Takamura, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

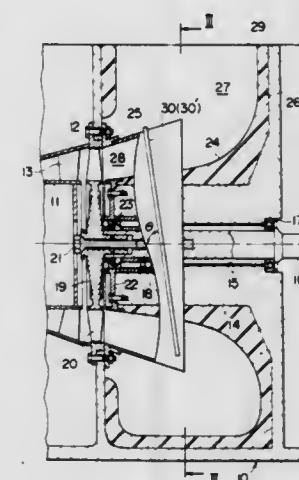
Filed Nov. 3, 1980, Ser. No. 203,381

Claims priority, application Japan, Nov. 14, 1979, 54-146444

Int. Cl.³ F01D 25/30; F04D 29/44

U.S. Cl. 415-209

2 Claims



1. A gas turbine engine comprising a diffuser composed of inner and outer wall members having a common center axis and radially spaced apart from each other for forming therebetween a diffuser chamber having an annular cross section and axially opposite gas inlet and outlet ends, the outer wall member having a generally frusto-conical peripheral surface axially enlarging in diameter from the gas inlet toward the gas outlet end of the diffuser chamber, a stationary casing structure housing therein said diffuser to form an exhaust gas collector chamber surrounding said outer wall member and having a gas discharge end directed substantially perpendicularly to said common center axis, and a pair of ribs extending arcuately on the outer peripheral surface of said outer wall member and curved about said center axis, wherein each of said ribs has an outer peripheral end extending with a radius of curvature which is gradually reduced toward said gas discharge end of said exhaust collector chamber.

4,391,567

CORROSION PREVENTING DEVICE FOR A MARINE PROPELLER

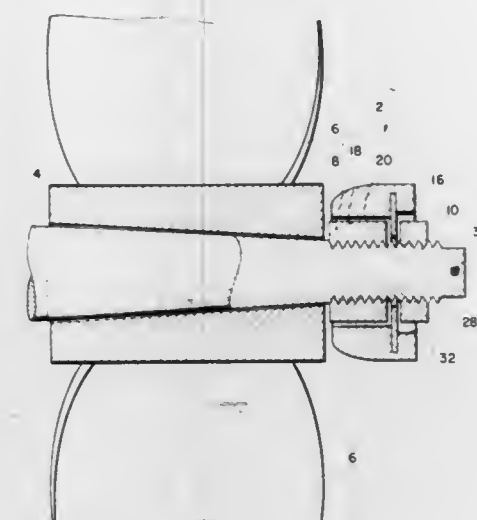
Dominick Ciampolillo, 5300 95th St., N., St. Petersburg, Fla. 33708

Filed May 4, 1981, Ser. No. 259,811

Int. Cl.³ B63L 1/18

U.S. Cl. 416-146 R

2 Claims



1. A corrosion preventing device for mounting in sea water on an electrically conductive propeller shaft supporting a marine propeller composed of a metal having a first galvanic potential, the propeller being fastened to the shaft by an electrically conductive propeller nut, and in electrical contact therewith, comprising:

an annular washer having a generally circular raised rim about the periphery thereof forming a generally cup-shaped surface, composed of a metal having a second galvanic potential not greater than said first galvanic potential, with a central hole concentric with the circular axis thereof through which said shaft may fit to enable electrically conductive mounting proximate to said propeller nut, for serving as an electrolytic cathode of the device;

a generally toroidal anode having a circular periphery concentric with said axis, composed of a metal having a third galvanic potential greater than said first galvanic potential, cast about said rim on the periphery of said annular washer and exposed to said sea water, for serving as an electrolytic, sacrificial anode of the device;

said rim of said annular washer providing centripetal support to said toroidal anode to prevent the anode from mechanical disintegration during rotation at high angular velocities while the anode is in a state of protracted sacrificial corrosion.

4,391,568

GAS COMPRESSOR

William L. Tenney, Crystal Bay, Minn. 55323

Continuation of Ser. No. 917,185, Jun. 6, 1978, abandoned. This application Feb. 25, 1981, Ser. No. 238,011

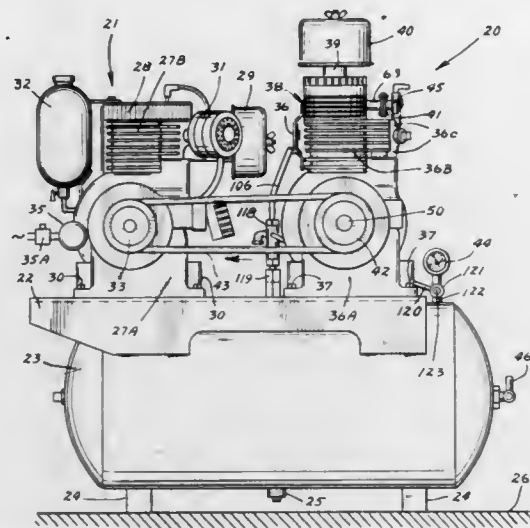
Int. Cl.³ F04B 41/04, 17/00

U.S. Cl. 417-237

13 Claims

1. A system for compressing and delivering partly cooled gas to a desired location, comprising: a tank for storing compressed gas, a platform secured to the tank, a conventional air cooled four-cycle single cylinder internal combustion engine mounted on the platform, a gas compressor mounted on the platform whereby the tank, platform, engine, and compressor form a unit-handled assembly, means drivably connecting said engine to said gas compressor whereby the engine drives the gas compressor, said compressor comprising engine components of an identical air cooled four-cycle single cylinder internal combustion engine including a crankcase assembly, a cylinder attached to the crankcase assembly, a piston, said cylinder

having a bore accommodating said piston, crankshaft means connected to the piston, and blower means connected to the crankshaft means for moving aspirated air toward the cylinder, shroud means surrounding the blower means for directing air toward the cylinder, and compressor components including a valve assembly mounted on the upper end of said cylinder for controlling the flow of gas into and out of the bore in response to movement of the piston therein, head means located in superposed engagement with said valve assembly, said valve assembly spacing the head means from said cylinder to form an open space between the head means and said cylinder to minimize the transfer of heat from the head means to said cylinder, said head means having a gas inlet port and a compressed gas



discharge port in cooperative relationship to said valve assembly for gas flow control, means to connect the head means to the cylinder and secure the valve assembly therebetween, an after cooler conduit connected to said head discharge port for carrying hot compressed gas from said head means to the tank, said conduit including an arcuate portion disposed in circumambient relation to said blower means in the inlet path of the aspirated air theretoward, and shield means connected to the shroud means centrally of said arcuate portion of the conduit in spaced relation to said shroud means and blower means for confining said aspirated inlet air flow substantially radially inwardly over and around said arcuate conduit portion toward said blower means.

4,391,569

POSITIVE DISPLACEMENT PUMP SYSTEMS

Ian T. Bristow, Higham, and Alec Thorne, Chatham, both of England, assignors to Hobourn-Eaton Limited, Rochester, England

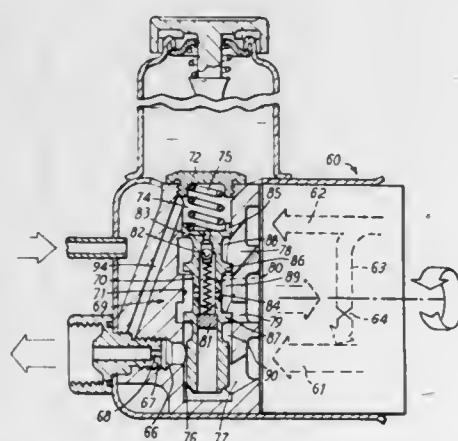
Filed Dec. 10, 1979, Ser. No. 101,791

Claims priority, application United Kingdom, Dec. 13, 1978, 48271/78

Int. Cl.³ F04B 47/00

U.S. Cl. 417—302

21 Claims



1. A positive displacement pump system having first and second delivery passages for first and second flows of pumped

fluid respectively, a main discharge passage for pumped fluid, overspill ducting, and valve means comprising a control valve controlling the apportionment of the first flow between the main discharge passage and the overspill ducting as a function of the delivery pressure of the first flow in a sense to increase the proportion of the first flow by-passed to the overspill ducting as said pressure increases and to decrease the proportion of the first flow by-passed to the overspill ducting as said pressure decreases, a transfer passage through which fluid can flow from the second delivery passage to join the first flow, said valve means further comprising a transfer valve controlling, as a function of the delivery pressure of the first flow, the apportionment of the second flow between the overspill ducting and said transfer passage, the proportion of the second flow by-passed to the overspill ducting increasing with increase of the delivery pressure of the first flow and decreasing with decrease of the delivery pressure of the first flow.

4,391,570

APPARATUS FOR COOLING A CEILING MOUNTED FAN MOTOR

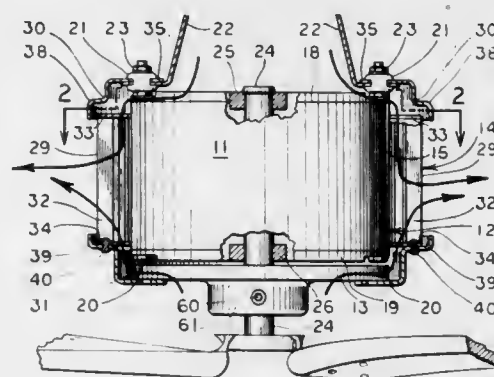
Clarence Stutzman, 1429 Reedsburg North, Wooster, Ohio 44691

Filed Apr. 29, 1981, Ser. No. 258,669

Int. Cl.³ F04B 17/00, 35/04

U.S. Cl. 417—353

8 Claims



1. An apparatus for cooling a motor having a housing within which all windings are enclosed, the housing having a substantially cylindrical side and two end plates, each end plate having bearing means mounted centrally therein, the motor having a rotatable shaft journaled in the bearing means, comprising: annular top cap means in concentrically fixed spatial relation with one of the end plates, annular bottom cap means in concentrically rotatable spatial relation with the other of the end plates, fan means for simultaneously drawing cooling air through the inner peripheries of said top and bottom cap means in the vicinity of said bearing means, across both ends of the housing and the side of the housing and forceably discharging said air laterally away from the side of the housing.

4,391,571

PUMPING APPARATUS FOR PUMPING LIQUIDS SUCH AS SLURRIES

Thomas A. Craggs, 49, Pacific Rd., Trentham, Stoke-on-Trent, Staffordshire, England

PCT No. PCT/GB79/00163, § 371 Date Jun. 13, 1980, § 102(e) Date Jun. 13, 1980, PCT Pub. No. WO80/00867, PCT Pub. Date May 1, 1980

PCT Filed Oct. 12, 1979, Ser. No. 193,188

Claims priority, application United Kingdom, Oct. 14, 1978, 40592/78

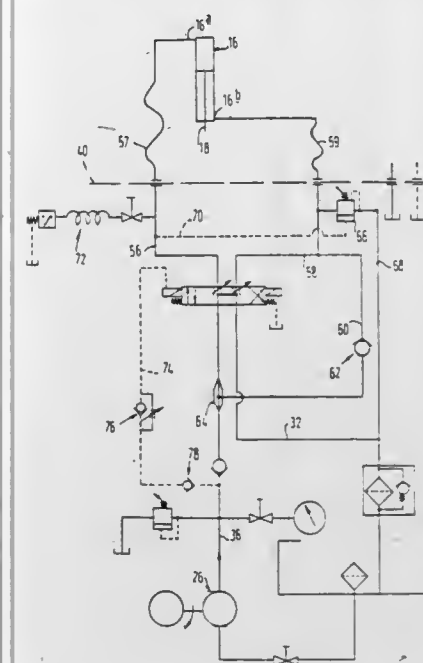
Int. Cl.³ F04B 17/00

U.S. Cl. 417—403

12 Claims

3. Apparatus for use in the pumping of a slurry and comprising a pumping device comprising a cylinder and a piston

mounted therein, and which is operative to cause liquid to be drawn through an inlet port of the cylinder and expelled through an outlet port thereof, an operating device comprising a cylinder and a piston mounted therein, a fluid pressure circuit which includes a fluid sump, a pump operative to pump fluid under pressure to the operating device, and valve mechanism operative to control the admission of fluid under pressure to



the operating device, and a connecting member extending between the piston of the pumping device and the piston of the operating device, wherein during an initial part of each pumping operation of the apparatus, part of the fluid flowing from the low pressure side of the fluid pressure circuit is returned directly to the high pressure side of the fluid pressure circuit, and part is returned to the sump of the fluid pressure circuit.

4,391,572

ANGULAR POSITION BELT VALVE PUMP

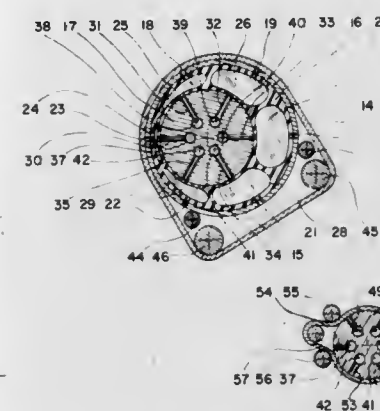
Hyok S. Lew, 7890 Oak St., Arvada, Colo. 80005

Filed Nov. 12, 1980, Ser. No. 206,302

Int. Cl.³ F01C 5/00, 21/12; F04B 43/12; F16K 3/26

U.S. Cl. 418—45

3 Claims



1. An angular position belt valve pump or motor comprising: (a) an angular position belt valve including:

- (1) a first rotatable circular cylinder including a plurality of axial holes, each of said axial holes having one or more openings to the cylindrical surface of said first rotatable circular cylinder;
- (2) a first belt wrapped around said first rotatable circular cylinder over a wrap angle less than 360 degrees;
- (3) first one or more idlers training the path and the wrap angle of said first belt; wherein, the plurality of said one or more openings disposed on said cylindrical surface of said first rotatable circular cylinder and connected to each of said plurality of axial holes become cyclically open and closed as said plurality of said one or more openings be-

come wrapped and unwrapped by said first belt when said first rotatable circular cylinder is rotated;

(b) a pumping assembly including:

- (1) a second rotatable circular cylinder rigidly connected to said first rotatable circular cylinder of said angular position belt valve in a coaxial relationship wherein said plurality of the axial holes included in said first rotatable circular cylinder extend to said second rotatable circular cylinder;
- (2) a circular cylindrical shell disposed around said second rotatable circular cylinder in an eccentric relationship;
- (3) a plurality of the expanding-contracting chambers disposed intermediate said second rotatable circular cylinder and said circular cylindrical shell; each of said plurality of the expanding-contracting chambers including one or more openings to each of said axial holes and one or more openings to the cylindrical surface of said circular cylindrical shell;
- (4) a second belt wrapped around said circular cylindrical shell over a wrap angle less than 360 degrees; and
- (5) second one or more idlers training the path and the wrap angle of said second belt and maintaining the eccentric position of said circular cylindrical shell with respect to said second rotatable circular cylinder wherein the expanding chamber of said plurality of the expanding-contracting chambers takes in the fluid medium through said one or more openings to the cylindrical surface of said first rotatable circular cylinder unwrapped by said first belt and the contracting chamber of said plurality of the expanding-contracting chambers discharges the fluid medium through said one or more openings to the cylindrical surface of said circular cylindrical shell unwrapped by said second belt when said first and second rotatable cylinders are rotated.

4,391,573

HORIZONTAL ROTARY COMPRESSOR WITH OIL FORCED BY GAS DISCHARGE INTO CRANKSHAFT BORE

Hideharu Tanaka, Amagasaki; Koji Ishijima, and Toshihide Koda, both of Shizuoka, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 99,727, Dec. 4, 1979, Pat. No. 4,355,963.

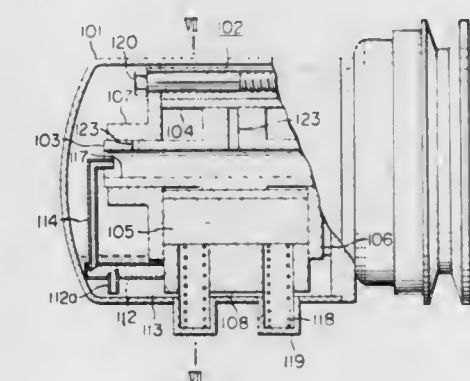
This application Aug. 25, 1981, Ser. No. 296,054

Claims priority, application Japan, Dec. 28, 1978, 53-166076; Jan. 5, 1979, 54-512

Int. Cl.³ F04C 18/00, 29/02; F16N 7/30, 21/00

U.S. Cl. 418—63

2 Claims



1. A horizontal rotary type compressor comprising:

- a closed shell;
- a rotary compression unit housed within said closed shell, said rotary compression unit having a cylinder, a cylinder head and a frame enclosing both ends of said cylinder, a piston eccentrically rotatable in said cylinder about an axis extending horizontally, a crankshaft fitted in said piston and having a central axial lubrication bore, and a vane dividing the space defined within said cylinder by said

piston, cylinder head and frame into a suction and a compression chamber;
 said rotary compression unit further having a refrigerant discharge port;
 a refrigerant gas discharge pipe connected at one end to said refrigerant gas discharge port and having the other end below the surface level of lubricant oil accumulated in the bottom of said closed shell and having the downstream end closed;
 a lubricant oil-gas feed tube having one end opening into said closed downstream end and having the other end opening into said central lubrication bore in said crankshaft, a suction pipe extending downwards into the space where oil is accumulated in said closed shell and closely adjacent to the closed end of the closed downstream end of said refrigerant gas pipe and having the upper end obliquely cut and with the opening facing downstream in the refrigerant gas flow for generating a negative dynamic pressure due to refrigerant gas flow and facing said one end of said lubricant oil-gas feed pipe, whereby lubricant oil accumulated in the bottom of said closed shell is supplied to said lubrication bore in said crankshaft through said refrigerant gas discharge pipe.

4,391,574

ROTARY POSITIVE DISPLACEMENT MECHANISM

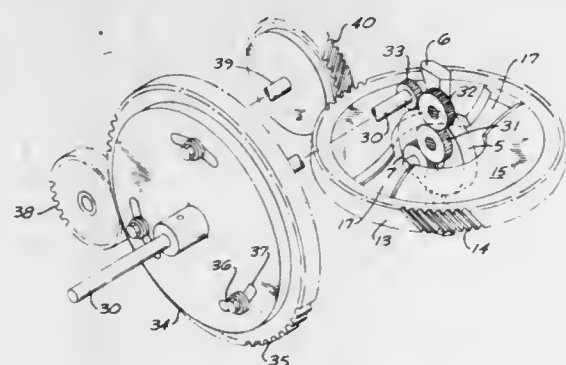
Louis W. Medel, Jr., Sylmar, and Yoram Barak, Woodland Hills, both of Calif., assignors to Helen H. Noga, Los Angeles, Calif., a part interest

Filed Mar. 13, 1980, Ser. No. 130,191

Int. Cl.³ F01C 3/02

U.S. Cl. 418—195

6 Claims



1. A rotary positive displacement device having a housing: a first cylindrical chamber and a second cylindrical chamber in said housing, a first rotor and a second rotor rotatable within said first and second chambers, respectively, each said rotor being rotatable about the same center point, said first rotor rotating in a plane which is substantially perpendicular to the plane in which said second rotor rotates; a thrust bearing within said second chamber upon which said second rotor rotates; said first rotor comprising a rotor body having a plurality of vanes extending outwardly therefrom; said second rotor having a rim gear with a plurality of vanes extending inwardly therefrom, said second rotor vanes being designed and constructed to create a void space between them, said void space comprising a center circular space and a plurality of outer spaces, said center space being of sufficient diameter to allow said first rotor body to rotate therein; and said outer spaces being of sufficient size to allow said first rotor vanes to pass therethrough; said outer spaces being broadly hyperbolic in shape; each said vane having a leading and trailing edge, and each said edge being arcuate in shape and having a knife-like configuration such that there is substantial continuous meshing between corresponding said first and said second rotor vanes during interdigitation when said rotors are rotated in either direction to reduce fluid backpressure.

4,391,575
 KITCHEN APPLIANCE FOR MAKING FARINACEOUS PRODUCTS

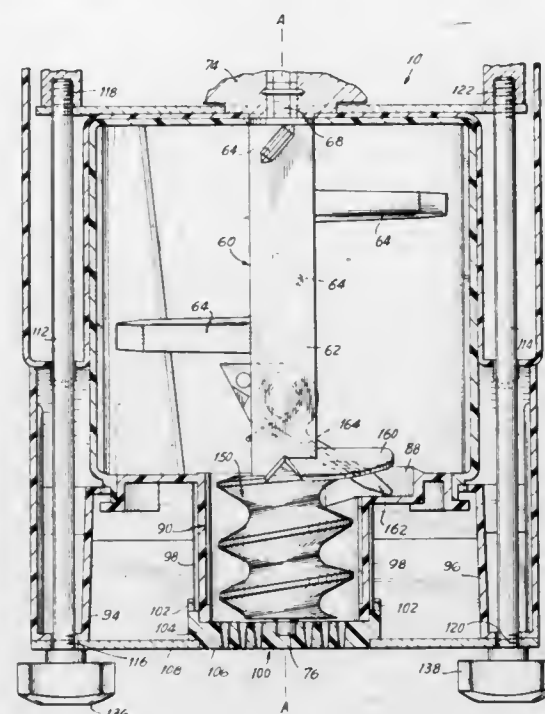
Harold Osrow, Dix Hills, N.Y., assignor to Osrow Products Corp., Old Bethpage, N.Y.

Filed Sep. 5, 1980, Ser. No. 184,351

Int. Cl.³ B29B 1/06

U.S. Cl. 425—190

21 Claims



1. A kitchen appliance for making farinaceous products such as spaghetti, fettucini, macaroni, manicotti, lasagna, pizza crusts, taco shells, bagels, breadsticks and like dough food-stuffs, comprising:

- (a) a housing having a mixing chamber for receiving the ingredients of a selected farinaceous product to be made, said housing having a bottom wall;
- (b) mixer means for mixing the ingredients, including a mixer shaft mounted in the mixing chamber for rotation about a generally horizontal axis of rotation, and at least one mixer element mounted on the mixer shaft for joint rotation therewith to mix the ingredients;
- (c) an extruding chamber mounted on the housing in axially spaced relationship with the mixing chamber, said housing having a discharge outlet and a bottom wall elevated above the bottom wall of the mixing chamber;
- (d) wall means bounding a feed chamber located intermediate of, and in open communication between, the mixing chamber and the extruding chamber, said feed chamber having a raised entry zone located above said axis of rotation;
- (e) stuffer means mounted on the mixer shaft for joint rotation therewith, and operative for raising the mixed ingredients above said axis of rotation, and for feeding the raised ingredients in metered manner into the raised entry zone for subsequent passage to the extruding chamber;
- (f) extruder means for extruding the mixed ingredients from the discharge outlet, including an extruder screw mounted in the extruding chamber for rotation about said axis of rotation, said extruder screw and said mixer shaft extending co-linearly along, and being jointly rotatable about, said same axis of rotation; and
- (g) drive means for jointly turning the mixer shaft, the stuffer means, and the extruder screw simultaneously about said same axis of rotation in a predetermined circumferential direction to effect mixing only of the ingredients, and at the user's option, in the circumferential direction opposite to the predetermined direction to effect lifting of the mixed ingredients, depositing of the mixed ingredients into the raised entry zone in a metered manner, and extrusion of the farinaceous product to be made through the discharge outlet, said drive means including a reversible

electrical motor and actuating means for energizing the motor to turn the mixer shaft and the extruder screw in either one of the predetermined and opposite circumferential directions, whereby farinaceous products can be made in the kitchen in small-scale quantities.

4,391,576

ROTARY DRUM DOUGH DIVIDER

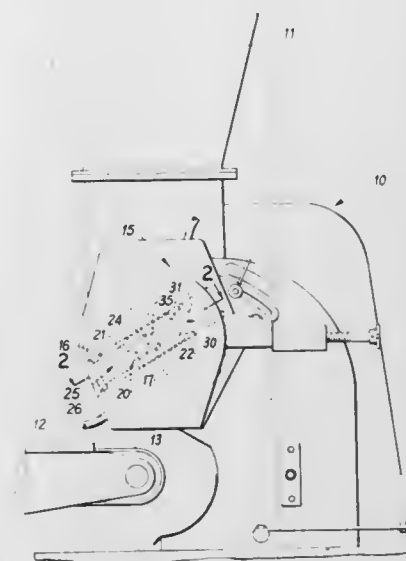
Donald L. Cummins, Mechanicsville, Va., assignor to AMF Incorporated, White Plains, N.Y.

Filed Dec. 28, 1981, Ser. No. 334,766

Int. Cl.³ A21C 5/04; B29C 1/00

U.S. Cl. 425—241

11 Claims



1. A piston assembly for a transverse through bore cylinder with diametrically opposed slots and a pair of ports each spaced outwardly from opposite ends of the slots in the drum of a rotary drum dough divider, comprising:

- a sleeve removably fixed against movement relative a wall of said cylinder and equally spaced from the ends of said cylinder;
- said sleeve having a pair of end walls engaging and forming with the wall of said cylinder a pair of axially spaced sealed interfaces each between opposite ends of the slots and a different one of the pair of ports;
- a double ended piston having a rod extending through said sleeve and a head connected to each end of said rod to reciprocate in said cylinder between two terminal positions with one of said heads being flush with the surface of the drum in one terminal position and the other of said heads being flush with the surface of the drum in the other terminal position;
- said piston rod being formed by two rod portions each being connected at one end to a different one of said heads; and the adjacent ends of said rod portions being interfitted and connected together by means extending through said slots and being movable axially in said cylinder to reciprocate said piston.

4,391,577

INSTALLATIONS FOR THE HANDLING OF MOLDS
 ASSOCIATED WITH A TRANSFER PRESS

Juan J. Molina Bonillo, Barcelona, Spain, assignor to G. Siempelkamp GmbH & Co., Krefeld, Fed. Rep. of Germany

Filed Feb. 8, 1982, Ser. No. 347,036

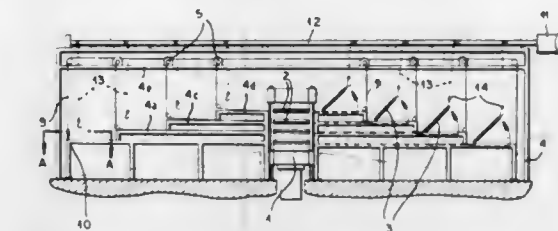
Claims priority, application Spain, Feb. 10, 1981, 499,281

Int. Cl.³ B29C 3/00

U.S. Cl. 425—338

8 Claims

1. An apparatus for the handling of the molds of a transfer type press having a plurality of levels comprising channels flanking said press at each level thereof for guiding the dis-



said press, whereby the respective molds on any level are offset from the respective molds on any other level.

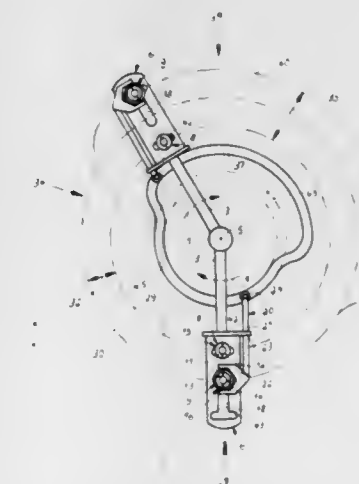
4,391,578

MACHINE FOR THE PRODUCTION OF HOLLOW ARTICLES IN AT LEAST ONE MULTIPLE MOLD
 Lothar Schaar, Heuerssen, Fed. Rep. of Germany, assignor to Hermann Heye, Obernkirchen, Fed. Rep. of Germany
 Continuation of Ser. No. 955,474, Oct. 26, 1978, abandoned, which is a division of Ser. No. 900,770, Apr. 27, 1978, abandoned. This application Sep. 8, 1980, Ser. No. 184,891
 Claims priority, application Fed. Rep. of Germany, May 5, 1977, 2720129

Int. Cl.³ B29C 17/07; C03B 9/193

U.S. Cl. 425—525

1 Claim



1. In a multiple neck mold machine having a pressing station in which a gob of plastic material fed to each neck mold is transformed into a parison carried by the respective neck mold, and also a finish forming station in which each parison is formed into a hollow article of larger diameter than the parison, a combination comprising an elongated carrier; a first neck mold mounted in a stationary position on said carrier; a second neck mold mounted on said carrier and movable in longitudinal direction of the latter relative to said stationary neck mold; means for moving said carrier along a predetermined path between said pressing station and said finish forming station; means cooperating with said movable neck mold for automatically increasing the center distance between said neck molds in dependence on the movement of said carrier from said pressing to said finish forming station; said center distance increasing means including stationary cam track means and cam follower means engaged in said cam track means and connected to said movable neck mold; and wherein said means for moving said carrier along said predetermined path comprises an arm connected at one end to said carrier and being turnable at the other end about a fixed axis normal to said arm so as to move said carrier along a circular path, said cam track means being located radially inwardly of said circular path and having a first portion concentric with said axis and a second portion likewise concentric with said axis but of a different radius than said first portion, and connected at opposite ends to said first portion, said center distance increasing

means including an operating rod connecting said cam follower with said movable neck mold.

4,391,579

HOT SPRUE VALVE ASSEMBLY FOR AN INJECTION MOLDING MACHINE

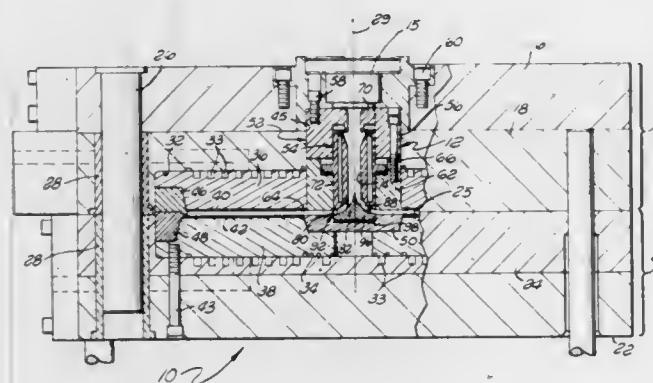
Rocky V. Morrison, Redondo Beach, Calif., assignor to Discovision Associates, Costa Mesa, Calif.

Filed Sep. 23, 1981, Ser. No. 304,421

Int. Cl.³ B29D 17/00

U.S. Cl. 425—548

7 Claims



1. A mold assembly for an injection molding machine, comprising:

first and second mold halves movable toward each other to a closed position defining a disc-shaped mold cavity, and movable away from each other to an open position allowing a molded disc to be removed from said mold cavity; a valve body mounted on said first mold half and having a central opening formed therein;

a valve member carried within the central opening for sliding movement toward and away from the mold cavity, said valve member including a sprue bushing having a central bore formed therein for passage of the material toward the mold cavity, and a dispersion head cooperating with said sprue bushing for defining an annular and radially outwardly open gate passage for flow of material from the bore into the mold cavity;

means for controlling movement of said valve member between a first position with said dispersion head advanced at least partially through the mold cavity and said gate passage aligned with the mold cavity for flow of the material into the mold cavity when said first and second mold halves are in said closed position, and a second position with said gate passage retracted from alignment with the mold cavity and said dispersion head positioned generally within the mold cavity to mold a central aperture into the disc prior to solidification of the material within the mold cavity while said first and second mold halves are still in said closed position; and means defining a recess formed in said second mold half for receiving said dispersion head when said valve member is in said second position.

6. In an injection molding machine for producing centrally apertured record discs, a valve assembly for controlling flow of molten disc-forming material into a disc-shaped mold cavity, comprising:

first and second mold halves movable toward each other to define the mold cavity and movable away from each other to allow a disc to be removed from the mold cavity; a valve body secured to said first mold half and having a central opening formed therein; a valve member carried within the central opening for sliding movement toward and away from the mold cavity, said valve member including a sprue bushing having a central bore formed therein for passage of the material toward the mold cavity, and a dispersion head cooperating with said sprue bushing for defining an annular and

radially outwardly open gate passage for flow of material from the bore into the mold cavity; means for controlling movement of said valve member between a first position with said dispersion head advanced at least partially through the mold cavity and said gate passage aligned with the mold cavity for flow of the material into the mold cavity, and a second position with said gate passage retracted from alignment with the mold cavity and said dispersion head positioned generally within the mold cavity to mold a central aperture into the disc prior to solidification of the material within the mold cavity; and said second mold half including means for receiving said dispersion head when said valve member is in said second position.

4,391,580

LIQUID FUEL SUPPLY SYSTEM FOR AN ATOMIZATION BURNER NOZZLE

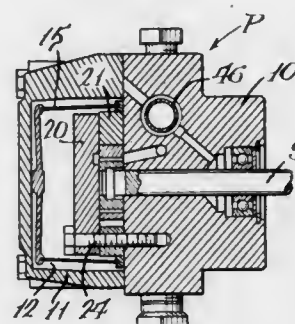
Dale L. Hunsberger, and Frank L. Harwath, both of Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Dec. 8, 1980, Ser. No. 213,923

Int. Cl.³ F23C 11/00; F04C 29/08

U.S. Cl. 431—1

15 Claims



1. A liquid fuel supply system for an atomization burner having a nozzle comprising, a fuel pump having a pair of rotatable gears for pumping fuel from a pump inlet port to a pressure port with a pressure pulse created each time a tooth of one gear makes full penetration into the space between a pair of teeth on the other gear, a passage in said pump, a fluid outlet from the pump connected to said passage and adapted for connection to said nozzle, and means for pulsing fluid flow to the nozzle by alternately connecting said passage to said pressure port at the time of a pressure pulse and to the fuel pump inlet port with the pressure peak of the pulsed flow being phased together with said pressure pulse.

4,391,581

FLUID COOLED BURNER STRUCTURE

Lloyd W. Daman, Pemberville, and Donald E. Shamp, Millbury, both of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Dec. 8, 1980, Ser. No. 214,350

Int. Cl.³ F23D 11/36

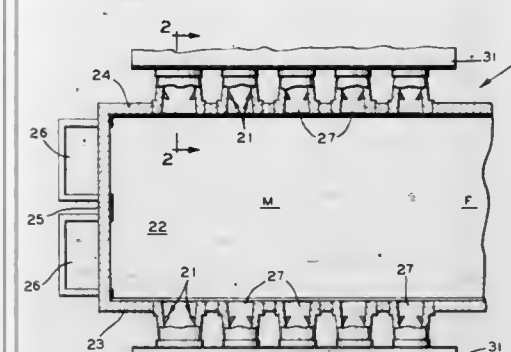
U.S. Cl. 431—160

4 Claims

1. A fuel burner adapted to extend through an opening in a wall of the tunnel connecting a port with the checkers of a regenerative-type glass melting furnace comprising:

a. an elongated fuel supply tube having an open angled end portion for emitting fuel therefrom; b. a tubular jacket concentrically surrounding a portion of said fuel supply tube and extending from said angled end portion; c. first and second closure members for closing the ends of the space between the fuel supply tube and said jacket for forming a chamber therebetween, said first closure member having a first planar portion with an aperture therein aligned with the open angled end of said fuel supply tube and extending perpendicularly thereto and a second pla-

nar portion extending perpendicular to a portion of said tubular jacket; d. a pair of longitudinal vanes oppositely disposed within the space between said fuel supply tube and said jacket and



extending from said second closure member to a point adjacent to but spaced from said first closure member; and e. means for circulating a coolant within the chamber of said jacket.

4,391,582

FUEL NOZZLE WITH CONCENTRIC IGNITOR

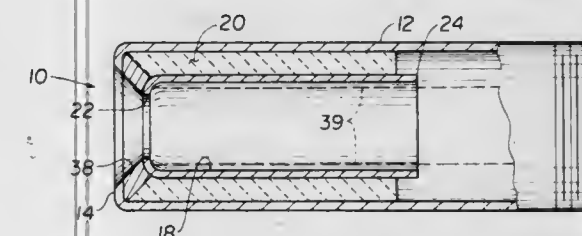
Frederick C. Cowan, 82 Cove Rd., Oyster Bay Cove, N.Y. 11771

Filed Mar. 30, 1981, Ser. No. 248,909

Int. Cl.³ F23Q 3/00

U.S. Cl. 431—266

12 Claims



1. A power arc ignitor comprising: a fuel nozzle, said nozzle being constructed from concentric metal tubes spaced by a ceramic insulator body; a means to terminate the insulator body with a semi-conductive surface to provide a conductive path across an end of the insulator body from an outer one of the tubes to an inner one of the tubes; means to deliver fuel to the inner one of said tubes to flow therethrough; and means to controllably connect a high energy positive potential to the inner tube and a ground potential to the outer one of the tubes to originate an electrical arc pulsation from the inner to the outer of said concentric tubes across said conductive path at the end of the insulator body.

4,391,583

PROCESS OF THERMALLY TREATING BULK MATERIALS IN A ROTARY KILN

Harry Serbent, Hanau; Detlev Schlebusch, Wöllstadt; Gerhard Reuter, München-Aschheim, and Wolfram Schnabel, Idstein, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 13, 1981, Ser. No. 310,953

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1980, 3039212

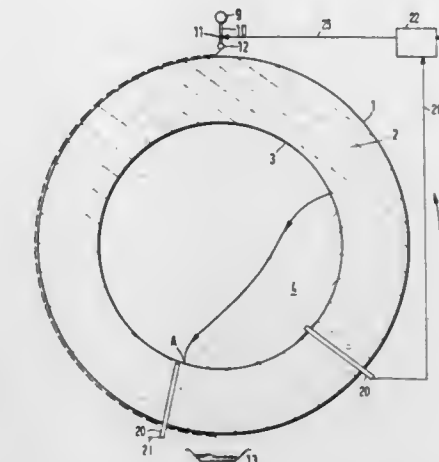
Int. Cl.³ F27D 7/00, 23/00; F27B 7/38

U.S. Cl. 432—4

12 Claims

1. In a process of thermally treating bulk material with hot gases in a rotary kiln below the melting point of the charge components in the rotary kiln while cooling the shell and refractory lining of the kiln, the improvement which comprises cooling several sections of the rotary kiln in which the charge is at about the highest permissible temperature in regard to the

formation of crusts if the temperature of the charge rises further in contact with the hot inner surface, by a cooling medium and adjusting the temperature of the inside surface of the kiln



at the point where it becomes submerged below the charge in said region so that it is at or up to 50° C. below the temperature of the charge in said regions thereby controllably dissipating heat through the lining of the kiln to said cooling medium.

4,391,584

NON-CONTACT INFRARED FABRIC TEMPERATURE MONITORING

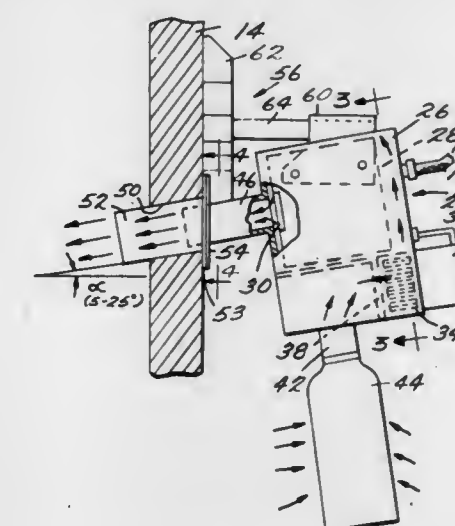
Vernon T. Daniel, Oak Ridge, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Sep. 11, 1981, Ser. No. 301,438

Int. Cl.³ F27B 9/28, 9/40; F27D 19/00; G01D 11/24

U.S. Cl. 432—8

12 Claims



1. A method of determining textile web temperatures in a textile web treating oven utilizing an infrared pyrometer, comprising the steps of:

passing an open textile web in a first generally horizontal direction through a textile oven, the web being disposed substantially in a horizontal plane; providing an opening in the textile oven passing from the exterior into the interior thereof, and adjacent an area wherein the web passes through the oven; mounting an infrared pyrometer so that it is in operative association with the oven opening and so that the pyrometer is disposed at a viewing angle of between about 5°-25° with respect to the horizontal; and determining textile web temperatures with the pyrometer.

4,391,585

METHOD OF OPERATING A CONTINUOUS CERAMIC KILN

Eric K. Riley, Wombourne; Colin D. Smith, Alsager; Garry J. Yates, Knutsford, and Norris W. Shepherd, Worksop, all of England, assignors to Air Products and Chemicals, Inc., Allentown, Pa.

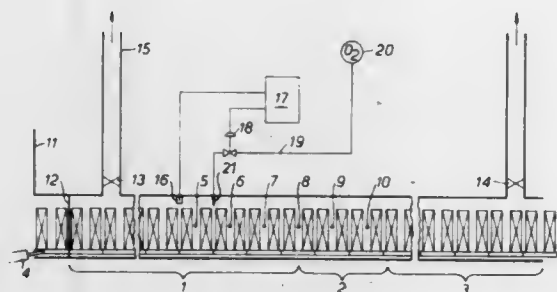
Filed Mar. 20, 1981, Ser. No. 245,811

Claims priority, application United Kingdom, Mar. 26, 1980, 8010147

Int. Cl.³ F27B 9/04, 9/40; F26B 3/00

U.S. Cl. 432—23

6 Claims



1. A method of decarbonizing shaped ceramic articles in an intermittent push continuous ceramic kiln having a heating and decarbonizing zone, a firing zone and a cooling zone fitted with means to sense the concentration of oxygen in the decarbonizing zone, said means associated with a control fitted to oxygen or oxygen enriched air injection means associated with said decarbonizing zone comprising the steps of:

progressively heating said shaped ceramic articles to about 900° C. in the decarbonizing zone to oxidize organic matter contained in the articles;
maintaining the oxygen concentration of the decarbonization zone at a minimum level of 7.5% by volume between pushes as determined by the equation:

$$C = \frac{R_2}{R_1} A(1 + X)$$

where

C is the predetermined level at a point in the decarbonization zone;

R₁ is the throughput of clayware articles during satisfactory operation of the kiln without oxygen addition;

A is the average oxygen concentration at said point during satisfactory operation of the kiln without oxygen addition at throughput rate R₁;

R₂ is the new throughput of clayware articles; and

X is between the limits of ≥ 0 and ≤ 0.5,

by adding oxygen or oxygen enriched air to the decarbonization zone;

continuing heating of said shaped ceramic articles until firing is completed; and

cooling said shaped ceramic articles to ambient temperature.

4,391,586

TWO STAGE FLUID BED REGENERATOR

George N. Brown, Lexington, Va., assignor to Westvaco Corporation, New York, N.Y.

Division of Ser. No. 199,583, Oct. 22, 1980, Pat. No. 4,338,198.

This application Nov. 12, 1981, Ser. No. 320,308

Int. Cl.³ F27B 15/00; F23B 5/02

U.S. Cl. 432—58

7 Claims

1. A vertically elongated vessel for the regeneration of wet spent carbon comprising:

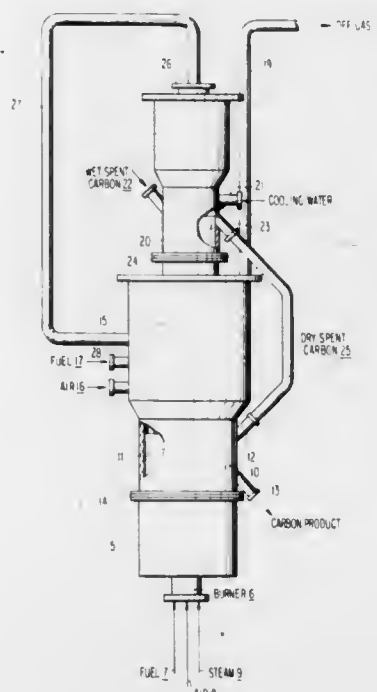
(a) a combustion chamber located at the bottom portion of the vessel, the combustion chamber having a burner with fuel and air inlet means associated therewith;

(b) a regeneration zone superimposed over the combustion chamber and separated therefrom by gas distribution plate means for maintenance of a fluidized bed within the regen-

eration zone, the regeneration zone having a dried carbon inlet means and means for withdrawing regenerated carbon therefrom;

(c) a drying zone located at the top portion of the elongated vessel, the drying zone having means for introducing wet spent carbon therein, dried carbon outlet means and outlet means for passing a drying zone off gas out from the vertically elongated vessel;

(d) an incineration zone interposed between the regeneration zone and the drying zone with inlet means for introducing the drying zone off gas and outlet means for discharging incineration zone gaseous effluent, the incineration zone being circumscribed by the inner wall of a segment of the



elongated vessel, and the incineration zone being contiguous and in open communication with the regeneration zone whereby heat is radiated to the fluidized bed within the regeneration zone;

(e) gas distribution means located between the incineration zone and the drying zone for maintenance of a fluidized bed within the drying zone;

(f) dry carbon transfer means connecting the dried carbon outlet means and the dried carbon inlet means of the regeneration zone; and

(g) off gas transfer means connecting the drying zone off gas outlet means and the incineration zone inlet means for introducing the drying zone off gas into the incineration zone.

4,391,587

SLAB HEATING FURNACE

Tadashi Murakami, and Toshikatsu Kishida, both of Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of Ser. No. 134,577, Mar. 27, 1980, abandoned.

This application Jan. 19, 1982, Ser. No. 340,673

Int. Cl.³ F27B 9/00; F27D 3/00

U.S. Cl. 432—121

5 Claims

1. In a heating furnace, the combination of water cooled tubular skid beams, water cooled posts for supporting said water cooled skid beams, and a post head on the upper end of each supporting post and having a trough-shaped receiving

4,391,589

SURGICAL DENTAL ARTICULATOR

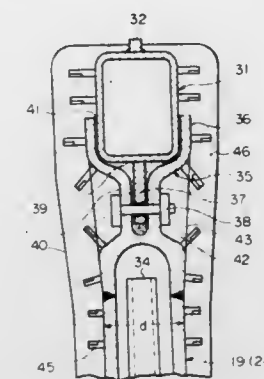
Joseph R. Monfredo, San Diego, and Ronald H. Roth, San Mateo, both of Calif., assignors to Johnson & Johnson Dental Products Company, New Brunswick, N.J.

Filed Jul. 27, 1981, Ser. No. 286,449

Int. Cl.³ A61C 11/00

U.S. Cl. 433—63

8 Claims



of the supported skid beam from two to five times the outer diameter of said water cooled posts.

4,391,588

DENTAL TREATMENT CHAIR

Takahiro Matsui, Uji, Japan, assignor to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

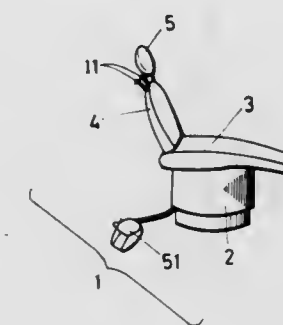
Filed Oct. 30, 1981, Ser. No. 316,824

Claims priority, application Japan, Nov. 7, 1980, 55-160159[U]

Int. Cl.³ A61G 15/00; A61C 1/14

U.S. Cl. 433—33

1 Claim



1. A dental treatment chair having a backrest reclinably mounted on the seat body supported on a base, said backrest incorporating therein reeling means for flexible connecting pipes connected to the instruments of said chair, said chair characterized in that:

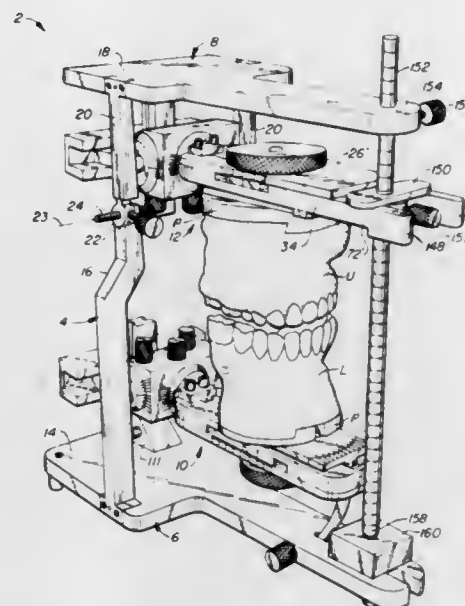
said backrest contains therein a dispensing controller for compressed air and water to be supplied to each of said instruments, said dispensing controller comprising:
a distributing block for said compressed air and water;
a manometer coupled to said compressed air; and
air-pressure-operated valves for turning ON and OFF the compressed air and water, said air-pressure-operated valve being disposed between said distributing block for compressed air and water and said flexible pipes for said instruments;

at least one of said air-pressure-operated valves is a distributing valve for said compressed air and water;

a plurality of couplings disposed in proximity to said reeling means for connecting a base end portion of said flexible pipes to a compressed air and water supply side of said dispensing controller;

a throttle valve for controlling a flow rate of said compressed air and water provided in at least one of said couplings; and

a plurality of air passageways branched off and connected and one water passageway connected to the respective supply sources of compressed air and water are bundled by one flexible pipe and introduced from said seat body side into said backrest.



1. A surgical dental articulator for manipulating a set of dental casts, each said dental cast mounted to a mounting plate, comprising:

a frame having frame sections hingedly attached along a hinge axis, said hinge axis corresponding to the terminal hinge axis of a patient; and

a pair of means for mounting one said mounting plate and dental cast therewith to each of said frame sections, said mounting means including:

means for individually and measurably translating said dental casts parallel to three separate, nominally orthogonal paths, said translating means including linear graduated scales so that individual distances translated along said three paths can be read directly;

means for individually and measurably pivoting said dental casts about three separate, nominally orthogonal pivot axes, said pivoting means including angular graduated scales so that individual angles pivoted about said three pivot axes can be read directly; and

a first support rigidly mounted to one of said frame sections and along which a second support mounted perpendicular to said first support moves along a first path of said three paths to carry one said dental cast parallel to said first path, said second support defining a second path of said three paths for movement of one said dental cast parallel to said second path;

whereby the dental casts can be individually and measurably translated along three separate linear paths and pivoted around three separate rotational axes.

4,391,590

CARTRIDGE FOR VISCOUS MATERIAL

Emery W. Dougherty, York, Pa., assignor to Dentsply Research & Development Corp., Milford, Del.

Continuation-in-part of Ser. No. 252,558, Apr. 9, 1981, Pat. No. 4,330,280. This application Jan. 29, 1982, Ser. No. 344,255

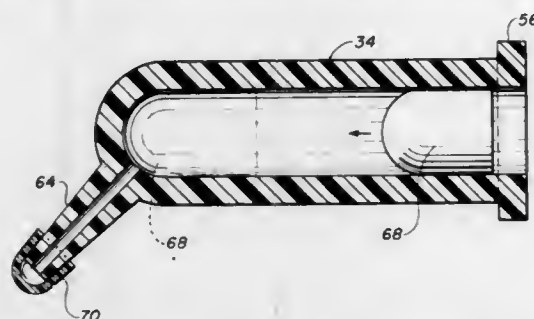
Int. Cl.³ A61C 5/04

U.S. Cl. 433—90

2 Claims

1. A miniature capsule-like cartridge adapted to be operated solely by being mounted upon an ejector-type holder and comprising in combination, a hollow elongated uniformly cylindrical body of predetermined length and uniform diameter interiorly and exteriorly and molded from rigid plastic material, one end of said body being open and formed at the

extremity thereof with an annular relatively short circular exterior flange of limited width and adapted to be detachably mounted within a complementary seat in an ejector type holder, the opposite end of said body being closed by a hemispherical wall of substantially the same uniform thickness as said body, a discharge nipple of the same material as the body and molded integrally therewith and extending from said closed end of said body at an angle to the axis of said body to facilitate directing discharge from the cartridge to the interior of an oral cavity, a piston having sidewalls closely complementary to the inner walls of said body and inserted into the open end thereof to form a combination closure and ejecting means



for material when contained in said cartridge, the inner end of said piston being hemispherical and complementary in shape to the interior surface of the closed end of said body to effect ejection of substantially the entire contents of said cartridge when said piston is fully inserted into said body of the cartridge, sealing means comprising a cup-shaped cap removably connected to the outer end of the discharge nipple on said body to close said outer end of the nipple to seal the contents of the cartridge against ingress of ambient atmosphere and/or any surrounding contaminating matter, and said cap being color-coded to indicate desired properties of the contents of the cartridge.

4,391,591

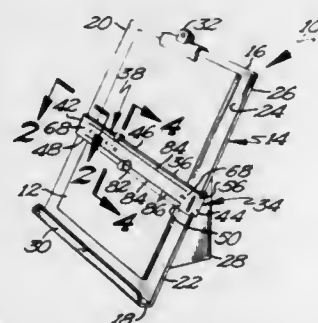
COMBINED PATTERN HOLDER AND PATTERN POSITION INDICATOR

Manny C. Hamburger, 2233 Oregon Ct., St. Louis Park, Minn. 55426

Continuation of Ser. No. 88,795, Oct. 29, 1979, Pat. No. 4,302,192. This application Nov. 16, 1981, Ser. No. 321,980 The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.
Int. Cl.³ G09B 19/20

U.S. Cl. 434—95

6 Claims



1. A device for simultaneously holding a pattern to be followed and indicating pattern information, with the pattern to be followed including several rows, with each of the rows including a plurality of instructions for performing various stitches, comprising, in combination: a pattern support member including a top edge, a bottom edge, a first side edge, a second side edge, a pattern support face, and a back face, with the pattern support face allowing the support of the pattern to be followed thereon; means for holding the pattern to be followed on the pattern support face of the pattern support member; and notation means for simultaneously delineating and also for visually summarizing the pattern position in the pattern to be followed at a single visual location, with the notation means

comprising, in combination: means for visually highlighting the row of the pattern to be followed and means located on the visually highlighting means for indicating the position of the pattern to be followed, with the visually highlighting means being movable upon the pattern support face of the pattern support member in a direction generally parallel to the side edges and between the top and bottom edges, wherein the visually highlighting means comprises an elongated bar member having a first end, a second end, a top edge, a bottom edge, a first face, and a second face, wherein the pattern position indicating means comprises, in combination: a series of pattern positions located on the first face of the elongated bar member; a first indicator; a second indicator; means for independently operating the first and second indicators allowing the first and second indicators to indicate the same pattern position at the same time in the series of pattern positions or different pattern positions at the same time in the series of pattern positions and allowing the first and second indicators to be moved from any pattern position to any other pattern position without interfering with or requiring movement of the other indicator, with the independently operating means comprising: means located on and cooperating with the elongated member for positioning the first indicator adjacent the top edge of the elongated member for indicating the desired pattern position in the series of pattern positions, and means located on and cooperating with the elongated bar member for positioning the second indicator adjacent the bottom edge of the elongated member for indicating the desired pattern position in the series of pattern positions.

4,391,592

HYDRAULIC TRIM-TILT SYSTEM

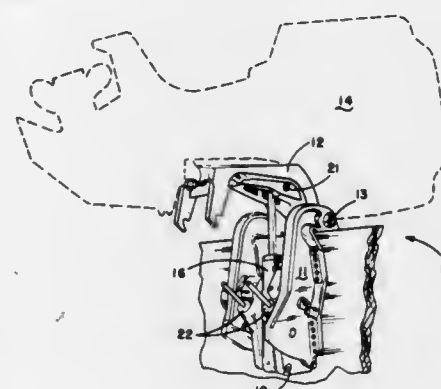
James M. Hundertmark, Fond du Lac, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Sep. 29, 1980, Ser. No. 191,733

Int. Cl.³ F15B 15/22

U.S. Cl. 440—61

7 Claims



1. A hydraulic system for trimming and tilting an outboard propulsion unit pivotally mounted on a support member for mounting on a boat, said hydraulic system comprising:

- (A) a first extensible hydraulic piston-cylinder unit pivotally connected to said propulsion unit and to said support member;
- (B) a second extensible hydraulic piston-cylinder unit connected to one of said propulsion unit and said support member and having an extensible part engaging the other of said propulsion unit and said support member, said second piston-cylinder unit including a cylinder having closed ends, a piston reciprocally mounted in said cylinder, and a piston rod connected to said piston and extending through one of said closed ends;
- (C) a hydraulic pump;
- (D) a conduit means hydraulically connecting said first and second hydraulic piston-cylinder units to said hydraulic pump to supply said first and second hydraulic piston-cylinder unit with hydraulic fluid; and
- (E) a pressure relief means to limit the maximum pressure of

the hydraulic fluid supplied to said first piston-cylinder unit only when said second piston-cylinder unit has extended a predetermined amount, said pressure relief means including a relief valve through said piston and a pilot operated check valve to prevent flow through said relief valve except when said second piston-cylinder unit has extended said predetermined amount.

4,391,593

PROPULSION DRIVE SYSTEMS

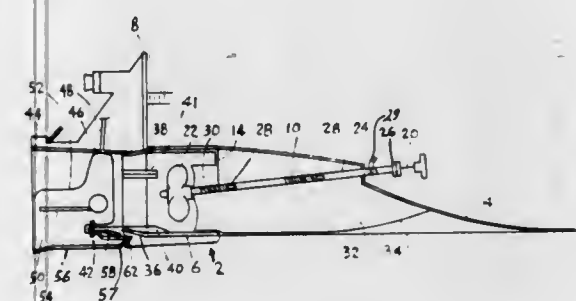
Edward Whitworth, R.R. #3, Port Rowan, Ontario, Canada

Filed Oct. 10, 1979, Ser. No. 83,458

Int. Cl.³ B63H 1/14

U.S. Cl. 440—70

13 Claims



- 1. A propulsion drive system for a boat comprising:
 - (a) a tunnel inset into the bottom of said boat commencing at the stern and extending a relatively short distance towards the bow, said tunnel being cylindrical in shape;
 - (b) a channel in the bottom of said boat extending in front of said tunnel and gradually decreasing in size towards the bow until the channel disappears completely, said channel being open towards the bottom of the boat and having a cross-sectional area slightly larger than the outside diameter of the tunnel where the tunnel and the channel meet, said tunnel having a circular leading edge that is tapered throughout its circumference from an inner wall to an outer wall of said tunnel to allow for a smooth transition between the channel and the tunnel;
 - (c) a shaft extending from a motor in said boat to a propeller centred widthwise in said tunnel near said stern, said propeller having a small diameter relative to the size of said tunnel, said shaft being enclosed in a suitable log;
 - (d) means for mounting said log within the tunnel to maintain the propeller in the centre;
 - (e) a converging nozzle mounted along the rear of a trailing edge of said tunnel;
 - (f) a suitable rudder mounted to the rear of said converging nozzle;
 - (g) said log containing water cooled bearings and holes or water passages in front of each of said bearings so that water from the location where the boat is being operated can come into contact with said bearings;
 - (h) appropriate passages so that the motor is cooled from water passing through said holes in said log.

4,391,594

FLEXIBLE COUPLING

Alan J. Hannibal, and Charles H. Parr, both of Fairview, Pa., assignors to Lord Corporation, Erie, Pa.

Filed Aug. 25, 1980, Ser. No. 181,260

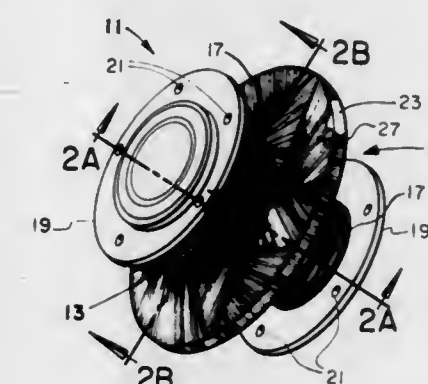
Int. Cl.³ F16D 3/56

U.S. Cl. 464—80

4 Claims

1. A coupling for transmitting torque and accommodating misalignment between a drive member and a driven member, said coupling having a central axis, comprising: a pair of rigid hubs encircling said axis at spaced locations along the length thereof, one of said hubs being connectable to said drive member and the other of said hubs being connectable to said driven member, each of said hubs

having a nonaxisymmetrical shaft extending toward and spaced from the other of said hubs; a reinforcing ring encircling said axis at a location along the length thereof intermediate said hubs; an elongated tubular connecting member encircling said axis and extending between said hubs, said connecting member having relatively small diameter opposite end portions and a relatively large diameter diaphragm portion disposed therebetween; said end portions of said connecting member being formed in situ upon and overlying at least a major portion of the length of respective ones of said hub shafts, and being permanently anchored thereto; said diaphragm portion of said connecting member being formed in situ about said reinforcing ring and having opposite sides extending closely adjacent thereto in substantially perpendicular relationship to said axis and in substantially parallel relationship to each other;



said portions of said connecting member being formed integrally with each other from, and being defined by, high-strength nonwoven filaments coated or impregnated with matrix material and each passing repeatedly along substantially the entire length of said connecting member; each of said filaments during each pass thereof along the length of said connecting member having an end-portion defining section extending completely about the circumference of one of said hub shafts, and a diaphragm-portion defining section extending along a geodesic path between said hub shafts and about the periphery of said reinforcing ring, and another end-portion defining section extending completely about the circumference of the other of said hub shafts, whereby said connecting member immediately resists rotation of said hubs relative to each other upon rotation of either of said hubs; said matrix material associated with said diaphragm-portion sections of said filaments being flexible to permit misalignment-accommodation flexure of said diaphragm portion during use of said coupling.

4,391,595

VARIABLE SPEED, MULTIPLE COMPONENT PULLEY

Thomas D. Wood, Garry K. Reiss, both of Mt. Vernon, and Larry L. Overly, Fredericktown, all of Ohio, assignors to The J. B. Foote Foundry Co., Fredericktown, Ohio

Filed Feb. 18, 1982, Ser. No. 350,002

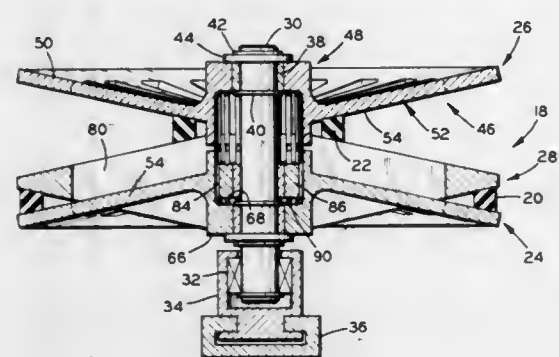
Int. Cl.³ F16H 55/52

U.S. Cl. 474—33

16 Claims

10. A variable speed pulley comprising a shaft, a first outer pulley component rotatably mounted on said shaft in a substantially fixed position axially of said shaft, a second, outer pulley component rotatably mounted on said shaft in spaced relationship with respect to said first component and in a substantially fixed position axially of said shaft, and a third, intermediate pulley component mounted on said shaft between said outer pulley components, said third pulley component being slidably and rotatably mounted on said shaft between said outer pulley components, each of said outer pulley components having a truncated, conical portion and a central hub portion extending

outwardly away from the other outer component, each of said conical portions having an outer rim and a plurality of generally radially-extending tines extending from said rim to said hub portion, said tines forming generally radially-extending slots therebetween in said conical portion and having extensions extending in spaced relationship toward the other outer pulley component, said third pulley component having a shallow truncated conical portion extending in opposite directions and a central hub portion, said conical portion of said third component having an outer rim and a plurality of generally radially-extending tines extending from said rim of said third



component to said central hub portion of said third component, said tines of said third component forming generally radially-extending slots therebetween in said conical portion of said third component, said slots of said outer components being wider than corresponding portions of said radially-extending tines of said third component, said tines of said third component being received in said slots of said outer components when said third component is moved into fully inter-nesting positions with respect to said outer components, and said tines of said third component cooperating with said extensions of said outer components to cause said three components to rotate together for all positions of said third component on said shaft.

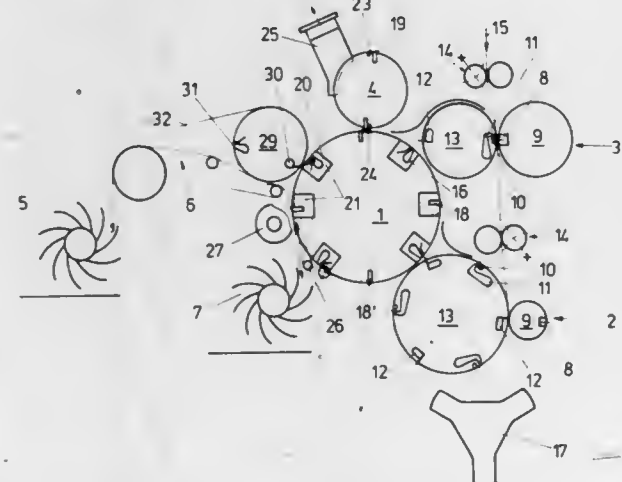
4,391,596 FOLDER

Rudolf Fischer, Ludwigshafen-Oggersheim, Fed. Rep. of Germany, assignor to Albert-Frankenthal AG, Frankenthal, Fed. Rep. of Germany

Filed Jul. 30, 1981, Ser. No. 288,349
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1980, 3030706

Int. Cl.³ B65H 45/16
U.S. Cl. 493—425

9 Claims

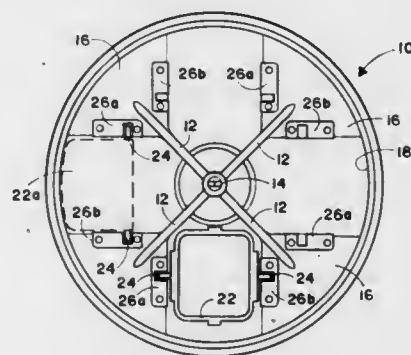


1. In a folder adapted for two different cutting formats, one format cutting sheets of one half plate cylinder circumference and the second format cutting sheets of full plate cylinder circumference, said folder comprising a fold jaw cylinder, at least two transverse paper cutters circumferentially spaced about said folding jaw cylinder and located in a transverse paper cutting station, each transverse cutter including a folding

blade cylinder having at least one folding blade, each folding blade cylinder being adapted to cooperate with said fold jaw cylinder to fold a sheet cut from a web by one of said paper cutters and for forwarding the sheets to a delivery station, means for making one of said transverse paper cutters active one at a time, said fold jaw cylinder having tool support points circumferentially disposed in equal spaced apart relationship corresponding to one half the smallest paper size to be cut, fold jaws removably positioned in certain of said tool support points cooperating with the folding blades of the active transverse cutter, spaced-apart scissor cutting blades for cutting a paper web into cut sheets some of which are removably positioned in tool support points alternating with said fold jaws, said scissor cutting blades running radially outwardly from said fold jaw cylinder, and a knife cylinder for cutting said paper web in cooperation with said scissor cutting blades of said fold jaw cylinder to provide a smooth cut to said cut sheets, said knife cylinder being disposed between said transverse paper cutting station and said delivery station, the circumference of said paper knife cylinder being equal to at least the greatest paper size to which said web is to be cut, said knife cylinder being adapted to have removably positioned thereon, with the same spacing of said scissor cutting blades of said fold jaw cylinder, further scissor cutting blades for use in cooperation with said scissor cutting blades of said fold jaw cylinder, whereby the removable fold jaws and scissor cutting blades of the fold jaw cylinder and the removable scissor cutting blades of the knife cylinder are removed or installed to cooperate with the active transverse paper cutter.

4,391,597
HANGER FOR CENTRIFUGE BUCKETS
Alireza Piramoon, Santa Clara, and Rebecca J. Woodruff, San Mateo, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Continuation of Ser. No. 277,800, Jun. 29, 1981, abandoned.
This application Jul. 21, 1982, Ser. No. 400,528
Int. Cl.³ B04B 9/12
U.S. Cl. 494—20

1 Claim

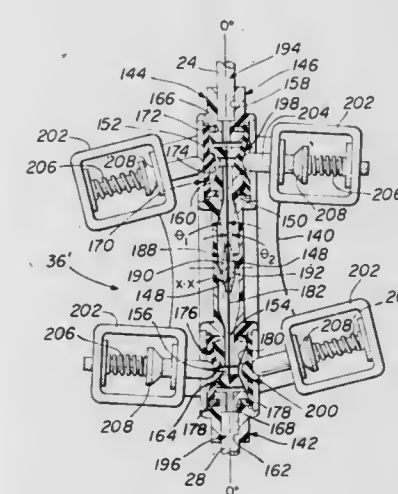
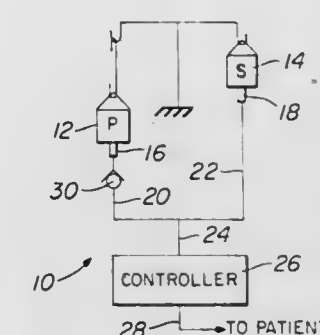


1. In a centrifuge rotor having an axis of rotation, a circumferential wall, a plurality of spaced arms radiating from said axis of rotation and supporting said circumferential wall, a plurality of buckets mounted one between each arm of said rotor, each said bucket having two outwardly extending pivot pins on a common axis, said pivot pins each engaging a hanger mounted on said rotor, said hanger comprising:
an elongated housing having mounting holes;
said housing having an opening transverse of its longitudinal axis for receiving a pivot pin of a bucket;
said housing having a longitudinal bore intersecting said opening;
said longitudinal bore having a counterbore forming a shoulder in said longitudinal bore;
a plunger slidably disposed in said longitudinal bore;
a spring disposed in said longitudinal bore, said spring acting on said plunger and urging said plunger in the direction of said opening for receiving said pivot pin;
said plunger having a flange, said flange abutting said shoulder

der of said longitudinal bore when said plunger is at the extreme end of its sliding travel, thereby retaining said plunger captive in said longitudinal bore;
said plunger exerting a clamping force on said pivot pin when said rotor is at rest preventing said bucket from rocking when being loaded or unloaded, but not preventing said bucket from pivoting to a horizontal position when said rotor is rotating, and not preventing said bucket from resuming a vertical position when said rotor is stopped;
an elongated slot intersecting said opening of said hanger at right angles, said pivot pin movable in said slot when centrifugal force acting on said bucket and said pin overcomes said clamping force, and movement of said bucket and said pin resulting in said bucket being extended radially outward and engaging said circumferential wall of said rotor.

4,391,598
INTRAVENOUS DRUG ADDITIVE DELIVERY SYSTEM
WITH ELECTRONIC CONTROL
Thomas C. Thompson, McKinney, Tex., assignor to Quest Medical, Inc., Carrollton, Tex.
Filed Apr. 28, 1981, Ser. No. 258,361
Int. Cl.³ A61M 5/00
U.S. Cl. 604—65

21 Claims

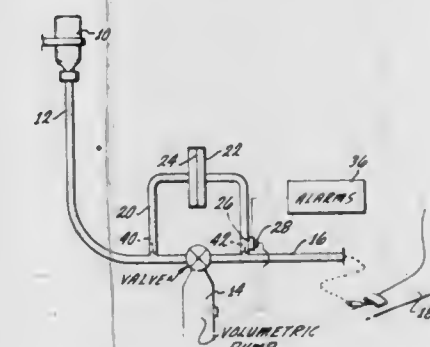


1. An apparatus for intravenous addition of a primary and secondary fluid to a patient comprising:
a primary container for holding the primary fluid;
a secondary container for holding the secondary fluid, the fluid in said secondary container being elevated above the fluid in said primary container;
primary and secondary fluid delivery lines extending from said primary and secondary containers, respectively;
a connector for combining the flow from said primary and secondary fluid delivery lines;
check valve means for permitting the secondary fluid to flow through the connector until the secondary container is empty and subsequently permitting the primary fluid to flow through the connector; controller means for controlling fluid flow to the patient, said connector directing the fluid flowing therethrough from said primary and second-

ary delivery lines into said controller means, said controller means including:
metering means for initially metering flow therethrough to the patient at a preselected flow rate representing the desired infusion rate of the secondary fluid;
sensing means for sensing the passage of a predetermined quantity of fluid equal to the quantity of secondary fluid which is to be infused;
said metering means subsequently metering flow therethrough at a second preselected flow rate representing the desired infusion rate of the primary fluid to the patient; and
a combined fluid delivery line extending from said controller means to the patient for transferring the fluid metered through said controller means to the patient for infusion.

4,391,599
APPARATUS FOR PROVIDING A CONTROLLED FLOW
OF INTRAVENOUS FLUID TO A PATIENT
Jon A. Jenkins, Rancho Santa Fe, Calif., assignor to IMED Corporation, San Diego, Calif.
Continuation of Ser. No. 4,464, Jan. 18, 1979, abandoned. This application Jun. 16, 1981, Ser. No. 274,154
Int. Cl.³ A61M 5/00
U.S. Cl. 604—118

16 Claims



1. In combination for introducing fluid to a patient, flow lines for providing a flow of fluid on a gravitational basis, the flow lines including an input line and an output line,
implementing means having an input for receiving fluid from the input flow line and having an output for directing fluid into the output flow line and disposed between the input and output flow lines and constructed and operative to pump fluid through the input and output flow lines,
means disposed in a parallel relationship with the implementing means between the input and output lines and including means for establishing a fluid-isolated relationship between the input and the output of the implementing means and for alleviating the pressure in the output line, means associated with the flow lines and operatively associated with the parallel means at the end of the parallel means communicating with output line for sensing an obstruction at a relatively low pressure in the output line in accordance with the pressure of the fluid in the output line, and
means responsive to the sensing means for discontinuing the operation of the implementing means when the sensing means senses an obstruction at a relatively low pressure in the output flow line.

4,391,600
NONPULSATING IV PUMP AND DISPOSABLE PUMP CHAMBER

G. Kent Archibald, St. Paul, Minn., assignor to AVI, Inc., St. Paul, Minn.

Division of Ser. No. 19,223, Mar. 9, 1979, Pat. No. 4,236,880.

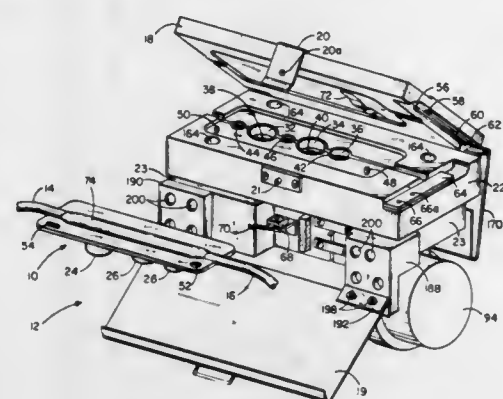
This application Sep. 15, 1980, Ser. No. 187,055

The portion of the term of this patent subsequent to Dec. 2, 1997, has been disclaimed.

Int. Cl.³ A61M 5/00

U.S. Cl. 604—153

6 Claims



1. A volumetric infusion pump for pumping fluid from a source to a patient comprising:

- a pump inlet for receiving fluid from the source;
- a pump outlet for supplying fluid under pressure to the patient;
- a pump housing having first and second cylinders therein;
- a first pumping chamber including the first cylinder, a first piston movable in the first cylinder, first flexible rolling diaphragm means between the first cylinder and the first

piston, a first inlet, and a first outlet, the first pumping chamber having a variable volume depending upon the position of the first piston in the first cylinder;

a second pumping chamber including the second cylinder, a second piston movable in the second cylinder, second flexible rolling diaphragm means between the second cylinder and the second piston, a second inlet connected to the first outlet, and a second outlet connected to the pump outlet, the second pumping chamber having a variable volume depending upon the position of the second piston in the second cylinder;

first valve means supported by the pump housing for controlling fluid flow between the pump inlet and the first inlet;

second valve means supported by the pump housing for controlling the fluid flow between the first outlet and the second inlet;

drive means for causing motion of the first piston in the first cylinder and motion of the second piston in the second cylinder;

valve control means for controlling the first and second valve means such that one of the first and second valve means is closed at all times; and

wherein the first and second flexible diaphragm means, the pump inlet, and the pump outlet form an integral disposable pump chamber having a sealed main fluid flow passage between the pump inlet and the pump outlet, so that fluid is pumped from the pump inlet to the pump outlet without physically contacting the pump housing, the first and second cylinders, the first and second pistons, the first and second valve means, the drive means or the valve control means.

CHEMICAL

4,391,601
WRITING PARCHMENT AND METHODS FOR THE PRODUCTION THEREOF
 Shmuel Y. Herman, 65 Hapisa St. Bayit Vegan, Jerusalem, Israel

Filed Dec. 7, 1981, Ser. No. 328,070

Claims priority, application Israel, Dec. 26, 1980, 61809

Int. Cl.³ C14C 1/00

U.S. Cl. 8—94.15

8 Claims

1. Fine writing parchment made from the skins of turkeys.

4,391,602
PROCESS FOR SMOOTHING AND DRYING WASHED SHAPED ARTICLES OF MIXED FABRIC
 Otto Stichnoth, and Andreas Stichnoth, both of Schiefer Weg 21, 3400 Göttingen, Fed. Rep. of Germany

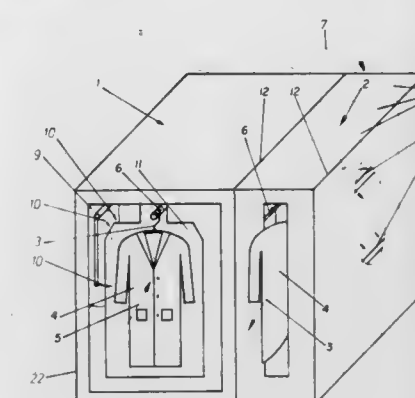
Filed Sep. 23, 1980, Ser. No. 190,078

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2939870

Int. Cl.³ D06B 3/30

U.S. Cl. 8—149.1

20 Claims



1. A process for smoothing shaped articles of mixed fabric having both synthetic and natural fibers, comprising the steps of:

- (a) washing said articles at a first temperature;
- (b) conveying said washed articles through a heating chamber until said articles are at a temperature at least equal to said first temperature and substantially isothermal throughout;
- (c) drying said heated washed articles by conveying said articles through a plurality serially disposed drying chamber sections and directing drying air at said articles within each of said drying chamber sections at sufficient velocity to agitate said articles and thereby tighten, smooth and dry said fabric by:

- i. introducing a stream of drying air first into the drying chamber section lastly encountered by said articles upon conveying through said drying chamber sections and thereafter serially into said drying chamber sections in order reverse from that traversed by said articles during conveyance thereof through said drying chamber sections;
- ii. heating said drying air intermediate each of said drying chamber sections of said plurality;
- iii. introducing said stream of heated drying air leaving a drying chamber section which is first encountered by said articles during conveyance thereof through said serially disposed drying chamber sections into said heating chamber as high humidity heating air by discharging said stream of heated drying air through a steam environment into said heating chamber;
- iv. discharging said high humidity heating air from said heating chamber;
- v. removing condensate from said high humidity heating air;
- vi. cooling said high humidity heated thereby reducing

relative humidity thereof to produce relatively dry cooler air;

vii. heating said relatively dry cooler air to produce heated relatively dry air for repeated serial passage through said drying chamber sections

wherein the steps of element c are performed repetitively and serially in the order recited.

4,391,603
HYDROXYL DERIVATIVES OF BENZALDEHYDE FOR COLORING KERATIN FIBRES IN THE ABSENCE OF OXIDIZING AGENT
 Georges Rosenbaum, Asnieres; Jean F. Grollier, Paris, and Jean Cotteret, Franconville, all of France, assignors to L'Oreal, Paris, France

Filed Apr. 15, 1981, Ser. No. 254,514

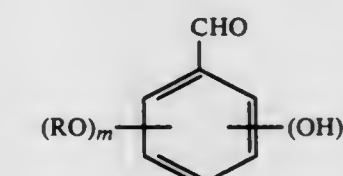
Claims priority, application France, Apr. 17, 1980, 80 08645

Int. Cl.³ A61K 7/13

U.S. Cl. 8—424

17 Claims

1. Process for colouring keratin fibres in the absence of an oxidising agent, which comprises applying thereto at least one composition containing a cosmetically acceptable medium and a dyestuff corresponding to the formula:



in which R denotes a linear or branched lower alkyl group which is optionally substituted by one or two hydroxyl groups, n is equal to 1, 2 or 3, m is equal to 0, 1 or 2 such that n + m is equal to 2 or 3, with the proviso that (i) if m is equal to 0 (and n is equal to 2 or 3), the OH groups occupy the following positions of the ring:

2	3	4	5	6
OH	OH	OH		
OH	OH	OH	OH	
OH	OH			OH
OH	OH		OH	OH
OH	OH	OH	OH	OH

and (ii) if m and n both denote 1, the substituents occupy the following positions of the rings:

2	3	4	5	6
OH				OR
OR	OH			
	OH	OR		
OH			OR	
OH	OCH ₂ CH ₂ OH			
	(3)			
OH			OCH ₂ CHCH ₂	
			OH	
			(5)	
OH	OC ₂ H ₅			

or a bisulphite adduct thereof.

4,391,604

**PROCESS FOR DYEING TEXTILE FABRIC:
MECHANICAL TREATMENT TO PROMOTE FOAMING
IN FABRIC BEFORE STEAMING**

Hans Schomakers, An den Gassenwiesen 4, 6415 Petersberg,
Fed. Rep. of Germany

Filed Oct. 20, 1981, Ser. No. 313,353

Claims priority, application Fed. Rep. of Germany, Oct. 21,
1980, 3039661

Int. Cl.³ D06B 1/08

U.S. Cl. 8—477 10 Claims

1. A process of dyeing textile fabrics comprising:
 - (a) wetting a fabric with an unfoamed dyeing solution containing foaming agents;
 - (b) exposing the wetted fabric to a mechanical treatment consisting of alternating compression and relief; and
 - (c) subjecting the wetted, mechanically treated fabric to a steaming treatment.

4,391,605

TEXTILE TREATMENT

Paul G. H. Bakker, Ilkley, England, assignor to Wool Development International Limited, London, England

Filed Aug. 7, 1981, Ser. No. 291,118

Claims priority, application United Kingdom, Aug. 7, 1980,
8025844

Int. Cl.³ D06M 13/18, 13/46

U.S. Cl. 8—495 13 Claims

1. A composition for treating textiles which comprises a quarternary ammonium salt containing a methyl group and three alkyl or aralkyl groups containing from eight to ten carbon atoms, and a water soluble polyether.

4,391,606

**AZO POLYETHER DYESTUFFS, FORMULATIONS OF
THESE DYESTUFFS, THEIR PREPARATION AND
THEIR USE**

Winfried Kruckenberg; Karl H. Schündehütte, both of Leverkusen, and Volker Hederich, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 90,374, Nov. 1, 1979, abandoned. This application Aug. 14, 1981, Ser. No. 292,860

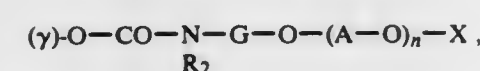
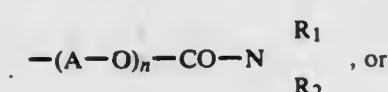
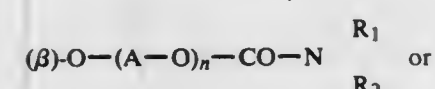
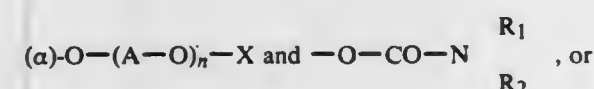
Claims priority, application Fed. Rep. of Germany, Nov. 22,
1978, 2850662

The portion of the term of this patent subsequent to Feb. 10,
1998, has been disclaimed.

Int. Cl.³ C09B 1/00

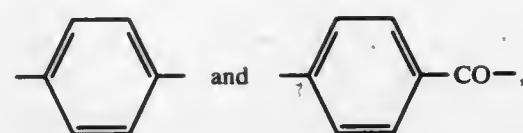
U.S. Cl. 8—525 16 Claims

1. Dyestuff formulation comprising
 - (a) an azo dyestuff which is free from sulphonic acid groups and ammonium groups and which contains at least one of



wherein

G is selected from the group consisting of C₂–C₆ alkylene,



A is C₂–C₆alkylene,
X is selected from the group consisting of hydrogen, Y,
—COY and —CONR₁R₂.

Y is selected from the group consisting of alkyl, cycloalkyl,
aralkyl, aryl, and substituted alkyl, cycloalkyl, aralkyl and
aryl,

R₁ is selected from the group consisting of hydrogen and Y,
R₂ is selected from the group consisting of hydrogen, alkyl
and substituted alkyl, and

n is a number from 1 to 7 and n is at least 2 if X is —COY,
and

(b) an emulsifying polar-nonpolar compound.

4,391,607

**DYEING PROCESS AND PRINTING PROCESS USING
REACTIVE DYESTUFFS**

Dietrich Hildebrand, Odenthal, Fed. Rep. of Germany, assignor
to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 24, 1981, Ser. No. 276,863

Claims priority, application Fed. Rep. of Germany, Jul. 17,
1980, 3027077

Int. Cl.³ C09B 62/00; D06P 1/38

U.S. Cl. 8—549 11 Claims

1. Process for dyeing or printing fibre materials with the aid of reactive dyestuffs which split off fluoride ions, characterised in that neutral or acid dye baths or printing pastes which contain, in addition to the reactive dyestuff and customary auxiliaries and solvents, one or more organic and/or inorganic calcium compounds are employed said calcium compounds being soluble in water or being sparingly soluble in water.

4,391,608

**PROCESS FOR THE BENEFICIATION OF CARBONOUS
MATERIALS WITH THE AID OF ULTRASOUND**

Michael A. Dondelewski, 5354 Fortress Trail, Columbus, Ohio
43230

Continuation of Ser. No. 135,241, Mar. 31, 1980, abandoned.

This application Aug. 3, 1981, Ser. No. 289,536

Int. Cl.³ C10L 1/00; C07G 13/00; C01B 31/02

U.S. Cl. 44—1 SR 7 Claims

1. A method of treating coal to reduce ash and sulfur content comprising the steps for:

- (a) combining the coal with water and oil to form a slurry, said oil being a semi-reactive oil containing esters of fatty acids,
- (b) applying ultrasound to said slurry to cause separation of ash from coal and sulfur including organic sulfur from coal,
- (c) physically separating coal and adhered oil from the slurry and washing to separate ash and sulfur from the coal to recover coal with reduced sulfur and ash content.

4,391,609

HYDRODESULFURIZATION OF CHLORINIZED COAL

John J. Kalvinskis, South Pasadena, and Naresh K. Rohatgi,
West Covina, both of Calif., assignors to The United States of
America as represented by the Administrator of the National
Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 30, 1981, Ser. No. 315,587

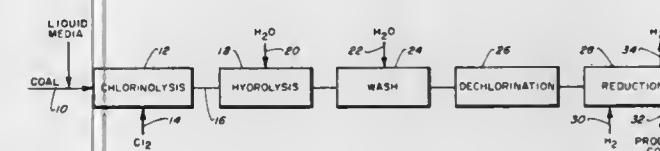
Int. Cl.³ C10L 9/10

U.S. Cl. 44—1 SR 8 Claims

1. A method of desulfurizing coal containing at least 0.2% sulfur comprising the steps of:

- (1) chlorinating the coal by forming a slurry of coal in liquid

- media and bubbling chlorine gas into the slurry to convert sulfur in the coal into water soluble sulfates;
- (2) subjecting the chlorinated coal to a gaseous reducing agent consisting essentially of hydrogen or a hydrogen



donor gas at a temperature from 500° C. to 700° C. until at
least 70% of the sulfur is removed from the coal and the
chlorine content is below 1%; and

- (3) recovering a desulfurized and dechlorinated coal.

4,391,610

**LIQUID HYDROCARBON FUEL CONTAINING A
CORROSION INHIBITOR, DIALKOXYLATED ALKYL
POLYOXYALKYL PRIMARY AMINE**

Rodney L. Sung, Fishkill; William M. Sweeney, Wappingers
Falls, both of N.Y., and Wheeler C. Crawford, Houston, Tex.,
assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 8, 1982, Ser. No. 338,196

Int. Cl.³ C10L 1/22

U.S. Cl. 44—56 20 Claims

1. A fuel composition for use in internal combustion engines comprising

- (a) a major portion of a fuel containing a hydrocarbon boiling in the gasoline boiling range; and
- (b) a minor corrosion-inhibiting amount of, as a corrosion inhibiting agent, a dialkoxylated alkyl polyalkoxy primary amine.

4,391,611

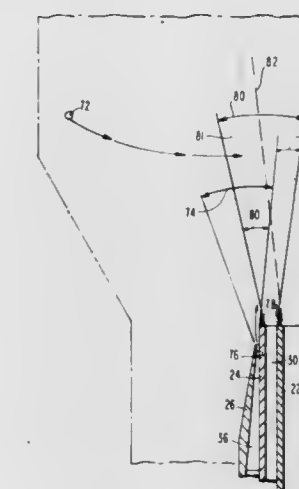
GASIFICATION SYSTEM

Gaurang B. Haldipur, Hempfield; Richard G. Anderson, Penn
Hills, and Peter Cherish, Bethel Park, all of Pa., assignors to
The United States of America as represented by the United
States Department of Energy, Washington, D.C.

Filed Mar. 5, 1981, Ser. No. 240,654

Int. Cl.³ C10J 3/68

U.S. Cl. 48—197 R 10 Claims



1. A method of operating a gasification reactor of the type wherein solid particulate carbonaceous material, oxygen, steam and an oxygen lean medium are fed from an injection means having an upper tip into a vertically disposed vessel housing a combusting fluidized bed to produce a combustible product gas and ash, to prevent substantial sintering of said tip, comprising:

injecting a mixture of said particulate material and a trans-

port gas vertically upward into said fluidized bed at a velocity of between 30 and 70 feet per second; injecting a mixture of oxygen and steam upwardly into said bed and about the radial periphery of said particulate and gas mixture at a velocity of between 50 and 300 feet per second; injecting an oxygen lean gaseous medium upwardly into said bed and about the radial periphery of said oxygen and steam mixture at a velocity equal to or less than said oxygen and steam mixture velocity.

4,391,612

GASIFICATION OF COAL

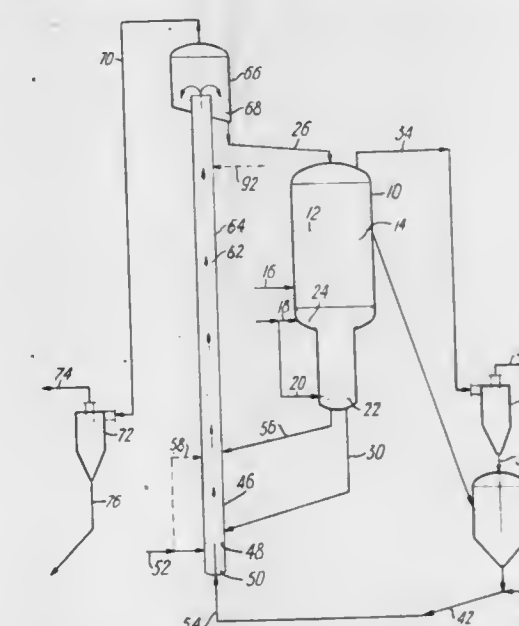
Tsuan Y. Chang, Baldwin, N.Y., assignor to The Halcon SD
Group, Inc., New York, N.Y.

Filed May 28, 1981, Ser. No. 267,959

Int. Cl.³ C10J 3/54

U.S. Cl. 48—202

2 Claims



1. A process for the production of a gaseous effluent rich in hydrogen and carbon monoxide from coal which comprises the steps of:

- (a) feeding (1) clinker particles and char from the partial gasification with superheated steam of lime-treated coal in a gasification zone, and (2) air to a combustor zone operating at a temperature of 900° C. to 1300° C.;
- (b) elevating said clinker particles and any "fines" present by the action of a gaseous stream comprising any excess air and the gases produced by the total combustion of the char with air to a clinker separation zone, said fines comprising ash resulting from the combustion of said char in said combustor zone and lime contained in said coal;
- (c) separating the thus-elevated particles and fines in the separation zone into a stream of fines which are suspended in and carried away by the gaseous stream as solid product, and a body of clinker particles deposited from the gaseous stream;
- (d) feeding the deposited clinker particles to the upper portion of said gasification zone while feeding lime-treated coal and superheated steam into the lower portion of said gasification zone, the unreacted steam and the gases resulting from the gasification of the lime-treated coal maintaining a fluidized bed comprising said lime-treated coal and the char produced by the partial gasification of the lime-treated coal, with said clinker particles raining down through said fluidized bed as a separate phase, the clinker particles and the steam supplying the heat for the gasification reaction to maintain the fluidized bed at a temperature of 700° C. to 1050° C.;
- (e) removing the fuel gas generated in the gasification zone by the partial gasification of the lime-treated coal in the presence of steam, removing the char from the upper

- portion of the fluidized bed in the gasification zone, removing the clinker particles from the lower portion of the gasification zone;
- (f) passing the clinker and char removed from the gasification zone to the combustor zone to provide the feed of char and clinker particles for step (a);
- (g) recovering the fines from the gaseous stream of step (c);
- (h) preparing clinker particles from at least some of the fines recovered in step (g); and
- (i) introducing the clinker particles produced in step (h) to make up for the loss of clinker particles resulting from attrition.

4,391,613

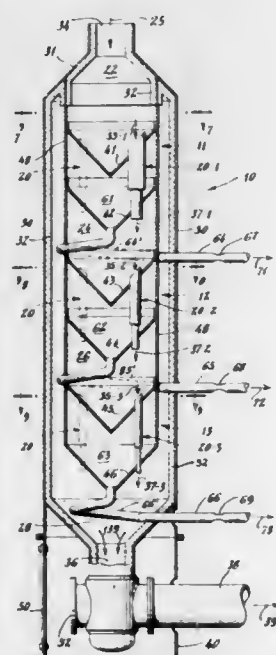
MULTI-STATION DOWNFLOW CENTRIFUGAL SEPARATION METHOD AND APPARATUS FOR SEPARATING PARTICULATE MATTER FROM GASES
Joseph G. Wilson, Riverside, Conn., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Continuation of Ser. No. 210,299, Nov. 25, 1980, abandoned, which is a continuation of Ser. No. 92,343, Nov. 8, 1979, Pat. No. 4,279,624, which is a continuation of Ser. No. 947,173, Sep. 28, 1978, abandoned. This application Nov. 18, 1981, Ser. No. 322,358

Int. Cl.³ B01D 45/12

U.S. Cl. 55—1

22 Claims



1. A method of separating particles from a particle-laden gas comprising the steps of:

providing a plurality of axially-extending, separating stations in generally axial alignment at spaced-apart, successively lower elevations;

in a first of said stations performing the steps of:

- (a) swirling the gas with a given centrifugal action, and immediately thereafter, (b) directing the gas downwardly through a first plurality of annular channels, then suddenly changing the direction of the gas and causing it to suddenly turn inwardly away from each of said channels, to cause particles of given sizes to be separated therefrom and left in said channels,

causing the inwardly-turned gas to flow again in the same said generally axial direction, and obstructing flow of said inwardly-turned gas in the opposite axial direction, and downwardly away from said first station into an intermediate region,

removing the separated particles together with a minor, bleed quantity of the gas from the bottom of the annular channels in said first station,

flowing the gas downwardly from the intermediate region to a second of said stations, and in said second station performing the steps of:

- swirling the gas downwardly through a second plurality of annular channels under a more powerful centrifugal ac-

tion than said given centrifugal action, and immediately thereafter directing the gas to, and conducting it in the same said generally axial direction through, a second plurality of annular channels,

then suddenly changing the direction of the gas and causing it to suddenly turn inwardly away from said second plurality of annular channels, to cause particles smaller in size than said given sizes to be separated therefrom and left in said second plurality of channels,

causing the gas which has been turned inwardly from said second plurality of channels to flow again in the same said generally axial direction, and obstructing flow thereof in the opposite axial direction, and downwardly away from said second station, and

removing the smaller size particles together with a minor, bleed quantity of the gas from the bottom of the plurality of annular channels in said second station.

9. An improved, downflow, centrifugal separator apparatus, for separating particulate matter from particle-laden gas having a given velocity and pressure, said apparatus having a plurality of elongate, vertically-disposed separator units, each of said units having a vertically-disposed tube which defines a channel within which to conduct particle-laden gas; first means within said tube for causing particle-laden gas admitted into said tube to be (a) centrifugally swirled, and (b) directed into said channel; an elongate, vertically-disposed vessel enclosing said separator units, said vessel having an inlet opening, substantially at an uppermost end thereof, and above said separator units, for admitting particle-laden gas into said separator units and into said tubes thereof, and said vessel having an outlet opening, substantially at a lowermost end thereof, and below said separator units, for discharging therethrough particle-removed gas from said units; said units further having means for removing separated particles, together with a minor percentage of gas, from said tubes; a first station, within said vessel, comprising a first plurality of said separator units mounted therewithin in parallel relationship; a second station, within said vessel, comprising a second plurality of separator units mounted therewithin in parallel relationship; said second station being spaced apart from said first station, axially of said vessel; and means intermediate said stations for conducting particle-separated gas from said first station to said second station; wherein the improvement is comprised by:

said separator units each having an additional tube positioned inside said vertically disposed tube so as to define an annular channel therebetween, and

said first means comprises means for swirling gas with a given centrifugal action, and directing gas immediately thereafter into said annular channel to cause flow thereof in a generally axial direction; wherein

said additional inner tube including slots therein for causing gas to turn inwardly, from said annular channel, into said tube;

said additional tube having a hosepiece positioned and arranged for causing gas turned into said tube from said channel to be redirected in said same generally axial direction, and (b) obstructing flow of such turned gas in the opposite axial direction; and

said first means of said first station comprises means for swirling gas with a centrifugal action which is less than the centrifugal action with which said first means of said second station can swirl gas.

4,391,614

METHOD AND APPARATUS FOR PREVENTING LUBRICANT FLOW FROM A VACUUM SOURCE TO A VACUUM CHAMBER

Walter J. Rozmus, Traverse City, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed Nov. 16, 1981, Ser. No. 321,935

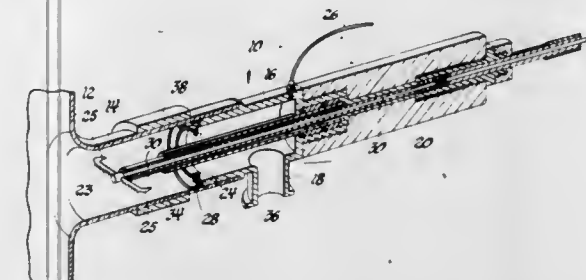
Int. Cl.³ B03C 9/00; B65B 31/04

U.S. Cl. 55—2

2 Claims

1. An assembly comprising; a vacuum chamber (12) having

a vacuum outlet duct (14) for connection to a vacuum source to establish a stream of gas flow from said vacuum chamber (12) through said outlet duct (14) to a vacuum source, said assembly further comprising electric field-producing means (22, 23, 24) for producing an electric field to subject the lubricant entering the vacuum outlet duct (14) from a vacuum source to the electric field to electrically charge the lubricant and electrically attract the lubricant back toward a vacuum source, said electric field-producing means including a pair of first (22, 23) and second (24) electrodes spaced from one another between said vacuum chamber (12) and a vacuum source and power means (26, 32) for establishing an electrical potential between said electrodes, said first electrode (22, 23) being positioned closer to said vacuum chamber (12) than said second electrode (24), said power means establishing a potential so that the lubricant is charged by said first electrode (22, 23) and is thereby attracted back to said second electrode (24), and a magnet (38) positioned and arranged to establish a magnetic



field extending between said electrodes to urge the charged lubricant toward said second electrode.

2. A method for preventing lubricant from entering a vacuum chamber (12) through an outlet duct (14) connected to a vacuum source comprising the steps of; establishing an electric field and subjecting the lubricant entering the vacuum outlet duct (14) from the vacuum source to the electric field to electrically charge the lubricant and electrically attracting the lubricant back toward the vacuum source, establishing the electric field by positioning first (22, 23) and second (24) electrodes in spaced relationship to one another between the vacuum chamber (12) and the vacuum source, positioning the first electrode (22, 23) closer to the vacuum chamber (12) than the second electrode, establishing an electrical potential between the electrodes so that the lubricant is charged by the first electrode (22, 23) and is thereby attracted back to the second electrode (24), establishing a magnetic field between the electrodes (22, 23 and 24) to urge the charged lubricant toward the second electrode (24).

4,391,615

METHOD FOR FILTERING ATOMIC OR MOLECULAR CONTAMINANTS FROM A GAS

Nicolaos Iniotakis, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Division of Ser. No. 56,784, Jul. 11, 1979, which is a continuation of Ser. No. 887,885, Dec. 6, 1977, abandoned. This application Nov. 3, 1981, Ser. No. 317,908

Int. Cl.³ B01D 53/22

U.S. Cl. 55—16

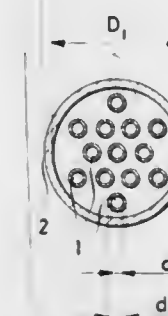
10 Claims

1. A method of cleaning atomic or molecular contaminating particles out of a flowing gas by causing said particles to diffuse into a crystalline solid and become absorbed therein, comprising:

passing the contaminated particles through a cavity in which are disposed in a predetermined arrangement a plurality of rigid filter elements occupying a length l in the flow direction of the gas through said cavity,

said filter elements being made of a crystalline material selected from those having a known sticking probability for particles of a particular atomic or molecular contaminating material to be filtered; according to selection criteria having reference to a preselected filter escape coefficient

$\delta(l, t)$ corresponding to a desired filter capability to be attained, the values of said length l and of the hydraulic free diameter d_{eff} provided in said cavity with said arrangement of filter elements therein, said length l and diameter d_{eff} dimensioned so that for a particular gas-flow velocity and a particular mass transfer coefficient, the product of their quotient (l/d_{eff}) and the second Stanton number St' is large enough for attaining said desired filter capability and the filter coefficient corresponding thereto, said second Stanton number being the ratio (h/v) of said mass transfer coefficient to said gas flow velocity, said selection criteria being:



- (a) said crystalline material has a high surface adsorptive sticking probability and for said contaminant particles on the surface of said filter elements;
- (b) said crystalline material is one for which the desorption constant (θ) regarding said contaminant is sufficiently small for attaining said described filter capacity;
- (c) said crystalline material is one for which the penetration coefficient $(1-\beta)$, and hence also the probability that said contaminant particles enter into the material and become irreversibly bound therein rather than remain on the surface is sufficiently large for attaining said desired filter capability, and
- (d) the saturation content (ϕ_{∞}) and the diffusion constant (D) are sufficiently large for the product

$$\frac{(1-\beta)\alpha^* N_G}{\sqrt{D} \cdot \phi_{\infty}}$$

to be smaller than unity, the quantities contributing to said product being defined as follows:

$$\alpha^* = \alpha \cdot 3.63 \times 10^3 \sqrt{\frac{T}{A}} \text{ in cm/sec}$$

A = mass number of the particles

T = temperature of the surface of the filter element in °K.

N_G = concentration of the contaminant particles in the gas in atoms per cm².

4,391,616

METHOD OF DEHUMIDIFICATION

Yoshio Imamura, Kyoto, Japan, assignor to Toyo Boseki Kabushiki Kaisha, Japan

Filed Jul. 21, 1981, Ser. No. 285,692

Claims priority, application Japan, Jul. 24, 1980, 55-102064

Int. Cl.³ B01D 53/04

U.S. Cl. 55—35

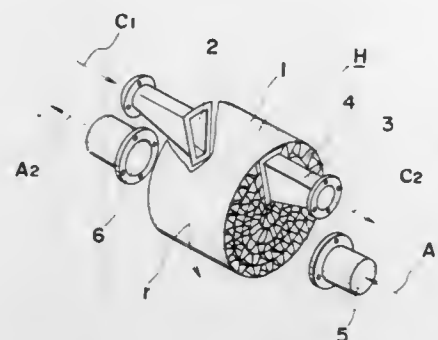
21 Claims

1. A method of dehumidification which comprises the steps of preparing a dehumidifying member composed of active carbon fiber material, in the form of sheets and bringing air to be dehumidified into contact with said dehumidifying member for the dehumidification of air.

20. An air dehumidifying arrangement which comprises a pair of dehumidifying members axially aligned and rotatably provided in a spaced relation from each other, each of said

dehumidifying members being formed by a moisture adsorbing element which is composed of a corrugated sheet of active carbon fibers and a flat separate sheet of active carbon fibers bonded to one surface of said corrugated sheet, and which is spirally wound to form said dehumidifying member, with air passage defined therebetween being arranged in substantially

flow of gas through the condensing-side housing and passing heated air or hot gases through the air-side housing at a raised temperature sufficient to melt the condensed and deposited sublimate solids from the heat-pipe surfaces in said condenser-side housing and removing molten sublimate therefrom.



the same direction, and a heat exchanging member fixedly disposed coaxially between said dehumidifying members and having one portion which allows air to be dehumidified to pass therethrough and through which cooling medium is passed for cooling the air to be dehumidified, and another portion for permitting hot air for dehumidification and regeneration of the active carbon fibers to pass therethrough.

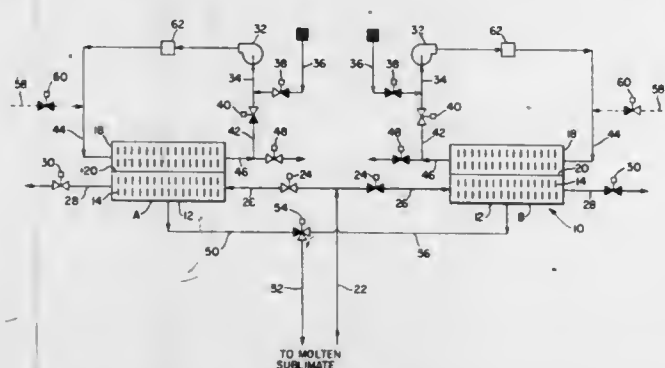
4,391,617

PROCESS FOR THE RECOVERY OF VAPORIZED SUBLIMATES FROM GAS STREAMS

Peter F. Way, P.O. Box 276, Boxford, Mass. 01921
Continuation-in-part of Ser. No. 942,616, Sep. 15, 1978, Pat. No. 4,252,772. This application Dec. 16, 1980, Ser. No. 216,934
The portion of the term of this patent subsequent to Feb. 24, 1998, has been disclaimed.

Int. Cl.³ B01D 7/00, 59/02; C07D 307/89

U.S. Cl. 55—82 10 Claims



1. In a method for recovering sublimate vapors from hot gas streams as formed in chemical reactions, manufacturing processes, storage tank vents or the like, in a heat-pipe exchanger system operative in a condensing mode and in a melting mode, said exchanger system comprising a pair of adjacent housings in which heat-pipe exchanger tubes are mounted horizontally so that the opposite tube ends extend into each housing, said pair of housings include an air-side housing through which cooling or heating fluid such as air or gas may be passed and a condensing-side housing through which sublimate-laden gas may be passed, each of said housings including means for independent flow control of hot and cold exchanger fluid therethrough, the method comprising the steps of,

passing said hot gas stream through the condensing-side housing during the condensing mode to cool said gas stream and condense the contained sublimate vapors as a solid on the heat-pipe surfaces therein,

simultaneously passing ambient air through the opposite air-side housing at a rate to remove the heat of cooling and condensation of said gas stream, and

alternately switching to the melting mode by stopping the

4,391,618 PROCESS AND APPARATUS FOR THE MANUFACTURE OF FIBERS

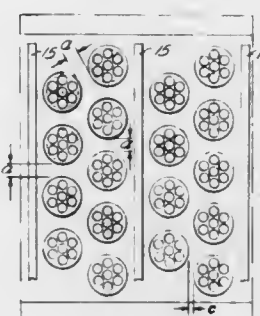
Jacques Lecron, Chambéry; Maxime Manera, Jacob Bellecombe; Jean-Paul Faure, Chignin-Challes les Eaux, and Jean-Pierre Renaudin, Cognin, all of France, assignors to Societe Vetrotex Saint-Gobain, Chambéry, France
Continuation of Ser. No. 207,712, Nov. 17, 1980, abandoned.

This application May 13, 1982, Ser. No. 377,903

Claims priority, application France, Nov. 20, 1979, 79 28538
Int. Cl.³ C03B 37/025

U.S. Cl. 65—1

36 Claims



27. A method for drawing attenuable material in attenuable condition, such as molten glass, into filaments, characterized by delivering the attenuable material in attenuable condition downwardly through a bushing the bottom of which has a plurality of series of bosses defining alveoles, each series comprising a multiplicity of bosses, each with a bottom wall having a plurality of orifices therethrough in communication with an alveole, and concurrently drawing at least one filament from each alveole, independently of each other alveole, regardless of whether or not said material has flooded the bottom surface of any individual alveole.

4,391,619

AIR NOZZLE APPARATUS FOR USE IN DRAWING GLASS FIBERS

Hiroaki Shono, and Toshiaki Kikuchi, both of Fukushima, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan
Filed Sep. 23, 1982, Ser. No. 421,908

Claims priority, application Japan, Oct. 14, 1981, 56-163647; Oct. 14, 1981, 56-163648; Oct. 15, 1981, 56-164474; Oct. 15, 1981, 56-164475; Oct. 15, 1981, 56-164476

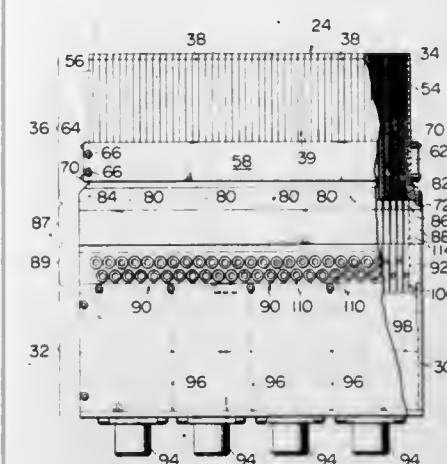
Int. Cl.³ C03B 37/025

U.S. Cl. 65—12

18 Claims

1. An air nozzle apparatus for directing air flow against the undersurface of an orifice plate of a glass fiber drawing forehearth, comprising: an air introducing section including a manifold formed with at least one air supply port; and an air nozzle section formed with a plurality of nozzle channels communicating with the manifold, said air nozzle section including a plurality of nozzle ribs of substantially the same shape each having opposed side surfaces and opposed end edge portions, said plurality of nozzle ribs being arranged to have their side surfaces located in adjacent relationship to provide a

nozzle block, said nozzle ribs each being formed on at least one of the opposed side surfaces with a longitudinally extending



recess which defines one of said plurality of nozzle channels between the adjacent nozzle ribs.

4,391,620

METHOD AND DEVICE FOR APPLYING LUBRICATION OR SEPARATION LIQUID TO GLASS-FORMING MACHINE

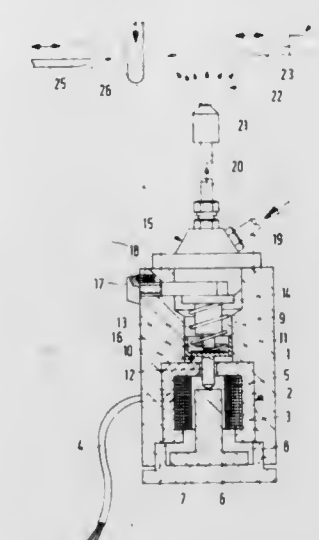
Gerhard Geisel, Bückeburg, Fed. Rep. of Germany, assignor to Hermann Heye, Obernkirchen, Fed. Rep. of Germany
Filed Feb. 17, 1981, Ser. No. 235,137

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1980, 3007512

Int. Cl.³ C03B 40/02

U.S. Cl. 65—26

16 Claims



1. A method of an intermittent application of a lubrication or separation liquid without admixture of a carrier gas on at least one part of a glass-forming machine prior to its contact with the processed molten glass, such as shearing blades for shearing gobs off a glass strand, a gravity tube or a chute for guiding glass gobs, a mold, a mold part or a press plunger, comprising the steps of momentarily compressing the lubrication or separation liquid to a pressure exceeding 100 bar; then atomizing the compressed liquid; and applying a cone of the atomized liquid onto said machine part.

4,391,621

METHOD OF MAKING LENSES HAVING A SPHERICAL FACE

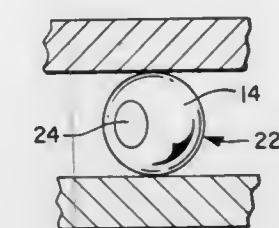
Walter P. Siegmund, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 23, 1981, Ser. No. 246,551

Int. Cl.³ C03C 15/02, 19/00

U.S. Cl. 65—31

7 Claims



1. A method of making lenses comprising the steps of: assembling a preform of glasses including a rod of lens glass and a surrounding cladding of leachable glass, said rod being of greater diametral size than desired of said lenses; heating and drawing the preform to such a reduced cross-sectional size as to bring said rod to the diameter desired of said lenses; cutting said drawn preform transaxially into a number of sections of lengths approximately equal to the drawn preform diameter; grinding said sections into spherical configurations of radii of curvature equalling that desired of at least one face of each of said lenses; removing remaining leachable glasses from said sections whereby rod glasses each having at least one spherical face comprise said lenses; and polishing said spherical faces of said lenses at a stage of said method following said grinding step.

4,391,622

METHOD FOR THE PRECISION/MANUFACTURE OF GLASS ARTICLES

Cornelis L. Alting; Rudolf Brehm, and Jan Haisma, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

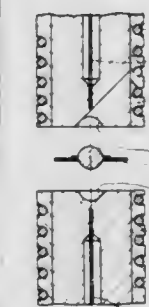
Filed May 18, 1981, Ser. No. 264,738

Claims priority, application Netherlands, May 28, 1980, 8003050

Int. Cl.³ C03B 11/08, 40/00

U.S. Cl. 65—66

3 Claims



1. In a method for precision manufacture of glass articles molded in a mold or hot-pressed in a die, the improvement comprises the step of using a mold or die having at least contact surfaces made from quartz glass or an amorphous SiO₂ with up to 7.5% by weight of TiO₂ with a coefficient of linear expansion of at most 60×10⁻⁸ per °C., wherein said glass articles have a substantially higher coefficient of linear expansion.

4,391,623

METHOD FOR MAKING OF SOLID FERTILIZER BY SEPARATION OF LIQUID MANURE AND DEVICE FOR CARRYING OUT THIS METHOD

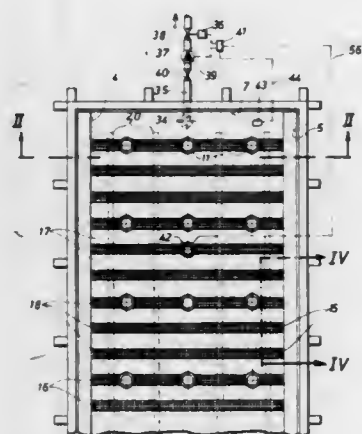
Hermann Knepper, Olfen, Fed. Rep. of Germany, assignor to Heinrich Bernhard Brinkmann, Bergkamen-Overberge, Fed. Rep. of Germany

Filed Apr. 24, 1981, Ser. No. 257,403

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1980, 3044022

Int. Cl.³ C05F 3/00, 3/06

U.S. Cl. 71-21



1. In a method of making a solid fertilizer by separation of liquid manure into a solid phase and a liquid phase by means of a filter vessel into which the liquid manure is charged, said filter vessel having a bottom and a top and at least one closeable discharge opening, the improvement comprising the steps of immersing the bottom of the filter vessel into a liquid; then introducing the liquid manure into the filter vessel and leaving the liquid manure in said vessel in a resting stage until a solid phase of the manure is collected on the top of the filter vessel and the liquid phase is collected therebelow; discharging the liquid phase from the vessel to such an extent that the solid phase almost reaches the bottom of the filter vessel; interrupting said discharging step and waiting for a renewed separation of the solid phase from the liquid phase and for collecting the solid phase on the top of the vessel and the liquid phase therebelow; and discharging a liquid phase of the manure newly collected in the filter vessel.

4,391,624

HERBICIDALLY ACTIVE 2-SUBSTITUTED 5-PHENOXYPHENYLPHOSPHONIC ACID ESTERS

Ludwig Maier, Arlesheim, and Dieter Dürr, Bottmingen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 117,167, Jan. 31, 1980, Pat. No. 4,322,375. This application Jun. 1, 1981, Ser. No. 269,228

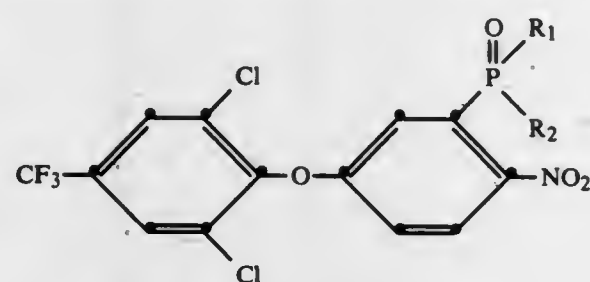
Claims priority, application Switzerland, Feb. 6, 1979, 1147/79

Int. Cl.³ A01N 57/18; C07F 9/40

U.S. Cl. 71-86

5 Claims

1. A 2-nitro-5-(2',6'-dichloro-4'-trifluoromethylphenoxy)-phenylphosphonic acid derivative of the formula



wherein R₁ and R₂ are C₁-C₃-alkoxy.

2. A method for selectively controlling weeds in crop cul-

tures which comprises applying to the locus of said weeds and crops a herbicidally effective amount of a compound according to claim 1.

4,391,625

DIESTERS OF N-ALKYL SUBSTITUTED AMINO METHYL PHOSPHONIC ACID USEFUL AS HERBICIDES

William R. Purdum, Maryland Heights, Mo., assignor to Monsanto Company, St. Louis, Mo.

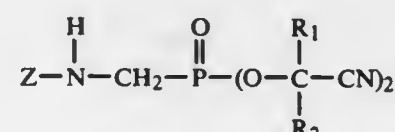
Filed Jun. 19, 1981, Ser. No. 275,463

Int. Cl.³ A01N 57/18; C07F 9/40

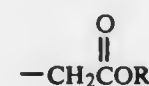
U.S. Cl. 71-86

35 Claims

1. Diesters of N-alkyl substituted amino methyl phosphonic acid of the formula



wherein Z is



wherein R is lower alkyl; or Z is lower alkynyl or lower alkyl; R₁ is selected from the group consisting of lower alkyl, lower alkoxy lower alkyl, halo lower alkyl, and phenyl lower alkyl, and R₂ is hydrogen or lower alkyl.

24. A herbicidal method which comprises contacting a plant with a herbicidally effective amount of a compound of claim 1.

4,391,626

HALOALKYLAMIDE COMPOUNDS AND HERBICIDAL ANTIDOTE COMPOSITIONS

Jörg Stetter; Wolf Reiser, both of Wuppertal, and Wilfried Faust, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 19, 1981, Ser. No. 226,287

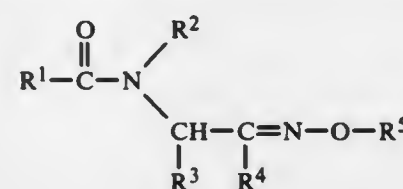
Claims priority, application Fed. Rep. of Germany, Feb. 9, 1980, 3004871

Int. Cl.³ A01N 37/00, 37/18; C07C 103/44

U.S. Cl. 71-88

42 Claims

1. Haloalkylamide compound of the formula



wherein

R₁ is haloalkyl;
R₂ is alkyl, alkenyl, alkynyl, alkoxyalkyl, alkylthioalkyl, haloalkyl or alkoximinioalkyl;
R₃ is hydrogen or alkyl with 1 to 4 carbon atoms;
R₄ is hydrogen or alkyl with 1 to 4 carbon atoms; and
R₅ is hydrogen, alkyl, alkenyl, alkynyl or aralkyl.

32. Herbicidal composition comprising a herbicidally active compound selected from thiolcarbamates and acetanilide herbicides and, as an antidote, an effective amount of a haloalkylamide compound as claimed in claim 1.

4,391,627

HERBICIDAL BENZOTHIOPHENE AND BENZOFURAN SULFONAMIDES

George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

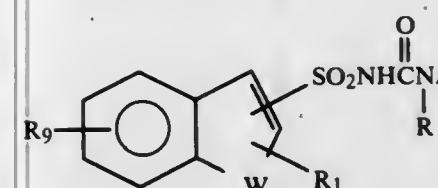
Continuation-in-part of Ser. No. 172,997, Jul. 25, 1980, abandoned. This application Jun. 22, 1981, Ser. No. 274,233

Int. Cl.³ A01N 43/54; C07D 239/26

U.S. Cl. 71-90

35 Claims

1. A compound of the formula:



wherein

R is H or CH₃;

R¹ is H, Cl, Br, NO₂, C₁-C₃ alkyl, C₁-C₃ alkoxy, CO₂R², C(O)NR³R⁴, SO₂R⁵ or SO₂NR⁶R⁷;

R² is C₁-C₄ alkyl, C₃-C₄ alkenyl, CH₂CH₂OCH₃, CH₂CH₂OC₂H₅, CH₂CH₂CH₂OCH₃ or CH₂R⁸;

R³ is C₁-C₄ alkyl;

R⁴ is H, C₁-C₄ alkyl or OCH₃; or

R³ and R⁴ can be taken together to form -(CH₂)₄-;

R⁵ is C₁-C₄ alkyl;

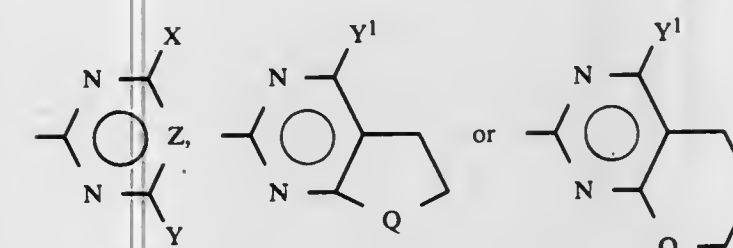
R⁶ is C₁-C₃ alkyl or OCH₃;

R⁷ is C₁-C₃ alkyl;

R⁸ is C₁-C₃ alkyl substituted with 1-3 atoms of F, Cl, or Br;

R⁹ is H, CH₃, OCH₃, Cl, Br or NO₂; W is O or S;

A is



X is H, CH₃, OCH₃, OC₂H₅, OCH₂CF₃, CH₂OCH₃ or Cl;
Y is CH₃, OCH₃, OC₂H₅, NH₂, NHCH₃, N(CH₃)₂ or SCH₃;
Z is N, CH, C-Cl, C-Br, C-CN, C-CH₃, C-C₂H₅, C-CH₂CH₂Cl or C-CH₂CH=CH₂;

Y¹ is H, CH₃, OCH₃ or Cl; and

Q is O or CH₂;

provided that

(1) when R⁴ or R⁶ is OCH₃, then R³ or R⁷ is CH₃;

(2) the total number of carbon atoms of either R³ and R⁴, or R⁶ and R⁷, is less than or equal to 4; and

(3) when X is Cl, then Z is CH.

19. A composition for controlling the growth of undesired vegetation which comprises an effective amount of a compound of claim 1 and at least one of the following: surfactant, solid or liquid diluent.

4,391,628

2-[4-(6-HALOQUINOXALINYL-2-OXY)PHENOXY]PROPIONIC ACID ESTERS

Hermann Rempfer, Ettingen, and Beat Böhner, Binningen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 5, 1982, Ser. No. 346,359

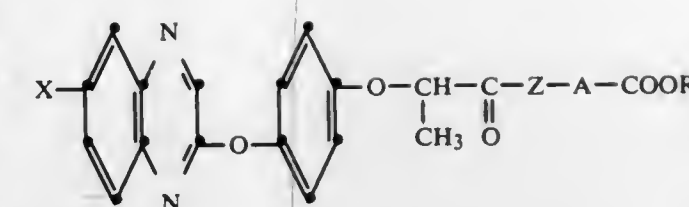
Claims priority, application Switzerland, Feb. 16, 1981, 1009/81

Int. Cl.³ C07D 241/44, 241/52; A01N 43/60

U.S. Cl. 71-92

19 Claims

1. A 2-[4-(6-Haloquinoxaliny-2-oxy)phenoxy]propionic acid ester of the general formula I



wherein X is fluorine, chlorine or bromine, Z is oxygen or sulfur, A is a C₁-C₄alkylene bridge which is unsubstituted or substituted by methyl or ethyl, and R is C₁-C₄alkyl.

13. A method of controlling unwanted plant growth which comprises treating the unwanted plants or the locus thereof with a herbicidally effective amount of a compound of the formula I according to claim 1.

4,391,629

2-PYRIDYLOXYACETANILIDES AND THEIR USE AS HERBICIDES

Masahiro Aya; Junichi Saito; Kazuomi Yasui; Shinzo Kakabu; Atsumi Kamochi, and Naoko Yamaguchi, all of Tokyo, Japan, assignors to Nihon Tokushu Noyaku Seizo K.K., Tokyo, Japan

Filed Jan. 21, 1982, Ser. No. 341,379

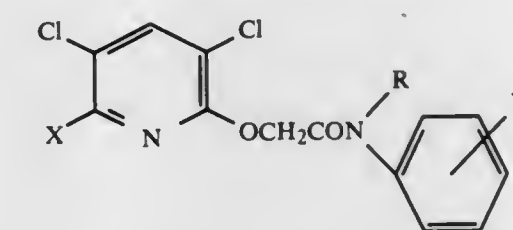
Claims priority, application Japan, Jan. 28, 1981, 56-10110

Int. Cl.³ C07D 213/64; A01N 43/40

U.S. Cl. 71-94

11 Claims

1. A 2-pyridyloxyacetanilide of the formula



in which

X is hydrogen, halogen, C₁-C₄ alkyl or C₁-C₄ halogenoalkyl,

R is C₁-C₄ alkyl,

Y each independently is halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy or C₁-C₄ halogenoalkyl, and

n is 0, 1, 2 or 3.

7. A method of combating weeds, comprising applying to said weeds, or to a habitat thereof, a herbicidally effective amount of a compound according to claim 1.

4,391,630

CYANO-(4-CYANOPHENYL)METHYL ETHYL ESTER OF CARBONIC ACID USEFUL AS AN AGENT FOR SELECTIVE CONTROL OF BARNYARD GRASS

Andrew T. Au, Needham, Mass., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 3, 1982, Ser. No. 354,480

Int. Cl.³ A01N 47/06; C07C 121/75

U.S. Cl. 71-105

3 Claims

1. Cyano-(4-cyanophenyl)methyl ethyl ester of carbonic acid.

3. A herbicidal composition comprising an inert horticultural carrier and as a herbicide, the compound of claim 1, the concentration of said herbicide being from 0.0001 to about 50 percent by weight.

4,391,631

HERBICIDAL COMPOSITION

Tetsuo Takematsu, Utsunomiya; Takayuki Isogawa, and Yasuya Sakuraba, both of Tokyo, all of Japan, assignors to Hodogaya Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 29, 1981, Ser. No. 306,871

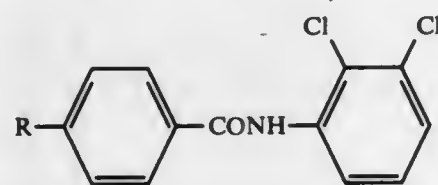
Claims priority, application Japan, Nov. 6, 1980, 55-155160

Int. Cl.³ A01N 37/18

U.S. Cl. 71-118

3 Claims

1. A herbicidal composition which consists essentially of a benzamide having the formula:



wherein R represents $n\text{-C}_4\text{H}_9\text{O}$, $\text{C}_2\text{H}_5\text{OCH}_2\text{O}$, or $n\text{-C}_4\text{H}_9\text{OCH}_2\text{O}$ and 3,4-dichloropropionanilide as active ingredients in an effective amount for controlling weeds and an adjuvant.

4,391,632

PROCESS FOR THE SEPARATION OF LEAD FROM A SULFIDIC CONCENTRATE

Olavi A. Aaltonen, Pori; Rolf E. Malmström, Helsinki; Esko O. Nermes, Turku, and Tapio K. Tuominen, Espoo, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

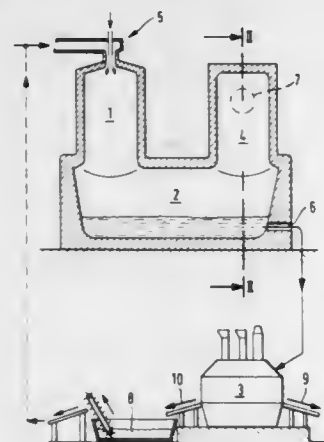
Filed Apr. 15, 1981, Ser. No. 254,211

Claims priority, application Finland, Apr. 16, 1980, 801214

Int. Cl.³ C22B 13/02

U.S. Cl. 75-26

7 Claims



1. A process for the separation of lead from a sulfidic concentrate using a flash-smelting furnace which has a lower furnace, a riser pipe connected to the lower furnace for removing gas from the lower furnace, and a reaction shaft connected to the lower furnace, said reaction shaft having an upper section with means for feeding said concentrate into said upper section, comprising the steps of feeding a finely-divided concentrate, a silicate-high slagging agent, and air or oxygen-enriched air into said upper section of said reaction shaft in order to form a suspension and to oxidize the lead to lead oxide, removing gases via said riser pipe, and withdrawing melt from said lower furnace for further treatment which process further comprises feeding the slagging agent at such a rate that substantially all of the lead oxide reacts with the slagging agent to produce lead silicate, resulting in a melt in the form of a slag containing substantially all of the lead silicate in said lower furnace, withdrawing melt from the lower furnace; and directing all of the melt withdrawn from the lower furnace to a reduction furnace in order to reduce the lead silicate to produce raw lead and a slag low in lead and high in silicate and separating raw lead from the slag.

4,391,633

PROCESS FOR DEPHOSPHORIZATION, DESULFURIZATION AND DENITRIFICATION OF CHROMIUM-CONTAINING PIG IRON

Takashi Yamauchi; Shigeaki Maruhashi, and Morihiro Hasegawa, all of Yamaguchi, Japan, assignors to Nisshin Steel Company, Ltd., Tokyo, Japan

Filed Oct. 16, 1981, Ser. No. 312,065

Claims priority, application Japan, Oct. 21, 1980, 55-146351

Int. Cl.³ C21C 7/02

U.S. Cl. 75-53

11 Claims

1. A process for dephosphorization, desulfurization and denitrification of chromium-containing pig iron comprising contacting the melt of said iron with a slag comprising not less than 10% and less than 40% of CaO, not less than 5% and not more than 40% of iron oxides and more than 40% and not more than 80% of CaF₂ in which the contact of SiO₂ as an impurity is not more than 10% and the ratio %CaO/%SiO₂ is not less than 3.

4,391,634

WELDABLE OXIDE DISPERSION STRENGTHENED ALLOYS

Thomas J. Kelly, Suffern, and Mark L. Robinson, Warwick, both of N.Y., assignors to Huntington Alloys, Inc., Huntington, W. Va.

Filed Mar. 1, 1982, Ser. No. 353,036

Int. Cl.³ C22C 38/06, 38/18, 38/24, 38/26

U.S. Cl. 75-124

25 Claims

1. A weldable refractory-oxide dispersion strengthened alloy affording oxidation resistance and strength at elevated temperatures, said alloy being ferritic and substantially titanium-free and consisting essentially, by weight, of about 10 to about 40% chromium, about 1 to about 10% aluminum, a minor amount of at least one of the additives tantalum, niobium and hafnium and the balance essentially iron, and said alloy being characterized on fusion welding by good oxide dispersoid distribution in the weld zone.

4,391,635

HIGH CR LOW NI TWO-PHASED CAST STAINLESS STEEL

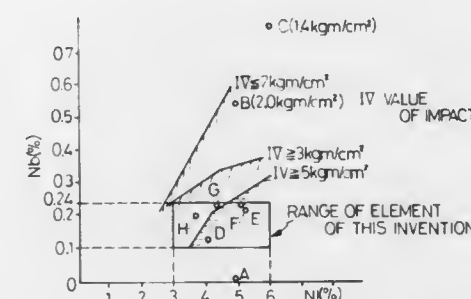
Shinichi Murakami, Osaka; Toshiaki Morichika, Hirakata; Hisashi Hiraishi, Yawata, and Hiroyuki Shiokawa, Osaka, all of Japan, assignors to Kubota, Ltd., Osaka, Japan

Continuation of Ser. No. 189,335, Sep. 22, 1980, abandoned. This application Jul. 6, 1981, Ser. No. 280,237

Int. Cl.³ C22C 38/42, 38/48

U.S. Cl. 75-125

7 Claims



1. A ferrite-austenitic two-phased cast stainless steel having an impact strength of at least 3 kg-m/cm² and containing the following (weight %):

C	less than 0.10%
Si	less than 1.5%
Mn	less than 1.5%
P and S	less than 0.4% each
Cr	22-30%
Ni	3-6%
Mo	0.5-0.9%

-continued

Cu	0.4-1.0%
N	less than 0.1%
Nb	0.1-0.24%
Fe	balance

wherein values of Ni equivalent and Cr equivalent are calculated by the following equations:

$$\text{Cr eq} = \text{Cr}\% + \text{Mo}\% + 1.5 \text{ Si}\% + 0.5 \text{ Nb}\%$$

$$\text{Ni eq} = \text{Ni}\% + 0.5 \text{ Mn}\% + 30 \text{ C}\%$$

Cr eq/Ni eq being 3 to 4.5 and ferrite content being 50 to 80%.

4,391,636

METHOD OF AND APPARATUS FOR THE PRODUCTION OF NODULAR (DUCTILE) CAST IRON

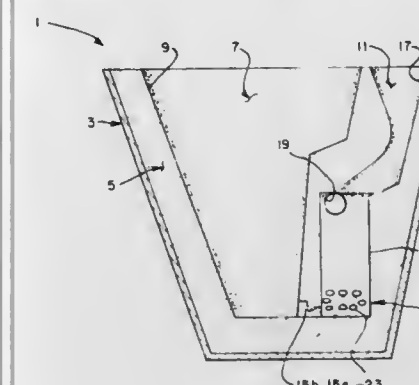
Michael W. Windish, Bridgeton, Mo., assignor to Wintec Company, St. Louis, Mo.

Filed Dec. 16, 1981, Ser. No. 331,163

Int. Cl.³ C22C 37/00; C21C 7/00

U.S. Cl. 75-130 R

10 Claims



1. A process for the production of ductile cast iron from a molten base iron which, but for the treatment of said process, would be a grey cast iron upon solidification, said process being carried out in a treatment ladle lined with a suitable refractory material, said ladle having a main chamber therein, a reaction chamber, and a charging and filling passage leading from the top of said ladle to said reaction chamber, the latter being in communication with the lower portion of the main chamber, said process comprising of the steps of: charging said reaction chamber with a quantity of a nodularizing agent; pouring said molten base metal into said reaction chamber via said charging and filling passage thereby to effect a reaction between said nodularizing agent and said base metals; rapidly establishing a hydrostatic pressure head over said reaction chamber of sufficient depth thereby to maximize the recovery of said nodularizing agent in said base metal; and permitting said base metal with the dissolved nodularizing agent therein to flow into said main chamber.

4,391,637

RHEOLOGICAL ADDITIVE FOR NON-AQUEOUS FLUID SYSTEMS

Wilbur S. Mardis, Trenton, N.J., and Claude M. Finlayson, Houston, Tex., assignors to NL Industries, Inc., New York, N.Y.

Filed Oct. 19, 1981, Ser. No. 313,031

Int. Cl.³ C09D 11/00; C08L 91/06; C07F 5/06

U.S. Cl. 106-20

13 Claims

1. A non-aqueous fluid system which comprises: a non-aqueous fluid composition and an organophilic clay rheological composition which is the reaction product of an organic cationic quaternary ammonium compound and a smectite-type clay having a cation exchange capacity of at least 75 milliequivalents per 100 grams of said clay, wherein said organic

cationic quaternary ammonium compound has the positive charge on a single atom and contains

(a) a first member selected from the group consisting of a β,γ -unsaturated alkyl group, a hydroxyalkyl group having 2 to 6 carbon atoms and mixtures thereof,

(b) a second member comprising a long chain alkyl group having 12 to 60 carbon atoms and

(c) a third and fourth member selected from a member of group (a), an aralkyl group, an alkyl group having 1 to 22 carbon atoms and a mixture thereof; and wherein the amount of said organic cationic quaternary ammonium compound is from 90 to 140 milliequivalents per 100 grams of said clay, 100% active clay basis.

4,391,638

METHOD FOR RECLAIMING INK WASTE

Gerard A. Fusco, North Brunswick, and Glenn van Lier, Hillsborough, both of N.J., assignors to J. M. Huber Corporation, Locust, N.J.

Filed Apr. 22, 1982, Ser. No. 370,884

Int. Cl.³ C09D 11/02

U.S. Cl. 106-20

14 Claims

1. A method for reclaiming waste ink contaminated with solid, fibrous impurities comprising, diluting said waste ink with ink oil to form an ink mixture; heating said mixture until the viscosity of said mixture is less than substantially 60 poise; thereafter, subjecting said mixture to an angular acceleration sufficient to separate said solid, fibrous impurities from said ink mixture to produce a clarified ink; and blending with said clarified ink sufficient virgin ink to produce a printing ink having a predetermined rheological property.

4,391,639

RECORDING LIQUID

Masatsune Kobayashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 2, 1982, Ser. No. 413,989

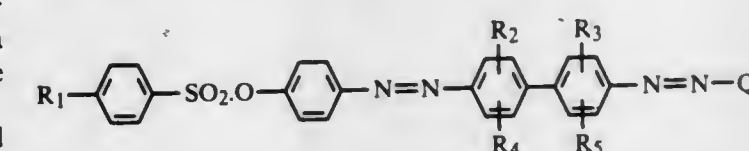
Claims priority, application Japan, Sep. 10, 1981, 56-142644

Int. Cl.³ C09D 11/02

U.S. Cl. 106-22

3 Claims

1. A recording liquid characterized by containing as a dye a compound represented by the formula



wherein R₁ represents hydrogen or C₁-C₂ alkyl, R₂ and R₃ each represent hydrogen, C₁-C₂ alkyl, or C₁-C₂ alkoxy, R₄ and R₅ represent hydrogen or sulfo in salt form with base, and Q₁ represents naphthyl substituted by hydroxyl and by sulfo in salt form with base in water or a mixture of water and a water-soluble organic solvent.

4,391,640

PROCESS FOR PRODUCING OIL-MODIFIED AND ROSIN-MODIFIED PHENOLIC RESIN FOR PRINTING INKS

Noboru Okoshi; Kin-ichi Kudo, and Shoichi Shimoyama, all of Chiba, Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, Japan

Filed Jun. 3, 1981, Ser. No. 270,021

Claims priority, application Japan, Jun. 5, 1980, 55-74920

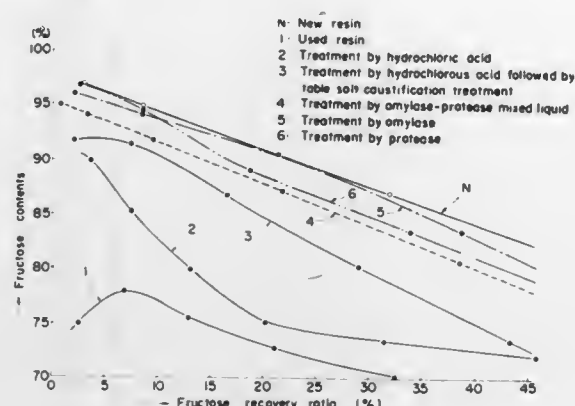
Int. Cl.³ C09D 11/06, 11/08

U.S. Cl. 106-29

18 Claims

1. A process for producing an animal or vegetable oil-modi-

on surfaces thereof comprising contacting said strongly acidic cation exchange resin with an enzyme solution whereby each



of said polysaccharides and/or proteins is removed from the surfaces of said resin.

4,391,650

METHOD FOR FABRICATING IMPROVED COMPLEMENTARY METAL OXIDE SEMICONDUCTOR DEVICES

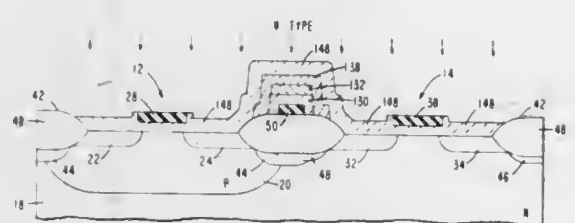
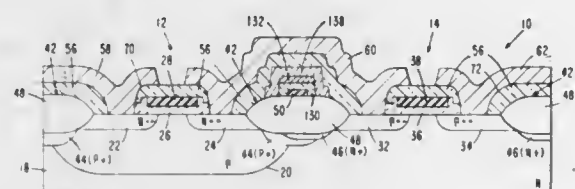
Robert F. Pfeifer, and Murray L. Trudel, both of Centerville, Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 22, 1980, Ser. No. 218,891

Int. Cl.³ H01L 21/22, 21/265

U.S. Cl. 148—1.5

8 Claims



1. A process for forming a high packing density CMOS integrated circuit device from a structure including a body of a semiconductor material having a first active region of a first conductivity type, a second active region of a second conductivity type, and a thin silicon dioxide layer formed on said body encompassing a gate region within each of said active regions, said process comprising the steps of:

forming a layer of polysilicon over said thin silicon dioxide layer;

patterning said polysilicon into gate electrodes corresponding to said first and second active regions;

doping the substrate independently of said gate electrodes to form the source and drain of a first conductivity type in said second active region and a source and drain of the second conductivity type in said first active region such that said sources and drains are aligned with their corresponding gates;

doping said polysilicon gates with impurities of a single conductivity type independently of said sources and drains

whereby said device is free of dopant penetration from said gates into said substrate through said thin oxide layer.

4,391,651

METHOD OF FORMING A HYPERABRUPT INTERFACE IN A GaAs SUBSTRATE

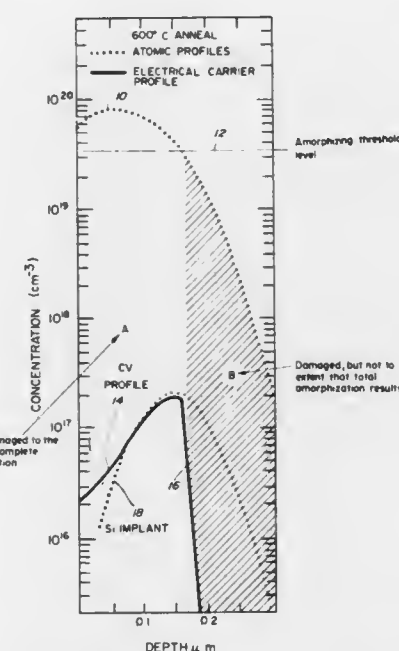
Max N. Yoder, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 15, 1981, Ser. No. 311,709

Int. Cl.³ H01L 21/263, 21/26, 21/203

U.S. Cl. 148—1.5

6 Claims



1. An improved method of forming, in the fabrication of a desired FET, a hyperabrupt interface in a GaAs substrate, wherein said improved method comprises the steps of:

preamorphizing a region of said GaAs substrate to a predetermined depth;

implanting donor ions in said preamorphized region to a depth of 90% of the predetermined depth thereby creating a retrograde donor ion concentration profile with depth; and

annealing said GaAs substrate to activate said implanted donor ions, thereby creating an electrically active region and an underlying amorphous region in said preamorphized region and forming said hyperabrupt interface therebetween.

4,391,652

SURFACE TREATMENT FOR ALUMINUM AND ALUMINUM ALLOYS

Narayan Das, Westmont, and Joy M. Schaefer, Park Ridge, both of Ill., assignors to Chemical Systems, Inc., Chicago, Ill.

Filed Jan. 29, 1982, Ser. No. 343,992

Int. Cl.³ C23F 7/00

U.S. Cl. 148—6.15 R

15 Claims

1. An aqueous coating solution for forming a coating on aluminum and aluminum alloy surfaces consisting essentially of at least about 0.025 grams/liter of zirconium, at least about 0.050 grams/liter of fluoride ion, at least about 0.025 grams/liter of nickel and sufficient acid to adjust the pH to the range of about 1.2 to about 2.5.

4,391,653

PROCESS FOR PRODUCING COLD ROLLED STEEL STRIP HAVING EXCELLENT MECHANICAL STRENGTH AND USEFUL FOR MOTOR VEHICLES

Hiroshi Takechi; Hiroshi Katoh, both of Kisarazu; Kazuo Koyama, Kimitsu, and Kazuhide Usami, Kisarazu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Sep. 15, 1981, Ser. No. 302,450

Claims priority, application Japan, Sep. 25, 1980, 55/132344

Int. Cl.³ C21D 8/04

U.S. Cl. 148—12 C

5 Claims

1. A process for producing a high strength cold rolled steel strip useful for motor vehicles, comprising the steps of:

preparing a steel slab comprising

0.008 to 0.020% by weight of carbon,

0.01 to 0.45% by weight of manganese,

0.05 to 0.10% by weight of phosphorus,

0.005 to 0.050% by weight of acid-soluble aluminum,

and the balance consisting of iron and unavoidable impurities in which nitrogen is limited to a content of 40 ppm or less;

heating said steel slab to a temperature of 1200° C. or less; hot rolling said heated steel slab at a temperature not lower than the Ar₃ point of said steel;

descaling said resultant hot rolled steel strip;

cold rolling said descaled steel strip at a rolling reduction of 65% or more;

continuously annealing said cold rolled steel strip by heating it to a temperature of from 700° to 900° C., by soaking the steel strip for 20 seconds to 3 minutes and by cooling the steel strip at a cooling rate of from 5° C./sec to 30° C./sec in the temperature range of 650° C. or more and then, at a cooling rate of more than 30° C./sec in the temperature range of below 650° C.;

overaging said annealed steel strip at a temperature of from 320° to 450° C. for 1 to 10 minutes;

cooling said overaged steel strip to the ambient temperature, and;

temper-rolling said cooled steel strip at the ambient temperature.

4,391,654

METHOD OF THERMO-CHEMICAL TREATMENT OF CUTTING TOOLS AND PLASTIC WORKING TOOLS

Jerzy Wyszowski; Wladyslaw Panasiuk; Stanislaw Koprek, and Andzej Piechal, all of Warsaw, Poland, assignors to Instytut Mechaniki Precyzyjnej, Warsaw, Poland

Filed Jun. 22, 1981, Ser. No. 275,709

Claims priority, application Poland, Jul. 4, 1980, 225459

Int. Cl.³ C23F 7/04

U.S. Cl. 148—16.6

4 Claims

1. A method of thermo-chemically treated cutting tools or plastic working tools made of high-speed, high-chromium and ledeburitic steels comprising the steps of

forming an oxide layer on the surfaces of said tools, said layer having a thickness of being not greater than 6 μm,

and said layer being produced by oxidizing said tools in steam at a temperature within the range of 520 to 570 degrees Centigrade for 30 to 120 minutes, and

gas nitriding the oxidized tools, for a period of time of at least 15 minutes in duration, in an atmosphere of dissociated ammonia at a temperature of 520 to 580 degrees Centigrade and simultaneously subjecting the oxidized tools to oxidation, in steam consisting of 5 to 95 percent by volume of the whole gas atmosphere, during any arbitrary interval of time occurring during said period whereby the atmosphere of dissociated ammonia is obtained by dissociation of ammonia in the presence of steam.

4,391,655

TREATMENT FOR THE ALLEVIATION OF HIGH TEMPERATURE OXIDATION OF ALUMINUM

Michael E. Thurston; William A. Cassada, III, and Daniel J. Schardein, all of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Sep. 28, 1981, Ser. No. 306,484

Int. Cl.³ C21D 1/44

U.S. Cl. 148—20.6

12 Claims

1. A method for the control of high temperature oxidation in aluminum materials to be subjected to solution heat treatment consisting of exposing the surface of the aluminum material to an aqueous solution consisting of a transition metal chloride prior to said solution heat treatment.

4,391,656

ISOTROPIC AND NEARLY ISOTROPIC PERMANENT MAGNET ALLOYS

Sungho Jin, Gillette, and Thomas H. Tiefel, Rockaway, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

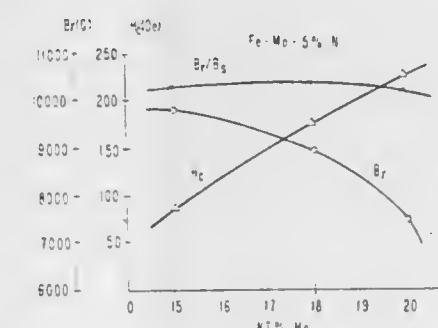
Division of Ser. No. 197,970, Oct. 17, 1980, Pat. No. 4,340,435.

This application May 3, 1982, Ser. No. 374,310

Int. Cl.³ H01F 1/02

U.S. Cl. 148—102

3 Claims



1. Method for making a body of a magnetically isotropic or nearly isotropic permanent magnet alloy, said method comprising (1) annealing a metallic body at a temperature in the range of 800–1200 degrees C., said body comprising an amount of at least 95 weight percent Fe, Mo, and Ni, Mo being in the range of 10–40 weight percent of said amount, and Ni being in the range of 0.5–15 weight percent of said amount, (2) rapidly cooling said body, and (3) aging said body at a temperature in the range of 500–800 degrees C. for a time in the range of 5 minutes to 10 hours, whereby magnetic coercivity of said alloy is in the range of 50–500 oersted, magnetic remanence of said alloy is in the range of 7000–14000 gauss, and magnetic squareness of said alloy is less than 0.9.

4,391,657

MANUFACTURE OF NIOBIUM-ALUMINUM SUPERCONDUCTING MATERIAL

William L. Feldmann, Bernardsville; John M. Rowell, Berkeley Heights, and Paul H. Schmidt, Chatham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 17, 1981, Ser. No. 284,523

Int. Cl.³ H01L 39/24

U.S. Cl. 148—133

13 Claims

1. Method for making a Nb₃Al superconducting shaped article which is superconducting at a temperature which is greater than or equal to 10 degrees Kelvin,

said method comprising heating a precursor body consisting essentially of a supporting component and a supported component,

said supporting component comprising a first element which is niobium and at least one additional element whose chemical affinity for oxygen is greater than the chemical affinity between aluminum and oxygen,

said supported component comprising aluminum oxide, and heating being at a temperature in the range of from 800 to 1600 degrees Celsius and for a time which is sufficient to reduce the aluminum oxide and to form an oxide of at least a portion of said at least one additional element, whereby at least a layer consisting essentially of superconducting niobium-aluminum is formed.

4,391,658

METHOD FOR MANUFACTURING SEMICONDUCTOR SUBSTRATE

Syoiti Kitane; Shigeru Honjo, both of Himeji; Kuniyoshi Ohe, and Fumio Tobioka, both of Hyogo, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

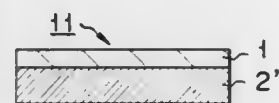
Filed Dec. 9, 1981, Ser. No. 329,060

Claims priority, application Japan, Dec. 12, 1980, 55-175305

Int. Cl.³ H01L 21/225

U.S. Cl. 148—188

5 Claims



1. A method for manufacturing a semiconductor substrate comprising the steps of:

- forming on all surfaces of a raw semiconductor substrate an impurity layer of the same conductivity type as the raw semiconductor substrate and forming a first insulating film on the entire impurity layer;
- removing those portions of the impurity layer and first insulating film which are formed on one major surface of the raw semiconductor substrate and finishing the exposed major surface of the raw semiconductor substrate, thus providing a mirror surface;
- forming a second insulating film on the mirror surface of the raw semiconductor substrate and on the remaining first insulating film, forming a protective film on the entire second insulating film and forming a third insulating film on the entire protective film, thus providing a laminate;
- holding the laminate side by side together with other laminates provided in the same way;
- heating the laminates thus held, in an oxidizing atmosphere, thereby diffusing the impurity from the impurity layers into the raw semiconductor substrates to form diffusion layers in the raw semiconductor substrates; and
- removing the first insulating film, second insulating film, protective film and third insulating film from each of the laminates.

4,391,659

EXPLOSIVE

Jeremy G. B. Smith, Edenvale, South Africa, assignor to AECI Limited, Johannesburg, South Africa

Filed May 17, 1982, Ser. No. 378,719

Claims priority, application South Africa, May 26, 1981, 81/3531

Int. Cl.³ C06B 45/00

U.S. Cl. 149—2

19 Claims

1. An emulsion explosive of the water-in-fuel type which has as its discontinuous phase an oxidizing salt-containing component, and as its continuous phase a fuel component which is immiscible with the discontinuous phase, the continuous phase comprising at least a proportion of a polymeric dispersion.

4,391,660

COPPER CONTAINING BALLISTIC ADDITIVES

Robert C. Corley, Lancaster, Calif., and Frederick F. Myers, Jr., Manassas, Va., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 300,761

Int. Cl.³ C06B 45/10

U.S. Cl. 149—19.9

9 Claims

1. In a solid propellant formulation composed of a plastic binder component, a fuel component and an oxidizer component, the improvement which comprises the addition of a minor amount of a copper containing additive selected from the groups consisting of copper thiocyanate, copper ferrocyanide, 2,5-dihydroxy benzoquinone copper (II) polymer, an N-substituted benzotriazol copper acetate complex, a copper Schiff Base with salicylidene ethylene diamine, copper (II) [(salicylaldehyde) (2,4-pentanedione)], and tetrachloro u-bis dimethyl glyoxamate copper (II) di copper (II).

4,391,661

CABLE COVERING METHOD USING AN EXPANDABLE INSULATIVE SLEEVE

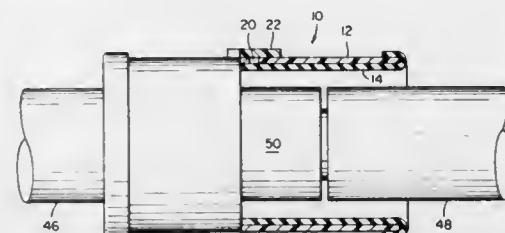
Hyman Izraeli, West Caldwell, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Feb. 2, 1981, Ser. No. 231,225

Int. Cl.³ H01B 13/22

U.S. Cl. 156—49

3 Claims



1. A method for providing an insulative covering for an electrical cable comprising the steps of:

- (a) selecting an expandable electrically insulative sleeve member to have relaxed cross-section less than the cross-section of said cable;
- (b) disposing said sleeve member interiorly of an outer member of self-sustaining hollow configuration of cross-section greater than such cable cross-section and placing said sleeve member and said outer member in fluid-sealed relation;
- (c) introducing a pressurized fluid medium interiorly of said sleeve member and thereby expanding said sleeve member into contiguous relation with said outer member;
- (d) terminating the introduction of said pressurized fluid medium and maintaining the contiguous relation of said sleeve member and said outer member in the absence of said pressurized fluid medium;
- (e) arranging said sleeve member and said outer member in circumscribing relation to said cable;
- (f) interrupting said fluid-sealed relation of said sleeve member and said outer member to permit said sleeve member to collapse upon said cable; and
- (g) removing said outer member from said sleeve member.

4,391,662

METHOD OF AND MEANS FOR PROVIDING AN EFFECTIVE THERMOPLASTIC ADHESIVE CONNECTION OR SEAL USING THERMOCHROME DYE

Peter Mauthe, Neu-Ulm, Fed. Rep. of Germany, assignor to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Dec. 8, 1981, Ser. No. 328,507

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1980, 3047635

Int. Cl.³ G01N 31/22; G01K 11/12

U.S. Cl. 156—64

10 Claims

1. A method of making adhesive connections or seals using a thermoplastic adhesive where the thermoplastic adhesive remains at or above the minimum temperature required for satisfactory moistening the materials to be glued or sealed and indicating when the temperature of the thermoplastic material falls below the minimum temperature required for satisfactory moistening comprising the steps of using a solid thermoplastic adhesive containing at least one thermochrome dye showing a color change in the temperature range between the minimum temperature necessary for satisfactory moistening of the materials to be glued or sealed by the thermoplastic adhesive and a temperature approximately 20° above the minimum temperature at which a satisfactory moistening occurs, and heating the solid thermoplastic adhesive into a molten state where the molten thermoplastic is sufficiently viscous and is heated to a temperature at least approximately 20° above the minimum temperature necessary for satisfactory moistening and noting any color change in the thermoplastic adhesive indicating that the thermoplastic adhesive is approaching the minimum temperature necessary for satisfactory moistening.

4,391,663

METHOD OF CURING ADHESIVE

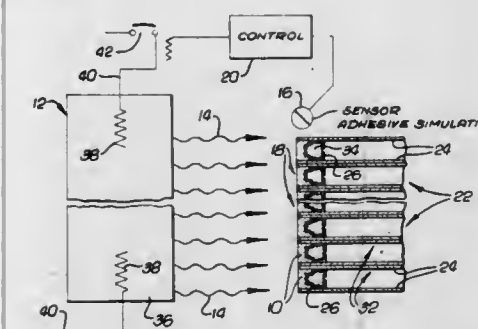
Charles G. Hutter, III, 4110 County Line, Carson City, Nev. 89701

Continuation of Ser. No. 213,312, Dec. 5, 1980, abandoned. This application Jun. 23, 1982, Ser. No. 391,238

Int. Cl.³ C03C 27/00

U.S. Cl. 156—64

10 Claims



1. A method of curing a heat curable substance, comprising the steps of:

- positioning a heat sensor adjacent an exposed surface of the substance for responding to radiation heat energy to generate a signal representative of the temperature level of the exposed surface of the substance;
- irradiating the exposed surface of the substance and the heat sensor with radiation heat energy;
- removing the radiation heat energy from the substance and the heat sensor in response to the heat sensor signal when the signal is representative of the exposed surface reaching a predetermined maximum temperature level;
- allowing the exposed surface of the substance to cool to a predetermined lower temperature level;
- reapplying the radiation heat energy in response to the heat sensor signal when the signal is representative of the exposed surface of the substance reaching the predetermined lower temperature level to reheat the exposed surface to the predetermined maximum temperature level; and
- repeating said removing and said reapplying steps in sequence until the surface of the substance opposite the exposed surface is cured.

4,391,664

PROCESS FOR FIXING TILES IN POSITION

Wilhelm Kramer, Linz, Fed. Rep. of Germany, assignor to Schmelzbasaltwerk Kalenborn, Dr. Ing. Mauritz KG, Kalenborn bei Linz, Fed. Rep. of Germany

Filed Sep. 2, 1980, Ser. No. 183,228

Claims priority, application Fed. Rep. of Germany, Feb. 26, 1980, 3007147

Int. Cl.³ E04B 2/00; B05D 5/12

U.S. Cl. 156—71

6 Claims

1. A process for fixing in position on a cement mortar coated supporting structure wear-resistant lining tiles of ceramic, fused mineral and metallic material for highly abrasive bulk material such as coal ores and rock, said process comprising: cleaning the back side to be coated of each of said tiles, applying an epoxy-containing coating to the cleaned back side of said tiles, said epoxy-containing coating having a thickness of 1.5–2 mm and consisting of a resin mixture and a curing agent mixed at a ratio of 100 to 17, the curing temperature for said epoxy-containing coating being in the range of 290–310 K.

the resin mixture consisting of
36.9 parts by weight epoxy resin,
25.2 parts by weight of fine sand,
34.9 parts by weight of quartz sand powder,
1.0 parts by weight of thixotropic agent, and
2.0 parts by weight of conducting carbon stock,
dusting and rolling in the epoxy-containing coated back side of said tiles a layer of material having an affinity for cement mortar, the material being selected from the group consisting of quartz sand, lavalite and broken expanded clay, with a grain size of 1–3 mm,
said material being rolled into the epoxy-containing coated back side of said tiles at a pressure of 1 to 2 N/square mm, and
following the rolling in of said material, hardening said epoxy-containing coating, placing and fixing in position said coated tiles on the cement mortar coated supporting structure and filling up the spaces between said tiles by a pointing compound, so as to produce a high shear strength in said tiles.

5. The process as claimed in claim 1, in which said tiles are fixed to a cement mortar composition having plastic material additives that increase water retention, strength and adhesive properties of the mortar composition.

4,391,665

METHOD OF MAKING PILE MATERIAL

Paul B. Mitchell, Jr., 2003 Ravenwood Dr., Collinsville, Ill. 62234, and Paul B. Mitchell, Box 443, Bryson City, N.C. 28713

Filed Aug. 10, 1981, Ser. No. 291,564

Int. Cl.³ B32B 1/00, 5/00; D04H 11/00

U.S. Cl. 156—72

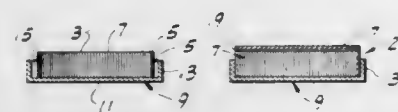
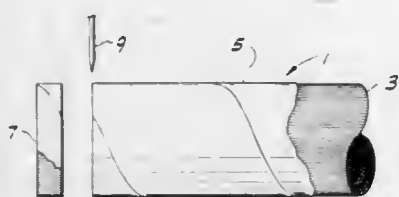
6 Claims

1. A method of making pile material comprising pile strands or the like arranged in side-by-side relation, and a backing member bonded to the strands, said method comprising the steps of:

- (a) providing a bundle of pile strands, the strands extending in side-by-side relation and being held in pressurized engagement with each other by a wrapper surrounding the strands;
- (b) cutting the bundle including the the wrapper into slices, each slice having a portion of the wrapper thereon;
- (c) positioning each slice with the said portion of the wrapper thereon in a form having a wall surrounding the slice, the form being of generally the same sectional shape as the slice but of slightly larger sectional area than the slice for

providing a space between the periphery of the slice and the wall of the form;

(d) removing the said portion of the wrapper from the slice, thereby allowing the pile strands to expand laterally out-



wardly into engagement with the wall of the form, the form thus serving to hold the pile strands; and
(e) bonding a backing member to the pile strands on one face of the slice.

4,391,666

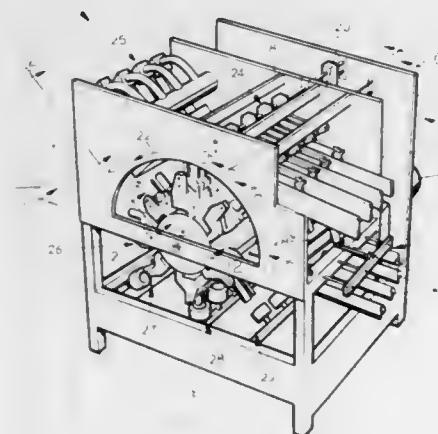
CONTAINER MANUFACTURING MACHINE
Martin Mueller, Wonder Lake, Ill., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 19, 1981, Ser. No. 313,075

Int. Cl.³ B29C 27/20; B32B 31/00

U.S. Cl. 156—84

35 Claims



1. An apparatus for the manufacture of a container of heat-shrinkable thermoplastic material comprising sleeve winding means for forming an open ended sleeve with a liquid impervious side seam, drum means mounted for rotation about its longitudinal axis and supporting a plurality of container mandrels which rotate about their own axis in synchronization with the rotation of said drum means, means for moving said sleeve in a longitudinal direction along the surface of said mandrel means, heat dispensing means positioned adjacent said drum and mandrel means for heat softening and shrinking at least a portion of said sleeve into partial conformity with the container mandrel supporting said sleeve, means for forming a portion of the heat softened sleeve into a partial end closure for said container and container removal means for removing said container from said mandrel.

4,391,667
METHOD OF PREPARING CELLS TO ENABLE ONE FLUID TO BE AFFECTED BY ANOTHER FLUID
Hakan Vangbo, Järfälla; Bertil Lundin, Sollentuna, and Övind Moklint, Varby, all of Sweden, assignors to Aktiebolaget Carl Munters, Sollentuna, Sweden

Filed Apr. 23, 1981, Ser. No. 256,807

Claims priority, application Sweden, Apr. 25, 1980, 8003175
Int. Cl.³ B31F 1/20; B32B 3/28

U.S. Cl. 156—205

13 Claims

1. A method of manufacturing a cell of the type having a plurality of passages therethrough and further of the type in which one or more fluids may selectively be passed through the passages, said method comprising the steps of:

forming a plurality of thin membranes from mineral fibres, said fibres having a filament diameter in the range of about 3 to 20 micrometers and being loosely felted together, corrugating at least some of the membranes, adjacent membranes being bonded to each other by a bonding agent whereby the corrugations form with adjacent membranes the passages of the cell,

adding a fine powder filler to the formed membranes in an amount which by weight exceeds the weight of said formed membranes whereby the mineral fibres are embedded with the filler to form therewith a composite member and to provide said membranes with an increased active surface area, and

impregnating the formed powder filled member with an inorganic binder whereby the bound powder filler forms a load-bearing layer which is cohesive throughout the increased surface area of said membranes and through the cross-section thereof and whereby said fibres serve as reinforcement for said composite reinforced member.

4,391,668

MIXED OXIDE OXYGEN ELECTRODE

William A. Armstrong, Ottawa, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Filed Apr. 22, 1981, Ser. No. 256,665

Claims priority, application Canada, Sep. 2, 1980, 360068
Int. Cl.³ C09J 5/02; C25D 3/12

U.S. Cl. 156—308.2

9 Claims

8. A method for the preparation of a nickel/cobalt oxide impregnated nickel plaque material, comprising the steps of:

(a) providing a substantially oxide-free sintered nickel plaque material;

(b) dipping the nickel plaque in an aqueous solution of cobalt nitrate;

(c) drying the cobalt nitrate impregnated plaque so formed;

(d) heat treating at about 200° to 250° C. for about 1 to 8 hours, to form the nickel/cobalt oxide impregnated nickel plaque material;

(e) covering one side of the plate with a polytetrafluoroethylene membrane;

(f) cold pressing the membrane onto the plate;

(g) exposing the other side of the plate to aqueous cobalt nitrate and polytetrafluoroethylene solution;

(h) drying the plate;

(i) removing the polytetrafluoroethylene covering from said one side of the plate;

(j) heat treating the plate at about 250° C. for about 3 hours, to form a plate wet-proofed only on said other side of the plate;

(k) covering the wet-proofed side of the plate with a polytetrafluoroethylene membrane; and

(l) hot-pressing the membrane onto the plate.

4,391,669

DEVICE FOR MAKING RECORDING DISC CARTRIDGE
Tohru Yamakawa, Muko, and Kozi Akiyama, Joyo, both of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

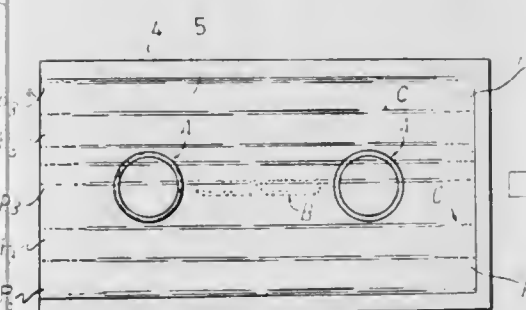
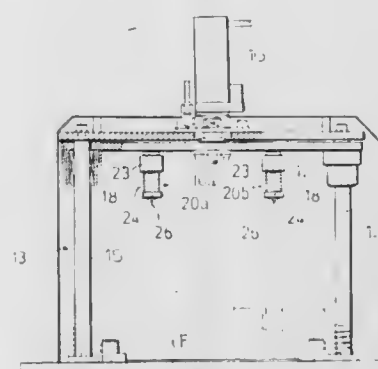
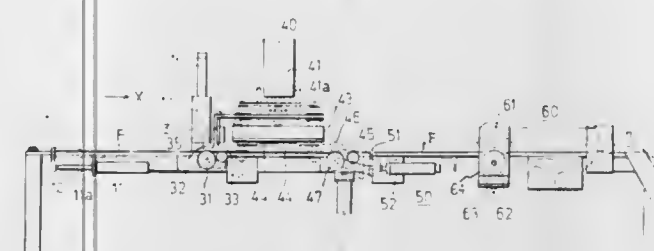
Filed Jan. 23, 1981, Ser. No. 227,982

Claims priority, application Japan, Jan. 25, 1980, 55-7914

Int. Cl.³ B32B 31/00; G05G 15/00; B31F 1/00

U.S. Cl. 156—539

5 Claims



1. A device for making a magnetic recording disc cartridge having a cover jacket in the form of an enclosure with a drive shaft insertion hole and a recording heat access hole defined therein and a magnetic recording disc which is rotatably enclosed in the enclosure, said cover jacket being composed of a cover sheet of a generally elongated rectangular shape with a liner laid on the surface of the cover sheet, said jacket being formed by folding the cover sheet with a liner along a line crossing in a direction of the short side of the cover sheet in such a manner that both portions of the liner positioned on both sides of the folded liner are opposed to each other in the enclosure, said device comprising:

a feed table for placing the cover sheet with the liner thereon;

first adhering means having a plurality of heating chips for adhering said liner to the cover sheet by heat melting adhesion, said heating chips being vertically movably disposed above the feed table;

first transferring means for transferring the cover sheet with the liner from an initial position remote from the first adhering means on the feed table to such a position that a front peripheral edge portion of the liner is placed below the heating chips of the first adhering means;

means for reciprocally moving the heating chips in a vertical direction, whereby said cover sheet with the liner is transferred to such a position that the front peripheral edge portion of the liner is placed below the heating chips of the first adhering means by said first transferring means

and in turn the heating chips of the first adhering means are lowered to contact on the liner from above to preliminarily adhere the liner to the cover sheet by a plurality of spots on the front peripheral edge thereof;

second adhering means for adhering the liner to the cover sheet by heat melting adhesion around the respective patterns of the drive shaft insertion hole and the recording head access hole and the recording head access hole and the adhering of the rear peripheral edge of the liner on the cover being performed simultaneously;

second transferring means for transferring the cover sheet with the liner to a position below the second adhering means after said preliminary adhering is perfected;

third adhering means for adhering the liner to the cover sheet by heat melting adhesion over a plurality of predetermined linear patterns on the liner; and

third transferring means for transferring the cover sheet with the liner from the second adhering means to the third adhering means.

4,391,670

LOW ENERGY TMP FURNISH OF IMPROVED STRENGTH BY OZONATION AND PRESS DRYING
Richard B. Phillips, Tuxedo Park, N.Y., assignor to International Paper Company, New York, N.Y.

Filed Oct. 7, 1981, Ser. No. 309,295

Int. Cl.³ D21F 11/02

U.S. Cl. 162—12

11 Claims

1. A process for the preparation of linerboard from thermomechanical, high temperature mechanical and semichemical mechanical pulps comprising:

(a) treating mechanical pulp selected from thermomechanical, semi-chemical mechanical, high temperature mechanical, or mixtures thereof with ozone;

(b) forming a sheet having from about 30% to about 60% consistency from the ozone treated pulp of step a above; and

(c) press drying the sheet formed in step b above at high temperatures and pressure until at least about 10% to about 15% moisture content is attained.

4,391,671

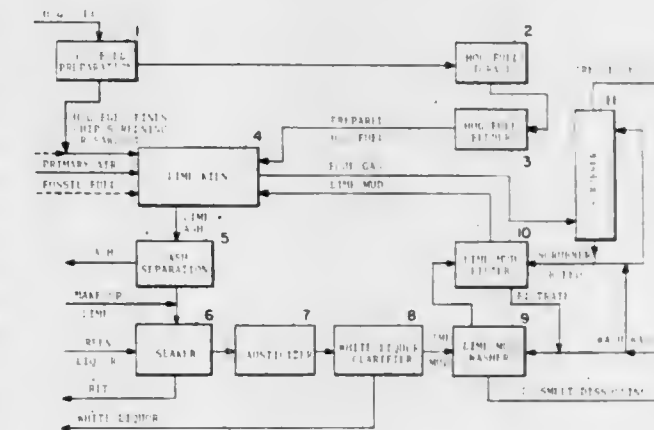
METHOD OF PRODUCING LIME IN A ROTARY KILN
Mahmoud K. Azarniouch, Montreal West, Canada, assignor to Pulp and Paper Research Institute of Canada, Pointe Claire, Canada

Filed May 27, 1981, Ser. No. 267,504

Int. Cl.³ C01F 11/06

U.S. Cl. 162—30.1

5 Claims



1. In a method of calcining lime mud or lime stone in a rotating kiln in which the lime mud or lime stone is fed into the

cold end of said kiln and is calcined by the heat produced by burning fossil fuel at the hot end of said kiln, the improvement which comprises: preparation of biomass residues to produce a biomass residue substantially free from fines and suitable for feeding into said kiln; feeding said prepared biomass residues into the cold end of said kiln, along with the material to be calcined; combusting said residues in said kiln, generating heat in situ in said kiln, whereby the amount of fossil fuel burned to calcine said material is diminished.

4,391,672

METHOD USED IN PAPER MAKING FOR TREATMENT OF A WEAVE

Antti Lehtinen, Jyväskylä, Finland, assignor to Valmet Oy, Finland

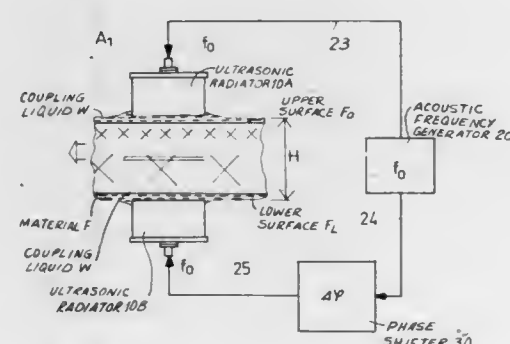
Filed Jul. 2, 1981, Ser. No. 279,748

Claims priority, application Finland, Mar. 16, 1981, 810812

Int. Cl.³ D21F 7/00

U.S. Cl. 162—192

15 Claims



1. A method used in paper making for treatment of a weave, board web, paper, and the like, said method utilizing frequency radiators arranged in the vicinity of a material to be treated and coupling liquid between the material to be treated and the radiators, said method comprising the steps of

arranging frequency radiators on opposite sides of the material to be treated, opposite each other, and with a mutual spacing which is only slightly larger than the thickness of the material to be treated;

feeding longitudinal acoustic vibrations to said radiators at the same frequency;

causing said opposed radiators to apply respective acoustic vibration fields to said material to be treated located between said radiators, the respective vibration fields having the same frequency and a phase difference with respect to each other; and

regulating the phase difference of the vibrations fed to the opposed radiators to focus the most intensive region of action of a combination of said fields of vibration in the thickness direction of the material to be treated.

11. Paper making apparatus for treatment of a weave, board web, paper, and the like, said apparatus comprising frequency radiators positioned on opposite sides of a material to be treated, opposite each other, and with a mutual spacing which is only slightly larger than the thickness of the material to be treated;

a frequency generator having a first terminal electrically connected to one of said frequency radiators on one side of said material and a second terminal, said generator producing longitudinal acoustic vibrations at said first and second terminals of the same frequency; and

a phase shifter connecting the second terminal of said frequency generator to another of said frequency radiators on the opposite side of said material for varying the difference of the vibrations fed to said radiators for focusing the most intensive area of a field of vibration combinations in said material in a manner whereby it has an effect upon a desired area of said material.

4,391,673

BASEMENTLESS SEPARATOR SYSTEM

Jeffrey B. Duncan, Argyle, and Joseph A. Bolton, Glens Falls, both of N.Y., assignors to Albany International Corp., Menands, N.Y.

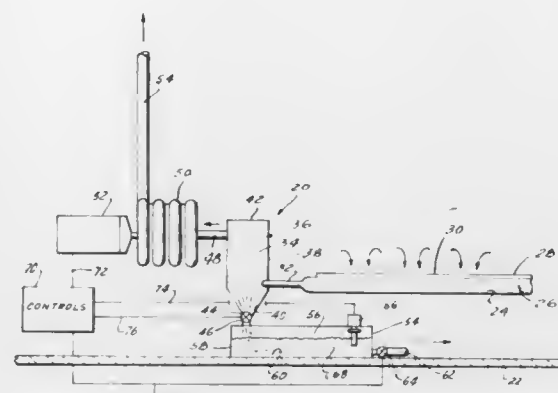
Continuation of Ser. No. 123,098, Feb. 20, 1980, abandoned.

This application Sep. 16, 1981, Ser. No. 302,721

Int. Cl.³ D21F 1/48

U.S. Cl. 162—217

20 Claims



1. A basementless separator system for removing liquid from a liquid/gaseous mixture comprising; a separator including means for separating the liquid and gas therein, first conduit means communicating with the separator and with the source of the liquid/gaseous mixture, second conduit means communicating with the separator and with vacuum producing means to draw the liquid/gaseous mixture into the separator and to remove separated gas from the separator, first valve means on the separator in alignment with and connected to a liquid storage tank to open and close a discharge opening for separated liquid from the separator to be collected in the storage tank with the storage tank being subjected to the vacuum producing means when the first valve is open, second valve means on the storage tank to open and close a drainage opening in the tank to control drainage of liquid therefrom, level sensing means on the tank to indicate a predetermined level of collected liquid stored in the tank, and control means responsive to liquid collection in the tank to open and close the valves and periodically permitting liquid contained in the tank to drain under atmospheric conditions while the system is operating under vacuum and the absolute pressure is less than atmospheric.

11. A method of removing liquid separated from a liquid/gaseous mixture by use of a basementless separator system comprising; passing the liquid/gaseous mixture into a separator for separating the liquid and gas therein by applying vacuum to the separator and the source of a liquid/gaseous mixture to draw the liquid/gaseous mixture into the separator and remove separated gas from the separator, opening and closing a first valve at a discharge opening in the separator to control delivery of separated liquid from the separator to a liquid storage tank connected therewith for collection therein with the storage tank being subjected to vacuum when the first valve is open, opening and closing a second valve at a drainage opening in the storage tank to control drainage of collected liquid therefrom, sensing the level of liquid in the tank to indicate a predetermined level of collected liquid in the tank, and controlling the opening and closing of the valves responsive to the liquid condition in the tank to periodically permitting liquid contained in the tank to drain under atmospheric conditions while the system is operating under vacuum and the absolute pressure is less than atmospheric.

4,391,674

COKE DELIVERY APPARATUS AND METHOD

Rolf Velmin, Michael S. Kovatch, both of Lakewood, and Gus H. Mautz, Jr., Westlake, all of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

PCT No. PCT/US80/00470, § 371 Date Feb. 17, 1981, § 102(e)

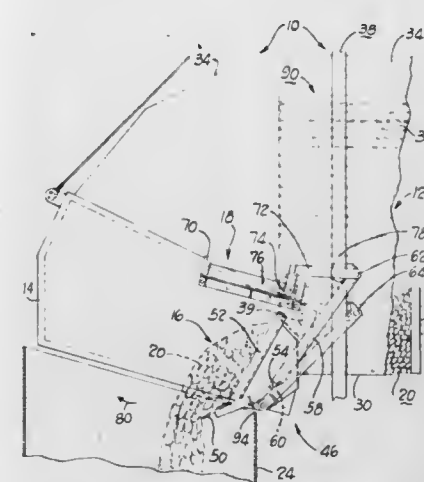
Date Feb. 17, 1981

PCT Filed Apr. 29, 1980, Ser. No. 270,529

Int. Cl.³ C10B 33/00, 33/14, 45/02

U.S. Cl. 201—41

24 Claims



1. A coke delivery apparatus for use in the transfer of coke from a coke oven to a quench car comprising;

(a) a movable hood structure adapted for movement when in use from a fume confining coke delivery position to a storage position and return;

(b) a chute structure adapted when in use to be moved from a coke guiding position to a storage position and return, said chute structure having a guiding portion for contacting and guiding the coke; and,

(c) a force transmitting structure interconnection assembly operably connected to each of the structures and adapted to transmit motion producing forces from one structure to the other when the one structure is driven from one of its said positions to the other, the motion of said chute structure in moving toward its storage position having both rotational and translational components which dispose said guiding portion in a position facing away from the coke oven.

4,391,675

SIEVE PLATES AND DISTILLATION COLUMNS

Malcolm Lynn, Preston, near Hull, and Peter E. May, Keyingham, both of England, assignors to BP Chemicals Limited, London, England

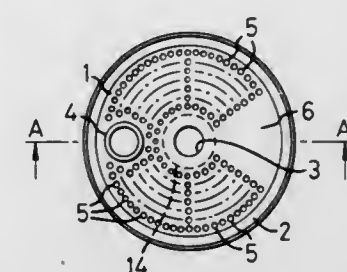
Filed Jan. 5, 1982, Ser. No. 337,324

Claims priority, application United Kingdom, Jan. 8, 1981, 8100606; Oct. 3, 1981, 8129924

Int. Cl.³ B01D 3/14

U.S. Cl. 202—158

10 Claims



3. A distillation column which is provided with a plurality of spaced sieve plates, characterised in that the sieve plates are of polymeric material and are mounted on a central shaft coaxial with the column, said sieve plate comprising:

- a circular base portion provided with
 - a central axial aperture adapted to receive the shaft,
 - an additional aperture spaced from the central aperture and capable of receiving a tubular member acting as a weir and a downcomer, and
 - a plurality of perforations such that the perforations represent in total a free area of between 3 and 20%, the perforations having a uniform average diameter between 0.6 and 4.0 mm,
- a flexible, flared-lip portion around the circumference of the base providing sealing contact with the inner walls of the column and providing a reservoir for downcoming liquid, and
- means for retaining the plate on the shaft.

4,391,676

ARRANGEMENT FOR PASSING A FIRST LIQUID CLOSE TO, BUT WITHOUT MIXING IT WITH A SECOND LIQUID, FOR EXAMPLE AN ARRANGEMENT FOR SEA WATER DESALINATION

Finn Torberger, Örnstigen 2, 183 50 Täby, Sweden

PCT No. PCT/SE81/00076, § 371 Date Nov. 19, 1981, § 102(e)

Date Nov. 19, 1981, PCT Pub. No. WO81/02729, PCT Pub.

Date Oct. 1, 1981

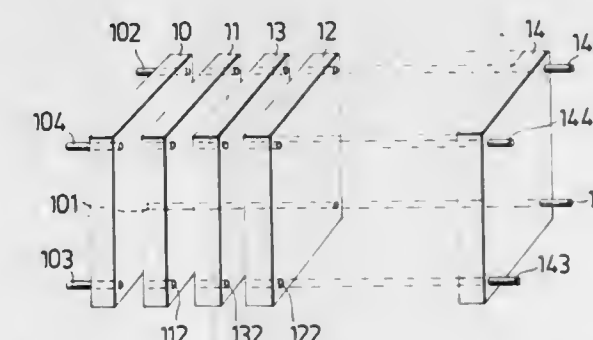
PCT Filed Mar. 10, 1981, Ser. No. 325,430

Claims priority, application Sweden, Mar. 24, 1980, 8002233

Int. Cl.³ B01D 3/02

U.S. Cl. 202—173

3 Claims



1. An arrangement providing a first liquid to flow close to a second liquid but without the liquids being intermixed, for example for the recovery of freshwater by distillation of sea water and for the transfer of heat from a relatively warm liquid to a relatively cold liquid, comprising:

- a first plurality of plates carrying the first liquid;
 - a second plurality of plates carrying the second liquid, the second plurality of plates being placed interleaved between but separated from the first plurality of plates; and
 - separating pieces located between and separating the first and second plurality of plates from one another, each separating piece including a frame which receives plate-shaped mutually plane-parallel partial pieces that include:
 - an outer porous and hydrophobic plastic diaphragm with void radii dimensioned to prevent the passage of liquid water through the plastic diaphragm at the hydrostatic pressures prevailing in the arrangement while rendering possible the passage of water vapor,
 - an outer thin plastic foil, and
 - an intermediate distance network located between the diaphragm and the foil positioned and dimensioned to maintain an airgap therebetween so that the plastic diaphragm will be supplied constantly with air and will be free of air depletion or partial filling of liquid,
- said frame further being provided in its upper portion with inflow holes for air to pass to said airgap, and in its lower portion with outflow holes for water condensed in said airgap.

4,391,677

PROCESS FOR PRODUCING SUBSTANTIALLY SULPHUR-FREE BUTENE-1

Norman Harris, Stockton-on-Tees, England; John F. Flintoff, Thousand Oaks, Calif., and John W. Kippax, Stockton on Tees, England, assignors to Davy McKee (Oil & Chemicals) Limited, London, England

Continuation of Ser. No. 132,293, Mar. 20, 1980, abandoned.

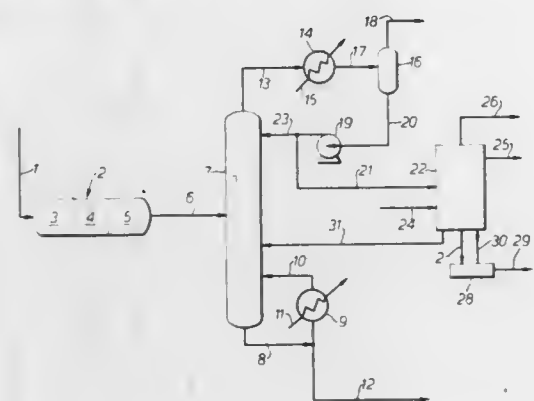
This application Aug. 27, 1981, Ser. No. 296,873

Claims priority, application United Kingdom, Mar. 21, 1979, 7910010; European Pat. Off., Nov. 28, 1979, 79302707.9

Int. Cl.³ B01D 3/14

U.S. Cl. 203-28

13 Claims



1. A process for the production of a substantially sulphur-free, butene-1 rich stream suitable for use as a hydroformylation feedstock from a butene-containing C₄ hydrocarbon feed stream containing a minor amount of at least one sulphurous component selected from hydrogen sulphide, carbonyl sulphide, methyl mercaptan and mixtures of at least one thereof with at least one higher boiling sulphurous compound, which comprises providing a desulphurization zone maintained under desulphurization conditions and containing a charge of at least one solid desulphurization medium capable of converting to higher boiling sulphurous compounds at least a portion of the hydrogen sulphide, carbonyl sulphide, and methyl mercaptan present in the feed stream and of absorbing or adsorbing substantially the remainder of any hydrogen sulphide, carbonyl sulphide and methyl mercaptan present in the feed stream, contacting the feed stream in the desulphurization zone with the solid desulphurization medium in the presence of from about 20 ppm up to about 1000 ppm water, passing thus treated feed stream, now essentially free from hydrogen sulphide, carbonyl sulphide and methyl mercaptan, but containing at least one higher boiling sulphurous compound, said at least one higher boiling compound having been produced in the desulphurization zone, to a distillation zone, recovering as a bottom product from the distillation zone a butene-2 rich stream containing said at least one higher boiling sulphurous compound, and recovering as an overhead product from the distillation zone a substantially sulphur-free, butene-1 rich stream.

4,391,678

METHODS OF MAKING INFRARED DETECTOR ARRAY COLD SHIELD

Wallace L. Freeman, Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 18, 1981, Ser. No. 322,503

Int. Cl.³ C25D 5/02, 5/00

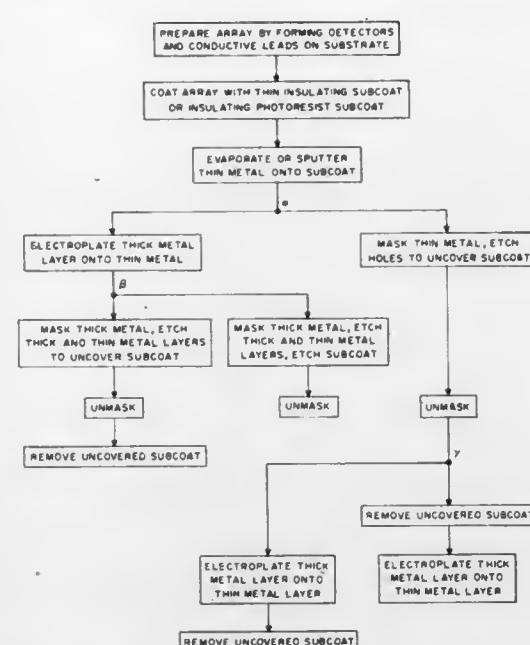
U.S. Cl. 204-15

4 Claims

1. A method of making a cold shield for an infrared detector array, wherein the array consists of a plurality of detectors and connecting leads on one side of a substrate, wherein the method includes the steps of:

- coating said detectors, said leads, and one side of said substrate with a thin subcoat;
- depositing a relatively thin metal layer on said subcoat;

- electroplating a relatively thick metal on said thin metal layer;
- masking said thick metal layer in accordance with said



array and etching through said thick and thin metal layers to uncover the subcoat over the detectors and at least a portion of said leads; and

(e) removing the mask.

4,391,679

ELECTROLYTIC BATH AND PROCESS FOR THE DEPOSITION OF GOLD ALLOY COATINGS

Wolfgang Zilske, and Werner Kuhn, both of Hanau, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Apr. 2, 1981, Ser. No. 250,142

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1980, 3012999

Int. Cl.³ C25D 3/62

U.S. Cl. 204-43 G

20 Claims

1. A gold bath suitable for the deposition of high gloss and ductile gold alloy coatings consisting of either (1) water, potassium cyanaurate (III), at least one alloying element selected from the group consisting of cobalt, nickel, indium, zinc, and cadmium in the form of a water soluble salt together with a hydrocarbyl amine, an aminocarboxylic acid, or a phosphonic acid which forms a complex with the alloying element and 20-200 g/l of sulfuric acid, phosphoric acid, citric acid or a mixture thereof, or (2) the gold bath (1) together with potassium dihydrogen phosphate, potassium hydrogen sulfate or potassium citrate, said bath having a pH of less than 3.

4,391,680

PREPARING ALKALI METAL HYDROXIDE BY WATER SPLITTING AND HYDROLYSIS

Krishnamurthy Mani, Denville, and Frederick P. Chlanda, Rockaway, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 3, 1981, Ser. No. 327,145

Int. Cl.³ C25B 1/16, 1/22

U.S. Cl. 204-98

16 Claims

1. A process which comprises the steps:

- introducing aqueous alkali metal chloride solution into each first compartment between a cation membrane and a cation side of a bipolar membrane of an electrolysytic water splitter comprised of alternating cation and bipolar membranes, said membranes being positioned between an anode and a cathode;
- introducing into each second compartment between a cation membrane and an anion side of a bipolar membrane a liquid comprising water,

4,391,682

METHOD FOR ELECTROLYTIC PRODUCTION OF HYDROGEN

Bernd D. Struck, Langerwehe; Robert Junginger, Böblingen, and Dagmar Boltersdorf, Düren, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Fed. Rep. of Germany

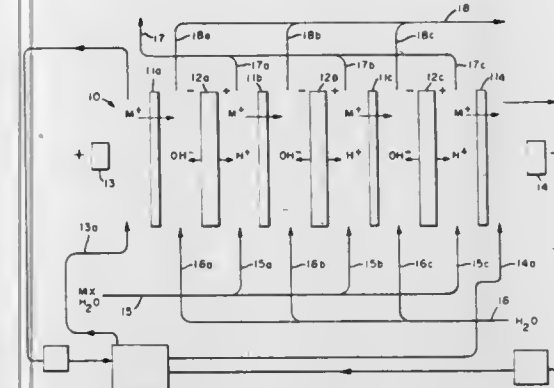
Filed Jan. 26, 1981, Ser. No. 228,796

Claims priority, application Fed. Rep. of Germany, Feb. 11, 1980, 3005032

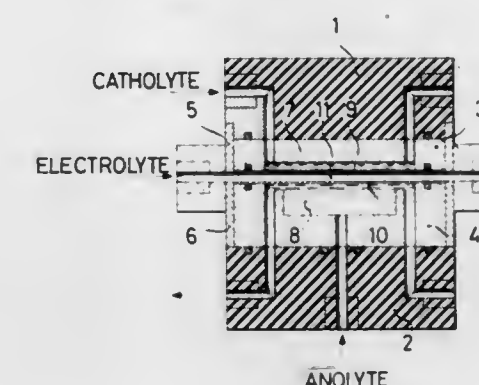
Int. Cl.³ C25B 1/02, 1/22

U.S. Cl. 204-104

5 Claims



- withdrawing from said first compartments an acidified aqueous salt solution comprising between about 0.6 and 13 moles HCl per 100 hundred moles alkali metal chloride, and
- feeding said acidified salt solution to the anode compartment of a diaphragm or membrane electrolytic cell.



1. A process for electrolytic production of hydrogen in which hydrogen is cathodically evolved and sulfuric acid is anodically oxidized to sulfuric acid, utilizing an electrolyzer in which the anode chamber is separated from the cathode chamber by an intermediate chamber which is separated from the cathode chamber by a cation exchange membrane and from the anode chamber by a porous diaphragm, in which method a separating electrolyte is caused to flow through said intermediate chamber, and separate anodic and cathodic electrolytes are caused to flow respectively through the anode and cathode chambers, said method incorporating the improvement which consists in that:

-in the electrolyte flowing in the anode chamber as well as in the electrolyte flowing in the cathode chamber, the concentration of sulfuric acid of at least 45% is provided, and the membrane separating the intermediate chamber from the cathode chamber is constituted of a material obtained by polymerization of styrol and divinylbenzol in the presence of polyvinyl chloride and the introduction of SO₃H groups, and has a specific resistance in 55 wt.% sulfuric acid at 80° C., which is less than 30 ohm/cm.

4,391,681

METHOD OF INHIBITING FORMATION OF AND BREAKING OF MERCURY BUTTER IN CHLOR-ALKALI CELLS

Susan Anderson, Lightwater; David E. Brown, Weybridge; David E. Graham, Fleet; Mahmood N. Mahmood, Walton-on-Thames, and Maurice C. M. Man, London, all of England, assignors to The British Petroleum Company p.l.c., London, England

Filed May 13, 1982, Ser. No. 377,606

Claims priority, application United Kingdom, May 14, 1981, 8114856; Mar. 19, 1982, 8208108

Int. Cl.³ C25B 1/16, 1/42

U.S. Cl. 204-99

11 Claims

1. A method of inhibiting the formation of and/or breaking of preformed mercury butter during electrolysis of alkali metal brines to produce chlorine and caustic alkali using a flowing mercury cathode which consists essentially of the following steps

- electrolysis of the brine in an electrolyser,
- removal of an alkali metal rich amalgam from the electrolyser,
- removal of the alkali metal from the rich amalgam in a denuder,
- withdrawal of the amalgam substantially reduced in alkali metal content from the denuder, and
- recirculation of the amalgam from step (d) into the electrolyser for step (a).

characterised in that an aqueous solution of a surfactant material capable of increasing the interfacial tension of the sodium amalgam-aqueous interface to and/or maintaining the interfacial tension of the sodium amalgam-aqueous interface at a value of at least 180 dynes/cm is introduced into the amalgam denuder so as to be in contact with the circulating mercury or amalgam.

4,391,683

MASK STRUCTURES FOR PHOTOETCHING PROCEDURES

Reginald R. Buckley, Summit, and Frederick W. Ostermayer, Jr., Chatham, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 10, 1982, Ser. No. 416,495

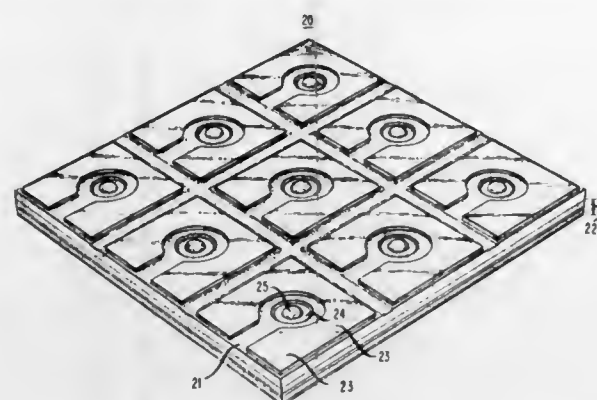
Int. Cl.³ C25F 3/12, 3/14

U.S. Cl. 204-129.3

30 Claims

1. A process for fabricating a device comprising the step of photoetching a surface where etching rate depends on radiation intensity incident on said surface characterized in that the

mask comprises alternating opaque and transparent areas and the mask is imaged onto the surface by an optical system with improvement comprising the steps of passing the direct current through the strip to be pickled as a conductor between a uni-



aberrations and diffraction so as to produce radiation intensity on the surface that varies continuously with position.

4,391,684

METHOD OF MANUFACTURE OF AN ARTICLE HAVING INTERNAL PASSAGES

John Goddard, Bristol, England, assignor to Rolls-Royce Limited, London, England

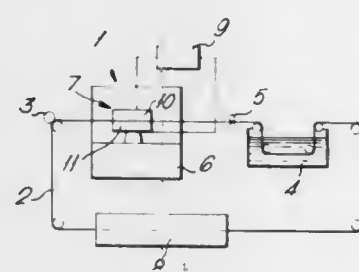
Filed Jul. 2, 1981, Ser. No. 279,782

Claims priority, application United Kingdom, Jul. 17, 1980, 8023395

Int. Cl.³ B23P 1/00, 1/10

U.S. Cl. 204—129.4

6 Claims



1. A method of manufacture for a turbine blade having one or more internal passages therein comprising the steps of:

- (a) making parts of the blade which when joined together complete the article, at least one of the parts having one or more of the passages at least partially defined in a surface thereof which is adapted to confront a matching surface of another of the parts,
- (b) electro-lytically machining at least one of the two surfaces which are required to match by passing a finishing belt containing electrolyte between the two surfaces and in contact with both surfaces simultaneously, whereby one acts as a former for machining the other, and passing an electric current from one part to the other and through the electrolyte, and
- (c) assembling the parts with the matching surfaces in confrontation and with the partially formed passages aligned and joining the surfaces together, thereby creating a hollow turbine blade.

4,391,685

PROCESS FOR ELECTROLYTICALLY PICKLING STEEL STRIP MATERIAL

George A. Shepard, Parma, and Philip C. Schillawski, Broadview Heights, both of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

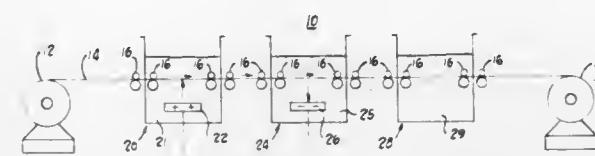
Filed Feb. 26, 1981, Ser. No. 238,430

Int. Cl.³ C25F 1/06

U.S. Cl. 204—145 R

6 Claims

1. In a process for electrolytically pickling a steel strip material by subjecting the material to the action of direct current in a pickling bath which contains at least one neutral salt, the



polar neutral salt pickling bath containing a cathode means an acid anolyte bath containing an anode means, said acid anolyte bath being remote from said pickling bath.

4,391,686

ACTINIC RADIATION CURABLE FORMULATIONS

Henry C. Miller, Laurel, Md., and Dennis D. Howard, Girard, Pa., assignors to Lord Corporation, Erie, Pa.

Continuation of Ser. No. 180,774, Aug. 25, 1980, abandoned, which is a continuation of Ser. No. 55,240, Jul. 6, 1979, abandoned. This application Sep. 16, 1981, Ser. No. 302,884

Int. Cl.³ C08F 8/00

U.S. Cl. 204—159.15

16 Claims

1. A coating composition comprising
 - (a) a free radical-polymerizable material selected from the group consisting of monomers, polymers and mixtures thereof; and
 - (b) a photocatalyst system consisting essentially of
 - (i) as a photosensitizer compound, benzophenone; and
 - (ii) at least one photoinitiator selected from the group consisting of organic compounds characterized by the presence of at least one carbonyl group directly bonded through a carbon-oxygen bond to a peroxy oxygen atom.

4,391,687

PHOTOACTIVE MIXTURE OF ACRYLIC MONOMERS AND CHROMOPHORE-SUBSTITUTED HALOMETHYL-1-TRIAZINE

George F. Vesley, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

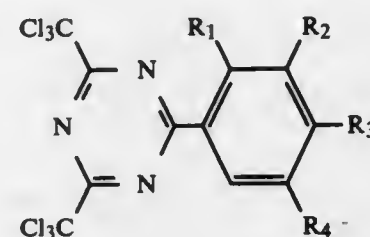
Division of Ser. No. 121,404, Feb. 14, 1980, Pat. No. 4,330,590. This application Feb. 16, 1982, Ser. No. 348,655

Int. Cl.³ C08F 2/50, 4/00

U.S. Cl. 204—159.16

12 Claims

1. A photoactive mixture comprising by weight
 - (a) 100 parts of a composition or a polymer of 50–100 parts of acrylic monomer and 0–50 parts of copolymerizable monoethylenically unsaturated monomer and
 - (b) 0.01 to 2 parts of a chromophore-substituted halomethyl-s-triazine of the formula



wherein R₁, R₂, R₃, and R₄ are independently hydrogen or alkoxy groups, and 1 to 3 of R₁, R₂, R₃, and R₄ are hydrogen.

4,391,688

ELECTROPHORESIS SYSTEM FOR MULTIPLE AGAROSE SLAB GELS

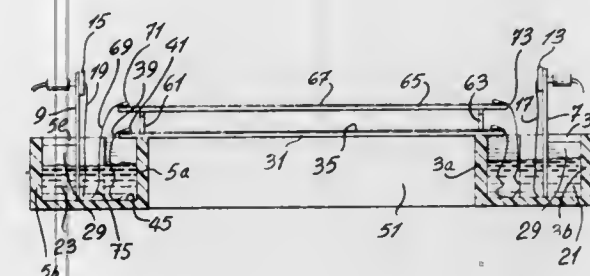
Claude Hamelin, Montreal, Canada, assignor to Institut Armand-Frappier, Laval, Canada

Filed Jun. 2, 1981, Ser. No. 269,743

Int. Cl.³ B01D 13/02; G01N 27/26

U.S. Cl. 204—180 G

25 Claims



2. A method for the separation of multiple DNA samples on four different gel slabs which comprises:

- providing first and second spaced apart elongated containers which can be set in parallel fashion at a variable distance from one another and each container having an inside and an outside partition and housing a removable platinum electrode;
- adding a running buffer to each of said containers, said running buffer to contact said removable platinum electrode;
- preparing at least four agarose gel slabs each having a row of wells formed therein, by pouring an agarose solution which has been equilibrated at 50° C. over at least four horizontal glass plates over each of which a well-forming comb has been placed parallel to the glass plate at a distance of about 2 mm from the surface of said glass plate; introducing DNA samples into wells of each agarose gel slab;
- arranging at least two agarose gel slab containing horizontal plates over said first and second containers by aligning both ends thereof respectively along the inner partitions of said first and second vessels;
- covering each end of each of said at least two agarose gel slabs with one edge portion of a sheet of a two-ply paper wick, and allowing the other edge portion of each sheet of two-ply paper wick to dip into the respective running buffer which is present in said first and said second container;
- disposing a pair of horizontal supporting rods spacedly above said at least two agarose gel slab containing horizontal plates which are directly arranged over said first and second containers;
- arranging the remaining agarose gel slab containing horizontal plates over said supporting rods substantially in alignment with said at least two agarose gel slab containing horizontal plates;
- covering each end of each of said remaining agarose gel slabs with one edge portion of a sheet of a six-ply paper wick, and allowing the other edge portion of each sheet of six-ply paper wick to dip into the respective running buffer which is present in said first and said second container;
- connecting the removable platinum electrodes housed in each container to a suitable power supply and allowing electrophoresis to take place, and visualizing the localized bands produced in said agarose gel slab.

1032 O.G.—9

4,391,689

AUTOMATED ELECTROPHORESIS AND STAINING APPARATUS AND METHOD

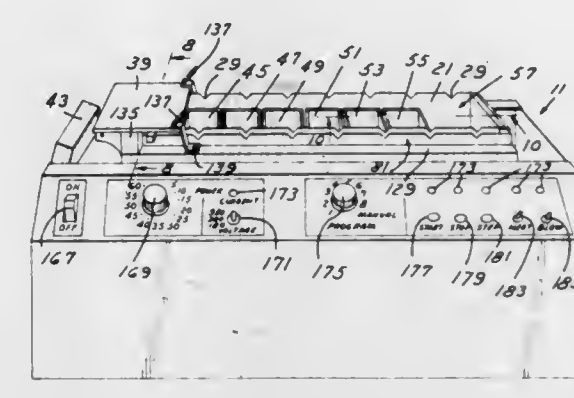
Tipton L. Golias, Beaumont, Tex., assignor to Helena Laboratories Corporation, Beaumont, Tex.

Filed Jun. 12, 1981, Ser. No. 273,162

Int. Cl.³ B01D 57/02

U.S. Cl. 204—180 G

30 Claims



1. An automated electrophoresis and staining apparatus comprising a cabinet having an apertured top wall; an elongated housing spaced within said cabinet having upright front and rear walls, an end wall, a bottom wall and a platform between said front and rear walls overlying said bottom wall with said front and rear walls projecting above said top wall;
- an electrophoresis chamber adapted to contain a buffer solution mounted upon said platform at one end of said housing;
- and a series of vats mounted upon said platform arranged in a row and aligned with said chamber, adapted to contain respectively a liquid stain and a series of processing solutions;
- said front and rear walls having transversely aligned longitudinally spaced pairs of notches in and along their upper edges;
- said pairs of notches being over and in alignment with the centerline of each of said vats and chamber respectively;
- a plate holder rack overlying said electrophoresis chamber including a horizontal frame and at its ends a pair of outwardly projecting inverted L-shaped arms respectively nested in the pair of notches in registry with said chamber; and adapted for supporting one or a plurality of upright electrophoresis plates onto which has been applied a sample for electrophoretic fractionization;
- said plates selected from the group consisting of cellulose acetate, cellulose esters, agarose, acrylamide gel and any other media suitable for electrophoresis;
- said plate or plates being nested within said chamber within an electrophoretic circuit between a cathode and anode for a predetermined period;
- and a power operated lift and transfer assembly within said cabinet outwardly of said front and rear walls adapted to progressively lift, transfer and lower said plate holder and plates from said chamber and progressively into each of said pairs of notches and underlying vats for a predetermined period successively in a linear stepping motion; whereby said plates in an upright position are immersed into the fluids within said vats.

4,391,690

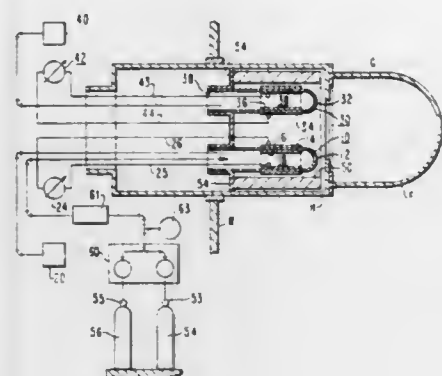
APPARATUS FOR MONITORING SO₂ CONCENTRATIONS

Ching-Yu Lin, Monroeville, and William M. Hickam, Churchill, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 26, 1980, Ser. No. 181,340
Int. Cl.³ G01N 27/58

U.S. Cl. 204—412

1 Claim



1. Apparatus for measuring the SO₂ content of a monitored gas environment, comprising:

a tubular housing means adapted for positioning within a monitored gas environment having an open end and a means associated with said open end to enable said monitored gas to enter said tubular housing;

a first solid electrolyte electrochemical cell being positioned within said housing, said first electrochemical cell developing an electrical signal indicative of the combination of the SO₂ and the O₂ content of said monitored gas environment, said first solid electrolyte electrochemical cell including a sensing electrode exposed to said monitored gas environment and a reference electrode isolated from said monitored gas environment, an SO₂ reference environment being maintained in contact with said reference electrode;

a second solid electrolyte electrochemical cell being positioned within said tubular housing for developing an electrical signal indicative of the oxygen content of the monitored gas environment, said second solid electrolyte electrochemical cell including a sensing electrode exposed to said monitored gas environment and a reference electrode isolated from said monitored gas environment, an oxygen reference environment being maintained in contact with the reference electrode of said second solid electrolyte electrochemical cell;

monitoring means for measuring electrical signal of said second solid electrolyte electrochemical cell to provide an indication of variations in the oxygen content of said monitored gas environment; and

a reference gas supply means including a source of oxygen and a source of an inert gas, means for mixing the inert gas and the oxygen gas and means for adjustably supplying said gas mixture to the reference electrode of said first solid electrolyte electrochemical cell to compensate for changes in the oxygen content of the monitored gas environment such that the electrical signal developed by said first solid electrolyte electrochemical cell is a measurement of the SO₂ content of the monitored gas environment.

4,391,691

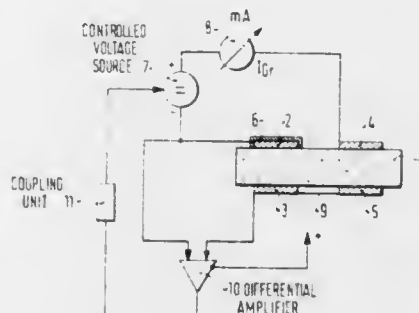
TEMPERATURE COMPENSATED POLAROGRAPHIC OXYGEN GAS SENSOR AND SENSING SYSTEM, PARTICULARLY FOR AUTOMOTIVE APPLICATION

Ernst Linder, Muhlacher; Helmut Maurer, Horrheim; Klaus Muller, Tamm, and Franz Rieger, Aalen-Wasseraaltingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 11, 1981, Ser. No. 242,579
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010632

Int. Cl.³ G01N 27/56, 27/58
U.S. Cl. 204—408

15 Claims



1. Temperature and aging compensated polarographic sensing system to determine the oxygen content of gases, especially exhaust gases from an internal combustion engine comprising a single solid electrolyte body (1);

a first electrode forming an anode electrode (3), applied to a first surface portion of said body, and exposed to the gases;

a second electrode forming a cathode electrode (2) applied to a second surface portion of the body spaced from said first surface portion by a first electrolyte body portion (1a);

voltage source means (7) furnishing a voltage, having one terminal (—) connected to one (2) of the electrodes, and second terminal (+) connected to the other one (3) of the electrodes (2, 3);

means (6) forming a diffusion barrier controlling access of oxygen molecules to the cathode electrode (2);

current sensing means (8) measuring the current in an oxygen ion sensing system formed by the voltage source means (7), the anode electrode (3), the solid electrolyte body between the first and the second surface portions of the solid electrolyte body and the cathode electrode (2) and providing an output indication of limit current flow as a function of diffusion of oxygen molecules through said diffusion barrier,

and means for rendering the current independent of aging effects and temperature, comprising

a third electrode (4) positioned on a third surface portion of said solid electrolyte body (1) spaced from said one of said electrodes by a second body portion (1b) and being serially connected between the other terminal (+) of the voltage source and said other one (3) of the electrodes (2, 3), said further electrode (4) and said second body portion (1b) of said solid electrolyte body (1) forming an oxygen ion conductive ohmic resistance which is serially connected between the cathode and anode electrodes (2, 3).

4,391,692

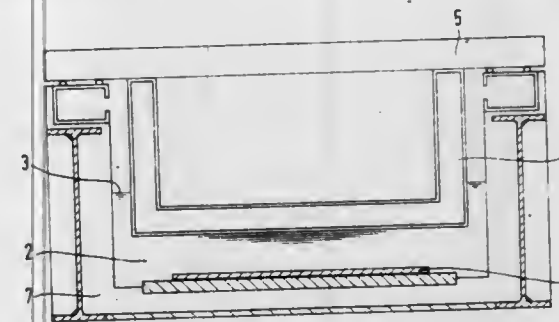
DEVICE FOR THE CHEMICAL OR ELECTROCHEMICAL SURFACE TREATMENT OR MATERIAL IN A HEATED LIQUID TREATMENT MEDIUM, MORE PARTICULARLY A STRIP PICKLING PLANT

Walter Mindt, Bendorf, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Jan. 7, 1981, Ser. No. 222,987
Claims priority, application Fed. Rep. of Germany, Jan. 8, 1980, 3000408

Int. Cl.³ C25D 7/06, 17/02
U.S. Cl. 204—206

7 Claims



1. A device for heated liquid treatment of the surface of an object placed therein, comprising:

a tank having an open top portion, said tank capable of receiving an object to be treated and a liquid for such treatment;

a movable lid overlying the opening in said tank; at least one movable evaporation minimizing cover placed within said tank and attached to said lid, said at least one evaporation minimizing cover being so configured as to be partially immersed in and cover a substantial portion of the surface of a liquid placed in said tank and to displace the liquid so as to reduce free space existing between the surface of the liquid and the underside of said movable lid.

4,391,693

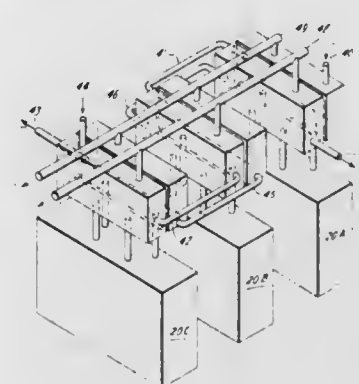
CHLORINE CELL DESIGN FOR ELECTROLYTE SERIES FLOW

John R. Pimlott, Sweeny, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 29, 1981, Ser. No. 316,265
Int. Cl.³ C25B 9/00, 15/00

U.S. Cl. 204—237

12 Claims



1. In a bank or series of chlor-alkali electrolytic cells, wherein each cell comprises at least one electrode pair separated by a cation permselective, substantially hydraulically impermeable membrane, with means for flowing catholyte from cell-to-cell sequentially,

the embodiment in which the means for flowing catholyte from cell-to-cell comprises, in operable combination, entry means for adding water or dilute caustic to the catholyte portion of a first cell of the bank or series,

flow means for directing gas-lifted catholyte liquor from said first cell to a de-gassing compartment above said cathodes, flow means for directing at least a portion of the de-gassed catholyte to a point below the surface of the catholyte liquor in the next successive cell while allowing at least a portion of the de-gassed catholyte to re-enter the cell from which it came,

flow means for directing gas-lifted catholyte liquor from said next successive cell and each additional successive cell in the series thereafter, to a degassing compartment above the cathodes, at least a portion of the de-gassed catholyte of each cell being directed to a next successive cell while allowing at least a portion of the de-gassed catholyte to re-enter the cell from which it came,

flow means for directing de-gassed catholyte liquor from the last cell of the bank or series, and

flows means for removing cell gasses from the de-gassing compartment.

4,391,694

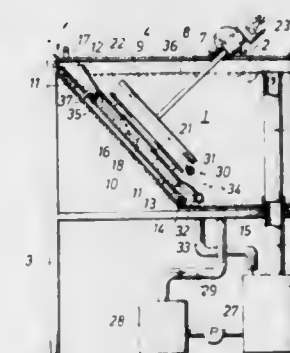
APPARATUS IN ELECTRO DEPOSITION PLANTS, PARTICULARLY FOR USE IN MAKING MASTER PHONOGRAPH RECORDS

Bengt W. Runsten, Stockholm, Sweden, assignor to AB Europa Film, Bromma, Sweden

Filed Feb. 11, 1982, Ser. No. 347,864
Claims priority, application Sweden, Feb. 16, 1981, 8101046
Int. Cl.³ C25D 21/12, 1/10

U.S. Cl. 204—273

13 Claims



1. Apparatus including: a tub (1) intended for plating electrolyte and having an overflow pipe (25) having an open end within the tub (1) for discharging electrolyte that exceeds a predetermined level (36), at least one receptacle (12) for anode material participating in the electro deposition process, and

means (24-30) for circulating and maintaining the level of the electrolyte in the tub, the receptacle (12) having one or more openings (18) situated under the liquid level (36) in the tub, characterized in the receptacle communicates with an outlet (35) arranged at a level between said opening (18) and the liquid level (36) in the tub (1), said outlet being in communication with return piping (32,33) for the electrolyte (2), whereby the liquid level (37) in the receptacle will be below that (36) prevailing in the bath (1), so that the liquid (2) circulating in the tub (1) partially departs through said opening (18), subsequently to flow through the anode material (16) and to the outlet (35) in said receptacle.

4,391,695

COATED METAL ANODE OR THE ELECTROLYTIC RECOVERY OF METALS

Konrad Koziol, Rottenbach, and Erich Wenk, Nuremberg, both of Fed. Rep. of Germany, assignors to Conradt GmbH Metall-

elektroden KG, Rottenbach, Fed. Rep. of Germany
Filed Feb. 3, 1981, Ser. No. 231,165

Int. Cl.³ C25B 11/02
U.S. Cl. 204—286

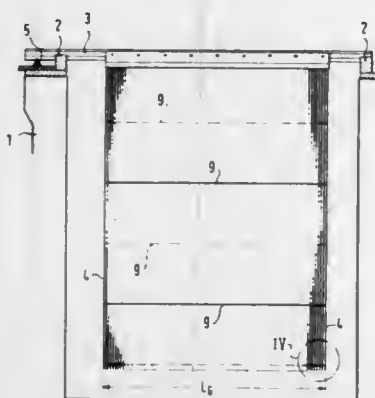
15 Claims

1. A coated metal anode for the electrolytic recovery of

metals, the working surface of which is represented by rods which are arranged in a plane in spaced, parallel relationship to each other, and which are electrically connected to a current supply rail, wherein:

said rods lie in a plane with the current supply rail, so as to create a substantially planar rectangular, surface of the anode;

said rods being arranged in such a manner that a larger portion of the area of said rods extends perpendicular to the arrangement plane assumed by said rods than is congruent with said plane; and



said rods are connected to said current supply rail at one end face; and

both the electrical and mechanical connection of each rod with said current supply rail takes place by means of at least one connecting strip extending parallel to said rod; and wherein

one marginal region of said connecting strip is connected with said current supply rail and another marginal region is connected with said rods.

4,391,696

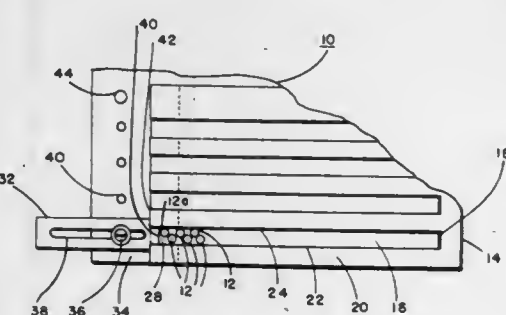
METHOD AND APPARATUS FOR HOLDING STYLI
James J. Cowden, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 25, 1981, Ser. No. 296,225

Int. Cl.³ C25D 7/00, 17/10

U.S. Cl. 204—297 W

9 Claims



1. An apparatus for holding a plurality of styli in a high-density configuration during processing comprising:

a holder having a slot with a closed end disposed adjacent a first surface thereof, said slot having a pair of longitudinal sides parallel to each other and separated by a distance greater than the diameter of a stylus but less than twice the stylus diameter, said holder having a stack of said styli juxtaposed in two rows oriented along said slot toward said closed end, and

means attached to said holder at the end of said slot, opposite the closed end, for exerting a clamping force against the stylus disposed at the end of said stack of styli, said exerting means adapted to push said styli toward the closed end of said slot and thereby effectively hold said styli within said slot.

4,391,697

HIGH RATE MAGNETRON SPUTTERING OF HIGH PERMEABILITY MATERIALS

Charles F. Morrison, Jr., Boulder, Colo., assignor to Vac-Tec Systems, Inc., Boulder, Colo.

Filed Aug. 16, 1982, Ser. No. 408,233

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

19 Claims

1. Sputtering apparatus comprising
a target of material to be sputtered, said target including at least first and second elements spaced from one another by a gap;
an anode;
means for generating an electric field between the anode and target;
plasma generating means for generating a plasma within said gap; and
means for generating a trapping magnetic field to confine at least some of said plasma adjacent the target.

4,391,698

COALESCER APPARATUS FOR ELECTROSTATICALLY RESOLVING EMULSIONS

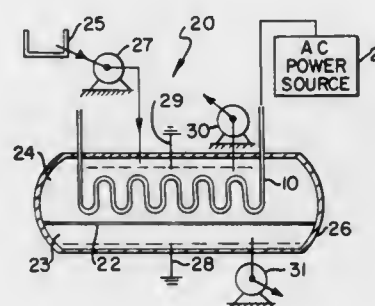
John P. Wagner, Martinsville, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Apr. 20, 1981, Ser. No. 255,872

Int. Cl.³ B03C 5/02; C10G 33/02

U.S. Cl. 204—302

5 Claims



1. A coalescer apparatus for resolving a solids-water-oil emulsion into its phases comprising,

a reaction vessel;
means to introduce a solids-water-oil emulsion into said reaction vessel to provide a water-oil interface in said vessel;

a current carrying electrode below said means for introducing said emulsion and disposed so that under conditions of use said current-carrying electrode is adjacent said interface of the phases of said emulsion, said current-carrying electrode having an inner support member for supporting an outer flexible plastic tube, said outer flexible plastic tube surrounding said inner support member and being concentrically spaced therefrom so as to provide a space therebetween, and an electrolyte disposed within said space between said support member and said plastic tube;

a grounding electrode disposed so that under conditions of use said grounding electrode is in the water phase within said reaction vessel;
means to remove resolved phases of said emulsion from said reaction vessel including a solids pump-off tube disposed so that under conditions of use said solids pump-off tube is between said current-carrying electrode and said interface.

4,391,699

COAL LIQUEFACTION PROCESS

Joel W. Rosenthal, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 754,198, Dec. 27, 1976, Pat. No. 4,330,389. This application Feb. 3, 1982, Ser. No. 345,281

The portion of the term of this patent subsequent to May 18, 1999, has been disclaimed.

Int. Cl.³ C10G 1/00, 1/06

U.S. Cl. 208—8 LE

28 Claims

1. A process for liquefying coal comprising:
(a) mixing subdivided coal with a solvent to form a coal-solvent slurry;
(b) heating said slurry in a dissolving zone to a temperature in the range of 750°–900° F. at a pressure above 500 psig in the presence of added hydrogen to form a first effluent comprising normally liquid components, non-distillable oil components, and undissolved solids;
(c) passing at least a portion of said first effluent into a reaction zone, said portion comprising non-distillable oil components, and contacting said portion with hydrogen in the presence of an externally provided hydrogenation catalyst under hydrogenation conditions, including a temperature below 800° F. and lower than the temperature in said dissolving zone;
(d) withdrawing a second effluent from said reaction zone, said second effluent comprising normally liquid components and non-distillable oil components; and
(e) recycling at least a portion of said second effluent to step (a), said recycle portion comprising both normally liquid components and non-distillable oil components.

4,391,701

PROCESS FOR UPGRADING HEAVY OILS

Jean-Francois Le Page, Rueil Malmaison, and Germain Martino, Poissy, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Apr. 9, 1981, Ser. No. 252,675

Claims priority, application France, Apr. 9, 1980, 80 07956
Int. Cl.³ C10L 1/02; F17D 1/17

U.S. Cl. 208—370

13 Claims

1. A process for reducing the viscosity of a heavy oil, comprising the steps of:
(a) deasphalting at least a portion of the heavy oil, and separately recovering a deasphalted heavy oil and asphaltenes;
(b) gasifying at least a portion of said asphaltenes to produce a synthesis gas;
(c) converting at least a portion of said synthesis gas to a mixture of alcohols consisting of methanol and at least one C₂₋₁₀ alcohol; and
(d) admixing said alcohol mixture with the nondeasphalted heavy oil portion or with the deasphalted heavy oil or with a mixture thereof, to produce an oil of lower viscosity.

4,391,702

METHOD FOR CLASSIFICATION OF COALS FOR COKE PRODUCTION

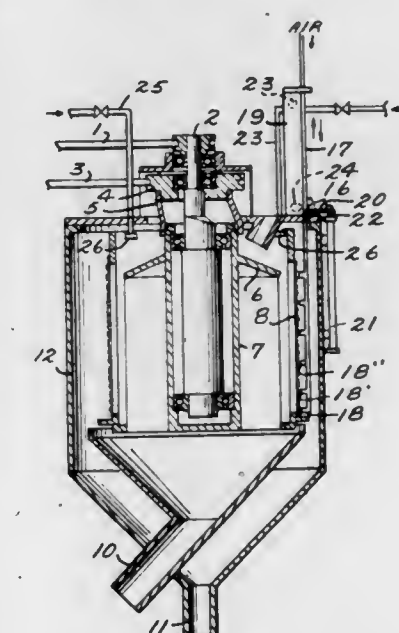
Shozo Murakami; Hiroaki Yamanaka; Kazuhiro Yokoyama; Yasuhiro Yone, all of Himeji, and Tokuji Yamaguchi, Kitakyushu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 73,320, Sep. 7, 1979, Pat. No. 4,310,412. This application Oct. 7, 1981, Ser. No. 309,406

Claims priority, application Japan, Sep. 17, 1981, 56-146735
Int. Cl.³ B07B 1/26

U.S. Cl. 209—10

2 Claims



4,391,700

PROCESS FOR CONVERTING HEAVY HYDROCARBON OILS, CONTAINING ASPHALTENES, TO LIGHTER FRACTIONS

Alain Billon, Orlenas; Jean-Francois Le Page, Rueil Malmaison; Jean-Pierre Peries, Mornant, and Jean-Claude Simandoux, Ste. Foy Les Lyon, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Apr. 21, 1981, Ser. No. 256,272

Claims priority, application France, Apr. 21, 1980, 80 08959; Apr. 21, 1980, 80 08960

Int. Cl.³ C10G 47/22, 21/14, 45/08

U.S. Cl. 208—86

16 Claims

1. A process for converting an asphaltenic oil to lighter fractions, which comprises the steps of:

(a) deasphalting the asphaltenic oil with an aliphatic C₅₋₇ hydrocarbon solvent, said deasphalting being effected under conditions such that the major part of the resins remains in the deasphalted oil, and recovering the resultant deasphalted oil;
(b) maintaining the deasphalted oil with hydrogen at 440°–530° C. for 1 second to 10 hours, under a pressure of 40 to 140 bars, in a non-catalytic conversion zone;
(c) feeding the product of step (b) with hydrogen into a catalytic conversion zone at 320°–430° C., under a pressure of 40 to 140 bars, in contact with at least one catalyst comprising at least one molybdenum compound or tungsten compound or a mixture thereof and at least one nickel compound or cobalt compound or a mixture thereof, and recovering the resultant hydrocarbon fractions.

1. A method for classifying wet coal for coke production comprising:

supplying the wet coal into a cylindrical screen arranged in a casing, rotating and revolving the screen in an almost vertical position to subject the wet coal to gravity, centrifugal force and vibrating force, blowing a high pressure gas stream against the outer side of the screen, and vertically moving the blowing position of the gas stream to clean the screen, while classification is being performed so as to obtain the under-mesh and over-mesh coal fractions, and removing adhesions on the inner surface of the casing and thrown thereby from the outside of the screen after the supply of wet coal is stopped.

4,391,703

MARINE SEWAGE TREATMENT WITH BIOLOGICAL FILTER

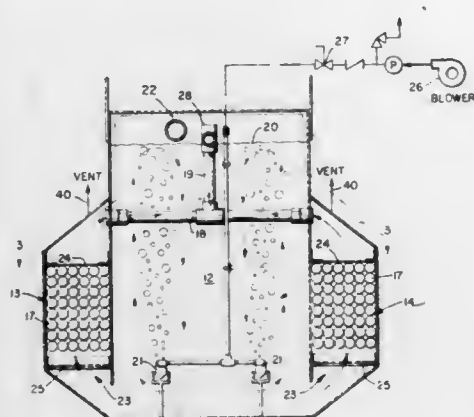
Gary A. Crosby, New Iberia, La., assignor to Red Fox Industries, Inc., New Iberia, La.

Continuation of Ser. No. 175,400, Aug. 5, 1980, abandoned. This application Apr. 6, 1982, Ser. No. 365,889

Int. Cl.³ C02F 3/10

U.S. Cl. 210—151

5 Claims



1. A marine sewage disposal system for use on board a vessel comprising:

- a central aeration chamber having air diffusers supplied with air from a blower and being positioned to supply air from the bottom of said chamber upwardly toward the top, said chamber adapted to receive sludge to a top level therein;
- a pair of biological filters, one positioned to each side of said aeration chamber and contiguous therewith, to receive aerated sludge therefrom, said biological filters having a plurality of buoyant plastic hollow spheres retained in filter tiers on foraminous grating so that as the liquid flows up through the spherical filter tiers some of the sludge and entrapped sewage waste solids will separate from the liquid by gravity settling and dissolved oxygen is supplied to bacteria on said biological filters by liquid convection and oxygen diffusion,
- a crossover pipe connecting said filters and being positioned below the top level of sludge in said aeration chamber; and
- a chlorine contact tank connected to receive clarified liquid from said crossover pipe by a flexible exit pipe to transfer clarified liquid from the biological filters to the chlorine tank for treatment with chlorine from a source of chlorine, prior to discharge.

4,391,704

GAS-EXTRACTION ARRANGEMENT FOR WASTEWATER SETTLING TANK

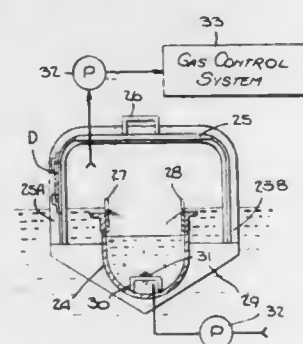
Arthur Anderson, Cypress, Calif., assignor to Fischer & Porter Company, Warminster, Pa.

Filed Jul. 28, 1981, Ser. No. 287,791

Int. Cl.³ B01D 19/00; C02F 1/20

U.S. Cl. 210—188

16 Claims



1. In combination with a settling tank for a wastewater

treatment, said tank including an inlet line for feeding wastewater therein, means to remove sludge from the tank and an outlet zone defined by an effluent trough, at least one side of which has a weir to permit clarified water to spill into the trough; and an outlet to remove clarified water from said trough; an arrangement for preventing noxious gases generated in the wastewater from being discharged into and fouling the atmosphere, said arrangement comprising:

- a hood which is supported over the trough to define a confined region to capture said gases, said hood having a side wall which protrudes into the water in said settling tank at a position spaced from the weir side of the trough, said side wall protruding into the water to a depth below the upper edge of the weir to form a scum baffle integral with the hood; and
- means to treat the captured gases to render them inactive, and to prevent the discharge of said noxious gases into the atmosphere.

4,391,705

BALLASTING DIGESTOR COVERS

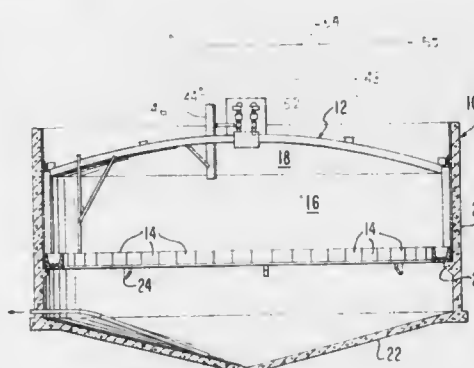
Lynn W. Cook, Fruit Heights, and David P. Brown, Salt Lake City, both of Utah, assignors to Envirotech Corporation, Salt Lake City, Utah

Filed May 29, 1981, Ser. No. 268,214

Int. Cl.³ C02F 11/04

U.S. Cl. 210—218

3 Claims



1. An apparatus for digesting sludge comprising: a cylindrical tank, a cover adapted to move upwardly and downwardly within the tank, with the cover having an upright cylindrical sidewall the lower end thereof adapted to project into the sludge to form a gas-tight seal therewith and with gas being stored under the cover above the surface level of the sludge, a gas outlet at the upper end of the cover, valve means communicating with said outlet for regulating flow of gas from under the cover, a plurality of separate ballast members mounted to the interior of said sidewall near the lower end thereof, at least some of the ballast members each having a cavity formed in the upper end thereof that extends downwardly into the ballast member so that the cavity will fill with sludge upon flow of sludge into the tank and that is adapted to hold a predetermined substantial quantity of sludge therein, whereby when the volume of gas accumulated under the cover is sufficient to lift said ballast members partially from the sludge the predetermined total quantity of sludge within the ballast members effectively increases the total ballasting weight of the ballast members by a substantial predetermined amount over the ballasting weight of the members when they are not filled with sludge.

4,391,706

Richard W. Steinkraus, 5111 Willowbrook La., Lakeland, Fla. 33803

Filed Jan. 20, 1982, Ser. No. 341,074

Int. Cl.³ B01D 33/24, 33/34

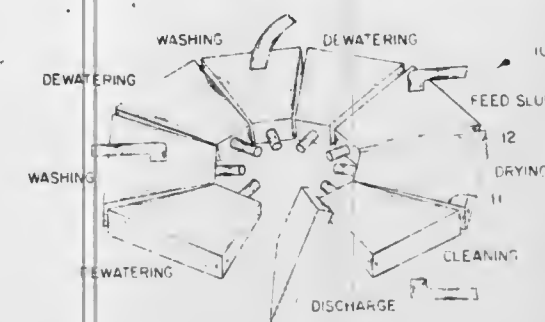
U.S. Cl. 210—232

11 Claims

10. A filter pan filter sealing device for sealing the peripheral

edge of a filter element adjacent the sidewall of a filter pan comprising:

- a peripheral sidewall of the filter pan;
- a contour having a plurality of surfaces disposed on said peripheral sidewall of the filter pan;
- a sealing strip having a portion thereof for cooperatively mating with said contour of said peripheral sidewall;



a longitudinally extending member disposed adjacent one portion of said sealing strip with the peripheral edge of the filter element disposed adjacent to a second portion of said sealing strip; and means for urging said longitudinally extending member toward said peripheral sidewall enabling said sealing strip to seal the peripheral edge of the filter element between said sealing strip and said peripheral sidewall of the filter pan.

4,391,707

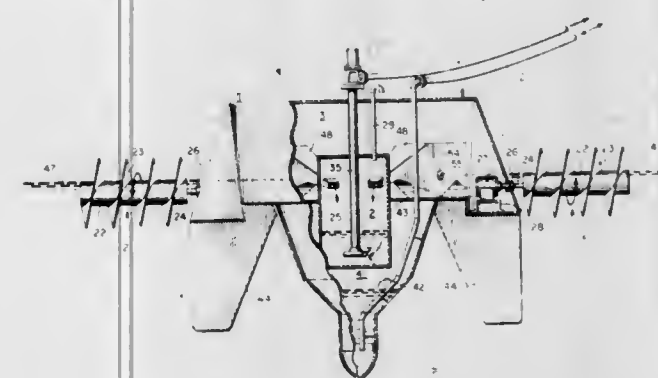
FLOATING SURFACE LIQUIDS RETRIEVAL SYSTEM
Ellison T. Gordon, Covington, La., assignor to Zolco International, Inc., Covington, La.

Continuation-in-part of Ser. No. 905,383, May 12, 1978, Pat. No. 4,196,087. This application Mar. 31, 1980, Ser. No. 135,642. The portion of the term of this patent subsequent to Apr. 1, 1997, has been disclaimed.

Int. Cl.³ E02B 15/04

U.S. Cl. 210—242.3

10 Claims



1. A buoyant apparatus for collecting liquids floating on the surface of water, comprising:

- a basic body having an internal liquid collecting chamber having flotation means associated therewith for providing flotation to said body;
- at least three intake port located adjacent to and in communication with said collecting chamber arranged to allow for the passage of the liquid from the exterior to said collecting chamber said intake ports being positioned and spaced at least generally equally about the periphery of said basic body;
- at least three floating screw means connected to said basic body and extending radially out there from a number of feet for pulling the surface liquids to said intake port inwardly from a distance many feet away from said basic body, said floating screw means being likewise positioned and spaced at least generally equally about the periphery of said basic body, each said floating screw means having independently operable drive means for independently

and controllably rotating said screw means to propel and guide the direction of travel of said basic body across the water surface;

- gravity separator means integrally combined with said collecting chamber for further separating the floating liquids and the water; and
- liquid pick-up means in said collecting chamber including pumping means for pumping up the liquids for pick-up and ultimate removal of the liquids from the water.

4,391,708

APPARATUS FOR THE SELECTIVE SKIMMING OF A LIGHT LIQUID LAYER ON A BODY OF WATER

Jean Le Foll, 14, avenue de l'Europe, 78160 Marly Le Roi, and Henry Benaroya, 41, Boulevard du Commandant Charcot, 92200 Neuilly Sur Seine, both of France

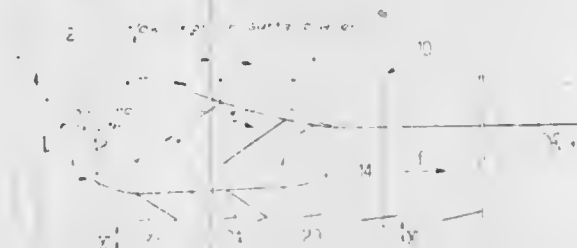
Continuation-in-part of Ser. No. 198,972, Jun. 3, 1980, abandoned. This application Feb. 23, 1982, Ser. No. 351,633

Claims priority, application France, Oct. 3, 1978, 78 28254

Int. Cl.³ E02B 15/04

U.S. Cl. 210—242.3

9 Claims



1. Apparatus for removing floating liquid pollutants from a body of water, comprising: a hull provided with means for moving it in a predetermined direction through the body of water and having two lateral parts, and a vertical central part, placed between the lateral parts, projecting forwards with respect to the latter in said predetermined direction and bearing immersed deflector wings part at least of which is located forward of the lateral parts, said wings being shaped for creating vortices in the water body, the orientation of said vortices tending to diminish the divergence of the flow lines in the vicinity of free water level ahead of said lateral parts due to movement of the apparatus, said lateral parts and central part cooperating to define ducts directing a flow of water and pollutant taken close to the water level to separator means in said hull.

4,391,709

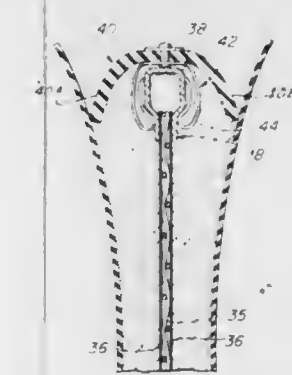
FILTER CAKE CONTROL METHOD AND APPARATUS
Henry Schmidt, Jr., Hinsdale, Ill., assignor to Industrial Filter & Pump Mfg. Co., Cicero, Ill.

Continuation of Ser. No. 113,618, Jan. 21, 1980, abandoned. This application Apr. 27, 1981, Ser. No. 257,895

Int. Cl.³ B01D 29/12

U.S. Cl. 210—332

10 Claims



10. In a pressure filter, the combination comprising a filter leaf including a support structure having first and

second mutually parallel, planar, vertically disposed perforate surfaces on opposite sides of a cavity in said leaf, elastomeric cake control means positioned across the top of said perforate surfaces and extending laterally therefrom, a pair of cake compression diaphragm means respectively disposed in spaced, coplanar relationship with said perforate surfaces and in spaced relationship with said cake control means and movable toward said surfaces against filter cakes deposited on said surfaces during the operation of said filter, and

said diaphragm means sealably engaging said cake control means while moving toward said perforate surfaces and compressing said filter cakes against said perforate surfaces.

4,391,710

CYTOCENTRIFUGE

Alan J. Gordon, Liverpool, England, assignor to Shandon Southern Products Limited, Runcorn, England

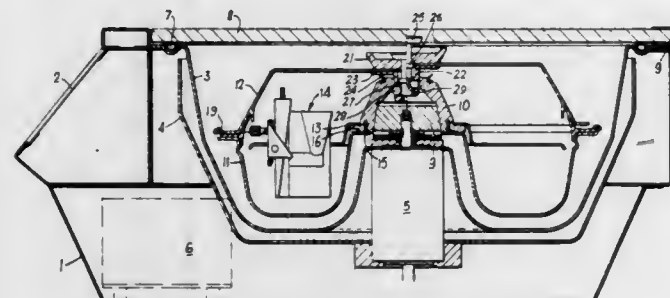
Filed Aug. 3, 1981, Ser. No. 289,374

Claims priority, application United Kingdom, Sep. 15, 1980, 8029732

Int. Cl.³ B01D 33/22

U.S. Cl. 210—361

13 Claims



3. A cyto-centrifuge comprising

- (a) a rotating carrier; and
- (b) a plurality of assemblies mounted on the carrier for rotation therewith and for removal therefrom as a unit, each assembly including
 - (1) a holder comprising a channel member having a web and a flange, the channel member retaining a slide providing a receiving surface and a filter card overlying the slide and providing an absorbent seal thereover,
 - (2) a sample chamber comprising a tube having an end flange shaped to be received by the holder in overlying relationship to the slide and filter card; and
 - (3) said holder further comprising clamping means adapted to engage the end flange of the sample chamber for urging the same towards the web of the channel member whereby the assembly of sample chamber, filter card and slide is secured, the clamping means comprising
 - (4) a rocking element pivoted to the channel member, the channel member having two of said flanges and the rocking element having lugs extending over the flanges of the channel member to engage the end flange of the sample chamber, the rocking member being spring-loaded for rocking in a direction causing the lugs to move towards the web of the channel member whereby a clamping force is produced on the end flange of the sample chamber.

4,391,711

METHOD OF, AND APPARATUS FOR, EFFECTING LIQUID-LIQUID CONTACT

Ian D. Jackson; Derek Berry; George A. Rowden, all of Stockton-on-Tees, and Malcolm Dilley, Middlesbrough, all of England, assignors to Davy McKee (Minerals & Metals) Limited, Stockton-on-Tees, England

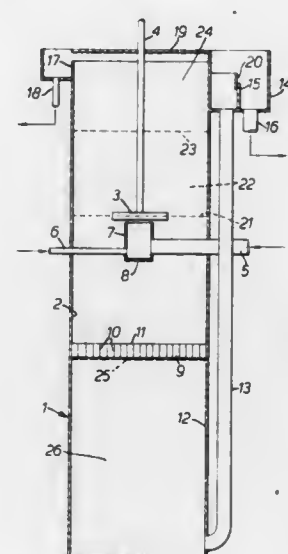
Filed Mar. 19, 1981, Ser. No. 245,591

Claims priority, application United Kingdom, Mar. 19, 1980, 8009180

Int. Cl.³ B01D 11/04

U.S. Cl. 210—634

13 Claims



1. A method of effecting liquid-liquid contact between an aqueous liquid medium and an organic hydrophobic liquid medium capable of undergoing mass transfer with the aqueous medium, comprising:

- providing a chamber containing a body of each of the aqueous and organic liquid media;
- agitating the liquid media within a mixing zone in the chamber so as to form a dispersion band which contains a dispersion of droplets of one of the media dispersed within the other, the droplets of dispersed medium being of a size such that upon standing under gravity the dispersion will substantially completely disengage into two separate liquid layers, the volume ratio of the media in the dispersion band corresponding substantially to a selected value, and the mixing zone being disposed within the chamber with a free space that is devoid of baffles above and/or below the mixing zone so that there are formed above and below the dispersion band respectively an upper layer of lighter medium and a lower layer of heavier medium, at least one of which layers extends at least partially into the corresponding free space and so that dispersion can freely re-enter the mixing zone;
- supplying at least one of the aqueous and organic liquid media to the mixing zone at a respective preselected feed rate;
- allowing dispersion freely to re-enter the mixing zone;
- allowing disengaged lighter and heavier media to pass from the dispersion band to the upper and lower layers respectively; and
- recovering disengaged lighter and/or heavier medium from the upper and/or lower layer respectively at a rate in each case substantially equal to the rate of supply of that medium to the mixing zone, thereby to maintain the volume ratio of the media in the dispersion band substantially at the selected value.

7. Apparatus for effecting liquid-liquid contact between an aqueous liquid medium and an organic hydrophobic liquid medium capable of undergoing mass transfer with the aqueous medium, comprising:

- a chamber for holding a body of each of the aqueous and organic liquid media;
- agitator means within the chamber for agitating the liquid media in a mixing zone so as to form a dispersion band

which contains a dispersion of droplets of one of the media dispersed within the other, the droplets of dispersed medium being of a size such that upon standing under gravity the dispersion will substantially completely disengage into two separate liquid layers, the mixing zone being disposed within the chamber with a free space above, and/or below it that is devoid of baffles such that an upper layer of disengaged lighter medium may form above the dispersion band whilst a layer of disengaged lower medium may form below the dispersion band with at least one of these layers extending at least partially into the corresponding free space and such that dispersion can freely re-enter the mixing zone;

means for supplying at least one of the aqueous and organic liquid media to the mixing zone; and

means for recovering from the chamber lighter and/or heavier medium from the upper and/or lower layer respectively at a rate in each case substantially equal to the rate of supply of that medium to the mixing zone.

4,391,712

REVERSE-OSMOSIS WATER PURIFIER APPARATUS AND METHOD

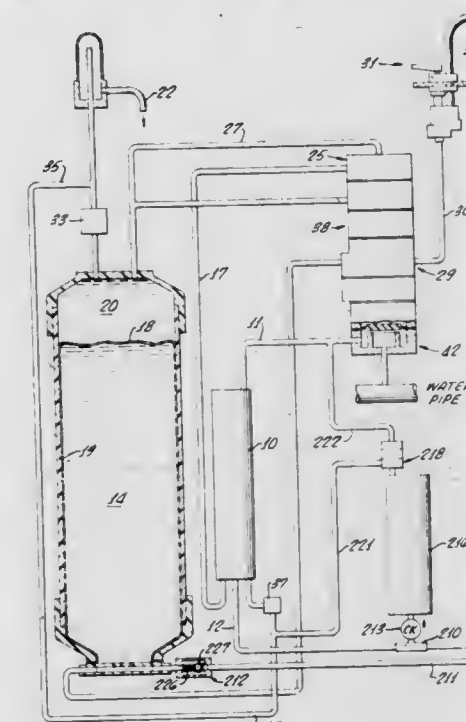
Truman V. Tyler, and Robert B. Sprague, both of Long Beach, Calif., assignors to Richard W. Beall, Jr., Manhattan Beach; Louis J. Favara, Thousand Oaks; Richard L. Gausewitz, Orange; Richard F. Carr, Orange; Allan Rothenberg, Orange and Elgin Edwards, Orange, all of, Calif.

Filed Jul. 21, 1981, Ser. No. 285,456

Int. Cl.³ B01D 31/00, 13/00

U.S. Cl. 210—652

7 Claims



7. A method of maintaining the purity of the water in the pure-water storage means of a reverse-osmosis water purification system of the type which shuts down automatically when said pure-water storage means has been filled to its capacity by water emanating from the pure-water outlet of a reverse-osmosis filter unit, and which starts operating automatically when water is thereafter drawn out of said pure-water storage means, said method comprising:

- (a) diverting to an accumulator a predetermined quantity of water which emanates from the pure-water outlet of the reverse-osmosis filter unit following a period of shutdown, said predetermined quantity being at least about equal to the pure-water capacity of said filter unit, said diverting commencing when water is drawn out of said pure-water storage means,
- (b) ceasing said diverting when said accumulator has received said predetermined quantity, so that water then

flows from said pure-water outlet to said pure-water storage means, and

(c) dumping said accumulator when said pure-water storage means has filled to its capacity, said diverting, said ceasing of said diverting, and said dumping being effected automatically, in the absence of any manual operation.

4,391,713

REVERSE OSMOSIS UNIT-DEGASIFIER SYSTEM

Verity C. Smith, Dedham, Mass., assignor to Vaponics Inc., Plymouth, Mass.

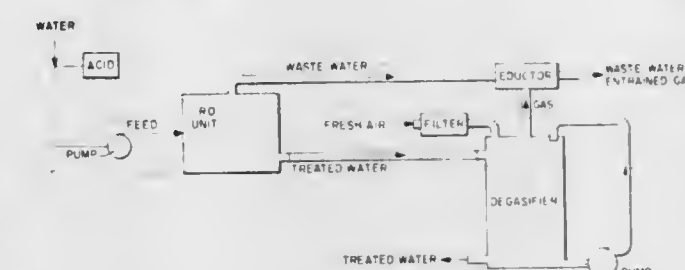
Continuation of Ser. No. 161,339, Jun. 20, 1980, abandoned.

This application Oct. 15, 1981, Ser. No. 311,883

Int. Cl.³ B01D 31/00, 13/00

U.S. Cl. 210—652

2 Claims



2. A method of degasifying water passed through the reverse osmosis membrane of an RO unit, comprising the steps of: providing a degasifier having an inlet for receiving water to be degasified and a low pressure chamber for removing gas from said degasifier; conveying the output of said RO unit to said degasifier; providing an educator for producing low pressure in response to a flow of liquid under high pressure; conveying the waste water under high pressure from said RO unit to said educator to produce low pressure in said educator in response to the flow of waste water as said degasifier is receiving said water passed through the RO unit; and connecting said educator to said degasifier low pressure chamber.

4,391,714

PROCESS FOR REMOVING MOLYBDENUM FROM AQUEOUS SALT SOLUTIONS

Eberhard Preisler, Erftstadt; Bernhard Hofmann, Hürth-Knapsack, and Johannes Holzem, Hüh-Gleuel, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 6, 1982, Ser. No. 365,989

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1981, 3114559

Int. Cl.³ C25G 1/00

U.S. Cl. 210—670

10 Claims

1. In the process for removing molybdenum from aqueous salt solutions by adsorbing it on manganese dioxide, the improvement which comprises contacting the salt solution with a bed of manganese dioxide (MnO₂) precipitated electrolytically and transformed into granular material.

4,391,715

WASTE TREATMENT PROCESS

Colin F. Coates, Northumberland, England, assignor to Sterling Drug Inc., New York, N.Y.

Filed Aug. 13, 1981, Ser. No. 292,404

Int. Cl.³ C02F 1/72

U.S. Cl. 210—696

9 Claims

1. A process for preventing tar or foam formation in an aqueous waste containing diazonium salts, thereby rendering said waste liquor suitable for disposal or further treatment, which comprises treating said waste liquor with sulfite ions in

amount sufficient to decompose substantially all of the diazonium salts in said waste liquor.

4,391,716

PREFERENTIAL WICKING SYSTEM

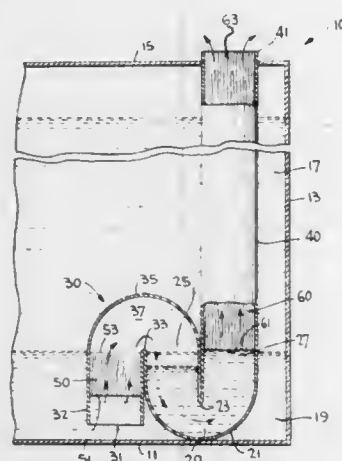
H. Michael McCurry, Richmond, Va., assignor to American Filtrona Corporation, Richmond, Va.

Filed Dec. 22, 1981, Ser. No. 333,300

Int. Cl.³ B01D 17/02

U.S. Cl. 210—799

24 Claims



1. Apparatus for use in an upright position in separating a first liquid having a first specific gravity from a second liquid having a second specific gravity less than said first specific gravity, said apparatus comprising:

a liquid trap chamber having a liquid-containing portion including a bottom chamber wall, an upwardly-directed inlet opening disposed above said liquid-containing portion, an upwardly-directed outlet opening disposed above said liquid-containing portion, and a top wall with a lowermost section separating said inlet and outlet openings; an inlet passage having a liquid ingress opening disposed at a level above said bottom wall and below said lowermost section of said top wall, said inlet passage further including weir means disposed at a level above said top and positioned to spill liquid above a predetermined level in said inlet passage into the inlet opening of said chamber; an outlet passage extending generally upward from said outlet opening of said chamber;

primer wick means, having top and bottom ends disposed to transversely fill a portion of said inlet passage, for drawing liquid upward through said inlet passage from said ingress opening, wherein the bottom end of said primer wick means is disposed at a level spaced above said ingress opening; and

exhaust means disposed at a further level in said outlet passage for drawing liquid at or above said further level upward through said outlet passage, wherein said further level at least as high as the top end of said primer wick.

23. A method for separating a first liquid of known specific gravity from a second liquid of lesser specific gravity in a tank wherein the second liquid is supported by surface tension in a column above said first liquid, said method comprising the steps of:

drawing liquid from the bottom of said tank upward through an inlet passage with a primer wick; flowing liquid from said inlet passage over a weir and into a liquid trap chamber; drawing liquid above a predetermined height in said liquid trap chamber out of said tank; and establishing a liquid dam of said first liquid in said liquid trap chamber to block flow communication between said inlet passage and said predetermined height when the level of said first liquid in said tank falls to a predetermined level.

4,391,717
USE OF ISOMERIC FARNESENE
PRODUCT-BY-PROCESS FOR AUGMENTING OR
ENHANCING THE AROMA OF PERFUME
COMPOSITIONS, COLOGNES AND PERFUMED
ARTICLES

Braja D. Mookherjee, Holmdel; Robert W. Trenkle, Bricktown, both of N.J.; Bernard J. Chant, Rye, N.Y.; Anton V. Ouwkerk, Livingston, N.J.; Venkatesh Kamath, Red Bank, N.J., and Cynthia J. Mussinan, Bricktown, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

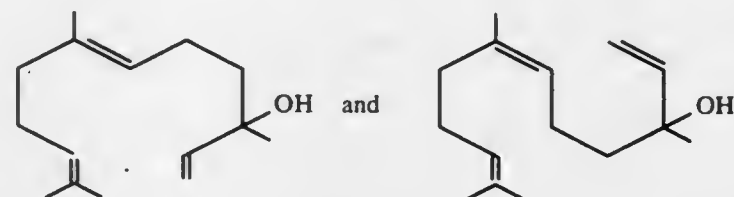
Division of Ser. No. 292,392, Aug. 13, 1981. This application May 6, 1982, Ser. No. 375,534

Int. Cl.³ D06M 13/16

U.S. Cl. 252—8.6

3 Claims

1. A process for augmenting or enhancing the aroma of the head space above a dried batch of clothing comprising the step of adding to the clothing batch prior to drying and during the washing cycle a drier-added fabric softener article having previously added thereto an aroma augmenting or enhancing quantity of a farnesene isomer mixture produced according to the process of dehydrating a nerolidol isomer mixture containing nerolidol isomers defined according to the structures:



in the presence of a catalyst selected from the group consisting of potassium acid sulfate and paratoluene sulfonic acid at a temperature in the range of from 110° C. up to 200° C. and at a pressure in the range of from 1 mm/Hg pressure up to 200 atmospheres pressure, absolute.

4,391,718
SULPHONATED MONO-HYDRIC DIARYL PHENOL
FORMALDEHYDE CONDENSATES, THEIR
PREPARATION, THEIR USE AS DISPERSING AGENTS
AND FORMULATIONS CONTAINING THEM

Günther Reitz, Cologne; Karlhans Jakobs, Bergisch Gladbach, and Günther Boehmke, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 14, 1981, Ser. No. 292,867

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1980, 3033329

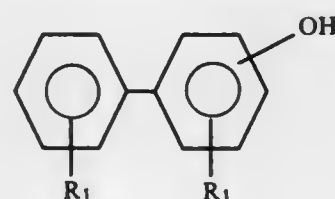
Int. Cl.³ B01F 17/30; C08G 8/18

U.S. Cl. 252—8.7

1 Claim

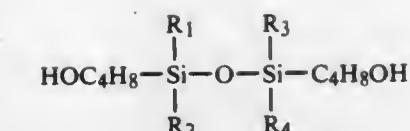
1. A dispersing agent comprising

- (a) an addition product of an aliphatic, araliphatic or alkylaromatic alcohol, carboxylic acid or carboxylic acid amide with 12 to 22 C atoms and 3-8 mols of ethylene oxide,
- (b) an addition product of an aliphatic, araliphatic or alkylaromatic alcohol, carboxylic acid or carboxylic acid amide with 12 to 22 C atoms and 9 or more mols of ethylene oxide, and
- (c) a reaction product prepared by sulphonation or sulphomethylation and formaldehyde condensation of a compound of the formula



wherein

R₁ represents C₁₋₄-alkyl, and, optionally, subsequent conversion of the resulting sulphonic acid into its salt.



wherein R₁ and R₃ are methyl or ethyl and R₂ and R₄ are linear alkyl groups of up to 20 carbon atoms.

4,391,719
ETHOXYLATED SULFOSUCCINATE ADDITIVES FOR
STABILIZING SOLUTIONS OF PETROLEUM
SULFONATES IN HARD BRINE

John J. Meister, Gainesville, Fla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

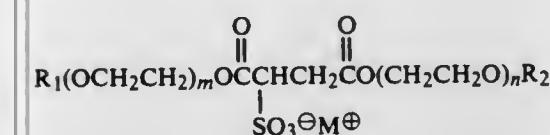
Division of Ser. No. 964,400, Nov. 28, 1978, Pat. No. 4,274,279. This application Dec. 2, 1980, Ser. No. 212,185

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D

6 Claims

1. An aqueous saline surfactant system suitable for use in tertiary oil recovery operations consisting essentially of brine, a petroleum sulfonate present in an amount in a range of about 0.01 to about 15 weight percent, an ethoxylated sulfosuccinate present in an amount in a range of about 0.01 to about 15 weight percent and a cosurfactant chosen from among the group consisting of C₃ to C₆ aliphatic alcohols and present in an amount in a range of about 1 to about 7 weight percent with each weight percent based on the weight of water in the surfactant system and wherein the ethoxylated sulfosuccinate derivative is a diester of alpha-sulfosuccinic acid and an ethoxylated alcohol, the diester having the formula



wherein R₁ and R₂ represent alkyl radicals, which can be different, containing 3-18 carbon atoms and M is selected from the group consisting of sodium, lithium, potassium, ammonium and substituted ammonium; and the ethoxylated alcohol has the formula



wherein R corresponds to R₁ or R₂, x encompasses all the values of m and n, and m + n is in the general range of from 4 to 100, m or n being at least 1.

4,391,720
BIS(HYDROXYALKYL)DISILOXANES AND LUBRICANT
COMPOSITIONS THEREOF

Chih C. Wang, Hightstown, and Ronald F. Bates, Trenton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Division of Ser. No. 231,859, Feb. 5, 1981, Pat. No. 4,355,062.

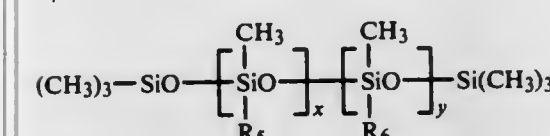
This application Aug. 16, 1982, Ser. No. 408,502

Int. Cl.³ C10M 1/50

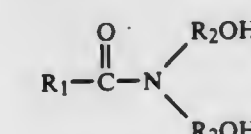
U.S. Cl. 252—49.6

6 Claims

1. A composition comprising a solution of a methyl alkyl siloxane lubricant of the formula



wherein R₅ and R₆ are alkyl groups of 4 to 20 carbon atoms, x is an integer of 2-4, y is an integer of 0-2 and wherein the sum of x and y is 4 or less, containing from about 5 percent to about 70 percent by weight of the lubricant of a compound of the formula



wherein R₁ is alkyl of about 4 to about 54 carbon atoms and R₂

4,391,721
DISPERSANT VISCOSITY INDEX IMPROVER
COMPRISING REACTION PRODUCT OF A
STYRENE-MALEIC ANHYDRIDE COPOLYMER, AN
ALIPHATIC ALCOHOL AND A TERTIARY AMINO
ALCOHOL

Peter G. Pappas, Downers Grove, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Mar. 25, 1981, Ser. No. 247,600

Int. Cl.³ C10M 1/32

U.S. Cl. 252—51.5 A

12 Claims

1. A dispersant viscosity index improving additive composition, resistant to oxidative thickening and loss of dispersancy, which composition comprises the reaction product of a styrene-maleic anhydride copolymer, an aliphatic alcohol having at least 6 carbon atoms and a tertiary amino alcohol, said composition having been prepared by substantially esterifying said copolymer with said aliphatic alcohol to produce a substantially-esterified copolymer and subsequently transesterifying said substantially-esterified copolymer with said tertiary amino alcohol.

4,391,722
WATER-BASED LOW FOAM HYDRAULIC FLUID
EMPLOYING 2-ETHYLHEXANOL DEFOAMER

Ellen S. Schwartz, Warren; Cline A. Tincher, Grosse Ile, both of Mich., and Jerrold F. Maxwell, Matteson, Ill., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

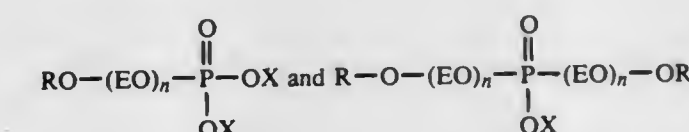
Filed Apr. 13, 1981, Ser. No. 253,809

Int. Cl.³ C09K 3/00; C10M 3/04

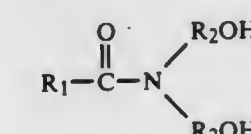
U.S. Cl. 252—73

12 Claims

1. A hydraulic fluid concentrate characterized by improved low-foaming properties comprising water, about 0.15 to 2 percent by weight of 2-ethylhexanol, and conventional hydraulic fluid additives wherein said concentrate includes a thickener and at least one additive selected from the group consisting of phosphate esters or salts thereof selected from the group consisting of

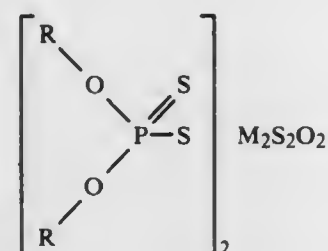


and mixtures thereof wherein ethylene oxide groups are represented by EO; R is selected from the group consisting of linear or branched chain alkyl groups wherein said alkyl groups have about 6 to 30 carbon atoms or alkylaryl groups wherein the alkyl groups have about 6 to 30 carbon atoms and X is selected from the group consisting of hydrogen, alkali or alkaline earth metal, the residue of ammonia or an amine and mixtures thereof, and n is a number from 1 to 50; an alkylalkanolamide of the formula



is alkyl of about 2 to about 6 carbon atoms, or an alkyldialkanolamide prepared by esterifying a dialkanolamine with an alkyl carboxylic acid and removing water of esterification wherein said alkyldialkanolamide is derived from a branched or straight chain, saturated or unsaturated aliphatic dicarboxylic acid having 8 to 54 carbon atoms,

a metal deactivator;
a corrosion inhibitor;
an additional defoamer;
water-soluble ethers or esters of ethoxylated C₈-C₃₆ aliphatic monohydric or polyhydric alcohols or acids,
sulfur compound additives selected from the group consisting of the ammonia, amine or metal salts of 2-mercaptobenzothiazole or 5-, 6- and 7-substituted 2-mercaptobenzothiazole, and sulfurized molybdenum and antimony compounds represented by the formula:



wherein M is molybdenum or antimony and R is organic and is selected from the group consisting of C₃-C₂₀ alkyl, aryl, alkyl-aryl radicals and mixtures thereof, and wherein said thickener is a polyether polyol having a molecular weight of about 1000 to about 40,000 prepared by reacting ethylene oxide or ethylene oxide and at least one lower alkylene oxide having 3 to 4 carbon atoms with at least one active hydrogen-containing compound and at least one alpha-olefin oxide or glycidyl ether having a carbon chain length of about 12 to 18 aliphatic carbon atoms wherein said alpha-olefin oxide or glycidyl ether is present in the amount of 1 to about 20 percent by weight based upon the total weight of said thickener.

4,391,723

CONTROLLED RELEASE LAUNDRY BLEACH PRODUCT

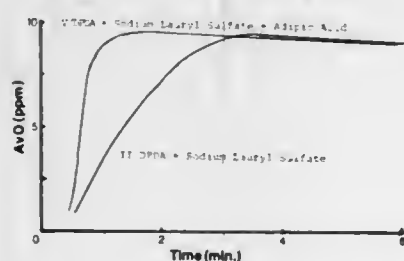
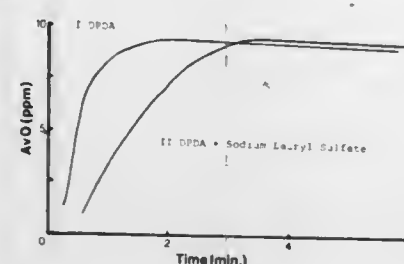
Dennis R. Bacon, Milford, and Frank P. Bossu, West Chester, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jul. 13, 1981, Ser. No. 282,562

Int. Cl.³ C11D 17/04; C01B 15/00

U.S. Cl. 252-90

8 Claims



1. A dry, granular laundry bleach product in a pouch comprising:

I. a peroxyacid bleach selected from the group consisting of hydrophobic acid hydrophilic peroxyacid bleaches,

II. an effective amount of a bleach release-delaying agent; said bleach and agent being contained within a closed water-insoluble but water-permeable pouch of fibrous material; said agent consisting of a surfactant selected from the group consisting of peroxyacid compatible synthetic detergents and short chain fatty acid soaps having carbon chain lengths of from about 8 to 14, whereby said agent delays the release of said peroxyacid bleach from said pouch into laundry wash liquor.

4,391,724

CONTROLLED RELEASE LAUNDRY BLEACH PRODUCT

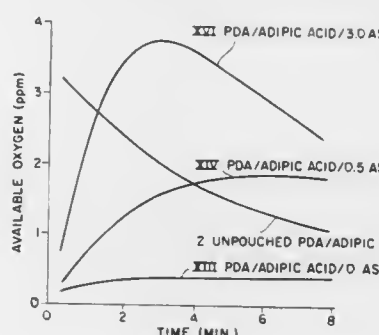
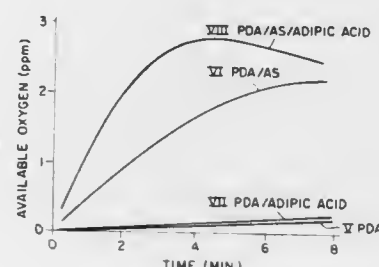
Dennis R. Bacon, Milford, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 21, 1981, Ser. No. 313,422

Int. Cl.³ C11D 17/04; C01B 15/00

U.S. Cl. 252-90

10 Claims



1. A dry, granular laundry bleach product in a pouch comprising:

I. a hydrophobic peroxyacid bleach; and
II. an effective amount of a bleach release agent; said bleach and agent being contained within a closed water-insoluble but water-permeable pouch of fibrous material; said agent consisting of a surfactant selected from the group consisting of peroxyacid compatible synthetic detergents and short chain fatty acid soaps having carbon chain lengths of from about 8 to 14, whereby said agent increases the release of said peroxyacid bleach from said pouch into laundry wash liquor.

3. The invention of claim 1 wherein said peroxyacid is selected from the group consisting of: peroxydecanoic acid, peroxydodecanoic acid, and peroxytetradecanoic acid.

4,391,725

CONTROLLED RELEASE LAUNDRY BLEACH PRODUCT

Frank P. Bossu, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 21, 1981, Ser. No. 313,423

Int. Cl.³ C11D 17/04; C01B 15/00

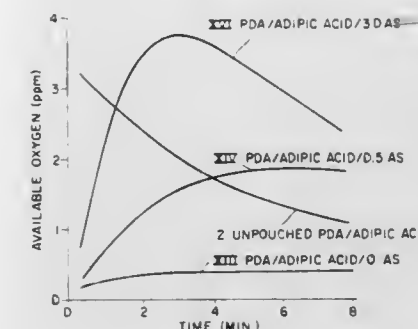
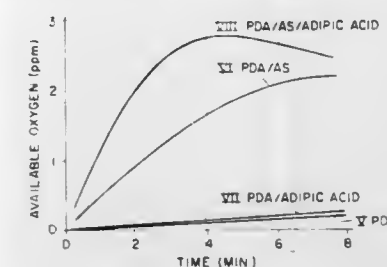
U.S. Cl. 252-90

11 Claims

1. A dry, granular laundry bleach-in-a-pouch product comprising:

I. a hydrophobic peroxyacid bleach,
II. a surfactant at level of about 5% to about 60% by weight of the peroxyacid bleach, said surfactant selected from the

group consisting of peroxyacid compatible synthetic detergents and fatty acid soaps, and
III. a water-soluble, peroxyacid compatible acid additive, said acid having a pKa of from about 2 to about 7,



said pouch consisting of a water-insoluble but water-permeable fibrous material; whereby said surfactant increases the level of said bleach released from the pouch into laundry wash liquor; and whereby said acid additive further increases and accelerates the release of said bleach from the pouch into laundry wash liquor in the presence of said surfactant.

4,391,726

DETERGENT COMPOSITION CONTAINING LOW LEVELS OF AMINE OXIDES

Robertus J. C. Koster, Grimbergen, Belgium, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 16, 1981, Ser. No. 274,126

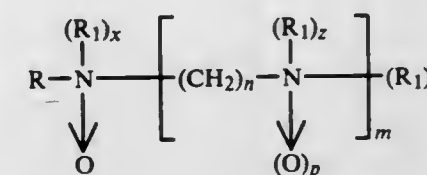
Claims priority, application United Kingdom, Nov. 28, 1980, 8038306

Int. Cl.³ C11D 7/18

U.S. Cl. 252-99

8 Claims

1. A particulate laundry detergent composition having enhanced soil release and cleaning properties comprising:
(a) from about 2% to about 25% by weight of a surface-active agent selected from the group consisting of anionic, nonionic, zwitterionic, and ampholytic detergents and mixtures thereof; and
(b) from 0.25-0.75% of an amine oxide having the formula



wherein R is an alkyl or alkenyl group having 10 to 22 carbon atoms, the R₁'s which are identical or different are selected from C₁₋₄ alkyl, ethylene oxide and propylene oxide, n is an integer from 1 to about 6, m is an integer from 0 to about 6, p is 0 or 1, x, y, and z are each 1 for alkyl substituents, and integers in the range from 1 to 10 for ethylene oxide or propylene oxide substituents such that the sum of (x+y+z) is not greater than 25,

(c) from about 3% to about 50% by weight of a peroxy-bleach compound; and
(d) from about 1% to about 50% by weight of a detergent builder;

whereby a 1% aqueous solution of the composition, measured at 20° C., has a pH in the range from about 8.5 to about 11.

4,391,727

NON-CAKING BLEACH CONTAINING MOLECULAR SIEVE ZEOLITE

Claude L. Benz, Belle-Mead, N.J., assignor to Colgate Palmolive Company, New York, N.Y.

Continuation of Ser. No. 185,730, Sep. 11, 1980, abandoned, which is a continuation of Ser. No. 814,033, Jul. 8, 1977, abandoned, which is a continuation of Ser. No. 640,791, Dec. 15, 1975, abandoned. This application Sep. 4, 1981, Ser. No. 299,506

Int. Cl.³ C01B 15/12; C09K 3/00; C11D 7/20, 7/54

U.S. Cl. 252-99

3 Claims

1. A non-caking bleaching composition comprising: by weight from 28.5 to 34.9% sodium perborate tetrahydrate; from 8.1 to 9.9% sodium carbonate; from 8.1 to 9.9% sodium silicate having an Na₂O:SiO₂ ratio of about 1:2.35; from 0.9 to 1.1% calcined aluminum silicate clay; from 33.9 to 41.3% sodium sulfate; from 8.1% to 9.9% of a crystalline, water-insoluble aluminosilicate molecular sieve 4A zeolite having a particle size of from 5 to 9 microns, and being in about a 2% hydrated form; the composition having a moisture content of about 1.8 to 2.2%.

4,391,728

PROPYLENE OXIDE ADDUCTS OF TOLUENEDIAMINE

Alexander Korczak, Grosse Ile, and William W. Levis, Jr., Wyandotte, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 1, 1981, Ser. No. 326,298

Int. Cl.³ C08L 71/02

U.S. Cl. 252-182

11 Claims

1. A polyol composition comprising the reaction product prepared by reacting propylene oxide with toluenediamine in mole ratios of 4:1 to 9:1 at temperatures greater than 140° C. in the presence of at least 0.6 part of alkali metal hydroxide per 100 parts of toluenediamine with the proviso that at least 0.8 part of alkali metal hydroxide is used if the toluenediamine is 2,4-toluenediamine or 2,6-toluenediamine, or mixtures thereof.

4,391,729

METAL OXIDE COMPOSITE CATHODE MATERIAL FOR HIGH ENERGY DENSITY BATTERIES

Charles C. Liang, Clarence; M. Elizabeth Bolster, East Amherst, and Robert M. Murphy, Lancaster, all of N.Y., assignors to Wilson Greatbatch Ltd., Clarence, N.Y.

Division of Ser. No. 104,384, Dec. 17, 1979, Pat. No. 4,310,609.

This application Jun. 30, 1980, Ser. No. 164,891

Int. Cl.³ H01M 4/04, 6/14

U.S. Cl. 252-182.1

14 Claims

1. A method of making a composite cathode comprising at least one metal oxide, metal or mixtures of metals and metal oxides in the matrix of a host metal oxide which comprises: thermally treating by heating above decomposition temperature a mixture of a host metal oxide and a thermally decomposable metal compound of a metal selected from the group consisting of Groups IB, IIB, IIIB, IVB, VB, VIB, VIIB and VIII, and forming the resultant mass into said cathode.

4,391,730

NEMATIC LIQUID CRYSTAL COMPOUNDS AND USE AND DEVICE FOR USING THE SAME

Frank Kuschel, Dietrich Demus, both of Halle; Doris Pfeiffer, Steinbach, and Hans-Joachim Deutscher, Halle, all of German Democratic Rep., assignors to VEB Werk fuer Fernsehelektronik Berlin im VEB Kombinat Mikroelektronik, Berlin, German Democratic Rep.

Continuation of Ser. No. 65,397, Aug. 9, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,567.

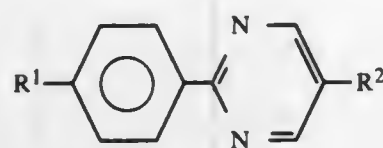
Int. Cl.³ C09K 3/34; G02F 1/13

U.S. Cl. 252-299.1

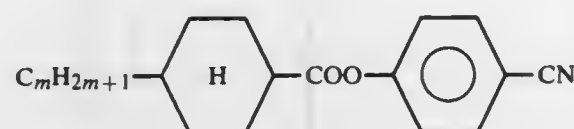
11 Claims

1. A nematic liquid crystal composition for use in electro-optical devices for modulating transmitted or reflected light and

for the rendition of numerals, symbols and images, comprising a mixture of at least one compound of formula (A)



wherein R^1 is $C_nH_{2n+1}O-$ and R^2 is $C_nH_{2n+1}-$, where $n=1$ to 12, and at least one compound of formula (B)



where $m=1$ to 10.

4,391,731

HYDROGENATED NAPHTHALENES

Arthur Boller, Binningen; Martin Schadt, Seltisberg, and Alois Villiger, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 3, 1981, Ser. No. 289,676

Claims priority, application Switzerland, Aug. 14, 1980, 6130/80; May 27, 1981, 3482/81

Int. Cl.³ C09K 3/34; C07C 69/753, 121/46

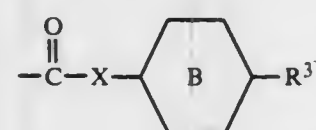
U.S. Cl. 252-299.62

15 Claims

1. A compound of the formula



wherein ring A is saturated or aromatic and a saturated ring A which may be present is trans-linked with the second ring; R^1 is straight-chain alkyl or alkoxy group containing 1 to 11 carbon atoms; R^2 is cyano, an ester group of the formula

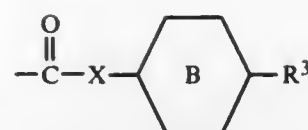


wherein ring B is either aromatic, X is oxygen or sulfur and R^3 is cyano or straight-chain alkyl or alkoxy containing 1 to 10 carbon atoms, or ring B is trans-1,4-di-substituted cyclohexane, X is oxygen and R^3 is cyano or straight-chain alkyl containing 1 to 10 carbon atoms; and the total number of carbon atoms in the alkyl and/or alkoxy groups comprises at most 12.

15. A liquid crystal mixture containing at least two components, wherein at least one component is a compound of the formula



wherein ring A is saturated or aromatic and a saturated ring A which may be present is trans-linked with the second ring; R^1 is straight-chain alkyl or alkoxy group containing 1 to 11 carbon atoms; R^2 is cyano, straight-chain alkyl containing 1 to 11 carbon atoms, an ester group of the formula



or, when ring A is saturated, additionally a straight-chain alkoxy group containing 1 to 11 carbon atoms; in the ester group of formula II ring B is either aromatic, X is oxygen or sulfur and R^3 is cyano or straight-chain alkyl or alkoxy containing 1 to 10 carbon atoms, or ring B is trans-1,4-di-substituted cyclohexane, X is oxygen and R^3 is cyano or straight-chain alkyl containing 1 to 10 carbon atoms; and the total number of carbon atoms in the alkyl and/or alkoxy groups comprises at most 12.

4,391,732

PHYTOSTEROL BLENDS

Larry D. Lundmark, Richfield, Minn., assignor to Henkel Corporation, Minneapolis, Minn.

Division of Ser. No. 584,319, Jun. 6, 1975, Pat. No. 4,218,334.

This application Apr. 25, 1979, Ser. No. 32,988

Int. Cl.³ B01F 17/34, 17/38

U.S. Cl. 252-356

5 Claims

1. A blend consisting essentially of from about 10 to 50 percent phytosterol and from about 50 to 90 percent of a member selected from the group consisting of free saturated fatty alcohols having an even number of carbon atoms from 12 to 18 in number, said blend being substantially free of triglyceride.

4,391,733

MINERAL TREATMENT AND COMPOSITION

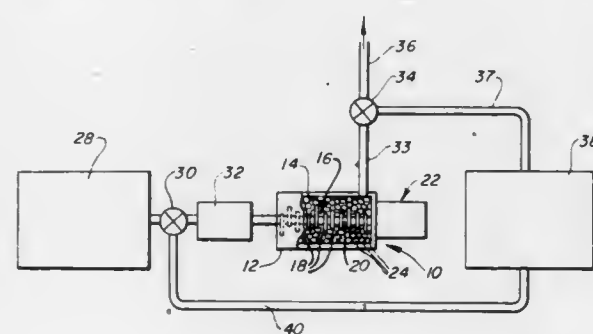
Richard S. Lamar, Littleton, Colo.; Laurence E. Ferreira, Pacific Palisades, and Robert C. Cloud, Thousand Oaks, both of Calif., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Aug. 28, 1981, Ser. No. 297,274

Int. Cl.³ C04B 33/02, 33/04

U.S. Cl. 252-378 R

19 Claims



1. A method for treating a phyllosilicate mineral comprising: (a) forming a slurry comprising up to about 40 weight percent of phyllosilicate mineral particles in an organic liquid having a dielectric constant less than 35 and in the absence of a liquid having a dielectric constant of at least 35; (b) grinding the slurry at a sufficiently low temperature to avoid substantial loss of the liquid through vaporization and with sufficient force to form a particulate composite of the phyllosilicate mineral particles and an organic material present in or formed from the organic liquid during grinding and to fracture the particulate composite and thereby to produce first particulate composite materials having a greater specific surface area than the phyllosilicate mineral particles from which they were formed; and (c) separating the first particulate composite materials from the organic liquid; and (d) treating the separated first particulate composite materials with a polar fluid having a dielectric constant of at least 60 to form second particulate composite materials

having a greater specific surface area than the first particulate composite materials.

4,391,734

MINERAL TREATMENT AND COMPOSITION

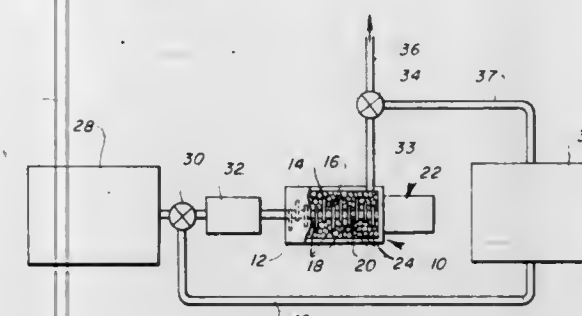
Laurence E. Ferreira, Pacific Palisades, Calif.; Richard S. Lamar, Littleton, Colo., and Ralph J. Bertolacini, Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Feb. 28, 1981, Ser. No. 297,275

Int. Cl.³ C04B 33/02, 33/04

U.S. Cl. 252-378 R

15 Claims



1. A method for treating a phyllosilicate mineral comprising: (a) forming a slurry comprising up to about 40 weight percent of phyllosilicate mineral particles in an organic liquid having a dielectric constant less than 35 and in the absence of a liquid having a dielectric constant of at least 35; (b) grinding the slurry at a sufficiently low temperature to avoid substantial loss of the liquid through vaporization and with sufficient force to form a particulate composite of the phyllosilicate mineral particles and an organic material present in or formed from the organic liquid during grinding and to fracture the particulate composite and thereby to produce particulate composite materials having a greater specific surface area than the phyllosilicate mineral particles from which they were formed; and (c) separating the particulate composite materials from the organic liquid.

4,391,735

CLEANING AND REGENERATING ETHYLENE OXIDE CATALYSTS

Paul J. Busse, Omaha, Nebr., assignor to InterNorth, Inc., Omaha, Nebr.

Filed Jul. 17, 1981, Ser. No. 284,207

Int. Cl.³ B01J 23/96, 23/50; C07D 301/10

U.S. Cl. 252-413

15 Claims

1. A method for removing alkali metal-containing impurities from supported silver catalysts which have been used for the direct oxidation of ethylene to ethylene oxide which comprises washing the catalyst with a composition which is comprised of in inert organic liquid and about 0.1% to about 10%, by weight, of solubilizing agent which is selected from the group consisting of aliphatic and aromatic acids.

6. A method of regenerating a supported silver catalyst which has been used for the direct oxidation of ethylene to ethylene oxide which comprises washing the catalyst to remove alkali metal-containing impurities with a composition comprised of an inert organic liquid and about 0.1% to about 10%, by weight, of a solubilizing agent which is selected from the group consisting of aliphatic and aromatic acids, and then applying to the catalyst from 1 to 1000 parts per 1 million parts of catalyst of cesium, rubidium, or a mixture thereof.

11. In a method for regenerating a supported silver catalyst which has been used for the direct oxidation of ethylene to ethylene oxide which comprises washing the catalyst with an inert organic liquid and then applying to the catalyst from 1 to 1000 parts per 1 million parts of catalyst of cesium, rubidium, or a mixture thereof, the improvement which comprises removing alkali metal-containing impurities by including about

0.1% to about 10% by weight, of a solubilizing agent in the inert organic liquid, said solubilizing agent selected from the group consisting of aliphatic and aromatic acids.

4,391,736

ALPHA-OLEFIN POLYMERIZATION

Charles E. Capshaw, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 5, 1981, Ser. No. 270,695

Int. Cl.³ C08F 4/02, 4/64

U.S. Cl. 252-429 B

10 Claims

1. A method for producing a catalyst comprising (1) reacting a first component comprising the product of a reaction between a magnesium dihalide and a tetraalkyl titanate with a second component comprising the product of a reaction between a substantially anhydrous particulate hydroxyl-containing refractory carrier and an organometal compound of a metal of Group I to V and then (2) reacting the resulting solid with titanium tetrahalide.

4,391,737

CATALYSTS FOR RING-OPENING COPOLYMERIZATION OF CYCLOOLEFINS

Anthony J. Bell, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jun. 11, 1981, Ser. No. 272,635

Int. Cl.³ C08F 4/62

U.S. Cl. 252-429 B

4 Claims

1. A catalyst for a ring-opening copolymerization, consisting of:

a compound of (a) the reaction product of tungsten hexachloride and a 1,2- or 1,3-dioxo compound selected from the group consisting of 2,4-pentadione, 2-formylphenol, 1,3-diphenyl-1,3-propanedione, said reaction product forming a bidentate ligand; and a compound (b) having the formula $R-AlCl_2$ wherein R is an alkyl group having from 2 to 5 carbon atoms, the molar ratio of (b) to (a) ranging from about 2 to about 6, the amount of said tungsten chloride to said dioxo compound ranging from 0.9 moles to about 1.5 moles,

said bidentate ligand causing a more favorable comonomer reactivity ratio in the ring-opening copolymerization of Hex COD monomer and a cycloolefin monomer other than cyclohexene, said cycloolefin having from 4 to 12 carbon atoms and at least one non-conjugated double bond.

4,391,738

CATALYST FOR OLEFINIC POLYMERIZATION

Arthur W. Langer, Jr., Watchung, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 790,837, Apr. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 767,749, Feb. 11, 1977, abandoned. This application Jan. 28, 1982, Ser. No. 343,570

Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 252-429 B

1 Claim

1. An improved catalyst composition adaptable for use in an alpha-olefin polymerization which consists of:

(a) $TiCl_4$ supported on $MgCl_2$, said $TiCl_4$ supported on $MgCl_2$ prepared by ball milling said $TiCl_4$, $MgCl_2$ and ethyl benzoate;

(b) diethylaluminum chloride; and

(c) a mono-organomagnesium compound having the formula:

$R'MgX$

wherein R' is a sec-butyl group and X is selected from the group consisting of Cl, $OOC\phi$, OC_2H_5 , SC_2H_5 and Os-Bu.

4,391,739

ZEOLITE CATALYSTS MODIFIED WITH GROUP IA METALS

Chin-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 146,951, May 5, 1980, Pat. No. 4,329,533. This application Jan. 18, 1982, Ser. No. 339,960
Claims priority, application European Pat. Off., Feb. 19, 1981, 81300672.3

Int. Cl.³ B01J 29/28, 27/18

U.S. Cl. 252—455 Z

11 Claims

2. A catalyst composition comprising:
a crystalline zeolite material selected from ZSM-5, ZSM-11, ZSM-12, ZSM-23, ZSM-35, ZSM-38 and ZSM-48;
said catalyst composition further comprising at least 0.25 weight percent of one or more Group IA metals selected from lithium, potassium, sodium and cesium incorporated into said composition in the form of a Group IA metal oxide and at least 0.25 weight percent of phosphorus incorporated into said composition in the form of an oxide of phosphorus.

4,391,740

LARGE PORE SHAPED HYDROPROCESSING CATALYSTS

Kirk R. Gibson, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Aug. 10, 1981, Ser. No. 291,588

Int. Cl.³ B01J 35/02

U.S. Cl. 252—470

8 Claims

1. A catalyst for hydroprocessing heavy hydrocarbonaceous feedstocks comprising:
elongated extrudates of catalyst, said catalyst having between 2 and 15 weight percent of a catalytic metal from Group VIB and between 0 and 10 weight percent of a catalytic metal from Group VIII, where said weight percent is based on the catalytic metal content of the total catalyst weight, calculated as reduced metal, supported on refractory inorganic oxide;
said extrudates having oval cross section and a section extending from the flat surface of the oval;
said extrudate cross section capable of being circumscribed by a rectangle having a first dimension in the range of between about 0.0600 inch to about 0.085 inch, a second dimension, perpendicular to said first dimension in the range of between 0.030 inch to about 0.065 inch;
said elongated extrudate having a surface area to volume ratio of less than 95 reciprocal inches.

4,391,741

POLYOXYMETHYLENE COMPOSITION

Junzo Masamoto; Minoru Hamada, both of Kurashiki; Isamu Suzuki, Kawasaki, and Takeo Yoshida, Kurashiki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 884,223, Mar. 7, 1978, abandoned. This application Jun. 25, 1979, Ser. No. 51,417

Claims priority, application Japan, Mar. 10, 1977, 52-25415

Int. Cl.³ H01B 1/06

U.S. Cl. 252—511

7 Claims

1. A composition comprising:
(a) 100 parts by weight of polyoxymethylene,
(b) 4 to 10 parts by weight of electrically conductive carbon black selected from the group consisting of oil furnace blacks, furnace blacks and acetylene blacks, and
(c) 10 to 18 parts by weight of low-density polyethylene, wherein said composition has a surface electrical resistance of 10^{13} ohms or less.

4,391,742

PASTE COMPOSITION FOR THE PRODUCTION OF ELECTRICALLY CONDUCTIVE AND SOLDERABLE STRUCTURES

Wolf-Erhard Steigerwald, Rua de Fez, 731, 4.000 Porto, Portugal; Peter Ambros, Am Wacholderrain 12, 8741 Hohenroth Ortsteil Leutershausen, and Erich Gatzke, Wilhelm-Busch-Str. 56, 3260 Rinteln, both of Fed. Rep. of Germany

Continuation-in-part of Ser. No. 918,378, Jun. 23, 1978, Pat. No. 4,248,921. This application Sep. 22, 1980, Ser. No. 189,365

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1977, 2728465

The portion of the term of this patent subsequent to Feb. 3, 1998, has been disclaimed.

Int. Cl.³ H01B 1/06, 1/02

U.S. Cl. 252—512

7 Claims

1. A paste composition for producing electrically conductive and solderable structures comprising:
about 12 to 40 percent, by weight of an organic curable polymer binder, wherein the organic polymer binder is a caprolactam-blocked adduct of isophoronodiisocyanate and an oxyster of the hydroxyl group;
about 40 to 70 percent by weight of electrically-conducting particles, formed as platelets or microscopic crystals and mixtures thereof, wherein the electrically-conducting particles are metal particles, selected from the group consisting of silver, gold, nickel, particles from the platinum group metals, silver or gold coated copper particles and mixtures thereof, to render said binder electrically conducting;
about 5 to 20 percent by weight of metal salt particles, the metal particles being capable of being dissolved by external dissolving agents to render the surface of said composition porous, wherein the metal salt particles are selected from the group consisting of copper (II) sulfate, copper (I) chloride, copper (II) formate, copper (II) acetate, sodium chloride, sodium sulfide, lithium chloride, sodium carbonate, silver chloride, silver sulfate, silver nitrate and mixtures thereof; and
up to 3 percent by weight of a non-ionic or anionic active wetting agent, which is capable of floating the metal salt particles and concentrating said particles at or near the surface of said paste.

4,391,743

COMPOSITION FOR DEPOSITING METALLIC OXIDE FILM COATINGS

Umio Maeda, Fukuoka; Hirofumi Shoji, Toyama; Yasusuke Wada, Johanamachi, and Yoshio Horie, Nakago, all of Japan, assignors to Nippon Soda Company Limited, Tokyo, Japan

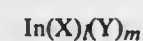
Filed Nov. 30, 1981, Ser. No. 325,648

Int. Cl.³ H01B 1/06

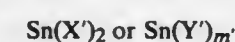
U.S. Cl. 252—518

1 Claim

1. A composition to be dissolved in an organic solvent and applied onto a substrate to deposit a metallic oxide film coating on the substrate, said composition consisting essentially of 100 parts of an indium compound represented by the formula



wherein, for said indium compound X denotes a chelate ring material selected from the group consisting of acetylacetone, methyl or ethyl ester of acetoacetic acid, lactic acid, triethanolamine, and mixtures thereof; Y denotes an alkoxide material selected from the group consisting of butyl alcohol, octyl alcohol, octylene glycol, mono-methylether of ethylene glycol, and mixtures thereof; l and m are an integer which is 1 or 2 having the relationship of $l+m=3$; said indium compound being one component of the composition, the other component being from 5 to 20 parts of a tin compound represented by the formula



wherein, for said tin compound X' denotes a chelate ring material selected from the group consisting of acetylacetone, methyl acetoacetate, and mixtures thereof; Y' denotes an alkoxide material selected from the group consisting of butyl alcohol, octyl alcohol, and mixtures thereof; and m' is an integer which is 2 or 4.

4,391,744

NORBORNYL OXYACETALDEHYDE, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME

Robert P. Belko, Woodbridge; Richard M. Boden, Monmouth Beach, and Marie R. Hanna, Hazlet, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

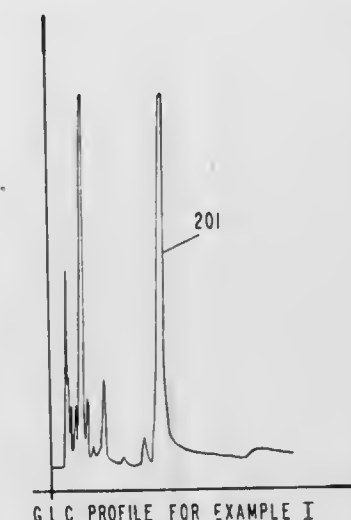
Division of Ser. No. 303,012, Sep. 17, 1981. This application

Mar. 11, 1982, Ser. No. 357,157

Int. Cl.³ A61K 7/46; C11B 9/00

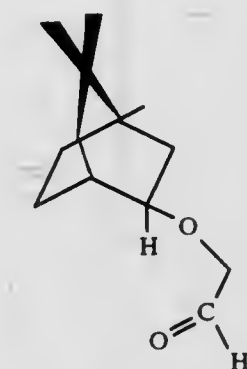
U.S. Cl. 252—522 R

1 Claim



GLC PROFILE FOR EXAMPLE I

1. The process for augmenting or enhancing the aroma of a consumable material selected from the group consisting of perfumes and colognes comprising the step of adding to a perfume or a cologne base an aroma augmenting or enhancing quantity of the norbornyl oxyacetaldehyde having the structure:



4,391,745

DESIZING AGENT AND PROCESS FOR PREPARATION THEREOF

Maria Denkler, Munich, Fed. Rep. of Germany, and Frederic Braun, Vienne, France, assignors to Diamalt Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 127,968, Mar. 7, 1980, abandoned. This application Jul. 16, 1981, Ser. No. 283,816

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909396

Int. Cl.³ C11D 3/386, 11/00; D06L 1/14, 16/00

U.S. Cl. 252—554

8 Claims

1. A composition for removing starch and starch-containing sizing materials comprising an emulsion or dispersion of 10–40% of high temperature aqueous amylase enzyme effec-

tive as a desizing agent at about 100° C. or higher, an anionic surfactant present in an amount of 0.5% and a non-ionic surfactant selected from the group consisting of alkyl oxalkylates, alkaryl oxalkylates and fatty acid ethyloxylates present 10–60% with the balance water.

8. A composition for removing starch and starch-containing sizing materials consisting essentially of an emulsion or dispersion of 10–40% of a starch-decomposing aqueous high temperature amylase enzyme, effective as a desizing agent at about 100° C. or higher and 10–60% of a non-ionic surfactant selected from the group consisting of alkylphenol oxalkylate, oxalkylated fatty alcohols and fatty acid othyloxylate, with the balance water.

4,391,746

BLOOD-COAGULATION-PROMOTING PRODUCTS AND METHODS OF PREPARING THEM

Gautam Mitra, Kensington; Michael H. Coan, El Cerrito, and Shohachi Wada, Oakland, all of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Division of Ser. No. 153,341, May 27, 1980. This application May 5, 1982, Ser. No. 374,835

Int. Cl.³ A61K 35/14, 35/16, 37/02; C07G 7/00

U.S. Cl. 260—112 B

39 Claims

1. A method of producing a blood-coagulation-promoting preparation substantially free of thrombin from human blood plasma, which comprises
(a) contacting a human blood plasma fraction containing coagulation Factors II, VII, IX, and X with an anion exchanger to adsorb the coagulation Factors on the anion exchanger,
(b) eluting the adsorbed coagulation Factors from the anion exchanger,
(c) treating the eluate containing the coagulation Factors to generate a Factor VIII Inhibitor Bypassing Activity (FEIBA) substance substantially free of thrombin, and
(d) treating the eluate to stop the generation of a FEIBA substance.

4,391,747

DES ASPARAGINE-3-CALCITONIN

Ronald C. Orlowski, Frankfort, and Jay K. Seyler, Bourbonnais, both of Ill., assignors to Armour Pharmaceutical Company, Tarrytown, N.Y.

Filed Feb. 12, 1982, Ser. No. 348,473

Int. Cl.³ C07C 103/52

U.S. Cl. 260—112.5 T

5 Claims

1. Des-X³-calcitonin, where X is asparagine wherein the calcitonin is salmon, havine, porcine, ovine or eel.

4,391,748

PROCESS FOR PREPARING PALATABLE SOYA PROTEINS AND PRODUCT THUS OBTAINED

Aldo Ferrero, c/o E. Merck, Postfach 4119, 6100 Darmstadt, Fed. Rep. of Germany

Filed Apr. 29, 1981, Ser. No. 258,847

Claims priority, application Italy, May 2, 1980, 21735 A/80

Int. Cl.³ A23J 1/14

U.S. Cl. 260—123.5

9 Claims

1. A process for preparing palatable soya protein consisting essentially of baking extruded, textured soya protein, which has been previously dried so as to contain up to 10% of moisture, at a temperature of 40° C. to 120° C. for 3 to 14 hours thereby obtaining a product which is per se palatable.

4,391,749

METHOD FOR THE PURIFICATION OF COLLAGENS
Eva S. Engvall, and Erkki I. Ruoslahti, both of Olivenhain, Calif., assignors to La Jolla Cancer Research Foundation, La Jolla, Calif.

Filed Oct. 19, 1981, Ser. No. 313,326

Int. Cl.³ A61K 35/16; C07G 7/00; C08H 1/06; C09H 1/00
U.S. Cl. 260—123.7 10 Claims

1. Affinity matrix material for separating collagen from other high molecular weight proteinaceous substances comprising:

solid chromatographic support material; and
at least one fragment of fibronectin which retains thereupon collagen binding sites, said fragment having been severed from other binding sites of intact fibronectin, said fragment being coupled with said solid chromatographic support material leaving collagen binding sites thereof exposed to selectively bind collagenous material when used chromatographically without binding interfering high molecular weight non-collagenous proteinaceous substances.

4,391,750

HEAT GELLABLE PROTEIN ISOLATE

Jennifer M. Greal, Gores Landing, and Terrence J. Maurice, Colborne, both of Canada, assignors to General Foods Inc., Toronto, Canada

Filed Dec. 22, 1982, Ser. No. 452,035

Int. Cl.³ A23J 1/12, 1/14

U.S. Cl. 260—123.5 27 Claims

1. An aqueous protein dispersion suitable for heat gelation to a gel, which comprises a composition dispersed in an aqueous phase having an ionic strength of about 0.3 to about 0.75 molar and a pH of about 4.5 to about 5.5, said composition comprising at least 70% by weight of a substantially undenatured vegetable protein isolate and up to about 30% by weight of a starch, said vegetable protein isolate being one formed by settling an aqueous dispersion of protein micelles consisting of homogenous amphiphilic protein moieties.

4,391,751

PHTHALIC ANHYDRIDE DERIVATIVES

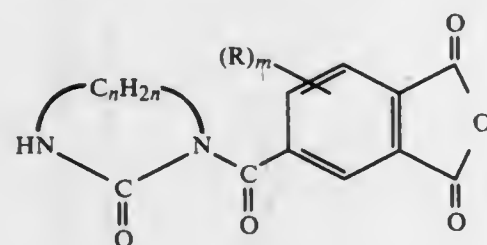
Chung-Yuan Lin, Northford, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Mar. 8, 1982, Ser. No. 356,047

Int. Cl.³ C07D 401/06, 403/06; C08G 69/16

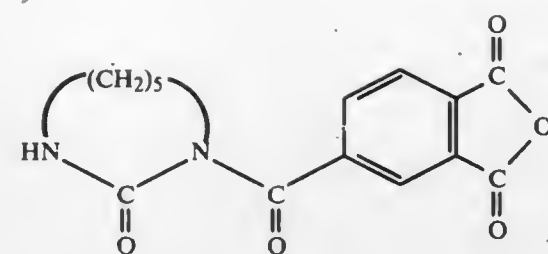
U.S. Cl. 260—239.3 R 9 Claims

1. A compound having the formula



wherein C_nH_{2n} represents alkylene containing from 2 to 6 carbon atoms in the chain separating the valencies, R is an inert substituent selected from the class consisting of lower-alkyl, lower-alkoxy, lower-alkenyl, lower-alkenyloxy, lower-alkyl-mercapto, cyano and trifluoromethyl, and m is an integer from 0 to 3.

5. A compound according to claim 1 wherein C_nH_{2n} is pentamethylene and $m=0$, said compound being 4-(N,N'-pentamethylenealophanyl)phthalic anhydride corresponding to the formula:



4,391,752

PROCESS FOR PREPARING

5H-PYRROLO[2,1-C]-[1,4]THIAZEPINE-1,5-DIONES

Roger Crossley, Reading, England, assignor to John Wyeth and Brother Limited, Maidenhead, England

Division of Ser. No. 236,350, Feb. 20, 1981, Pat. No. 4,349,480.

This application May 10, 1982, Ser. No. 376,356

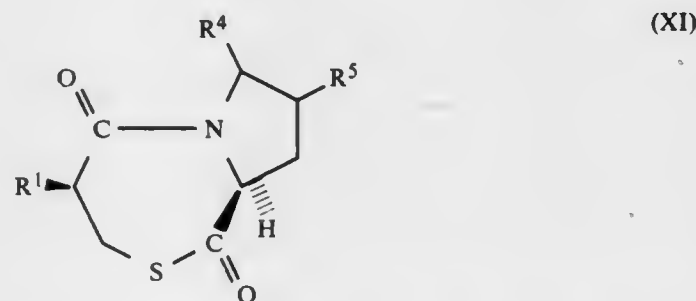
Claims priority, application United Kingdom, Feb. 26, 1980, 8006414

Int. Cl.³ C07D 513/04

U.S. Cl. 260—239.3 B

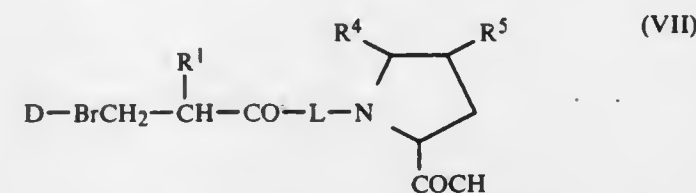
4 Claims

1. A process for preparing a compound of formula XI

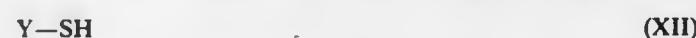


wherein R^1 is lower alkyl, R^4 and R^5 either both represent hydrogen or together with the carbon atoms to which they are attached represent a fused benzene ring optionally substituted by a group selected from hydroxy, lower alkyl, lower alkoxy and halogen, which comprises selecting a process from the group consisting of

(a) reacting a compound of formula

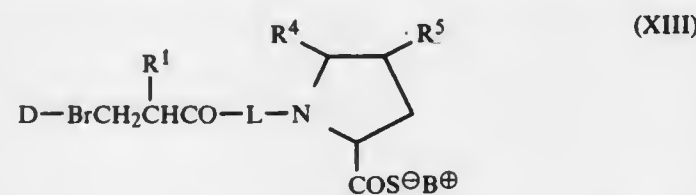


substantially free from the L,L isomer, wherein R^1 , R^4 and R^5 are as defined above with a haloformate ester and a sulphide of formula XII



wherein Y represents hydrogen or an alkali metal, with the proviso that when Y is hydrogen the reaction is carried out in the presence of base, and cyclising the product by heating, and

(b) cyclising by heating a compound of formula (XIII)



substantially free of L,L stereoisomer wherein R^1 , R^4 and R^5 are as defined above and B^\oplus is a cation.

4,391,753

PROCESS FOR THE MANUFACTURE OF CARBOXYLIC PERACIDS

Nicolas Hardy, Jemeppe-sur-Sambre; Luc Lerot, and Rene Walraevens, both of Brussels, all of Belgium, assignors to Propylox, Brussels, Belgium

Division of Ser. No. 24,372, Mar. 27, 1979, Pat. No. 4,267,124.

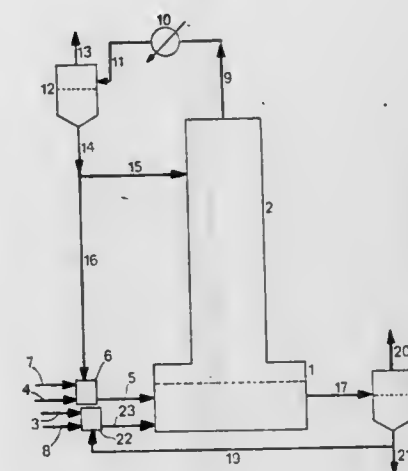
This application Jan. 15, 1981, Ser. No. 225,189

Claims priority, application France, Mar. 28, 1978, 78 09199

Int. Cl.³ C07D 301/14

U.S. Cl. 549—525

15 Claims



1. In a continuous process for the manufacture of an olefin oxide from an olefin by reaction of the olefin with a carboxylic peracid comprising:

(a) preparing the carboxylic peracid by reaction, in a reaction mixture, of the corresponding carboxylic acid with hydrogen peroxide in the presence of a catalyst and in the presence of an inert organic liquid which is contained in an organic phase and is a solvent for the peracid and is capable of forming a heterogeneous azeotrope with water, said organic liquid having a higher boiling point than that of the olefin and the olefin oxide, does not form an azeotrope with the olefin and the olefin oxide, and of which the possible azeotropes with the carboxylic acid and the carboxylic peracid have a higher boiling point than that of the olefin and the olefin oxide, removing water present in the reaction mixture by distillation of the water/organic liquid azeotrope, and maintaining a sufficient amount of water in the reaction mixture to allow the formation of an aqueous phase which is separate from the organic phase which contains the organic liquid and the carboxylic peracid;

(b) withdrawing part of the reaction mixture of step (a), and then separating the aqueous phase from the organic phase, by decantation, of the part of the reaction mixture which has been withdrawn;

(c) introducing the separated aqueous phase of step (b) into the reaction mixture of step (a);

(d) reacting an olefin with the carboxylic peracid in the separated organic phase obtained in step (b) to form a reaction mixture containing unreacted olefin, olefin oxide, carboxylic acid and organic liquid;

(e) subjecting the reaction mixture of step (d) to a separation to obtain unreacted olefin and an organic solution containing organic liquid, olefin oxide, and carboxylic acid;

(f) distilling the organic solution obtained in step (e) to separate the olefin oxide from the carboxylic acid and organic liquid; and

(g) feeding the separated carboxylic acid and organic liquid of step (f) to step (a).

4,391,754

ANTHRAQUINONE COMPOUNDS

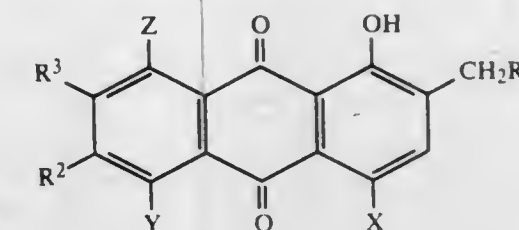
Andrew H. M. Renfrew, Bury, England, assignor to Imperial Chemical Industries PLC, London, England
Continuation of Ser. No. 173,351, Jul. 29, 1980, abandoned. This application Mar. 29, 1982, Ser. No. 363,223

Int. Cl.³ C07C 97/26, 49/74

U.S. Cl. 260—380

4 Claims

1. An anthraquinone compound of the formula:



wherein

R^1 represents an alkyl radical containing from 1 to 20 carbon atoms;

X is H, NH_2 or $NHCH_3$;

one of Y and Z is OH and the other is H, NH_2 or $NHCH_3$; and

one of R^2 and R^3 is H and the one that is ortho to the OH group is a $-CH_2R^1$ radical.

4,391,755

STERIOD MONOHYDRATES, FORMULATIONS CONTAINING SAME AND METHOD

Yu-Chang J. Wang, North Brunswick; Dürsch Friedrich, Hopewell; Richard L. O'Laughlin, North Brunswick, and Thaddeus Prusik, Roosevelt, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

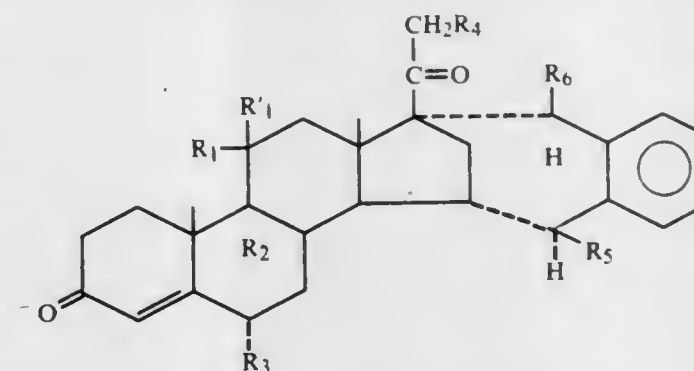
Filed Jan. 18, 1982, Ser. No. 340,127

Int. Cl.³ C07J 5/00; A61K 31/56

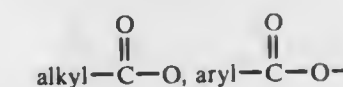
U.S. Cl. 260—397.45

14 Claims

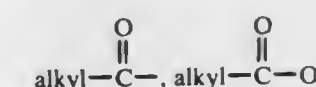
1. A method for forming the monohydrate of a steroid, said monohydrate having an average particle size of less than about 20 microns, said steroid having the structure



wherein R_1 is chlorine, fluorine or hydroxy and R'_1 is hydrogen or R_1 and R'_1 together are $=O$; R_2 is hydrogen or halogen; R_3 is hydrogen, methyl or fluorine; R_4 is hydrogen, hydroxy,



or halogen; and R_5 and R_6 are the same or different and are hydrogen, alkyl, alkylthio, alkoxy, carboalkoxy, formyl,



hydroxy, halogen, phenyl or cyano, with the proviso that when R_5 and R_6 are different, one of R_5 and R_6 is hydrogen, which method includes the steps of micronizing the steroid in

anhydrous form, introducing the micronized anhydrous steroid into water to hydrate the steroid to form the corresponding monohydrate and cause crystal growth, reducing the average particle size of the crystals of hydrated steroid suspended in water to below about 25 microns to form particles of steroid monohydrate having a relatively stable crystal size.

4,391,756

ORGANO-MONOVALENT AURUS COMPLEX CATALYSTS FOR THE MANUFACTURE OF OLEFIN OXIDES

Philip L. Kuch, Warrensville Heights; Daniel R. Herrington, Chesterland, and Janet M. Eggett, Parma, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio
Division of Ser. No. 912,620, Jun. 5, 1978, abandoned. This application Dec. 13, 1978, Ser. No. 969,124

Int. Cl.³ C07F 1/12; B01J 31/24, 31/18, 31/26

U.S. Cl. 260—430 2 Claims

1. The catalyst complex represented by the empirical formula:



wherein

L is a neutral coordinating π -acid type ligand; and
Y is a uninegative non-coordinating anion selected from the group consisting of F_3CSO_3^- , BF_4^- , PF_6^- , ClO_4^- , AlCl_4^- and picrate.

2. The catalyst complex of claim 1 wherein Y is F_3CSO_3^- or AlCl_4^- .

4,391,757

ORGANIC ANTIMONY CONTAINING STABILIZER COMPOSITIONS FOR HALOGENATED POLYMERS

Thomas G. Kugele, and Dennis W. Gilmore, both of Cincinnati, Ohio, assignors to Carstab Corporation, Reading, Ohio

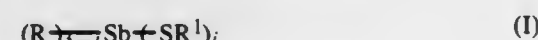
Filed Nov. 27, 1981, Ser. No. 325,512

Int. Cl.³ C09K 15/32

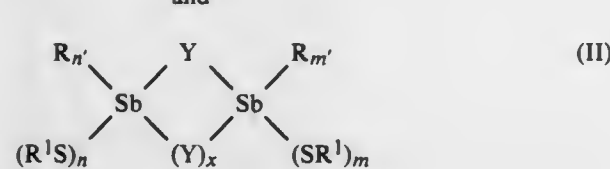
U.S. Cl. 260—446 4 Claims

1. A composition comprising:

A. At least one organic antimony compound containing at least one antimony to sulfur to carbon linkage and being selected from compounds having the formulas:



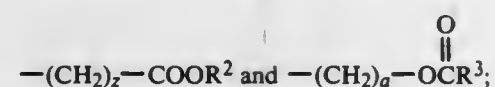
and



wherein

R is selected from the group consisting of alkyl, aryl, cycloalkyl, cycloalkenyl, aralkyl, alkaryl, and alkenyl;

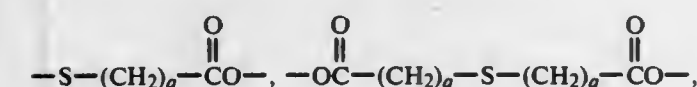
R¹ is selected from the group consisting of alkyl, aryl, cycloalkyl, cycloalkenyl, aralkyl, alkaryl, alkenyl,



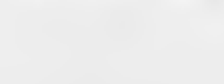
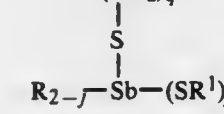
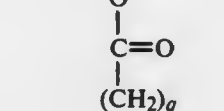
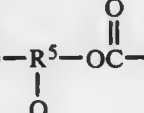
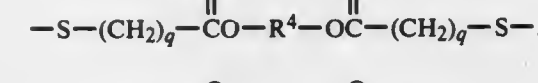
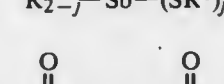
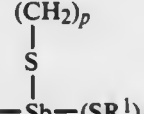
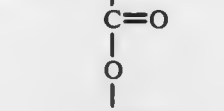
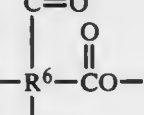
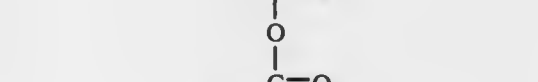
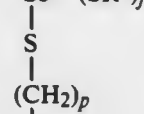
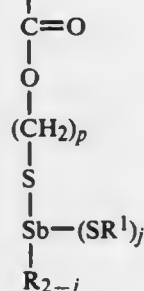
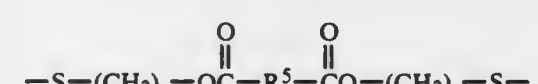
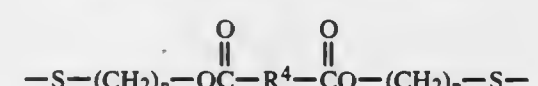
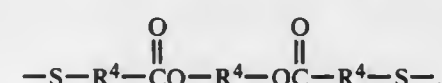
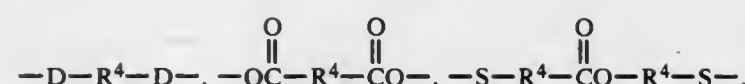
R² is hydrogen, alkyl, aryl, alkenyl, cycloalkyl or alkoxyalkyl;

R³ is alkyl, aryl, cycloalkyl or alkenyl;

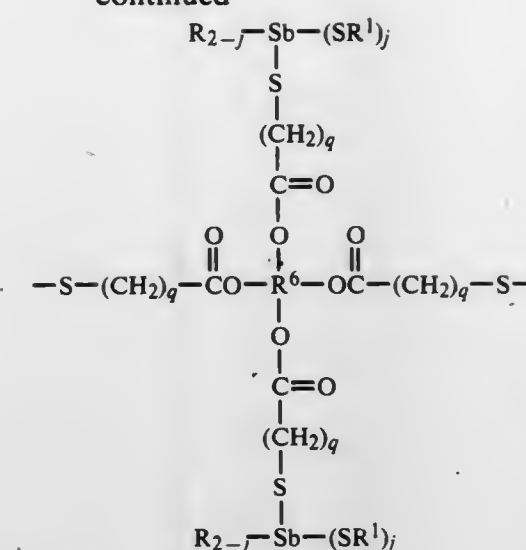
Y is selected from the group consisting of



-continued



-continued



R⁴ is alkylene, arylene, or alkenylene;

R⁵ is a trivalent alkyl or aryl radical;

R⁶ is a tetravalent alkyl or aryl radical;

D is oxygen or sulfur;

i=1, 2 or 3;

j=1 or 2;

m=1 or 2 and m'=0 or 1;

n=1 or 2 and n'=0 or 1;

x is 0 or 1 with the proviso that when x=0 then m+m'=2 and n+n'=2, and when x=1 then m=1, m'=0, n=1 and n'=0;

z is 1, 2 or 3;

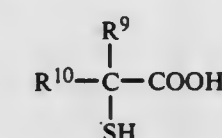
a is 2, 3 or 4;

q is 1, 2 or 3; and

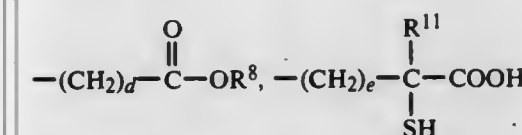
p is 2, 3 or 4;

B. elemental sulfur in an amount from about 0.03% to about 3.0% by weight based on the weight of the organic antimony compound; and

C. in an amount from about 0.5% to about 25% by weight based on the weight of the organic antimony compound of at least one 2-mercaptocarboxylic acid selected from compounds having the formula:



where R⁹ and R¹⁰ are the same or different and are selected from hydrogen, alkyl, aryl, aralkyl, alkaryl, cycloalkyl, alkenyl, carboxyl,



where R⁸ is hydrogen, alkyl, aryl, aralkyl, alkaryl, cycloalkyl, cycloalkenyl, or alkenyl; R¹¹ is hydrogen, alkyl, or aryl; d is 1 to 6 and e is 1 to 10; or R⁹ and R¹⁰ together form an alicyclic ring.

4,391,758

PROCESS FOR METHYL ISOCYANATE PRODUCTION Placido M. Spaziante, 7, Via San Michele, 6900 Lugano, Switzerland, and Luigi Giuffrè, Via Passo di Fargorida 6, Milan, Italy

Filed Apr. 19, 1982, Ser. No. 369,549

Int. Cl.³ C07C 118/00

U.S. Cl. 260—453 P

18 Claims

1. A process for the preparation of methyl isocyanate comprising reacting methylcarbamoyl chloride with about a stoichiometric amount of an acid acceptor selected from the group

consisting of dimethylurea, urea, alkyl ureas and biuret in an organic solvent in which said acid acceptor is soluble and in which the hydrochloride salt of said acid acceptor is insoluble, separating the acid acceptor hydrochloride from the liquid phase, recovering methyl isocyanate by distillation from said liquid phase, and thermally decomposing said acid acceptor hydrochloride salt to regenerate said acid acceptor.

4,391,759

PROCESS FOR THE PREPARATION OF ORGANTHIOALDOXIME COMPOUNDS John K. Chan, Charleston, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

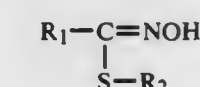
Filed Mar. 25, 1981, Ser. No. 247,368

Int. Cl.³ C07C 119/18

U.S. Cl. 260—453.3

22 Claims

1. A process for preparing an organothioaldoxime compound of the formula:

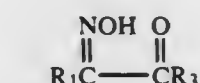


by the steps of:

(a) reacting an aldoxime of the formula:

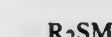


or an α -hydroxyiminoketone of the formula:



with an alkaline hypohalite in an acidic medium to form the corresponding 1-haloaldoxime, said acidic medium comprising an acid added in an amount of from about 0.5 to about 4.0 equivalents for each mole of alkaline hypohalite used; and

(b) reacting said 1-haloaldoxime with an alkali metal mercaptide salt of the formula:



to form said organothioaldoxime compound, wherein the reactions of said steps (a) and (b) are conducted in an aqueous medium and wherein M denotes an alkali metal cation and R₁, R₂ and R₃ are individually alkyl, alkoxyalkyl, cycloalkyl, phenyl or phenylalkyl, all of which may be either unsubstituted or substituted with one or more alkyl, halo, alkoxy, cyano, nitro or dialkylamino substituents.

4,391,760

S-(TERTIARY ALKYL) ALKYLPHOSPHONOTHIOIC HALIDES

Mohamed A. Fahmy, Princeton, N.J., assignor to Rhone-Poulenc Agrochimie, Lyons, France

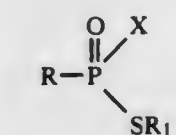
Filed Dec. 31, 1980, Ser. No. 221,642

Int. Cl.³ C07F 9/20

U.S. Cl. 260—961

6 Claims

1. A compound of the formula



wherein R is alkyl of 1 to 8 carbon atoms, R₁ is tertiary alkyl of 4 to 8 carbon atoms and X is halogen.

4,391,761

PROCESS FOR THE PRODUCTION OF ARYL PHOSPHONYL COMPOUNDS

Hans-Dieter Block, and Hans Dahmen, both of Cologne, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 12, 1981, Ser. No. 272,871

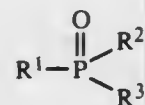
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1980, 3025377

Int. Cl.³ C07F 9/40, 9/53

U.S. Cl. 260—969

4 Claims

1. Process for the production of aryl phosphonyl compounds of the general formula

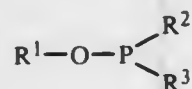


wherein

R¹ represents a mono- or polynuclear C₆-C₁₄ aryl radical, which can be substituted by chlorine, fluorine or by alkyl, aryl, alkoxy, aryloxy, alkenyl or cyano radicals,

R² and R³, independently of each other represent an alkyl, alkenyl or aryl radical or a radical of the structure O-R⁵, in which R⁵, independently of R¹, has the same meaning as R¹,

by the catalytic rearrangement of aryloxy phosphines of the general formula II



wherein

R¹, R² and R³ have the meaning indicated above, characterized in that the rearrangement is carried out in the presence of aromatic bromine compounds and a zero-valent nickel catalyst selected from the group consisting of elemental nickel, a complex of nickel (o) with a trialkyl phosphite, a triaryl phosphite, a phosphonous acid ester, a phosphinous acid ester, a phosphine, phosphorus trifluoride, an isonitrile, an amine, a nitrogen oxide, carbon monoxide, and a compound of nickel in an oxidation state higher than zero wherein the nickel is converted to zero-valent nickel under the reaction conditions.

4,391,762

AERATED DRINKS MACHINE

Robert P. Child, and Barry G. Charles, both of Hampshire, England, assignors to Thorn Emi Domestic Electrical Appliances Limited, London, England

Filed Jan. 15, 1982, Ser. No. 339,684

Claims priority, application United Kingdom, Jan. 16, 1981, 8101415

Int. Cl.³ B01F 3/04

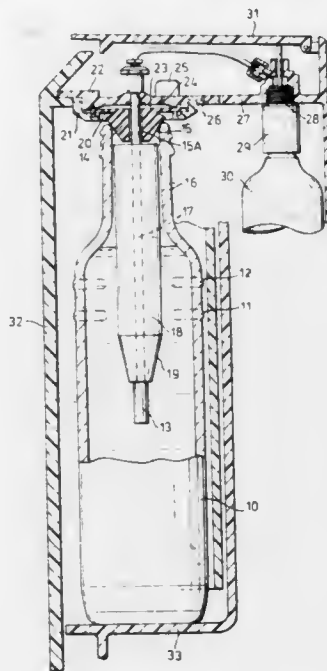
U.S. Cl. 261—121 R

4 Claims

1. An appliance for making an aerated beverage, said appliance comprising, in combination:

- a casing;
- a connection carried by the casing for mounting a container of pressurized liquid carbon dioxide;
- a housing for a bottle of water carried by said casing;
- a nozzle communicating with said connection and extending downwardly within said housing;
- a stopper positioned effective to engage in the neck of a bottle mounted within said housing;
- means for supporting the bottle in the housing so that the stopper is engaged therein;
- a manually operable valve selectively allowing carbon dioxide to flow from a container mounted on said connection to said nozzle;

- a safety pressure valve connected to the interior of the bottle when the stopper is engaged in its neck; and
- a displacement body associated with said nozzle and capable of being passed into the neck of the bottle, said displacement body displacing a significant volume of air



and/or of water, whereby when a bottle partly filled with water is in position, and the nozzle and displacement body are therein, the level of the water is such as to leave only a small volume of air thereabove and around the displacement body.

4,391,763

PROCESS FOR THE MANUFACTURE OF HALOGEN-CONTAINING RESIN PARTICLES OF LARGER BULK DENSITY COMPRISING MIXING PARTICLES OF THE RESIN WITH INORGANIC SALTS, TREATED IN A MIXTURE IN A GASEOUS PHASE AND SEPARATING THE INORGANIC SALT FROM THE PRODUCT

Kunihiko Ueno; Akiyasu Ishii; Masazi Hukuda, and Kazuyuki Nakayama, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 12, 1981, Ser. No. 223,947

Claims priority, application Japan, Jan. 11, 1980, 55-1865

Int. Cl.³ B29C 23/00

U.S. Cl. 264—15

3 Claims

1. A process for the manufacture of spherical particles, having a heavier bulk specific gravity, of halogen-containing ethylene resin prepared from at least one monomer selected from vinylidene fluoride, vinyl fluoride, chlorotrifluoroethylene, trifluoroethylene, tetrafluoroethylene, vinylchloride, vinylidene chloride and vinyl bromide, said process comprising in combination of: a step of mixing 100 wt. parts of particles of the said resin with 20–500 wt. parts of one or more of the heat-resisting inorganic salts having particle sizes of 0.01–50 μ, which are in the form of stable particles at a temperature higher than the melting point of said halogen-containing ethylene resin; a step for heat-treating said mixture in a gaseous phase at a temperature higher than melting point of the said resin; and a further step for separating said inorganic salt or salts from the heat-treated intermediate products.

4,391,764

METHOD OF MANUFACTURE OF IDENTICAL PARTS DISPLAYING DIFFERENT INDICIA

Egon Edinger, Graefelfing, and Gerd Kohler, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 15, 1981, Ser. No. 311,875

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1980, 3044722

Int. Cl.³ B41M 5/26

U.S. Cl. 264—25

8 Claims

1. In the method of producing identically shaped plastic keys having different readable indicia on a surface thereof which comprises the steps of preparing a mixture of a base plastic material and a filler material, molding the keys by injection molding with at least a surface portion of the key formed of the mixture, providing a laser beam, focusing the energy radiation in the beam, moving the key surface and beam with respect to one another in a predetermined pattern whereby the beam plays over the surface in a path corresponding to the desired readable indicia, the improvement of the filler material being selected from one of the group of carbon black and graphite, the beam having sufficient power to combust at least a portion of the filler material within the plastic key adjacent the surface without substantial combustion of the base material adjacent the combusted filler material.

4,391,765

MICROWAVE CURED SILICONE ELASTOMERIC FOAM

Chi-long Lee, and Sherwood Spells, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Jun. 25, 1982, Ser. No. 392,402

Int. Cl.³ B29H 5/26

U.S. Cl. 264—26

8 Claims

1. A method of drying a stable froth produced from an aqueous silicone emulsion suitable to provide an elastomeric product upon removal of the water comprising

- mechanically generating a stable froth from a silicone emulsion comprising 100 parts by weight of anionically stabilized hydroxyl endblocked polydiorganosiloxane having an average molecular weight of greater than 10,000, in the form of an aqueous emulsion having a pH in the range of 9 to 11.5 inclusive; at least one part by weight colloidal silica; an organic tin compound; and water; adding sufficient anionic or nonionic surfactant and thickener to make the froth stable until the water is removed in step (ii), and then,
- exposing the stable froth to sufficient microwave energy to remove the water from the emulsion, thereby forming an elastomeric cured foam.

4,391,766

EXTRACTION OF POLY(β-HYDROXYBUTYRIC ACID)

Peter J. Barham, Bristol, and Alan Selwood, Harrogate, both of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation-in-part of Ser. No. 174,836, Aug. 4, 1980, Pat. No. 4,360,488. This application Feb. 12, 1982, Ser. No. 348,325

Claims priority, application United Kingdom, Aug. 13, 1979, 7928172; Feb. 12, 1981, 8104312

Int. Cl.³ D01D 5/12

U.S. Cl. 264—210.1

10 Claims

1. A process for the separation of a polymer containing at least 50 mole % of β-hydroxybutyric acid residues in the polymer chain from micro-organism cells comprising

- extracting the polymer from the cells by contacting the polymer-containing cells with a solvent in which the polymer is soluble at the extraction temperature but in which extracted polymer, which has been freshly precipitated and not heated to above 40° C., is not soluble at temperatures below 25° C.,

- separating the solution of the polymer in said solvent from the micro-organism cell residue,
- causing said solution to gel,
- subjecting said gel to a non-random deformation process whereby the bulk of the solvent is expelled from said gel, and
- using at least the bulk of said expelled solvent for extraction of polymer from a further quantity of the polymer-containing cells.

4,391,767

COATED POLYESTER FILMS

Gordon E. A. Pears, Welwyn Garden City, England, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 954,772, Oct. 16, 1978, abandoned, which is a continuation of Ser. No. 741,997, Nov. 15, 1976, abandoned, which is a continuation of Ser. No. 257,297, May 26, 1972, abandoned, which is a division of Ser. No. 52,763, Jul. 6, 1970, abandoned. This application Sep. 17, 1980, Ser. No. 188,144

Claims priority, application United Kingdom, Jul. 15, 1969, 35556/69

The portion of the term of this patent subsequent to Jun. 25, 1991, has been disclaimed.

Int. Cl.³ D01F 13/04, 11/08

U.S. Cl. 264—210.3

9 Claims

1. A process for the production of a synthetic linear polyester film which comprises melt extruding a substantially amorphous polyester film, drawing the film in the longitudinal direction, thereafter applying a primer coating comprising a thermosetting acrylic or methacrylic composition, wherein the acrylic or methacrylic component is crosslinkable, to one or both sides of said film, then drawing the coated film in the transverse direction, and heat setting the biaxially oriented and coated film, whereby a primer coating of the thermoset acrylic or methacrylic composition, wherein the acrylic or methacrylic component is thermoset, of thickness of at least 10⁻⁷ inch is obtained, and then recycling the coated film by re-extruding the same with fresh polyester.

4,391,768

METHODS AND APPARATUS FOR CURLING LIPS ABOUT THE OPEN MOUTHS OF STACKED THERMOPLASTIC CONTAINERS

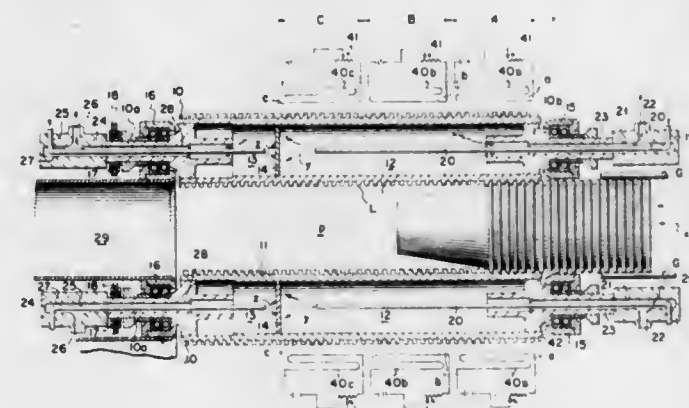
Albert W. Arends, and Ronald E. Henke, both of Gladwin, Mich., assignors to Leeson Corporation, Beaverton, Mich.

Filed Mar. 23, 1981, Ser. No. 246,888

Int. Cl.³ B29C 17/00

U.S. Cl. 264—285

14 Claims



1. In rim curling apparatus for curling a turned-in lip about the open mouth of a flexible walled, annular thermoplastic container, formed particularly from difficult to curl materials such as polypropylene, which has a rim which extends radially outwardly and then axially, and which includes a plurality of generally cylindrical elongate, thermally conductive, tubular rotatable rollers, each having a continuous helical groove in its outer peripheral surface, and each being equi-radially spaced

from a common central axis to define therebetween an annular passageway through which a stack of the containers pass with the rim portions of the containers engaged in the grooves of the rollers; means within the rollers, in upstream portions thereof, for heating of the rollers from within and defining an upstream length constituting a rim heating zone; and means within the rollers downstream therefrom, and thermally insulated therefrom, for cooling the rollers from within and defining a downstream length constituting a rim cooling zone; the improvement wherein: the rollers have portions of different diameter; the helical grooves in said upstream portions are of a cross-section to comprise transport sections in reduced diameter portions of the rollers which axially transport the container via their rims without engaging said peripheral side wall portions of the container; external, axially extending, radiant heater means are provided circumferentially between the upstream portions of said rollers to heat the exposed portions of the rims radiantly; the helical grooves in said downstream portions are in portions of said rollers which are of greater diameter than the upstream portions to engage and cool said side wall portions of the container; and helical groove portions of axially decreased width are provided in each roller between the transporting groove portions and the cooling groove portions to form the rims by turning the rims inwardly, the helical groove portion of axially decreased width being in portions of said rollers which are of the same diameter as the portions of the rollers which include the cooling groove portions.

4,391,769

APPARATUS FOR LOADING UNVULCANIZED TIRES ON TIRE VULCANIZING MACHINE

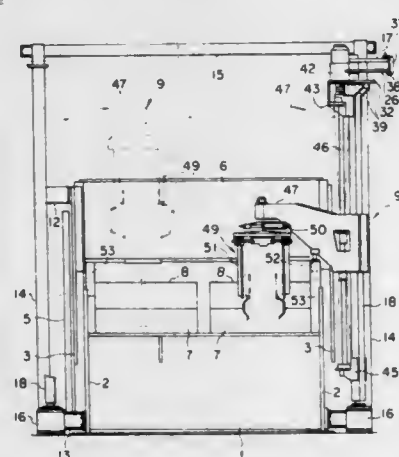
Katsumi Ichikawa, Akashi; Itaru Amano, Kobe; Keiji Ozaki, Takarazuka, and Seiichi Suzuki, Kodaira, all of Japan, assignors to Bridgestone Tire Co., Ltd. and Kabushiki Kaisha Kobe Seiko Sho, both of Kobe, Japan

Filed Jun. 10, 1981, Ser. No. 272,268

Claims priority, application Japan, Jun. 14, 1980, 55-81167
Int. Cl.³ B29H 5/02

U.S. Cl. 264—326

2 Claims



2. A method for loading an unvulcanized tire on a tire vulcanizing machine by holding said unvulcanized tire by a contractly expandable paddle, lifting and oscillating said unvulcanized tire over said machine and thereafter descending and placing said unvulcanized tire on a mold of said machine which comprises the steps of:

placing and keeping unvulcanized tires at a plural number of stand-by stations located on a locus of oscillatory movement of said unvulcanized tire, and
picking up a predetermined unvulcanized tire from said stand-by stations.

4,391,770

PROCESS FOR SPINNING AMINO-FORMALDEHYDE FIBERS

Graham E. Martin, Middlesbrough, England, assignor to Imperial Chemical Industries PLC, London, England

Filed Nov. 17, 1981, Ser. No. 322,291

Claims priority, application United Kingdom, Dec. 1, 1980, 8038537

Int. Cl.³ B29C 25/00

U.S. Cl. 264—236

8 Claims

1. A process for the production of fibers from amino-formaldehyde resins in which the fibers are formed from a solution of the resin and cured by heating to a temperature between 100° C. and 300° C., characterised in that the resin solution contains a catalyst mixture comprising 0.2 to 5% by weight, based on the resin solids, of ammonium formate and from 10 to 50% by weight, based on the weight of the ammonium formate, of a salt of a non-volatile acid selected from

- (i) an ammonium salt of an acid selected from sulphuric, phosphoric, and nitric acids, and
- (ii) a water soluble salt of a metal selected from zinc, magnesium, calcium, and aluminum and an acid selected from nitric, sulphuric, and phosphoric acids.

4,391,771

ARRANGEMENT FOR RETAINING A FUEL ROD IN A RECONSTITUTABLE FUEL ASSEMBLY

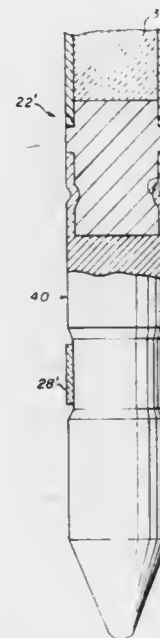
Andrew J. Anthony, Tariffville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 3, 1980, Ser. No. 212,375

Int. Cl.³ G21C 3/10, 3/12

U.S. Cl. 376—451

8 Claims



1. A nuclear fuel assembly having a horizontal lower end fitting, an elongated frame rigidly connected to the lower end fitting and extending vertically therefrom, the frame including a plurality of longitudinally spaced apart horizontal grids, each grid formed from a plurality of interconnected metal strips defining a multiplicity of openings and having resilient means projecting laterally into each opening, and a multiplicity of longitudinally disposed, parallel fuel rods each passing through an opening in every grid and maintained in vertical and horizontal position by the resilient means, the fuel rods formed of Zircaloy tubes sealed at each end with Zircaloy caps wherein the improvement comprises:

each fuel rod having a generally cylindrical, stainless steel tip mechanically joined to the Zircaloy cap, the tip having an indented retention notch extending between axially spaced, bevelled surfaces for engaging the resilient means on the lowermost grid.

4,391,772

PROCESS FOR THE PRODUCTION OF SHAPED PARTS FROM POWDERS COMPRISING SPHEROIDAL METAL PARTICLES

Yannick Bonnor; Gerard Raissou, both of Nevers, and Yves Honnorat, Orsay, all of France, assignors to Creusot-Loire, Paris, France

Filed Oct. 31, 1980, Ser. No. 202,825

Claims priority, application France, Nov. 14, 1979, 79 28066

Int. Cl.³ B22F 1/00, 3/00; C22C 1/04

U.S. Cl. 419—23

5 Claims

1. A process for the production of shaped parts from a powder comprising spheroidal metal particles, comprising the successive steps of

- (a) mixing said powder with from 0.2% to 2% of lubricant of stearate type;
- (b) mixing said powder and said lubricant with from 0.2% to 2% of organic binder of cellulose gum type;
- (c) mixing the powder thus obtained with an amount of water of from 0.2% to 2%;
- (d) cold compacting the resulting mixture; and
- (e) subjecting said mixture to a two-phase sintering operation, in an atmosphere which is neutral or reducing with respect to said mixture, the first phase being effected at a temperature of from 300° to 500° C. and the second phase being effected at a temperature which is substantially higher.

4,391,773

METHOD OF PURIFYING AIR AND NEGATIVE FIELD GENERATOR

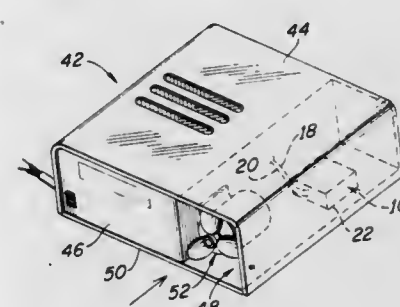
G. Patrick Flanagan, 9989 E. Morrill Way, Tucson, Ariz. 85715

Filed Jun. 8, 1981, Ser. No. 271,132

Int. Cl.³ A61L 2/00

U.S. Cl. 422—22

8 Claims



1. A method of purifying air, comprising the steps of placing in proximity to said air a capacitor including a pair of electrodes spaced apart by a solid dielectric material, and applying between said electrodes an A.C. voltage of at least about 5000 volts having a frequency of at least twenty kiloHertz, said voltage being less than the breakdown voltage across said electrodes.

4,391,774

AUTOMATIC DEVICE FOR MAKING SAMPLES FOR ANALYSIS

Jean Dupain, Saint Maur, France, assignor to Societe des Ciments Francais, Guerville, France

Filed Jun. 15, 1981, Ser. No. 273,751

Claims priority, application France, Jun. 27, 1980, 80 14302

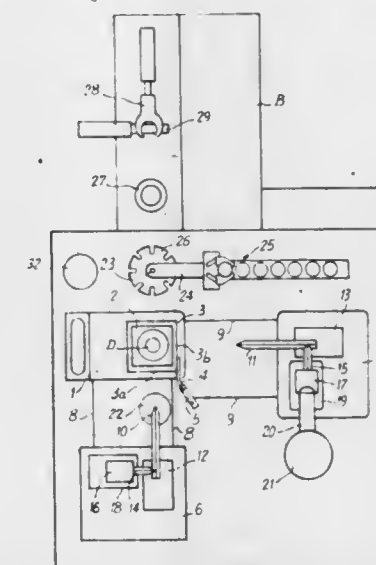
Int. Cl.³ G01N 35/00

U.S. Cl. 422—63

21 Claims

1. A device for making samples for analysis, comprising: a furnace, a weighing station, a plurality of crucibles, a pair of carriers movable between first and second positions, each of said carriers having means for successively charging one of said crucibles at said station with one of two

components of the sample when the carrier is in one of said positions, means for discarding said one crucible when the weight of one of the components therein differs from a predetermined amount, means for moving successive ones of a plurality of said crucibles to said station to be charged and to said furnace to melt the contents of the crucible,



a mold adapted to receive the melted contents of the crucible to form the sample, means for transferring said melted contents to said mold and thereafter discarding the empty crucible, and control means for activating the means for charging, weighing, emptying and discarding of said crucibles.

4,391,775

METHOD OF AND SYSTEM FOR DETERMINING PARTICULAR SPECIES OF CHLORINE IN A WATER SAMPLE

Calvin O. Huber, Mequon; Karl G. Schick, Whitefish Bay, and Joel T. Coburn, Milwaukee, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis. and Electric Power Research Institute, Inc., Palo Alto, Calif.

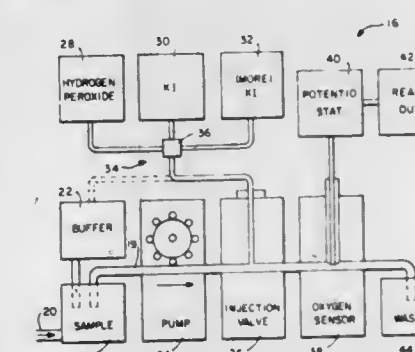
Division of Ser. No. 200,046, Oct. 23, 1980, Pat. No. 4,322,215.

This application Dec. 7, 1981, Ser. No. 328,015

Int. Cl.³ G01N 27/12, 33/00

U.S. Cl. 422—68

3 Claims



1. A system for determining chlorine species from a group consisting of hypochlorous acid and/or hypochlorite, monochloramine and dichloramine in respective first, second and third samples of a larger supply of water, said system comprising: means for providing each of said samples at a pH within a specific range; first container means including a supply of hydrogen peroxide and second container means including a supply of potassium iodide; means for transferring from said first container means to said first water sample a predetermined amount of hydrogen peroxide such that said first sample is free of potassium iodide whereby said hypochlorous acid and/or hypochlorite if present will react with said hydrogen peroxide

to produce oxygen but said monochloramine and dichloramine if also present will not react with said hydrogen peroxide to produce oxygen; means for transferring from said first container means to said second water sample a predetermined amount of hydrogen peroxide and from said second container means to said second water sample a first predetermined amount of potassium iodide for causing said monochloramine and not said dichloramine to react with said hydrogen peroxide and potassium iodide for producing additional oxygen; means for transferring from said first container means to said third water sample a predetermined amount of hydrogen peroxide and from said second container means to said third water sample a second predetermined amount of potassium iodide for causing said dichloramine to react with said hydrogen peroxide and said potassium iodide for producing still further oxygen; and means for detecting from each of said sample oxygen for indicating whether or not any of said chlorine species are present in said water supply.

4,391,776

DISSOCIATION CHAMBER AND MEASURING CELL COMBINATION USEFUL FOR MAKING MEASUREMENTS

Klaus Braun, Überlingen-Bamberg, Fed. Rep. of Germany, assignor to Bodenseewerk Perkin-Elmer & Co. GmbH, Fed. Rep. of Germany

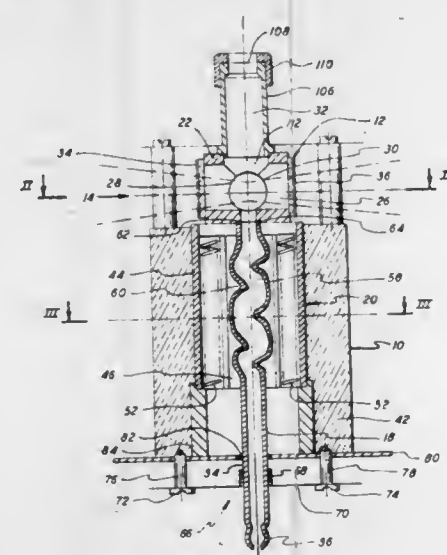
Filed Jan. 6, 1981, Ser. No. 223,069

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1980, 3001053

Int. Cl.³ G01N 21/76

U.S. Cl. 422-78

16 Claims



1. In combination, a dissociation chamber and measuring cell useful for observing fluorescence radiation, said combination comprising:

a heated dissociation chamber adapted to permit hydrides to be passed therethrough with an inert gas flow, said dissociation chamber including a tubular part surrounded by a jacket-shaped heater, said tubular part having, on the outlet side thereof, a ground surface; and

a measuring cell adjacent said tubular part of said dissociation chamber and located downstream thereof, said cell being adapted for passing an excitation light beam therethrough and for observing fluorescence radiation occurring therein, said measuring cell being a block-shaped body and having three mutually perpendicular bores of which:

the first bore being a through bore communicating on one side thereof with said tubular part of said dissociation chamber and on the other side with an outlet, said first bore having a funnel-shaped ground surface on said one side thereof, said ground surface being complementary to, and engaging with, said ground surface of said tubular part;

the second bore being a through bore closed on both sides

thereof by windows whereby an excitation light beam can be passed therethrough; the third bore being closed by a window through which fluorescence radiation can be observed; and means, axially resilient and engaged with said tubular part, for retaining said ground surface thereof in resilient engagement with said ground surface of said measuring cell.

4,391,777

APPARATUS FOR MEASURING BREATH ALCOHOL

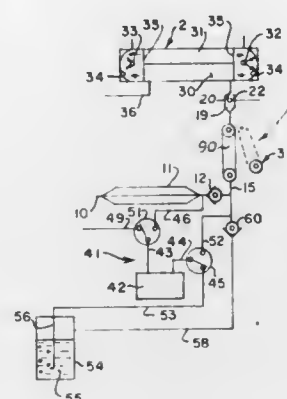
Donald G. Hutson, El Cerrito, Calif., assignor to Cal Detect, Inc., Richmond, Calif.

Filed Jan. 26, 1981, Ser. No. 228,121

Int. Cl.³ G01N 1/22, 21/62, 27/04

U.S. Cl. 422-84

1 Claim



1. Apparatus for analyzing the alcohol content of breath comprising an inlet line; an inlet line check valve in said inlet line; a sample inlet conduit communicating with the output side of said inlet line check valve; an alcohol detector communicating with said sample inlet conduit; a test line communicating at one end with said inlet line on the inlet side of the inlet line check valve and at its other end with a 2-way suction valve in a pump suction line, said inlet valve being selectively movable between a position at which it completes a connection between said test line and said pump suction line and a position at which it completes a connection between said pump suction line and an atmosphere line; an air pump, the suction side of which communicates with said suction line; a pressure line communicating with the pressure side of said pump at one end and with a 2-way pressure valve at the other; said pressure valve being selectively movable between a position at which it communicates with a purge line communicating with the sample inlet conduit and a position at which it communicates with an alcohol standard pressure line; an alcohol standard solution container with a bubbler tube communicating with said alcohol standard pressure line; and an alcohol standard sample line communicating with said alcohol standard solution container at one end and with an inlet side of a sample line check valve at the other; the outlet side of said sample line check valve communicating with the said sample inlet conduit, and said purge line communicating with said sample inlet conduit between the said outlet side of the said sample line check valve and the outlet side of the breath inlet check valve.

4,391,778

METHOD AND APPARATUS FOR THE ANALYSIS OF MATERIALS BY CHROMATOGRAPHY AND MASS SPECTROMETRY

Brian D. Andresen, and Kwokei J. Ng, both of Columbus, Ohio, assignors to The Ohio State University, Columbus, Ohio

Filed Sep. 30, 1981, Ser. No. 306,942

Int. Cl.³ G01N 31/08; H01J 27/00

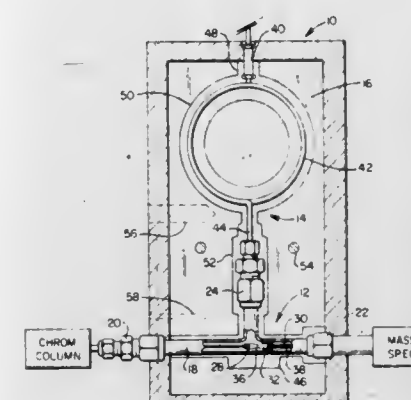
U.S. Cl. 422-89

3 Claims

1. An apparatus for the analysis of materials by temperature-programmed gas chromatography and mass spectrometry, said apparatus comprising:

a gas chromatography column having an outlet;

first heating means for progressively increasing the temperature of said column from a lower temperature to an upper temperature; a mass spectrometer having an inlet; an open-split interface connecting said outlet of said column to said inlet of said mass spectrometer and; means of supplying inert gas to said open-interface, the improvement which comprises second heating means for heating said inert gas and said interface to above said upper temperature, thereby reducing the instrumental drift of the base line signal of the total ionization of said mass spectrometer, said second heating means comprising a heating block having walls defining an interface channel



which accommodates said interface and a gas channel which intersects said interface channel and through which gas can be passed into said interface channel, said heating block being provided with thermostatic control means for maintaining the temperature of said block substantially constant during said progressive increase of temperature of said column, and wherein said means for supplying said inert gas to said open-split interface comprises a gas supply line having its one end connected to said open-split interface, said gas supply line having a helical section disposed within said gas channel, said helical section increasing the residence time of said gas within said gas channel and thereby improving the uniformity of temperature of said gas reaching said open-split interface.

4,391,779

TEFLON GROUND GLASS ADAPTOR

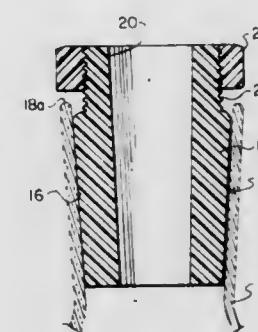
Robert J. Miskinis, 9758 Airport Vista Rd., Santee, Calif. 92071

Filed Jul. 6, 1981, Ser. No. 280,361

Int. Cl.³ B01L 11/00

U.S. Cl. 422-99

7 Claims



1. A reusable stopper for tapered ground openings in standard laboratory glassware:

said stopper having a tapered body portion, and a threaded portion extending from the end of the larger cross-sectional area of the body portion and constructed of a substantially rigid synthetic resin polymer material;

said tapered body portion having a surface conforming to the prescribed surface specifications of standard glassware openings to provide a uniformly sealed connection simul-

taneously throughout their respective surface upon initial contact when seated; a one-piece retractor nut having a textured outer surface and mounted on the threaded portion of the stopper, said nut dimensioned to engage the rim of the glassware opening and being smaller in length than said threaded portion; whereby a slight rotation of the nut will engage the rim of the glassware opening to apply an axial force on the seated body portion sufficient to break the seal between said surfaces enabling the stopper to be lifted freely out of the opening.

4,391,780

CONTAINER FOR SAMPLE TESTING

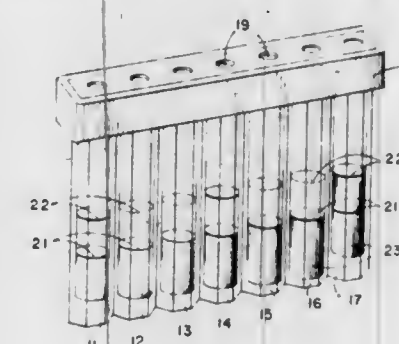
Michael J. Boris, Yorba Linda, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jul. 6, 1981, Ser. No. 280,766

Int. Cl.³ B01L 3/00

U.S. Cl. 422-102

3 Claims



1. Apparatus for comparative testing of a sample substance comprising:

a unitary structure including a single row of at least four tubularly shaped compartments joined side by side along said single row, each said compartment having the same cross sectional area, each said compartment including an upper open end and a lower closed end spaced from said upper open end graduated distances such that at least three of said compartments define successively increasing or decreasing volumes as measured from the other of said compartments which is a control compartment;

a layer of self sealing elastomeric material placed over said open ends for sealing each said compartment from adjacent compartments and from the outside atmosphere; a protective layer positioned between said open ends and said elastomeric material;

a cover connectable to said compartments adjacent said open end, said cover and said upper end of said compartments cooperating to position and compress said elastomeric material and said protective layer, said cover including access openings, one access opening for each compartment, each said access opening in line with its corresponding open end such that a probe may be inserted through each said access opening, said elastomeric material, and said protective layer to enter said compartment; and

at least one level line on each said compartment, each said level line being spaced from said open end a predetermined distance such that at least some of said level lines are spaced different distances from said lower closed end.

4,391,781

ELECTRICALLY HEATED VAPOR DISPENSER

Klaas J. van Lit, Amstelveen, Netherlands, assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Mar. 22, 1982, Ser. No. 360,866

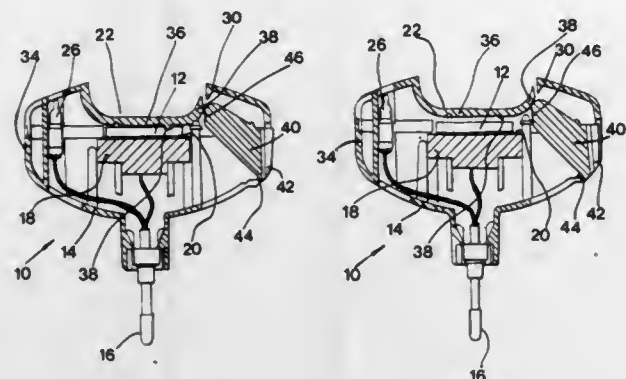
Int. Cl.³ A61L 9/03

U.S. Cl. 422-125

8 Claims

1. A device for dispensing a thermally volatilizable substance, comprising:

a housing;
a heater secured within the housing and having a heating surface forming a support for a replaceable mat containing the volatilizable substance;
said housing defining a window over the heating surface and an access opening adjacent to one end of the heating surface for removal and/or insertion or replaceable mats;



a clamp arm secured to the housing, extending over the window, and terminating in a free end and having means biasing said clamp arm towards the heating surface to press a mat thereagainst; and
depressible lever secured to the housing and upon depression engageable with the free end of said clamp arm to move the clamp arm away from the heating surface, thereby to release a mat to facilitate removal thereof through said access opening.

4,391,782

IN SITU URANIUM LEACHING USING HIGH PRESSURE CO₂/O₂ SYSTEM TO OVERCOME CHLORIDE ION INHIBITION

Tsoun-Yuan Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,556

Int. Cl.³ C22B 60/02

U.S. Cl. 423—7

14 Claims

9. An improved process for the in situ recovery of uranium values from a uranium-bearing subterranean formation, having formation fluids with a sufficient chloride concentration to substantially inhibit the leaching rate of the uranium value therein, comprising the steps of:

- penetrating the formation with at least one injection well and at least one production well in communication with the injection well;
- introducing into the formation an aqueous leaching solution containing an oxidant and carbon dioxide wherein the carbon dioxide is introduced under sufficient pressure to substantially improve the uranium-leaching rate and to give the formation fluids a pH of from about 4.0 to about 5.0;
- producing pregnant leaching solution containing uranium values and having a pH of from about 4.0 to about 5.0; and
- passing the produced pregnant leaching solution through an ion exchange resin to recover uranium values therefrom.

4,391,783 PROCESS FOR MAKING ABRASION-RESISTANT SODIUM TRIPOLYPHOSPHATE

Hans Haas, Swisttal-Strassfeld, and Werner Kowalski, Weilerswist-Metternich, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Mar. 8, 1982, Ser. No. 356,023

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1981, 3109652

Int. Cl.³ C01B 15/16, 25/26

U.S. Cl. 423—315

8 Claims

1. A process for making granular sodium tripolyphosphate of high abrasion resistance which comprises: spray-drying a sodium orthophosphate solution or suspension containing Na₂O and P₂O₅ in essentially the molar ratio required for the sodium tripolyphosphate in a one-stage spray-drying operation by means of a nozzle inside a heated spray tower with the resultant formation of the tripolyphosphate, the orthophosphate solution or suspension being sprayed jointly with a solution of a high molecular weight phosphate of sodium, potassium or ammonium containing between 60 and 73 weight % P₂O₅, the proportion of the said solution being 0.005 to 5 weight %, calculated as solid substance and based on the P₂O₅-content of the orthophosphate solution or suspension.

4,391,784

FOAM CONTROL DURING PRODUCTION OF PHOSPHORIC ACID

Richard N. Hill, Sr., 3412 Polk Ave., and Charles D. B. Hill, 1475 Woodlake Dr., Apt. 182, both of Lakeland, Fla. 33803
Filed Aug. 18, 1981, Ser. No. 293,850

Int. Cl.³ C01B 25/16

U.S. Cl. 423—320

5 Claims

- In the production of phosphoric acid comprising the steps: (a) digesting ground phosphate rock with sulfuric acid and weak phosphoric acid recycled from Step (d) below to form a slurry comprising strong phosphoric acid and byproduct gypsum, and forming a foam on the surface of the slurry;
- passing the slurry to a filtration operation;
- separating gypsum from strong phosphoric acid in the said filtration operation thereby forming a gypsum filter cake of gypsum crystals;
- washing the gypsum filter cake with wash water thereby forming weak phosphoric acid, and recycling said weak phosphoric acid to the digestion in Step (a); the improvement comprising
- removing foam from the slurry surface;
- liquifying the removed foam; and
- passing the resultant liquid to the filtration operation; whereby the said gypsum crystals are caused to be better suited for filtration, and soluble P₂O₅ is returned in the liquified foam.

4,391,785

PREPARATION OF ZSM-12 TYPE ZEOLITES

Edward J. Rosinski, Pedricktown, N.J., and Mae K. Rubin, Bala Cynwyd, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 21, 1981, Ser. No. 332,793

Int. Cl.³ C01B 33/28

U.S. Cl. 423—329

6 Claims

1. In a process for manufacturing synthetic zeolite ZSM-12 which process comprises crystallizing an aqueous forming solution comprising a source of silica and an nitrogenous template and recovering said zeolite ZSM-12, the improvement which comprises utilizing as said nitrogenous template a compound selected from the group consisting of dimethyl pyridinium and dimethyl pyrrolidinium halides.

4,391,786

PRODUCTION OF CALCIUM CARBIDE

Hans-Joachim Kersting, Frechen; Erhard Wolfrum, Duren; Willi Portz, and Georg Strauss, both of Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

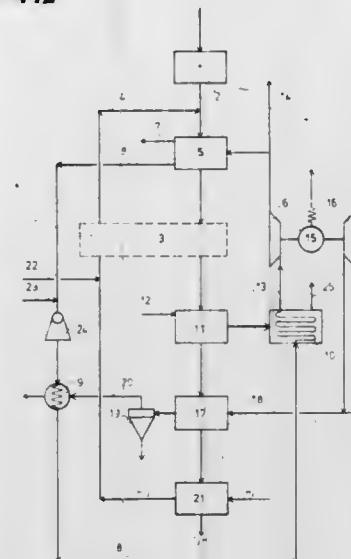
Filed Sep. 14, 1981, Ser. No. 301,836

Claims priority, application Fed. Rep. of Germany, Sep. 17, 1980, 3035026

Int. Cl.³ C01B 31/32

U.S. Cl. 423—442

6 Claims



1. A process for making calcium carbide by reacting an excess of coke with quicklime in the presence of oxygen in an oxygen-thermal furnace, which comprises: using precrushed coal as a starting material for coke and precrushed lime hydrate (Ca(OH)₂) or precrushed limestone (CaCO₃) as a starting material for quicklime; mixing the precrushed materials, introducing the resulting mixture into a drying zone and freeing it therein at 80° to 120° C. from adhering water; introducing the warm mixture coming from the drying zone, and air, into a calcining apparatus, the coal constituent being coked and the lime constituent being simultaneously dehydrated or decarbonized therein at temperatures of 900° to 1400° C.; directly delivering the thermally-pretreated mixture of starting materials with an inherent temperature of 900° to 1000° C. to the oxygen-thermal furnace and reacting it with oxygen to produce calcium carbide therein, using the waste heat originating from the calcining apparatus for the generation of superheated high pressure steam from boiler feed water; using the superheated high pressure steam for operating a turbine, the latter being used for the liquefaction of air and separation into its components at low temperature so as to obtain the oxygen necessary for operation of the oxygen-thermal furnace, and also for the generation of electrical power, hot low pressure steam issuing through the turbine's opposite side being introduced at least partially into the drying zone for drying the mixture of starting materials therein; and taking condensate obtained in the drying zone therefrom, preheating it by means of off-gases originating from the oxygen-thermal furnace, and using it as boiler feed water for the generation of superheated high pressure steam by means of waste heat originating from the calcining apparatus.

4,391,787

METHOD FOR GROWING GRAPHITE FIBERS

Gary G. Tibbetts, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 170,282, Jul. 18, 1980, abandoned. This application Jul. 9, 1981, Ser. No. 281,864

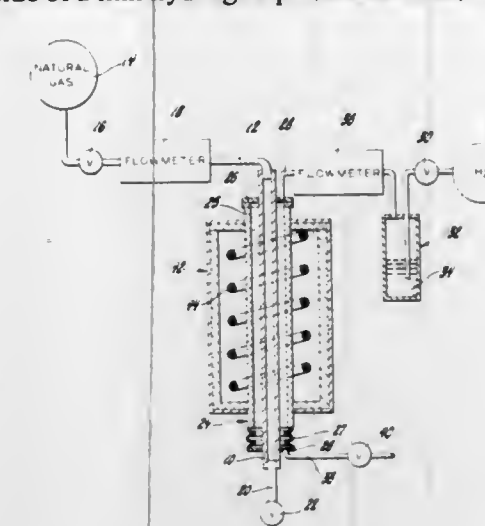
Int. Cl.³ C01B 31/04; D01F 9/12

U.S. Cl. 423—447.3

14 Claims

1. A method for manufacturing graphite fibers by methane pyrolysis, said method comprising

contacting gaseous methane to a chromium oxide film on one side of a thin hydrogen-permeable wall, while concur-



rently dissolving hydrogen into the opposite side, and heating to form graphite fibers on said first wall side.

4,391,788

STARTING PITCHES FOR CARBON FIBERS

Seiichi Uemura, Tokyo; Shunichi Yamamoto; Takao Hirose, both of Kamakura; Hiroaki Takashima, Kawasaki, and Osamu Kato, Yokohama; all of Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Filed Apr. 9, 1982, Ser. No. 366,862

Claims priority, application Japan, Apr. 13, 1981, 56-54307; Jul. 27, 1981, 56-116332

Int. Cl.³ D01F 9/12; C10C 3/02

U.S. Cl. 423—447.6

5 Claims

1. A process for making carbon fibers comprising heat treating a starting pitch to make a precursor pitch, melt spinning, infusibilizing, carbonizing or further graphitizing said precursor pitch to obtain carbon fibers wherein the starting pitch is produced by heat treating at 400°–500° C. under a hydrogen pressure of at least 20 Kg/cm². G an oil selected from the group consisting of (1) a heavy fraction oil (A) boiling at not lower than 200° C. obtained as a by-product at the time of fluidized catalytic cracking of petroleum and (2) a mixture of said heavy fraction oil (A) with a heavy fraction oil (B) boiling at not lower than 200° C. obtained at the time of steam cracking of petroleum, the ratio by weight between said heavy fraction oil (B) to said heavy fraction oil (A) being 1 to 0.1–9.

4,391,789

CARBON BLACK PROCESS

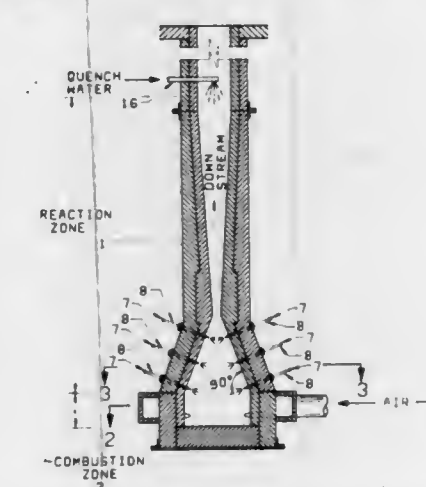
Earl J. Estopinal, Monroe, La., assignor to Columbian Chemicals Company, Tulsa, Okla.

Filed Apr. 15, 1982, Ser. No. 368,534

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423—457

3 Claims



1. A method of making a carbon black product comprising: forming, in a first zone of a Venturi type carbon black reac-

tor wherein the first zone is the converging section of the Venturi type carbon black reactor, combustion gases at a high temperature having a gradient of increasing turbulence in an axial downstream direction, said turbulence resulting from the tangential injection of a fuel and a combustion-supporting gas
injecting, substantially radially into the first zone of the reactor, a carbon black feedstock at more than one of the axial gradient positions before the combustion gases reach maximum turbulence,
cracking the carbon black feedstock into carbon black,
quenching the carbon black reaction in a second zone after said gases have reached maximum turbulence, and
collecting the carbon black product said product having a controlled particle size distribution.

4,391,790

METHOD AND APPARATUS FOR REDUCING THE AMMONIA CONCENTRATION OF SULFUR RECOVERY FACILITY GAS STREAMS

John W. Palm, and Robert L. Reed, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.
Filed Sep. 28, 1981, Ser. No. 306,061
Int. Cl.³ C01B 17/02

U.S. Cl. 423—574 R

14 Claims

1. A process for sulfur recovery comprising:

- subjecting a gas stream containing ammonia and hydrogen sulfide to a partial combustion step in a noncatalytic first combustion zone to produce a mixture including hydrogen sulfide, sulfur dioxide, nitrogen, water, and unconverted ammonia;
- introducing the thus-produced water mixture into a Claus first catalytic reaction zone in which hydrogen sulfide and sulfur dioxide in the mixture react at a temperature above the dew point of sulfur to produce a hot effluent stream containing free sulfur;
- separating the thus-produced free sulfur from the hot effluent stream to produce a tail gas stream;
- forming free sulfur by contacting the tail gas stream with a catalyst at a temperature such that the preponderance of free sulfur thus formed is deposited on the catalyst;
- simultaneously depositing ammonium compounds on the catalyst;
- removing the thus-deposited free sulfur and ammonium compounds from the catalyst by passing a hot regeneration gas in contact with the catalyst to produce a regeneration effluent stream comprising free sulfur and ammonia; and
- reducing the concentration of ammonia in at least a portion of the regeneration effluent stream to produce a stream leaner in ammonia, said portion of the regeneration effluent stream being combusted in a noncatalytic combustion zone to produce said stream leaner in ammonia.

4,391,791

LOW TEMPERATURE SULFUR RECOVERY

John W. Palm, and Richard Mungen, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.
Continuation of Ser. No. 252,441, Apr. 9, 1981, abandoned. This application Feb. 9, 1982, Ser. No. 347,229
Int. Cl.³ C01B 17/02; F28B 1/02

U.S. Cl. 423—574 R

15 Claims

1. A process for removing and recovering vaporized elemental sulfur from a gas stream, said process comprising:

- (a) passing said gas stream through a first cooling zone maintained at such conditions, including temperature, so as to effect condensation of elemental sulfur without solidification thereof;
- (b) passing said gas stream from said first cooling zone through a second cooling zone maintained at such conditions, including temperature, so as to effect solidification of elemental sulfur therein;

- (c) interchanging conditions of said first cooling zone and said second cooling zone and directing said gas stream to flow through said second cooling zone first and then through said first cooling zone;
- (d) interchanging conditions of said first cooling zone and said second cooling zone and directing said gas stream to flow through said first cooling zone first then through said second cooling zone, said steps (c) and (d) being carried out after at least a significant part of the build-up of elemental sulfur is melted in the zone maintained at condensation conditions but before the build-up in the zone maintained at solidification conditions significantly restricts the flow of said stream.

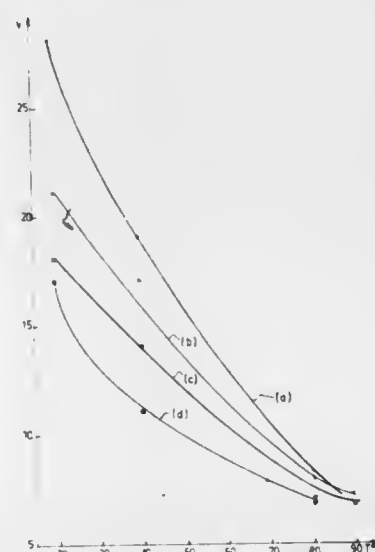
4,391,792

METHOD FOR OBTAINING PHOTOSTABLE VALENTINITE AND VALENTINITE THUS OBTAINED

Rene Bloise, Saint Denis en Val; Marcel Lorange, Orleans; Georges Morizot, Olivet, and Genevieve Boissonnade, Le Pecq, all of France, assignors to Bureau de Recherches Geologiques et Minieres, Paris, France
Filed Aug. 12, 1981, Ser. No. 292,054
Claims priority, application France, Aug. 12, 1980, 80 17801
Int. Cl.³ C01B 29/00

U.S. Cl. 423—617

4 Claims



- 1. Process for the production of photostable valentinite by basic hydrolysis of antimony trichloride, characterized in that it consists in effecting the hydrolysis at a temperature between about 80° and about 100° C. with a weight ratio of H₂O to Sb₂O₃ equal to or higher than about 10.

4,391,793

PLANT FOR THERMOCHEMICAL WATER DISSOCIATION BY SOLAR ENERGY

Friedrich-Karl Boese, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Interatom, Internationale Atomreaktorbau GmbH, Bergisch-Gladbach, Fed. Rep. of Germany
Filed Feb. 8, 1980, Ser. No. 119,794
Claims priority, application Fed. Rep. of Germany, Feb. 12, 1979, 2905206
Int. Cl.³ C01B 1/02

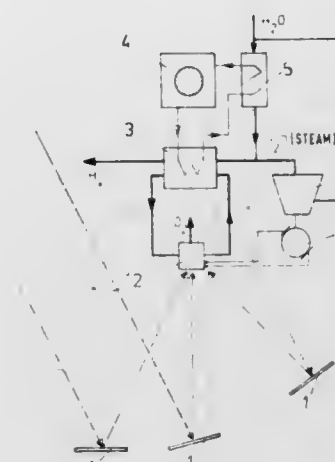
U.S. Cl. 423—648 R

8 Claims

- 1. In a method of thermochemically producing hydrogen from water by solar energy, the improvement therein which comprises forming electromagnetic fields containing within an otherwise unenclosed space within a plant a substance thermochemically cleavable into two reaction products at a temperature above 1,100° C., one of said reaction products being reactable in gasifying apparatus with steam to produce hydrogen and the substance, concentrating the solar energy in the unenclosed space, formed by the electromagnetic fields circulating the reaction products from the space to the gasifying apparatus,

tus, and circulating the substance from the gasifying apparatus to the space.

7. In a plant for thermochemically producing hydrogen from water by solar energy, the improvement therein comprising means for forming electromagnetic fields within an otherwise unenclosed space within the plant, said space being capable of containing a substance thermochemically cleavable into two



reaction products at a temperature above 1,100° C., one of said reaction products being reactable in gasifying apparatus with steam to produce hydrogen and said substance, means for concentrating the solar energy in said space, and means for circulating said reaction products from said space to said gasifying apparatus and for circulating said substance from said gasifying apparatus to said space.

4,391,794

PROCESS AND APPARATUS FOR HYDROGEN PRODUCTION

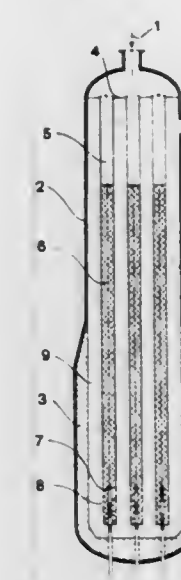
Ludwig Silberring, Wipkingplatz 7, Zürich, Switzerland
PCT No. PCT/CH79/00112, § 371 Date Jul. 21, 1980, § 102(e)
Date Jun. 13, 1980, PCT Pub. No. WO80/01065, PCT Pub. Date May 29, 1980
PCT Filed Aug. 20, 1979, Ser. No. 200,491
Claims priority, application Switzerland, Nov. 21, 1978, 11935/78
Int. Cl.³ C01B 1/13

U.S. Cl. 423—650

1 Claim

- 1. A process for producing hydrogen under pressure by means of chemical reactions between hydrocarbons and water vapor with a reduced requirement of hydrocarbons and energy, said process comprising the steps of:
applying to one end of a reaction vessel a feedstock having hydrocarbons and water vapor therein;
conducting the feedstock through a plurality of pipes containing a reaction catalyst; and
heating the feedstock to the reaction temperature and supplying heat necessary for an endothermic reaction, said heating step comprising the steps of:
circulating the products of the endothermic reaction in heat exchange relationship with the pipes within the reaction vessel to recover the sensible heat of the reaction products; and
electrically heating the reacting gases in a portion of the reaction vessel spaced from the one end thereof after said circulating step and after the reaction has begun to

complete the endothermic reaction within the reaction vessel and to raise the temperature of the gaseous reaction products to allow the recovery of the sensible heat thereof in said circulating step.



4,391,795

ASSAY FOR FREE THYROID HORMONE

Samuel R. Pearlman, Union, N.J., assignor to Becton Dickinson and Company, Paramus, N.J.
Filed Mar. 21, 1980, Ser. No. 131,934
Int. Cl.³ G01N 33/56, 33/58, 33/60

U.S. Cl. 424—1

16 Claims

- 1. A process for determining free thyroid hormone in a serum sample, comprising:
introducing a serum sample containing free thyroid hormone and thyroid hormone bound to serum proteins into a tube coated with a binder for free thyroid hormone, said binder having a number of binding sites in excess of that required to bind all of the free thyroid hormone in the serum sample, said serum sample containing the free and bound thyroid hormone being in contact with said binding sites; incubating said serum sample in said tube to bind free thyroid hormone to said binder;
removing from the tube the serum sample which is not bound to said coated binder;
thereafter introducing into said tube labelled thyroid hormone in an amount in excess of the remaining binding sites of the coated binder to bind a portion of the labelled thyroid hormone to the coated binder;
removing from the tube unbound labelled thyroid hormone; and

measuring the amount of at least one of the bound and unbound labelled thyroid hormone for determining the amount of free thyroid hormone present in the serum sample.

4,391,796

HEPATITIS B TESTING AND GROWTH IN TREE SHREW AS ANIMAL MODEL

Peter Lorenz, Frankfurt am Main, and Anita Schwaier, Eschborn, both of Fed. Rep. of Germany, assignors to Battelle-Institut e.V., Frankfurt am Main, Fed. Rep. of Germany
Division of Ser. No. 182,490, Aug. 29, 1980, Pat. No. 4,355,019.
This application Apr. 21, 1982, Ser. No. 370,399

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1979, 2935634

Int. Cl.³ A61K 39/29, 47/00; C12Q 1/18, 1/22, 1/70; G01N 33/54

U.S. Cl. 424—9 21 Claims

1. Process for the growth and collection of viral hepatitis antigen type B from a tree shrew (*Tupaia belangeri*), which is used as an animal model, comprising:

- infesting said tree shrew with viral hepatitis type B;
- performing at least one antibody determination at specific intervals over a period of about 60 days after infection of said tree shrew; and
- obtaining said viral hepatitis antigen type B from said infected tree shrew.

4,391,797

SYSTEMS FOR THE CONTROLLED RELEASE OF MACROMOLECULES

Moses J. Folkman, Brookline, and Robert S. Langer, Jr., Allston, both of Mass., assignors to The Children's Hospital Medical Center, Boston, Mass.

Continuation of Ser. No. 42,788, May 29, 1979, abandoned, which is a continuation-in-part of Ser. No. 756,892, Jan. 5, 1977, Pat. No. 4,164,560. This application Aug. 10, 1981, Ser. No. 291,769

The portion of the term of this patent subsequent to Aug. 14, 1996, has been disclaimed.

Int. Cl.³ A61K 9/26, 31/74, 37/26

U.S. Cl. 424—19 20 Claims

1. A therapeutic system for the continuous and controlled administration of macromolecules, said system being in the form of a body which is sized and shaped for placement in the environment of use, comprising a two-phase composition of:

- a first phase comprising a biocompatible plastically deformable polymeric matrix having an aqueous fluid sorptivity not greater than 50% by weight, the polymer being insoluble in the environment of use, substantially impermeable to the macromolecule, and containing in admixture therewith;
- a second phase comprising from about 3 to 90 parts by weight of an agglomerated, hydrophilic, aqueous fluid-swellable, aqueous fluid dispersible, biologically active macromolecular material of molecular weight of at least 1000;

said macromolecular material forming an interpenetrating phase comprising an agglomerate made of a plurality of clusters of macromolecules that form a network of substantially contiguous particles in the polymeric matrix, and

wherein, when the body is placed in the environment, aqueous fluid will permeate by diffusion into the polymer matrix and be absorbed by the biologically active macromolecular phase, said matrix having channels communicating between the macromolecular particles and the surface of said polymer body, whereby the biologically active macromolecules are continuously released from the matrix over a prolonged period of time.

4,391,798

NON-IRRITATING DENTIFRICE

Edward A. Tavss, Kendall Park, and Edward Eigen, East Brunswick, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Mar. 15, 1982, Ser. No. 357,918

Int. Cl.³ A61K 9/16, 9/18, 7/22

U.S. Cl. 424—52 10 Claims

1. A substantially non-irritating dentifrice composition of improved flavor comprising an anionic surfactant, and a water soluble positively charged partially hydrolyzed protein having an isoelectric point above 7, and a Bloom gel value of zero, selected from the group consisting of a protein hydrolysate fraction containing a high concentration of basic amino acids, and a quaternary derivative of the partially hydrolyzed protein, in a dental vehicle.

4,391,799

PROTECTIVE GEL COMPOSITION FOR TREATING WHITE PHOSPHORUS BURN WOUNDS

Arthur D. Mason, Jr., Avery A. Johnson, Jr., both of San Antonio, Tex., and Charles R. Ritchey, Stillwater, Okla., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation of Ser. No. 121,870, Feb. 15, 1980, abandoned.

This application Oct. 30, 1981, Ser. No. 316,575

Int. Cl.³ A61K 33/38

U.S. Cl. 424—132 4 Claims

1. A method for treating white phosphorus burn wounds which comprises applying over the wound surface a coating of an aqueous gel composition comprising 0.01 to 1% by weight of a water-soluble silver or copper salt selected from the group consisting of silver nitrate, silver acetate, silver lactate monohydrate and copper sulfate pentahydrate which will dissolve in water at a minimum concentration of 0.1% by weight of the water in the gel and as a matrix therefor, a water-soluble hydrogel consisting essentially of about 0.5 to 3% by weight alkali metal alginate, about 8 to 12% by weight glycerin and about 82 to 90% by weight water wherein the hydrogel has a pH in the range of 6.8 to 7.2 and which upon drying forms a flexible, stretchable, transparent, water-soluble protective film, non-toxic and adherent to a white phosphorus burn wound surface to which gel composition is applied, and which allows for encapsulation and removal of vivid darkened white phosphorus particles.

4,391,800

IMMUNOLOGICALLY ACTIVE PEPTIDYL DISACCHARIDES AND METHODS OF PREPARATION

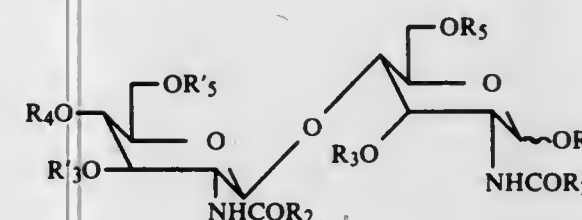
Philippe L. Durette, New Providence, and Tsung-Ying Shen, Westfield, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Apr. 27, 1979, Ser. No. 33,597

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177 13 Claims

1. A 2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose of the general structural formula:

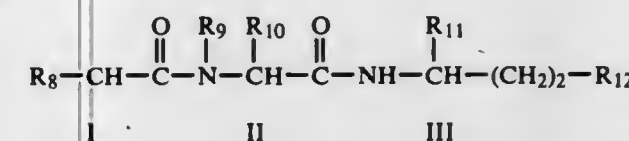


wherein

R₁ is hydrogen, alkyl (1-7C), substituted alkyl (1-7C) wherein the substituent is hydroxy, mercapto, alkoxy of 1-3 carbons, alkyl mercapto of 1-3 carbons, hydroxy or mercapto esterified by an acid of 1-4 carbon atoms, F, Cl, Br, carboxyl, or carboxyl functionally modified by esterification with an alcohol of 1-3 carbons or by amidation, phenyl, substituted phenyl wherein the substituent is an alkyl group of 1-3 carbons, hydroxy, mercapto, hydroxy or mercapto etherified by an alkyl group of 1-3 carbons, hydroxy or mercapto esterified by an acid of 1-4 carbons, alkylidioxy (1-4C), cycloalkylidioxy (5-7C), amino or trifluoromethyl, benzyl, or substituted benzyl wherein the substituent is an alkyl group of 1-3 carbons, hydroxy, mercapto, hydroxy or mercapto etherified by an alkyl group of 1-3 carbon atoms, hydroxy or mercapto esterified by an acid of 1-4 carbons, alkylidioxy (1-4C), cycloalkylidioxy (5-7C), amino or trifluoromethyl;

R₂ is alkyl (1-7C), substituted alkyl (1-7C) wherein the substituent is hydroxy, mercapto, alkoxy of 1-3 carbons, alkylmercapto of 1-3 carbons, hydroxy or mercapto esterified by an acid of 1-4 carbon atoms, F, Cl, Br, carboxyl, or carboxyl functionally modified by esterification with an alcohol of 1-3 carbons or by amidation, phenyl, or substituted phenyl wherein the substituent is an alkyl group of 1-3 carbons, hydroxy, mercapto, hydroxy or mercapto etherified by an alkyl group of 1-3 carbon atoms, hydroxy or mercapto esterified by an acid of 1-4 carbons, alkylidioxy (1-4C), cycloalkylidioxy (5-7C), amino or trifluoromethyl and each R₂ may be the same group or a different group;

R₃ and R₃' are H or



wherein

R₈ is H or lower alkyl (1-10C), and provided at least one of R₃ and R₃' is not H;
R₉ is H, or R₉-R₁₀ together is —CH₂CH₂CH₂—;
R₁₀ is H, alkyl (1-7C) hydroxymethyl, mercaptomethyl, benzyl, or substituted benzyl wherein the substituent is an alkyl group of 1-3 carbon atoms, hydroxy, mercapto, hydroxy or mercapto etherified by an alkyl group of 1-3 carbons, hydroxy or mercapto esterified by an acid of 1-4 carbons, alkylidioxy (1-4C), cycloalkylidioxy (5-7C), amino or trifluoromethyl;
R₁₁ and R₁₂ each are independently carboxyl, esterified carboxyl (1-7C), amidated carboxyl, or mono- or di-alkyl (1-7C) amidated carboxyl;
R₄, R₅ and R₅' are the same or different and are H, aliphatic

1032 O.G.—10

or aromatic acyl (2-21C) or substituted acyl (2-21C) wherein the substituent is halogen, alkyl (1-3C), alkoxy (1-3C), trifluoromethyl, hydroxy, alkanoyloxy (1-3C), provided when R₈ is loweralkyl, the stereochemistry at asymmetric center I can be either D or L; and when R₁₀ is not H, the stereochemistry at asymmetric center II is L; the stereochemistry at asymmetric center III is D; provided further when R₁, R₅, R₃', R₄, and R₅' are each H and each R₂ is CH₃, R₃ is not H₃CCHCOR₁₃ wherein R₁₃ is a dipeptide.

10. A composition having immunostimulatory properties comprising a compound of claim 1 in an amount effective to produce an immunostimulatory effect and a pharmaceutically acceptable carrier.

4,391,801

PLASMA PROTEIN FRACTION SUBSTANTIALLY FREE OF ACETATE IONS

Paul K. Ng, Hercules, and Michael A. Fournel, Castro Valley, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Oct. 29, 1981, Ser. No. 316,201

Int. Cl.³ A61K 37/02, 37/04

U.S. Cl. 424—177 17 Claims

1. A stable human plasma protein fraction precipitated from Supernatant IV-1 of the Cohn fractionation scheme as described in U.S. Pat. No. 2,958,628 wherein the plasma protein fraction consists essentially of at least eighty three percent albumin and no more than seventeen percent alpha and beta globulin and wherein the acetate ion concentration is about that ordinarily found in human blood plasma.

4,391,802

METHOD OF TREATING LEUKEMIA OR LEUKEMOID DISEASES

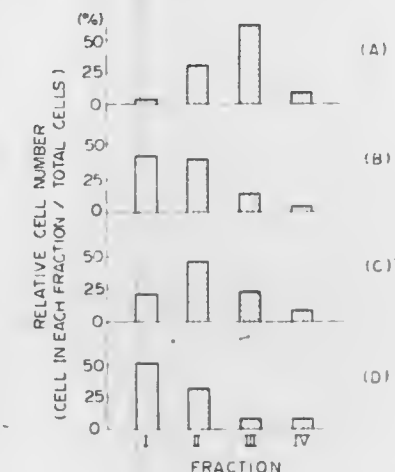
Tatsuo Suda, Tachikawa; Yoshihei Hirasawa; Sachio Takahashi, both of Niigata; Etsuko Abe; Kunio Konno, both of Tokyo, and Tadao Aoki, Niigata, all of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 9, 1982, Ser. No. 356,385

Claims priority, application Japan, Mar. 13, 1981, 56-35218

Int. Cl.³ A01N 45/00; A61K 31/59

U.S. Cl. 424—236 8 Claims



1. A method for the treatment of leukemia or leukemoid diseases, comprising administering to a patient having such a disease an effective amount of a vitamin D derivative with a hydroxyl group at the 1α-position.

2. A method according to claim 1 wherein said derivative is administered in a soft capsule.

4,391,803

ADRENOSTERIOD COMPOSITION AND METHOD FOR THE TREATMENT OF SHOCK BY INFUSIONAL THERAPY

Fernando F. Fussi, Fribourg, Switzerland, assignor to Hepar Industries, Franklin, Ohio

Continuation-in-part of Ser. No. 365,867, Apr. 5, 1982, abandoned. This application May 6, 1982, Ser. No. 375,749

Int. Cl.³ A61K 31/56

U.S. Cl. 424—239

11 Claims

1. A pharmaceutical composition consisting essentially, in percent by weight, of the following adrenosteroids:

1.	11-Dehydrocorticosterone	10.0 ± 1.5
2.	Corticosterone	18.5 ± 2.5
3.	11-Deoxy-17-hydroxycorticosterone	3.0 ± 0.5
4.	Cortisone	14.0 ± 2.0
5.	Hydrocortisone	23.0 ± 3.5
6.	4-Pregnene-5 and/or 20,21-diol or triol-3,11-dione	2.0 ± 0.5
7.	4-Pregnene-5,17α,20β,21-triol or tetrol-3,11-dione	2.0 ± 0.5
8.	4-Pregnene-5,11β,17α,20β,21-tetrol-3-one	3.0 ± 0.5
9.	3α or β,21-Dihydroxy-5α or β-pregnane-11,20-dione	2.5 ± 0.5
10.	3α or β,11β,21-Trihydroxy-5α or β-pregnan-20-one	3.0 ± 0.5
11.	3α or β,17,21-Trihydroxy-5α or β-pregnan-20-one	2.5 ± 0.5
12.	3α or β,17,21-Trihydroxy-5α or β-pregnane-11,20-dione	2.4 ± 0.5
13.	3α or β,17,21-Tetrahydroxy-20-oxo-5α or β-pregnane	2.5 ± 0.5
14.	Allopregnane-3β,17α,20β-21-tetrol	2.0 ± 0.5
15.	Allopregnane-3β,11β,17α,20β,21-pentol	2.0 ± 0.5
16.	Deoxycorticosterone	3.0 ± 0.5
17.	18-Hydroxy-deoxycorticosterone	1.5 ± 0.3
18.	Aldosterone	3.0 ± 0.5

together with a pharmaceutically acceptable carrier or diluent.

4,391,804

IMIDAZOLE DERIVATIVES AND FUNGICIDAL COMPOSITION CONTAINING THE SAME

Hiroshi Ohyama, Chigasaki; Ken Morita, Hiratsuka; Takuo Wada, Hatano, and Masahiko Miyahara, Atsugi, all of Japan, assignors to Hokko Chemical Industry Company, Ltd., Japan

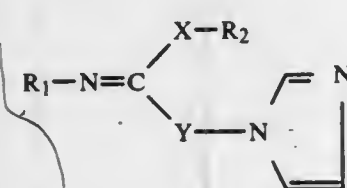
Filed Mar. 16, 1982, Ser. No. 358,533

Int. Cl.³ A01N 55/02, 43/50; C07D 233/61

U.S. Cl. 424—245

9 Claims

1. An imidazole derivative of the general formula



wherein

R₁ is naphthyl group, an arylalkyl group, a cycloalkyl group, a cycloalkylalkyl group, an alkyl group, a lower alkenyl group, a lower alkoxy-lower alkyl group, a phenylthio-lower alkyl group or phenyl group; the phenyl group being unsubstituted or substituted with 1 to 5 substituents which is or are the same or different from each other and selected from a halogen atom, nitro group, cyano group, a lower alkyl group, a lower alkenyl group, a halogenated lower alkyl group, a lower alkoxy group, a lower alkenyloxy group, a lower alkylthio group, a lower alkylsulfonylethyl group, a lower alkylsulfonylethyl group, a lower alkylcarbonyl group, phenyl group, phenoxy group, a halogen-substituted phenoxy group, phenylthio group, a lower alkyl-substituted phenylthio group and a nitro-substituted phenylthio group; R₂ is a saturated alkyl group, an unsaturated

alkyl group, a lower alkoxy-lower alkyl group, a lower alkylthio-lower alkyl group, a phenoxy-lower alkyl group, a phenylthio-lower alkyl group, a mono- or di-lower alkylamino-lower alkyl group, a lower alkyl group substituted with a group —N(CH₂)_n where n is an integer of 2 to 6, a lower alkylcarbonyl group, phenylcarbonyl group, a cycloalkyl group, a cycloalkylalkyl group, a halogenated lower alkyl group, a cyano-lower alkyl group, a lower alkoxy-lower alkyl group, a lower alkylthiocarbonyl-lower alkyl group, an arylalkyl group, a lower alkylcarbonyl-lower alkyl group, a phenylcarbonyl-lower alkyl group, naphthyl group, furfuryl group or phenyl group; the latter phenyl group being unsubstituted or substituted with a substituent which is selected from a halogen atom, nitro group, cyano group and a lower alkyl group;

X is an oxygen atom or a sulfur atom; and

Y is a straight or branched saturated alkylene group or unsaturated alkylene group, the saturated alkylene group being unsubstituted or substituted with a halogen group, a lower alkoxy group, cyano group, phenyl group, a halogen-substituted phenyl group, a nitro-substituted phenyl group, a lower alkyl-substituted phenyl group and/or trifluoromethyl-substituted phenyl group, and a salt of said imidazole derivative.

8. A fungicidal composition comprising as the active ingredient a fungicidally effective amount of an imidazole derivative as defined in claim 1, or a salt thereof, in association with an acceptable carrier for the active ingredient.

4,391,805

1-(1,3-DIOXOLAN-2-YLMETHYL)-AZOLES, THEIR SALTS AND THEIR USE

Ernst Blume, Bad Soden am Taunus; Wolfgang Schaper, Frankfurt am Main; Wolfgang Raether, Dreieich, and Walter Dittmar, Hofheim am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 14, 1981, Ser. No. 311,184

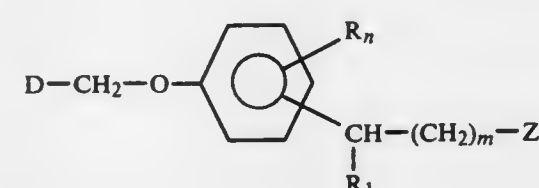
Claims priority, application Fed. Rep. of Germany, Oct. 16, 1980, 3039087

Int. Cl.³ A61K 31/415; C07D 405/06

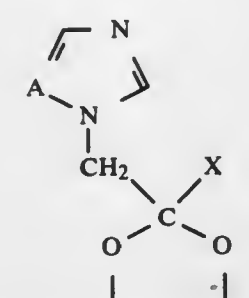
U.S. Cl. 424—246

13 Claims

1. A 1-(1,3-dioxolan-2-ylmethyl)-azole of the formula (I)



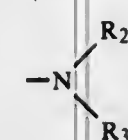
and its stereoisomers and its salts with a physiologically acceptable acid, in which D denotes a 1-(1,3-dioxolan-2-ylmethyl)-azole radical of the following structure



in which A denotes nitrogen or methine and X denotes naphthyl, thienyl, halogenothienyl or a phenyl group optionally carrying 1, 2 or 3 substituents, the substituents being identical or different and denoting halogen, trifluoromethyl, C₁-C₄ alkyl or C₁-C₄ alkoxy, and, in formula (I) further, the R_n's,

independently of one another, denote halogen, trifluoromethyl, C₁-C₈ alkyl, C₁-C₄ alkoxy, C₃-C₅ alkenyl, C₁-C₄ alkoxy-carbonyl, carboxyl, di-(C₁-C₄)alkylaminomethyl or nitro, n is 0, 1, 2 or 3, or, in the event that n is 2, R_n denotes a C₄H₄ radical which, together with the phenyl ring, forms a naphthyl ring, or, in the event that n is 1, R_n represents a phenoxy group optionally carrying 1 or 2 substituents, the substituents being identical or different and denoting halogen, trifluoromethyl, C₁-C₄ alkyl, or C₁-C₄ alkoxy, R₁ denotes hydrogen, C₁-C₄ alkyl or a phenyl group optionally carrying 1 or 2 substituents, the substituents being identical or different and denoting halogen, trifluoromethyl, nitro, C₁-C₄ alkyl or C₁-C₄ alkoxy, m denotes 0, 1 or 2, and Z denotes either

(a) an amino radical of the formula Z(a)



in which R₂ and R₃ are identical or different and each denotes hydrogen, C₁-C₈ alkyl, C₃-C₅ alkenyl, C₃-C₈ cycloalkyl or a phenyl or benzyl group optionally carrying 1, 2 or 3 substituents, the substituents being identical or different and each denoting halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy or trifluoromethyl, or one of the two radicals R₂ or R₃ denotes C₁-C₅ alkanoyl or C₁-C₄ alkoxy-carbonyl, or

(b) a radical of the formula Z(b)



in which R₄ denotes hydrogen, C₁-C₄ alkyl, C₃-C₅ alkenyl, hydroxy-(C₂-C₃)-alkyl, C₁-C₄-alkoxy-(C₂-C₃)-alkyl, C₁-C₅ alkanoyl, C₂-C₅ alkanoylmethyl, C₁-C₄ alkylsulfonylethyl, C₁-C₄ alkoxy-carbonyl, C₁-C₄ alkoxy-carbonylmethyl, mono-(C₁-C₄)-alkylaminocarbonylmethyl, di-(C₁-C₄)-alkylaminocarbonylmethyl, aminocarbonylmethyl, mono-(C₁-C₄)-alkylaminocarbonyl, di-(C₁-C₄)-alkylaminocarbonyl, C₁-C₄-alkylaminothiocarbonyl, C₁-C₄-alkylthiocarbonyl, aminocarbonyl, C₃-C₅-alkenylaminocarbonyl, or C₃-C₅-alkenylaminothiocarbonyl, or R₄ denotes a phenyl, phenylmethyl, phenylaminocarbonyl or benzoyl group, each of the phenyl groups optionally carrying 1 or 2 substituents which are identical or different and denote halogen, trifluoromethyl, C₁-C₄-alkyl, or C₁-C₄-alkoxy, or

(c) a 1-H-imidazol-1-yl, 1H-1,2,4-triazol-1-yl, pyrazol-1-yl, pyrrolidin-1-yl, piperidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, 2,6-dimethylmorpholin-4-yl, 2,6-dimethylthiomorpholin-4-yl, 1,2,3,4-tetrahydroquinolin-1-yl or 1,2,3,4-tetrahydroisoquinolin-2-yl radical, or

(d) an isocyano group of the formula Z(d)



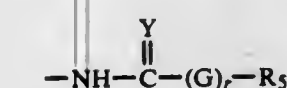
or

(e) an isothiocyano group of the formula Z(e)



or

(f) a radical of the general formula Z(f)



in which Y represents oxygen or sulfur, G represents

oxygen or an NH group, r represents 0 or 1 and R₅ represents hydrogen, C₁-C₄-alkyl, monohalogenomethyl, dihalogenomethyl, trihalogenomethyl or a phenyl group optionally carrying 1 or 2 substituents, the substituents being identical or different and each denoting halogen, trifluoromethyl, C₁-C₄ alkyl, or C₁-C₄ alkoxy, subject to the proviso that, in the event that Y represents a sulfur atom, G denotes an NH group and r denotes the number 1, that, in the event that G represents an oxygen atom and r represents the number 1, R₅ does not denote hydrogen, and that, in the event that R₅ represents monohalogenomethyl, dihalogenomethyl or trihalogenomethyl, r denotes 0 and Y denotes oxygen.

13. Method of treating patients suffering from mycoses, protozoa, Gram-positive or Gram-negative bacteria by administering an effective amount of a compound of formula I as claimed in claim 1.

4,391,806

SUBSTITUTED

TETRAHYDROPYRIDAZINO-(1,6-A)BENZIMIDAZOLES AND USE AS BRONCHODILATORS

Catherine A. Alexander, Indianapolis; Robert J. Cregge, Zionsville, and Norton P. Peet, Indianapolis, all of Ind., assignors to The Dow Chemical Company, Midland, Mich.

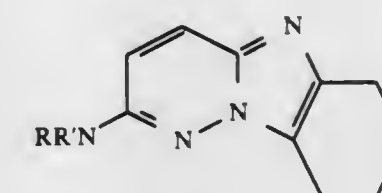
Filed Jul. 12, 1982, Ser. No. 397,300

Int. Cl.³ A61K 31/535, 31/50; C07D 487/04

U.S. Cl. 424—248.4

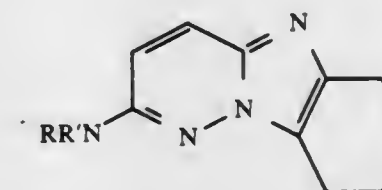
5 Claims

1. A compound of the formula:



wherein —NRR' is (lower alkyl)amino, di(lower alkyl)amino, 1-pyrrolidinyl, 1-piperidinyl, methyl-1-piperidinyl, hexahydroazepin-1-yl, 4-methyl-1-piperazinyl, 4-methylhexahydro-1,4-diazepin-1-yl and 4-morpholinyl; and the pharmaceutically acceptable acid addition salts of said compound.

5. A method of producing bronchodilation which comprises administering to a mammal in need thereof an effective amount of a compound of the formula



wherein —NRR' is (lower alkyl)amino, di(lower alkyl)amino, 1-pyrrolidinyl, 1-piperidinyl, methyl-1-piperidinyl, hexahydroazepin-1-yl, 4-methyl-1-piperazinyl, 4-methylhexahydro-1,4-diazepin-1-yl and 4-morpholinyl; and the pharmaceutically acceptable acid addition salts of said compound.

4,391,807

6-SUBSTITUTED

TETRAHYDROIMIDAZO(2,1-a)PHthalazines AND USE AS BRONCHODILATORS

Catherine A. Alexander, Indianapolis; Robert J. Cregge, Zionsville, and Norton P. Peet, Indianapolis, all of Ind., assignors to The Dow Chemical Company, Midland, Mich.

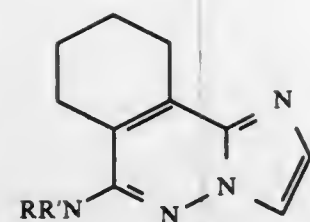
Filed Jul. 12, 1982, Ser. No. 397,301

Int. Cl.³ A61K 31/535, 31/50; C07D 487/04

U.S. Cl. 424—248.4

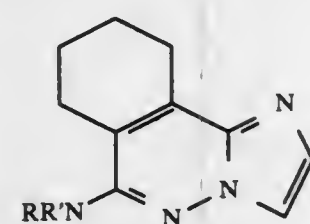
5 Claims

1. A compound of the formula:



wherein —NRR' is (lower alkyl)amino, di(lower alkyl)-amino, 1-pyrrolidinyl, 1-piperidinyl, methyl-1-piperidinyl, hexahydroazepin-1-yl, 4-methyl-1-piperazinyl, 4-methylhexahydro-1,4-diazepin-1-yl and 4-morpholinyl; and the pharmaceutically acceptable acid addition salts of said compound.

5. A method of producing bronchodilation which comprises administering to a mammal in need thereof an effective amount of a compound of the formula



wherein —NRR' is (lower alkyl)amino, di(lower alkyl)-amino, 1-pyrrolidinyl, 1-piperidinyl, methyl-1-piperidinyl, hexahydroazepin-1-yl, 4-methyl-1-piperazinyl, 4-methylhexahydro-1,4-diazepin-1-yl and 4-morpholinyl; and the pharmaceutically acceptable acid addition salts of said compound.

4,391,808

5-(1-PIPERAZINYL)IMIDAZO[2,1-b][1,3,5]BENZOTHIADIAZEPINES

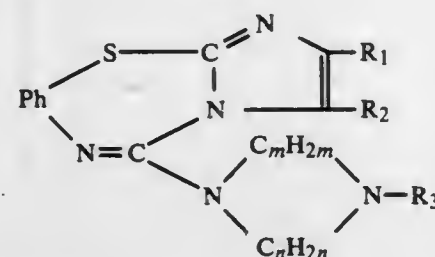
Isidoros Vlattas, Summit, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 158,671, Jun. 12, 1980, abandoned. This application May 11, 1981, Ser. No. 259,261

Int. Cl.³ A61K 31/55; C07D 513/04

U.S. Cl. 424—250 11 Claims

1. A 5-diazacycloalkyl-imidazo[2,1-b][1,3,5]benzothiadiazepine compound of the formula



wherein one of R₁ and R₂ is hydrogen, lower alkyl or alkanoyl, halogeno, cyano, carboxy, lower carbalkoxy, carboamoyl, sulfamoyl, mono- or di-lower alkyl-(carbamoyl or sulfamoyl), and the other of R₁ and R₂ is hydrogen, lower alkyl or halogeno; Ph is 1,2-phenylene, unsubstituted or substituted by on member selected from lower alkyl, lower alkoxy, lower alkylthio, halogeno, trifluoromethyl, sulfamoyl, mono- or di-lower alkyl-sulfamoyl, each of C_mH_{2m} and C_nH_{2n} is lower alkylene separating both nitrogen atoms by 2 carbon atoms; and R₃ is hydrogen, lower alkyl, lower alkanoyl, lower alkoxy-carbonyl, or lower hydroxyalkyl wherein the hydroxy group is separated from the nitrogen atom by at least 2 carbon atoms; the S-oxides; the N-oxides; or a pharmaceutically acceptable salt thereof.

4,391,809
METHODS FOR TREATING PSORIASIS
Edward F. Elslager, Ann Arbor, Mich., assignor to Warner-Lambert Company, Ann Arbor, Mich.
Continuation of Ser. No. 84,944, Oct. 15, 1979, abandoned. This application Nov. 13, 1980, Ser. No. 206,596
Int. Cl.³ A61K 31/505

U.S. Cl. 424—251 5 Claims

1. A method for treating psoriasis in mammals which comprises administering an antipsoriatic-effective amount of 2,4-diamino-5-methyl-6-[(3,4,5-trimethoxyanilino)methyl]quinazoline, 2,4-diamino-5-chloro-6-[(3,4-dichloroanilino)methyl]quinazoline or a pharmaceutically acceptable salt thereof, to a mammal in need of said treatment.

4,391,810
2-METHYL-4,N,N-DIMETHYLCARBAMOYLOXY-6-AMINO-PYRIMIDINES AND SALTS THEREOF, PROCESSES FOR PRODUCING THEM, AND THEIR USE FOR COMBATING PESTS

Karl Hoegerle; Laurenz Gsell, both of Basel, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

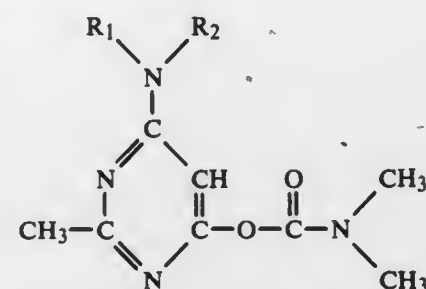
Filed Dec. 30, 1981, Ser. No. 335,936

Claims priority, application Switzerland, Jan. 6, 1981, 31/81; Oct. 14, 1981, 6571/81

Int. Cl.³ C07D 239/47; A01N 9/22

U.S. Cl. 424—251 9 Claims

1. A compound of the formula:



wherein each of R₁ and R₂, when taken independently, is hydrogen, alkyl of 1 to 5 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, alkenyl of 2 to 5 carbon atoms, or alkynyl of 2 to 5 carbon atoms, or R₁ and R₂ taken together are alkylene of 2 to 5 carbon atoms.

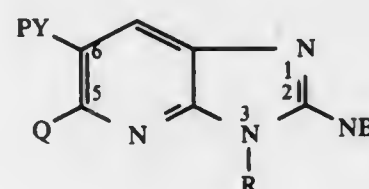
4,391,811
2-AMINO-6-(PYRIDINYL)-3H-IMIDAZO[4,5-b]PYRIDINES AND THEIR CARDIOTONIC USE
George Y. Leshner; Chester J. Opalka, Jr., both of Schodack, and Donald F. Page, East Greenbush, all of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Oct. 2, 1981, Ser. No. 307,777

Int. Cl.³ C07D 487/04; A61K 31/44

U.S. Cl. 424—263 10 Claims

1. A 2-(NB)-3-R-6-PY-5-Q-3H-imidazo[4,5-b]pyridine having the formula



where Q is hydrogen or lower-alkyl, R is lower-alkyl, NB is amino or dimethylamino, and PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents, or acid-addition salt thereof.

8. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering

orally or parenterally in a solid or liquid dosage form to such patient a cardiotionically effective amount of 2-(NB)-3-R-6-PY-5-Q-3H-imidazo[4,5-b]pyridine or pharmaceutically acceptable acid-addition salt thereof, where Q is hydrogen or lower-alkyl, R is lower-alkyl, NB is amino or dimethylamino, and PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents.

4,391,812
2-(SUBSTITUTEDPIPERIDYLMETHYL) PROPANE NITRILES AND COMPOSITIONS THEREOF

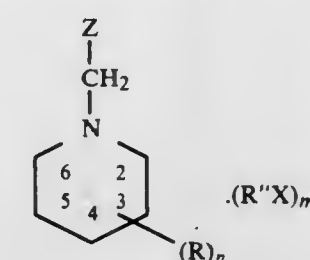
Richard A. Dybas, Piscataway; Nathaniel Grier, Englewood, and Bruce E. Witzel, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 228,520, Jan. 26, 1981, Pat. No. 4,342,873, which is a division of Ser. No. 8,985, Feb. 5, 1979, Pat. No. 4,247,700, which is a continuation-in-part of Ser. No. 795,693, May 11, 1977, abandoned. This application Mar. 24, 1982, Ser. No. 361,233

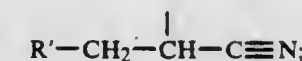
Int. Cl.³ C07D 211/40

U.S. Cl. 424—267 5 Claims

1. A compound of the formula:



where Z is



R' is hydrogen, C₁-C₁₈ alkyl, benzyl, or phenethyl; R is in the 2-, 3-, or 4-positions and is hydroxy or hydroxyalkyl; R' is amino, loweralkylamino, or diloweralkylamino; n is an integer from 1 to 4; m is the integer 0 or at least 1; and X is a suitably charged anion.

5. A composition containing an antiinflammatory amount of a compound according to claim 1 along with a suitable pharmaceutical carrier.

4,391,813
VAPOR PHASE FUNGICIDAL METHOD
Michael Szkolnik, Geneva, N.Y., assignor to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Apr. 17, 1981, Ser. No. 257,039

Int. Cl.³ A01N 43/48

U.S. Cl. 424—269 7 Claims

1. A method of protecting plants from fungal attack or reducing the severity of fungal attack which comprises positioning a substrate coated or impregnated with 1-[[2-(2,4-dichlorophenyl)-4-ethyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole in an amount and in a manner such that vapors of said triazole cause said protection from or reduction of fungal activity on the plants.

4,391,814
DERIVATIVES OF ANTIPHLOGISTICALLY EFFECTIVE CARBOXYLIC ACIDS, THEIR PREPARATION AND MEDICINAL USE

Helmut Vorbrüggen, Berlin, Fed. Rep. of Germany, assignor to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

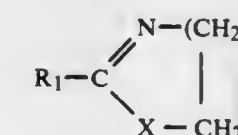
Filed Dec. 23, 1981, Ser. No. 334,023

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1980, 3049405

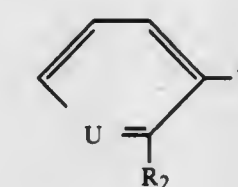
Int. Cl.³ A01N 43/76, 43/80, 43/54, 43/50

U.S. Cl. 424—272 8 Claims

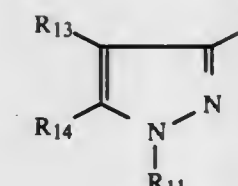
1. A compound of the formula



wherein
n is 1;
X is oxygen; and
R₁ is of the formula:



wherein
R₂ is (i) alkanoyl or alkanoyloxy each of 2-6 carbon atoms; (ii) phenoxy, anilino or 1-naphthylamino; or (iii) phenoxy, anilino or 1-naphthylamino, each of which is mono- or di-substituted by halogen, trifluoromethyl, or alkyl of 1-4 carbon atoms;
U is —CH= and
V is a carbon-to-carbon bond or methylene; or



wherein
R₁₁ is alkyl of up to 6 carbon atoms, phenyl or phenyl mono- or di-substituted by chlorine or fluorine;
one of R₁₂, R₁₃, and R₁₄ is methylenyl; one or two of R₁₂, R₁₃, and R₁₄ is phenyl or phenyl mono- or di-substituted by chlorine or fluorine; or one of R₁₂, R₁₃, and R₁₄ is hydrogen.

4,391,815

CYANOBENZANO[B]PYRANS

John M. Evans, Royden, England, assignor to Beecham Group Limited, England

Continuation-in-part of Ser. No. 79,560, Sep. 27, 1979, abandoned, and Ser. No. 117,261, Jan. 31, 1980, abandoned, which is a division of Ser. No. 970,199, Dec. 18, 1978, Pat. No. 4,251,537, which is a continuation of Ser. No. 776,976, Mar. 14, 1977, abandoned. This application Oct. 17, 1980, Ser. No. 198,280

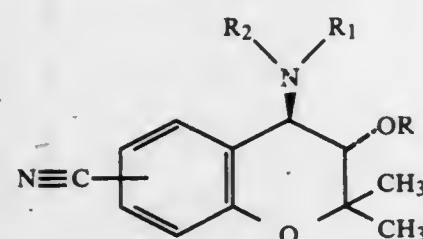
Claims priority, application United Kingdom, Apr. 2, 1976, 13536/76; Apr. 10, 1976, 33178/76; Oct. 4, 1978, 39303/78; Oct. 20, 1978, 41306/78; Jan. 10, 1979, 7900901

Int. Cl.³ A61K 31/395; C07D 405/04

U.S. Cl. 424-274

14 Claims

1. A compound selected from the group consisting of benzo[b]pyran of the formula:



and the pharmaceutically acceptable acid addition salts thereof wherein R is hydrogen, alkyl of 1 to 3 carbon atoms, alkanoyl of up to 8 carbon atoms or benzoyl,

NR₁R₂ is pyrrolidino, and the depicted cyano group is the 6-position.

13. A method of treating hypertension in a human which comprises administering thereto an effective amount of a compound according to claim 1.

4,391,816

N-(NAPHTHALENYLTHIOXOMETHYL)AMINOACID DERIVATIVES

Kazimir Sestanj, St. Laurent; Nedumparambil A. Abraham, Dollard des Ormeaux; Francesco Bellini, Mount Royal, and Adi Treasurywala, Point Claire, all of Canada, assignors to Ayerst, McKenna & Harrison Inc., Montreal, Canada

Filed Nov. 13, 1981, Ser. No. 321,304

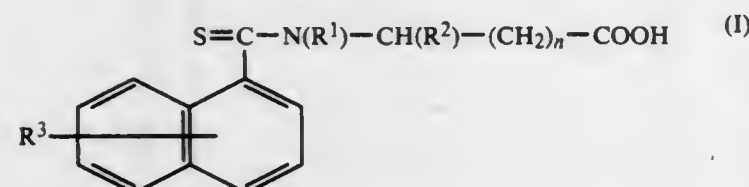
Claims priority, application Canada, Nov. 2, 1981, 372054

Int. Cl.³ C07C 153/063; A61K 31/65, 31/40

U.S. Cl. 424-274

19 Claims

1. A compound of formula I



wherein

R¹ is lower alkyl, carboxymethyl, phenyl or phenyl substituted with a substituent selected from halo, lower alkyl or lower alkoxy;R² is hydrogen or lower alkyl;

n is the integer 0, 1 or 2; or

n is the integer 0 and R¹ and R² form a (CH₂)₃ bridge to complete a pyrrolidine ring with the nitrogen and carbon to which R¹ and R² are joined; andR³ is a halo substituent at position 3, 5, 6 or 7 of the naphthalene ring, orR³ is two or three substituents on the naphthalene ring selected from the group consisting of 4-lower alkoxy-5-[di(lower alkyl)aminosulfonyl] and 3-halo-4-lower alkoxy-5-[di(lower alkyl)aminosulfonyl];with the proviso that when R¹ is lower alkyl, then R³ is a halo substituent at position 3, 6 or 7 of the naphthalene ring or R³ is two or three substituents as defined herein, or

a therapeutically acceptable salt thereof with an organic or inorganic base.

15. A pharmaceutical composition for preventing or relieving diabetic complications in a diabetic mammal which comprises a compound of claim 1, or a therapeutically acceptable salt thereof with an organic or inorganic base, and a pharmaceutically acceptable carrier.

4,391,817

PYRROLO-DIAZEPINE DERIVATIVES AND THEIR PHARMACEUTICAL COMPOSITIONS

Luigi Mariani, and Giorgio Tarzia, both of Milan, Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

Filed May 24, 1982, Ser. No. 381,271

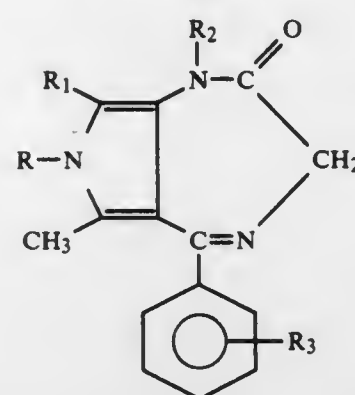
Claims priority, application Italy, Jun. 8, 1981, 22177 A/81

Int. Cl.³ A61K 31/55; C07D 487/04

U.S. Cl. 424-274

6 Claims

1. A pyrrolo[3,4-e][1,4]diazepin-2(1H)-one of the formula

wherein R represents methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, or 1,1-dimethylethyl, R₁ designates a chlorine or bromine atom or a nitro group, R₂ represents hydrogen, methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, or 1,1-dimethylethyl, and R₃ is hydrogen, chloro, bromo, fluoro, trifluoromethyl or methoxy.

5. An anticonvulsant and antianxiety pharmaceutical preparation containing an effective amount of a compound of claim 1 as the active ingredient, along with a suitable pharmaceutical carrier.

4,391,818

4-(SUBSTITUTED

ALKYL)-N-(1,3-DITHIOLAN-2-YLIDENE)ANILINE
Boyd L. Harrison, Cincinnati, and Niall S. Doherty, West Chester, both of Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

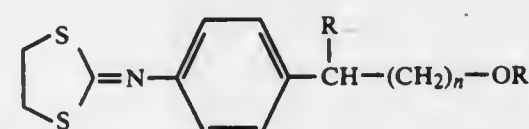
Filed Apr. 12, 1982, Ser. No. 367,540

Int. Cl.³ A61K 31/385; C07D 339/06

U.S. Cl. 424-277

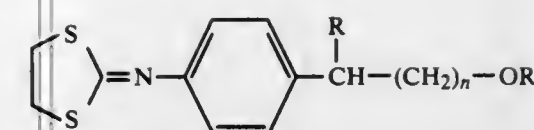
10 Claims

1. A compound of the formula



wherein R is hydrogen or lower alkyl of 1-6 C; R' is hydrogen, lower alkyl of 1-6 C, or lower alkanoyl of 2-6 C; and n is 0-10; and the pharmaceutically acceptable acid addition salts thereof.

9. A method of treating inflammation which comprises administering to a patient in need thereof an effective amount of a compound of the formula



wherein R is hydrogen or lower alkyl of 1-6 C; R' is hydrogen, lower alkyl of 1-6 C or lower alkanoyl of 2-6 C; and n is 0-10; and the pharmaceutically acceptable acid addition salts thereof.

4,391,819

2,9-DIOXA TRICYCLO[4,3,1,0^{3,7}] DECANE COMPOUNDS AND PROCESS OF MAKING SAME

Peter W. Thies, and Samuel David, both of Hanover, Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

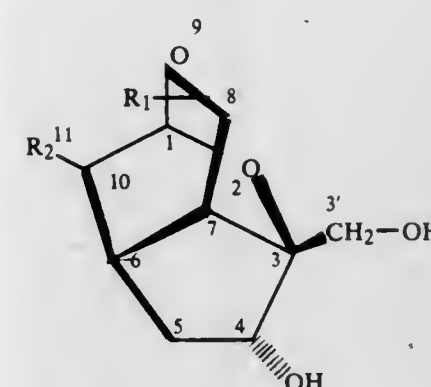
Filed Jul. 13, 1981, Ser. No. 283,104

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1980, 3026579

Int. Cl.³ A61K 31/335; C07D 405/06

U.S. Cl. 424-278

11 Claims

1. A 3β-hydroxy methyl-4α-hydroxy-3β-alkoxy-2,9-dioxatricyclo[4,3,1,0^{3,7}]decane of the formula

in which

R₁ indicates an alkoxy group andR₂ indicates 10-methylene or 10β-methyl.10. A composition of matter for inducing sleep in mammals, comprising a sleep-inducing amount of a 3β-hydroxy methyl-4α-hydroxy-8β-alkoxy-2,9-dioxatricyclo[4,3,1,0^{3,7}]decane as defined in claim 1, and a pharmacologically inert diluent material.

11. A method of inducing sleep in mammals, comprising the step of administering to a mammal a sleep-inducing amount of a compound as defined in claim 1.

4,391,820

INSECTICIDAL ESTER ENANTIOMERS

George Holan, Brighton, and Reimund Walser, Box Hill, both of Australia, assignors to Commonwealth Scientific and Industrial Research Organization, Australia

Filed Jun. 2, 1981, Ser. No. 269,735

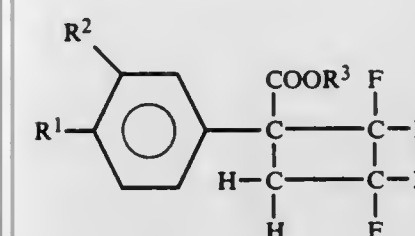
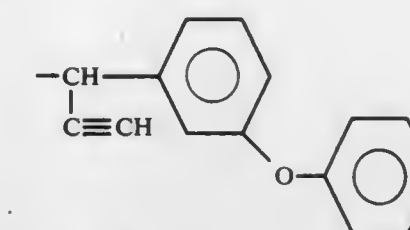
Claims priority, application Australia, Jun. 13, 1980, PE4038/80

Int. Cl.³ A01N 43/16; C07C 69/76; A01N 37/10

U.S. Cl. 424-282

9 Claims

1. Compounds of the formula Ia

characterised in that R¹ is ethoxy or chloro, and R² is hydrogen; R³ is

and the compounds are in the form of the (−)(−) diastereoisomers.

4. Insecticidal compositions, characterised in that they comprise an insecticidally effective amount of one or more of the compounds stated in claim 1, incorporated in a suitable inert liquid or solid carrier.

9. A method of combatting insect pests, characterised in that an insecticidally effective amount of a compound or composition as claimed in any one of claims 1 to 3 or 4 to 8, is applied to the insects and/or their locus.

4,391,821

7-SUBSTITUTED BENZOPYRANES AND PROCESS FOR THE PREPARATION THEREOF

Dezso Korbonits; Mihaly Nogradi; Borbala Vermes nee Szluha; Janos Strelisky; Andras Wolfner; Gergely Heja; Gabor Kovacz, all of Budapest; Jozsef Szegi, Debaecen, and Sandor Virag, Budapest, all of Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termek Gyara R.T., Budapest, Hungary

Filed Jul. 17, 1981, Ser. No. 284,573

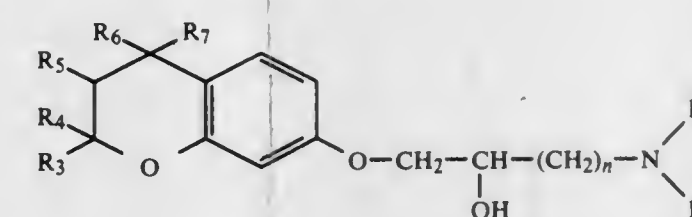
Claims priority, application Hungary, Dec. 16, 1980, 3001

Int. Cl.³ A61K 31/35; C07D 311/22, 311/58

U.S. Cl. 424-283

29 Claims

1. A compound of the formula (I)

or a pharmaceutically acceptable acid addition or quaternary C₁-C₄-alkyl ammonium halide, sulfate or phosphate salt thereof, whereinR₁ and R₂ are each hydrogen, C₁ to C₆ alkyl, hydroxy-alkyl, alkenyl, cycloalkyl, phenyl-alkyl or dimethoxy-phenyl-alkyl;R₃ is hydrogen, C₁ to C₄ alkyl or phenyl;R₄ is hydrogen;R₅ is hydrogen or phenyl; but if R₃ is other than phenyl, R₄ and R₅ together represent a bonding electron pair between the 2- and 3-positions of the benzopyrane nucleus;R₆ and R₇ are each hydrogen or together form an oxo group; and n is 1 to 2, with the proviso that the pyrane ring may bear only one alkyl or phenyl substituent.

4,391,822

METHOD FOR PREVENTING CATS FROM SHEDDING TOXOPLASMA OOCYSTS AFTER INFECTION OF SUCH CATS

Jacob K. Frenkel, Overland Park, Kans., and Donald D. Smith, Independence, Mo., assignors to Kansas University Endowment Association, Lawrence, Kans.

Filed Jul. 30, 1982, Ser. No. 403,788

Int. Cl.³ A61K 31/35

U.S. Cl. 424—283

9 Claims

1. A method of preventing or minimizing shedding of Toxoplasma oocysts by a cat after Toxoplasma infection of such cat, comprising the steps of administering to the cat, prior to the onset of oocyst shedding, an effective amount of an agent selected from the group consisting of monensin and salinomycin, and continuing such administration for a period of time thereafter sufficient to maintain said prevention or minimization.

4,391,823

NOVEL POLYCYCLIC INSECTICIDAL ESTERS

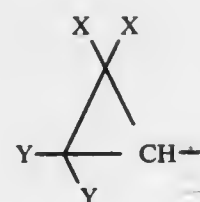
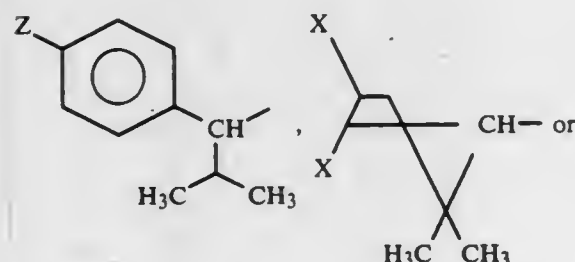
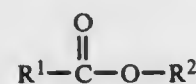
Dena L. Boxler, Lockport, N.Y., and Albert C. Chen, East Brunswick, N.J., assignors to Rhone-Poulenc Agrochimie, Lyons, France

Continuation-in-part of Ser. No. 122,228, Feb. 19, 1980, abandoned. This application Jul. 20, 1981, Ser. No. 285,241

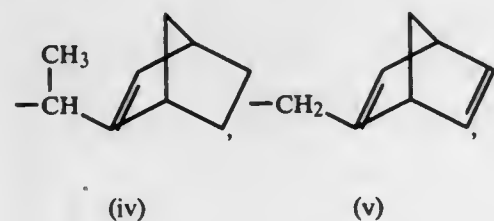
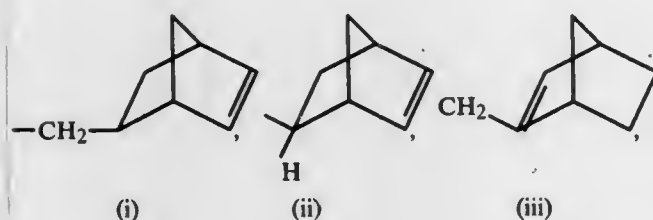
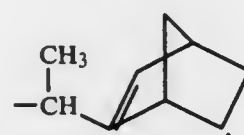
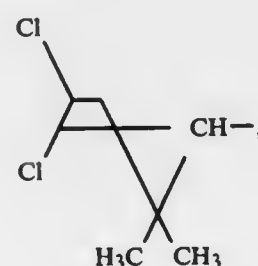
Int. Cl.³ C07C 69/743, 69/747, 69/612; A01N 53/00

U.S. Cl. 424—306

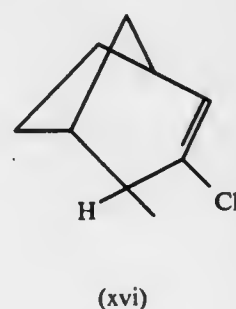
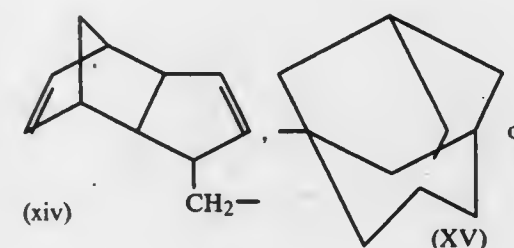
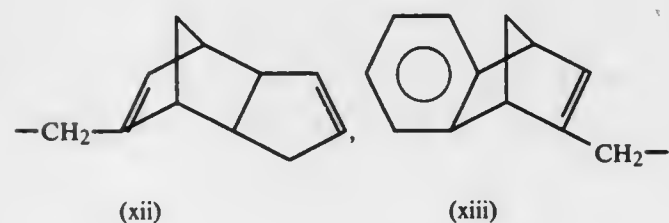
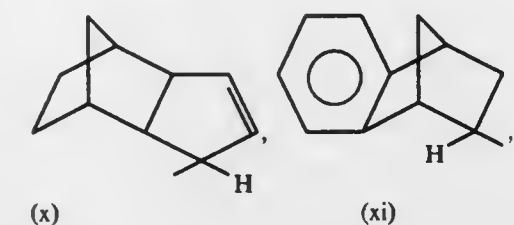
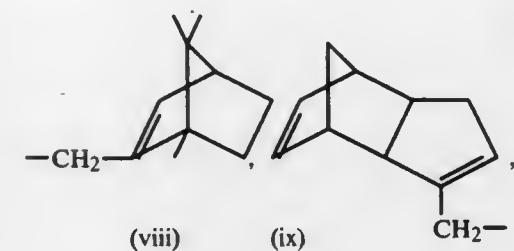
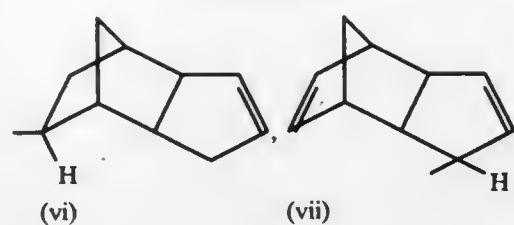
45 Claims

1. A compound having the formula: where R¹ is

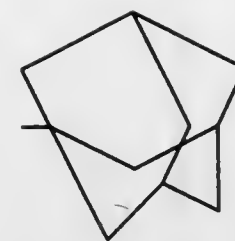
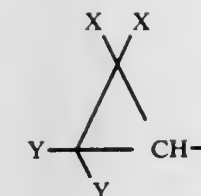
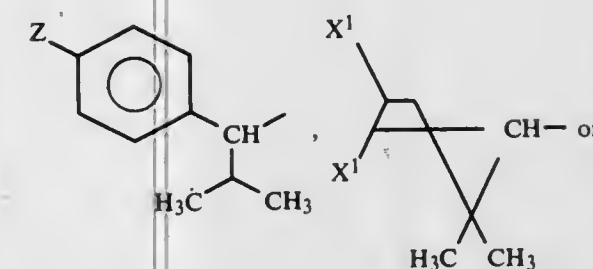
wherein X is F, Cl, Br or methyl; Y is methyl or Cl; Z is F, Cl, Br, CF₃, CF₃O, CF₃S, CHF₂, CHF₂O, or CHF₂S; and R² is

with the provisos that when R² isthen R¹ must be

-continued



(iv)

and when R² isthen R¹ must bewherein X¹ is F, Cl or Br, and X, Y and Z are defined as above.

6. An insecticidal composition that comprises a carrier for an insecticide and an insecticidal amount of a compound of claim 1.

4,391,825

N-[[6-(LOWER

(xv) ALKOXY)-5-(TRIFLUOROMETHYLTHIO)-1-NAPHTHALENYL]THIOXOMETHYL]-N-(LOWER ALKYL)GLYCINES

Francesco Bellini, Mount Royal; Kazimir Sestanj, St. Laurent, and Leslie G. Humber, Dollard des Ormeaux, all of Canada, assignors to Ayerst, McKenna & Harrison Inc., Montreal, Canada

Filed Nov. 13, 1981, Ser. No. 321,300

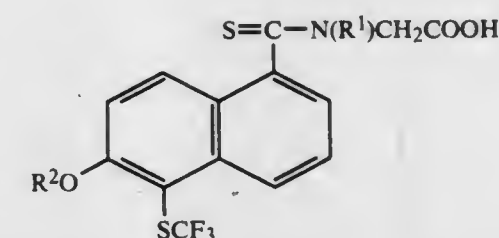
Claims priority, application Canada, Oct. 15, 1981, 387991

Int. Cl.³ C07C 153/063; A61K 31/165

U.S. Cl. 424—319

8 Claims

1. A compound of formula I



wherein R¹ and R² each is lower alkyl, or a therapeutically acceptable salt thereof with an organic or inorganic base.

4. A pharmaceutical composition for preventing or relieving diabetic complications in a diabetic mammal, which comprises a compound of claim 1, or a therapeutically acceptable salt thereof with an organic or inorganic base, and a pharmaceutically acceptable carrier.

4,391,824

UREYLENEBIS (HYDROXY NAPHTHALENESULFONIC ACIDS)

Gerald J. Siuta, and Seymour Bernstein, both of New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

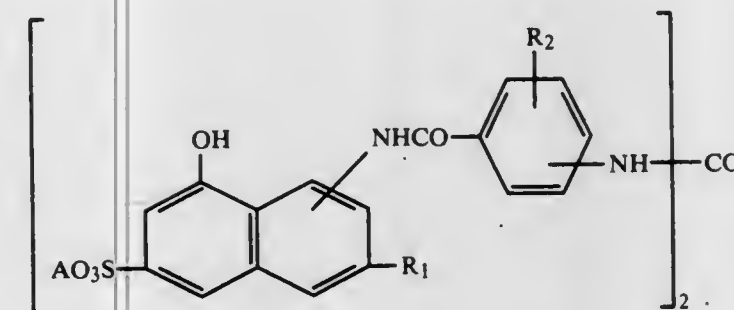
Filed Jul. 27, 1981, Ser. No. 286,736

Int. Cl.³ A61K 31/185

U.S. Cl. 424—315

15 Claims

1. A method of inhibiting connective tissue destruction in a warm-blooded animal suffering from connective tissue destruction disease which comprises administering to said warm-blooded animal an effective connective tissue destruction inhibiting amount of a compound selected from those of the formula:



wherein R₁ is selected from the group consisting of hydrogen and —SO₃A; R₂ is selected from the group consisting of hydrogen, ortho-SO₃A, ortho-methyl and meta-methyl; and A is selected from the group consisting of hydrogen and a nontoxic pharmaceutically acceptable cation salt.

4,391,826

PHENETHANOLAMINES, COMPOSITIONS CONTAINING THE SAME, AND METHOD FOR EFFECTING WEIGHT CONTROL

Jack Mills; Klaus K. Schmieg, and Walter N. Shaw, all of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

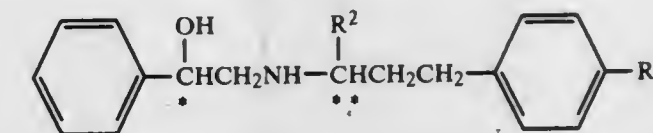
Continuation-in-part of Ser. No. 921,670, Jul. 3, 1978, abandoned. This application Nov. 21, 1979, Ser. No. 96,361

Int. Cl.³ A01N 37/18

U.S. Cl. 424—324

20 Claims

1. A pharmaceutical formulation useful in the control of weight in obese animals comprising as active principle an amount effective for controlling weight of an optically active phenethanolamine of the formula



wherein:

R₂ is hydrogen, methyl or ethyl;
R₃ is aminocarbonyl or methylaminocarbonyl;
C is an asymmetric carbon atom having the R absolute stereochemical configuration;
C is an asymmetric carbon atom when R₂ is methyl or ethyl, and when asymmetric is of the S absolute stereochemical configuration; and the non-toxic pharmaceutically acceptable acid addition salts thereof, in combination with a suitable pharmaceutical carrier therefor.

4,391,827

**3-(2-HYDROXY-4-(SUBSTITUTED)PHENYL)-
CYCLOALKANONE AND CYCLOALKANOL ANALGESIC
AGENTS AND INTERMEDIATES THEREFOR**

Charles A. Harbert, Waterford; Michael R. Johnson, and Lawrence S. Melvin, Jr., both of Gales Ferry, all of Conn., assignors to Pfizer Inc., New York, N.Y.

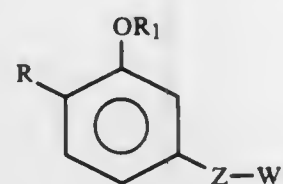
Division of Ser. No. 185,082, Sep. 8, 1980, Pat. No. 4,306,097, which is a continuation-in-part of Ser. No. 926,687, Jul. 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 833,102, Sep. 13, 1977, abandoned. This application Jul. 27, 1981, Ser. No. 286,809

Int. Cl.³ A61K 31/12; C07C 49/237

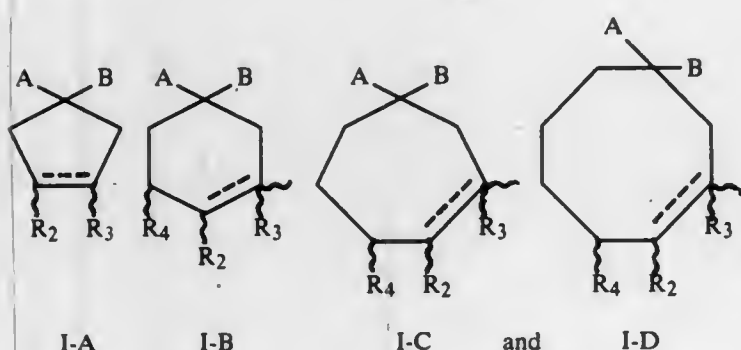
U.S. Cl. 424—331

36 Claims

1. A compound selected from the group consisting of those having the formula



wherein R is selected from the group consisting of saturated and unsaturated cycloalkyl moieties selected from the group consisting of



wherein

A when taken alone is hydrogen;

B when taken alone is selected from the group consisting of hydroxy, hydroxymethyl and alkanoyloxy having from one to five carbon atoms;

A and B when taken together are selected from the group consisting of oxo and alkylendioxy having from two to four carbon atoms

R₁ is selected from the group consisting of hydrogen, alkanoyl having from one to five carbon atoms, P(O)(OH)₂ and mono- and disodium and potassium salts thereof, —CO(CH₂)_pCOOH and the sodium and potassium salts thereof, and —CO(CH₂)_pNR₅R₆ wherein p is an integer from 1 to 4, each of R₅ and R₆ when taken together with the nitrogen to which they are attached form a 5- or 6-membered heterocyclic ring (piperidino, pyrrolo, pyrrolidino, morpholino and N-alkylpiperazino having from one to four carbon atoms in the alkyl group);

R₂ is selected from the group consisting of hydrogen, alkyl having from one to six carbon atoms, alkenyl having from three to six carbon atoms and phenylalkyl having from one to two carbon atoms in the alkyl moiety;

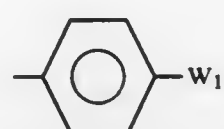
R₃ is hydrogen;

R₄ is selected from the group consisting of hydrogen and alkyl having from one to six carbon atoms;

Z is selected from the group consisting of

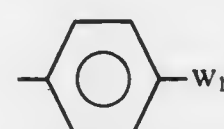
(a) alkylene having from four to eleven carbon atoms; and
(b) —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to eleven carbon atoms; each of m and n is 0 or 1; with the provisos that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than four or greater than eleven; and at least one of m and n is 1;

W is selected from the group consisting of hydrogen, pyridyl and



wherein W₁ is selected from the group consisting of hydrogen, fluoro and chloro;

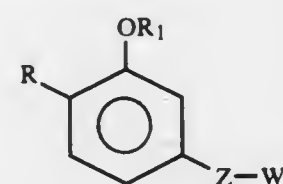
with the provisos that when W is hydrogen, B is other than hydroxy, Z is alkylene having from seven to eleven carbon atoms or —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to eleven carbon atoms with the further proviso that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than seven or greater than eleven carbon atoms; and when W is



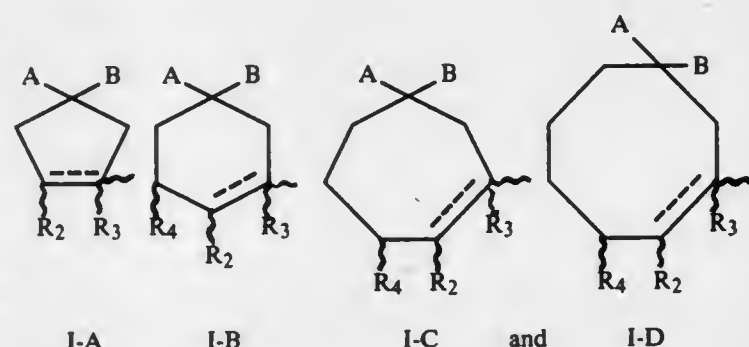
or pyridyl, Z is alkylene having from four to seven carbon atoms or —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to seven carbon atoms with the further proviso that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than four or greater than seven carbon atoms;

and the pharmaceutically acceptable acid addition salts of those compounds wherein R₁ is —CO(CH₂)_pNR₅R₆ and/or W is pyridyl.

21. A pharmaceutical composition in unit dosage form comprising a pharmaceutically acceptable carrier or diluent and an analgesic, tranquilizer, sedative, anti-anxiety or anticonvulsant effective amount of a compound selected from the group consisting of those having the formula



wherein R is selected from the group consisting of saturated and unsaturated cycloalkyl moieties selected from the group consisting of



wherein

A when taken alone is hydrogen;

B when taken alone is selected from the group consisting of hydroxy, hydroxymethyl and alkanoyloxy having from one to five carbon atoms;

A and B when taken together are selected from the group consisting of oxo and alkylendioxy having from two to four carbon atoms

R₁ is selected from the group consisting of hydrogen, alkanoyl having from one to five carbon atoms, P(O)(OH)₂ and

mono- and disodium and potassium salts thereof, —CO(CH₂)_pCOOH and the sodium and potassium salts thereof, and —CO(CH₂)_pNR₅R₆ wherein p is an integer from 1 to 4, each of R₅ and R₆ when taken together with the nitrogen to which they are attached form a 5- or 6-membered heterocyclic ring (piperidino, pyrrolo, pyrrolidino, morpholino and N-alkylpiperazino having from one to four carbon atoms in the alkyl group);

R₂ is selected from the group consisting of hydrogen, alkyl having from one to six carbon atoms, alkenyl having from three to six carbon atoms and phenylalkyl having from one to two carbon atoms in the alkyl moiety;

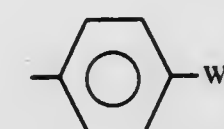
R₃ is hydrogen;

R₄ is selected from the group consisting of hydrogen and alkyl having from one to six carbon atoms;

Z is selected from the group consisting of

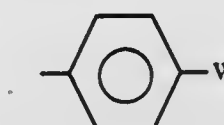
(a) alkylene having from four to eleven carbon atoms; and
(b) —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to eleven carbon atoms; each of m and n is 0 or 1; with the provisos that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than four or greater than eleven; and at least one of m and n is 1;

W is selected from the group consisting of hydrogen, pyridyl and



wherein W₁ is selected from the group consisting of hydrogen, fluoro and chloro;

with the provisos that when W is hydrogen, Z is alkylene having from seven to eleven carbon atoms or —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to eleven carbon atoms with the further proviso that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than seven or greater than eleven carbon atoms; and when W is



or pyridyl, Z is alkylene having from four to seven carbon atoms or —(alk₁)_m—O—(alk₂)_n— wherein each of (alk₁) and (alk₂) is alkylene having from one to seven carbon atoms with the further proviso that the summation of carbon atoms in (alk₁) plus (alk₂) is not less than four or greater than seven carbon atoms; and the pharmaceutically acceptable acid addition salts of those compounds wherein R₁ is —CO(CH₂)_pNR₅R₆ and/or W is pyridyl.

4,391,828

**DIBUTYLOROTHOBENZYL METHOXYBENZENES AND
DIBUTYLOROTHOCINNAMYL METHOXYBENZENES AS
MOSQUITO LARVAE GROWTH INHIBITORS**

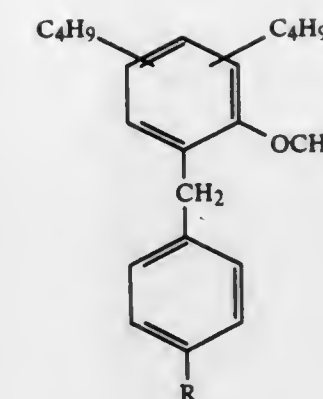
Leonard Jurd, Berkeley, Calif., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Apr. 20, 1982, Ser. No. 370,019

Int. Cl.³ A01N 31/14; C07C 43/205

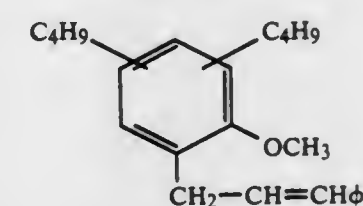
U.S. Cl. 424—340

1. A compound of the structure



wherein R is hydrogen, lower alkyl containing from 1 to 6 carbon atoms or lower alkoxy containing from 1 to 6 carbon atoms.

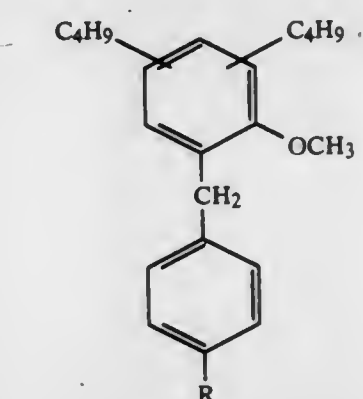
4. A compound of the structure



6. A method of inhibiting growth of mosquito larvae, which comprises:

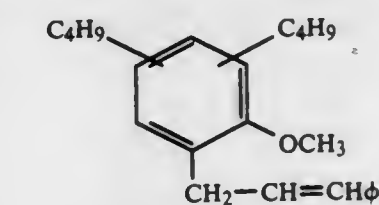
administering to the larvae an effective growth inhibiting amount of a compound selected from the group consisting of

(a) compounds of the structure



wherein R is hydrogen, lower alkyl containing from 1 to 6 carbon atoms or lower alkoxy containing from 1 to 6 carbon atoms, and

(b) compounds of the structure



4,391,829

**DUAL ENZYME DIGESTION FOR A DOG FOOD OF
IMPROVED PALATABILITY**

Joseph E. Spradlin; Jeffrey D. Morgan, both of Bourbonnais; Allan R. Olson, Ashkun, and Joseph P. Howley, Flossmoor, all of Ill., assignors to General Foods Corporation, White Plains, N.Y.

Filed Aug. 13, 1981, Ser. No. 292,471

Int. Cl.³ A23K 1/00, 1/18

U.S. Cl. 426—28

9 Claims

1. A process for preparing a nutritionally-balanced dog food

37 Claims

having improved palatability, said dog food comprising fat, protein, carbohydrates, vitamins and minerals and containing of a weight basis from 20% to 80% farinaceous ingredients and from 20% to 80% proteinaceous ingredients, including proteinaceous meaty material at from about 25% to about 55% by weight of the proteinaceous ingredients, said process comprising the steps of:

- (a) preparing a farinaceous slurry comprising from about 30% to 70% water and from about 5% to about 25% of the total weight of said farinaceous ingredients;
- (b) forming a farinaceous reaction product by treating the farinaceous material in said farinaceous slurry with added alpha-amylase and protease enzymes in an amount and under conditions effective to convert at least a portion of the farinaceous material to a mixture of oligo saccharides ranging in size from 1 to 10 monomer units, and at least a portion of the proteinaceous material to a mixture of peptides ranging in size from 2 to 300 monomer units, and effective to reduce the viscosity of the slurry by 50%;
- (c) preparing a proteinaceous slurry comprising water and a major portion of the proteinaceous meaty material;
- (d) forming a proteinaceous reaction product by treating the proteinaceous material in the proteinaceous slurry with protease enzymes in an amount and under conditions effective to convert at least a portion of the proteinaceous material to peptides ranging in size from 2 to 300 monomer units and effective to reduce the viscosity of the slurry by 50%; and
- (e) incorporating the farinaceous and proteinaceous reaction products into a dog food in an amount effective to provide a significant increase in the palatability of the dog food to dogs.

19. A process for preparing a nutritionally-balanced dog food having improved palatability, said dog food comprising fat, protein, carbohydrates, vitamins and minerals and containing of a weight basis from 20% to 80% farinaceous ingredients and from 20% to 80% proteinaceous ingredients, including proteinaceous meaty material at from about 25% to about 55% by weight of the proteinaceous ingredients, said process comprising the steps of:

- (a) preparing a farinaceous slurry comprising from about 30% to about 70% water and from about 5% to about 25% of the total weight of said farinaceous ingredients;
- (b) forming a farinaceous reaction product by treating said farinaceous material in the farinaceous slurry with added alpha-amylase enzyme in an amount and under conditions effective to convert at least a portion of the farinaceous material to a mixture of oligosaccharides ranging in size of from 1 to 10 monomer units and effective to reduce the viscosity of the slurry by 50%; and thereafter,
- (c) admixing a major portion of the proteinaceous meaty material with said reacted farinaceous slurry to prepare a combined slurry; thereafter,
- (d) forming a reaction product by treating the combined slurry with proteolytic enzyme in an amount and under conditions effective to convert at least a portion of the proteinaceous material to peptides ranging in size from 2 to 300 monomer units; and
- (e) incorporating the reaction product of the combined slurry into dog food in an amount effective to provide a significant increase in the palatability of the dog food to dogs.

4,391,830

PRODUCTION OF LIQUID YOGURT STABILIZED WITH HIGH METHOXYL PECTIN

Geir V. Gudnason, Atlanta; Laurie M. Crowe, Smyrna, and Shin S. Chang, Stone Mountain, all of Ga., assignors to Coca Cola Company, Atlanta, Ga.

Filed May 21, 1981, Ser. No. 265,885

Int. Cl.³ A23C 9/12

U.S. Cl. 426—43

7 Claims

1. In a method for preparing a liquid yogurt by inoculating pasteurized dairy ingredients with a bacterial culture to form a

yogurt curd and homogenizing the curd to form the liquid yogurt, the improvement which comprises:

mixing the curd with a high methoxyl pectin after the pH of the curd has become less than 4.6 and before the curd is homogenized, to form a curd-pectin mixture, the amount of pectin being from about 0.4% to about 0.7% by weight relative to the solids content of the mixture, and passing the mixture through an homogenizing orifice at a pressure of from about 40 to 150 p.s.i. to produce a stabilized liquid yogurt.

4,391,831

ANIMAL FEED COMPOSITION AND METHOD FOR PRODUCING SAME

Joy E. Knobloch, 113 E. Haven, New Lenox, Ill. 60451

Filed Jan. 13, 1981, Ser. No. 224,681

Int. Cl.³ A23K 1/00

U.S. Cl. 426—93

9 Claims

1. A method for producing an animal feed comprising contacting particles of base feed material with a mixture comprising an aqueous liquid phase derived from at least one plant and substantially whole plant matter from said plant to deposit at least a portion of said plant matter on at least a portion of said particles and form deposit containing particles, and drying said deposit containing particles to remove at least a portion of said liquid phase and form dried deposit containing particles having deposited thereon substantially whole plant matter.

4,391,832

PROCESS FOR MAKING MULTI-LAYER CREAM-FILLED WAFER BLOCKS

Franz Haas, Sr., Gerstlgasse 25, A-1210 Wien; Franz Haas, Jr., Castellezgasse 32, A-1020 Wien, and Joaann Haas, Wiener Strasse 209-215, A-2104 Spillern, N.O., all of Austria

Filed Jun. 16, 1981, Ser. No. 274,247

Claims priority, application Austria, Jun. 18, 1980, 3219/80

Int. Cl.³ A21D 13/00; A23G 3/00

U.S. Cl. 426—275

3 Claims

1. A process for making multi-layer, filled wafer blocks having layers of wafer sheets, each wafer sheet having an upper and lower side, the process comprising the steps of:

- (a) applying a coating to the upper side of a first wafer sheet to form a first coated wafer sheet;
- (b) conveying, with a feeder conveyor, the first coated wafer sheet in a first plane to a stacking point at which stacking point the first wafer sheet is to be raised into a second plane which is above the first plane;
- (c) separately supplying, simultaneously with said conveying step, an uncoated covering wafer sheet for each wafer block, said supplying being carried out such that the covering wafer sheet is delivered directly into said second plane at the stacking point without being transported along the feeder conveyor;
- (d) thereafter raising the first coated wafer sheet into the second plane and, by such raising, attaching the first coated wafer sheet to the lower side of the uncoated covering wafer sheet already in the second plane to form a stack of two wafer sheets, which stack is in a raised position with respect to the feeder conveyor, said attaching being effected by the contact of the coating of the first coated wafer sheet with the lower side of the uncoated covering sheet in the second plane;
- (e) forming a completed stack of wafer sheets constituting a completed wafer block by, if one or more additional layers are desired, applying a coating to an additional wafer sheet to form an additional coated wafer sheet; conveying, with the feeder conveyor, the additional wafer sheet in the first plane to the stacking point; thereafter raising the additional coated wafer sheet into the second plane and by such raising; attaching the additional coated wafer sheet to the lower side of a wafer sheet at the bottom of the stack of wafer sheets in the second plane, and repeating

said steps of applying a coating to an additional wafer sheet, conveying the additional coated wafer sheet, raising the additional coated wafer sheet, and attaching the additional coated wafer sheet, n minus 3 times, where n is the number of sheets in the final stack; and

(f) thereafter removing the completed wafer block from the stacking point.

4,391,833

METHOD OF MAKING AND USING HEAT RESISTANT RESIN COATED PAPERBOARD PRODUCT AND PRODUCT THEREOF

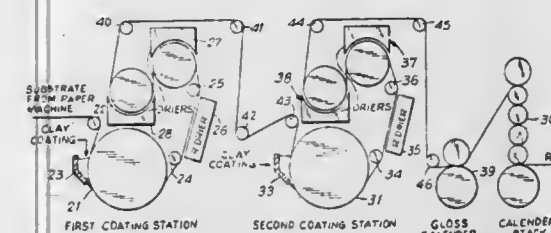
Robert W. Self, and Allan A. Whillock, both of Mobile, Ala., assignors to International Paper Company, New York, N.Y.

Continuation of Ser. No. 610,448, Sep. 4, 1975, abandoned. This application Apr. 24, 1978, Ser. No. 899,238

Int. Cl.³ A23L 1/00; A21B 3/15; B32D 27/10; B65D 27/10

U.S. Cl. 426—523

17 Claims



9. A paperboard container for cooking food comprising a coated paperboard substrate formed into the shape of a container, said container comprising:

- (a) an inside surface comprising a water impermeable layer affixed to said paperboard substrate, said water impermeable layer comprising a binder with opaque pigment dispersed therein; and
- (b) an outside surface comprising a continuous water permeable layer affixed to said paperboard substrate, said water permeable layer comprising a binder with opaque pigment dispersed therein, said paperboard container being characterized by the facts that (i) it retains a brightness of at least 70% on its permeable side and at least 50% on its impermeable side after exposure to 400° F. for 30 minutes; and (ii) it will not puff or blister when placed in an oven heated to 350° F. for 15 minutes.

10. A process for cooking food in a paperboard container comprising heating food in the container defined by claim 9.

4,391,834

METHOD OF EXTENDING AND FLAVORING ICE MILK OR CREAM

James T. Fiscella, Ottumwa, Iowa, assignor to TJT Food Flavoring, Inc., Ottumwa, Iowa

Continuation-in-part of Ser. No. 132,872, Mar. 24, 1980, abandoned. This application Mar. 5, 1982, Ser. No. 355,166

Int. Cl.³ A23G 9/021

U.S. Cl. 426—565

11 Claims

1. A method of extending and flavoring a soft serve product independently of any heating step, comprising the steps of, providing in liquid form a soft serve product selected from the group consisting of ice cream, ice milk and non-dairy ice cream, said soft serve product having a solids content of between 25% and 30%, providing a gelatin mix including sugar, gelatin and flavoring in quantities approximately proportional to 18 grams gelatin per 170 grams of mix, the non-gelatin portion of said mix being substantially sugar, stirring the gelatin mix into cold water in quantities approximately proportional to six ounces of mix to one gallon of water, thereby producing a gelatin extender, and adding said gelatin extender to a liquid soft serve product in quantities approximately proportional to one gallon of gelatin extender to between three and four gallons of said

soft serve product, thereby producing an extended and flavored soft serve product.

4,391,835

METHOD FOR MAKING SIMULATED TOFU PRODUCTS

Tsutomu Katayama, Izumisano, and Toyohiko Nakanishi, Nanao, both of Japan, assignors to Fuji Oil Company, Limited, Osaka, Japan

Filed Jan. 15, 1981, Ser. No. 225,320

Claims priority, application Japan, Feb. 1, 1979, 54-11054

Int. Cl.³ A23J 3/00; A23L 1/325

U.S. Cl. 426—573

8 Claims

1. A method for making a simulated tofu product which comprises the steps of preparing a mixture consisting essentially of soybean protein, fish protein, water, edible oil and salt, wherein the weight ratio of the amount of the fish protein relative to that of the soybean protein is within the range of 5:95 to 75:25 based on the part-by-weight of the solids thereof, the amount of the water and that of the edible oil are 5 to 8 parts and 0 to 4 parts by weight, respectively, both being relative to one part by weight of the total weight of the solids of the soybean and fish proteins, and wherein the amount of the salt is present in an amount sufficient to solubilize the fish protein; mixing the mixture uniformly; and heating the mixture to temperatures sufficient to coagulate the mixture.

4,391,836

PROCESS FOR PREPARING INSTANT GELLING STARCHES

Chung-Wai Chiu, Westfield, N.J., assignor to National Starch and Chemical Corporation, Bridgewater, N.J.

Continuation-in-part of Ser. No. 176,320, Aug. 8, 1980. This application May 10, 1982, Ser. No. 376,348

Int. Cl.³ A23L 1/195, 1/187, 1/04, 1/06

U.S. Cl. 426—578

14 Claims

1. A cold-water-dispersible gelling starch, which comprises a drum-dried and subsequently heat-treated tapioca starch or potato starch which is characterized by being capable of forming at least a weak gel having a Bloom strength of at least about 70 grams and further characterized by having a reduced peak or maximum Brabender viscosity within the range of about 1000-4200 B.U. for said tapioca starch or within the range of 2400-4400 B.U. for said potato starch, said viscosity being measured at 5.5% solids for said tapioca starch or at 5% solids for said potato starch in a sugar solution at 30° C. over a 30 minute period; said starch being a native starch having a pH of about 5-12 prior to said drum drying; said drum drying being carried out at a temperature sufficient to pregelatinize said starch and render it cold-water-dispersible; and said heat-treatment being carried out at up to 180° C. for a time and at a temperature and pH sufficient to reduce said peak or maximum Brabender viscosity to said ranges.

4,391,837

PROCESS FOR THE MANUFACTURE OF A LIQUID, PASTE OR POWDER WHEY PRODUCT SIMULATIVE OF A SKIN MILK PRODUCT

Johann Kocher, Salzburg County, Austria, assignor to Alpi Milchindustrie reg. Gen. m.b.H., Salzburg, Austria

Filed May 30, 1979, Ser. No. 43,699

Claims priority, application Austria, May 30, 1978, 3909/78

Int. Cl.³ A23C 21/00

U.S. Cl. 426—583

4 Claims

1. The process for the manufacture of a liquid, paste or powder whey product in which the proportions of protein, lactose and ash substantially correspond to those in skim milk and which whey product is suitable as an additive to foodstuffs and feeds, which comprises the steps of: subjecting whey, as a starting material, to an ultrafiltration membrane separation to separate said whey starting material into a permeate fraction and a retentate fraction in which the volume of said retentate

fraction is about 1/20th of the volume of said whey starting material and which retentate fraction contains a higher proportion of protein and lower proportions of lactose and ash than said whey starting material; and then mixing said retentate fraction with a whey concentrate containing at least 50 wt. % of solids or dry whey powder, wherein the mixing ratio of (1) said retentate to (2) said whey concentrate or said dry whey powder, is about 4:5, calculated as the solids, whereby to obtain said whey product.

4,391,838

PROCESS FOR CONTINUOUS FLUIDIZATION OF SHORTENING

Daniel R. Pate, Strongsville, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed Nov. 13, 1981, Ser. No. 320,860

Int. Cl.³ A23D 5/02

U.S. Cl. 426—606

22 Claims

1. A process for the continuous fluidization of a feed mixture comprising a major amount of a normally liquid base oil and a minor amount less than about 20% by weight of a normally solid lipid, said normally solid lipid exhibiting polymorphic crystalline behavior and having a beta crystal-forming tendency in said base oil, which process comprises: passing a flow of said feed mixture through a heat exchange zone that is maintained under substantially anaerobic conditions while submitting it to a sequence of at least two temperature oscillations that alternate between (a) a higher temperature which is above the melting temperature of alpha crystals in the solidifying lipid present but below the melting temperature of beta crystals in the solidifying lipid present and (b) a lower temperature which is below the melting temperature of alpha crystals in the solidifying lipid present but sufficiently high to maintain the fluency of the materials in process, continuing said temperature oscillations in said zone until a substantial proportion of said normally solid lipid is transformed into beta crystal form, and withdrawing the resulting composition from said heat exchange zone.

4,391,839

METHOD OF MODIFYING THE CONFORMATION OF FOOD AND FEED PROTEINS

Tibor Devenyi; Klara K. Bocsa; Ferenc Kovats; Sandor Pongor; Gertrud Szabolcsi, and Mihaly Such, all of Budapest, Hungary, assignors to MTA Szegedi Biológiai Központ Enzimológiai Intézete, Budapest, Hungary

Continuation-in-part of Ser. No. 179,980, Aug. 21, 1980, abandoned. This application Mar. 26, 1981, Ser. No. 247,645

Claims priority, application Hungary, Dec. 21, 1979, MA 3255

Int. Cl.³ A23K 1/00

U.S. Cl. 426—626

5 Claims

1. A method of modifying the conformation of plant proteins of cereal, vegetable or oil-seed origin for increasing their biological utilization, which consists essentially of:

- (a) treating said plant protein in dry form with agitation in gaseous hydrogen chloride for a period of about 1 to 1.5 minutes sufficient to increase the digestibility of said plant protein without bringing the protein into solution or suspension, said gaseous hydrogen chloride lowers the pH to a value between 1.7 and 2.3 as measured in a 20% w/v aqueous suspension; and
- (b) raising the pH of said plant protein to a value between 4 and 7 by adding calcium hydroxide, so that the moisture content of said plant protein is increased up to 50% by weight.

4,391,840 PROCESS FOR PREPARING MEAT PRODUCTS CONTAINING A PROTEIN EXTENDER WITH TITANIUM DIOXIDE TRACER

John A. Ederle, St. Louis; Ralph A. Hoer, Ballwin, and George H. Irwin, Manchester, all of Mo., assignors to Ralston Purina Company, St. Louis, Mo.

Filed May 26, 1981, Ser. No. 266,693

Int. Cl.³ A23L 1/31

U.S. Cl. 426—641

6 Claims

1. A process for preparing natural meat products containing extruded vegetable protein extender with titanium dioxide tracer comprising:

- a. blending isolated vegetable protein capable of being rendered insoluble and titanium dioxide.
- b. hydrating said blend,
- c. reacting said hydrated blend under elevated temperature until said protein is substantially insolubilized thereby forming a matrix;
- d. adding said matrix as fine particles in dried form to a vegetable protein to form a mixture,
- e. hydrating said mixture,
- f. extruding said hydrated mixture to form a vegetable protein extender,
- g. combining said extender with a natural meat product whereby the pigmentation of the titanium dioxide does not detract from the appearance of the combined product.

4,391,841

PASSIVATION OF METALLIC EQUIPMENT SURFACES IN ELECTROLESS COPPER DEPOSITION PROCESSES

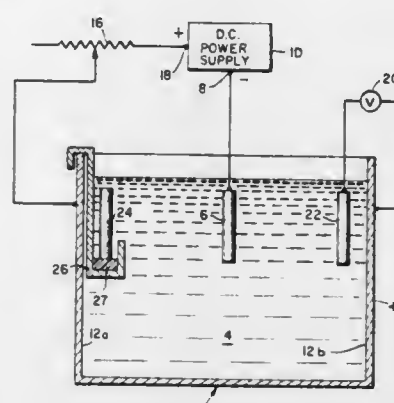
Rudolph J. Zeblicky, Hauppauge, N.Y., assignor to Kollmorgen Technologies Corporation, Dallas, Tex.

Continuation of Ser. No. 130,451, Mar. 28, 1980, abandoned, which is a continuation-in-part of Ser. No. 34,812, Apr. 30, 1979, abandoned. This application Feb. 1, 1982, Ser. No. 344,801

Int. Cl.³ C23C 3/02

U.S. Cl. 427—12

25 Claims



1. In a method for electrolessly depositing copper from an electroless copper deposition solution of known mixed potential on at least one substrate sensitive to such deposition, the improvement for rendering the metallic surfaces of plating equipment in contact with the solution substantially resistant to electroless copper deposition, comprising:

- (1) initially imposing on said metallic plating equipment surfaces an electrical potential more positive than the mixed potential of the electroless copper solution but not substantially more positive than required to render said equipment surfaces substantially resistant to electroless copper deposition;
- (2) electrolessly depositing copper on said substrate from said electroless copper solution; and
- (3) while electrolessly depositing copper on said substrate, adjusting said more positive electrical potential to maintain said more positive electrical potential sufficiently positive to resist electroless copper deposition.

4,391,842

METHOD OF DEVELOPMENT

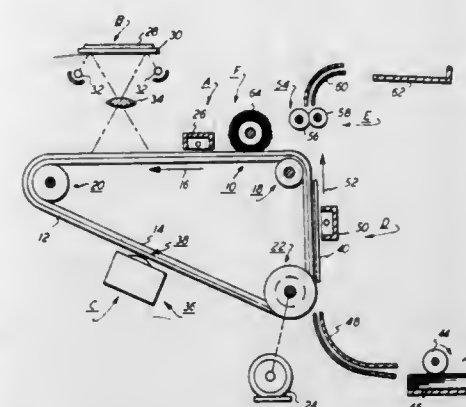
Raymond W. Huggins, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 86,624, Oct. 19, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 286,915

Int. Cl.³ B05D 1/04, 1/06

U.S. Cl. 427—14.1

5 Claims



1. A method of developing a latent image recorded on an image bearing member with an electrically conductive developer material, including the steps of:

- transporting the electrically conductive developer material into contact with the image bearing member in a development zone on a rotating tubular member by generating a magnetic field to attract the developer material to the tubular member; and
- increasing the intensity of the magnetic field between the image bearing member and the tubular member to apply a selected pressure to the developer material to adjust the electrical conductivity of the developer material to enhance solid area latent image development, or decreasing the intensity of the magnetic field between the image bearing member and the tubular member to apply a selected pressure to the developer material to adjust the electrical conductivity of the developer material to enhance line latent image development.

4,391,843

ADHERENT PERFLUORINATED LAYERS

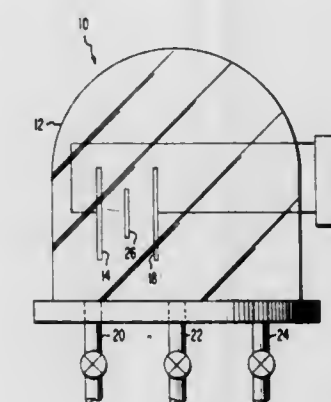
Grzegorz Kaganowicz, Princeton, N.J., and John W. Robinson, Levittown, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 14, 1981, Ser. No. 292,905

Int. Cl.³ B05D 3/04, 3/14

U.S. Cl. 427—41

8 Claims



1. In a method for forming a perfluorinated film comprising the step of depositing a polymeric film on a substrate surface by subjecting the surface to a glow discharge in the presence of a precursor comprising a compound selected from the group consisting of perfluorocycloalkanes, perfluorocycloolefins and perfluoroalkyl-substituted derivatives thereof;

the improvement which comprises the additional step of exposing the substrate surface to a glow discharge of a gas

consisting essentially of nitrogen prior to the depositing step.

4,391,844

METHOD FOR MAKING LININGS AND COATINGS FROM SOLUBLE CROSS-LINKABLE PERFLUOROCARBON COPOLYMERS

Stanley K. Baczek; G. Howard McCain, both of Painesville; Leo L. Benezra, Mentor, and Michael J. Covitch, Cleveland Heights, all of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jun. 26, 1981, Ser. No. 277,920

Int. Cl.³ B05D 3/06, 3/02

U.S. Cl. 427—44

12 Claims

1. A method for coating a substrate with a solubilized cross-linkable perfluorocarbon copolymer having pendant sulfonyl halide functional groups and polymerized from at least two monomers, one such monomer consisting essentially of at least one fluorinated vinyl compound and the other monomer consisting essentially of at least one monomer having the structure:



with R₁ being a bifunctional perfluorinated radical having between 2 and 25 carbon atoms, which carbon atoms being at least once interruptable by one or more oxygen atoms and A being one of sulfonyl fluoride and sulfonyl chloride comprising the steps of:

- dispersing the copolymeric perfluorocarbon in a solvating dispersion media selected from a group consisting of Halo-carbon Oil, perfluorooctanoic acid, perfluorodecanoic acid, perfluorotributyl amine, perfluoro-1-methyldecalin, decafluorobiphenyl, pentafluorophenol and pentafluorobenzoic acid, heating the dispersion to a temperature between about 200° C. and 275° C. whereby substantially all perfluorocarbon copolymer solvates;
- applying the admixed dispersions to the substrate;
- irradiating the applied copolymer to initiate cross-linking; and
- removing the dispersion media using at least one of heat and vacuum.

4,391,845

METHOD OF MAKING A MEMBRANE SWITCH

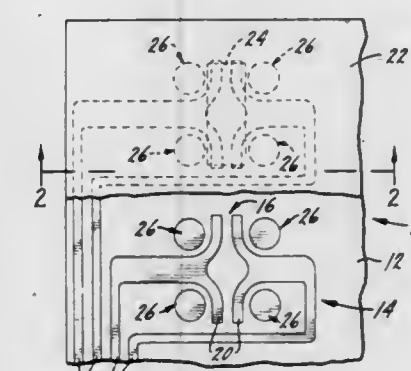
Ronald S. Denley, Woodstock, Ill., assignor to Oak Industries Inc., Rancho Bernardo, Calif.

Filed Nov. 19, 1981, Ser. No. 323,023

Int. Cl.³ H01H 11/06

U.S. Cl. 427—58

4 Claims



1. In a method of making a component of a membrane switch in a multiple-pass screen printing process, the membrane switch being of the type having a substrate, a flexible membrane, a first set of electrical conductors on the substrate, a second set of electrical conductors on the membrane, the conductor sets including a plurality of switch sites in facing relation, and spacer means normally holding the conductor sets

in spaced, non-contacting relation, the spacer means including a plurality of spacer areas on either the membrane or substrate at locations remote from the first and second sets of electrical conductors, the improved method comprising the steps of:

- forming one of the sets of conductors by screening a conductive material on the substrate or membrane in a first screening pass;
- forming a first layer of the spacer areas from the conductive material during the first screening pass;
- forming additional layers of the spacer areas by subsequent screening passes which deposit material only on the spacer areas so that the spacer means thickness is greater than that of the conductors.

4,391,846

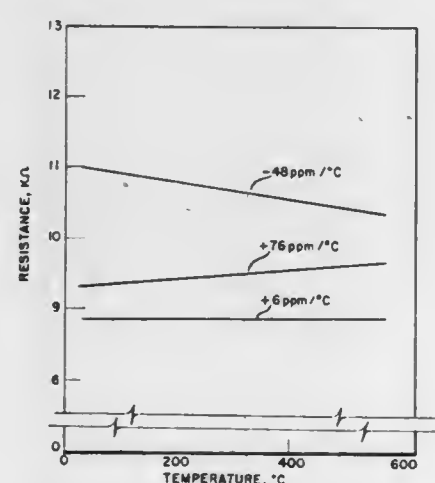
METHOD OF PREPARING HIGH-TEMPERATURE-STABLE THIN-FILM RESISTORS

Leonard S. Raymond, Tucson, Ariz., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 27,439, Apr. 5, 1979, abandoned. This application Nov. 12, 1980, Ser. No. 206,409 Int. Cl.³ C23C 11/08

U.S. Cl. 427-99

9 Claims



1. A chemical vapor deposition method for the preparation of high temperature stable thin film resistors having a predetermined temperature coefficient of resistance (TCR) and bulk resistivity comprising:

- placing a substrate having an electrically insulative surface in a reactor;
- flowing a reducing carrier gas through the reactor at a pressure of about 0.1 to 10 Torr to remove the ambient gas;
- heating the substrate to a controlled temperature between 500° C. and 900° C.;
- introducing a reactant gas into the flowing carrier gas, the reactant gas comprising a mixture of at least one decomposable compound of tungsten and at least one decomposable compound of silicon in a controlled ratio; and
- contacting the flowing reactor and carrier gases with the heated surface of the substrate to decompose the reactant gas to deposit a thin film of tungsten silicide on the substrate, the controlled ratio of tungsten to silicon in the reactant gas being in part determinative of the tungsten to silicon ratio in the thin film which is determinative of the bulk resistivity and TCR of the film, and the controlled temperature of the substrate being determinative of the crystallinity of the film which is determinative of the TCR of the film, whereby for a tungsten to silicon ratio in the range of 1:3 to 3:1 a low substrate temperature will produce an essentially amorphous film having a TCR nearly equal to 0 ppm/°C. and increasing the substrate temperature will produce a more crystalline film having a more positive TCR, and whereby for tungsten to silicon ratios

outside the limits of 1:3 to 3:1 the tungsten to silicon ratio will also affect the value of the TCR.

4,391,847

COATING FOR HALOGEN LAMPS

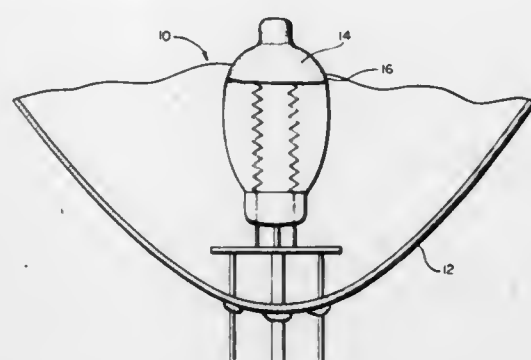
Rollin G. Brown, Chesterfield, Mo., assignor to Edison International, Inc., Rolling Meadows, Ill.

Filed Oct. 19, 1981, Ser. No. 312,614

Int. Cl.³ C03C 17/23; H01K 1/32

U.S. Cl. 427-106

12 Claims



1. A composition for coating the bulb surface of an incandescent lamp, said composition including;

- sodium silicate, said sodium silicate comprising silicon dioxide and sodium oxide in proportion by weight of approximately 2:1 and
- manganese dioxide, said manganese dioxide being finely divided and in proportion by weight with respect to said sodium silicate in the range between approximately 4:1 and approximately 5:1.

4,391,848

METHOD FOR MANUFACTURING MAGNET WIRE

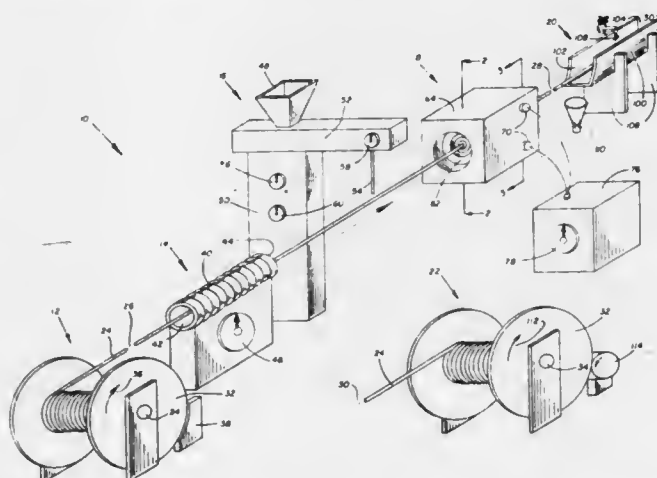
George D. Hilker, Fort Wayne, Ind., assignor to Phelps Dodge Industries, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 931,314, Aug. 7, 1978. This application Apr. 20, 1981, Ser. No. 255,874

Int. Cl.³ B05D 5/12

U.S. Cl. 427-118

25 Claims



1. A method of manufacturing magnet wire or the like in which a flowable but hardenable material is applied to an elongated filament to a desired thickness in a single pass whereby the filament may be drawn, or otherwise formed, coated and spooled in a continuous operation comprising the steps of:

- applying flowable material including less than about 5% weight solvent on said filament;
- passing said filament through a stationary die at a speed of at least about 100 feet per minute, said die having a throat portion, an entrance opening larger than said throat portion interconnected by a converging interior wall thereby defining a die cavity between said throat portion and said

opening and said filament and said wall, said filament in said throat portion and die cavity being spaced from said die;

- at least partially filling said die cavity with said material at a temperature above the melting point thereof;
- centering said filament in said throat portion solely with said material in said die cavity;
- wiping the excess of said flowable material from said filament leaving an essentially concentric coat of said material on said filament of a thickness meeting the requirements of ANSI/NEMA Standards Publication No. MW1000-1977.

4,391,849

METAL OXIDE PATTERNS WITH PLANAR SURFACE

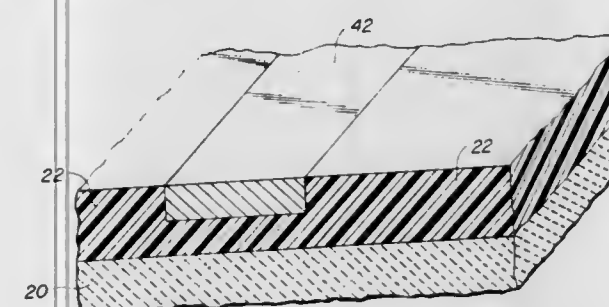
Peter G. Bischoff, Cupertino, Calif., assignor to Memorex Corporation, Santa Clara, Calif.

Filed Apr. 12, 1982, Ser. No. 367,366

Int. Cl.³ H01L 21/308

U.S. Cl. 427-129

7 Claims



1. A method of fabricating a magnetic metallic pattern on a substrate adapted for use with thin film recording heads comprising the steps of:

- forming a continuous, non-conductive, non-magnetic layer of a first material on said substrate;
- forming a continuous layer of a second material on said first material layer, said second material being an anodizable metal selected to be insoluble in an etchant of said first material;
- forming a photoresist layer on said second material layer in a negative pattern with respect to the desired metallic pattern;
- removing the exposed areas of said second material to expose said first material;
- plasma etching the exposed areas of said first material to define a cavity having relatively vertical side walls;
- removing any remaining portions of said second material layer;
- depositing a layer of said second material on said first material layer such that the thickness of said second material on the vertical side walls of said cavity is less than the thickness of the remainder of said second material layer;
- soft anodizing said second material layer to a depth sufficient to anodize the portions of said second material formed on said vertical side walls;
- dissolving the soft anodized portions of said second material such that the portions of said second layer formed on said side walls of said cavity are fully removed thereby electrically isolating the portions of said second material at the bottom of said cavity from the remaining portions of said second material located on the top of said first material;
- hard anodizing the exposed surface of said portions of said second material located on the top of said first material;
- removing the portion of said second material remaining in the bottom of said cavity;
- forming a continuous layer of said magnetic metallic material by sputtering such that said cavity is filled, and a relatively thin layer of said metallic material is defined adjacent the top edges of said cavity;
- removing the upper surface of said magnetic metallic

material to a depth sufficient to expose said second material adjacent the top edges of the cavity; and

- dissolving said second material such that said magnetic metallic material deposited directly thereon is released from said first material whereby a metallic pattern having vertical side walls is formed in said cavity, with the top surface thereof being co-planar with the top surface of the remaining first material.

4,391,850

RECORD MATERIAL CARRYING A COLOR DEVELOPER COMPOSITION

Kenneth J. Shanton, Beaconsfield, England, assignor to The Wiggins Teape Group Limited, England

Filed Jun. 11, 1981, Ser. No. 272,719

Claims priority, application United Kingdom, Jun. 13, 1980, 8019369

Int. Cl.³ B41M 5/16, 5/18, 5/22

U.S. Cl. 427-150

8 Claims

1. A process for the production of record material carrying a particulate amorphous hydrated silica/hydrated alumina composite comprising:

- preparing an aqueous mixture comprising dispersed, precipitated hydrated silica and an aluminum salt;
- precipitating hydrated alumina from the aqueous mixture in the presence of the dispersed, precipitated hydrated silica thereby yielding an amorphous hydrated silica/hydrated alumina composite having a mean alumina content of at least 7.5% on a dry weight basis of the total weight of silica and alumina wherein the hydrated alumina is proportionally greater in the surface region of the composite and wherein the surface area of the composite is less than 300 m²g⁻¹;
- applying a coating composition incorporating said composite to a substrate; and
- drying the coated substrate to produce record material.

4,391,851

PROCESS FOR PRODUCING A MAGNETIC RECORDING MEDIUM

Yasuyuki Yamada; Goro Akashi; Nobuo Tsuji; Yoshito Mukaida, and Masaaki Fujiyama, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 2, 1982, Ser. No. 353,791

Claims priority, application Japan, Mar. 2, 1981, 56-29741

Int. Cl.³ H01F 10/02

U.S. Cl. 427-130

21 Claims

1. A process for producing a magnetic recording medium, comprising the steps of:

- providing a non-magnetic support base;
- coating a surface of said base with a magnetic coating solution comprising:
 - fine ferromagnetic particles;
 - a binder comprising nitrocellulose, polyol and an isocyanate having at least two isocyanato groups; and
 - a solvent;
- evaporating said solvent until said magnetic layer coated on said base is comprised of 0.3 to 3 wt.% of the residual solvent;
- calendering said base; and
- drying the calendered base.

4,391,852

PROCESS FOR PREPARING AN ACCEPTOR COATED SHEET

Mikio Nakamura, and Makoto Miyake, both of Hyogo, Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Tokyo, Japan

Filed Mar. 9, 1982, Ser. No. 356,532

Claims priority, application Japan, Mar. 19, 1981, 56-40893

Int. Cl.³ B41M 3/12

U.S. Cl. 427—150

4 Claims

1. In a process for preparing an acceptor coated sheet used in a pressure sensitive copying system utilizing a color forming reaction on a base sheet between the color former in the form of the oily core material encapsulated in microcapsules and the acceptor in an acceptor layer formed on said base sheet, the improvement which comprises coating said base sheet with a composition comprising at least one acceptor and an aqueous emulsion of an oligomer of a hydrocarbon compound having 3 to 10 carbon atoms in total and selected from the group consisting of liquid polypropylene, polybutadiene, polybutene, polyisobutylene, polyisoprene, polypentadiene, polyhexadiene, oligostyrene, isobutylene-isoprene copolymer, butene-butadiene copolymer, butene-isobutylene copolymer, and mixtures thereof, said oligomer being liquid at the normal temperature.

4,391,853

METHODS OF MAKING ADHESIVE ARTICLES AND RESULTING PRODUCTS

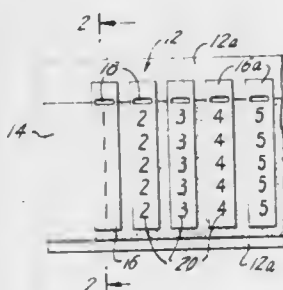
David W. Pointon, Sparks, Nev., assignor to The Data Corporation, Guttenberg, N.J.

Filed Dec. 10, 1979, Ser. No. 101,782

Int. Cl.³ B41M 3/12; B44C 1/16

U.S. Cl. 427—152

48 Claims



1. A method of producing an adhesive product including the steps of providing plural layers on a release surface of a carrier sheet, one of said layers being initially a non-tacky precursor of a pressure-sensitive adhesive, and another of said layers being in contact with the adhesive precursor layer in a common area extending over only part of said release surface and forming a non-tacky coherent polymeric film containing a migratory tackifier for the adhesive precursor layer, said tackifier being initially present in an amount sufficient to convert the adhesive precursor layer into a tacky pressure-sensitive adhesive layer in situ by migration to equilibrium of such amount of the tackifier into so much of the adhesive precursor layer as occupies said common area, the release surface of the carrier sheet being of the kind which, when a pressure-sensitive adhesive layer is formed thereon, forms a bond thereto that is readily peelable without the assistance of solvents or heat, and which, when a coherent polymeric film is formed thereon, forms only a weak bond thereto that is readily releasable without the assistance of heat or solvents.

4,391,854

METHOD OF MAKING A BEARING MATERIAL CONTAINING AN ALUMINUM BASE ALLOY

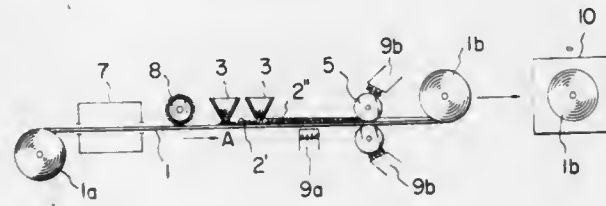
Yoshitsugu Kanda; Minoru Kurikawa; Toru Morimoto, and Kiyoshi Nakanishi, all of Narashino, Japan, assignors to N.D.C. Co., Ltd., Chiba, Japan

Continuation of Ser. No. 147,654, May 7, 1980, abandoned. This application Oct. 16, 1981, Ser. No. 312,026

Int. Cl.³ B05D 3/12, 3/02

U.S. Cl. 427—192

2 Claims



1. A method of making an aluminum base alloy bearing material, comprising the steps of:
 - (a) washing one surface of a continuously fed steel strip or stainless steel strip;
 - (b) grinding the resulting washed surface of the strip;
 - (c) spreading on the resulting ground surface of the strip an aluminum base alloy powder containing from 6.8 to 9.2 wt % lead and from 0.8 to 1.5 wt % tin, to form an aluminum base alloy powder on the surface of the strip;
 - (d) preheating the strip having the aluminum base alloy powder thereon by the application of heat to the other surface of the strip to a temperature in the range of from 200° C. to 400° C., in an air atmosphere, without directly heating the aluminum base alloy;
 - (e) hot-rolling the preheated strip and the aluminum base alloy in the air atmosphere between a pair of heated rolls, each heated up to from 150° C. to 400° C. over the entire area of the surface thereof, to thereby pressure-bond the aluminum base alloy powder to the strip to form thereon a bearing surface layer;
 - (f) taking up the resulting bearing steel strip into a coil; and
 - (g) heating the coil in a furnace to sinter the coating at a temperature of from 250° C. to 500° C.

4,391,855

CORROSION RESISTANT COATING AND METHOD FOR COATING METAL SUBSTRATE

Thurlow Geeck, Hillsdale, Mich., assignor to Depor Industries, Troy, Mich.

Continuation of Ser. No. 180,900, Aug. 25, 1980, abandoned.

This application Apr. 29, 1982, Ser. No. 372,980

Int. Cl.³ B05D 3/02

U.S. Cl. 427—383.7

19 Claims

11. A method of protecting a metal substrate from corrosion comprising: applying to at least a portion of the surface of the substrate a thin and wet film of a liquid composition comprising powdered metal selected from the group consisting essentially of zinc, cadmium, stainless steel, aluminum, and alloys and blends thereof; said powdered metal having an average particle size not greater than about 40 microns and a maximum particle size not greater than about 100 microns; a resin system at least 80% by weight consisting essentially of a thermoplastic linear phenoxy resin having a high molecular weight in the range of about 3,000 to 60,000 and essentially no highly reactive terminal epoxy groups, the balance of said resin system consisting essentially of formaldehyde, melamine, phenolic, and triazine resins and blends thereof; the quantity of said resin system being about 10% to 525% by weight of said powdered metal; active organic solvent selected from the group consisting essentially of acetone, cellosolve acetate, methyl ethyl ketone, methyl isobutyl ketone, dimethylformamide, and blends thereof; inactive organic solvent selected from the group consisting essentially of aromatic hydrocarbons, alcohols, and blends thereof in a quantity equal to about 0.1 to 0.4

by weight of said active organic solvent; the total quantity of said organic solvents being sufficient for the composition to have a viscosity in the range of about 20 to 280 seconds with a Ford No. 4 cup; and heating the thin wet film to an elevated temperature for a sufficient period of time to evaporate the solvents and thereby tenaciously adhere the film to the substrate as a coating protecting the substrate from corrosion without heating any portion of the substrate to a temperature greater than 450° F.

4,391,856

ADHESIVE APPLICATOR AND METHOD FOR CIGARETTE-TO-FILTER ADHESION AND SIMILAR APPLICATIONS

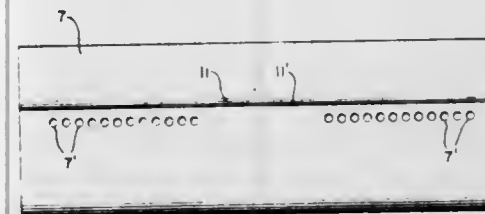
Donald B. McIntyre, and Frederic S. McIntyre, both of Wellesley, Mass., assignors to Acumeter Laboratories, Inc., Marlborough, Mass.

Division of Ser. No. 69,972, Aug. 27, 1979, abandoned. This application Oct. 20, 1980, Ser. No. 198,616

Int. Cl.³ B05D 1/26

U.S. Cl. 427—358

1 Claim



1. A method of fluid adhesive application, that comprises, depositing at a predetermined region a plurality of inline closely transversely spaced, non-overlapping parallel beads of such adhesive upon a web while drawing the web longitudinally through said region; deflecting the parallel-bead-coated web upward at an acute angle over an edge just beyond the region of bead deposition; and controlling the size of the beads and degree of upward deflection relative to the speed of drawing of the web to shear the beads at said edge and merge the same into a uniform, continuous, full adhesive coating transversely across said web.

4,391,857

AQUEOUS DISPERSION TYPE COATING COMPOSITIONS WITH AN IMPROVED VIBRATION-DAMPING CHARACTERISTIC

Koichi Saito, and Osamu Ohara, both of Kurashiki, Japan, assignors to Kuraray Company, Limited, Kurashiki, Japan

Continuation of Ser. No. 178,592, Aug. 15, 1980, Pat. No. 4,325,858. This application Sep. 24, 1981, Ser. No. 305,224

Claims priority, application Japan, Aug. 16, 1979, 54-104708 The portion of the term of this patent subsequent to Apr. 20, 1999, has been disclaimed.

Int. Cl.³ B05D 3/02

U.S. Cl. 427—385.5

6 Claims

1. A method of damping the vibration of a structural member comprising (1) coating a surface of said structural member with a layer of an aqueous dispersion comprising, as essential components thereof, (a) a polyvinyl acetate emulsion, (b) an ethylene polymer in finely divided particulate or emulsion state, and (c) a flaky inorganic filler, and (2) then drying the coated layer.

4,391,858

COATING PROCESS

Wolfgang Batzill, Münster, Fed. Rep. of Germany, assignor to Glasurit America, Inc., Detroit, Mich.

Filed Nov. 20, 1981, Ser. No. 323,367

Int. Cl.³ B05D 1/36

U.S. Cl. 427—407.1

13 Claims

1. A process for the production of a multilayer protective

and/or decorative coating upon the surface of a substrate, which comprises the steps of:

- (1) applying to the surface a basecoat composition comprising:
 - (A) a film-forming polymer;
 - (B) a volatile organic liquid diluent in which the polymer is dissolved;
 - (C) polymer microparticles of diameter 0.01 to 10 microns which are insoluble in the solution of the polymer (A) in the liquid diluent (B) and are stably dispersed by steric stabilization therein in a nonfloculated state in an amount of from 3% to 8% of the aggregate weight of said film-forming polymer of (A) and said microparticles;
 - (D) pigment particles also dispersed in the solution of the film-forming polymer in the liquid diluent;
- (2) forming a polymer film upon the surface from the composition applied in step (1);
- (3) applying to the basecoat film so obtained a transparent topcoat composition comprising:
 - (E) a film-forming polymer; and
 - (F) a volatile carrier liquid for the polymer; and
- (4) forming a second polymer film upon the basecoat film from the composition applied in step (1).

4,391,859

PROCESS AND A COMPOSITION FOR THE INSULATION OF SURFACES, AND PRODUCT HEREBY OBTAINED

Ernst R. Fogelberg, Vällingby, Sweden, assignor to AB Bonnierföretagen, Stockholm, Sweden

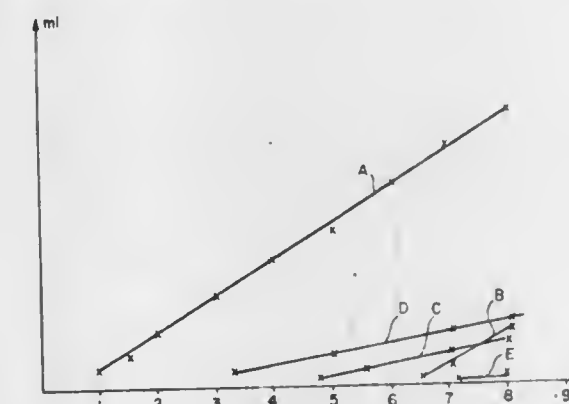
Continuation of Ser. No. 242,688, Mar. 11, 1981, which is a continuation of Ser. No. 800,200, May 25, 1977, which is a continuation of Ser. No. 593,661, Jul. 7, 1975, abandoned. This application Dec. 21, 1981, Ser. No. 332,679

Claims priority, application Sweden, Jul. 10, 1974, 7409097

Int. Cl.³ B05D 1/02, 1/12

U.S. Cl. 427—421

8 Claims



1. A process for minimizing accumulation of moisture on a cold surface exposed to humidity conditions which tend to cause condensation on said surface, which comprises feeding to the nozzle of a spray head a premixed sprayable coating composition containing a binder dispersed in a liquid vehicle having distributed therein water-absorptive granules of heat-expanded perlite having a bulk density of about 60–70 kg/m³, said composition being characterized in that the water-absorptive character of said granules is not occluded, in that said binder is either soluble in or physically-dispersible in said liquid vehicle, and in that it dries to an adherent, water-absorptive, insulating coating, and spray-coating said surface for the purpose of minimizing the collection of condensation on said surface with a thin layer of said composition to form said adherent water-absorptive, insulating coating, said granules having a particle size of about 0.01 to about 1.5 mm, being pretreated with a wetting agent, and constituting from 5 to 20 percent by weight of the composition.

4,391,860

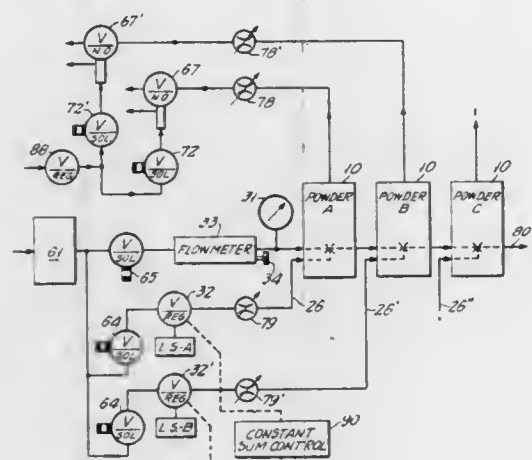
DEVICE FOR THE CONTROLLED FEEDING OF POWDER MATERIAL

Anthony J. Rotolico, Hauppauge; Eduardo Romero, Coram, and John E. Lyons, Levittown, all of N.Y., assignors to Eutectic Corporation, Flushing, N.Y.

Continuation-in-part of Ser. No. 226,756, Jan. 21, 1981. This application Feb. 23, 1981, Ser. No. 237,092

Int. Cl.³ B05D 1/08; B05B 7/14, 7/20

U.S. Cl. 427-423



1. The method of supplying powder to a powder-deposition torch, which comprises selecting two powder-fluidizing systems each having the ability to selectively control the rate of its powder assimilation in a flow of carrier gas therethrough, supplying different gas-fluidizable powders to the respective systems, increasing the rate of powder assimilation in carrier-gas flow through one of said systems while decreasing the rate of powder assimilation in the carrier-gas flow through the other of said systems, combining the carrier-gas flows after powder-assimilation therein, and delivering the combined flow to the torch, the same carrier-gas flow being passed through the respective systems in succession, whereby the combining step occurs at passage of the carrier-gas flow through the second system.

4,391,861

PREFORM OF A THERMOPLASTIC

Claes T. Nilsson, Löddeköpinge, Sweden, assignor to PLM AB, Malmo, Sweden

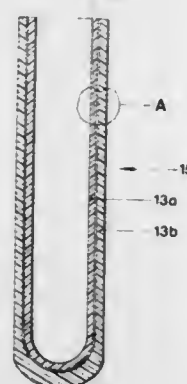
Filed May 18, 1981, Ser. No. 264,424

Claims priority, application Sweden, May 29, 1980, 8004003; Dec. 10, 1980, 8008653

Int. Cl.³ B65D 11/16; B29F 1/10; B32B 9/04

U.S. Cl. 428-35

10 Claims



1. An expandable preform assembly capable of being blow molded to a container, said assembly comprising inner and outer distinct, interfitted part-preforms of tubular shape with opposite open and closed ends, each of said part-preforms being constituted of a thermoplastic material capable upon molding of being joined to the other part-preform to form a container having inner and outer layers respectively conform-

ing to said part-preforms, at least one of said interfitted part-preforms being axially stretched, prior to molding, to provide crystallinity obtained by monoaxial orientation.

4,391,862

PASTEURIZABLE THERMOPLASTIC FILM AND RECEPTACLE THEREFROM

Norman D. Bornstein, Spartanburg, and Johnnie J. Walters, Greenville, both of S.C., assignors to W. R. Grace & Co., Cryovac Division, New York, N.Y.

Continuation-in-part of Ser. No. 279,904, Jul. 2, 1981, abandoned. This application Sep. 15, 1981, Ser. No. 302,333

Int. Cl.³ B65D 85/72, 65/40; B32B 27/32

U.S. Cl. 428-35

15 Claims

1. A multi-layer, heat shrinkable, thermoplastic packaging film which will produce heat seals having improved seal strength immediately after initially being heat sealed to itself comprising:

- a first or surface layer consisting essentially of a blend wherein one constituent of the blend is selected from the group consisting of propylene homopolymers and copolymers and the other constituent of the blend is selected from the group consisting of butene-1 homopolymers and copolymers;
- a second layer comprising a polymer selected from the group consisting of ethylene homopolymers and copolymers, said layer being heat shrinkable;
- a third or low gas transmission layer comprising a polymer selected from the group consisting of vinylidene chloride copolymers and hydrolyzed ethylene-vinyl acetate copolymers; and,
- a fourth or outer surface layer comprising a blend selected from the group of blends as specified for the first layer.

8. A process for making a multi-layer, heat shrinkable, thermoplastic packaging film which will produce heat seals having improved seal strength immediately after being heat sealed to itself comprising the steps of:

- coextruding first and second polymeric layers, the first layer consisting essentially of a blend selected from the group consisting of (1) propylene homopolymers and copolymers and (2) butene-1 polymers and copolymers and the second layer comprising a polymer selected from the group consisting of ethylene polymers and copolymers;
- irradiating said coextruded layers to a dosage level of at least 2 MR; and,
- after the irradiation step has been completed, joining a third layer of polymeric material to the second layer and a fourth layer to the third layer.

4,391,863

PEEL RESISTANT COEXTRUDED SHEET

Laszlo J. Bonis, Swampscott, Mass., assignor to Composite Container Corporation, Medford, Mass.

Filed Oct. 23, 1981, Ser. No. 314,120

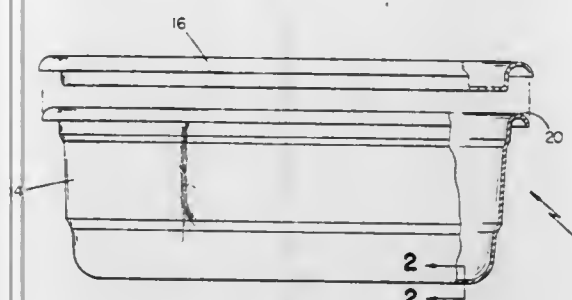
Int. Cl.³ B65D 1/34

U.S. Cl. 428-35

11 Claims

1. A coextruded sheet comprising
 - a layer made of acrylonitrile-methyl acrylate copolymer to provide a gas barrier, rigidity, thermoformability, and printability,
 - a structural layer made of polyolefin to provide a moisture barrier and chemical resistance, and
 - an intermediate tie layer made of a radial butadiene/styrene teleblock copolymer having between 60 and 80% butadiene and between 20 and 40% styrene, whereby said tie layer provides a strong bond between said

acrylonitrile methyl-acrylate layer and said polyolefin layer notwithstanding the difference in shrinkage between



said acrylonitrile methyl-acrylate layer and said polyolefin layer.

4,391,864

MAGNETIC RECORDING MEDIUM

Akihiko Hosaka, Kiyotaka Okuyama, and Yukihiro Isobe, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

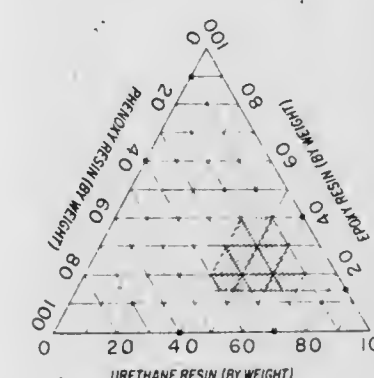
Filed Dec. 9, 1980, Ser. No. 214,677

Claims priority, application Japan, Mar. 21, 1980, 55-35947

Int. Cl.³ G11B 5/70

U.S. Cl. 428-64

5 Claims



1. A magnetic recording medium having a substrate coated with a magnetic layer which comprises a binder and a magnetic powder, said binder in the magnetic layer comprising 40 to 70 wt. % of a urethane resin, 15 to 40 wt. % of a thermosetting epoxy resin characterized by its content of epoxide groups, and 10 to 40 wt. % of a thermoplastic phenoxy resin characterized by its content of polyhydroxyether groups.

4,391,865

THERMAL DRAPERY CONSTRUCTION

Lillie B. Constance, 753 East St., Woodland, Calif. 95695

Filed Oct. 5, 1981, Ser. No. 308,626

Int. Cl.³ B32B 15/14, 5/22

U.S. Cl. 428-74

9 Claims



1. A thermal drapery construction suitable for use in making hung draperies comprising:

a decorative flexible drapery fabric; and
a flexible liner assembly means, attached to said drapery fabric, for thermally lining said drapery fabric comprising:
a first fabric panel having a first metalized surface facing an inside direction and a second surface facing an outside direction;
a second fabric panel disposed adjacent the first panel and having a first metalized surface facing the outside direction and a second surface facing the inside direction and the second surface of the first panel;
a third relatively thick, low density flexible panel situated between the second surfaces of the first and second panels, said third panel having a low density to form a dead air space between said first and second panels;
said first, second and third panels having aligned outer edges; and
means for binding the aligned outer edges of said first, second and third panels.

4,391,866

CUT PILE FABRIC WITH TEXTURIZED LOOPS

Robert C. Pickens, Jr., Gurnee; Reese R. Thomas, Libertyville, and Ronald Somerville, Gurnee, all of Ill., assignors to Ozite Corporation, Libertyville, Ill.

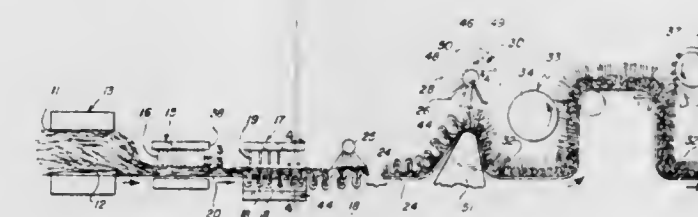
Continuation of Ser. No. 159,470, Jun. 16, 1980, abandoned.

This application Dec. 9, 1981, Ser. No. 328,970

Int. Cl.³ B32B 3/02, 33/00

U.S. Cl. 428-92

12 Claims



1. A cut pile fabric comprising:
a needled batt of non-woven staple fibers, texturized loops of staple fibers formed from the staple fibers of said batt extend outwardly from one surface of the batt, the texturized loops of fibers are comprised of a plurality of clusters of loops of fibers with each cluster containing a plurality of different sized loops of fibers, backing means on another surface of said batt for securing fibers of said texturized loops to the fibers of said batt, a substantial portion of the fibers of said texturized loops being cut to form cut pile, and said cut pile being polished and sheared to provide a fabric with a plush cut pile.

4,391,867

POLYVINYL BUTYRAL INK FORMULATION

Burton N. Derick, Mineralwells, W. Va.; Robert E. Moynihan, Lowell, Ohio, and Jon W. Wolfe, Matthews, N.C., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Division of Ser. No. 861,568, Dec. 16, 1977, Pat. No. 4,230,775.

This application Feb. 8, 1980, Ser. No. 119,790

Int. Cl.³ B32B 3/00, 27/14

U.S. Cl. 428-195

2 Claims

1. In a polyvinyl butyral sheet printed with an ink comprising solvent, dye and unplasticized polyvinyl butyral, the improvement wherein the unplasticized polyvinyl butyral in the ink has a hydroxyl content about from 5 to 50 percent higher than the hydroxyl content of the polyvinyl butyral sheeting.

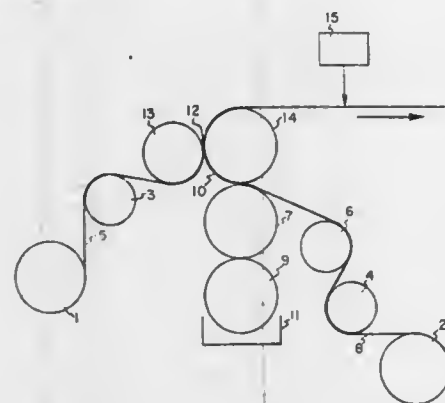
4,391,868

LAMINATION OF POLYVINYL CHLORIDE CAST FILMS

Harold J. McCarthy, Jr., Mohrsville, Pa., assignor to The Good-year Tire & Rubber Company, Akron, Ohio
 Filed Oct. 13, 1981, Ser. No. 310,570
 Int. Cl.³ B32B 7/02, 27/30

U.S. Cl. 428—215

3 Claims U.S. Cl. 428—219



1. A laminated rigid vinyl chloride homopolymer comprising two solution cast films each having a thickness of 0.00762 centimeter and being adhered together with an actinic light activatable adhesive to give a thickness of essentially 0.01524 centimeter.

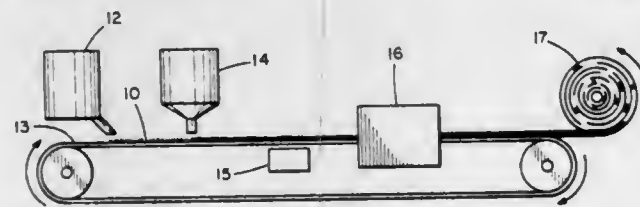
4,391,869

NONWOVEN FIBROUS PRODUCT

John R. Cook, Downers Grove, and William A. James, Tinley Park, both of Ill., assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.
 Filed Oct. 6, 1980, Ser. No. 194,511
 Int. Cl.³ B32B 7/02

U.S. Cl. 428—218

6 Claims



1. A low density, resin-bonded, nonwoven fabric consisting essentially of wet resilient, dry resilient, synthetic, staple fibers, the fabric having a density less than about 0.06 gm/cc at 0.16 lb/sq. in. load, and a weight less than about 3 oz/sq. yd.

4,391,870

SPRAY-SUPPRESSION DEVICE

Earle R. Ellis, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
 Filed Apr. 5, 1982, Ser. No. 365,342
 Int. Cl.³ B32B 7/02

U.S. Cl. 428—218

10 Claims

1. A laminated spray-suppression device comprising a nonwoven polyamide fabric core layer encapsulated on each side with an adhesive layer, a backing layer of high density polyethylene fusion-bonded to one of the adhesive layers and a grass-like, three-dimensional layer of low density polyethylene or polypropylene fusion-bonded to the other adhesive layer.

4,391,871

MEAT PACKAGING SHROUD

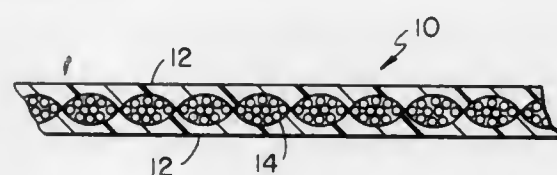
Jack S. Rogers, Spartanburg, and Kenneth H. Sanders, Jonesville, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Dec. 9, 1982, Ser. No. 448,306

Int. Cl.³ B32B 7/00

3 Claims U.S. Cl. 428—219

7 Claims



1. A fabric particularly useful as a wrapping for foodstuffs, such as meat comprising: a layer of warp knit, weft inserted, synthetic fabric and a layer of wax coated to both sides of said layer, said warp knit fabric having a textured polyester continuous filament weft inserted yarn and a continuous filament chain stitch.

4,391,872

HOLLOW WATER-ABSORBING POLYESTER FILAMENT TEXTILE MATERIAL

Togi Suzuki, Kiyokazu Tsunawaki, both of Matsuyama; Osamu Wada, Takatsuki, and Akio Kimura, Ashiya, all of Japan, assignors to Teijin, Ltd., Osaka, Japan

Division of Ser. No. 171,335, Jul. 23, 1980, Pat. No. 4,361,617.

This application Jun. 11, 1982, Ser. No. 387,495

Claims priority, application Japan, Jul. 26, 1979, 54-94189; Sep. 11, 1979, 54-115730

Int. Cl.³ D03D 3/00

U.S. Cl. 428—224

24 Claims

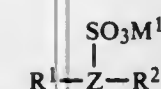


1. A hollow water-absorbing polyester filament textile material, comprising hollow polyester filaments each having at least one hollow extending in parallel to the longitudinal axis of said filament, and a number of caves distributed in at least a portion of the body of said filament and consisting of a number of fine outside concaves formed in the peripheral surface of said filament, a number of fine pores formed within the body of said filament, a number of fine inside concaves formed in the hollow surface of said filament, and a number of fine channels through which said pores are connected to each other, and to said outside concaves and inside concaves, said outside and inside concaves and said pores extending approximately in parallel to the longitudinal axis of said filament, which textile material has been prepared by the process comprising the steps of:

(A) preparing core-in-sheath type composite filaments in each of which (1) a sheath constituent comprises a blend of (a) a principal polyester component comprising an acid moiety comprising at least one aromatic dicarboxylic acid or its ester-forming derivative and a glycol moiety comprising at least one alkylene glycol having 2 to 6 carbon atoms or its ester-forming derivative, with (b) a cave-

forming agent which comprises at least one member selected from the group consisting of

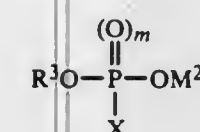
(i) copolyesters which comprise a glycol compound moiety, and an aromatic dicarboxylic acid compound moiety and an additional divalent organic sulfonic acid compound moiety of the formula (II):



(II)

wherein Z represents a member selected from the group consisting of trivalent aromatic hydrocarbon radicals and trivalent aliphatic hydrocarbon radicals, M¹ represents a member selected from the group consisting of hydrogen and metal atoms, R¹ represents an ester-forming organic radical, and R² represents a member selected from the group consisting of a hydrogen atom and ester-forming organic radicals;

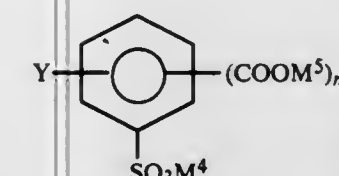
(ii) phosphorus compounds of the formula (III):



(III)

wherein R³ represents a monovalent organic radical, X represents a member selected from the group consisting of —OR⁴, wherein R⁴ represents a hydrogen atom or a monovalent organic radical, —OM³, wherein M³ represents a metal atom, and a monovalent organic radical, M² represents a metal atom, and m represents zero or 1, and;

(iii) aromatic carboxy-sulfonic acid compounds of the formula (IV):



(IV)

wherein Y represents a member selected from the group consisting of a hydrogen atom and ester-forming organic radicals, M⁴ represents a metal atom, M⁵ represents a metal atom, and n represents an integer of 1 or 2, and (2) the core constituent consists of a polymeric material having a higher degree of alkali solubility than that of said sheath constituent;

(B) converting said core-in-sheath type composite filaments into a desired type of textile material; and

(C) removing at least a portion of said cave-forming agent, the entire core constituent, and a portion of said principal polyester component from said core-in-sheath type composite filaments in said textile material by treating it with an alkali aqueous solution.

4,391,873

HIGH TEMPERATURE THERMAL INSULATING COMPOSITE

Gilbert W. Brassell, Golden, Colo., and John Lewis, Jr., Oak Ridge, Tenn., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.
 Filed Jan. 19, 1982, Ser. No. 340,623

Int. Cl.³ B29C 25/00; B32B 5/12; C04B 29/00

U.S. Cl. 428—297

7 Claims

1. A composite comprising:

a first region extending inwardly from a first surface of said composite and comprising a carbonized polymeric binder,

fibers formed of a refractory material, and a predetermined weight proportion of graphite flakes; and a second region extending from said first region toward a second surface of said composite opposed to said first surface and comprising a carbonized polymeric binder, fibers formed of a refractory material, and graphite flakes the weight proportion of which gradually decreases as distance from said first surface increases.

7. A method for forming a thermal insulating composite, comprising:

depositing on a support a slurry comprising a mixture of a polymeric binder precursor, refractory fibers, and graphite flakes, the weight proportion of said graphite flakes in said slurry being varied as the slurry is deposited on said support;

polymerizing said polymeric binder precursor in said slurry deposited on said support; and

carbonizing the polymerized polymeric binder.

4,391,874

MAGNETIC RECORDING MEDIUM

Nobuyuki Yamamoto, Kyoichi Naruo, and Tsutomu Okita, all of Fujinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 19, 1982, Ser. No. 350,510

Claims priority, application Japan, Feb. 19, 1981, 56-23520

Int. Cl.³ B32B 15/08; H01F 10/00

U.S. Cl. 428—336

12 Claims

1. A magnetic recording medium, comprising:

a non-magnetic support base;

a thin magnetic metal film formed on a surface of said non-magnetic support base; and

a layer of an isocyanic acid ester having the formula RN=C=O, wherein R is an alkyl group.

4,391,875

ASBESTOS PRODUCTS OF IMPROVED PHYSICAL PROPERTIES HAVING METAL OXIDES ON THE SURFACES THEREOF

Byeong H. Jo, Horsham, Pa., and Jerry Zucker, Charleston, S.C., assignors to RM Industrial Products Company, Inc., North Charleston, S.C.

Filed Dec. 11, 1980, Ser. No. 215,508

Int. Cl.³ C03B 37/00; C04B 43/04; D21H 3/66, 5/18

U.S. Cl. 428—378

10 Claims

1. An improved asbestos product, said product consisting essentially of asbestos fiber and a metal oxide coated on said fiber and in surface contact therewith, said metal oxide being selected from the group consisting of iron oxide and chromium oxide.

5. A method of improving the properties of products made from asbestos comprising the steps of dividing the asbestos into fibers, and providing a coating of a metal oxide directly onto the surface of said fibers, said metal oxide being selected from the group consisting of chromium oxide and iron oxide.

4,391,876

AQUEOUS PEROXIDE EMULSION FOR USE WITH GLASS FIBERS

Albert E. Tamosauskas, Pittsburgh, and Chester S. Temple, McKees Rocks, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Apr. 2, 1980, Ser. No. 136,645

Int. Cl.³ B32B 9/00; C08K 3/40

U.S. Cl. 428—392

15 Claims

1. An aqueous emulsion of an organic peroxide that is a liquid at about 20° C. and is insoluble or has limited solubility in water, wherein the emulsion has improved stability and dilutability and has an average particle size of around 1.5 microns or less, consisting essentially of:

(a) at least 1 to about 60 percent by weight of said liquid organic peroxide selected from the group consisting of

hydroperoxides, α -oxy and α -peroxy hydroperoxides, dialkyl peroxides, aldehyde and ketone peroxides, diacyl peroxides, peroxyesters, peroxy acids, peroxydicarbonates, peroxymonocarbonate and perketals,

- (b) about 1 to about 15 weight percent of a nonionic emulsifier blend having three emulsifiers selected from the group consisting of polyalkylene glycol ethers, dialkylaryl-polyether alcohols, and polyoxypropylene-polyoxyethylene condensates, phenoxypropoxyethanols, polyethylene derivatives of fatty acids, partial esters of sorbitol anhydrides; ethoxylated alcohols, fatty acids, fatty esters and oils, alkylphenols; glycerol esters, sucrose esters and derivatives, monoglycerides and derivatives, and sorbitan derivatives, polyethoxy phenols, alkyl polyether alcohols, ethylene oxide alkylated phenol condensation products, and mixtures thereof wherein one emulsifier has an HLB in the range of about 6 to about 12 and one emulsifier has an HLB in the range of about 9 to 15 and one emulsifier has an HLB in the range of about 12 to about 20 each in proportions to give an overall HLB level for the emulsifier system in the range of about 9 to about 20, and
- (c) the remaining weight percent of the emulsion is water.

4,391,877

MAGNETIC RECORDING MEDIUM

Fujio Shibata, Komoro; Hiroshi Kawahara, Saku, and Hitoshi Azegami, Nagano, all of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1982, Ser. No. 359,421

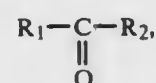
Claims priority, application Japan, Mar. 23, 1981, 56-40464

Int. Cl.³ H01F 10/02

U.S. Cl. 428-457

4 Claims

1. A magnetic recording medium including a substrate having a magnetic coating layer thereon, said magnetic coating layer comprising ferromagnetic particles dispersed in a binder vehicle, characterized in that the magnetic coating layer contains one or more ketones selected from the compounds expressed by the general formula



wherein R_1 and R_2 represent saturated or unsaturated chain aliphatic radicals, both or either of which have 11 to 22 carbon atoms and may contain hydroxyl, carboxyl or amino groups.

4,391,878

WET STRENGTH RESINS

John E. Drach, Montgomery County, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

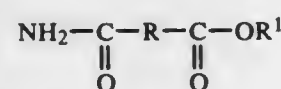
Filed Jul. 24, 1981, Ser. No. 286,078

Int. Cl.³ B32B 9/00; C08F 222/02, 222/38

U.S. Cl. 428-479.6

10 Claims

1. A cellulosic fibrous web wherein the cellulose fibers are chemically modified by a cross-linking reaction with a wet strength resin comprising a water soluble copolymer comprised of (A) a half-acid, half-amide corresponding to the following general formula:



wherein R^1 is H and R is a hydrocarbon chain containing a double bond which has radically polymerized with (B) at least one other ethylenically unsaturated monomer.

4,391,879

GRAVURE PRINTING BASE CYLINDER, AND METHOD OF ITS MANUFACTURE

Peter Fabian, Freigericht, Fed. Rep. of Germany, and Theo Muller, Wuustwezel, Belgium, assignors to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany

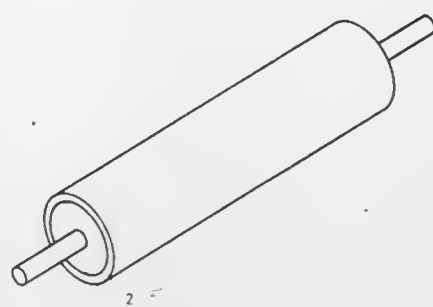
Filed Dec. 2, 1981, Ser. No. 326,506

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1980, 3046757

Int. Cl.³ B41F 13/08, 35/00

U.S. Cl. 428-551

15 Claims



1. Printing base cylinder, for plating in an electrolyte bath, having
- a cylindrical body (1);
- and a cover layer (2) thereon which is electrically conductive, electrochemically active, and inert with respect to the plating electrolyte,
- wherein, in accordance with the invention, the cover layer (2) comprises
- a matrix formed by an oxide of a valve metal;
- and particles homogeneously distributed in said matrix comprising at least one of the materials selected from the group consisting of:
- a noble metal, iridium; ruthenium.
11. Method of making a gravure printing base cylinder for use in an electrolyte bath having
- a cylinder body (1) and a cover layer (2) applied thereover, comprising the steps of
- settling electrically conductive particles on a film-forming or valve metal oxide,
- which particles are inert with respect to the electrolyte of the electrolyte bath, to form a cover coating layer substance;
- and, after forming said substance, applying said substance in powder or granular form, by thermal spraying on the cylindrical body (1) to thereby form said cover layer (2) thereon.

4,391,880

RECOVERY OF HEAT AND VAPORIZED MATERIAL FROM A REACTION EFFLUENT

Utah Tsao, Jersey City, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Continuation-in-part of Ser. No. 48,147, Jun. 13, 1979, Pat. No. 4,243,650, which is a continuation-in-part of Ser. No. 870,351, Jan. 18, 1978, abandoned, and a continuation-in-part of Ser. No. 25,278, Mar. 29, 1979, abandoned. This application Jan. 2, 1981, Ser. No. 222,081

The portion of the term of this patent subsequent to Jan. 6, 1998, has been disclaimed.

Int. Cl.³ B01D 5/00; C07C 120/14

U.S. Cl. 423-659

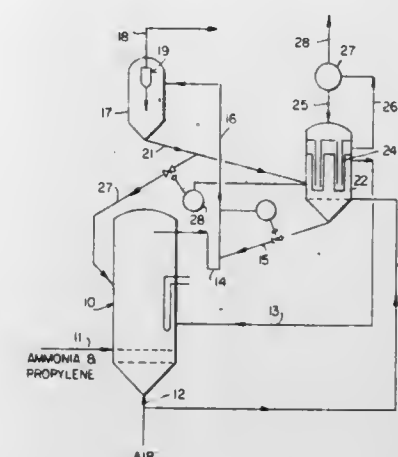
4 Claims

1. A process for cooling a gaseous reaction effluent containing volatilized catalyst and withdrawn from a reaction system employing a solid catalyst, comprising:
- contacting the gaseous reaction effluent with solid catalyst particles by suspending the solid catalyst particles in flowing gaseous reaction effluent to provide dilute phase transport contact, said solid catalyst particles being at a temperature at which vaporized catalyst condenses from the gas onto the solid catalyst particles, said solid catalyst parti-

cles being heated and said gaseous reaction effluent being cooled by said contact;

separating gaseous reaction effluent from the solid catalyst particles;

cooling separated solid catalyst particles in a fluidized bed, said fluidized bed being fluidized by a fluidizing gas, said



particles being cooled in the fluidized bed to a temperature at which vaporized salt condenses onto the solid particles, said fluidizing gas being a feed gas to the reaction system and being introduced into the reaction system subsequent to use thereof as the fluidizing gas; and

employing cooled solid catalyst particles for contacting the gaseous reaction effluent.

4,391,881

PHOTO GALVANIC CELL

Gerard Folcher, Orsay, and Jacques Paris, Bures sur Yvette, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

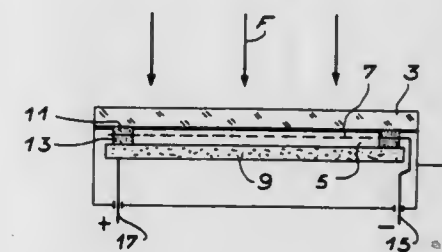
Filed Jun. 17, 1981, Ser. No. 274,462

Claims priority, application France, Jun. 18, 1980, 80 13543

Int. Cl.³ H01M 6/36

U.S. Cl. 429-111

8 Claims



1. A photogalvanic cell comprising two electrodes arranged in a liquid system comprising a first photosensitive constituent, consisting of the uranyl ion UO_2^{2+} and a second constituent A_{red} able to reduce the uranyl ion UO_2^{2+} when the latter is brought into an excited state UO_2^{2+*} by the absorption of a photon and which can be transformed into an oxidized type A_{ox} , the second constituent A_{red} being such that the redox potential of A_{red}/A_{ox} is below 2.6 V relative to the standard hydrogen electrode (SHE) wherein the second constituent is a cation having a redox potential higher than 1 V relative to the standard hydrogen electrode or an anion selected from the group consisting of NO_3^- and SCN^- , and the liquid system comprises a solvent inert with respect to UO_2^{2+} and A_{red} .

4,391,882

BATTERY CONNECTING DEVICE

Shigeto Saruwatari, Chigasaki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

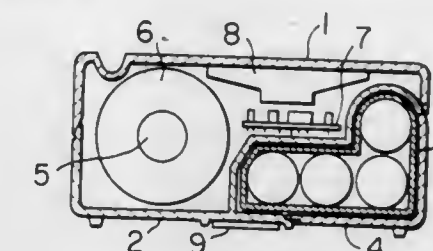
Filed Oct. 5, 1981, Ser. No. 308,940

Claims priority, application Japan, Oct. 8, 1980, 55/144521[U]

Int. Cl.³ H01M 2/20

U.S. Cl. 429-96

4 Claims



1. A battery connecting device comprising: at least a connection terminal constituted by a resilient strip-like member having one end soldered to a lead and the other end bent to form a retainer tab, the intermediate portion of said strip-like member being bent resiliently to form a contact portion of said connecting terminal; and a wall defining a battery accommodating space and having a first slit adapted to permit at least said retainer tab and said contact portion of said connection terminal to pass therethrough and a second slit adapted to permit at least said retainer tab to pass therethrough, said connection terminal being directly attached to said wall through said first and second slits in such a manner that said contact portion appears at the same side of said wall as the battery while said retainer tab and said end soldered to said lead appear at the opposite side of said wall to said battery and that a reactional force is generated to press said contact portion of said connecting terminal toward said battery.

4,391,883

HOUSING ARRANGEMENT WITH BREAKAWAY BATTERY ACCESS DOOR

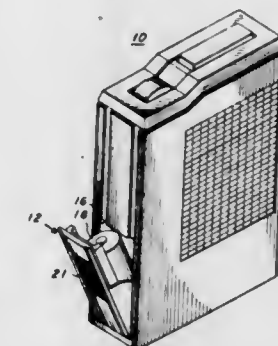
Richard D. Williamson, Fort Lauderdale, and George J. Selinko, Lighthouse Point, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 28, 1981, Ser. No. 306,575

Int. Cl.³ H01M 2/10

U.S. Cl. 429-97

4 Claims



1. An improved housing arrangement for housing electrical components and having a non-destructive, breakaway battery door, comprising in combination:
- a housing having top, bottom, front, back and side walls, said housing including a cavity for accommodating an associated cylindrical battery with an opening along one side of said housing giving access to said battery cavity;
- a battery door panel interfitting in said battery cavity opening;
- breakaway hinge means with respective portions intercoupling the bottom of said door panel and said housing to permit said door to pivot outwardly at the top thereof,

said door when pivoted outwardly beyond a predetermined distance forcing disengagement of respective portions of said hinge means to non-destructively separate said door from said housing;

shoulder means mounted on said housing inside said battery cavity;

a cylindrical wing member integral to the interior side of said battery door panel into which a cylindrical battery is placed, said wing member including a door stop means which engages said shoulder means when said door panel is extended outwardly to a predetermined distance; and latch means, integral with said battery door surface and operable in a lateral direction to releasably latch said battery door in said housing.

4,391,884

PROCESS FOR THE PRODUCTION OF A PHOTOGRAPHIC COLOR IMAGE BY THE SILVER DYE BLEACH PROCESS AND SUITABLE COLOR PHOTOGRAPHIC MATERIAL THEREFOR

Armin Meyer, Belfaux, and Carlo Boragine, Villars-sur-Glane, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

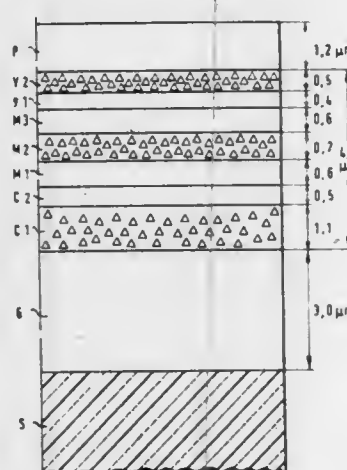
Filed Apr. 17, 1981, Ser. No. 255,069

Claims priority, application Switzerland, Apr. 30, 1980, 3344/80

Int. Cl.³ G03C 7/00

U.S. Cl. 430—17

14 Claims



1. A process for the production of a photographic colour image by the silver dye bleach process, by exposure, silver developing, dye bleaching, silver bleaching and fixing, and using a photographic material which contains light-sensitive silver halide layers and dye layers on a base, which process comprises exposing image-wise a photographic material, which has at least one light-sensitive silver halide emulsion layer, which can contain a diffusion-resistant, bleachable image dye, and immediately above it, on the side facing the light source, a silver halide-free layer containing a diffusion-resistant bleachable image dye, the light-sensitive silver halide emulsion layer and silver halide-free layer being free from a dye bleach catalyst and processing the material in a processing bath containing a dye bleach catalyst, to give a colour image, the colour image being produced exclusively by image dyes present in the photographic material prior to exposure.

14. The colour images produced by a process according to claim 1.

4,391,885

METHOD OF MANUFACTURING FLUORESCENT SCREENS OF CATHODE RAY TUBES

Yoshifumi Tomita, and Hiromitsu Nakai, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 24, 1982, Ser. No. 361,269

Claims priority, application Japan, Mar. 27, 1981, 56-43919

Int. Cl.³ G03C 5/00

U.S. Cl. 430—28

7 Claims



1. A method of manufacturing a fluorescent screen of a cathode ray tube comprising the steps of:
forming a film of photosensitive sticky substance that exhibits stickiness when exposed to light on an inner surface of a face plate of said tube;
exposing said film to light to render portions thereof sticky;
applying a powdery substance onto said film to cause said powdery substance to adhere to said portions of the film rendered sticky;
removing excess powder to form a film pattern of said powdery substance;
causing the substance responsible for stickiness to ooze out onto said film pattern;
applying another powdery substance onto said film pattern; and
removing an excess of said another powdery substance, thus forming said fluorescent screen.

4,391,886

METHINE COLORANT MATERIALS AND THE USE THEREOF IN ELECTROPHORETIC MIGRATION IMAGING LAYERS AND PROCESSES

Mark D. Frishberg, and James J. Krutak, Sr., both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 161,705, Jun. 23, 1980, Pat. No. 4,304,908.

This application Aug. 3, 1981, Ser. No. 289,574

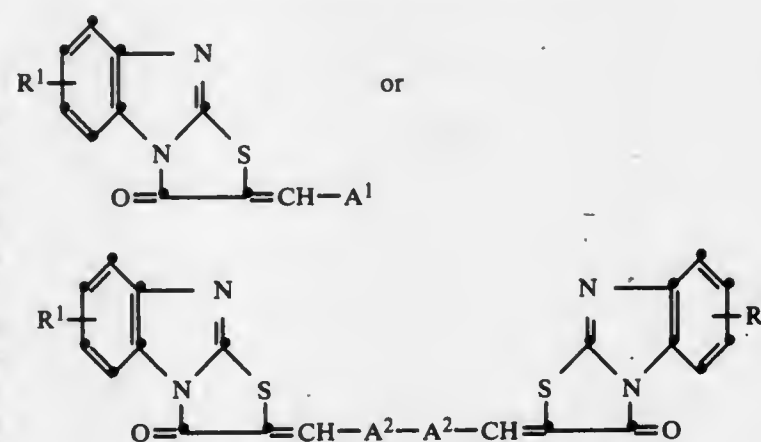
Int. Cl.³ G03G 13/00, 5/06

U.S. Cl. 430—41

19 Claims

1. An electrophoretic migration imaging recording method comprising the steps of:

(a) providing an electrically photosensitive imaging layer comprising an electrically photosensitive particulate material having the following general structure:



wherein R¹ is hydrogen, lower alkyl, lower alkoxy, nitro, halogen, cyano, phenyl, lower alkylsulfonamido or lower alkoxy carbonyl and A¹ is a monovalent and A² is a divalent residue of an aniline, 1,2,3,4-tetrahydroquinoline, benzomorpholine or indoline compound attached to the =CH— group by an aromatic ring carbon atom in the position para to the aromatic amine nitrogen atom,

(b) applying an electrical field across said layer; and
(c) exposing said layer to an image pattern of electromagnetic radiation to which said electrically photosensitive material is photosensitive; and
(d) if necessary, at least partially liquifying said layer before, during or after exposure and application of the electric field to permit some migration of said electrically photosensitive material in said layer, thereby forming a record of the image pattern of electromagnetic radiation in said layer.

4,391,887

PREPARATIONS OF MICRO-ORGANISMS

Jörg Baumgarten; Werner Frommer; Delf Schmidt; Friedrich Schmidt, all of Wuppertal, Fed. Rep. of Germany, and Douglas M. Munnecke, Norman, Okla., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 945,287, Sep. 25, 1978, abandoned. This application Aug. 13, 1981, Ser. No. 292,362

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2756032

Int. Cl.³ C12P 39/00; C12N 1/36, 1/04, 1/20

U.S. Cl. 435—42

13 Claims

1. A process for the production of a storage-stable material capable of degrading a waste product comprising at least one of phosphate esters and acrylonitrile, comprising cultivating a mixed culture of microorganisms capable of growing on the waste product by feeding in the waste product at a progressively increasing concentration which does not kill the microorganisms due to by-product formation, terminating the cultivation when the waste product-splitting activity of the culture has leveled off, separating at least a portion of the now active mixed culture and repeating the cultivation at least once to produce a stabilized active mixed culture, treating the stabilized active mixed culture chemically, and then drying to obtain a storage-stable active mixed culture.

4,391,888

MULTILAYERED ORGANIC PHOTOCONDUCTIVE ELEMENT AND PROCESS USING POLYCARBONATE BARRIER LAYER AND CHARGE GENERATING LAYER

Mike S. H. Chang, Danbury, and Michael F. Berman, Bridgeport, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 16, 1981, Ser. No. 331,401

Int. Cl.³ G03G 5/06

U.S. Cl. 430—57

15 Claims

1. An organic photoconductive element which is extremely sensitive to exposure to light rays in the near-infrared region of the spectrum, said element comprising an electroconductive plastic film support; a first layer on said support comprising at least one polycarbonate resin having a weight average molecular weight ranging from about 25,000 to about 45,000, said first layer capable of functioning in a dual capacity as a barrier layer to prevent substantially any leakage of charge from the surface of said photoconductor and as a bonding layer; a charge generating layer comprising a dispersion coated layer formed of at least one diene blue dye containing from about 2 to about 75 percent by weight of at least one squarylium dye based upon the total weight of the charge generating layer; and a charge transport layer comprising a conventional organic chemical capable of transporting electrical charges generated by said charge generating layer in areas of said element exposed to said light rays.

9. A method for forming an electrophotographic image comprising:

(a) electrostatically charging in the dark the surface of an organic photoconductive element which is extremely sensitive to exposure to light rays in the near-infrared region of the spectrum, said element comprising an electroconductive plastic film support; a first layer on said support comprising at least one polycarbonate resin having a weight average molecular weight ranging from

about 25,000 to about 45,000; said first layer capable of functioning in a dual capacity as a barrier layer to prevent substantially any leakage of charge from the surface of said photoconductor and as a bonding layer; a charge generating layer comprising a dispersion coated layer formed of at least one diene blue dye containing from about 2 to about 75 percent by weight of at least one squarylium dye based upon the total weight of the charge generating layer; and a charge transport layer comprising a conventional organic chemical capable of transporting electrical charges generated by said charge generating layer in areas of said exposed to said light rays;

(b) exposing the photoconductive element to actinic radiation; and

(c) discharging said surface of the photoconductive element in an image-wise fashion corresponding to the pattern of actinic radiation to produce a latent electrostatic image thereon.

4,391,889

ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER WITH BENZIMIDAZOLE RING CONTAINING HYDRAZONES

Minoru Mabuchi, Tokyo; Kiyoshi Sakai, Mitaka; Shozo Ishikawa, Sayama; Yuji Egashira, Hino, and Makoto Kitahara, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 23, 1981, Ser. No. 323,880

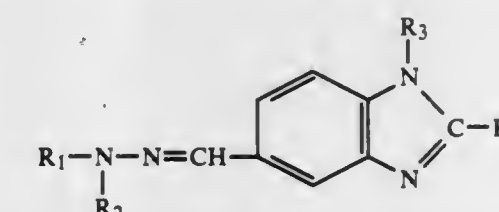
Claims priority, application Japan, Dec. 13, 1980, 55-175250

Int. Cl.³ G03G 5/04

U.S. Cl. 430—59

17 Claims

1. An electrophotographic photosensitive member which comprises an electrically conductive layer and a layer containing at least one member of the hydrazone compounds of the formula:



where R₁, R₂ and R₃ are selected from the group consisting of substituted or unsubstituted alkyl, substituted or unsubstituted aralkyl, and substituted or unsubstituted aryl, and R₁ and R₂ can not be simultaneously alkyl; and R₄ is substituted or unsubstituted aryl and a binder.

2. An electrophotographic photosensitive member according to claim 1 in which there are a layer containing the hydrazone compound and a charge generation layer.

3. An electrophotographic photosensitive member according to claim 2 in which the layer containing the hydrazone compound is a charge transport layer capable of transporting holes formed in the charge generation layer.

4,391,890

DEVELOPER COMPOSITIONS CONTAINING ALKYL PYRIDINIUM TOLUENE SULFONATES

Chin H. Lu, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 3, 1981, Ser. No. 327,294

The portion of the term of this patent subsequent to Nov. 3, 1998, has been disclaimed.

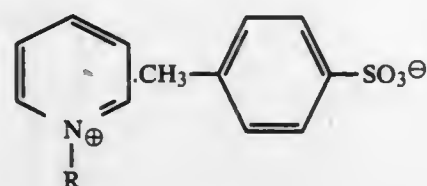
Int. Cl.³ G03G 9/10

U.S. Cl. 430—110

20 Claims

1. An electrostatic developer composition comprised of toner particles and carrier particles, the toner particles being comprised of resin particles, pigment particles, and from about 0.1 to about 10 percent based on the weight of the toner parti-

cles of an alkyl pyridinium toluene sulfonate charge enhancing additive of the formula:



wherein R is an alkyl radical containing from about 12 carbon atoms to about 25 carbon atoms.

4,391,891

DEVELOPING METHOD USING (ALTERNATING ELECTRIC FIELD AND) A DEVELOPER OF THE FIELD-DEPENDENT TYPE AND AN APPARATUS THEREFOR

Yasuyuki Tamura, Kawasaki; Junichiro Kanbe, Tokyo; Shunji Nakamura, Kawasaki; Tsutomu Toyono, and Tohru Takahashi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 124,911, Feb. 26, 1980, abandoned.

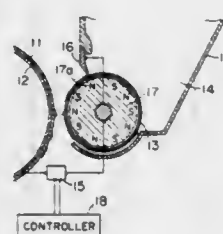
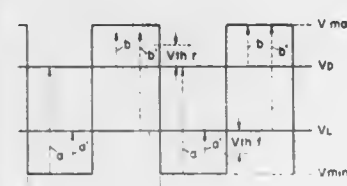
This application May 20, 1982, Ser. No. 380,391

Claims priority, application Japan, Mar. 5, 1979, 54-25322,

Int. Cl.³ G03G 13/09

U.S. Cl. 430—120

8 Claims



1. A developing method for developing the latent image on a latent image bearing member, comprising:
forming a layer of one-component developer on a developer supporting member, wherein said layer has a thickness which is less than a clearance, at a developing station, between the image bearing member and the supporting member, and wherein said developer is selected as having a volume resistivity which varies with variations in an electric field to which it is subjected;
conveying said layer of one-component developer to the developing station;
applying an alternating electric field between said developer layer supporting member and said latent image bearing member at the developing station, whereby said alternating electric field causes transition of said developer from said developer supporting member to both the image and non-image areas of said latent image bearing member and back transition of said developer from said latent image bearing member to said supporting member; and
reducing the intensity of said alternating electric field to thereby cause said back transition at least in the non-image areas and leave a developed image on said latent image bearing member.

4,391,892

MULTIPLE COPY ELECTROPHOTOGRAPHIC PROCESS USING DYE SENSITIZED ZnO

Yasushi Kamezaki, Sakai; Eiichi Inoue, Tokyo; Hitoshi Nishihama, Hirakata; Akira Fushida, Suita, and Joji Matsumoto, Neyagawa, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

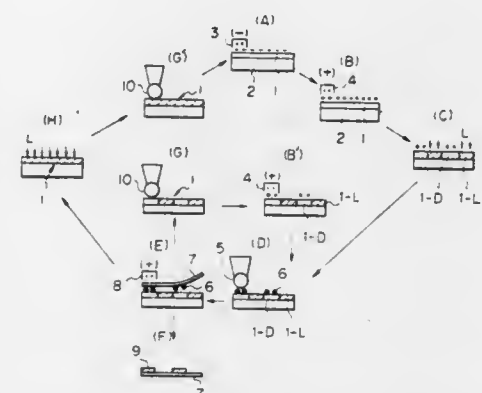
Continuation-in-part of Ser. No. 174,503, Aug. 1, 1980, abandoned. This application Nov. 13, 1981, Ser. No. 321,102

Claims priority, application Japan, Aug. 3, 1979, 54-98686

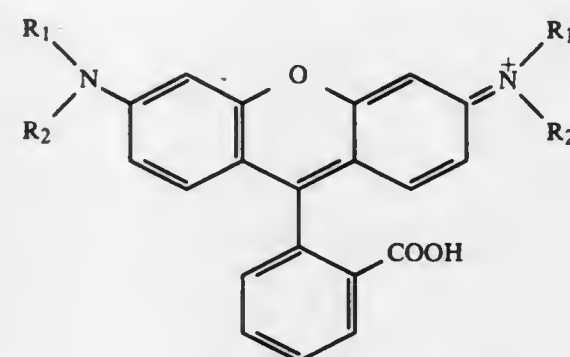
Int. Cl.³ G03G 13/22, 13/02

U.S. Cl. 430—126

13 Claims



1. in an electrophotographic process comprising subjecting an electrophotographic photosensitive plate to the combination of negative charging, positive charging and imagewise exposure to form an electrostatic latent image of a positive polarity, said electrophotographic photosensitive plate having such charging characteristics that (a) a photosensitive layer can be positively charged by sequential negative corona charging and positive corona charging and (b) positive charging is rendered substantially impossible by irradiation with light, and then subjecting the so treated photosensitive plate to positive charging a predetermined number of times, whereby an electrostatic latent image is formed the predetermined number of times by imagewise exposure conducted once, an improvement wherein said electrophotographic photosensitive plate comprises an electrically conductive substrate having a surface with a work function smaller than the work function of ZnO and being selected from the group consisting of aluminum, zinc, cadmium, lead, indium and tin and a photoconductive zinc oxide-resin binder dispersion photosensitive layer comprising a dispersion of photoconductive zinc oxide having a particle size not larger than 0.53 μm and a BET specific surface area of at least 4.6 m²/g and a resin binder having a volume resistivity of at least 10¹⁴ Ω-cm, in which the resin binder/zinc oxide mixing weight ratio is larger than 1/10 and smaller than 5/10, said photoconductive layer further comprising a triphenylmethane basic dyestuff represented by the following formula:



wherein R₁ represents a lower alkyl group and R₂ represents a hydrogen atom or a lower alkyl group, in an amount of about 2 to about 3 mg per 10 g of zinc oxide and a silicone oil in an amount of about 0.02 to about 0.04 mg per 10 g of zinc oxide, and said photosensitive plate has a memory resistance (R), defined by the following formula, of at least 90%:

$$R = \frac{EL}{ED} \times 100$$

wherein ED stands for the saturation charge voltage (V) of the photosensitive layer observed when the photosensitive layer is stored in the dark for 3 hours and is then subjected to corona discharge at a voltage of -6 KV and EL stands for the saturation charge voltage (V) of the photosensitive layer observed when the photosensitive layer is irradiated with light in a light quantity of 3 × 10⁵ lux.sec, stored in the dark for 1 minute and then subjected to corona discharge under the same conditions as described above.

6. An electrophotographic process according to claim 1, wherein the photosensitive layer is subjected to alternating current corona discharge or direct current negative corona discharge to uniformly charge the photosensitive layer negatively, the so charged photosensitive layer is subjected to direct current positive corona discharge to uniformly charge the photosensitive layer positively, and the so positively charged photosensitive material is subjected to imagewise exposure to form an electrostatic latent image in which the non-exposed area is positively charged and the exposed area is not substantially charged.

7. An electrophotographic reproduction process in which an electrostatic latent image formed according to the electrophotographic process set forth in claim 6 is developed with a toner having an electric resistance of at least 10¹³ Ω-cm and the toner image formed on the photosensitive layer is transferred onto a transfer sheet and is then fixed.

4,391,893

MAGNETIC DEVELOPERS AND PROCESS FOR THEIR PREPARATION

Dieter Hendriks, Geneva, Switzerland, assignor to Sublissatic Holding, S.A., Glaris, Switzerland

Continuation of Ser. No. 948,288, Oct. 2, 1978, abandoned,

which is a continuation of Ser. No. 737,371, Nov. 1, 1976,

abandoned. This application Oct. 30, 1980, Ser. No. 202,100

Claims priority, application Switzerland, Nov. 6, 1975, 14347/75; Jan. 30, 1976, 1200/76

Int. Cl.³ G03G 9/10

U.S. Cl. 430—137

5 Claims

1. Process for the preparation of a developer in the form of virtually spherical particles, wherein a dispersion in water containing (A) 3-hydroxyquinophthalone or (B) an anthraquinone dyestuff which contains at least (1) two amino substituents different from one another or (2) one amino and one hydroxy substituent and which passes into the vapor state at between 150° and 220° C. under atmospheric conditions, of magnetic particles and of a coating material consisting of an aqueous dispersion of a thermoplastic resin or of a mixture of a thermoplastic resin with a wax or a plasticiser, is sprayed in the form of fine droplets and then dried in an appropriate stream of air in a spray dryer apparatus.

4,391,894

COLORED PHOTOSENSITIVE COMPOSITION

Ken-ichi Shimazu, Pleasantville, and Albert Deutsch, Scarsdale, both of N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

Continuation of Ser. No. 919,098, Jun. 20, 1978, abandoned, which is a continuation-in-part of Ser. No. 521,433, Nov. 6, 1974, abandoned. This application Aug. 28, 1981, Ser. No. 298,054

Int. Cl.³ G03C 1/60, 11/18; G03F 1/00; G03C 1/71

U.S. Cl. 430—154

9 Claims

1. A method of providing a substantially uniform colored photosensitive composition useful in the reprographic art, which comprises:

a. Reacting a water soluble basic dye with a water soluble organic acid or the ammonium or alkali metal salt thereof, in an aqueous medium to precipitate a dye substance which is substantially insoluble in water, substantially

soluble in organic solvents and substantially non-reactive with diazo photosensitizers;

b. Separating said precipitated dye substance from its aqueous environment; and

c. Substantially uniformly dissolving said separated dye substance and a diazo photosensitive composition useful in the reprographic arts in a suitable organic solvent composition said diazo photosensitive composition being a reaction product of a paradiazo diphenylamine-paraformaldehyde condensate with a coupling agent selected from the group consisting of naphthol sulfonic acids and salts thereof, sulfoanthranilic acid, N-lower alkyl-5-sulfoanthranilic acids, sodium 2,2'-dihydroxy-4,4'-dimethoxy-5-sulfolbenzophenone, and 2-hydroxy-4-methoxy-benzophenone-5-sulfonic acid and a trihydrate thereof; and

d. Removing said solvent composition.

9. An article useful in the reprographic arts which comprises a sheet substrate having uniformly applied on at least one surface thereof the colored photosensitive compositions produced by the method of claim 1.

4,391,895

DIFFUSION CONTROL LAYERS FOR DIFFUSION TRANSFER PHOTOGRAPHIC FILM

William C. Schwarzel, Billerica, and Lloyd D. Taylor, Lexington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1981, Ser. No. 222,031

Int. Cl.³ G03C 1/76, 1/40, 1/48, 5/54

U.S. Cl. 430—215

31 Claims

1. A diffusion transfer photographic film unit comprising: a photosensitive element including at least one photosensitized silver halide emulsion layer having an image-dye forming material associated therewith; an image-receiving layer; a means for introducing an alkaline processing composition within said film unit; a neutralizing layer; and, at least one diffusion control layer positioned between interacting components of said film unit; said diffusion control layer comprising a urethane polymer containing a recurrent backbone unit capable of undergoing β-elimination depolymerization in an alkaline environment.

4,391,896

MIXTURE OF NONDIFFUSIBLE REDOX DYE-RELEASERS FOR CURVE SHAPE CONTROL

Thomas O. Maier, and Jack L. Richards, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 20, 1978, Ser. No. 944,113

Int. Cl.³ G03C 1/40, 1/10, 5/54

U.S. Cl. 430—223

39 Claims

14. In a photographic assemblage comprising:
(a) a support having thereon at least one photosensitive silver halide emulsion layer having associated therewith a first ballasted, nondiffusible, redox, dye-releasing or dye precursor-releasing compound capable of releasing a diffusible dye or dye precursor;
(b) a dye image-receiving layer; and
(c) an alkaline processing composition and means for discharging same within said assemblage;
said assemblage containing a silver halide developing agent; the improvement wherein said silver halide emulsion layer has associated therewith a second ballasted, nondiffusible, redox, dye-releasing or dye precursor-releasing compound capable of releasing a diffusible dye or dye precursor, said second compound having a different relative reactivity than said first compound, the reactivity of the compound which is more-reactive being at least 1.5 times the reactivity of the compound which is less-reactive.

15. The photographic assemblage of claim 14 wherein each

said ballasted compound has said dye or dye precursor moiety attached thereto through a sulfonamido group which is alkali-cleavable upon oxidation.

4,391,897 DIAZO LITHOGRAPHIC PRINTING PLATE DEVELOPING PROCESS

Robert F. Gracia, Scituate, Mass., and Howard A. Fromson, 15 Rogues Ridge Rd., Weston, Conn. 06880, assignors to Howard A. Fromson, Weston, Conn.

Continuation-in-part of Ser. No. 85,146, Oct. 12, 1979, abandoned. This application Jun. 17, 1981, Ser. No. 274,341
Int. Cl.³ G03F 7/08

U.S. Cl. 430—302 6 Claims

1. Process for removing unexposed diazo from a lithographic printing plate comprising a silicated aluminum substrate having a hydrophilic, anionic, negatively charged surface and on and bonded to the substrate, a light sensitive, cationic, positively charged, water-soluble diazo material which has been selectively exposed to actinic light in an image area which comprises contacting the plate after exposure with a solution consisting essentially of an anionic material in water in a quantity and for a time sufficient to couple the diazo with the anionic material and dissolve the coupled product from the non-image area thereby overcoming the bond between the diazo and the substrate leaving a clean, hydrophilic non-image area.

4,391,898 METHOD OF MAKING A SLEEVE FOR A PRINTING CYLINDER

Hendricus J. van der Velden, RN Cuyck, Netherlands, assignor to Stork Screens, B.V., Boxmeer, Netherlands

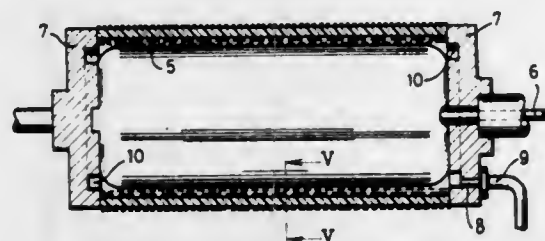
Filed Jun. 26, 1981, Ser. No. 277,866

Claims priority, application Netherlands, Jul. 4, 1980, 8003895

Int. Cl.³ G03F 7/02

U.S. Cl. 430—306

8 Claims



7. A method of forming a cylindrical sleeve for a printing cylinder, comprising the steps of disposing a thin-walled cylindrical screen about the outer surface of a temporary, rigid, cylindrical support, said screen defining a pattern of interconnected channels extending to the lateral edges of said surface, applying a sheet of elastomeric composition which is hardenable under the influence of radiation about said screen, said sheet comprising a photopolymer, applying a vacuum to said channels for removing any accumulated gases between the outer surface of said support and said sheet, and subjecting said sheet to a heat treatment for securing said screen and sheet together by curing, the heat treatment being carried out after removing said screen and said sheet from said support, and thereafter closely fitting said secured together screen and sheet after the heat treatment about a cylindrical core member, and providing a pattern on the outer surface of said sheet using a radiation process.

4,391,899 METHOD OF MAKING A HALF-TONE GRAVURE PRINTING PLATE

Teruo Suzuki, Ageo, Japan, assignor to Toppan Printing Co., Ltd., Japan

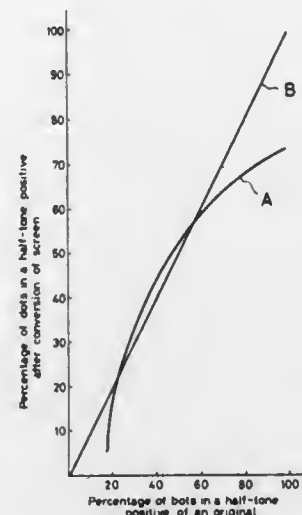
Filed Aug. 25, 1981, Ser. No. 296,197

Claims priority, application Japan, Aug. 28, 1980, 55-118712

Int. Cl.³ G03C 5/00

U.S. Cl. 430—307

2 Claims



1. A method of making a gravure printing plate by using a planographic or relief half-tone positive comprising the steps of:

contacting said half-tone positive on a photosensitive film of low contrast, projecting light on said photosensitive film and thereafter effecting development thereof to thereby make a half-tone negative which is inverted relative to said half-tone positive;

contacting a contact screen on a lith-type photosensitive film with said negative being used as an original;

forming an image of said half-tone negative on said lith-type photosensitive film with a camera, the F number of the diaphragm of the lens of said camera being selected to make it impossible to resolve the dots of said half-tone negative at a resolving power (R_L) represented by

$$R_L = \frac{1}{1.22 \lambda F (1 + m)}$$

(where R_L is the resolving power of the lens, λ is the wavelength of photographing light, F is the F number of the diaphragm of the lens of said camera, and m is the photographing magnification) thereby producing an image formed on said lith-type photosensitive film which is different in at least one respect as to the shape of at least one dot, the number of screen lines of said contact screen or a screen angle in comparison with that of said original half-tone positive;

developing said lith-type photosensitive film to make a new planographic or relief half-tone positive which is different in at least one respect as to the number of screen lines, the screen angle, the magnification and the shape of at least one dot in comparison with said original half-tone positive;

effecting the following steps:

exposing said half-tone positive from said lith-type photosensitive film to light in contact with a photosensitive resist forming material,

correcting an error in gradation of a middle tone portion between said new half-tone positive and said original half-tone positive by means of exposing said photosensitive resist forming material to the light so that the dots of said half-tone positive may be blurred by forming a spacing between said new half-tone positive and said photosensitive resist forming material, and

exposing a gravure screen to light in contact with said photosensitive resist forming material; and

etching a gravure cylinder through said resist on said cylinder.

4,391,900 PROCESS FOR DEVELOPMENT-PROCESSING SILVER HALIDE LIGHT-SENSITIVE MATERIAL

Takashi Toyoda; Tadao Shishido, both of Minami-ashigara, and Teruaki Tsujikawa, Otsu, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 13, 1982, Ser. No. 339,243

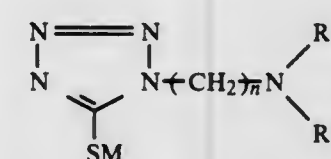
Claims priority, application Japan, Jan. 13, 1981, 56-3487

Int. Cl.³ G03C 5/30

U.S. Cl. 430—355

19 Claims

1. A process for development-processing an imagewise exposed silver halide photographic light-sensitive material comprising processing the material with a developing solution containing 0.1 mol/liter or more of sulfite ion and at least one compound represented by formula (I)



wherein n represents an integer of from 2 to 6; each of R_1 and R_2 represents an alkyl group having from 1 to 6 carbon atoms; and M represents hydrogen or an alkali metal atom.

4,391,901 PHOTOSENSITIVITY ENHANCEMENT OF PLZT CERAMICS BY POSITIVE ION IMPLANTATION

Cecil E. Land, and Paul S. Peercy, both of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 159,318, Jun. 13, 1980,

abandoned. This application Jan. 28, 1982, Ser. No. 343,612

Int. Cl.³ G03C 1/00

U.S. Cl. 430—495

11 Claims

1. In a lead lanthanum zirconate titanate (PLZT) ceramic plate used for a photoferroelectric image storage and display device, the improvement comprising: the PLZT ceramic having a near surface region implanted with positive ions to provide enhanced photosensitivity of the plate in the near-UV spectrum, wherein said ions are selected from the group consisting of helium ions, hydrogen ions, argon ions, neon ions, aluminum ions, chromium ions, and iron ions, and are implanted below the surface of said PLZT plate at a depth of from 0.1 to 2 microns.

4,391,902 PHOTOGRAPHIC FILM WITH VARIABLE WINDOWS

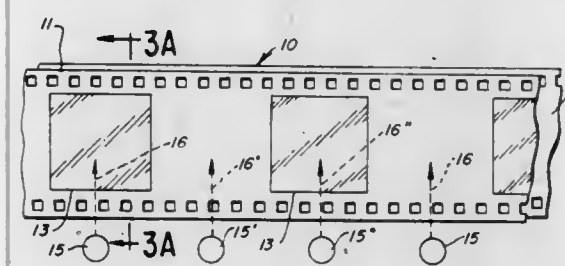
Robert F. Wilde, 2023 Sheffield, Chicago, Ill. 60614

Filed Oct. 13, 1981, Ser. No. 310,882

Int. Cl.³ G03C 3/02

U.S. Cl. 430—501

6 Claims



1. A film product comprising at least two elongated film strips of photosensitive material each divided into a sequence of longitudinally spaced frames and arranged in face-to-face,

superposed relation with the frames of the strips being longitudinally aligned, one of said film strips having certain of the frames thereof free of said photosensitive material whereby light from an image to be photographed is adapted to pass therethrough for registry on the next adjacent superposed strip, said strips being wound on a single spool.

4,391,903 IONIC COPOLYMERS IN PHOTOGRAPHIC LIGHT-SENSITIVE SILVER HALIDE FILMS

Peter K. Sysak, Wilmington, Del., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

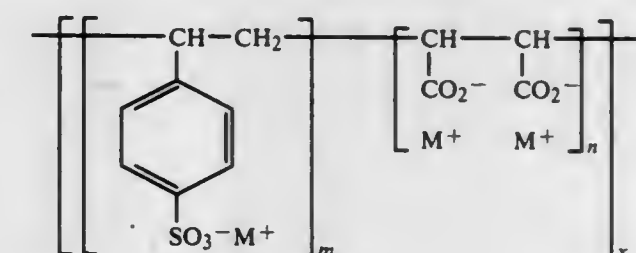
Filed Feb. 8, 1982, Ser. No. 346,738

Int. Cl.³ G03C 1/72

U.S. Cl. 430—629

5 Claims

1. A photographic film comprising a silver halide emulsion layer superimposed on a support, characterized in that the binder component of the silver halide emulsion layer consists essentially of a major amount in parts by weight of gelatin and a minor amount in parts by weight of a poly(styrene sulfonic acid-co-maleic acid) salt of the formula:



wherein M is an alkali metal, $m=1-3$, $n=1$, and $x=5-50$.

4,391,904 TEST STRIP KITS IN IMMUNOASSAYS AND COMPOSITIONS THEREIN

David J. Litman, Cupertino, and Edwin F. Ullman, Atherton, both of Calif., assignors to Syva Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 106,620, Dec. 26, 1979, Pat. No. 4,299,916. This application Apr. 17, 1981, Ser. No. 255,022

The portion of the term of this patent subsequent to Nov. 10, 1998, has been disclaimed.

Int. Cl.³ G01N 33/54, 21/00, 1/48, 21/06

U.S. Cl. 435—7

9 Claims

1. A kit for use in an immunoassay comprising in combination:

(a) an insoluble porous surface to which is bound (1) a member of an immunological pair consisting of ligand and immunoglobulin antiligand and (2) an enzyme;

(b) an enzyme bound to a member of an immunological pair consisting of ligand and an immunoglobulin antiligand; and

(c) a leuco dye which undergoes an enzymatically catalyzed reaction to produce an insoluble dye,

wherein the amount of enzyme bound to said member of an immunological pair is related to the amount of said member of an immunological pair bound to an insoluble surface in a ratio to substantially optimize the sensitivity of said immunoassay, wherein said enzyme bound to said porous surface and said enzyme bound to said member of an immunological pair are related by the product of one being the substrate of the other.

6. A method for detecting the presence of an antiligand analyte in a sample suspected of containing said analyte, wherein said antiligand analyte is a member of an immunological pair (mip) consisting of ligand and homologous antiligand; said method involving (1) the partitioning in relation to the amount of analyte in said sample of a first enzyme bound to a mip—enzyme-bound-mip—between a surface of a liquid phase, said surface being porous and permitting approach and binding of enzyme-bound-mip to mip bound

to said surface—mip-bound-surface—either directly or in combination with said ligand, where said partitioning is through the intermediacy of ligand-antiligand binding to a mip-bound-surface to which a second enzyme is bound, where said second enzyme is related to said first enzyme by the product of one being the substrate of the other and where said first and second enzymes are oxido reductases; and (2) the change in concentration of a signal generating compound associated with said surface, said change in concentration being in relation to the amount of reaction product produced by said enzyme bound to said surface; said method comprising:

- (a) combining in an aqueous assay medium,
 - (1) said sample;
 - (2) mip-bound-surface, wherein substantially all of said surface and said mip-bound-surface is uniformly contacted with said sample;
 - (3) enzyme-bound-mip; and
 - (4) the remaining members of the signal producing system, which includes a solute system which is capable of undergoing a catalyzed reaction to produce a product which results in a change in amount of a signal generating compound associated with said surface and capable of producing a detectible signal;
- (b) waiting a sufficient time for enzyme-bound-mip to diffuse to said surface and at least a portion of said enzyme-bound-mip to bind to said surface through the intermediacy of ligand-antiligand binding to result in a change in the amount of signal generating compound associated with said surface in relation to the amount of analyte in said sample; and
- (c) determining the intensity of said detectible signal at said surface as a function of the amount of analyte in said sample.

4,391,905

SYSTEM FOR THE DETERMINATION OF GLUCOSE IN FLUIDS

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 233,928, Feb. 12, 1981, Pat. No. 4,340,669. This application Mar. 15, 1982, Ser. No. 358,266

Int. Cl.³ G01N 33/50; C12Q 1/54

U.S. Cl. 435—14

5 Claims

1. A method for the semi-quantitative determination of glucose in urine which comprises contacting the urine with a test strip comprising a bibulous carrier matrix bearing the residue left by impregnating it with a liquid reagent solution comprised of a solvent, glucose oxidase, a peroxidatively active substance and m-anisidine with subsequent evaporation of the solvent to leave the dry reagent with the reagent components being present in the carrier matrix in amounts and proportions such that the carrier matrix is capable of differentiating between concentrations of 2,000 and 5,000 milligrams of glucose per deciliter, and determining the amount of glucose present from the color change in the reagent.

4,391,906

SYSTEM FOR THE DETERMINATION OF GLUCOSE IN FLUIDS

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 233,928, Feb. 12, 1981, Pat. No. 4,340,669. This application Mar. 15, 1982, Ser. No. 358,267

Int. Cl.³ G01N 33/50; C12Q 1/54

U.S. Cl. 435—14

3 Claims

1. A test capable of the determination of the presence of glucose in a liquid test sample which device comprises a carrier matrix which bears the residue left by impregnating it with a liquid reagent solution of solvent, glucose oxidase, a peroxidatively active substance and m-anisidine with subsequent evaporation of the solvent to leave the dry reagent composition wherein the reagent components are present in the carrier

matrix in amounts and proportions such that the carrier matrix is capable of differentiating between concentrations of 2,000 and 5,000 milligrams of glucose per deciliter.

4,391,907

METHOD FOR PRODUCING L-VALINE BY FERMENTATION

Hiroshi Matsui; Takayasu Tsuchida, both of Kawasaki, and Shigeru Nakamori, Yokohama, all of Japan, assignors to Ajinomoto Company Incorporated, Tokyo, Japan

Filed Dec. 2, 1980, Ser. No. 212,123

Claims priority, application Japan, Dec. 13, 1979, 54-161974 Int. Cl.³ C12N 1/20, 15/00; C12P 13/08; C12R 1/185, 1/19

U.S. Cl. 435—115

11 Claims

1. A method of producing L-valine by fermentation which comprises culturing in a culture medium an L-valine-producing microorganism selected from the group consisting of *Escherichia coli* NRRL B-12287 and *Escherichia coli* NRRL B-12288 which is obtained by incorporation into a recipient strain of the genus *Escherichia*, of a hybrid plasmid having inserted therein a DNA fragment with genetic information related to L-valine production which fragment is derived from a donor strain of the genus *Escherichia* which is resistant to a valine analogue, and recovering the L-valine accumulated in the culture medium.

4,391,908

METHOD FOR PRODUCING CITRIC ACIDS

Takeshi Tabuchi, and Matazo Abe, both of Tokyo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan Continuation of Ser. No. 783,740, Dec. 13, 1968, abandoned, which is a continuation-in-part of Ser. No. 735,199, Jun. 7, 1968, abandoned. This application Jun. 16, 1978, Ser. No. 916,262

Claims priority, application Japan, Jun. 7, 1967, 52-36391; Dec. 13, 1967, 52-79802

Int. Cl.³ C12P 7/48; C12N 1/28; C12R 1/72, 1/73, 1/74

U.S. Cl. 435—144

34 Claims

1. A method for producing (+)-isocitric acid which comprises inoculating a (+)-isocitric acid-accumulating and hydrocarbon-assimilating strain of a yeast belonging to the genus *Candida* in an aqueous culture medium containing at least one normal paraffin containing 9 to 20 carbon atoms in the molecule as the main carbon source; incubating the culture at a pH of from about 4 to about 7.5 until (+)-isocitric acid is substantially accumulated in the culture broth; and separating the so-accumulated (+)-isocitric acid therefrom.

4,391,909

MICROCAPSULES CONTAINING VIABLE TISSUE CELLS

Franklin Lim, Richmond, Va., assignor to Damon Corporation, Needham Heights, Mass.

Continuation of Ser. No. 24,000, Mar. 28, 1979, Pat. No. 4,352,883, which is a continuation-in-part of Ser. No. 953,413, Oct. 23, 1978, abandoned. This application May 1, 1981, Ser. No. 259,595

The portion of the term of this patent subsequent to Oct. 5, 1999, has been disclaimed.

Int. Cl.³ C12N 11/10, 11/04, 5/00

U.S. Cl. 435—178

12 Claims

5. An artificial organ suitable for implantation in a mammalian body comprising a microcapsule comprising a polysaccharide having acidic groups thereof cross-linked with a polymer having a molecular weight greater than 3,000, said membrane being no greater than about 2.0 mm in diameter and containing one or more viable, healthy, physiologically active living tissue cells, said microcapsule being impermeable to immune system proteins but permeable to tissue nutrients and metabolic products produced by the tissue.

4,391,910

PROCESSES FOR PRODUCING THERMOPHILIC ASPARTASE

Kazuo Kimura, Hofu; Kenichiro Takayama, Atsugi; Yutaka Abo, Machida; Tamotsu Kawamoto, Sagami, and Izumi Masunaga, Fuchu, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 209,494

Claims priority, application Japan, Nov. 27, 1979, 54-152468 Int. Cl.³ C12N 9/88; C12P 13/20; C12R 1/07

U.S. Cl. 435—232

4 Claims

1. A process for producing thermophilic aspartase which comprises culturing a thermophilic aspartase producing *Bacillus aminogenes* having the identifying characteristics of NRRL B12061 or *Bacillus thermoaminophilus* having the identifying characteristics of NRRL B12060 in a nutrient medium until substantial enzymatic activity is detectable and thereafter isolating said thermophilic aspartase.

4,391,911

PREPARATION OF HERPES SIMPLEX ANTIGEN FOR THE DIAGNOSIS OF CARCINOMA

Giulio Tarro, Naples, Italy, assignor to Depa S.p.A., Italy

Filed Jan. 25, 1980, Ser. No. 115,375

Claims priority, application Italy, May 18, 1979, 49082 A/79

Int. Cl.³ C12N 1/02, 7/02; C12Q 1/00

U.S. Cl. 435—239

13 Claims

1. A process for the industrial production of a non-virion antigen of the Herpes simplex virus for the diagnosis of the epithelial tissue tumors or carcinoma, in which the cells to be infected by the antigen are prepared starting from the guinea pig kidneys with the addition to said material of sterile trypsin and a culture medium consisting of lactalbumin and calf serum, comprising the steps of:

- (i) growing the cells with a dynamic system inside Spinner flasks provided with magnetic revolving stirrers rotating at speeds higher than about 50 r.p.m. and operating at a temperature of 37° C. and with successive additions of culture medium, inoculating the so obtained cells with Herpes simplex virus to with added culture medium, said infection phase being performed according to a volume ratio of the virus to the cells equal or higher than 1, but not higher than 100, the contact between the cells and the virus being maintained for about 3 hours; and collecting the antigen which is formed therein;
- (ii) purifying the collected antigen, by removing therefrom all the proteins and impurities which can negatively affect the tests for the diagnosis; comprising, a first centrifugation with recovery of the liquid phase from the first centrifugation step; precipitating the antigen protein and other proteins, a second centrifugation; diluting the residual solids from the second centrifugation using a buffer; purifying said diluted solids by molecular separation using organic gellified copolymers extraction column, collecting the proteins from the antigen purification on a column wherein the proteins are separated on the basis of their different electric charges; eluting said collected proteins and removing the non-glycosylated proteins by affinity chromatography on a column; and recovering purified antigens.

4,391,912

CELL CULTIVATION METHOD AND FLOATING ANIMAL CELL CULTURE UNIT FOR THE SAME

Koichi Yoshida, Fuji, and Fusakazu Hayano, Chigasaki, both of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 18, 1980, Ser. No. 188,416

Claims priority, application Japan, Sep. 18, 1979, 54/118833

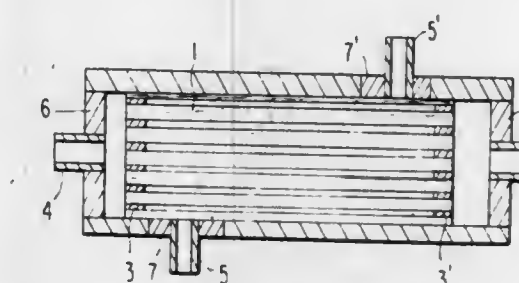
Int. Cl.³ C12N 5/02; C12M 3/00

U.S. Cl. 435—241

10 Claims

1. A method for cultivating floating animal cells comprising introducing a culture medium into a cell culture unit compris-

ing a shell and a plurality of hollow fibers enclosed in the shell, said hollow fibers being open at either end outside of the shell and having a pore diameter of from about 20 Å to 10⁵ Å,



wherein the culture medium passes through the interior of the hollow fibers and floating animal cells are introduced and are cultivated in the space between the shell and the hollow fibers.

4,391,913

TEMPERATURE REGULATING SYSTEM FOR THE CONTROL OF TEMPERATURE IN A ROOM

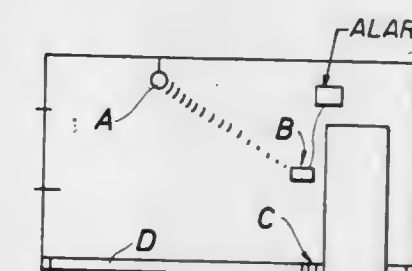
Erik C. V. Keldmann, Bellinge, Denmark, assignor to Elpan ApS, Odense, Denmark

Continuation-in-part of Ser. No. 48,638, Jun. 14, 1979, abandoned. This application Jun. 14, 1982, Ser. No. 388,214

Claims priority, application Denmark, May 21, 1979, 2074/79 Int. Cl.³ F28F 27/00; G01K 7/00

U.S. Cl. 236—36

4 Claims



1. A temperature regulating system for controlling the temperature in a room comprising a feeler gauge adapted to control the supply of energy to a radiator system in the room, said gauge being adapted to be suspended in a room and comprising a radiation sensor and a convection sensor for sensing the radiation and air temperature respectively, and a wireless transmitter means, said convection sensor being operatively connected to said transmitter means to control the transmitter means to emit signals depending on the radiation and air temperature sensed at regular intervals, and a receiver controlling means for receiving said signals and regulating the supply of energy to the radiator system, said convection sensor comprising a thermal sensitive member for sensing air temperature and having properties which change in response to temperature changes, said radiation sensor comprising a thin-walled hemisphere of good heat-conducting material having a black mat radiation absorbing surface connected in heat-conducting relationship with said convection sensor, said transmitter means comprising a printed circuit including said convection sensor therein so that signals representing said changed properties are transmitted by said transmitter means to said receiver, programming means in said receiver whereby the desired temperature can be programmed in the receiver, and means to compare said signals with said desired temperature.

4,391,914

STRENGTHENED GLASS-CERAMIC ARTICLE AND METHOD

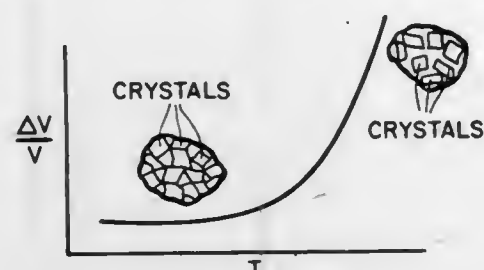
George H. Beall, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Jun. 14, 1982, Ser. No. 387,790

Int. Cl.³ C03C 3/22, 3/04

U.S. Cl. 501—4

3 Claims U.S. Cl. 501—62



1. A glass-ceramic body composed essentially of two phases, a crystal phase and a residual glass matrix, the crystal phase being a lithium aluminosilicate selected from the group of beta-spodumene solid solution and a stuffed beta-quartz solid solution having a very low coefficient of thermal expansion, the residual glass matrix being a borosilicate or a boroaluminosilicate constituting about 15-30 percent by volume of the body but being geometrically isolated in some areas of said body, thereby setting up point compressive stresses in the crystalline network to develop a transgranular fracture pattern in said body, and having a coefficient of thermal expansion substantially higher than that of the crystal phase, the two phases forming a dilatant system wherein the thermal expansion curve of the system has two distinct sections diverging from a transition temperature in the range of 500°-750° C., the upper section of the curve being steep and being controlled by the residual glass phase, and the lower section being essentially flat and corresponding to the curve of the crystal phase, the body being chemically composed essentially of, in percent by weight as calculated on an oxide basis, 60-80% SiO₂, 14-25% Al₂O₃, 2.5-7% Li₂O, 2-5%, B₂O₃, 0-2% MgO and/or ZnO, 3-6% TiO₂ and/or ZrO₂ and 0.5-5 mole percent of glass-modifying oxides selected from Na₂O, K₂O and the divalent oxides CaO, BaO, SnO and PbO, the molar ratio of Al₂O₃:Li₂O being greater than unity.

4,391,915

PRECISION PRESSED OPTICAL COMPONENTS MADE OF GLASS AND GLASS SUITABLE THEREFOR

Gertraud A. A. Meden-Piesslinger, and Johannes H. P. Van de Heuvel, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 7, 1981, Ser. No. 328,344

Claims priority, application Netherlands, Oct. 22, 1981, 8104778

Int. Cl.³ C03C 3/16

U.S. Cl. 501—48

4 Claims

1. Precision pressed optical components made of glass, which components are pressed from a glass containing phosphorus pentoxide (P₂O₅), one or more alkali metal oxides and one or more alkaline earth oxides, characterized in that the glass consists of in a percentage by weight:

P₂O₅: 45-55
Al₂O₃: 3.5-9
K₂O: 5-20
Li₂O: 0-3
BaO: 8-15
ZnO: 4.5-9
MgO: 0-6
PbO: 0-18
SiO₂: 0-1
B₂O₃: 0-3
TiO₂: 0-2.

4,391,916

ALKALI-FREE GLASS FOR PHOTOETCHING MASK

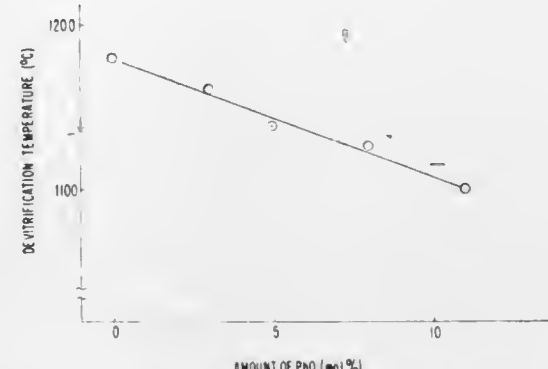
Kenji Nakagawa, Tokorozawa, and Isao Masuda, Tokyo, both of Japan, assignors to Hoya Corporation, Tokyo, Japan

Filed Feb. 24, 1982, Ser. No. 351,688

Claims priority, application Japan, Aug. 14, 1981, 56-126805

Int. Cl.³ C03C 3/10

2 Claims



1. An alkali-free glass for a photoetching mask, consisting essentially of, 55 to 65% SiO₂, 7 to 11% Al₂O₃, 1 to 11% PbO, 7 to 20% CaO, 3 to 13% MgO, 3 to 13% ZnO, 0 to 3% ZrO₂, 0 to 3% F₂, 0 to 5% As₂O₃ and 0 to 5% Sb₂O₃, wherein all percents are molar.

4,391,917

ALUMINO-SILICATE REFRACTORY BRICK

David J. Michael, White Oak, and Berhl E. Wishon, Bethel Park, both of Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 200,809, Oct. 27, 1980,

abandoned. This application Jul. 26, 1982, Ser. No. 402,008

Int. Cl.³ C04B 35/18, 35/52

U.S. Cl. 501—100

7 Claims

1. Carbonaceous bonded refractory shapes comprising from about 1 to 35%, by weight, carbon and the balance a non-basic refractory aggregate, said refractory aggregate comprising at least about 75%, by weight, andalusite, said refractory shapes being characterized by the absence of substantial shrinkage after coking at 2000° F., and the absence of mullite.

4,391,918

CERAMIC FOAM FILTER AND AQUEOUS SLURRY FOR MAKING SAME

Jerry W. Brockmeyer, Hendersonville, N.C., assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Division of Ser. No. 227,134, Jan. 22, 1981, Pat. No. 4,343,704.

This application Feb. 19, 1982, Ser. No. 350,400

Int. Cl.³ C04B 35/02

U.S. Cl. 501—127

8 Claims

1. An aqueous slurry for use in preparing a ceramic foam having the following composition: 55 to 70% Al₂O₃, 2 to 10% micron-sized reactive alumina, 1 to 5% montmorillonite and 1 to 10% ceramic fibers.

4,391,919

ALCOHOL SEPARATION PROCESS

Ian D. Burdett, Charleston, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 30, 1981, Ser. No. 279,098

Int. Cl.³ C07C 27/06, 27/34

U.S. Cl. 518—725

13 Claims

1. A process for separating alkane polyol from a liquid phase homogeneous mixture obtained from a homogeneous liquid phase reaction of oxides of carbon and hydrogen to produce alkane polyol, said liquid phase homogeneous mixture comprising alkane polyol, production solvent and catalyst compris-

ing rhodium, ruthenium or cobalt as the carbonyl complex, wherein said production solvent is a solvent for rhodium, ruthenium or cobalt of the catalyst, said process comprising:

- extracting at a temperature of at least about 50° C., alkane polyol from said liquid phase homogeneous mixture by contact with an extraction solvent of polyhydric alcohol having at least four carbon atoms and at least four hydroxyl groups, such that two liquid phases are formed, one phase containing the greater concentration of alkane polyol and extraction solvent and the other phase containing the greater concentration of production solvent and the greater portion of rhodium, ruthenium or cobalt of the catalyst,
- separating phases, and
- recovering alkane polyol from the extraction solvent-containing phase.

4,391,920

POROSE, PULVERFORMIGE POLYMERTEILCHEN

Wolfgang Lange, Obernburg, Fed. Rep. of Germany, assignor to Akzo NV, Arnhem, Netherlands

Filed Jul. 15, 1981, Ser. No. 283,675

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1980, 3026688

Int. Cl.³ C08J 9/26

U.S. Cl. 521—61

14 Claims

1. Process for the production of powdery, porous polymer particles, characterized by the introduction into a bed of solid-substance particles at a temperature above the segregating temperature, of a homogenous mixture having a minimum of two components, one component therein being a meltable polymer and the other component a fluid inert to the polymer, both components forming a binary system which has in its liquid phase a range of complete miscibility and also a range with a miscibility gap, by subsequent cooling said mixture to a temperature below the solidification temperature of the polymer in the mixture, by comminution of the cake-like mass as obtained and by separation of the polymer substance from the inert fluid and solid-substance particles.

4,391,921

ELASTOMERIC SILICONE SPONGE

Robert D. Johnson, Charlotte, N.C., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jun. 25, 1982, Ser. No. 391,898

Int. Cl.³ C08J 9/28, 9/30

U.S. Cl. 521—66

13 Claims

- A method comprising
- (a) freezing a silicone emulsion which provides an elastomeric product upon removal of the water, having a pH in the range of 9 to 11.5 inclusive, comprising water, 100 parts by weight of an anionically stabilized hydroxyl endblocked polydiorganosiloxane having an average molecular weight of greater than 10,000, an organic tin compound, and at least one part by weight colloidal silica, long enough to freeze the water and produce a solid frozen article,
- (b) thawing the solid frozen article yielding a wet elastomeric sponge-like article, and
- (c) drying the wet elastomeric sponge-like article until the water is removed and an elastomeric sponge is obtained.

4,391,922

BLOWING AGENTS AS CURATIVES FOR ETHYLENE/CARBON MONOXIDE COPOLYMERS

Jerald R. Harrell, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed May 6, 1982, Ser. No. 375,467

Int. Cl.³ C08J 9/10

U.S. Cl. 521—88

10 Claims

- A foamable composition comprising
- (a) a copolymer having a melt index of 0.1 to 500 of (i) ethylene (ii) about 1 to 25 weight percent carbon monox-

ide based on the copolymer (iii) 1 to 75 weight percent based on the copolymer, of a softening monomer selected from the group consisting of alkyl acrylates and methacrylates having linear or branched alkyl groups of 1 to 18 carbon atoms, vinyl esters of saturated carboxylic acids having 1 to 18 carbon atoms and vinyl alkyl esters wherein the alkyl group contains 1 to 18 carbon atoms; and

- 2 to 20 weight percent based on the copolymer of a blowing agent curative selected from the group consisting of mono- and polyazoformamide compounds, sulfonyl hydrazide compounds, sulfonyl semicarbazide compounds and dinitrosomethyleneamine compounds.

4,391,923

LOW DENSITY CLOSED-CELL FOAMED ARTICLES FROM ETHYLENE COPOLYMER/VINYL OR VINYLIDENE HALIDE BLENDS

John Rys-Sikora, Bel Aire, Md., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Sep. 27, 1982, Ser. No. 424,449

Int. Cl.³ C08J 9/06; C08L 81/00

U.S. Cl. 521—96

13 Claims

- A crosslinkable foamable composition comprising
- (a) 5 to 95 weight percent based on polymer weight of a copolymer of
- (i) ethylene;
- (ii) 1 to 60 weight percent based on copolymer of a softening monomer selected from the group consisting of unsaturated mono- or dicarboxylic acids of 3-20 carbon atoms, esters of said unsaturated mono- or dicarboxylic acids, vinyl esters of saturated carboxylic acids where the acid group has 2-18 carbon atoms, vinyl alkyl ethers wherein the alkyl group has 1-18 carbon atoms, vinyl or vinylidene halides, acrylonitrile, methacrylonitrile, norbornene, alpha olefins of 3-12 carbon atoms and vinyl aromatic compounds; and
- (iii) 1 to 30 weight percent based on copolymer of a member of the group consisting of carbon monoxide or sulfur dioxide;
- (b) 5 to 95 weight percent based on polymer weight of a vinyl or vinylidene halide polymer; and
- (c) 0.5 to 20 weight percent based on the blend of a chemical blowing agent
- (d) from 0.2 to 5.0 percent based on the blend of a free-radical crosslinking agent.

4,391,924

HIGH TEMPERATURE THERMOBARRIER COMPOSITIONS

John R. Uram, Jr., Glendale, Ariz., assignor to Goodyear Aerospace Corporation, Akron, Ohio

Continuation-in-part of Ser. No. 306,261, Sep. 28, 1981, which is a continuation-in-part of Ser. No. 232,054, Feb. 5, 1981, Pat. No. 4,343,928, which is a continuation-in-part of Ser. No. 204,424, Nov. 6, 1980, Pat. No. 4,352,848, and Ser. No. 70,390, Aug. 28, 1979, Pat. No. 4,294,886, said Ser. No. 204,424, is a continuation-in-part of Ser. No. 70,390. This application Oct. 22, 1982, Ser. No. 436,105

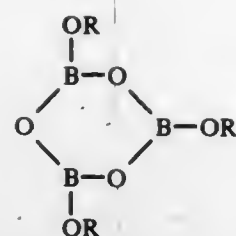
The portion of the term of this patent subsequent to Oct. 13, 1998, has been disclaimed.

Int. Cl.³ C08G 59/40

U.S. Cl. 521—178

23 Claims

- A high heat-resistant thermobarrier composition, comprising:
- a blend having
- (a) about 100 parts by weight of an epoxy resin;
- (b) from about 5 to about 30 parts by weight of the boroxine having the formula



where R is a group having from 1 to 18 carbon atoms;
(c) from about 1 to about 10 parts by weight of a phenyl substituted alkyl alcohol, said alkyl alcohol having from 1 to 20 carbon atoms; and
(d) a heat-resistant filler, the amount of said filler being sufficient to form a thixotropic blend.

4,391,925

SHEAR THICKENING WELL CONTROL FLUID

Donald Mintz, Fort Lee, N.J., and Cyrus A. Irani, Monroeville, Pa., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 79,437, Sep. 27, 1979, abandoned. This application Jun. 24, 1982, Ser. No. 391,812
Int. Cl.³ C08L 3/34, 5/01; E21B 33/13

U.S. Cl. 523—130

28 Claims

1. A shear thickening composite comprising:
 - (a) a water swellable clay capable of rapidly forming a high strength gel when mixed with water, said clay being present in said composite in sufficient quantity so as to form a gel having a strength of at least 2000 lb/100 ft²;
 - (b) a first phase comprising water and water soluble polymer; and
 - (c) a second phase comprising oil and surfactant, the water in said first phase being kept separate from said clay by the intervening second phase, said intervening second phase remaining intact during low shear pumping of the composite, said intervening second phase rupturing during the application of high shear to the composite to enable mixing of the water in the first phase and the clay to form the high strength gel.

4,391,926

SOIL STABILIZERS AND THEIR PREPARATION

Hubert S. Creyf, Brugge, Belgium, assignor to S.A. PRB n.v., Woluwe-St.-Pierre, Belgium

Continuation of Ser. No. 83,710, Oct. 11, 1979, abandoned. This application Apr. 16, 1981, Ser. No. 254,686

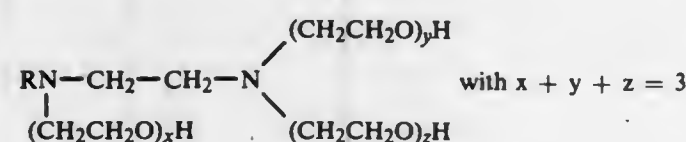
Claims priority, application Belgium, Oct. 11, 1978, 191048

Int. Cl.³ C08L 75/08

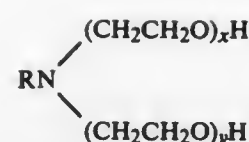
U.S. Cl. 523—132

28 Claims

1. A soil stabilizer in the form of an aqueous composition which comprises water as a dispersion medium, a dispersed polyurea polymer, the polyol component of which consists of one or more polyols with hydrophobic and hydrophilic groups in a weight ratio between 30/70 and 90/10 and with an average molecular weight of 1500 to 6000 and a surface active product selected from the group consisting of: a compound of formula (I):



wherein R is an alkyl group with 12 to 16 carbon atoms; or a linear or ramified hydrocarbon sulfonate, optionally containing ethoxy units; or a compound of formula (II):



wherein R is an alkyl group with 12 to 16 carbon atoms and $x + y = 11$, so that the average molecular weight is of the order of 700, said soil stabilizer being a stable, non-gel dispersion of particles of said polyurea polymer in said water.

4,391,927

ERASABLE INKS CONTAINING THERMOPLASTIC BLOCK COPOLYMERS

Robert F. Farmer, III, Rockville, Md., assignor to The Gillette Company, Boston, Mass.

Filed Nov. 5, 1981, Ser. No. 318,307

Int. Cl.³ C09D 11/18; C08K 5/01; C08L 53/00

U.S. Cl. 523—161

5 Claims

1. An erasable ink for use in a ball-point writing instrument consisting essentially of a pigmented organic solvent solution containing a thermoplastic block copolymer having an arrangement of A (thermoplastic) and B (rubbery) blocks selected from the class consisting of ABA, (AB)_nX and (—A—B)—_n; in which said thermoplastic blocks are selected from the class consisting of styrene, ester and urethane blocks; in which said rubbery blocks are selected from the class consisting of butadiene, isoprene and ethylene-butylene blocks; in which the ratio of said rubbery blocks to said thermoplastic blocks is from 60:40 to 90:10; in which the solubility parameter of said organic solvent is from about 7 to about 10.5; and containing an effective amount up to about 10% by weight of said solution of an additive to increase erasability selected from the class consisting of polybutenes and poly-alpha-methylstyrene.

4,391,928

OPACIFYING POLYMERIC PARTICLE AND USES

Daniel F. Herman, Princeton, and Uno Kruse, East Windsor, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Filed Sep. 4, 1981, Ser. No. 299,360

Int. Cl.³ C08L 9/08

U.S. Cl. 523—201

16 Claims

1. A latex coating composition of improved opacity and film characteristics, said coating composition comprising discrete capsules comprising a solid polymeric core surrounded by a solid polymeric shell having a T_g less than about 45° C., wherein the weight ratio of said shell to the total weight of said capsule ranges from 0.25:1 to 0.5:1.

4,391,929

USEFUL SOLUTIONS OF THE TETRAMETHYLOL DERIVATIVE OF 4,4'-ISO-PROPYLIDENEDIPHENOL

Thomas G. Harris, Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Division of Ser. No. 339,123, Jan. 13, 1980, Pat. No. 4,357,457, which is a continuation-in-part of Ser. No. 178,722, Aug. 18, 1980, abandoned. This application Aug. 16, 1982, Ser. No. 408,670

Int. Cl.³ C08J 9/32

U.S. Cl. 523—218

2 Claims

1. A foam produced by heating an acidified mixture of a solution comprising, in relative proportions, 10 parts by weight of the tetramethylol derivative of 4,4'-isopropylidenediphenol, about 15 to about 35 parts by weight water and about 5 to about 30 parts by weight of ethylene carbonate or propylene carbonate, with the total parts by weight of water and carbonate ranging from about 40 to about 45 with a surfactant and a blowing agent.

4,391,930

STABILIZED SUSPENSION OF GLASS BUBBLES IN AN AQUEOUS DISPERSION OF TETRAFLUOROETHYLENE POLYMER

Allan H. Olson, Parkersburg, W. Va., assignor to E. I. DuPont de Nemours & Co., Wilmington, Del.

Continuation-in-part of Ser. No. 204,956, Nov. 7, 1980, abandoned. This application Feb. 11, 1982, Ser. No. 347,927

Int. Cl.³ C08J 9/32

U.S. Cl. 523—219

8 Claims

1. A stabilized suspension of glass bubbles in an aqueous dispersion of tetrafluoroethylene polymer, which suspension comprises
 - (a) water having dispersed therein 45–75% by weight, based on water, of a tetrafluoroethylene polymer having a melt viscosity of at least 1×10^9 poises at 380° C.,
 - (b) 5 to 10% by weight, based on polymer, of a nonionic surfactant,
 - (c) 0.1 to 0.5% by weight, based on water and polymer, of a water-soluble electrolyte, and
 - (d) 2 to 8% by weight, based on polymer, of glass bubbles having a density between 0.20 and 0.40 g/ml and an average size between 20 and 130 micron, said dispersion having a viscosity between 135 and 300 cps at 25° C.

4,391,931

CAPSULES CONTAINING SELF-SETTING COMPOSITIONS AND THE COMPOSITIONS

Jeffrey G. Haigh, 31 Milton Dr., Newport Pagnell, Buckinghamshire, and Leslie W. Cheriton, 3 Meadow Way Wing, Leighton Buzzard, Bedfordshire, both of England

Filed Aug. 10, 1981, Ser. No. 291,852

Int. Cl.³ C08J 3/00

U.S. Cl. 523—318

13 Claims

1. A capsule containing in separate compartments the interactive components of a self-setting composition, one component comprising an unhardened resin and the other component comprising a hardener therefor, the capsule being rupturable to release the interactive components to intermix them and form the self-setting composition, at least one of the components being flammable, both free water and hydrated salt being present, the free water or the hydrated salt or both being located in at least one of the components prior to the interaction thereof, the concentration of the free water and the hydrated salt being sufficient to suppress the flame of the flammable component but still permitting the set composition to have a strength which exceeds 20 Newtons/mm².

4,391,932

POLYCATIONIC LATICES OF DIMETHYLAMINOPROPYL-ACRYLAMIDE, AND THEIR USE OF AS SLUDGE DEWATERING AGENTS AND/OR PAPER RETENTION AIDS

Wun T. Tai, Palos Hills, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Filed Jan. 22, 1982, Ser. No. 341,971

Int. Cl.³ C08J 3/02

U.S. Cl. 523—337

7 Claims

1. A water-in-oil emulsion of an acrylamide-dimethylamino-propylacrylamide copolymer having been prepared by the steps comprising:
 - A. forming a water-in-oil emulsion of an acrylamide-acrylonitrile copolymer, said water-in-oil emulsion containing:
 - a. 5–60% by weight acrylamide-acrylonitrile copolymer containing 1–50% by weight acrylonitrile;
 - b. 20–90% water;
 - c. 5–75% of an inert hydrophobic organic liquid; and
 - d. 0.1–21% water-in-oil emulsifying agent;
 - B. reacting said water-in-oil emulsion of the acrylamide-acrylonitrile copolymer with dimethylamino-propylamine

in a molar ratio of dimethylaminopropylamine to acrylonitrile of from 1:1 to 0.1:1;

C. recovering a readily invertible water-in-oil emulsion of an acrylamide-dimethylaminopropyl acrylamide copolymer.

4,391,933

ELECTROPHORETIC COATING OF EPOXY RESINS FROM NON-AQUEOUS SYSTEMS

Luciano C. Scala, Murrysburg, and Louis A. Cargnel, Unity Township, Westmoreland County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 22, 1980, Ser. No. 219,101

Int. Cl.³ C08K 5/07

U.S. Cl. 523—454

13 Claims

1. An emulsion for electrophoretically producing an insulating coating which comprises:
 - (a) about 8 to about 20 percent of a solvent as the discontinuous phase;
 - (b) about 0.5 to about 5 percent of an epoxy resin having an average molecular weight of at least 2000 dissolved in said solvent;
 - (c) about 75 to about 90 percent of a ketone precipitant as the continuous phase; and
 - (d) an emulsifier in an amount sufficient to react with the epoxy and hydroxyl groups in said epoxy resin up to about 900 percent in excess of stoichiometric.

4,391,934

DRY TEXTILE WARP SIZE COMPOSITION

David J. Lesley, Greer, and Lawrence C. Davis, Jr., Spartanburg, both of S.C., assignors to ABCO Industries, Inc., Roebuck, S.C.

Filed Dec. 5, 1980, Ser. No. 213,328

Int. Cl.³ C08L 1/28, 3/00

U.S. Cl. 524—43

23 Claims

1. A dry textile warp size composition for yarns that contains synthetic or natural fibrous materials comprising a blend of a polyester resin, said resin including ionic hydrophilic groups therein, said resin further being at least substantially saturated, and in particulate form, and a film former, said blend being at least water dispersible and the particulate polyester resin in said blend being at least substantially non-adherent to adjacent polyester resin particles.

4,391,935

FLAME RETARDANT POLYCARBONATE COMPOSITION

Charles A. Bialous, Evansville; John B. Luce, Mt. Vernon, and Victor Mark, Evansville, all of Ind., assignors to General Electric Company, Mt. Vernon, Ind.

Continuation of Ser. No. 949,964, Oct. 10, 1978, abandoned, which is a continuation of Ser. No. 496,128, Aug. 9, 1974, abandoned. This application May 4, 1981, Ser. No. 260,300

Int. Cl.³ C08K 5/45

U.S. Cl. 524—82

3 Claims

1. A composition meeting UL-94 V₀ requirements consisting essentially of (1) a non-halogenated aromatic polycarbonate, (2) a flame retardant effective amount of an alkali metal or alkaline earth metal salt of an organic acid of the group unsubstituted monomeric or polymeric aromatic sulfonic acids, monomeric or polymeric aromatic sulfonesulfonic acids, sulfonic acids of aromatic ketones, heterocyclic sulfonic acids, halogenated non-aromatic carboxylic acids, sulfonic acids of aromatic sulfides, monomeric or polymeric aromatic ether sulfonic acids, aliphatic and olefinic sulfonic acids, monomeric or polymeric phenol ester sulfonic acids, unsubstituted or halogenated oxocarbon acids, sulfonic acids of monomeric and polymeric aromatic carboxylic acids and esters,

halocycloaliphatic aromatic sulfonic acids, monomeric or polymeric aromatic amide sulfonic acids, monomeric or polymeric aromatic sulfonic acids, (3) and a non-dripping effective amount of an ASTM Type 3 polytetrafluoroethylene.

4,391,936

MOLDING BLENDS

Marion G. Waggoner, Hockessin, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 208,548, Nov. 20, 1980, abandoned. This application Aug. 11, 1982, Ser. No. 407,244 Int. Cl.³ C08L 77/02

U.S. Cl. 524—89

3 Claims

1. A polyamide molding blend consisting essentially of (a) at least one polyamide of film-forming molecular weight, (b) about 1-3 percent by weight of polyamide of carbon black, and (c) between about 0.1-2 percent by weight of polyamide of nigrosine.

4,391,937

COLOR STABLE CHELATED TITANATE COMPOSITIONS

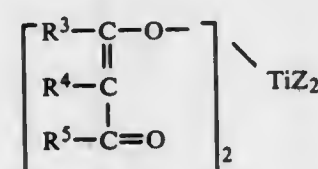
James R. Falender, Sanford, and Angelika H. McHale, Midland, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Oct. 5, 1981, Ser. No. 308,704 Int. Cl.³ C08L 83/06

U.S. Cl. 524—119

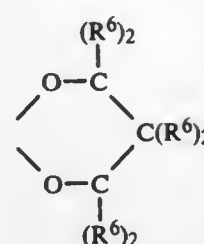
34 Claims

1. An elastomeric composition comprising (i) a hydroxyl endblocked polydiorganosiloxane, (ii) a silane or mixture of silanes having an average of from 2.01 to 4 inclusive alkoxy radicals, and a sufficient amount of a titanium-containing composition to yield from 0.1 to 10 parts by weight of chelated titanium compound based upon 100 parts by weight of the hydroxyl endblocked polydiorganosiloxane, said elastomeric composition being stable under conditions excluding moisture and curable by exposure to moisture, where said titanium-containing composition comprise the product obtained by mixing, under conditions which substantially exclude moisture, (a) a chelated titanium compound having a formula



in which

- R^3 is a monovalent hydrocarbon radical having from 1 to 18 inclusive carbon atoms,
 R^4 is a monovalent radical selected from the group consisting of hydrocarbon radicals having from 1 to 18 carbon atoms, and hydrogen,
 R^5 is a monovalent radical selected from the group consisting of hydrocarbon radicals and aliphatic hydrocarbonoxy radicals each having from 1 to 18 inclusive carbon atoms, and
 Z is a radical selected from the group consisting of monovalent aliphatic hydrocarbonoxy radicals and monovalent acyloxy radicals, each having from 1 to 18 inclusive carbon atoms; hydroxyl radical; divalent oxygen atoms forming a TiOTi linkage; and when taken together form an alkanedioxy radical of the formula



in which

R^6 is a radical selected from the group consisting of hydrogen atom and monovalent aliphatic hydrocarbon radicals having not more than 8 carbon atoms, the total number of carbon atoms in the alkanedioxy radical is not more than 18, and

- (b) from 1 to 100 parts by weight based on 100 parts by weight of (a), of an additive soluble in the chelated titanium compound and being selected from the group consisting of (1) an ester of thioalkanoic acid of the formula



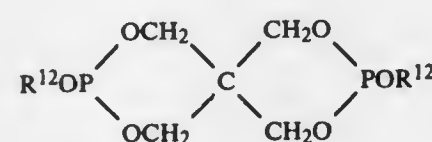
wherein R^8 is an alkyl group containing from 1 to 15 inclusive carbon atoms and a is an integer of from 1 to 4 inclusive,

- (2) di-tertiary-butyl phenol containing compounds selected from the group consisting of 2,6-di-tert-butyl-4-methylphenol, tetrakis[methylene-3-(3',5'-di-tert-butyl-4'-hydroxyphenyl)propionate]methane, octadecyl-3-(3',5'-di-tert-butyl-4'-hydroxyphenyl)propionate, 4,4'-methylenebis(2,6-di-tert-butylphenol), 1,6-hexamethylene-bis-(3,5-di-tert-butyl-4-hydroxyhydrocinnamate), and thiodiethylenebis-(3,5-di-tert-butyl-4-hydroxy hydrocinnamate),

- (3) an organic phosphite selected from the group consisting of the formula



wherein R^{10} and R^{11} are selected from the group consisting of linear or branched alkyl radicals of from 1 to 18 carbon atoms, and phenyl radical, wherein b is 0 or 1, and the formula



wherein R^{12} is a linear or branched alkyl radical of from 1 to 18 carbon atoms, and

- (4) a mixture of (2) and (3), the composition having a color of less than 13 as determined by the Gardner Color Scale and being stored under conditions substantially excluding moisture.

4,391,938

POLYETHYLENE TEREPHTHALATE COMPOSITIONS HAVING IMPROVED CRYSTALLIZATION RATE AND SURFACE APPEARANCE

Nazir A. Memon, Fallsington, and Cielo S. Myers, Holland, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Feb. 16, 1982, Ser. No. 349,215 Int. Cl.³ C08K 3/40, 5/11; C08G 63/70

U.S. Cl. 524—270

11 Claims

1. Composition comprising polyethylene terephthalate and from about 1 to about 10% by weight of an additive, based on

polyethylene terephthalate and additive, said additive being present to promote crystallization rate and improve surface appearance, said additive being selected from the group consisting of monomeric esters of citric acid and epoxidized esters of unsaturated aliphatic carboxylic acids.

4,391,939

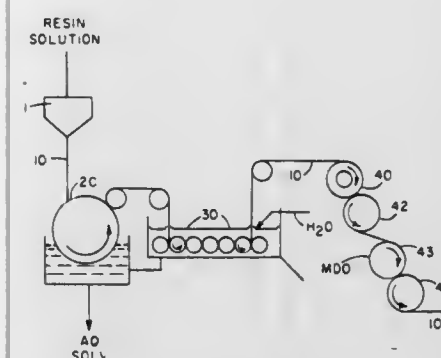
POLYMER FILM TREATMENT WITH ORGANIC IMPREGNANT

Gordon P. Hungerford, Palmyra, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 17, 1981, Ser. No. 255,029 Int. Cl.³ B29C 25/00

U.S. Cl. 524—377

9 Claims



1. A self-supporting uniform film consisting essentially of (a) biaxially-oriented high nitrile addition polymer containing at least 80% acrylonitrile repeating units; and (b) dispersed in the polymer triethylene glycol in sufficient amount to plasticize the polymer and substantially increase film toughness.

4,391,940

FLUOROPOLYMERS WITH SHELL-MODIFIED PARTICLES, AND PROCESSES FOR THEIR PREPARATION

Jürgen Kuhls, Burghausen; Franz Mayer, and Herbert Fitz, both of Burghausen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany Continuation of Ser. No. 214,464, Dec. 8, 1980, abandoned. This application Mar. 16, 1982, Ser. No. 358,828

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949907

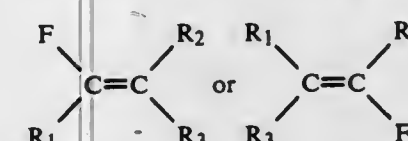
Int. Cl.³ C08L 27/18

U.S. Cl. 524—458

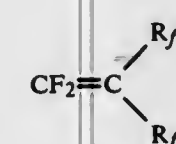
14 Claims

1. Aqueous polymer dispersion containing colloidal particles of a partially modified tetrafluoroethylene polymer with a multi-shell particle structure of shells of different composition, said particles consisting essentially of

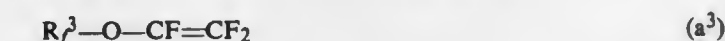
- (a) a particle core comprising a polymer of 0.05 to 6% by weight of units of at least one modifying fluoro-olefinic comonomer of the formulae



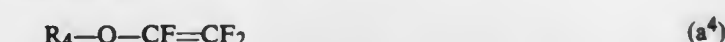
wherein R_1 is H, Br or Cl; R_2 is F or R^1 , R^1 denoting a perfluoroalkyl radical with 1 to 4 C atoms; and R_3 is R_1 or R_2 ;



wherein R^1 is a perfluoroalkyl radical with 1 to 4 C atoms and R^2 is F or a perfluoromethyl radical;



wherein R^3 is a perfluoroalkyl radical with 1 to 5 C atoms; or



wherein R_4 is a radical $XCF_2-(CF_2)_m-$ in which X is H or Cl and m denotes an integer from 0 to 4, and units of tetrafluoroethylene, the proportion of the particle core being 5 to 20% by weight of the total particle,

- (b) an inner particle shell, immediately adjacent to the particle core, of a polymer consisting of tetrafluoroethylene units, and
- (c) an outer particle shell, immediately adjacent to the inner particle shell, of a polymer comprising 0.1 to 15% by weight of units of at least one modified, fluoro-olefinic comonomer of the formulae (a¹), (a²), (a³), and (a⁴), these formulae being as defined under (a), and units of tetrafluoroethylene, the weight ratio of the inner particle shell to the outer particle shell being 75:25 to 99.5:0.5.

4,391,941

STABILIZED POLYPROPYLENE COMPOSITIONS

George R. Cotten, Lexington, and Avrom I. Medalia, Newton, both of Mass., assignors to Cabot Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 87,744, Oct. 24, 1979, abandoned. This application Sep. 18, 1981, Ser. No. 303,706 Int. Cl.³ C08K 3/04

U.S. Cl. 524—495

6 Claims

1. A composition of matter having improved resistance to the harmful effects of visible and ultraviolet light comprising a thermally stabilized polypropylene and as a light stabilizer for the composition a furnace carbon black which has been heat treated at a temperature of from about 1200° to about 3000° C. under a non-oxidizing atmosphere, said light stabilizer being present in amounts of from about 0.1 to about 2.0 percent by weight based on the weight of the thermally stabilized polypropylene.

4,391,942

VIBRATION-INSULATING RUBBER COMPOSITION

Hideo Nakauchi, Yokohama; Shingo Kato, Tokyo, and Yukio Ando, Yokohama, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan

Filed Apr. 6, 1982, Ser. No. 366,084 Int. Cl.³ C08K 3/04, 5/01

U.S. Cl. 524—526

11 Claims

1. A vibration-insulating rubber composition comprising: 45 to 75 parts by weight of at least one rubber selected from the group consisting of natural rubber, isoprene rubber, butadiene rubber and styrene-butadiene rubber having a styrene content of about 23%; 40 to 20 parts by weight of a halogenated butyl rubber; 5 to 15 parts by weight of a copolymer having a styrene content of not less than 50%; 20 to 80 parts by weight of carbon black, based on 100 parts by weight of the total of the above rubbers and copolymer; and 3 to 25 parts by weight of an aromatic process oil, based on 100 parts by weight of the total of the above rubbers and copolymer.

4,391,943

UV STABILIZED NYLON 6

Howard A. Scheetz, Lancaster, Pa., assignor to The Polymer Corporation, Reading, Pa.

Filed Jan. 4, 1982, Ser. No. 336,713

Int. Cl.³ C08K 3/04; C08L 67/00, 77/00

U.S. Cl. 524-538

2 Claims

1. A UV stabilized nylon 6, a polymer of caprolactam, containing about 0.5% to 5.0% carbon black, the improvement comprising the addition of from 5% to 50% by weight of a polyester elastomer.

4,391,944

VINYL CHLORIDE COPOLYMER AND COMPOSITION CONTAINING THE SAME

Kazumasa Yamane, Kobe; Masahiro Kobayashi, Amagasaki, and Masaniko Takada, Akashi, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan Division of Ser. No. 210,858, Nov. 26, 1980, Pat. No. 4,363,903. This application Sep. 15, 1981, Ser. No. 302,470

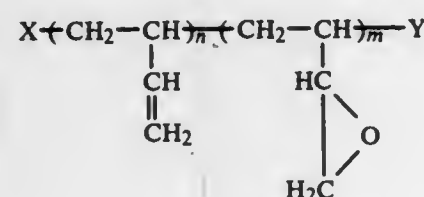
Claims priority, application Japan, Nov. 30, 1979, 54-155874; Dec. 4, 1979, 54-157296

Int. Cl.³ C08K 5/09, 5/10, 5/49

U.S. Cl. 524-548

1 Claim

1. A composition comprising (A) a copolymer prepared by polymerizing a reaction system comprising a monomeric mixture of (a) vinyl chloride or a mixture of at least 50% by weight vinyl chloride and a monomer copolymerizable therewith and (b) 0.001 to 10 parts by weight per 100 parts by weight of the monomeric component (a) of a compound having the following general formula:



wherein

X and Y are independently hydrogen, hydroxyl or carboxyl, n is an integer of 2 to 100 and m is 0 or an integer of 1 to 80,

the polymerization being carried out employing a free-radical polymerization initiator; and

(B) 25 to 200 parts by weight of a plasticizer per 100 parts by weight of said copolymer, the composition giving a molding having a compression set of not more than 50% and a tensile strength of not less than 1.30 kg/mm².

4,391,945

CHELATE RESIN PREPARED BY REACTING BUTANE-1,2,3,4-TETRA-CARBOXYLIC ACID OR ANHYDRIDE WITH POLYETHYLENE POLYAMINE

Fujio Mashio, and Shuji Kitamura, both of Kyoto, Japan, assignors to Mitsui Toatsu Inorganic Chemicals, Inc., Tokyo, Japan

Filed Apr. 7, 1981, Ser. No. 251,789

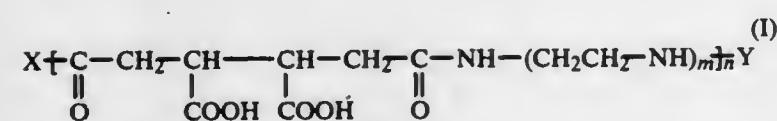
Claims priority, application Japan, Apr. 10, 1980, 55-47699

Int. Cl.³ C08G 69/26

U.S. Cl. 524-600

31 Claims

1. A resin having the formula (I):

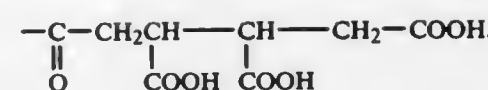


wherein,

m stands for an integer of 2 to 6 or for a mixture having an average value of 4 to 5,

n stands for a mixture having an average value of 4 to 10, X stands for -OH or -NH-CH₂CH₂)_nNH₂, and

Y signifies H or



4,391,946

FURAN POLYMER CONCRETE

Denis W. Akerberg, Huntley, and David D. Watson, Barrington, both of Ill., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Nov. 18, 1981, Ser. No. 322,489

Int. Cl.³ C08L 45/00

U.S. Cl. 524-849

9 Claims

1. A polymer concrete for use in a corrosive environment comprising a nonalkaline aggregate, a furan binder having a viscosity less than 15 cps at 25° C. and an acidic catalyst, wherein said furan binder comprises furfuryl alcohol, a silane and less than 25 percent by weight based on the weight of the furan binder of a cross-linking monomer selected from the group consisting of bis-phenol A, furfural, resorcinol, hydroxymethylfuran, and bis-hydroxymethylfuran.

4,391,947

LOW VISCOSITY POLYESTER COATING COMPOSITIONS

Daniel R. Sassano, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 6, 1980, Ser. No. 204,442

Int. Cl.³ C08L 67/06

U.S. Cl. 525-11

6 Claims

1. A fluid, thermally stable, solventless, insulating composition, useful as a dipping and impregnating resin, consisting essentially of:

(1) 100 parts by weight of a polyester composition consisting of the admixture of:

(A) about 15 mole % to about 40 mole % of unsaturated cyclic dicarboxylic acid selected from the group consisting of isophthalic acid, tetrahydrophthalic acid, endo methylene tetrahydrophthalic acid, their anhydrides and their mixtures;

(B) 5 mole % to 20 mole % of an unsaturated aliphatic dicarboxylic acid;

(C) about 35 mole % to about 60 mole % of neopentyl glycol as sole aliphatic dihydric alcohol;

(D) 25 mole % to 35 mole % of copolymerizable unsaturated vinyl monomer;

(E) from 0 mole % to about 20 mole % of tris (2 hydroxy alkyl) isocyanurate, where alkyl is from 2 to 6 carbon atoms; and

(F) an active, dual inhibiting agent combination consisting of:

(i) 200 ppm. to 300 ppm. hydroquinone, and

(ii) 60 ppm. to 120 ppm. mono tert butyl hydroquinone and including an effective amount of solubilizer for the inhibiting combination; said polyester composition having a viscosity of from about 500 cps. to about 1,750 cps. at 25° C.; and

(2) from 0 parts to about 10 parts by weight of a melamine-formaldehyde compound.

4,391,948

EMULSION/SUSPENSION ASA GRAFT COPOLYMERS AS FLOW MODIFIERS FOR PVC

John C. Falk, Northbrook, Ill., and Mike S. D. Juang, Vancouver, Wash., assignors to Borg-Warner Chemicals, Inc., Parkersburg, W. Va.

Filed Jun. 25, 1982, Ser. No. 392,423

Int. Cl.³ C08L 27/06, 51/04

U.S. Cl. 525-57

2 Claims

1. A composition comprising polyvinyl chloride (PVC) and an acrylonitrile-styrene-poly(butyl acrylate) (ASA) graft copolymer wherein said ASA graft copolymer is prepared by polymerizing acrylonitrile and styrene monomers in the presence of an emulsion of poly(butyl acrylate) and from 0.1 to about 1.0 parts per 100 parts of graft polymer of a mixture of polyvinyl pyrrolidone (PVP) and polyvinyl alcohol (PVA) in the ratio of from about 1 to 4 parts of PVP to about 4 to 1 parts of PVA, thereby converting the polymerization system from an emulsion to a suspension.

4,391,949

ASYMMETRIC BLOCK COPOLYMERS AND CORRESPONDING ADHESIVE FORMULATIONS

David J. St. Clair, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

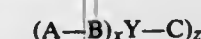
Filed Nov. 12, 1981, Ser. No. 320,233

Int. Cl.³ C08L 9/00

U.S. Cl. 525-99

17 Claims

1. A block copolymer having the star-shaped, asymmetrical structure



where A is a polymer block of a monoalkenyl arene, B is a polymer block of a conjugated diene, C is a polymer block of a conjugated diene, Y is the residue of a multifunctional coupling agent, the sum of x plus z is greater than 6 and less than about 25, the ratio of x to z is between about 5 to 1 and about 1 to 5, the molecular weight of each block A is between about 3,000 and about 30,000, the molecular weight of each block B is between about 15,000 and about 100,000, and the molecular weight of each block C is between about 15,000 and about 100,000.

4,391,950

POLYPHENYLENE ETHER COMPOSITION AND PROCESS FOR PRODUCTION

Glenn D. Cooper, Delmar, N.Y., assignor to General Electric Company, Pittsfield, Mass.

Filed Sep. 2, 1981, Ser. No. 298,534

Int. Cl.³ C08G 65/44

U.S. Cl. 525-132

16 Claims

1. A thermoplastic composition having improved color properties, comprising the reaction product of polyphenylene ether with a minor amount of benzoic anhydride sufficient to improve the color or the color stability.

4,391,951

NYLON 6 WITH IMPROVED WEAR LIFE

Howard A. Scheetz, Lancaster, Pa., assignor to The Polymer Corporation, Reading, Pa.

Filed Jan. 4, 1982, Ser. No. 336,712

Int. Cl.³ C08L 67/02, 77/02

U.S. Cl. 525-166

4 Claims

1. A molding composition comprising a melt blend of: a major weight amount of nylon 6, a polymer of caprolactam, and 2 to 5 weight percent amount of a polyolefin, 2 to 5 weight percent of a polyfluorocarbon and 5 to 46 weight percent of a polyester elastomer.

4,391,952

ANTI-STATIC MATERIAL AND METHOD OF MAKING THE MATERIAL

William Lybrand, Northridge, Calif., assignor to Bengal, Inc., Sepulveda, Calif.

Filed Dec. 4, 1981, Ser. No. 327,485

Int. Cl.³ C09K 3/16

U.S. Cl. 525-333.7

7 Claims

1. In combination for eliminating static charges by providing a resistivity of approximately 10⁶ to 10⁹ ohms, a polyethylene of high specific gravity, copper acetate dispersed in the polyethylene in a weight of approximately 24 grams per 100 pounds of polyethylene, and an ethoxylated amine dispersed in the polyethylene in a weight of approximately 1,044 grams per 100 pounds of polyethylene.

4,391,953

DIENE RUBBER COMPOSITIONS CONTAINING N,N'-DITHIOFORMANILIDE CROSSLINKERS

Eiichi Morita, Copley, Ohio, assignor to Monsanto Company, St. Louis, Mo.

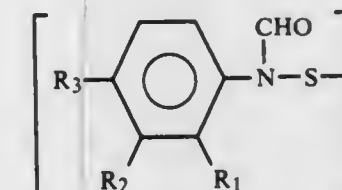
Filed Sep. 8, 1981, Ser. No. 299,891

Int. Cl.³ C08C 19/20

U.S. Cl. 525-351

7 Claims

1. A composition comprising diene rubber and a cross-linking amount of a compound of the formula



wherein R₁, R₂, and R₃ are the same or different substituents selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, chlorine and CF₃.

4,391,954

THERMOPLASTIC MOLDING COMPOSITION

Steven W. Scott, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Continuation of Ser. No. 750,512, Dec. 14, 1976, abandoned.

This application Mar. 12, 1981, Ser. No. 243,142

Int. Cl.³ C08L 67/02

U.S. Cl. 525-439

5 Claims

1. A compatible composition consisting essentially of (a) a nonhalogenated aromatic polycarbonate derived from bisphenol-A and (b) a polyester component consisting of amorphous polyester solely derived from a cyclohexanedimethanol and a mixture of iso and terephthalic acids.

4,391,955

PROCESS FOR CROSSLINKING POLYCARBONATE RESINS

Hisako Hori, Tokyo; Nobu Kitamura, Hiratsuka; Isao Shirahata, Chigasaki, and Nobuyuki Nakamura, Fujisawa, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed Jan. 20, 1982, Ser. No. 340,973

Claims priority, application Japan, Feb. 5, 1981, 56-16018

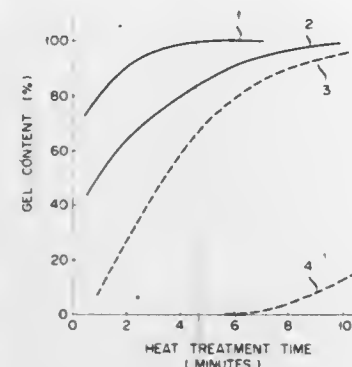
Int. Cl.³ C08L 69/00

U.S. Cl. 525-462

20 Claims

1. A process for crosslinking a polycarbonate resin comprising heating a mixture comprising (1) a polycarbonate resin selected from the group consisting of (i) polycarbonate obtained (a) by the dehydrochlorination of a dihydroxyphenyl

alkane with phosgene, or (b) by an ester interchange of a dihydroxyphenyl alkane with diphenyl carbonate, and (ii) a polymer composition containing said polycarbonate as a major component thereof, at a temperature higher than the glass



transition point of said polycarbonate resin and (2) an organic copper compound which is compatible with said polycarbonate resin, the amount of said organic copper compound being sufficient to catalyze the crosslinking of said polycarbonate resin.

4,391,956

IMPACT MODIFIED NYLON 6

Howard A. Scheetz, Lancaster, Pa., assignor to The Polymer Corporation, Reading, Pa.

Filed Jan. 4, 1982, Ser. No. 336,714

Int. Cl.³ C08L 67/02, 77/02

U.S. Cl. 525—425

2 Claims

1. A method of improving the impact properties of nylon 6, a polymer of caprolactam, which comprises melt blending the nylon with 5% to 50% by weight of a polyester elastomer.

4,391,957

ELASTICIZED ADDITION PRODUCT BASED ON POLYALKYLENE ETHER-POLYOLS AND POLYISOCYANATES, PREPARATION AND USE THEREOF

Wilhelm Becker, Hamburg, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

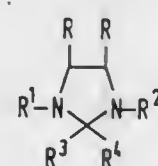
Filed Jul. 19, 1982, Ser. No. 399,791

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1981, 3128733

Int. Cl.³ C08G 18/38

U.S. Cl. 525—454

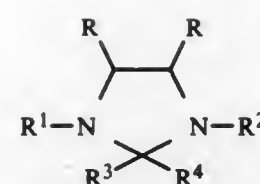
9 Claims



1. An elasticized addition product comprising

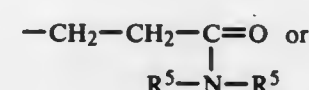
- (a) a polyalkylene ether-polyol and
(b) a polyisocyanate wherein (a) has a molecular weight of 500 to 10,000 and 2 to 6 C atoms in the alkylene radical and the ratio of the NCO groups in the component (b) to the OH groups in the component (a) is 1.5:1 to 2.5:1, the addition product thereof is reacted further with a hydroxyl compound selected from the group consisting of
(c) an imidazolidine of the formula I

wherein



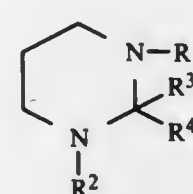
wherein R is hydrogen or alkyl having 1 to 4 C atoms, R¹ is

- (c1) hydrogen,
(c2) hydroxyalkyl and alkyl having 1 to 12 C atoms in each case,
(c3) —CH₂—R⁵,
(c4) —CH₂—CH₂—COOR⁵,



(c5)

- (c6) —CH₂—CH₂—CN
wherein R⁵ represents in each hydroxyalkyl or alkyl having up to 8 C atoms, R² denotes
(c7) alkyl or alkylene having in each case 1 to 12 C atoms or denotes one of the radicals (c3) to (c6), R³ and R⁴ each denote hydrogen or alkyl having 1 to 5 C atoms or R³ and R⁴ together denote alkylene having 4 to 6 C atoms, and
(d) a hexahydropyrimidine derivative of the general formula



(II)

wherein R¹ to R⁵ have the meaning as mentioned under (c), at least one of each of the substituents R¹ to R⁵ in the formulae (I) and (II) carrying a hydroxyl group; the ratio of NCO groups to the OH groups of component (c) and (d) or a mixture thereof is approximately 1:1.

4,391,958

ALDIMINES AND KETIMINES OF 1,3,5-(AMINOMETHYL)BENZENE OR CYCLOHEXANE AND THEIR USE AS CURING AGENTS FOR EPOXY AND POYLURETHANE RESINS

Ichiro Minato, Osaka; Koichi Shibata, Ashiya, and Kimiya Fujinami, Takarazuka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

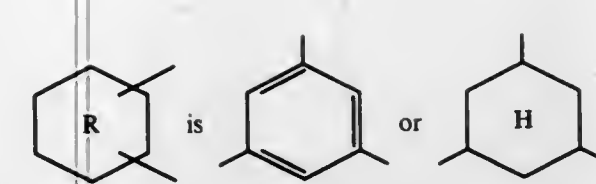
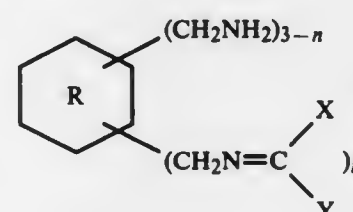
Filed Nov. 17, 1981, Ser. No. 322,204

Claims priority, application Japan, Nov. 28, 1980, 55-168377
Int. Cl.³ C08G 18/83, 59/14; C07C 119/06

U.S. Cl. 525—504

13 Claims

1. A triamine derivative of the general formula:



X is hydrogen or a hydrocarbon radical of 1 to 8 carbon atoms; Y is a hydrocarbon radical of 1 to 8 carbon atoms; X and Y, together with their neighboring carbon atom, may form a 5- to 7-membered aliphatic hydrocarbon ring; and n is an integer of 1, 2 or 3.

13. An epoxy resin composition containing a triamine derivative according to claim 1 as a curing agent.

4,391,959

POLYMERIZATION OF ISOBUTYLENE

Karl-Heinz Fauth, Wattenheim; Heinrich Mohr, Frankenthal, and Wolfgang Immel, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 238,594, Feb. 26, 1981, abandoned. This application Jan. 22, 1982, Ser. No. 341,875

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1980, 3010870

Int. Cl.³ C08F 4/14

U.S. Cl. 526—70

4 Claims

1. A process for the preparation of polyisobutylene by polymerizing isobutylene in a polymerization zone which is at from 0° to —130° C. by means of from 0.01 to 1.0 percent by weight, based on isobutylene employed, of boron trifluoride catalyst, in the presence or absence of from 10 to 5,000 ppm, based on the weight of isobutylene employed, of molecular weight regulators and/or in the presence of from 10 to 5,000 ppm, based on the weight of isobutylene employed, of a primary or secondary alcohol as polymerization accelerator, and in the presence of from 30 to 90 percent by weight, based on isobutylene employed, of a low-boiling solvent which is inert under the reaction conditions, the solvent vaporized during the polymerization being drawn off continuously, liquefied and recycled, in the liquid state, to the polymerization zone, wherein a boron trifluoride catalyst which contains less than 0.3 percent by volume of silicon tetrafluoride is used and the solvent is recycled not less than twice during the continuous polymerization.

4,391,960

PROCESS FOR THE POLYMERIZATION OF VINYL HALIDE POLYMERS

Willi Kleine, and Werner Frey, both of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 4, 1981, Ser. No. 270,483

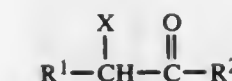
Claims priority, application Fed. Rep. of Germany, Jul. 3, 1980, 3025171

Int. Cl.³ C08F 2/20

U.S. Cl. 526—74

11 Claims

1. In the process for the polymerization of vinyl halide polymers comprising polymerizing at least one vinyl halide and, optionally, other olefinically-unsaturated monomers copolymerizable with vinyl halides, in an aqueous dispersion in the presence of free-radical-forming polymerization initiators, dispersants and, other customary additives, in the presence of an inhibitor of polymer deposits and recovering said vinyl halide polymers, the improvement consisting essentially of adding to the reaction mixture from 10 to 1,000 ppm, based on the monomers, of at least one carbonyl compound having the formula:



wherein R¹ is selected from the group consisting of hydrogen and a straight or branched alkyl having from 1 to 9 carbon atoms; R² is selected from the group consisting of an alkoxy having from 1 to 9 carbon atoms, and an alkyl having from 1 to 9 carbon atoms; X is selected from the group consisting of hydroxy and R³—CO—, wherein R³ represents an alkyl having from 1 to 9 carbon atoms; as said inhibitor of polymer deposits.

4,391,961

PROCESS FOR PREPARING LIGHT COLORED PETROLEUM RESINS AND RESINS PRODUCED THEREBY (CS-203)

Augustus B. Small; Vincent L. Hughes, and Francisco M. Benitez, all of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 9, 1981, Ser. No. 252,434

Int. Cl.³ C08F 2/00, 10/100

U.S. Cl. 526—76

4 Claims

1. A process for producing a hydrocarbon resin of improved color and thermal stability which comprises heat soaking a petroleum cracking or reforming fraction containing cationically polymerizable hydrocarbons including from more than 0.5 to 2 weight percent of cycloolienes until the cycloolienes content is no more than 0.5 weight percent and the piperylene to cyclopentadiene weight ratio is above at least 50, distilling said heat soaked petroleum fraction, polymerizing said distilled petroleum fraction in the presence of an aluminum halide catalyst and recovering a resin having a Gardner color of no greater than 4 when measured on a solution of equal weights of said resin and toluene.

4,391,962

PROCESS FOR THE SUSPENSION (CO)POLYMERIZATION OF VINYL CHLORIDE

Petrus H. M. Schreurs, Deventer, and Willem F. Verhelst, Gorssel, both of Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

Filed Nov. 20, 1980, Ser. No. 208,616

Claims priority, application Netherlands, Nov. 30, 1979, 7908674

Int. Cl.³ C08F 2/20, 14/06

U.S. Cl. 526—200

5 Claims

1. An improved process for suspension polymerizing vinyl chloride in the presence of a radical initiator and at least two suspension stabilizers wherein the improvement comprises polymerizing the vinyl chloride in the presence of at least one primary stabilizer selected from the group consisting of water-soluble, partially hydrolyzed polyvinyl acetates and methyl hydroxypropyl cellulose and at least one secondary stabilizer selected from the group consisting of N-alkyl gluconamide wherein the alkyl group contains from about 16 to about 20 carbon atoms.

4,391,963

ORGANOPOLYSILOXANE PHOTOSENSITIZERS AND METHODS FOR THEIR PREPARATION

Akihiko Shirahata, Ichihara, Japan, assignor to Toray Silicone Company, Ltd., Tokyo, Japan

Filed May 27, 1982, Ser. No. 382,504

Claims priority, application Japan, Jun. 18, 1981, 56-94130

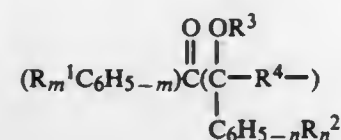
Int. Cl.³ C08G 77/04

U.S. Cl. 528—37

16 Claims

1. An organopolysiloxane photosensitizer comprising an average of at least two siloxane units, of which at least an average of one siloxane unit per organopolysiloxane molecule

has the formula $Q_0R_b^5SiO_{(4-a-b)/2}$, wherein Q denotes a benzoin-containing group having the formula



R^1 and R^2 each denote, independently, a hydrogen atom, a halogen atom, a monovalent hydrocarbon group having from 1 to 10 carbon atoms, an alkoxy group, a thioalkoxy group, an amino group or a dialkylamino group; R^3 denotes a hydrogen atom or a monovalent hydrocarbon group having from 1 to 10 carbon atoms; R^4 denotes a divalent hydrocarbon group having from 2 to 10 carbon atoms; R^5 denotes a monovalent hydrocarbon group having from 1 to 10 carbon atoms or a halogenated monovalent hydrocarbon group; m is an integer of from 1 to 5, n is an integer of from 1 to 5, a is an integer of from 1 to 3, b is an integer of from 0 to 2 and a+b is an integer of from 1 to 3.

4,391,964

EMBEDDING MASS OF POLYURETHANE

Gerhard Wick, Obernburg, and Helmut Schulze, Wuppertal, both of Fed. Rep. of Germany, assignors to Akzo NV, Arnhem, Netherlands

Filed Feb. 22, 1982, Ser. No. 351,140

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1981, 3106498

Int. Cl.³ C08L 91/00; C08G 18/75, 18/77

U.S. Cl. 528-74.5

21 Claims

1. Embedding mass of polyurethane produced on the basis of castor oil, composed of a polyurethane which has been obtained through reaction of an aromatic diisocyanate with a mixture of castor oil and trimethylolpropane into an NCO-group displaying pre-adduct and network polymerization of the pre-adduct with castor oil or a mixture of castor oil and trimethylolpropane, in the presence of catalyst, thereby characterized in that the embedding mass contains 7-700 ppm of a titanium alkylate compound, calculated as elemental titanium.

4,391,965

CURING AGENTS

Hans R. Falkenburg, Haan; Siegfried Krause, Mettmann, and Robert C. McGuiness, Erkrath, all of Fed. Rep. of Germany, assignors to Imperial Chemical Industries PLC, London, England and Hermann Wiederhold G.m.b.H. Corp., Hilden, Fed. Rep. of Germany

Filed Oct. 26, 1981, Ser. No. 315,264

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1980, 8034534

Int. Cl.³ C08G 59/42

U.S. Cl. 528-112

9 Claims

1. A coating composition which comprises in admixture (a) a curing agent which is the reaction product of a polycarboxylic acid polyanhydride with a monohydroxy compound ROH, wherein R is alkyl, substituted alkyl, or aralkyl and (b) a solution of an epoxy resin which is to be cured.

4,391,966

POLYMERS FROM PHENYLTEREPHTHALIC ACID

John F. Harris, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 102,040, Dec. 10, 1979, Pat. No. 4,294,955. This application Jul. 24, 1981, Ser. No. 286,559

The portion of the term of this patent subsequent to Oct. 13, 1998, has been disclaimed.

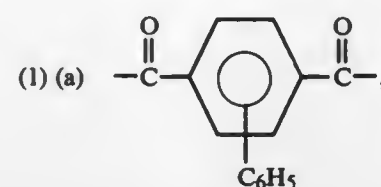
Int. Cl.³ C08G 63/18

U.S. Cl. 528-176

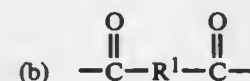
9 Claims

1. Fiber forming melt-spinnable polyester that is optically

anisotropic in the melt and consists essentially of recurring units having the structural formulas



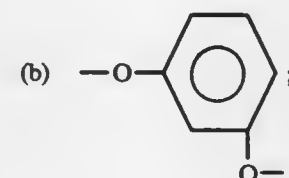
or a combination of (a) and up to 50 mole percent of



wherein R^1 is 1,4-phenylene, 2,6-naphthylene, 4,4'-biphenylene, or a mixture of any thereof;

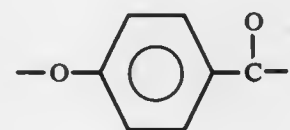
(2) (a) $-O-R^2-O-$

wherein R^2 is 1,4-phenylene, monochloro-, monophenyl-, or monoalkyl-1,4-phenylene wherein alkyl contains 1 to 4 carbon atoms, 2,6-naphthylene, 1,4-naphthylene, 4,4'-biphenylene or a mixture of any thereof, or a combination of (a) and up to 20 mole percent of



and

(3) based on the total moles of (1) and (3), 25 to 80 mole percent of



the recurring diacid units (1) and recurring dioxy units (2) being present in substantially equimolar amounts.

4,391,967

POLYIMIDES-POLYAMIDES FROM TRICYCLO

[4.2.1.0^{2,5}]

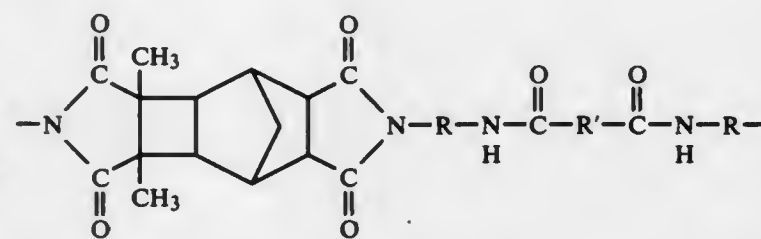
NONANE-3,4-DIMETHYL-3,4,7,8-TETRACARBOXYLIC ACID DIANHYDRIDE AND DICARBOXYLIC ACIDS
Tayseer S. Nimry, Wheaton, and Ellis K. Fields, River Forest, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 254,347, Aug. 19, 1981, Pat. No. 4,358,582. This application Sep. 29, 1982, Ser. No. 427,017
Int. Cl.³ C08G 73/14

U.S. Cl. 528-189

8 Claims

1. A polyimide-polyamide comprising the following recurring structure:



wherein R' is the same or different divalent aliphatic, cycloaliphatic, araliphatic or aromatic hydrocarbon radicals the term "R has the same meaning as R' " or is an aromatic hydrocarbon

having from about 6 to about 10 carbon atoms joined directly or by a stable linkage selected from the group consisting of $-O-$, methylene,



$-SO-$, $-SO_2-$ or $-S-$ radicals".

4,391,968

PROCESS FOR PREPARING POLYAMIDES HAVING A MODIFIED DYE AFFINITY

Gianfranco Merani, Vercelli, and Giuseppe Anzuino, Novara, both of Italy, assignors to Montedison S.p.A., Milan, Italy
Filed Feb. 20, 1981, Ser. No. 236,512

Claims priority, application Italy, Feb. 28, 1980, 20229 A/80
Int. Cl.³ C08G 69/04, 69/28

U.S. Cl. 528-321

10 Claims

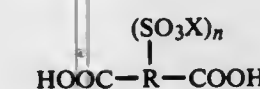
1. A process for preparing a fiber-forming polyamide having a modified dye affinity and no affinity for acid dyes and no affinity for basic dyes, which comprises polymerizing a composition of at least one polyamide-forming monomer and 1-45 millimols/kg monomer of a modifier composition consisting essentially of a mixture of a dicarboxylic acid having the general formula



(I)

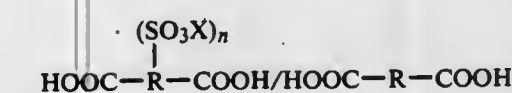
wherein R is a simple or simply substituted aromatic radical having 6 to 18 carbon atoms, cycloaliphatic radical having 4 to 18 carbon atoms, or an alkylene radical having 1 to 12 carbon atoms, and

a salt of a sulphonated dicarboxylic acid having the general formula:



(II)

wherein R has the meaning specified hereinabove, X is an alkali or alkaline earth metal or ammonium radical, and n is an integer from 1 to 4, in which the molar ratio between the salt of the sulphonated dicarboxylic acid and the dicarboxylic acid,



ranges from 0.01 to 1.

4,391,969

MODIFIED SULFUR CEMENT

William C. McBee, and Thomas A. Sullivan, both of Boulder City, Nev., assignors to The United States of America as represented by the Department of Commerce, Washington, D.C.

Continuation-in-part of Ser. No. 196,172, Oct. 14, 1980, Pat. No. 4,348,313, which is a continuation-in-part of Ser. No. 85,450, Oct. 16, 1979, Pat. No. 4,311,826. This application May 22, 1981, Ser. No. 266,484

The portion of the term of this patent subsequent to Jan. 19, 1999, has been disclaimed.

Int. Cl.³ C08G 75/16

U.S. Cl. 528-389

8 Claims

1. A modified sulfur cement formulation, consisting essentially of: the polymeric reaction product of sulfur with from 2 to 20 wt. % of a cyclopentadiene oligomer mixture-dicyclopentadiene containing modifier, said cyclopentadiene oligomer mixture being free of dicyclopentadiene, wherein the cyclopentadiene oligomer mixture content of said modi-

fier is at least 37 wt. %, said sulfur cement product having a softening point ranging up to 116° C.

4,391,970

PROCESS FOR PREPARING COLORLESS HYDROXYL EPIHALOHYDRIN POLYMERS

Yoshihisa Okamoto, Sagamore Hills, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed May 6, 1982, Ser. No. 375,243

Int. Cl.³ C08G 65/24, 65/28, 65/30

U.S. Cl. 528-408

7 Claims

1. In a process for the manufacture of hydroxyl-terminated polymers which comprises polymerizing an epihalohydrin in the presence of from about 0.03 part to 15.0 parts by weight of water or polyol, based on 100 parts by weight of the epihalohydrin, and catalytic amounts of a trialkyl oxonium salt of an HMF₆ acid wherein M is an element selected from the group consisting of phosphorus, arsenic and antimony, the improvement comprising washing the polymer with an aqueous solution of an alkali metal carbonate, the amount of said metal carbonate being a molar excess over the amount of said catalyst, at a temperature of greater than 40° C., whereby there is obtained a clear, colorless, heat stable polymer having a pH of about 5 to 8.

4,391,971

COLOR IMPROVEMENT AND ACETALDEHYDE REDUCTION IN HIGH MOLECULAR WEIGHT POLYESTERS

Freddie L. Massey, Uniontown, and Douglas D. Callander, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 28, 1981, Ser. No. 334,769

Int. Cl.³ C08G 63/70

U.S. Cl. 528-481

9 Claims

1. The method of treating molten polyester resin which comprises heating said resin to a temperature of from 230° C. to about 300° C. and passing said resin through a molecular sieve.

4,391,972

CONTINUOUS REMOVAL OF RESIDUAL HYDROCARBONS FROM POLYOLEFINS

Karl Kaiser, Brühl, and Alexander Ohorodnik, Erfstadt, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 950,563, Oct. 12, 1978, abandoned.

This application Apr. 2, 1981, Ser. No. 250,387

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1977, 2746909

Int. Cl.³ C08F 6/10

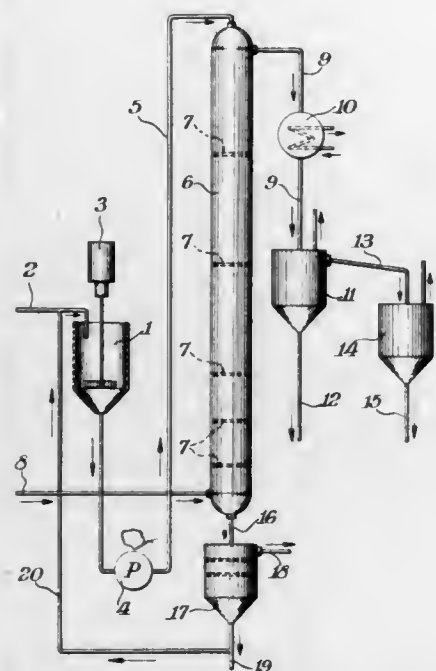
U.S. Cl. 528-499

9 Claims

1. In a process for freeing polyolefins, selected from the group consisting of polyethylene and polypropylene made by catalytic polymerization of alpha-olefins in a hydrocarbon solvent having 6-11 carbon atoms and containing about 10 to 50 weight % residual hydrocarbons, from said residual hydrocarbons by mixing the hydrocarbon-containing polyolefin with water, agitating the mixture so as to convert it into a homogeneous dispersion containing 10 to 40 weight % of the polyolefin, contacting said dispersion countercurrently with steam, removing an aqueous polyolefin dispersion free from said hydrocarbons and separating the polyolefin from the water, the improvement which comprises:

- using surfactant-containing water having a surface tension of 50 to 68 dynes/cm., with respect to air, measured at 20° C. with said surfactant being ethoxylated stearic acid;
- subsequently introducing the homogeneous dispersion into the upper portion of a column with at least 5 sieve plates therein for contacting it with the steam, said sieve

plates having a free cross-sectional area increasing continuously from the lowermost to uppermost plate by about 3% up to 90% of the plate surface area and being arranged so as to be spaced from each other as intervals increasing



from the lowermost to the uppermost plate, the interval between the two uppermost plates being 10 times the interval between the two lowermost plates; and
(c) removing the aqueous polyolefin dispersion free from said hydrocarbons through said column's base portion.

4,391,973

READILY HYDRATABLE CELLULOSE AND PREPARATION THEREOF

Mamerto M. Cruz, Jr., Pennington, N.J., assignor to Morca, Inc., Pennington, N.J.

Filed Aug. 17, 1981, Ser. No. 293,109
Int. Cl.³ C08B 1/00

U.S. Cl. 536-56

9 Claims

1. The method of producing water-insoluble cellulose particles that form floc-like slurries when mixed in water which comprises subjecting a mechanically fibrillated fibrillatable cellulose precursor to hydrolysis by the use of an aqueous solution of a non-derivatizing mineral acid and recovering water-insoluble, highly hydrated, floc-like cellulose particles.

4,391,974

WATER SOLUBLE CEPHADROXYL SALT

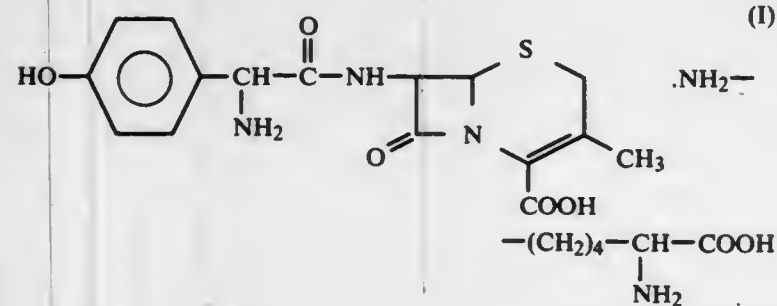
Santiago A. Ciriza, and Carlos E. L. Padro, both of Barcelona, Spain, assignors to Liofilizaciones Esterilizaciones Y Sintesis S.A., Barcelona, Spain

Filed Dec. 29, 1980, Ser. No. 220,286
Claims priority, application Spain, Feb. 5, 1980, 488286
Int. Cl.³ C07D 501/20; A61K 31/545

U.S. Cl. 544-030

1 Claim

1. A water soluble salt of cephadroxy or 7-[D(-)-alpha-amino-alpha-(4-hydroxyphenyl)-acetamido]-3-methyl-3-cephem-4-carboxylic acid having the formula:



4,391,975

PROCESS FOR 1-OXACEPHEM DERIVATIVES

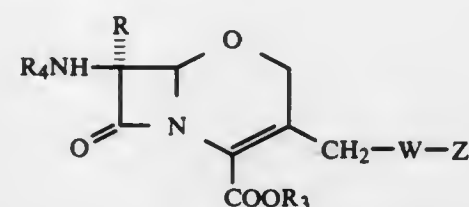
Saul Wolfe, Kingston, and Chia-Cheng Shaw, Montreal, both of Canada, assignors to Queen's University at Kingston, Kingston, Canada

Continuation-in-part of Ser. No. 330,838, Dec. 15, 1981, abandoned. This application Mar. 8, 1982, Ser. No. 356,236
Int. Cl.³ C07D 498/04

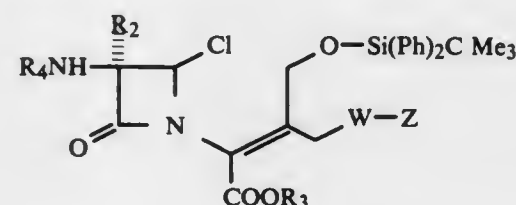
U.S. Cl. 544-90

13 Claims

1. A process for preparing a 1-oxacephem derivative of the formula I



in which R₄ is hydrogen or a cleavable amino-protecting acyl group, or R₄NH represents phthalimido, R₃ is hydrogen or a cleavable carboxy-protecting group, R² is hydrogen or methoxy, W is NH, O, or S and Z is selected from lower acyl groups and from five membered heterocycles containing 1-4 hetero atoms and optionally substituted with loweralkyl, which comprises treating a compound of the formula II



in which R₄, R₃, R₂, W and Z are as defined above with fluoride ions, and isolating the corresponding compound of formula I.

4,391,976

PROCESS FOR PRODUCING ARYLSULFAMATES

Beat Böhner, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

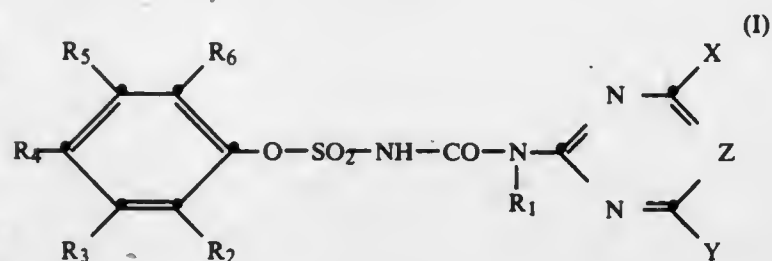
Filed Oct. 19, 1981, Ser. No. 313,064

Int. Cl.³ C07D 251/46, 251/42, 239/42, 239/47

U.S. Cl. 544-211

11 Claims

1. A process for producing an N-(heterocyclo-amino-carbonyl)-arylsulfamate of the formula I

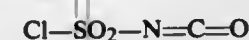


wherein

R₁ is hydrogen, methoxy or C₁-C₃-alkyl,
R₂ is hydrogen, fluorine, chlorine, bromine, nitro, CF₃, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxycarbonyl,
R₃ is hydrogen, fluorine, chlorine, bromine, methyl or C₁-C₄-alkoxy,
R₄ is hydrogen, fluorine, chlorine, bromine, nitro, cyano, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxycarbonyl,
R₅ is hydrogen, fluorine, chlorine, bromine, nitro or CF₃,
R₆ is hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl or C₁-C₄-alkoxy,
X is C₁-C₂-alkyl, C₁-C₃-alkoxy, C₁-C₂-alkylthio, methoxymethyl, methoxyethyl, CF₃ or chlorine,

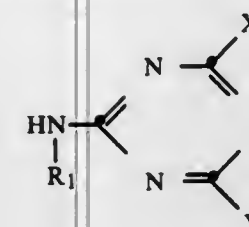
Y is C₁-C₂-alkyl, C₁-C₃-alkoxy, C₁-C₂-alkylthio, methoxymethyl or methoxyethyl, and

Z is the methine group or nitrogen, which process comprises adding, in an inert organic solvent, chlorosulfonylisocyanate of the formula III

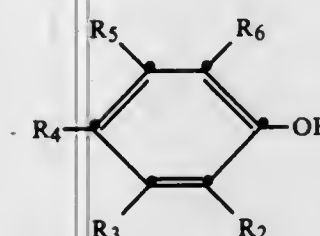


(III)

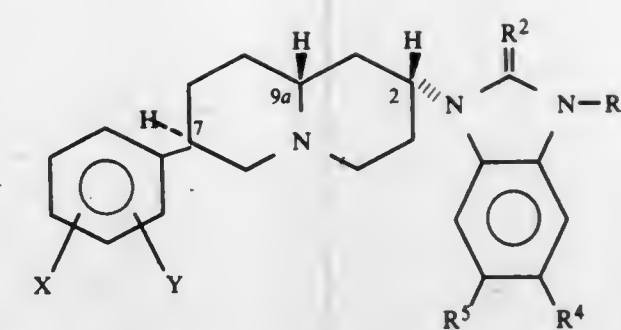
to an aminoheterocyclic compound of the formula II



wherein R₁, X, Y and Z have the meanings defined under the formula I; and subsequently reacting this mixture, optionally with the addition of an agent binding hydrogen chloride, with a phenol of the formula IV



wherein R₂ and R₃ have the meanings given under the formula I.

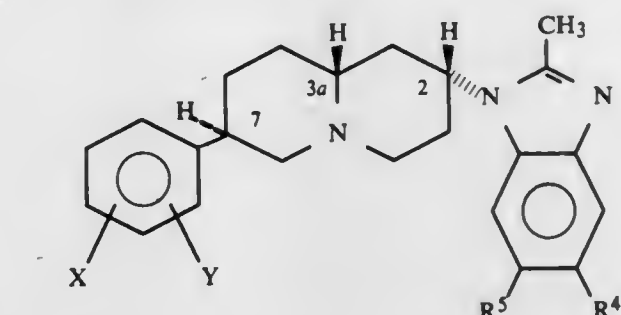


IV-1

wherein X is hydrogen, fluorine, chlorine, lower-alkoxy, lower-alkyl or trifluoromethyl; Y is hydrogen, fluorine, chlorine, lower-alkoxy, or lower-alkyl; R² is oxygen or sulfur; R³ is hydrogen or lower-alkyl; and one of R⁴ and R⁵ is hydrogen and the other is bromine, iodine, cyano, lower-alkoxycarbonyl or sulfamoyl

in the form of its racemate or its enantiomers, as well as a pharmaceutically acceptable acid addition salt thereof.

5. A compound of the formula



IV-2

wherein X is hydrogen, fluorine, chlorine, lower-alkoxy, lower-alkyl or trifluoromethyl; Y is hydrogen, fluorine, chlorine, lower-alkoxy or lower-alkyl; and one of R⁴ and R⁵ is hydrogen and the other is bromine, iodine, cyano, lower-alkoxycarbonyl or sulfamoyl,

in the form of its racemate or its enantiomers, as well as a pharmaceutically acceptable acid addition salt thereof.

4,391,977

ADENINE PRODUCTION

Kju H. Shin, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Dec. 16, 1981, Ser. No. 331,036

Int. Cl.³ C07D 473/34

U.S. Cl. 544-277

10 Claims

1. A process for producing adenine which comprises reacting hydrogen cyanide with formamide in the presence of an ammonium salt and a catalytic amount of methyldisulfide at elevated temperature and pressure.

4,391,979

PROCESS FOR THE PREPARATION OF (2-AMINO-THIAZOL-4YL)-ACETIC ACID HYDROCHLORIDE

Alfred Huwiler, and Leander Tenud, both of Visp, Switzerland, assignors to Lonza Ltd., Gampel, Valais, Switzerland

Filed Jan. 22, 1981, Ser. No. 227,489

Claims priority, application Switzerland, Feb. 18, 1980, 1284/80

Int. Cl.³ C07D 277/38

U.S. Cl. 548-194

10 Claims

1. Process for the preparation of (2-aminothiazol-4-yl)-acetic acid hydrochloride comprising suspending thiourea in water, adding 4-chloroacetoacetyl chloride, which is dissolved in a chlorohydrocarbon, to the suspension at a temperature of 5° to 10° C., and then completing the reaction at a temperature of 25° to 30° C., said (2-aminothiazol-4-yl)-acetic acid hydrochloride being in light-stable form, having a high degree of purity, and being stable both in solution and as a solid.

4,391,978

PHENYL-QUINOLIZIDINES

Rene Imhof, Gipf-Oberfrick, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 186,936, Sep. 12, 1980, abandoned. This application Apr. 9, 1981, Ser. No. 252,540

Claims priority, application Switzerland, Apr. 11, 1980, 2784/80; Feb. 3, 1981, 701/81

The portion of the term of this patent subsequent to Nov. 25, 1997, has been disclaimed.

Int. Cl.³ C07D 455/02

U.S. Cl. 546-138

5 Claims

1. A compound of the formula

4,391,980

ARYLOXYMETHYL OXAZOLINIUM DERIVATIVES

Janos Zergenyi, Seltisberg, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 58,222, Jul. 16, 1979, Pat. No. 4,294,966.

This application May 11, 1981, Ser. No. 262,145

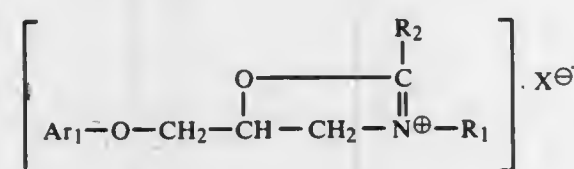
Claims priority, application Switzerland, Jul. 28, 1978, 8145/78

Int. Cl.³ C07D 263/14

U.S. Cl. 548—239

7 Claims

1. An optically active compound of the formula



wherein

 X^- represents the anion of chlorine or bromine, or of sulfuric or phosphoric acid, Ar_1 represents 1-naphthyl, 3-lower alkylphenyl, 2-lower alkenylphenyl, 2-lower alkenyloxyphenyl, 4-lower alkanoylaminophenyl, 4-(2-lower alkoxyethyl)-phenyl, benzyloxyphenyl or hydroxyphenyl, R_1 represents lower alkyl, phenyl-lower alkyl or phenoxy-lower alkyl, and R_2 represents lower alkyl, phenyl-lower alkyl or phenyl.

4,391,981

THIO BIS-LACTONE COMPOUNDS DERIVED FROM N-OCTENYL SUCCINIC ANHYDRIDE

Stanley J. Brois, Westfield, and Antonio Gutierrez, Hamilton Square, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

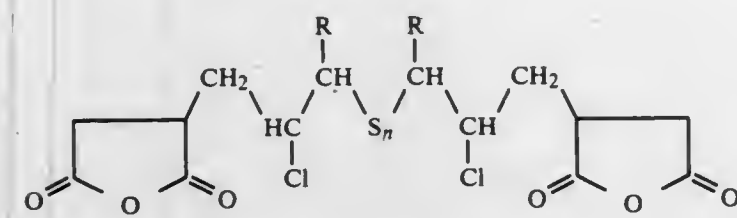
Division of Ser. No. 167,481, Jul. 11, 1980, Pat. No. 4,302,395, which is a division of Ser. No. 967,289, Dec. 7, 1978, Pat. No. 4,221,720, which is a division of Ser. No. 806,326, Jun. 13, 1977, Pat. No. 4,167,514, which is a division of Ser. No. 726,206, Sep. 24, 1976, Pat. No. 4,062,786. This application Jul. 27, 1981, Ser. No. 287,136

Int. Cl.³ C07D 307/89

U.S. Cl. 549—252

2 Claims

1. A compound of the formula



wherein R is an n-pentyl group and n is 1 or 2.

4,391,982

INTERMEDIATES FOR THE PRODUCTION OF PICROPODOPHYLLIN AND RELATED COMPOUNDS AND PROCESSES FOR THE PREPARATION AND USE THEREOF

Andrew S. Kende, Pittsford, N.Y.; Dennis P. Curran, Madison, Wis.; Margaret L. King, Rochester, and Neil A. Feldstein, Westbury, both of N.Y., assignors to The University of Rochester, Rochester, N.Y.

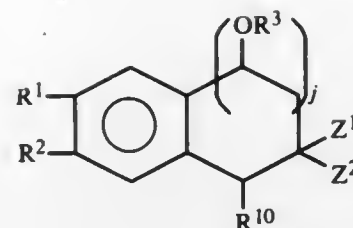
Division of Ser. No. 127,436, Mar. 5, 1980, Pat. No. 4,294,763. This application Mar. 25, 1981, Ser. No. 247,279

Int. Cl.³ C07D 317/44; C07C 69/76

U.S. Cl. 549—433

12 Claims

1. A process for the preparation of a compound of the formula:



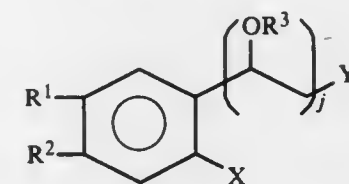
wherein;

 R^1 represents alkoxy or aralkoxy, R^2 represents hydrogen, alkoxy, aralkoxy, alkyl, or aralkyl, or R^1 and R^2 taken together represent the group $-\text{O}-\text{CH}_2-\text{O}-$,

j is an integer having a value of 0 or 1,

 R^3 represents hydrogen, alkyl, aralkyl, acyl or a protecting group, Z^1 represents a non-reacting electron withdrawing group which can be readily converted to a carboxyl group, Z^2 represents a non-reacting electron withdrawing group which can be readily converted to a carboxyl group or hydrogen, and R^{10} represents hydrogen, alkyl, aryl, substituted aryl, or aralkyl;

which comprises treating a compound of the formula:



wherein:

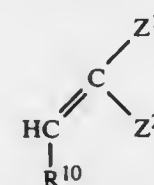
 R^1 , R^2 , R^3 and j are as previously defined,

Y represents Cl, Br, I or a leaving group, and

X represents Cl, Br or I;

(A) initially with an alkyl lithium at a temperature of less than -40°C ., and

(B) thereafter with a compound of the formula:



wherein:

 Z^1 , Z^2 and R^{10} are as previously defined, followed by warming to a temperature of between about 0°C . and about 120°C .

4,391,983

CARBOXAMIDOESTERS

Thomas Leigh, Alderley Edge, England, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 803,237, Jun. 3, 1977, abandoned. This application Jul. 30, 1979, Ser. No. 62,190

Claims priority, application United Kingdom, Jun. 16, 1976, 24931/76; Jun. 16, 1976, 24932/76

Int. Cl.³ C07C 69/743

U.S. Cl. 560—124

1 Claim

1. (S)- α -carboxamido-3-(2,2-dichlorovinyl)benzyl (1R,3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate.

4,391,984

ALKYNYL HALIDE COMPOUNDS AND ALKENYL ACETATE COMPOUNDS THEREFROM

Toshinobu Ishihara; Akira Yamamoto, and Kenichi Taguchi, all of Joetsu, Japan, assignors to Schin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed May 22, 1981, Ser. No. 266,614

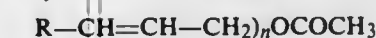
Claims priority, application Japan, May 26, 1980, 55-69724; May 29, 1980, 55-71740

Int. Cl.³ C07C 67/10

U.S. Cl. 560—236

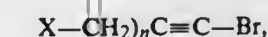
4 Claims

1. A method for the preparation of an alkenyl acetate having the general formula



in which R is a monovalent hydrocarbon group and n is a number of 4, 5 or 6, which comprises the steps of

(a) reacting a Grignard reagent represented by the general formula

in which R has the same meaning as defined above and X' is a halogen atom, and an ω -halo-1-bromoalkyne compound represented by the general formula

in which X and n each have the same meaning as defined above, to form an alkynyl halide compound having the general formula



in which R, X and n each have the same meaning as defined above,

(b) acetylating the alkynyl halide compound to form an alkynyl acetate compound having the general formula



in which R and n each have the same meaning as defined above, and

(c) partially hydrogenating the alkynyl acetate compound in the presence of a Lindlar catalyst.

4,391,985

PROCESS FOR THE SEPARATION OF ISOPHTHALIC ACID FROM TEREPHTHALIC ACID

Richard J. Hook, Lexington, S.C., and Mark Rule, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 16, 1981, Ser. No. 321,948

Int. Cl.³ C07C 51/16, 51/42

U.S. Cl. 562—414

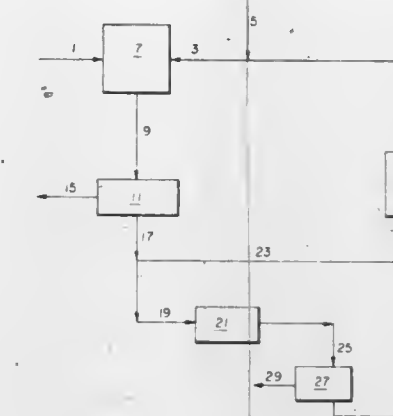
14 Claims

1. A process for producing a terephthalic acid product of improved purity, said process comprising the steps of

(a) cooling at least a portion of a hot acetic acid production stream from which precipitated terephthalic acid has been removed so as to precipitate at least a portion of the isophthalic acid dissolved therein;

(b) removing the precipitated isophthalic acid and recycling said production stream to a reactor for the production of

terephthalic acid, thereby rendering the total production stream unsaturated in isophthalic acid; and



(c) after reaction, recovering substantially pure terephthalic acid as a precipitate from said production stream.

4,391,986

PROCESS FOR PRODUCING

THREO-3-AMINO-2-HYDROXYBUTANOYL-AMINOACETIC ACIDS, AS WELL AS NOVEL INTERMEDIATES THEREFOR AND PROCESS FOR PRODUCING THEM Hamao Umezawa, Tokyo; Takaaki Aoyagi, Fujisawa; Tadashi Shirai, Musashino; Rinzo Nishizawa; Masao Suzuki, both of Tokyo, and Tetsushi Saino, Yono, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 96,693, Nov. 23, 1979, Pat. No. 4,281,180. This application Nov. 28, 1980, Ser. No. 211,035

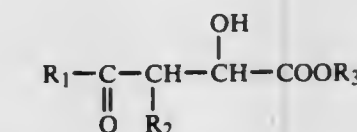
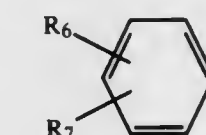
Claims priority, application Japan, Nov. 25, 1978, 53-145509; Dec. 13, 1978, 53-153157

Int. Cl.³ C07C 101/34

U.S. Cl. 562—444

3 Claims

1. Threo-3-protected amino-2-hydroxy-4-oxobutanoic acid or its esters represented by the formula:

wherein R_1 represents naphthyl or a group of the formulain which R_6 and R_7 represent individually hydrogen, halogen, amino or an amino protected with acyl, lower alkyloxycarbonyl or carbamoyl, hydroxy or hydroxy protected with acyl, lower alkyloxycarbonyl or carbamoyl, lower alkoxy, lower alkyl or phenyl group; R_2 represents an amino protected with acyl, lower alkyloxycarbonyl or carbamoyl; and R_3 represents hydrogen, lower alkyl having 1 to 6 carbon atoms, or benzyl.

4,391,987

PROCESS FOR THE PRODUCTION OF AQUEOUS SODIUM METHIONINATE SOLUTIONS

Manfred Spindler; Herbert Tanner, both of Hanau; Friedhelm Geiger, Erlensee; Friedrich Bittner, Bad Soden, and Jurgen Martens, Alzenau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 10, 1982, Ser. No. 347,473

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1981, 3105007

Int. Cl.³ C07C 149/247

U.S. Cl. 562—559

10 Claims

1. A process for the production of an aqueous sodium methioninate solution having a low content of sodium carbonate comprising forming a crude aqueous hydrolysis mixture by the saponification of 5-(β-methylmercaptoethyl)-hydantoin with 1.1 to 6 equivalents of sodium hydroxide, sodium carbonate or a mixture of sodium hydroxide and sodium carbonate, cooling the crude hydrolysis mixture to a temperature below 10° C., separating off the precipitated sodium carbonate and concentrating the sodium methioninate solution remaining to 40 to 65 weight percent.

4,391,988

PROCESS FOR THE PRODUCTION OF AQUEOUS SODIUM METHIONINATE SOLUTIONS

Manfred Spindler; Herbert Tanner, both of Hanau; Friedhelm Geiger, Erlensee; Friedrich Bittner, Bad Soden, and Jurgen Martens, Alzenau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 10, 1982, Ser. No. 347,476

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1981, 3104997

Int. Cl.³ C07C 149/247

U.S. Cl. 562—559

6 Claims

1. A process for the production of an aqueous sodium methioninate solution having a low content of sodium carbonate comprising forming a crude aqueous hydrolysis mixture by the saponification of 5-(β-methylmercaptoethyl)-hydantoin with 1.1 to 6 equivalents of sodium hydroxide, sodium carbonate, or a mixture of sodium hydroxide and sodium carbonate, distilling off water from the crude hydrolysis mixture until the sodium methioninate content is 40 to 65 weight percent, cooling to a temperature which is at most room temperature and then separating off the precipitated sodium carbonate.

4,391,989

OXYDEHYDROGENATION OF ISOBUTYRIC ACID AND ITS LOWER ALKYL ESTERS

Chelliah Daniel, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Nov. 9, 1981, Ser. No. 319,489

Int. Cl.³ C07C 51/377, 57/05, 67/317, 69/54

U.S. Cl. 562—599

3 Claims

1. In a process for the catalytic conversion of isobutyric acid or a lower alkyl ester thereof to the corresponding α,β-olefinically unsaturated derivative by oxydehydrogenation wherein a catalyst is contacted with a gaseous feed stream containing said acid or ester and molecular oxygen at a temperature between 300° and 550° C.; the improvement comprising using as catalyst a material having the gram-atom empirical formula $C_aP_bW_cMo_dO_x$ wherein a is 0.01 to 1.0, b is 0.05 to 3.0, c is 0.01 to 3.0, d is 1 to 12.0, and x is determined by satisfying the sum of the unshared positive valences of the other elements shown in the formula.

4,391,990

OXYDEHYDROGENATION OF ISOBUTYRIC ACID AND ITS LOWER ALKYL ESTERS

Ferdinand A. Ruszala, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Nov. 9, 1981, Ser. No. 319,354

Int. Cl.³ C07C 51/377, 57/05, 67/317, 69/54

U.S. Cl. 562—599

3 Claims

1. A process for the catalytic conversion of isobutyric acid or a lower alkyl ester thereof to the corresponding α,β-olefinically unsaturated derivative by oxydehydrogenation wherein a catalyst is contacted with a gaseous feed stream containing said acid or ester and molecular oxygen at a temperature between about 300° and 500° C. which comprises using as catalyst a material having the gram-atom empirical formula $U_aW_bO_x$ wherein a is 1 to 3, b is 1 to 3, and x is determined by satisfying the sum of the unshared positive valences of the other elements shown in the formula.

4,391,991

PROCESS FOR THE PREPARATION OF PARA-FLUOROANILINE

Rudolph F. Mundhenke, North Tonawanda, and Michael J. Fifolt, Grand Island, both of N.Y., assignors to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Oct. 29, 1981, Ser. No. 316,199

Int. Cl.³ C07C 85/00

U.S. Cl. 564—412

8 Claims

1. A process for the preparation of para-fluoroaniline comprising reacting N-phenylhydroxylamine with anhydrous hydrogen fluoride at atmospheric pressure and reflux conditions.

4,391,992

N-DENITRATION OF N,2,6-TRINITROANILINES WITH PHASE TRANSFER CATALYSTS

William A. Daniels, Belle Mead, and Rainer K. Zawadzki, Hopewell, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 69,451, Aug. 24, 1979,

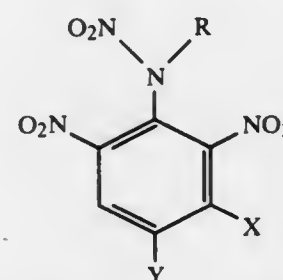
abandoned. This application Oct. 8, 1980, Ser. No. 195,264

Int. Cl.³ C07C 85/11, 76/02, 85/24, 85/26, 87/60, 87/62, 79/10, 79/12

U.S. Cl. 564—441

7 Claims

1. A process for the N-denitration of a compound of formula:



wherein R is C₁-C₆ alkyl, C₄-C₆ cycloalkyl, C₁-C₄ monohaloalkyl or C₁-C₄ alkoxy(C₂-C₄)alkyl; Y is C₁-C₄ alkyl, halogen or CF₃; X is hydrogen, halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ monohaloalkyl or C₁-C₄ alkoxy(C₁-C₄) alkyl; comprising: reacting the compound with 0.15 to 4.0 molar amount of a phase transfer catalyst, wherein said catalyst is the moiety $R_n^1-Q^+-Z^-$, n is an integer of 2, 3 or 4; wherein each R¹ may be the same or different and is selected from C₁-C₁₆ alkyl, C₃-C₇ cycloalkyl optionally substituted with C₁-C₃ alkyl, benzyl, substituted benzyl, phenyl, substituted phenyl and the substituent is HO, halogen, C₁-C₃ alkyl, C₁-C₃ alkoxy, Q is N, P, As or S, Z is Cl, Br, I, HSO₄, CH₃SO₄, H₂PO₃ or H₂PO₄, or said catalyst is macrocyclic ethers, macrobicyclic ethers, polyethylene glycols of formula HO-(CH₂C-H₂O)-_m-CH₂CH₂OH and m is an integer of 40 to 50, mono and diesters of orthophosphonic acid with ethylene oxide

adducts, alkylpyridinium salts or substituted pyrazolium salts; in the presence of a water-immiscible solvent of ethylene dichloride, chloroform, monochlorobenzene or carbon tetrachloride; and in the presence of an aqueous solution of an alkali metal hydroxide or carbonate or ammonium hydroxide in amounts sufficient to maintain at least pH 7 throughout the reaction; and wherein the thus-obtained two-phase reaction mixture is agitated at reflux until the reaction is essentially complete.

4,391,993

THERMOLYSIS OF TETRAALKYLAMMONIUM BOROHYDRIDES TO BIS(TETRAALKYLAMMONIUM) DECAHYDRODECABORANES

David C. Sayles, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 12, 1982, Ser. No. 348,538

Int. Cl.³ C07F 5/02

U.S. Cl. 568—4

5 Claims

1. A process for the thermolysis reaction of tetraethylammonium borohydride to yield bis(tetraalkylammonium) decahydrodecaborane which comprises:

- combining Et₄NBH₄ in a mole ratio from about 0.3 to 1.0 with a boron-based solvent Et₄NBH₃ in a mole ratio from about 0.2 to 4.0 to form a reaction mixture, (wherein Et is C₂H₅), in a thermolysis reactor vessel having a plurality of outlets for various functions including an outlet for the introduction of reactants and an inert gas, an outlet through which the reaction temperature is monitored, and an outlet for discharging reaction products to a recovery system, said reactor vessel provided with an immersion oil heating means for heating including a temperature control means for controlling the reaction temperature, a means for maintaining an inert atmosphere of nitrogen over said reaction mixture, and a temperature measuring means for measuring temperature of the reaction mixture;
- connecting one of said outlets of said reactor vessel to a recovery system comprised of a tube member having a heated tube section on one end to prevent any reflux action to said reaction vessel, and said tube member having an air-cooled condenser section on the other end of said tube member, said air-cooled condenser section being connected to a distillate receiver, said distillate receiver having a discharge outlet that is connected in series with a 0° C. cooled trap, a -78° C. cooled trap, a back pressure regulator, and a wet test gas meter; said cooled traps for collecting the condensable gases and said wet test gas meter for measuring the non-condensable gases;
- introducing and maintaining an inert atmosphere of nitrogen in said reactor vessel and said recovery system;
- heating said reaction mixture while stirring and controlling said reacting mixture to maintain a thermolysis temperature between about 175° C. and 186° C. for a reaction time from about 1 to about 2.5 hours until chemical reaction ceases;
- removing said reactor vessel from said immersion oil heating means, and cooling the residue in said reactor vessel to room temperature;
- filtering off any remaining triethylamine borane solvent and recovering the filter cake;
- washing said filter cake with hexane to remove any additional triethylamine borane; and
- drying said washed filter cake to remove any hexane adhering to said filter cake to yield (Et₄N)₂B₁₀H₁₀.

4,391,994

PROCESS FOR THE PRODUCTION OF ETHERS

Kiyoshi Kogoma, Chiba; Yu Ohashi, Ichihara; Jiro Niizeki, Chiba; Norio Sone, and Takashi Tobita, both of Ichihara, all of Japan, assignors to Nisso Petrochemical Industrie Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 161,930, Jun. 23, 1980, abandoned. This application Oct. 19, 1981, Ser. No. 312,781

Claims priority, application Japan, Jul. 4, 1979, 54/84686

Int. Cl.³ C07C 41/02

U.S. Cl. 568—593

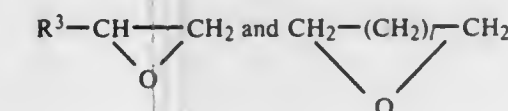
6 Claims

1. A process for the production of glycol diethers, wherein a chain-type ether compound represented by the formula



wherein

R¹ is an alkyl having 1 to 4 carbon atoms, R² is an alkyl having 1 to 12 carbon atoms, phenyl, phenyl substituted by lower alkyl or lower alkoxy, or aralkyl consisting of lower alkylene and phenyl, m is an integer from 1 to 4, and n is an integer from 0 to 8 and an alkylene oxide compound selected from the group consisting of compounds represented by the formulas



wherein

R³ is halogen or non-substituted alkyl having 1 to 5 carbon atoms or phenyl, and n is an integer from 0 to 5 are reacted in the presence of a catalyst prepared by mixing boron trifluoride and/or stannic chloride with an active-hydrogen compound selected from the group consisting of water, alcohol carboxylic acid, phenol and sulfonic acid with the proviso that mercaptan and hydroxamic acid may be included in the said active-hydrogen compound when boron trifluoride is employed, one equivalent of the said active-hydrogen compound being mixed with 1 to 5 moles of boron trifluoride and/or stannic compound, to form a boron trifluoride and/or stannic chloride complex therewith, the said catalyst being employed in an amount of from 0.05 to 5 mole percent of the chain-type ether compound based on boron trifluoride and/or stannic chloride, and the molar ratio of the alkylene oxide compound to the chain-type ether compound is from 0.5 to 5.

4,391,995

4-PHENOXY-PHENOXY-ALKANE-CARBOXYLIC ACID DERIVATIVES AND PROCESS FOR THEIR MANUFACTURE

Helmut Nahm, and Erno Granzer, both of Kelkheim, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 179,889, Aug. 20, 1980, Pat. No. 4,301,295, which is a continuation-in-part of Ser. No. 905,049, May 11, 1978, Pat. No. 4,238,626, which is a continuation-in-part of Ser. No. 542,061, Jan. 17, 1975, abandoned, which is a continuation of Ser. No. 273,770, Jul. 21, 1972, abandoned. This application May 21, 1981, Ser. No. 265,902

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1971, 2136828

Int. Cl.³ C07C 2/88

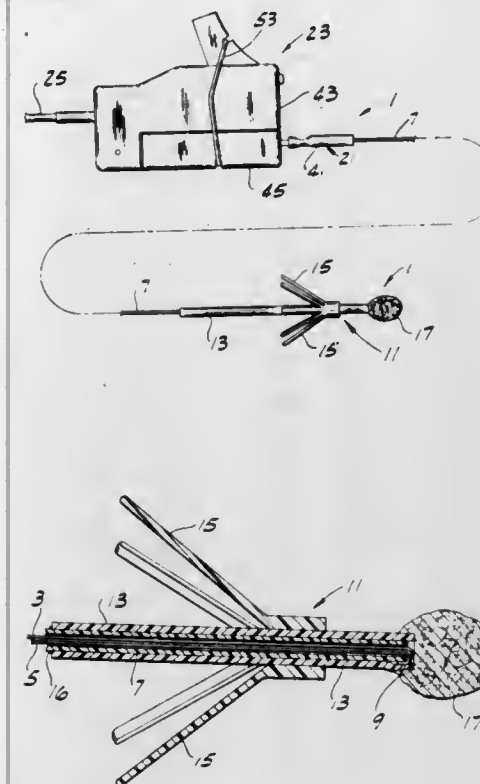
U.S. Cl. 568—637

1 Claim

1. 4-(2,4-dichlorophenoxy)-phenol and the alkali metal phenolates thereof.

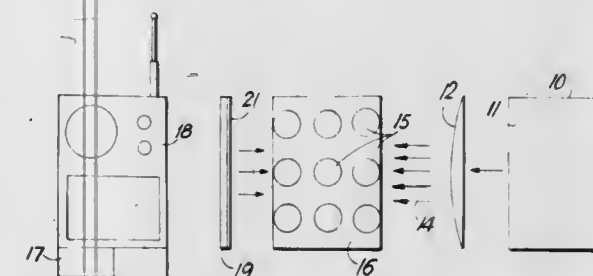
ELECTRICAL

4,392,005
TEMPERATURE SENSOR
 Raymond F. Mohrman, St. Louis, Mo., assignor to Mon-a-therm, Inc., St. Louis, Mo.
 Filed Nov. 2, 1981, Ser. No. 317,128
 Int. Cl.³ H01L 35/06
 U.S. Cl. 136—235 21 Claims



1. A temperature sensor comprising a pair of dissimilar metallic conductors electrically insulated one from the other along the lengths thereof but electrically connected at one of their ends to form a thermojunction, and a connector comprising an elongate backing strip of dielectric sheet material, the other ends of the conductors being positioned to extend generally transversely across one face of the strip and being spaced apart longitudinally of the strip, and facing strip means on the backing strip comprising a first facing strip of dielectric material on said one face of the backing strip overlying said other ends of the conductors, said first facing strip having openings therein exposing bare uninsulated portions of said other ends of the conductors to provide electrical contacts whereby on insertion of said connector into a mating connector said contacts are adapted to be engaged by corresponding contacts in the mating connector for making respective electrical connections.

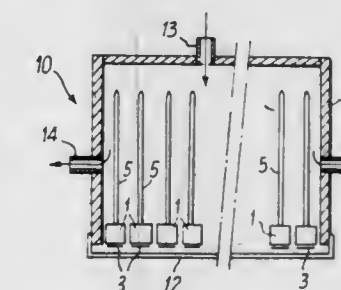
4,392,006
SOLAR CELL ACTIVATION SYSTEM
 Lawrence Apelian, 51 S. Coleman Rd., Centereach, N.Y. 11720
 Filed Aug. 17, 1981, Ser. No. 293,280
 Int. Cl.³ H01L 31/04
 U.S. Cl. 136—246 8 Claims



1. A solar cell activation system comprising:
 a substantially flat board-like transparent member having a coating of a light emitting substance on one surface thereof to emit light rays therefrom,

a thin magnifying lens mounted adjacent the coated member to focus the light rays emitted from the coated member, a substantially flat member having a plurality of solar cells mounted and interconnected thereon and positioned at a predetermined distance from the lens to receive the focused light rays therefrom for purposes of activation, and, a one-sided mirror mounted adjacent the solar cells and on the side opposite the lens to reflect the focussed light passing through said cells back onto said cells and means coupled to the solar cells to receive the output therefrom.

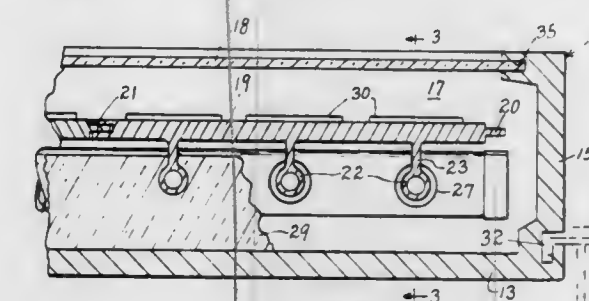
4,392,007
SOLAR GENERATOR PROVIDING ELECTRICITY AND HEAT
 Gerard Barkats, Mandelieu; Alain Girard, Cros de Cagnes; Jean Marchal, Peymeinade, and Charles Morel, Le Cannet, all of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France
 Filed Sep. 23, 1981, Ser. No. 304,853
 Claims priority, application France, Oct. 9, 1980, 80 21595
 Int. Cl.³ H01L 31/04; F24J 3/02
 U.S. Cl. 136—248 7 Claims



1. A solar energy collecting device comprising:
 a plurality of photovoltaic cells;
 a plurality of heat pipes;
 said photovoltaic cells being carried by said heat pipes in heat transfer relationship therewith; and
 a fluid-tight cooling chamber provided with a cold fluid inlet and hot fluid outlet and enclosing at least said plurality of heat pipes.

4,392,008
COMBINED ELECTRICAL AND THERMAL SOLAR COLLECTOR
 Herbert M. Cullis, Silver Spring, and Reinhard Stamminger, Gaithersburg, both of Md., assignors to Monegon, Ltd., Gaithersburg, Md.

Filed Nov. 13, 1981, Ser. No. 320,946
 Int. Cl.³ H01L 31/04; F24J 3/02
 U.S. Cl. 136—248 9 Claims



1. A solar panel assembly comprising support means defining an enclosure, flat solar collector plate means mounted in said enclosure, photovoltaic cell means including at least one thin semi-conductor wafer mounted on said plate means, flow tube means in the enclosure below said plate means, thin perpendicularly depending heat-conductive web means rigidly connecting said plate means to said flow tube means and being located

immediately subjacent said photovoltaic cell means, respective fluid inlet and outlet header means secured in said enclosure, and means communicatively connecting said inlet and outlet header means to opposite ends of said flow tube means, wherein said flow tube means comprises a plurality of parallel flow tubes below said plate means, wherein said web means comprises respective depending thin heat-conducting perpendicularly depending webs connecting said plate means to said flow tubes, and wherein said photovoltaic cell means includes a plurality of photovoltaic silicon semi-conductor wafers mounted on the plate means immediately adjacent to and substantially centered above the locations of said heat-conducting webs.

4,392,009

SOLAR POWER MODULE

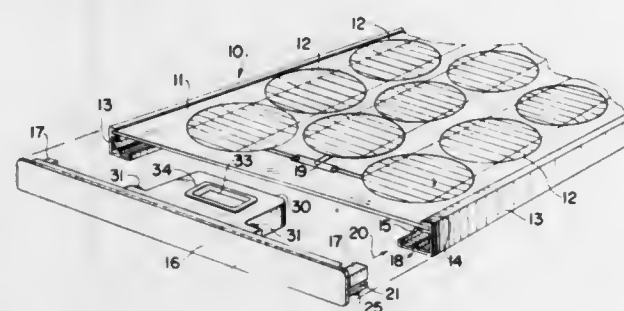
Joseph D. Napoli, Windham, N.H., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Oct. 16, 1981, Ser. No. 312,032

Int. Cl.³ H01L 31/04

U.S. Cl. 136—251

16 Claims



1. A mass-produced solar power module, comprising: an array of current-generating solar cells arranged upon a substantially flat panel; and a substantially rigid, easily assembled frame supporting said solar panel, said frame having spaced-apart side channels that each interlock with adjacent end sections about said panel to form a rigid, integral, easily-assembled, supporting frame for said panel.

4,392,010

PHOTOVOLTAIC CELLS HAVING CONTACTS AND METHOD OF APPLYING SAME

Joseph Lindmayer, Bethesda, Md., assignor to Solarex Corporation, Rockville, Md.

Continuation-in-part of Ser. No. 3,945, Jan. 16, 1979, Pat. No. 4,297,391. This application Jul. 8, 1981, Ser. No. 281,380

Int. Cl.³ H01L 31/04, 31/18

U.S. Cl. 136—256

15 Claims

1. A method of applying an electrically conductive contact to the surface of a photovoltaic cell, comprising forming a mixture of aluminum and a solderable soft metal at a temperature in excess of the alloying temperature of said mixture and silicon, said metal comprising at least about 10% of said mixture, and spraying said mixture toward said surface at a distance such that said mixture will contact said surface at a temperature at which it will alloy with said silicon and thereby adhere to said surface.

12. A photovoltaic cell having a front surface adapted to receive and absorb light impinging thereon and a back surface opposed to said front surface, and an electrical contact covering at least a portion of at least one of said surfaces, said contact being comprised of a layer of a mixture of aluminum and at least about 10% zinc,

4,392,011

SOLAR CELL STRUCTURE INCORPORATING A NOVEL SINGLE CRYSTAL SILICON MATERIAL

Jacques I. Pankove, Princeton, and Chung P. Wu, Trenton, both of N.J., assignors to RCA Corporation, New York, N.Y.

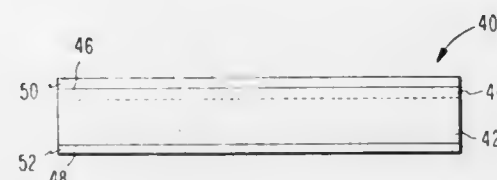
Division of Ser. No. 145,239, Apr. 30, 1980, Pat. No. 4,322,253.

This application Oct. 8, 1981, Ser. No. 309,695

Int. Cl.³ H01L 31/06

U.S. Cl. 136—261

5 Claims



4. A single crystal silicon solar cell comprising: a body of single crystal silicon having regions of differing conductivity forming a photovoltaic junction therein, said body having opposed major surfaces wherein the major surface which is adapted to be incident to solar radiation has a region thereunder with sufficient concentration of hydrogen incorporated therein to have a band gap energy which is greater than the band gap energy of the single crystal silicon of said body; and means for electrically contacting said opposed major surfaces.

4,392,012

ELECTRICAL WIRING BOX ARRANGEMENT WITH ALIGNABLE GROUNDING STRAP

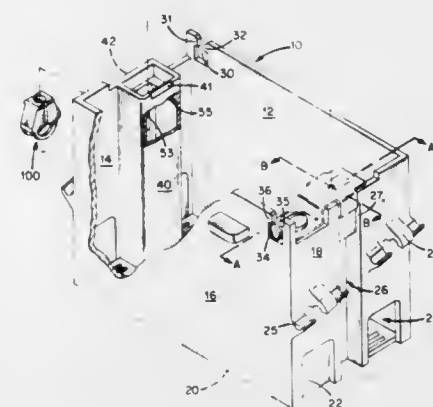
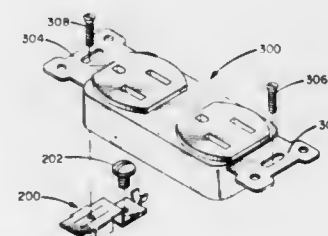
William Nattel, Montreal, Canada, assignor to GTE Sylvania Canada Limited, Montreal, Canada

Filed Oct. 13, 1981, Ser. No. 310,712

Int. Cl.³ H02G 3/08

U.S. Cl. 174—51

7 Claims



1. An electrical wiring box arrangement including in combination, an electrical wiring box and a grounding member; said wiring box including: a wall structure comprising front-to-rear walls and a rear wall therebetween which together define a chamber within the box with a forward facing opening for receiving an electrical wiring device, said wall structure including support means for seatably receiving said grounding member and the mounting yoke of a wiring device mounted in said box chamber,

said support means including screw retaining means for retaining the mounting screw of said wiring device, said wall structure further including first and second retaining means for retaining said grounding member against outward removal from said box in a direction toward said forward facing opening while permitting lateral slideable movement of said grounding member; said grounding member including:

screw receiving means for receiving said wiring device mounting screw and providing electrical contact between said mounting screw and said grounding member, means for attaching the ground conductor wire of an electrical cable,

electrically conductive pathway means between said screw receiving means and said ground conductor wire attachment means, and first and second attachment means for coacting with said box wall first and second retaining means to attach said grounding member to said box wall structure;

whereby said grounding member is received and seated on said box wall support means and retained by said grounding member attachment means coacting with said box wall retaining means to attach said grounding member to said box wall structure while permitting lateral sliding movement of said grounding member to permit direct alignment of said screw receiving means of said box wall support member, the mounting screw of a wiring device mounted in said box chamber passing through said grounding member screw receiving means making firm electrical contact with said grounding member, and being received and retained by said screw retaining means of said box wall support means.

4,392,013

FINE-PATTERNED THICK FILM CONDUCTOR STRUCTURE AND MANUFACTURING METHOD THEREOF

Kaoru Ohmura; Takeo Kimura, and Tetsuhiro Kusunose, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

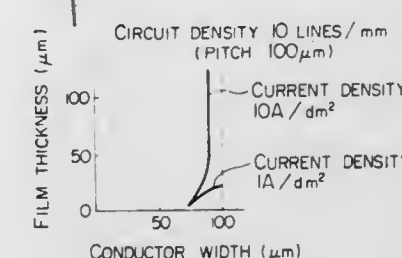
Filed Dec. 22, 1980, Ser. No. 219,155

Claims priority, application Japan, Dec. 27, 1979, 54-169266; Dec. 27, 1979, 54-169267; Dec. 27, 1979, 54-169268; Jan. 25, 1980, 55-6956; Jan. 25, 1980, 55-6958; Aug. 20, 1980, 55-113410; Aug. 21, 1980, 55-113979

Int. Cl.³ H05K 1/02

U.S. Cl. 174—68.5

11 Claims



1. A fine-patterned thick film conductor structure having conductors formed on an insulating substrate, said conductors having a film thickness of 35–200 μm and a circuit density of no less than 5 lines/mm.

4,392,014

TELEPHONE CABLE SPLICES

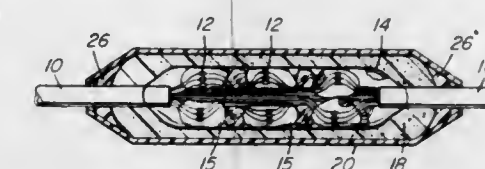
William P. Trumble, Kanata; Roger C. Finn, and Charles F. C. Jackson, both of Ottawa, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Apr. 20, 1981, Ser. No. 255,781

Int. Cl.³ H02G 15/113

U.S. Cl. 174—92

7 Claims



5. A telecommunications cable splice closure comprising at least two sheathed cables spliced together by a plurality of connectors connecting the cables at unsheathed portions thereof, the connectors being encapsulated in a moisture impervious material, the encapsulated connectors being surrounded by a wrapping film, the wrapped connectors being closely embraced by a block of closed cell foam plastics, the foam plastics block being contained within a substantially cylindrical mold having truncated conical ends surrounding sheathed portions of the respective cables, the sheathed portions wrapped with an open cell material having a matrix of threads, said block of foam having a boundary region thereof within the wrapped open cell material, the boundary region being relatively more dense than an interior portion of the foam block.

4,392,015

CONDENSER-TYPE ELECTRICAL BUSHING WITH CENTRAL ELECTRODE ALIGNING WEDGING BLOCKS

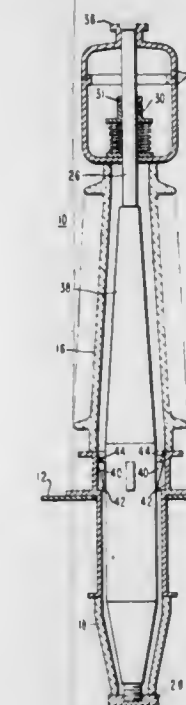
Robert W. Runnels, Milwaukee, Wis.; Loren B. Wagenaar, Muncie, Ind.; Louis E. Luke, Mt. Pleasant Township, Delaware County, Ind., and Thomas P. Bresnahan, Muncie, Ind., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 4, 1981, Ser. No. 327,648

Int. Cl.³ H01B 17/28

U.S. Cl. 174—143

3 Claims



1. A condenser bushing for electrical apparatus, comprising: a cylindrical mounting flange having a predetermined inside diameter; an upper casing connected to the mounting flange; a lower casing coaxially positioned with said upper casing; a central electrode positioned within said upper and said

lower casings, said electrode being supported by said upper casing, said electrode supporting said lower casing; a condenser section wound about said central electrode, said condenser section having an outside diameter that is smaller than the inside diameter of said mounting flange; and

means for centering said condenser section within said mounting flange, said means including a plurality of triangular wedging blocks, said means being rigidly attached to said condenser section such that the combination of said outside diameter of said condenser section and said means for centering is larger than said inside diameter of said mounting flange thus preventing said condenser section and said central electrode from falling into the electrical apparatus upon mechanical failure of said said upper casing.

4,392,016

AM STEREO CARRIER REINSERTION

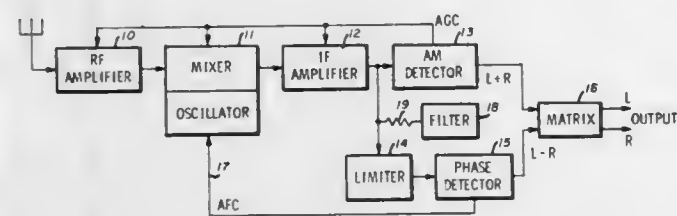
Don R. Sauer, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Mar. 2, 1981, Ser. No. 239,914

Int. Cl.³ H04H 5/00

U.S. Cl. 179—1 GS

5 Claims



1. In an AM stereo radio receiver that employs amplitude modulation of a carrier signal to transmit the stereo sum signal and phase modulation of said carrier to transmit the stereo difference signal and includes a phase demodulator for recovering said stereo difference signal, the improvement comprising:

filter means tuned to said carrier frequency; and means for coupling said filter means to said receiver whereby said filter normally receives said carrier signal and will act to supply said carrier signal to said receiver during those brief periods of time when said carrier signal would be lost due to amplitude overmodulation.

4,392,017

TELEPHONE HANDSET LIFTING DEVICE

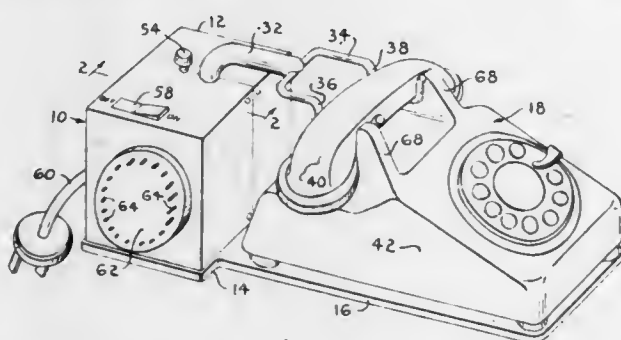
Luis R. Torres, 3505 Fir St., East Chicago, Ind. 46312

Filed Mar. 6, 1981, Ser. No. 241,122

Int. Cl.³ H04M 15/00

U.S. Cl. 179—1 HS

13 Claims



1. A telephone handset lifting device comprising: an electromagnetic coil; shaft means formed to extend vertically through said electromagnetic coil, and horizontally across said coil; said shaft means being vertically moveable by said electromagnetic coil;

structure for supporting said coil and said shaft means; the end of said horizontally extending shaft means being formed to support a telephone handset for raising and lowering said telephone handset; an electric current circuit connected to said coil for energizing said coil; switch means in said electric current circuit operable to open and close said circuit; a time sequence means for operating said switch means; and a plurality of manually operable elements on said time sequence means arranged thereon to preselect a plurality of irregular time sequences for operating said switch means repeatedly during a time cycle.

4,392,018

SPEECH SYNTHESIZER WITH SMOOTH LINEAR INTERPOLATION

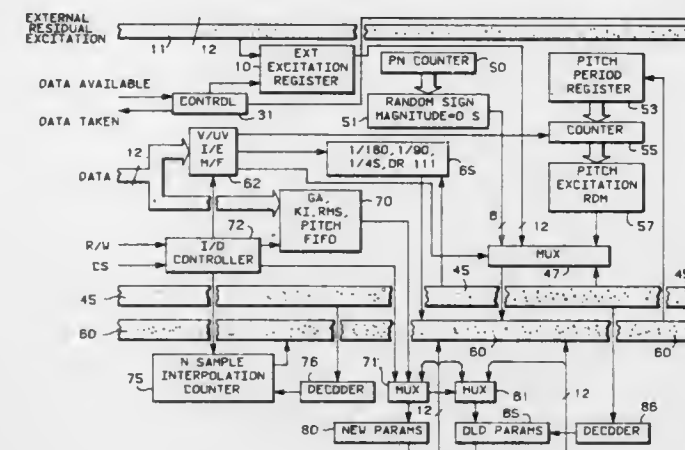
Brüce Fette, Mesa, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed May 26, 1981, Ser. No. 267,203

Int. Cl.³ G10L 1/00

U.S. Cl. 179—1 SM

9 Claims



1. In a speech synthesizer including an all-pole, multi-stage lattice filter for reconstructing a plurality N of speech samples from each set of correlation coefficients and accompanying excitation signal applied thereto, smooth interpolation apparatus comprising:

- new parameter storage means for receiving and storing each new set of correlation coefficients;
- old parameter storage means connected to said new parameter storage means for receiving each of the sets of correlation coefficients subsequent to the reconstruction of the N speech samples therefrom; and
- circuit means connected to said new and old parameter storage means for determining the difference between each new and old correlation coefficient in the new and old sets, separating the difference into N steps and providing a correlation coefficient which changes in the N steps from the old correlation coefficient to the new correlation coefficient.

4,392,019

SURROUND SOUND SYSTEM

Jonathan Halliday, Winchester, England, assignor to Independent Broadcasting Authority, London, England

Filed Dec. 19, 1980, Ser. No. 218,081

Int. Cl.³ H04S 3/00

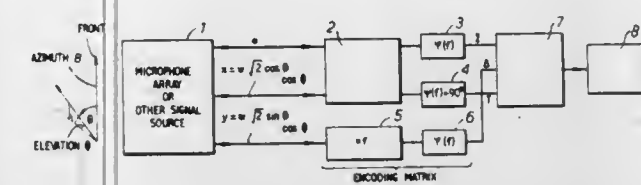
U.S. Cl. 179—1 GQ

10 Claims

1. In a system for transmission and reception of horizontal surround-sound by modulation of a carrier, wherein the modulating signal contains a monophonic audio signal Σ , a subcarrier modulated by an audio signal equivalent to the stereo difference signal Δ of a stereophonic broadcast, a pilot tone at half the subcarrier frequency, and a second subcarrier in quadrature with the first and modulated by a third audio signal T,

the signals Σ , Δ and T being defined in terms of the direction of a sound to be reproduced, the improvement which comprises

- means for generating the signal Σ ;



- means for generating the signal Δ at a phase angle with respect to the signal Σ which is selected from an in phase relationship and a 180° out of phase relationship for all angular values of elevation and azimuth; and

- means for generating the signal T with a phase shift of 90° with respect to the signals Σ and Δ .

4,392,020

STEREO DEMODULATION SYSTEM FOR AN FM STEREO BROADCAST RECEIVER

Yoshimi Iso, Shigeki Inoue, and Toshifumi Shibuya, all of Toyokawa, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

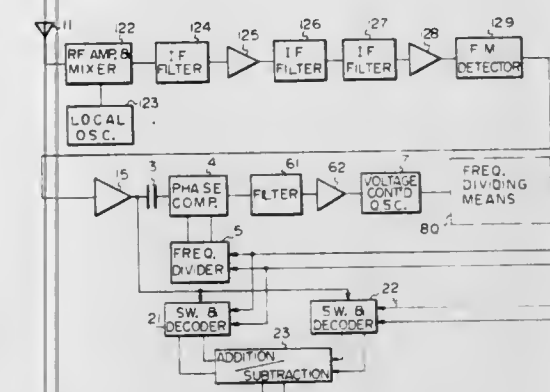
Filed Feb. 20, 1981, Ser. No. 236,536

Claims priority, application Japan, Feb. 27, 1980, 55-22793; Oct. 9, 1980, 55-140507

Int. Cl.³ H04H 5/00

U.S. Cl. 179—1 GE

15 Claims



1. A stereo demodulation system for an FM stereo broadcast receiver in which a signal for switching and decoding a received stereo composite signal is produced in a demodulator, said system comprising:

- a voltage controlled oscillator which produces a signal of a specific frequency (f_{vco}),
- frequency dividing means for receiving the output signal of said voltage controlled oscillator and producing a first switching signal of 1/m frequency (f_{vco}/m) of said specific frequency and a second switching signal of 1/l frequency (f_{vco}/l) of said specific frequency,
- a phase comparator for phase comparing a further frequency divided signal of said first switching signal with a pilot signal contained in the received stereo composite signal,
- a low pass filter for filtering the output signal of said phase comparator and feeding back the thus filtered signal to said voltage controlled oscillator so that said voltage controlled oscillator, said frequency dividing means, said phase comparator and said low pass filter constituting a phase locked loop,
- a first switch and decoder circuit for switching and decoding said stereo composite signal by said 1/m frequency (f_{vco}/m) signal produced from said frequency dividing means,
- a second switch and decoder circuit for switching and decoding said stereo composite signal by an output signal of 1/l frequency (f_{vco}/l) of said predetermined frequency produced from said frequency dividing means, and
- an addition/subtraction circuit for adding or subtracting the

output signals of said first and second switch and decoder circuit so that the signal component in the output signal of said first switch and decoder circuit, which component is a product of the harmonic frequency component of the subcarrier signal and the stereo composite signal, is cancelled by the signal component in the output signal of said second switch and decoder circuit, which component is a product of the fundamental frequency component of the switching signal and the stereo composite signal, characterized in that:

said first switching signal of 1/m frequency (f_{vco}/m) and said second switching signal of 1/l frequency (f_{vco}/l) are produced by said frequency dividing means with the fixed phase relationship between said first and second switching signals.

4,392,021

SECURE FACSIMILE TRANSMISSION SYSTEM USING TIME-DELAY MODULATION

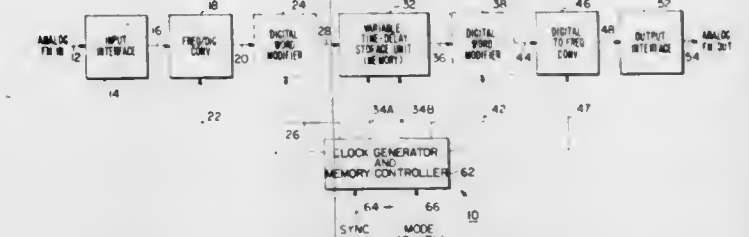
Matthew W. Slate, Sudbury, Mass., assignor to Technical Communications Corporation, Concord, Mass.

Filed Jul. 28, 1980, Ser. No. 172,819

Int. Cl.³ H04K 1/06

U.S. Cl. 179—1.5 R

20 Claims



1. A system for providing secure transmission of an analog source signal over an unsecured channel, between a transmitting site and a receiving site, comprising:

at the transmitting site:

- means for converting the analog source signal into a sequence of digital words each of which represents the instantaneous value of that signal at a particular sampling time;
- means for storing a finite multiplicity of the digital words;
- means for providing a first clocking signal at a first rate;
- means for writing the digital words into the storing means responsive to the first clocking signal;
- means for providing a second clocking signal at a second rate;
- means for reading said digital words out of said storing means responsive to the second clocking signal;
- the long-term time average of the periods of the first and second clocking signals being equal;
- at least one of the first and second rates being pseudo-randomly variable, whereby the time between writing a digital word into the storage means and reading such digital word from the storage means is pseudo-randomly variable;
- means for converting the digital words read from the storage means to a frequency-modulated analog signal for transmission over the unsecured channel; and

at the receiving site:

- means for converting the analog signal received over the unsecured channel into a second sequence of digital words, each of which represents the instantaneous value of such analog signal at a particular sampling time;
- such means for converting the analog signal into digital words including means for sampling such analog signal responsive to the third clocking signal;
- means for providing a third clocking signal at a third rate;

means for storing a finite multiplicity of the digital words of the second sequence;
 means for writing the digital words into such storing means responsive to the third clocking signal;
 means for providing a fourth clocking signal at a fourth rate;
 means for reading said digital words out of said storing means responsive to the fourth clocking signal;
 said third and fourth rates being selected such that the time average of the period of each is the same as the time average of the periods of the first and second clocking signals;
 the further clocking signal further being selected such that the time between writing a digital word into the storing means at the transmitting site and reading such digital word from the storing means at the receiving site is constant; and
 means for converting the digital words read from the storing means at the receiving site to an analog signal for use at the receiving site.

4,392,022

TELEVISION REMOTE CONTROL SYSTEM FOR SELECTIVELY CONTROLLING A PLURALITY OF EXTERNAL APPARATUS

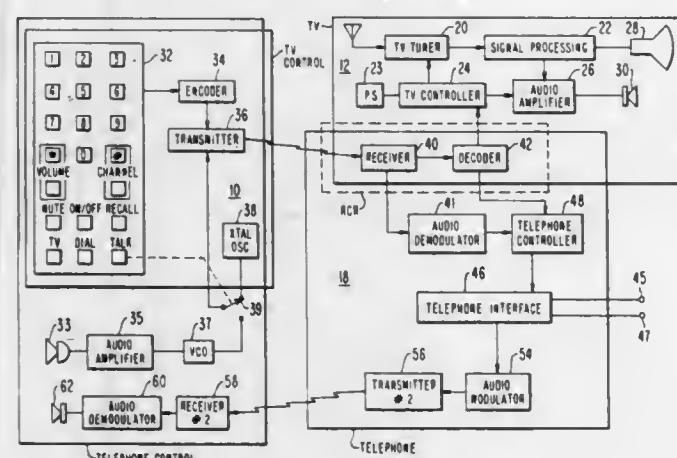
David J. Carlson, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 30, 1981, Ser. No. 230,359

Int. Cl.³ H04M 11/08

U.S. Cl. 179-2 TV

3 Claims



1. A television remote control system including a television receiver and a remote control unit comprising:
 keyboard means included in said remote control unit for entering data of a first type to control various functions of said television receiver and of a second type corresponding to digits of a telephone number;
 encoder means included in said remote control unit for generating a digitally encoded data signal in accordance with said entered data of said first and second types;
 a microphone included in said remote control unit for providing an analog audio signal;
 first modulator means included in said remote control unit for continuously modulating a carrier signal in accordance with said analog audio signal;
 first infrared transmitter means included in said remote control means for transmitting a selected one of said digitally encoded data signal and said continuously modulated carrier signal;
 switching means included in said remote control means for selecting said one of said digitally encoded data signal and said continuously modulated carrier signal;
 first infrared receiver means included in said television receiver for receiving said selected signal transmitted by said first infrared transmitter means;
 decoder means included in said television receiver for decoding said received selected signal corresponding to said

digitally encoded data signal to produce first decoded digital signals according to said entered data of said first type and to produce second decoded digital signals according to said entered data of said second type;
 television control means included in said television receiver for controlling said various functions of said television receiver in accordance with said entered data of said first type in response to said first decoded digital signals;
 telephone control means included in said television receiver for generating telephone dialing signals in accordance with said entered data of said second type in response to said second decoded digital signals;
 first demodulator means included in said television receiver and responsive to said received selected signal corresponding to said continuously modulated carrier signal for demodulating said analog audio signals;
 telephone interface means included in said television receiver and to which a telephone line is coupled, for applying said telephone dialing signals to said telephone line to dial said telephone number and for applying said demodulated analog audio signals to said telephone line when said telephone number has been dialed;
 second modulator means included in said television receiver and coupled to said telephone line by said telephone interface means, for modulating a second carrier signal in accordance with incoming audio signals from said telephone line;
 second infrared transmitter means included in said television receiver for transmitting said modulated second carrier signal;
 second infrared receiver means included in said remote control unit for receiving said modulated second carrier signal transmitted by said second infrared transmitter means;
 second demodulator means included in said remote control unit and responsive to said received modulated second carrier signal for demodulating said incoming audio signals;
 and
 sound reproducing means included in said remote control unit for reproducing sounds in accordance with said demodulated incoming audio signals.

4,392,023

OFF-HOOK TELEPHONE SENSING SYSTEM

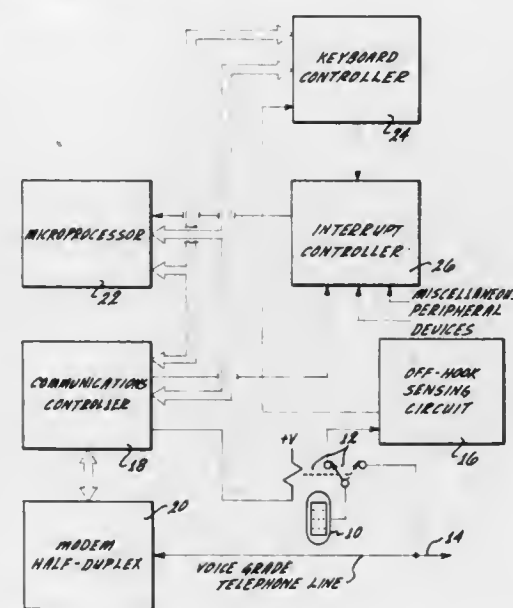
Michael L. Sears, Redondo Beach, Calif., assignor to Transaction Technology, Inc., Santa Monica, Calif.

Filed Nov. 17, 1980, Ser. No. 207,660

Int. Cl.³ H04M 11/00

U.S. Cl. 179-2 DP

6 Claims



1. An off-hook telephone sensing system for use with a voice and data transmission system wherein the system includes a transaction terminal coupled to a telephone line for data trans-

mission and a standard telephone instrument coupled to the telephone line for voice transmission, including

an off-hook telephone sensing device coupled to the standard telephone instrument for detecting the on-hook or off-hook condition of the instrument and for providing an output signal having values in accordance with the on-hook or off-hook condition of the instrument, and wherein the off-hook sensing device includes a voltage comparator having a reference voltage input and a variable voltage input and with a change in impedance of the standard telephone instrument between the on-hook and off-hook conditions controlling the value of the variable voltage input and with the voltage comparator providing the output signal in accordance with the change in impedance of the telephone instrument, and wherein the impedance of the telephone instrument forms part of a voltage divider circuit and with the change in impedance of the telephone instrument providing the variable voltage input to the voltage comparator,

a switching means having first and second states coupled to the telephone instrument and to the telephone line and with the telephone instrument connected to the telephone line with the switching means in the first state and with the telephone instrument disconnected from the telephone line with the switching means in the second state, means coupled to the off-hook sensing device and responsive to the output signal for producing an interrupt signal when the off-hook sensing device detects the off-hook condition of the telephone instrument and with the switching means in the second state, and means coupled to the switching means and responsive to the interrupt signal for controlling the switching means from the second state to the first state after the reception of the interrupt signal.

4,392,024

ELECTRONIC KEY TELEPHONE SET CIRCUIT FOR PERMITTING DIALING DURING FAILURE OF COMMERCIAL POWER SUPPLIED TO THE SET

Tsuyoshi Shinoi, Yokohama; Keisuke Mochizuki; Yoshimi Suzuki, both of Kawasaki; Masaru Kudoh, Tokyo, and Wataru Hashimoto, Hyogo, all of Japan, assignors to Nitsuko Limited, Kawasaki and Nippon Telegraph & Telephone Public Corporation, Tokyo, both of Japan

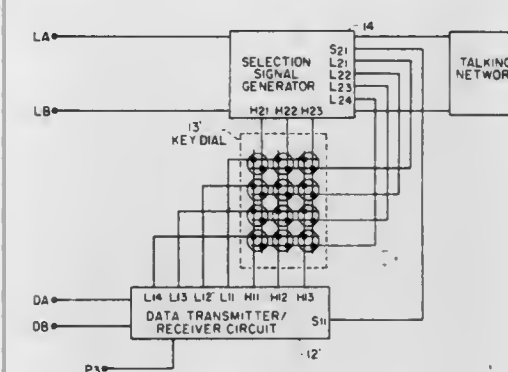
Filed Dec. 8, 1981, Ser. No. 328,451

Claims priority, application Japan, Dec. 25, 1980, 55/182790

Int. Cl.³ H04M 1/23, 1/72

U.S. Cl. 179-99 R

5 Claims



2. An electronic key telephone set in an electronic key telephone system having a key service unit, which comprises:
 two contacts provided for each key in a key dial;
 data signal transmitter/receiver circuit means connected with one of said two contacts of each key;
 selection signal generator circuit means connected to the other of said two contacts of each key to generate a selection signal corresponding to the key;
 means for detecting commercial power failure; and
 means for connecting said selection signal generator circuit

means to a voice signal pair line during the commercial power failure.

4,392,025

CONDENSER MICROPHONE

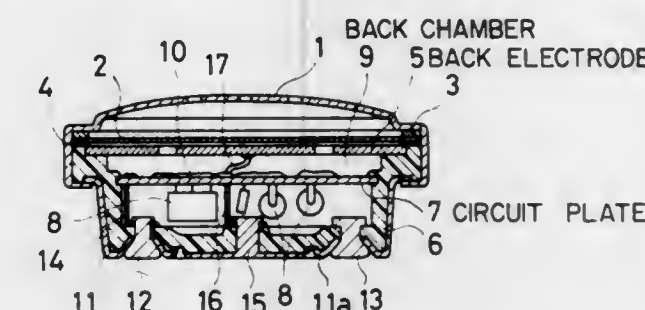
Junichi Tamamura, Yao; Mamoru Yasuda; Motomi Hosoda, both of Kashiwara, and Shinichi Saeiki, Yao, all of Japan, assignors to Hosiden Electronics Co., Ltd., Osaka, Japan

Filed May 27, 1981, Ser. No. 267,461

Int. Cl.³ H04R 19/04, 1/22

U.S. Cl. 179-111 R

1 Claim



1. A condenser microphone, comprising:
 a diaphragm to be vibrated in response to an input sound;
 a back electrode, having at least one opening therethrough, disposed oppositely to said diaphragm;
 a circuit assembling plate having one surface only to which a plurality of electronic circuit elements are attached; and
 a holder for holding said back electrode and said circuit assembling plate in an orientation where that surface of said back electrode which is not faced toward said diaphragm, is faced toward that surface of said circuit assembling plate to which said electronic circuit elements are not attached, with a predetermined distance provided between said back electrode and said circuit assembling plate, said holder defining a back chamber in a space between said back electrode and said circuit assembling plate, said back chamber being closed except for said at least one opening in said back electrode.

4,392,026

SUBSCRIBER LINE TESTING SYSTEM

Takafumi Kojima; Kenzo Tamaki, both of Yokohama, and Shiro Yokota, Tokyo, all of Japan, assignors to Hitachi, Ltd. and Nippon Telegraph & Telephone Public Corporation, both of Tokyo, Japan

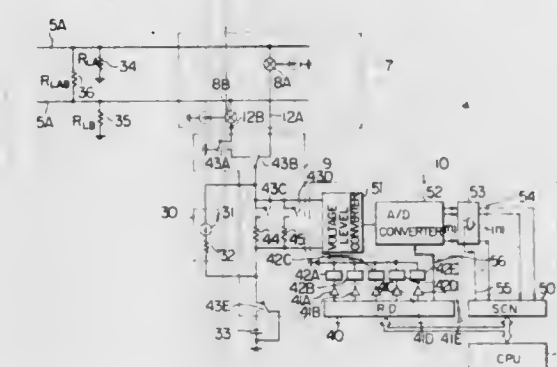
Filed Oct. 7, 1981, Ser. No. 309,400

Claims priority, application Japan, Oct. 8, 1980, 55-139868

Int. Cl.³ H04B 3/46; H04M 3/30

U.S. Cl. 179-175.3 R

13 Claims



3. A subscriber line testing system, comprising:
 a plurality of subscriber lines;
 semiconductor switches each driven by a constant gate current and selected for leading a desired one of said subscriber lines for testing;
 change-over means for changing over a value of current

flowing through the subscriber line to be tested and introduced through the selected one of said semiconductor switches;

means for measuring the levels of the current fed through the selected one of said semiconductor switches and changed over by said change-over means, respectively.

4,392,027

METHOD AND APPARATUS FOR PROVIDING A UNIFORM SOUND DISTRIBUTION IN AN AIRCRAFT CABIN

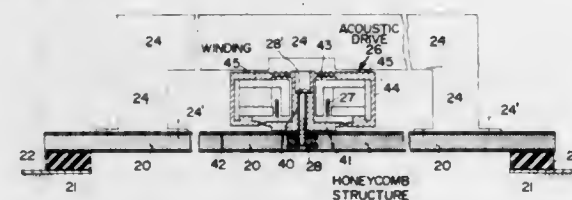
Thomas-Mathias Bock, Buxtehude, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 35,014, May 1, 1979. This application Jun. 26, 1981, Ser. No. 277,650

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819615

Int. Cl.³ H04R 9/04

U.S. Cl. 179—181 W

7 Claims



1. A method for the uniform distribution of sound in an aircraft or spacecraft cabin structure, comprising the following step: substantially enclosing the cabin space by a plurality of flexible structural inner wall and ceiling panel members inside an outer cabin wall, elastically connecting at least certain ones of said panel members substantially at the edges thereof to said cabin structure to provide a movable support enabling the respective panel member to vibrate, centrally connecting an acoustic drive member of acoustic drive means including said drive member and a mass, said drive member being movable relative to said mass, to said certain panel members in such a manner that the drive member is connected to the respective panel member intermediate of the panel edges on a surface area contact, and that the mass of the drive means is rigidly secured to the same panel member substantially adjacent the edges of the same panel member, whereby the acoustic drive means are located between the outer cabin wall and the respective panel member which may vibrate as an acoustical diaphragm and whereby the cabin structure with its inner and outer wall forms a loudspeaker cabinet in which said drive means are located.

4,392,028

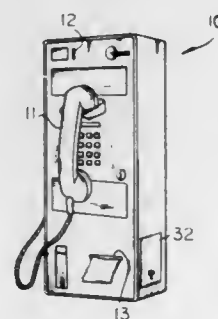
PAY TELEPHONE WITH SANITIZED TISSUE DISPENSER

Richard L. Saxton, 4136 Brown Rd., Indianapolis, Ind. 46226
Filed Feb. 6, 1981, Ser. No. 232,164

Int. Cl.³ H04R 1/12

U.S. Cl. 179—185

13 Claims



1. The combination of:
pay telephone means including a telephone with coin-receiving means operable to issue a signal upon receipt of a coin,

said pay telephone means further including a tissue-dispensing opening;
a supply of sanitized tissue;
storage means within said pay telephone means to receive and hold said supply of sanitized tissue; and
dispensing means within said pay telephone means operably associated with said coin-receiving means and said supply of sanitized tissue and operable to force a tissue from said supply into said opening upon receipt of said signal, and wherein:

said dispensing means includes an electrically operated rotatable spindle; and
said supply of sanitized tissue includes a roll of sanitized tissue removably mounted to said spindle.

4,392,029

PUSH BUTTON SWITCH HAVING LATCHING SPRING ARM MOLDED ON PLASTIC CASING

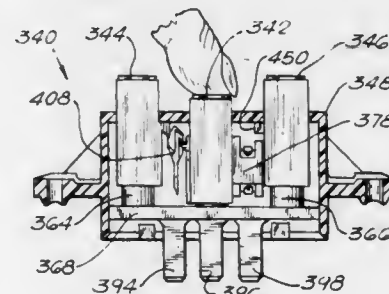
William J. Schaad, Winnetka; Charles E. Black, III, Mount Prospect, and Raymond T. Halstead, Wheeling, all of Ill., assignors to Indak Manufacturing Corp., Northbrook, Ill.

Filed Jul. 28, 1981, Ser. No. 287,690

Int. Cl.³ H01H 9/20

U.S. Cl. 200—5 B

8 Claims



1. A push button switch, comprising
first and second parallel push buttons,
a casing having first and second guide means for guiding said first and second push buttons along parallel closely spaced paths,
said push buttons being movable between extended and depressed positions,
resilient means biasing each of said push buttons toward said extended position,
switching means in said casing and operable by movement of said first push button,
said casing being molded from a resinous plastic material, a flexible resilient latching spring arm molded in one piece with said casing and extending between said first and second push buttons,
cooperative latching elements on said first push button and said latching spring arm for causing deflection of said latching spring arm followed by latching of said first push button in its depressed position,
and cooperative unlatching elements on said second push button and said arm for deflecting said arm and thereby causing disengagement of said latching elements in response to depression of said second push button.

4,392,030

ADJUSTABLE ROTARY SWITCH

Gary L. Buss, Arden, N.C., assignor to CTS Corporation, Elkhart, Ind.

Filed Aug. 19, 1981, Ser. No. 294,374

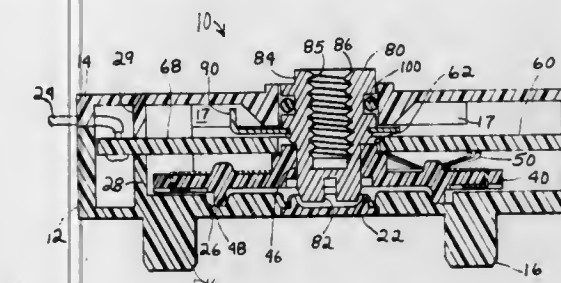
Int. Cl.³ H01H 21/76

U.S. Cl. 200—11 R

7 Claims

1. A rotary switch calibrated for accurately selecting any one of a plurality of combinations of external circuits connected to the switch, the combinations being made in accordance with a predetermined code, said rotary switch compris-

ing a housing having one end open and a housing wall with a centrally disposed aperture and a noncentrally located opening therein, an insulating substrate having a plurality of electrical contact paths for effecting said code and arranged in multiple concentric rings in the surface thereof, the surfaces of said contact paths being flush with the surface of said insulating substrate, a rotor comprising an insulating annular body and having teeth means for calibration of said switch and located at a portion of the circumference of said rotor, contactor means having multiple rake contactors and secured to said rotor for engaging selected combinations of contact paths in different ones of said rings whereby rake contactor surface areas engaging said paths remain constant despite wear, shaft means



mounted in said switch to preclude axial movement thereof and coupled to said rotor to support and position said rotor in relationship to said housing and insulating substrate having the contact paths therein, said shaft means having tool adjustment means at one end thereof, and a cover secured to said housing to enclose said open end and having a cover aperture therein, said shaft means journaled in said cover aperture, whereby said tool adjustment means is accessible through said centrally disposed aperture and said teeth means accessible through said noncentrally located opening for adjustable positioning of said rotor and contactor means relatively to said shaft means and contact paths prior to fixing said rotor to said shaft means to calibrate said switch and effect precise switching accuracy in the selection of a combination of said external circuits.

4,392,031

MINIATURE ELECTRICAL SWITCH

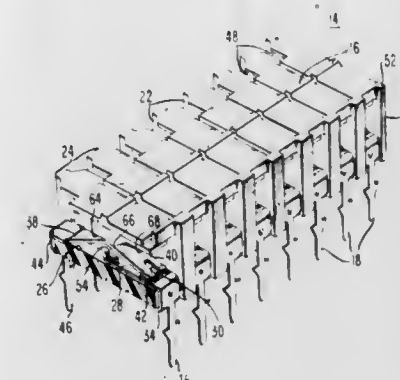
Hazen Curtis, III, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 31, 1981, Ser. No. 336,325

Int. Cl.³ H01H 15/02

U.S. Cl. 200—16 R

7 Claims



1. An electrical slide switch of the type having a cover which leaves exposed one or more sliders for actuating make-or-break contact members inside the switch, CHARACTERIZED IN THAT

said switch comprises under said cover a unitary frame member having a base which forms a floor and having at least two partitions extending from said base to form between them at least one chamber for receiving said contact members, said partitions being adapted at their free edges remote from said floor to form a slot for holding and guiding said sliders, said contact members com-

prising a spring member which is pressed against an anvil member by action of a cam surface on said slider engaging a cam-follower surface of said spring member, and said contact members each including a clip portion by which they are resiliently held to the edge of said base.

4,392,032

ROTATING PADDLE BIN LEVEL INDICATOR

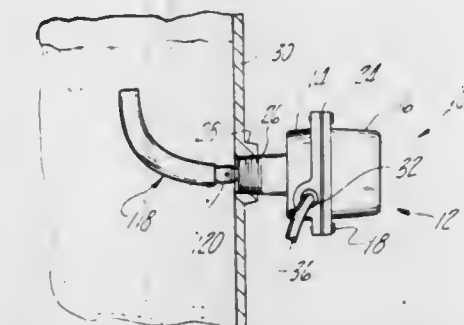
Donald E. Roach, II, Marysville, Mich., assignor to Berwind Corporation, Philadelphia, Pa.

Filed Apr. 28, 1981, Ser. No. 258,058

Int. Cl.³ H01H 35/00; G08B 21/00

U.S. Cl. 200—61.21

8 Claims



1. Apparatus for indicating the level of material in a storage bin comprising a hollow enclosure including means for mounting said enclosure to a storage bin, motor means mounted for limited movement within said enclosure, a paddle operatively coupled to said motor means and adapted to be disposed for rotation within said bin, rotation of said paddle being retarded when material stored in said bin is at a level so as to stallably engage said paddle, means mounted within said enclosure for detecting limited movement of said motor means when rotation of said paddle is retarded by material stored in said bin, and fail safe means operatively connected to said means for detecting limited movement for indicating a preselected material level condition at said means for detecting limited movement in the event of failure at said apparatus independently of actual material level relative to said paddle.

4,392,033

CENTRIFUGAL SWITCHING SYSTEM

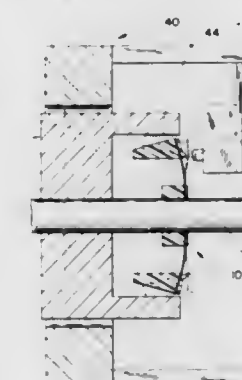
Francis C. Peterson, St. Charles, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Apr. 6, 1981, Ser. No. 251,430

Int. Cl.³ H01H 35/10

U.S. Cl. 200—80 R

13 Claims



1. In an actuator responsive to centrifugal forces for actuating a switching system in a motor assembly, an actuator member fixedly mounted on an armature shaft within the motor assembly, said actuator member comprising a hub section of a predetermined thickness and axial extent, a generally dome-like, circumferentially disposed, and substantially continuous web section extending radially outwardly from and axially in

one direction relative to said hub section, said dome-like web section including a generally convex surface with a plurality of circumferentially spaced weight leg sections emanating from the outer periphery thereof, each of said weight leg sections extending axially relative to said axial extent of said hub in said one direction for a predetermined axial extent, and wherein the dome-like web includes a plurality of radially extending slots inwardly directed from the outer periphery of said actuator member, circumferentially extending means on said actuator member proximate said outer periphery for actuating a prepositioned switch mounted within said switching system, whereby as said armature shaft reaches a predetermined rotational speed said weight leg sections move radially outwardly causing said dome-like web to snap from a first position to a second position wherein said circumferentially extending means actuates said prepositioned switch when said dome-like web is in said second position.

4,392,034

ELECTRICAL SWITCH CONSTRUCTION

Frank Payne, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

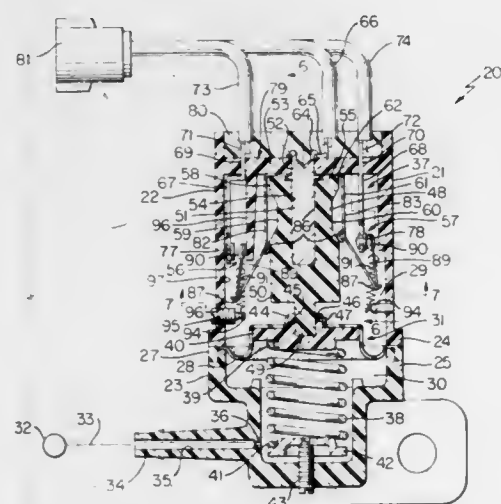
Continuation-in-part of Ser. No. 187,498, Sep. 15, 1980, Pat. No. 4,357,589. This application Mar. 6, 1981, Ser. No. 241,004

The portion of the term of this patent subsequent to Nov. 2, 1999, has been disclaimed.

Int. Cl.³ H01H 35/34

U.S. Cl. 200—81.4

12 Claims



1. In an electrical switch construction having electrical contact means operated by an axially movable plunger means of a device carried by said construction, said contact means comprising a plurality of pairs of cooperating contacts arranged to have each cooperating pair thereof operated by said plunger means as said device axially moves said plunger means in one direction, each said pair of cooperating contacts comprising a fixed contact and a movable contact, each movable contact being snap-acting, each movable contact having a pivot member pivotally mounted to said construction, a one-piece substantially U-shaped flexible member having a cross member and a pair of legs extending from said cross member and defining pivot means that pivotally mount said pivot members to said construction, the improvement wherein said legs respectively have cam follower means intermediate said pivot means thereof and said cross member, said plunger means being axially movable between said legs and having cam means serially engageable with said follower means to serially flex said legs and thereby move said pivot means thereof to cause said pivot members to serially pivot as said plunger means is axially moved by said device in said one direction.

4,392,035

VACUUM INTERRUPTER

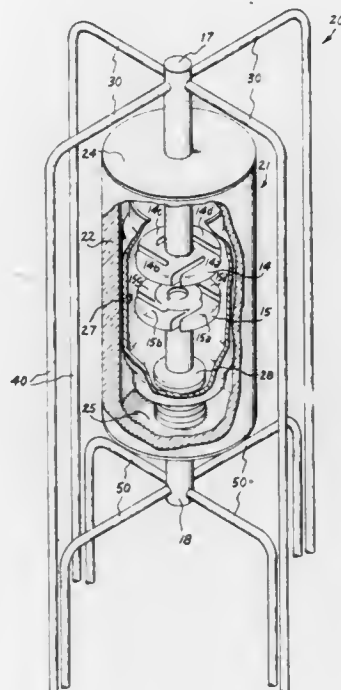
Gerhard Frind, Altamont; James J. Carroll, Clifton Park, and John H. Van Noy, Ballston Spa, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 3, 1981, Ser. No. 270,056

Int. Cl.³ H01H 33/66

U.S. Cl. 200—144 B

22 Claims



1. An improved vacuum interrupter, comprising:
 - (a) an evacuated vessel having a generally cylindrical conductive sidewall;
 - (b) first and second generally disc-shaped contacts disposed within said conductive vessel, and spaced inwardly from said conductive sidewall by at least a first predetermined distance, said contacts being substantially aligned with each other along a contact axis, and defining a mating interface when abutting each other;
 - (c) first conductor means projecting externally of said vessel and being connected to said first contact;
 - (d) second conductor means projecting externally of said vessel and being connected to said second contact;
 - (e) third conductor means connected to said first conductor means at a second predetermined distance from said mating interface on a first side of said mating interface, said distance being measured in a direction parallel to said contact axis; and
 - (f) fourth conductor means connected to said third conductor means, said fourth conductor means being disposed substantially concentrically and symmetrically about said contact axis, said fourth conductor means running from a third predetermined distance from said mating interface on said first side thereof to a fourth predetermined distance from said mating interface on a second side of said mating interface, and spaced between fifth and sixth predetermined distances from said contact axis said third and fourth distances being measured in a direction parallel to said contact axis and said fifth and sixth dimensions being measured in a direction perpendicular to said contact axis, said second and fourth conductor means being parallel to each other for a finite extent and said fourth conductor means being oriented so as to carry current in a direction substantially parallel to said contact axis.

4,392,036

LOW-VOLTAGE PROTECTIVE CIRCUIT BREAKER WITH A FORKED LOCKING LEVER

Werner Troebel, and Martin Böttcher, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

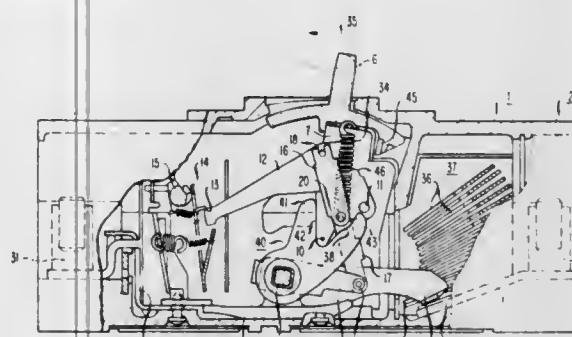
Filed Aug. 31, 1981, Ser. No. 297,769

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1980, 3033213

Int. Cl.³ H01H 9/20

U.S. Cl. 200—322

6 Claims



1. A low-voltage circuit breaker comprising a drive lever, an operating handle to move the drive lever, a drive spring connected to the drive lever to be operated thereby, a toggle system including two toggle levers and a toggle joint connecting the levers together, a control shaft connected by the toggle lever system and the drive spring to the drive lever, a movable contact connected to the control shaft to be moved thereby, and a fixed contact in the path of movement of the movable contact to be engaged thereby, the invention comprising:

a locking lever pivotally mounted on the control shaft and movable between an "on" position and an "off" position; and

a working surface on the drive lever, the locking lever comprising a first portion to be engaged by the working surface, whereby the working surface moves the locking lever toward its "off" position when the handle moves towards its "off" position, the locking lever comprising a second portion to be moved toward engagement with the toggle joint when the locking lever is moved by the working surface, the second portion of the locking lever being spaced from the toggle joint pin when the working surface of the drive lever first moves the locking lever, whereby there is play between the second portion of the locking lever and the toggle joint pin such that the locking lever can only be pivoted part way and allows only partial movement of the drive lever and the handle attached thereto unless the toggle joint pin moves out of the way of the second portion of the locking lever.

4,392,037

STABILIZED BUTTON FOR AN ELECTRICAL KEYBOARD

Anthony Fleming, Glasgow, Scotland, assignor to Burroughs Corporation, Detroit, Mich.

Filed Jun. 4, 1981, Ser. No. 270,689

Claims priority, application United Kingdom, Jun. 7, 1980, 8018745

Int. Cl.³ H01H 13/00

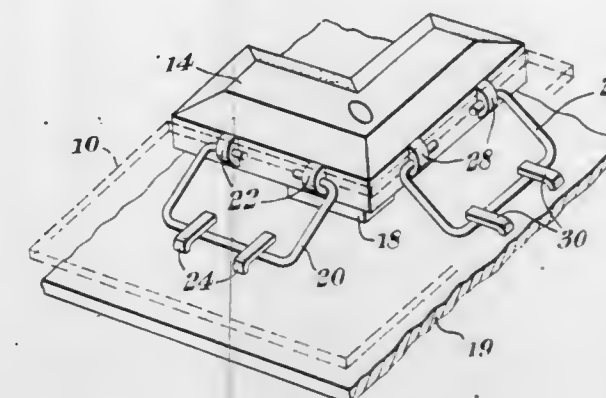
U.S. Cl. 200—340

7 Claims

1. A keyboard with depressable keys mounted on a base, the keyboard having apparatus for stabilizing the movement of the keys along the axes orthogonal to the direction of depression of the keys comprising:

one or more rigid members, each said member movably secured at multiple points to said key and movably secured at multiple points to said base, said multiple securing

points for said key and said base being along lines maintaining a parallel relation with one of said axis orthogonal



to the direction of key depression, said secured rigid members stabilizing movement of said keys along the axes.

4,392,038

SELF-CLEANING MICROWAVE CONVECTION OVEN

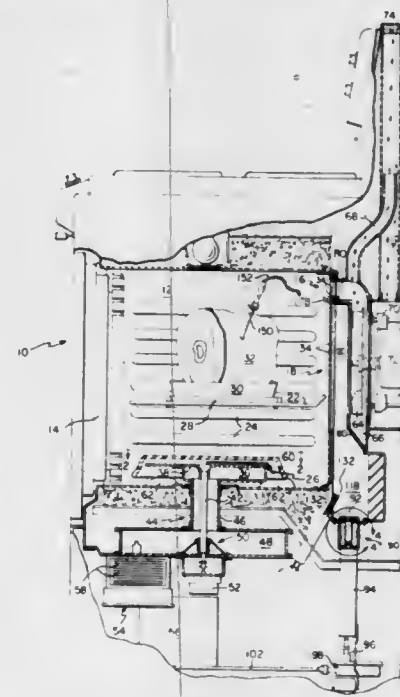
William J. Day, Allentown, and Bernard J. Weiss, Borto, both of Pa., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 4,008, Jan. 16, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 208,229

Int. Cl.³ H05B 6/64

U.S. Cl. 219—10.55 D

2 Claims



1. A combination microwave and convection heating system comprising:

an enclosure supplied with microwave energy; a vapor outlet region in the rear of said enclosure comprising a plurality of apertures whose maximum dimensions are substantially less than a half wavelength of said microwave energy;

a blower system positioned outside said enclosure and adjacent said vapor outlet region;

an elongated gas ribbon burner having a plurality of substantially parallel ribbons defining rows of ports, said burner being positioned outside said enclosure beneath said outlet region, said burner having a fuel-air mixture drawn there-through by said blower system for providing a flow of combustion products past said outlet region to said blower system for circulating said combustion products through said enclosure; and

said burner comprising means for restricting the height of the combustion region above said burner to retard ionization of vapor in said vapor outlet region, said restricting

means comprising a longitudinal secondary air source dividing said burner into two substantially parallel sections.

4,392,039

DIELECTRIC HEATING APPLICATOR

Per O. Risman, Huskvarna, Sweden, assignor to P.O.R. Microtrans AB, Huskvarna, Sweden

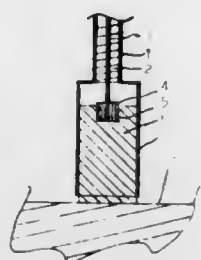
Filed Jan. 19, 1981, Ser. No. 226,537

Claims priority, application Sweden, Jan. 21, 1980, 8000494

Int. Cl.³ H05B 6/70

U.S. Cl. 219—10.55 A

5 Claims



1. A dielectric heating applicator for heating an object, said applicator comprising:

- a hollow cylindrical metal body;
 - a mass of low-loss dielectric material, having a dielectric constant ϵ'_{rd} , disposed within and in direct contact with said body;
 - coupling means at one side of said body for feeding microwave energy coaxially to said body from a microwave generator; and
 - means, including the low-loss dielectric material, for forming a resonator at the frequency of the microwave energy fed to said body when an object located at another side of said body is in physical contact with the applicator;
- wherein said dielectric constant ϵ'_{rd} of said dielectric material is greater than the dielectric constant ϵ'_{rl} of said object.

4,392,040

INDUCTION HEATING APPARATUS FOR USE IN CAUSING NECROSIS OF NEOPLASM

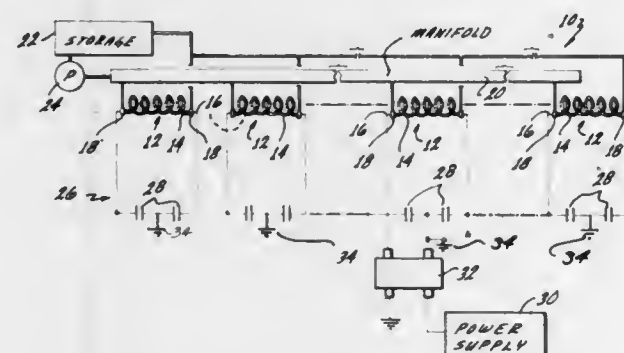
Robert W. Rand, 521 N. Bristol Ave., Los Angeles, Calif. 90049; Harold D. Snow, 4201 Noble Ave., Sherman Oaks, Calif. 91403; David G. Elliott, 737 W. Startlight Hights, La Canada, Calif. 91011, and Glenn M. Haskins, 3811 Rio Hondo Ave., Rosemead, Calif. 91770

Filed Jan. 9, 1981, Ser. No. 223,727

Int. Cl.³ H05B 6/44

U.S. Cl. 219—10.71

7 Claims



1. An induction heating apparatus having an induction heating coil and a power supply means connected to said heating coil for supplying electric power to said coil in which the improvement comprises:

- a plurality of different coils which are identical to said heating coil,

each of said coils being a flat "pancake" coil including a

series of turns of an electrically non-conductive tube with a multi-strand conductor extending through its interior, this conductor being sufficiently small so as to permit a cooling fluid to be circulated through the interior of the tube within which it is located,

said coils being located closely adjacent to one another in a "stack" in which said coils are aligned with one another so as to be capable of serving as a series of closely coupled transformer coils,

manifold means connected to the ends of said tubes of said coils for conveying a cooling fluid through said tubes of said coils,

a capacitor means connected across the ends of the conductor in each of said coils and said heating coil so as to constitute, in combination with the coil to which it is attached, a tank circuit having a resonant frequency, said capacitor means all having equal capacitance values, said tank circuits all having the same resonant frequency, said power supply means being connected only to said heating coil and the tank circuit associated with said heating coil and capable of supplying power at a frequency which is the same as the resonant frequency of the tank circuits, said power supply means being adjustable so that the frequency of the power supplied to the tank circuit to which it is connected can be adjusted in accordance with any change in the resonant frequency of said tank circuits.

4,392,041

ELECTRIC DISCHARGE MACHINING APPARATUS WITH A WIRE-SHAPED ELECTRODE

Takeshi Yatomi, and Yutaka Tanaka, both of Aichi, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP80/00047, § 371 Date Nov. 22, 1980, § 102(e) Date Nov. 21, 1980, PCT Pub. No. WO80/02003, PCT Pub. Date Oct. 2, 1980

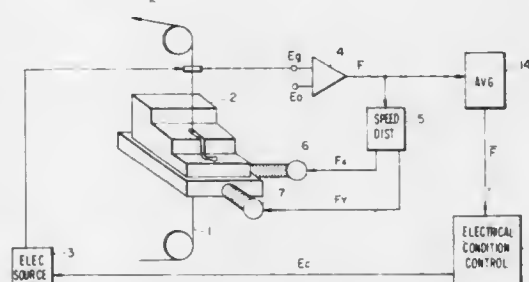
PCT Filed Mar. 21, 1980, Ser. No. 224,512

Claims priority, application Japan, Mar. 22, 1979, 54-33577; Mar. 22, 1979, 54-33578

Int. Cl.³ B23P 1/08

U.S. Cl. 219—69 W

27 Claims



1. In an electric discharge machine (EDM) apparatus of the type wherein machining is caused by translating a wire electrode with respect to a workpiece at a machining feed speed and generating an electric discharge across a gap between said electrode and workpiece, said machining feed speed being controlled to maintain a substantially constant voltage across said gap, said EDM apparatus including means for generating a machining feed speed signal in accordance with said machining feed speed, a machining electric source for maintaining desired machining electrical conditions in accordance with control signals, and arithmetic means responsive to said machining feed speed signal for generating said control signals, the improvement characterized in that said arithmetic means comprises averaging means responsive to said machining feed speed signal for generating an averaged signal representing the average machining feed speed, said arithmetic means generating said control signals in accordance with said averaged signal, and said machining electric source changing its electrical conditions at predetermined intervals as said wire electrode continuously translates with respect to said workpiece.

4,392,042

METHOD OF AND APPARATUS FOR ELECTROEROSIVELY WIRE-CUTTING A CONDUCTIVE WORKPIECE

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Feb. 24, 1981, Ser. No. 237,677

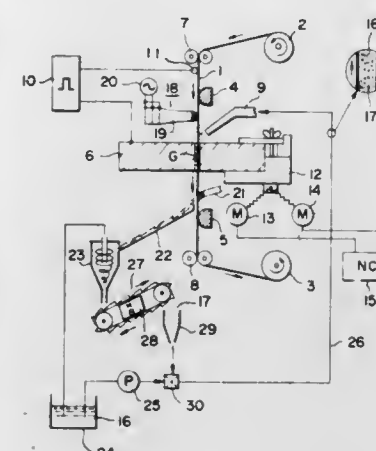
Claims priority, application Japan, Feb. 25, 1980, 55-23062; U.S. Cl. 219—69 P

Feb. 25, 1980, 55-23063

Int. Cl.³ B23P 1/02

U.S. Cl. 219—69 W

4 Claims



1. In an apparatus for electroerosively wire-cutting an electrically conductive workpiece to form a desired contour therein, including supply means for continuously supplying a water machining medium into a machining gap defined between the workpiece and a wire electrode supported under tension across supply and takeup sides and axially displaced continuously to travel between a pair of machining guide members while traversing the workpiece, power supply means for applying a succession of electrical pulses across the machining gap flushed with the water medium between the workpiece and the wire electrode to produce time-spaced electrical discharges through the water medium, thereby electroerosively removing material from the workpiece and contouring feed means for displacing the workpiece relative to the traveling wire electrode transversely to the axis thereof along a predetermined path to form the desired contour in the workpiece, the improvement comprising:

- ion-exchanger means for controlling the specific resistivity of the water medium delivered by said supply means to the machining gap to be in a range between 10^2 and 10^5 ohm-cm
- means for introducing abrasive particles into said resistivity-controlled water medium for delivery in suspension therein to said machining gap;
- collecting means for receiving the mixture of said water medium and said abrasive particles leaving said machining gap;
- first separator means for separating said collected mixture into a liquid component and a solid component;
- second separator means for separating said solid component into machining products from said machining gap and abrasive particles;
- means for guiding said liquid component to said ion-exchanger means for processing thereby to yield said water medium of said specific resistivity;
- mixing means for introducing said abrasive particles yielded from said second separator means into said water medium yielded from said ion-exchanger means; and
- conduit means for guiding the mixture of said water medium and said abrasive particles from said mixing means to said supply means.

4,392,043

PULSE GENERATOR

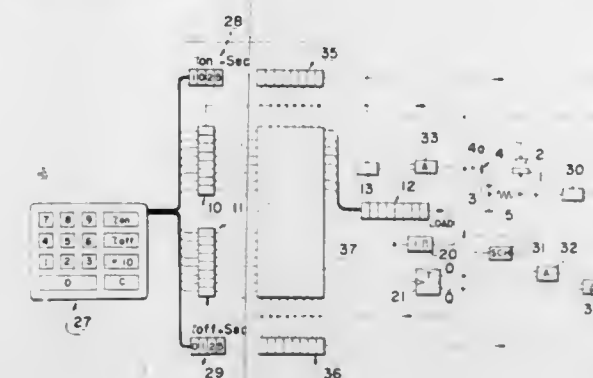
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Feb. 27, 1981, Ser. No. 238,744

Claims priority, application Japan, Feb. 28, 1980, 55/23346

Int. Cl.³ B23P 1/02

8 Claims



1. A pulse generator comprising:
 - on-time setting means for selectively setting on-times;
 - a first matrix circuit for producing a first output signal on a selected output thereof corresponding to a particular on-time set in said on-time setting means;
 - off-time setting means, independent of said on-time setting means, for selectively setting off-times;
 - a second matrix circuit, independent of said first matrix circuit, for producing a second output signal on a selected output thereof corresponding to a particular off-time set in said off-time setting means;
 - a clock pulser for producing clock pulses;
 - a single preset counter means for counting said clock pulses; and
 - circuit means for establishing, in said single preset counter means, first and second levels to be reached by the clock pulse count in accordance with said first and second output signals, respectively, said circuit means being operable, upon the count of said counter means in a first mode reaching said first level, to switch the latter to said second level and, upon the count of said counter means in a second mode reaching said second level, to switch the latter to said first level, whereby said circuit means provides an on-output signal while said preset counter means is in said first mode and an off-output signal while said preset counter means is in said second mode.

4,392,044

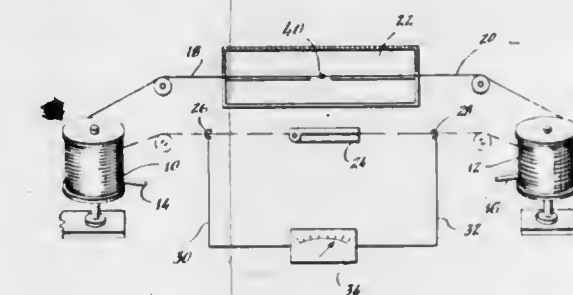
METHOD FOR DETECTING WHETHER DISSIMILAR METALS ARE BEING WELDED

Teh P. Wang, North Caldwell, and Elmer J. Korn, Bloomfield, both of N.J., assignors to Amax Inc., Greenwich, Conn.

Int. Cl.³ B23K 31/00

U.S. Cl. 219—118

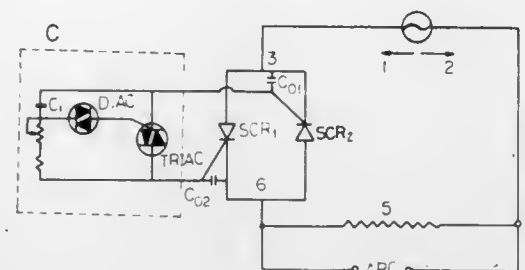
12 Claims



1. A method for detecting whether two dissimilar metals are being welded together comprising the steps of:
 - a. placing in juxtaposition the edges of two metals that are to be welded together;

- b. joining said metals by welding;
- c. contacting said metals with electrical leads which are electrically connected to a voltage or current sensing device at points heat conductively remote from the weld, while said weld is hot; and
- d. detecting whether an electrical signal is present, to reveal the similarity or dissimilarity of said metals.

4,392,046
ELECTRONIC DEVICE FOR ARC WELDING EQUIPMENT
 Huann-Jang Tzeng, No. 78, Shu-Jen Rd., Pen-Tang Tsuen, Wu-Feng Hsiang, Taichung Hsien, Taiwan
 Filed Mar. 26, 1981, Ser. No. 247,867
 Int. Cl.³ B23K 9/10
 U.S. Cl. 219—130.1 **4 Claims**



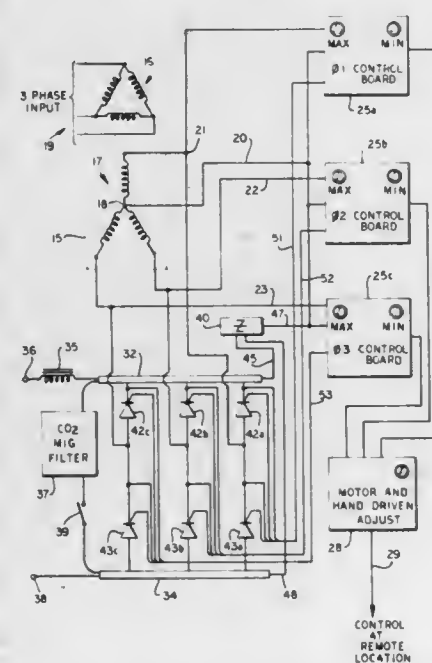
1. An electronic device for arc welding equipment having a load arc, comprising: a voltage regulating portion, and a controlling portion which controls said voltage regulating portion; said voltage regulating portion comprising two thyristors electrically connected to allow a first half cycle of alternating current to pass through one of the two thyristors and a second half cycle of said alternating current to pass through the other of said thyristors under the control of said controlling portion; said controlling portion comprising a RC circuit having a capacitor, changeable resistance, a DIAC, and a TRIAC in electrical connection with said voltage regulating portion such that the application of alternating current will first charge the capacitor of said RC circuit to a potential sufficient to trigger said DIAC which in turn triggers said TRIAC, said TRIAC in turn causing said thyristors to be alternately rendered conductive during alternate half-cycles.

4,392,047
NON-CONSUMABLE ELECTRODE
 David G. Bykhovsky, ulitsa Esenina, 32, korpus 2, kv. 35; Albert A. Voropaev, ulitsa Manchesterskaya, 12, kv. 40; Evgeny F. Olennikov, ulitsa Ziny Portnovoi, 1, kv. 80, and Alla V. Lopatina, prospekt Veteranov, 112, kv. 69, all of Leningrad, U.S.S.R.
 Filed Feb. 4, 1981, Ser. No. 231,464
 Claims priority, application U.S.S.R., May 14, 1982, 2916099; May 14, 1982, 2916100
 Int. Cl.³ B23K 35/04
 U.S. Cl. 219—145.21 **31 Claims**



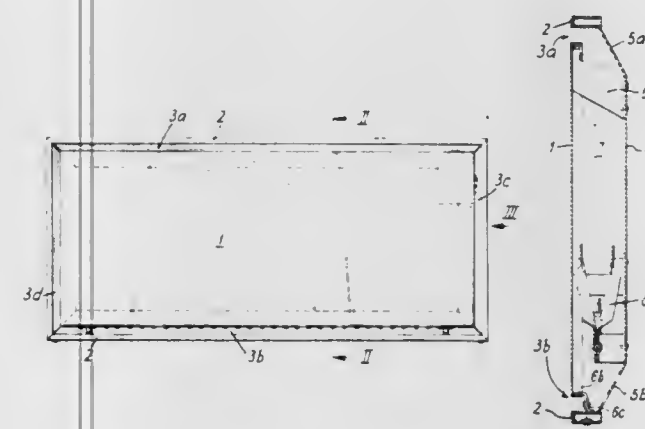
1. A non-consumable electrode for use in arc and plasma devices in an inert gas atmosphere, made in the form of a cylinder with a tip, comprising: a holder and an active portion, made of a refractory metal with emission admixtures, connected with said holder wherein the outer side surface of the active portion is exposed to a height exceeding $\frac{1}{4}$ of the diameter thereof, whereby conditions for transfer of the material from the side surface of the active portion to a work surface thereof are provided.

4,392,045
THYRISTOR CONTROLLED WELDING POWER SUPPLY
 Malcolm T. Gilliland, 310 Pine Valley Rd., Marietta, Ga. 30060
 Filed Feb. 19, 1981, Ser. No. 236,037
 Int. Cl.³ B23K 9/10
 U.S. Cl. 219—130.1 **8 Claims**



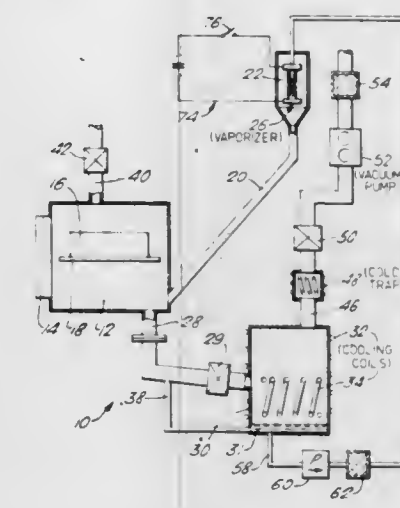
1. In a three-phase welding power supply for providing welding current to a welder wherein said power supply includes a positive output electrode and a negative output electrode and a three-phase wye connected input source including a neutral terminal, further including, for each phase of said three-phase input, at least one pair of thyristors connected in series between said positive output electrode and said negative output electrode; said pair of thyristors being connected to each other at a junction point, each of said thyristors including a gate terminal; a conductor connected said phase from said input source to said junction point; the improvement comprising: a control means connected to said phase for providing triggering pulses to said gate terminal in response to the voltage between said phase and said neutral terminal; and a holding impedance connecting said positive output electrode and said negative output electrode to said neutral terminal for drawing a holding current through one thyristor of said pair of thyristors subsequent to provision of one of said triggering pulses until said voltage between said phase and said neutral terminal substantially returns to zero.

4,392,048
ELECTRICAL CONVERTOR HEATER
 Brian Carter, Paris, France, assignor to Societe Prl, Aubervilliers, France
 Continuation of Ser. No. 8,340, Jan. 31, 1979, abandoned. This application Oct. 23, 1981, Ser. No. 314,513
 Claims priority, application United Kingdom, Feb. 1, 1978, 4091/78
 Int. Cl.³ F24H 9/02, 9/20; H05B 3/02
 U.S. Cl. 219—367 **7 Claims**



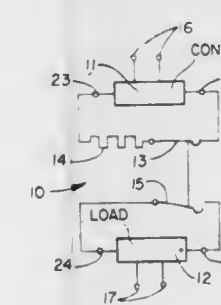
1. A convector heater comprising: a front plate; a surround spaced around the periphery of said front plate; an air gap defined between said front plate and said surround and including a top air gap portion, a bottom air gap portion and two lateral end air gap portions, said top, bottom and lateral end air gap portions being of similar width and said air gap being continuous around the entire periphery of said front plate; a back plate connected at the periphery thereof to said surround and spaced from said front plate; a convection air space defined between said front plate and said back plate, said convection air space being directly connected to and opening into the surrounding atmosphere around the entire periphery of said front plate through said top, bottom and two lateral end air gap portions; heat exchanger means disposed in said convection air space at the bottom thereof for inducing a primary convection air flow inwardly through said bottom air gap portion at the bottom of said front plate; upwardly through said convection air space, and outwardly through said air gap portion at the top of said front plate, and for causing said primary convection air flow to induce secondary convection air flows inwardly through said lateral end air gap portions, upwardly through said convection air space, and outwardly through said top air gap portion; and control means disposed at one of the top corners of said convection air space, the arrangement being such that the air flow impinging on said control means includes air from said secondary air flow entering through said respective lateral end air gap portion and is cooler than said primary convection air flow leaving said top air gap portion.

4,392,049
CONDENSATION HEATING APPARATUS AND METHOD
 Peter D. Bentley, Brighton, and James F. Pollock, Hook, both of England, assignors to United Kingdom Atomic Energy Authority, London, England
 Division of Ser. No. 150,429, May 16, 1980, Pat. No. 4,327,271. This application Jul. 20, 1981, Ser. No. 286,382
 Claims priority, application United Kingdom, May 18, 1979, 7917469; May 9, 1980, 8015528
 Int. Cl.³ F27D 11/00
 U.S. Cl. 219—401 **8 Claims**



1. A method of heating an article by the condensation thereon of a vapour, the method comprising, (a) placing an article to be heated in a heating chamber; (b) closing the heating chamber; (c) reducing the pressure inside the heating chamber; (d) passing a liquid through a permeable electrically conducting heating matrix outside the heating chamber so as to produce a vapour from the liquid; (e) introducing the vapour into the heating chamber so as to heat the article by the condensation thereon of the vapour, and (f) removing the vapour from the heating chamber after the article has been heated.

4,392,050
RAPID RESPONSE THERMAL SWITCH FOR ISOLATED LOAD CONTROL
 Otto J. Cousins, Burbank, Ill., assignor to Harper-Wyman Company, Hinsdale, Ill.
 Filed Apr. 20, 1981, Ser. No. 255,660
 Int. Cl.³ H05B 1/02
 U.S. Cl. 219—491 **11 Claims**



1. A thermal switch for controlling the energization of a load in response to a control signal from a controller, said thermal switch comprising: a bimetallic actuator; an electrical heater adjacent said bimetallic actuator; and a first set of contacts movable between open and closed.

positions in response to movement of said bimetallic actuator;

a control circuit including said first set of contacts and said heater, adapted to be connected to said controller for energization of said heater with the control signal when said first set of contacts is in said closed position;

a second set of contacts electrically isolated from said first set of contacts and being movable between closed and open positions in response to movement of said bimetallic actuator;

means responsive to movement of said bimetallic actuator for operating said second set of contacts between said closed and open positions;

a load circuit including said second set of contacts, adapted to be connected to said load and to a power source for energization of said load once said second set of contacts is in said closed position;

said bimetallic actuator having a normal position when unheated, said first set of contacts being closed and said second set of contacts being open in said normal position; and

said bimetallic actuator being movable in response to heat from said energized heater to a position wherein said second set of contacts closes and in response to additional heat from continued energization of said heater to a position wherein said first set of contacts opens and said second set of contacts remains closed.

4,392,051

PARALLEL-TYPE HEATING CABLE

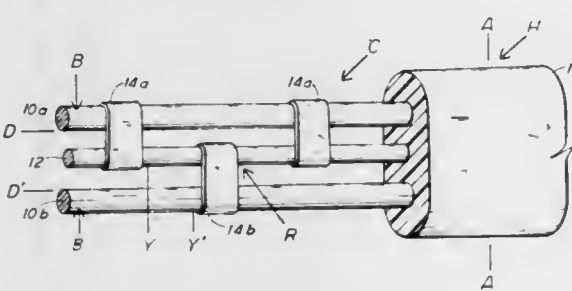
David C. Goss, and Daniel R. Springs, both of San Marcos, Tex., assignors to Thermon Manufacturing Company, San Marcos, Tex.

Division of Ser. No. 188,354, Sep. 19, 1980, Pat. No. 4,345,368. This application Sep. 8, 1981, Ser. No. 299,786

Int. Cl.³ H05B 3/34

U.S. Cl. 219—528

10 Claims



1. A parallel-type heating cable, comprising:

- a first and second bus wire arranged in a spaced apart essentially parallel relationship for carrying electrical current;
- an electrically resistive heating element arranged essentially parallel to said bus wires for generating joule heat;
- a plurality of electrically conductive splices, each of said splices deformed alternately about said first bus wire and heating element and said second bus wire and heating element to establish an alternating series of mechanical-electrical connections between said first bus wire and heating element and said second bus wire and heating element, thereby forming a heating core; said splices mechanically maintaining said first and second bus wires and said heating element in said spaced apart essentially parallel relationship; and
- a protective cover encasing said heating core.

4,392,052

DEVICE FOR CARRYING ELECTRICAL RESISTANCE ELEMENTS

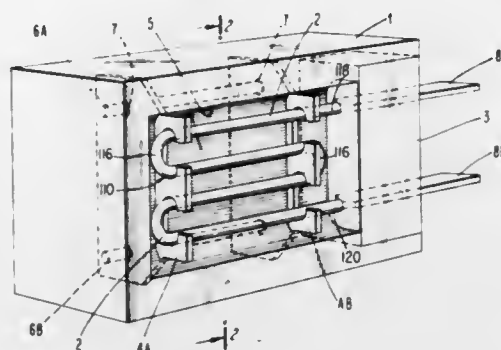
Bengt Magnusson, Hallstahammar, Sweden, and Hans Gürtler, Roedermark, Fed. Rep. of Germany, assignors to Bulten-Kanthal AB, Hallstahammar, Sweden

Filed Apr. 3, 1981, Ser. No. 250,898

Int. Cl.³ H05B 3/06

U.S. Cl. 219—532

10 Claims



- Apparatus replaceably carrying an electrical resistance element for a furnace, comprising:
 - a block of ceramic fibrous material,
 - said electrical resistance element being mounted on said block and being of serpentine configuration having a plurality of adjacent generally U-shaped portions defined by straight shanks and curved segments interconnecting said straight shanks, the end ones of said U-shaped portions terminating in elongated terminals extending toward a common side of said block from which said electrical resistance element is inserted, said U-shaped portions being arranged to open alternately toward and away from said common side,
 - at least one plate-shaped carrying element of electrically insulative material mechanically fastened in said block and including a portion protruding from said block, said protruding portion including a plurality of through-passages into which can be slidably inserted said U-shaped portions which open toward said common side,
 - said through-passages each including side wall means and transverse wall means, said side wall means of each through-passage being arranged opposite the respective straight shanks of the associated U-shaped portion to restrain movement of said electrical resistance element within its own plane and transversely of the direction of insertion and removal of said electrical resistance element, said transverse wall means extending across the associated through-passages to prevent removal of said electrical resistance element from said through-passages in a direction perpendicular to said plane,
 - said at least one plate-shaped carrying element being spaced from the adjacent curved segments of said U-shaped portions.

4,392,053

OPTICAL PROBE

Karlheinz H. Bockholt, Delavan, Wis., assignor to Western Publishing Inc., Racine, Wis.

Filed Aug. 25, 1981, Ser. No. 296,037

Int. Cl.³ G06K 13/06, 7/10

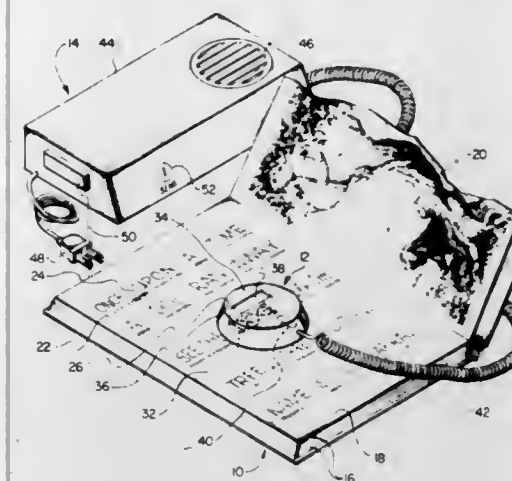
U.S. Cl. 235—472

9 Claims

- A hand-held probe for scanning an optical code comprising:
 - a length of optically clear material comprised in the shape of a cylindrical lens having a central axis;
 - an optically opaque housing supporting said clear material in axially parallel relationship to the code to be scanned and defining an opening in a first plane which, in use, is adjacent to the code to be scanned;
 - an optical emitter mounted in said housing and emitting a

beam of radiant energy through said clear material to said opening, said beam being approximately centered relative to said central axis; and

an electro-optical detector, for producing an electronic signal proportional to variations in radiant energy re-



ceived, mounted in said housing and receiving radiant energy through said lens in a sectional area centered relative to said central axis and directed towards said emitter, whereby radiant energy from said emitter is focused by said lens into a line parallel to said central axis and reflected back through said lens material to said detector.

4,392,054

METHOD AND APPARATUS FOR COMPENSATING FOR ASTIGMATISM IN ELECTRON BEAM DEVICES

Takeshi Sato, and Shunichi Suzuki, both of Akishima, Japan, assignors to Kabushiki Kaisha Nichidenshi Technics, Tokyo, Japan

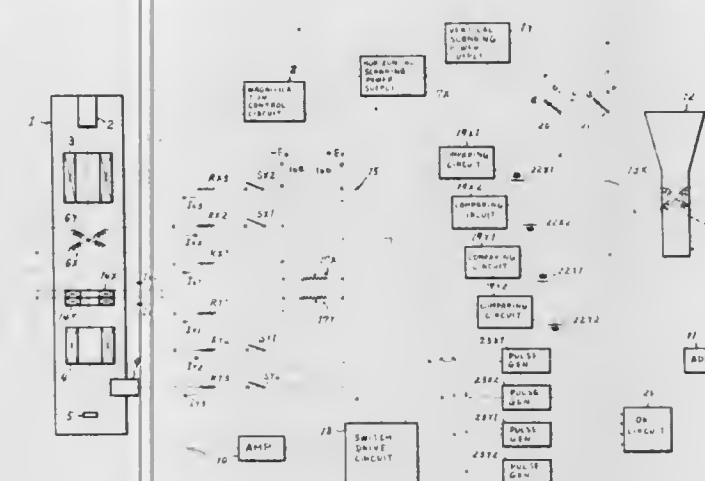
Filed Apr. 15, 1981, Ser. No. 254,523

Claims priority, application Japan, Apr. 16, 1980, 55-50119

Int. Cl.³ G21K 1/08

U.S. Cl. 250—307

10 Claims



- A method for compensating astigmatism in an electron beam device comprising means for generating an electron beam, means including a lens system for focussing the electron beam on a specimen, means for deflecting the beam to cause it to scan over the specimen and means for detecting a signal generated by the interaction of the beam and the specimen surface, an image display means in synchronism with said scanning deflecting system to which the detected signal is applied, and an XY type stigmator equipped with two quadrupole lenses positioned in said lens system for compensating astigmatism, said method comprising:
 - a step for supplying periodically stepwise changed currents to at least one of said two quadrupole lenses in synchronism with said scanning deflecting means so that different areas on the image of said display means are differently corrected for astigmatism,
 - a step for visually identifying the area on the image of the

said displaying means that is best corrected for astigmatism, and

(c) a step for constantly applying direct currents corresponding to those applied for the image area best corrected for astigmatism in the preceding step to said two quadrupole lenses.

4,392,055

BOTTLE FINISH AND CLOSURE COMBINATION WITH VENTING SLOTS

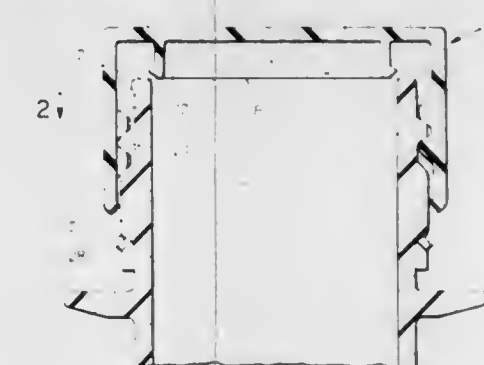
Ralph H. Whitney, Whitehouse, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Aug. 24, 1981, Ser. No. 295,887

Int. Cl.³ B65D 51/16

U.S. Cl. 215—307

8 Claims



- In combination, a unitary molded thermoplastic closure comprising a disc shaped panel section, an annular skirt depending from the periphery thereof, helical threads formed on the inside annular surface of said skirt, and circumferentially spaced, axially extending slots formed through the threads of said skirt; and a cooperating container comprising an annular finish terminating in an annular rim, helical threads formed on the outside annular surface of said finish and cooperating with said threads on said skirt, means for effecting sealing engagement between said closure and said container finish, and a plurality of circumferentially spaced axially extending slots formed in the outside annular threaded surface of said finish, at least one of said closure slots being alignable with one of said finish slots by opening rotation of said closure sufficient to disengage said sealing means and permit venting of said container.

4,392,056

CONTROL MARKING DETECTOR

Ronald R. Weyandt, Chesterland, Ohio, assignor to Automated Packaging Systems, Inc., Twinsburg, Ohio

Filed Apr. 27, 1981, Ser. No. 253,193

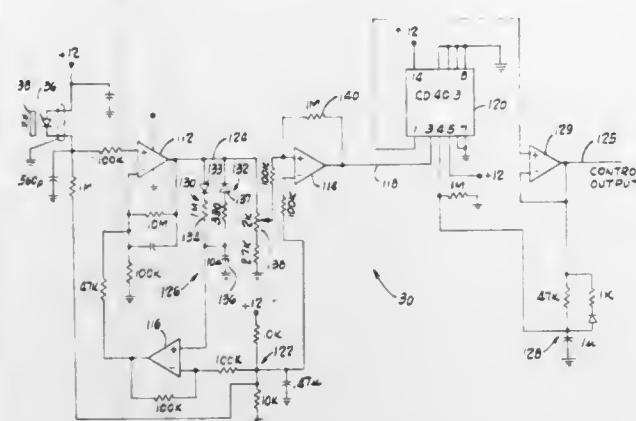
Int. Cl.³ G01J 1/00; F21V 9/16

U.S. Cl. 250—339

14 Claims

- Apparatus for detecting the presence of indicia affixed to an article of manufacture to coordinate an article control function with article movement comprising:
 - radiation responsive means mounted near a web path of travel to detect radiation from the indicia;
 - level detection means having a first input coupled to said radiation responsive means and a second input feedback coupled to a detection means output to provide a bias input which causes the detection means output to change

appreciably only in response to abrupt changes of radiation intensity from the web; and



(c) means for sensing changes in said detection means output and for providing a control signal to initiate the control function.

4,392,057

POSITION-SENSITIVE RADIATION DETECTOR

Ernest Mathieson; Graham C. Smith, and Philip J. Gilvin, all of Leicester, England, assignors to National Research Development Corporation, London, England

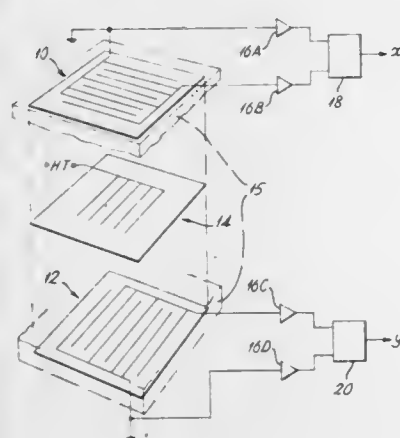
Filed Feb. 19, 1981, Ser. No. 235,989

Claims priority, application United Kingdom, Feb. 22, 1980, 8005981

Int. Cl.³ G01T 1/18

U.S. Cl. 250—385

9 Claims



1. A position sensitive radiation detector comprising at least one linear array of discrete collector elements spaced apart from one another simultaneously to receive radiation at a plurality of positions defining an extensive radiation-sensitive region, said linear array comprising two interleaved groups of collector elements, each group extending over substantially the whole of said region and comprising elements whose mutual spacing is non-uniform, that of one group increasing from one end of said region to the other and that of the other group decreasing in a complementary manner so that the mutual spacing of the collective elements of said groups is substantially uniform, output means coupled to each of said collector elements to generate an output signal when radiation is incident on the associated collector element, first and second summing circuit means respectively connected to the output means associated with one of said groups of collector elements and ratio-determining circuit means to determine the relative levels of the summed signals for the two groups of signal output means.

4,392,058

ELECTRON BEAM LITHOGRAPHY

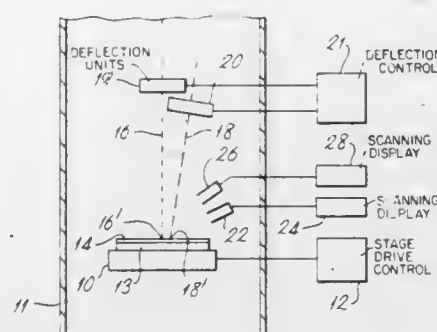
Kenneth C. A. Smith, Cambridge, England, assignor to National Research Development Corporation, London, England
Continuation of Ser. No. 114,318, Jan. 22, 1980, abandoned. This application Aug. 3, 1981, Ser. No. 289,151

Claims priority, application United Kingdom, Feb. 2, 1979, 7903825

Int. Cl.³ H01J 37/00

U.S. Cl. 250—492.2

14 Claims



1. An apparatus for electron beam lithography comprising: means for presenting a substrate for exposure of a desired pattern such that each of a plurality of elemental areas of the substrate is presented in succession for exposure during a respective exposure interval at a single location; a plurality of electron guns, the axes of the guns being relatively inclined for substantial convergence at the substrate, the guns being independently operable to produce electron beams, at least a first gun being constructed and arranged to produce a fine electron beam and at least a second gun being constructed and arranged to produce a coarse electron beam; means for focusing each beam on the surface of the substrate, deflection means for deflecting the beams across the surface; and deflection control means operative to cause said deflection means to produce a portion of the desired exposure pattern which is required to be highly resolved by the continuous deflection of a fine one of said beams across the surface and a different portion of the desired exposure pattern which is required to be less highly resolved by the continuous deflection of a coarse one of said beams across the surface in the elemental area presented during said exposure interval.

4,392,059

AUTOMATIC REMOTE CAR STARTER

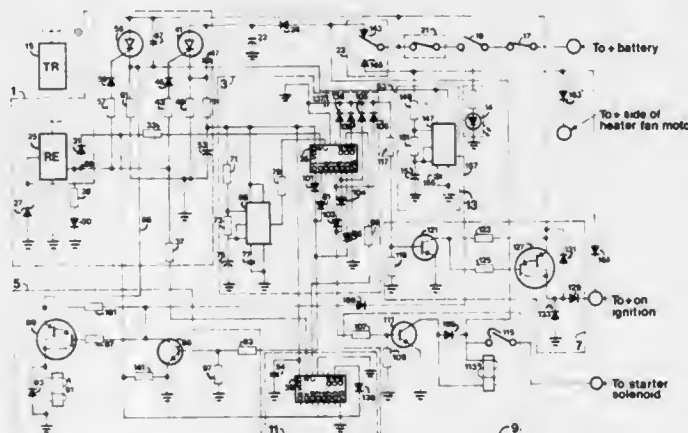
Tony Nesor, 2515 Glencoe Rd., Baltimore, Md. 21234

Filed Oct. 8, 1980, Ser. No. 195,259

Int. Cl.³ F02N 11/08

U.S. Cl. 290—38 D

7 Claims



1. A system for remote starting of an engine, comprising:
a. engine starting means which includes:
means for initiating a series of digital pulses;

means for activating said digital pulse means;
counting means for counting said series of digital pulses and for translating them into a set of sequential outputs;
means responsive to certain of said outputs for providing fuel to the engine; and
means responsive to certain of said outputs for providing power to a starting device for the engine; and
b. means controlled by the engine being operated by the starting device, said engine controlled means providing ignition power to the engine and removing power from said engine starting means and the starting device.

4,392,060

WIND AND WATER POWER GENERATOR

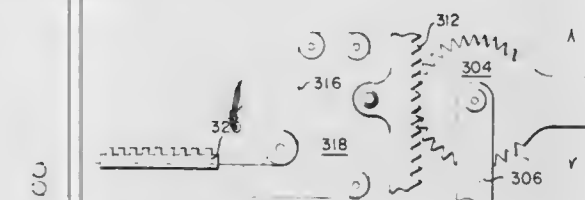
Jessie T. Ivy, 686 W. Shore Dr., Anacortes, Wash. 98221

Filed Oct. 27, 1980, Ser. No. 201,343

Int. Cl.³ F03B 13/12

U.S. Cl. 290—53

1 Claim



1. An apparatus for generating electricity from the power of tides and waves in a body of water, comprising:
a support affixed to the ground near the shore of a body of water;
a float in the body of water capable of reciprocal motion under the action of waves and tides;
a rigid actuator arm coupling the motion of the float to the support;
an electrical generator operatively associated with the float and support;
a rack and gear assembly coupled between the support and the generator and capable of converting the reciprocal motion of the float both upwardly and downwardly into electrical energy;
wherein the support has a movable rack which is coupled to a pinion gear on the rigid actuator arm and wherein the movable rack is coupled through a cable and roller assembly to two ratcheted pairs of gears, so that one pair of gears operates the generator in response to upward movement of the float and the other pair operates the generator in response to downward movement of the float.

4,392,061

APPARATUS FOR UTILIZING THE ENERGY OF WAVE SWELLS AND WAVES

Yves Dubois, 95, avenue Poincare, 59700 Marcq en Baroeul, and Francois Y. Dubois, 13, rue de la Poissonnerie, 22100 Dinan, both of France

Filed Mar. 1, 1982, Ser. No. 353,104

Claims priority, application France, Feb. 27, 1981, 81 04375

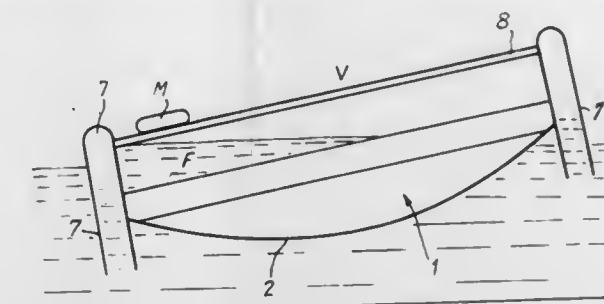
Int. Cl.³ F03B 13/12

U.S. Cl. 290—53

13 Claims

1. Apparatus for utilizing the energy of sea swells and waves, characterized by the following combination:
(a) a vessel anchored at a place of anchorage and adapted to float on the surface of and to follow the undulations of the sea swells at the place of anchorage, said vessel having a bow, a stern, a hull, an upper deck disposed above the water internally of the hull and at least one intermediary deck located between the upper deck and the bottom of the hull;
(b) means positioning said vessel to face the sea swells so as to enable said vessel to pitch and not roll while anchored, said positioning means including anchoring means to

anchor the vessel and maneuvering means to prevent the vessel from swinging at anchor;
(c) control means to modify the amplitude of the pitching of the vessel, said control means including at least one hollow, vertical air cylinder located at the bow and at the stern, respectively, of the vessel, said cylinders being closed at their upper ends;
(d) plural water-tight compartments disposed on at least one of the decks of the vessel and extending longitudinally of the vessel, each compartment comprising a conduit for containment and flow of a drive liquid which moves back and forth internally of the hull along the length of the vessel with the frequency of the pitching thereof;



(e) at least one prime mover located in the path of the moving liquid and adapted to harness the energy from the moving liquid and convert it to mechanical energy which can be utilized to drive at least one electric generator, said prime mover including a rotatable power output shaft;
(f) deflectors located at the extremities of the water-tight compartments and adapted to reduce the impact of the moving liquid when the liquid reaches the end of a compartment during completion of its downstroke as the result of the pitching of the vessel; and
(g) longitudinal bulkheads defining and separating parallel water-tight compartments to prevent lateral flow of the drive liquid, thereby minimizing listing of the vessel.

4,392,062

FLUID DYNAMIC ENERGY PRODUCING DEVICE

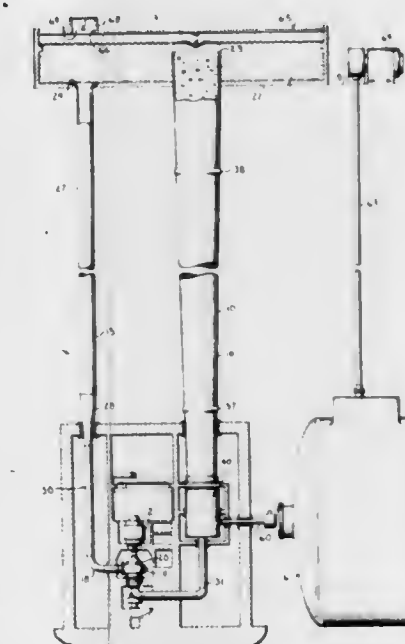
Dale R. Bervig, 10235 Oakmont Cir., Lenexa, Kans. 66215

Filed Dec. 18, 1980, Ser. No. 217,654

Int. Cl.³ F01K 25/04; F04F 1/18

U.S. Cl. 290—54

24 Claims



1. A fluid dynamic device comprising:
(a) a loop having a downcomer leg and a riser leg and adapted to receive a fluid;
(b) electrical generating means positioned between said legs and communicating therewith near a lower end thereof

such that fluid in said downcomer leg may pass through said generating means into said riser leg, thereby motivating said generating means to produce power;

(c) injection means for injecting a substance having a relatively lower density than said fluid into said fluid in said riser leg at a location vertically spaced below the top of said downcomer leg; and wherein

(d) said riser leg substantially diverges near said injection means such that the diameter of said riser leg substantially increases immediately adjacent said injection means.

4,392,063

TURBINE INSTALLATION COMPRISING A TURBINE INSTALLED IN A DUCT

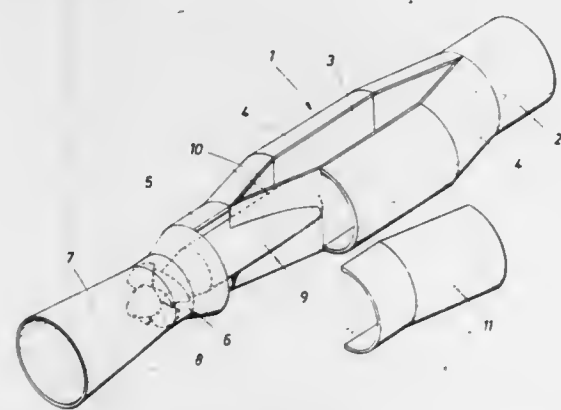
Herman A. Lindquist, San Rafael, Calif., assignor to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Mar. 23, 1981, Ser. No. 246,581

Int. Cl.³ F03B 11/02

U.S. Cl. 290—54

4 Claims



1. A turbine installation comprising
 - (a) flow passage-defining means which comprises
 - (1) two juxtaposed pipelines defining interconnecting passages spaced apart in an intermediate part of their length to define a space therebetween, the pipelines being disposed on opposite sides of an imaginary plane,
 - (2) an inlet chamber at one end of the pipelines, the inlet chamber having an outlet communicating with each one of the interconnecting passages,
 - (3) a runner chamber at an end of the pipelines opposite the one end and having an inlet communicating with each one of the interconnecting passages, and
 - (4) a cylindrical feed pipe leading from the opposite end of the pipelines to the runner chamber,
 - (b) a turbine runner mounted in the runner chamber for rotation of a fixed axis, the imaginary plane containing said axis,
 - (c) an electric generator disposed outside the flow passage-defining means,
 - (d) an output mechanism extending through the space and operatively connecting the runner to the generator, the output mechanism comprising
 - (1) a turbine shaft for rotation on said axis and non-rotatable connected to the runner, the pipelines being composed of a plurality of pipe sections extending substantially parallel to the axis and having a cross-section that is substantially the same as that part of the cross-section of the inlet chamber at the outlet which is disposed on the same side of the plane as the respective pipeline, and the feed pipe converging to form a junction near the inlet of the runner chamber,
 - (e) a carrying tube centered on said axis and radially spaced from, and surrounding, the turbine shaft, the carrying tube extending through, and being sealed in, both pipelines adjacent the junction and the carrying tube protruding into the space, on the one hand; and the cylindrical feed pipe, on the other hand, and
 - (f) a bearing for the turbine shaft mounted in the carrying tube.

4,392,064

UNBALLASTING RELAYS

Rosette Alberti, 7 rue Marie Bonaparte, 92 210, Saint-Cloud, France

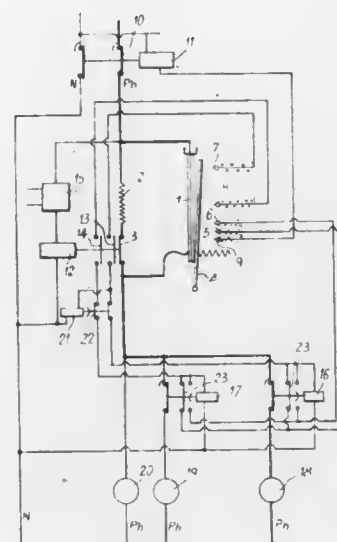
Filed Jan. 26, 1981, Ser. No. 228,087

Claims priority, application France, Jan. 25, 1980, 80 01607

Int. Cl.³ H02J 13/00

U.S. Cl. 307—39

5 Claims



1. A process for using an electrical network provided with a modification of the power available to the user by telecontrol through a control signal emitted in the network to control the modification of the threshold of the tripping of circuit breakers, comprising emitting a signal in the network substantially simultaneously with the control signal for modification of the threshold of tripping the circuit breakers, to modify the control power or operating level of the associated unloading relay.

4,392,065

ELECTRONIC CIRCUIT FOR ELIMINATING CHATTER

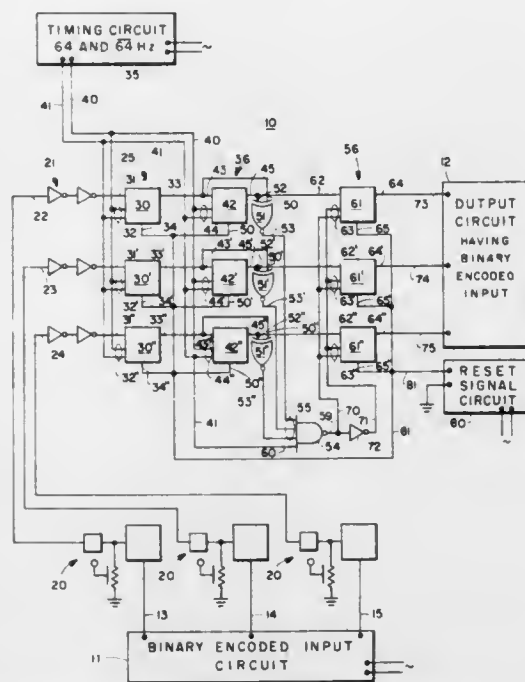
Ralph E. Stiglich, Cedar Crest, N. Mex., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jun. 18, 1981, Ser. No. 275,004

Int. Cl.³ H03K 17/56

U.S. Cl. 307—247 A

10 Claims



1. An electronic circuit for eliminating from at least two input switches the effect of contact bounce, comprising
 - a first group of a first and a second switch means each having two input circuits and one output circuit whereby upon an identical input signal appearing on said two input circuits an output signal exists on said output circuit,
 - first circuit means connecting each of the two input switches

providing an input signal to one of said two-input circuits of said first and second switch means,

a source of timing pulses connected to the other of said two input circuits of said first and second switch means,

a second group of a third and fourth switch means each having two input circuits and one output circuit whereby upon an identical input signal appearing on said two input circuits an output signal exists on said output circuit,

second circuit means connecting each of said one output circuits of said first and second switch means to one of said input circuits of said third and fourth switch means,

third circuit means connecting said source of timing pulses to a second of said two input circuits of said third and fourth switch means,

fifth and sixth switch means having two input circuits and an output circuit whereby upon an input signal appearing on each of said two input circuits an output signal exists on said output circuit,

fourth circuit means connecting said output circuit of said first and third switch means to one of said input circuits of said fifth switch means and said output circuit of said second and fourth switch means to said input circuits of said sixth switch means,

a seventh switch means having at least three input circuits and an output circuit whereby upon identical input signals appearing on all three input circuits, an output signal exists on said output circuit,

fifth circuit means connecting said output circuits of each of said fifth and sixth switch means to a first and second input circuits of said seventh switch means and said source of timing pulses to a third input circuit of said seventh switch means,

a third group of an eighth and ninth switch means each having two input circuits and an output circuit, whereby upon an identical input signal appearing on each of said two input circuits an output signal exists on said output circuit, and

means connecting said output of each of said third and fourth switch means to one of said input circuits of said eighth and ninth switch means respectively and said output circuit of said seventh switch means to each of the other input circuits of said eighth and ninth switch means to provide an output signal at said output circuits of said eighth and ninth switch means indicative of the input signal of the input switches after the contact bounce of the two input switches has terminated.

4,392,066

SCHMIDT TRIGGER CIRCUIT

Hiroshi Hirao, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

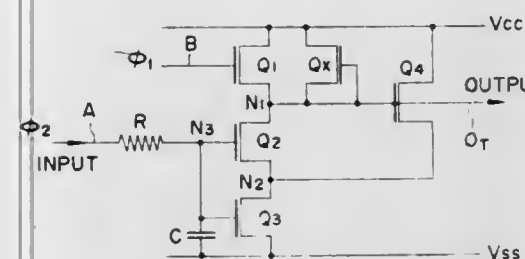
Filed Dec. 23, 1980, Ser. No. 219,496

Claims priority, application Japan, Dec. 29, 1979, 54/171184

Int. Cl.³ H03K 3/295; H03L 1/00

U.S. Cl. 307—290

5 Claims



1. In a Schmidt trigger circuit which is provided with at least first, second and third transistors which are series-connected at their respective sources and drains between a power source line and a ground line, and a fourth transistor which has its gate connected to a first node at the series connection of the first and second transistors to apply a feedback current from the drain of said fourth transistor to a second node at the series

connection of the second and third transistors, the improvement comprising

a fifth transistor connected between the power source line and the first node,

wherein said fifth transistor allows said first node to discharge to said power source line when, after said first node is charged to a voltage corresponding to an initial voltage of said power source line, said voltage of said power source line decreases to a level below a level corresponding to said voltage on said first node,

whereby variations in a time delay provided by said Schmidt trigger circuit, as a result of the variation in the voltage of said power source line, may be reduced.

4,392,067

LOGIC SELECT CIRCUIT

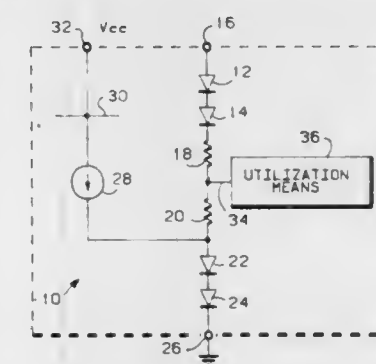
John J. Price, Jr., Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 18, 1981, Ser. No. 235,397

Int. Cl.³ H03L 5/00; H03K 5/22

U.S. Cl. 307—475

5 Claims



1. A logic select circuit for providing a multi-level logic threshold signal at an output thereof, comprising:
 - first diode means coupled between a first terminal and a first circuit node;
 - second diode means coupled between a second terminal at which is supplied a ground reference potential and a second circuit node;
 - circuit means coupled between said first and second circuit nodes and to the output of the logic select circuit; and
 - current source means coupled to said second circuit node for providing a predetermined current thereto such that a first logic threshold signal of a first level is produced at the output of the logic select circuit and second logic threshold signal of a second level is produced when said first terminal is connected to a source of operating potential supplied to the logic select circuit.

4,392,068

CAPACITIVE COMMUTATING FILTER

Kenneth B. Welles, II, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 17, 1981, Ser. No. 284,157

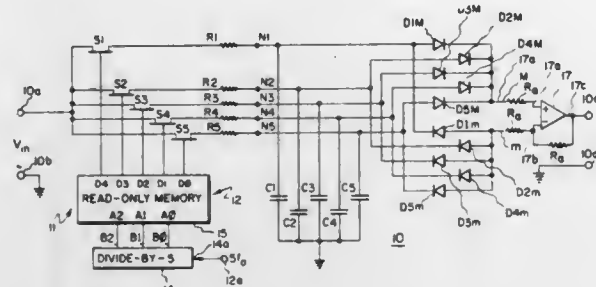
Int. Cl.³ H03K 5/24, 5/26; H03D 13/00

U.S. Cl. 307—522

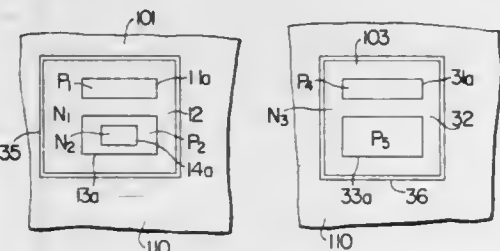
10 Claims

1. A commutating filter for detecting the presence of a waveform substantially at a selected frequency, comprising:
 - input terminal means for receiving the waveform;
 - output terminal means;
 - a differential amplifier having an inverting input, a non-inverting input and an output connected to said output terminal means;
 - a first plurality N, where N is an integer greater than one, of resistance elements each having a first terminal and a second terminal;
 - a second plurality 2N+1 of capacitive filter elements;
 - means responsive to said selected frequency for simulta-

neously connecting, in sequential but overlapping and cyclical manner, N adjacent ones of said capacitive filter elements each in series with an associated one of the plurality N of resistance elements to the signal at said input terminal means to cause D.C. equilibrium voltages to appear across each of said capacitive filter elements only when the input terminal waveform has a frequency substantially equal to the selected frequency;

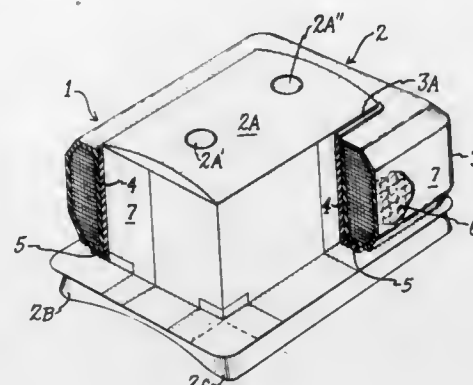


4,392,069
SEMICONDUCTOR SWITCH
Masayoshi Suzuki, Hitachi, Ltd., Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 18, 1980, Ser. No. 170,180
Claims priority, application Japan, Jul. 20, 1979, 54-91524
Int. Cl.³ H03K 17/72, 17/16
U.S. Cl. 307—252 A 20 Claims



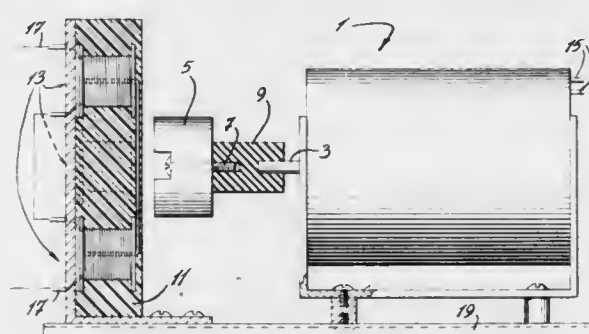
1. A semiconductor switch comprising:
a thyristor of four semiconductor layers PNPN with three PN junctions and with anode, cathode and gate electrodes;
a first transistor coupled to said thyristor to short-circuit at least one PN junction of said thyristor upon saturation of said first transistor; and
a second transistor provided between the anode side of said thyristor and the base of said first transistor to cause the saturation of said first transistor in accordance with a voltage which is applied to the anode of the thyristor, wherein three continuous layers with two PN junctions of said thyristor of the PNPN structure constitute a third transistor, and further wherein said second transistor has a three-layer structure having a plane diffused pattern similar to a plane diffused pattern of said three-layer structure third transistor.

4,392,070
INSULATED COIL ASSEMBLY AND METHOD OF MAKING SAME
Joseph J. Zdaniewski, Erie, Pa., assignor to General Electric Company, Research Triangle Park, N.C.
Filed Apr. 16, 1981, Ser. No. 254,689
Int. Cl.³ H02K 1/04; H01B 7/00
U.S. Cl. 310—43 4 Claims



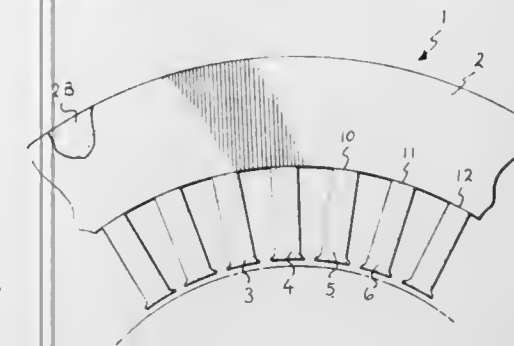
1. An insulated coil assembly for a field pole of a dynamoelectric machine, said coil assembly comprising: a coil of conductive wire coated with an insulating varnish and arranged to define a multi-side window for receiving therein a portion of a field pole, a lapped layer of open-weave glass fiber tape positioned snugly around each of the respective sides of said coil to entirely cover the coil, and a substantially void free, continuous, crack-resistant, thermoset dipping compound that is thermally stable in a range of temperature from -50° C. to 150° C., forming a cured solid ring coating that is generally uniformly distributed over the surface of the coil and is supported in a generally uniform thickness by said tape.

4,392,071
GENERATOR FOR UNDERWATER LIGHTING SYSTEMS
Richard Gauthier, 38 Glen Rd., Morin Heights, Quebec, Canada
Filed Jul. 13, 1981, Ser. No. 282,390
Int. Cl.³ H02K 47/04
U.S. Cl. 310—113 7 Claims



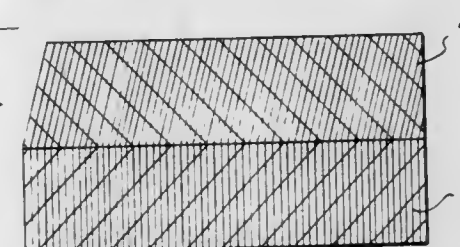
1. For an underwater lighting system, a low current, low voltage generator, comprising:
an AC motor having an output shaft extending along a first axis;
means mounting a magnet for rotation with said shaft about said first axis;
said magnet being electrically isolated from said AC motor;
a coil arrangement, comprising an even number of coils, disposed in a plane perpendicular to said first axis, and spaced from said magnet, said coil arrangement having a longitudinal axis which is parallel with said first axis;
said coil arrangement being electrically isolated from said magnet;
whereby, rotation of said magnet produces an EMF in said coil arrangement to provide a low current, low voltage AC output at the output of the coil arrangement.

4,392,072
DYNAMOELECTRIC MACHINE STATOR HAVING ARTICULATED AMORPHOUS METAL COMPONENTS
George M. Rosenberry, Hendersonville, Tenn., assignor to General Electric Company, Fort Wayne, Ind.
Filed Sep. 13, 1978, Ser. No. 942,009
Int. Cl.³ H02K 1/00, 15/12
U.S. Cl. 310—216 9 Claims



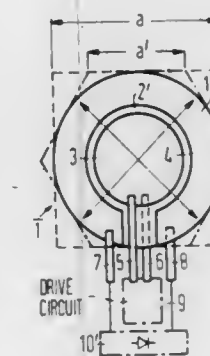
1. A dynamoelectric machine stator comprising a coil of amorphous metal alloy ribbon arranged to form a cylindrical yoke, a plurality of articulated teeth each separately mounted, respectively, at arcuately spaced intervals on the inner surface of said cylinder to define a plurality of axially extending winding slots between the teeth, each of said teeth comprising a formed body consisting essentially of amorphous metal particles and a bonding material for holding the particles in fixed relationship within said formed body, and holding means comprising a bonding material disposed between each tooth and the yoke for securing the teeth in fixed relation to said yoke.

4,392,073
DYNAMOELECTRIC MACHINE STATOR HAVING CONCENTRIC AMORPHOUS METAL LAMINATIONS AND METHOD OF MAKING SAME
George M. Rosenberry, Jr., Hendersonville, Tenn., assignor to General Electric Company, Fort Wayne, Ind.
Filed Sep. 15, 1978, Ser. No. 942,852
Int. Cl.³ H02K 1/00
U.S. Cl. 310—216 11 Claims



1. A dynamoelectric machine stator comprising a first edge-wound helix of amorphous metal ribbon arranged with its adjacent turns stacked on one another to form a first cylinder, a second edge-wound helix of amorphous metal ribbon arranged with its adjacent turns stacked on one another to form a second cylinder, each of the turns of said second helix being frusto-conical in configuration, said second cylinder being mounted concentrically with the first cylinder.

4,392,074
TRIGGER DEVICE AND PIEZO-IGNITION COUPLER WITH GALVANIC DECOUPLING
Peter Kleinschmidt, and Valentin Magori, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Apr. 9, 1981, Ser. No. 252,298
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1980, 3035503; Oct. 28, 1980, 3040530; Oct. 30, 1980, 3040916
Int. Cl.³ H01L 41/08
U.S. Cl. 310—327 22 Claims



1. A device for triggering an electronic switch comprising: a piezo-ignition coupler for supplying a trigger signal to said electronic switch, said piezo-ignition coupler consisting of a lamina of piezo-ceramic material, at least two electrodes disposed on one surface of said lamina and a like number of counter-electrodes disposed on the opposite side of said lamina in at least substantial registry therewith, each of said electrodes and counter-electrodes having a terminal, said electrodes on a same surface of said lamina being spaced from other by an electrically insulating gap for galvanically decoupling said spaced electrodes, one electrode on one surface of said lamina and one counter-electrode in at least substantial registry therewith on the opposite surface of said lamina forming an input pair of electrodes, and another electrode on said one surface of said lamina and another counter-electrode in at least substantial registry therewith on the opposite surface of said lamina forming an output pair of electrodes and being connected to a trigger electrode of said electronic switch, said lamina having a shape exhibiting an axis with more than two-fold rotational symmetry with a resonant frequency of vibration determined by a single length dimension of the area of said lamina; a cladding applied adjacent to said surfaces of said lamina and covering a portion of each of said terminals, said cladding consisting of electrically non-conductive material and having a modulus of elasticity which is less than or equal to two tenths of the modulus of elasticity of the piezo-ceramic material comprising said lamina and said cladding having a reciprocal mechanical quality factor Q which is greater than ten; and control electronics connected to said input pair of electrodes for generating an alternating current signal having a frequency which is matched to said resonant frequency of said lamina at a value in the range of 20 kHz to 500 kHz for inducing a selected radial oscillation mode in said lamina.

4,392,075

GAS DISCHARGE DISPLAY PANEL

Takeo Kamegaya, Tokyo; Tadahiko Sekigawa, Saitama; Hiroshi Kurakami, Saitama, and Yoshiro Suzuki, Saitama, all of Japan, assignors to Okaya Electric Industries Co., Ltd., Tokyo, Japan

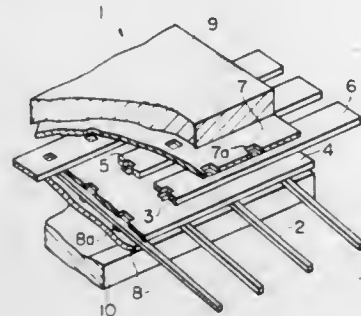
Filed Apr. 16, 1981, Ser. No. 254,715

Claims priority, application Japan, Apr. 21, 1980, 55-52607; Jun. 30, 1980, 55-89431; Sep. 12, 1980, 55-126923

Int. Cl.³ H01J 61/35

U.S. Cl. 313—584

3 Claims



1. A gas discharge display panel comprising: a front plate; a rear plate; cathode electrodes arranged on said front plate, said cathode electrodes having openings forming discharge cells; and anode electrodes arranged on said rear plate orthogonal to said cathode electrodes in alignment with said openings in said cathode electrodes; and

each of said openings in said cathode electrodes being substantially in the form of a rectangle, the length D_2 of one side of which is defined by $40 \lambda_e \leq D_2 \leq 500 \lambda_e$, and the thickness T of each of said cathode electrodes being defined by $10 \lambda_e \leq T \leq 100 \lambda_e$, where λ_e is the mean free path of electrons in a gas sealed in said display panel.

4,392,076

ATTACHMENT OF BASE TO LAMP UNIT

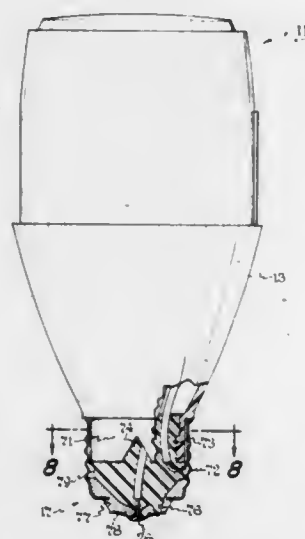
William E. Ishler, Lyndhurst; William B. Weber, Willoughby Hills, and Livio L. Giudici, Novelty, all of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 5, 1980, Ser. No. 213,388

Int. Cl.³ H01J 5/48, 5/50

U.S. Cl. 313—318

6 Claims



1. A lamp unit comprising a housing and a base positioned over an end of said housing, and means attaching said base and housing together comprising a resin material within said base and said end of the housing, said base and said end of the housing being contoured to engage said resin so that the resin mechanically locks together said base and said housing.

4,392,077

DEEPLY FILTERED TELEVISION IMAGE DISPLAY

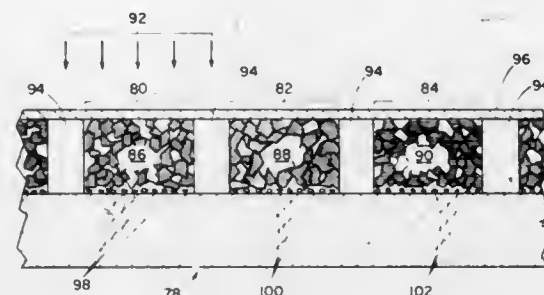
Philomena C. Libman, Mt. Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Feb. 14, 1979, Ser. No. 11,961

Int. Cl.³ H01J 29/30

U.S. Cl. 313—474

8 Claims



1. In a low cost, deeply filtered image display having a faceplate with a viewing screen including a patterned layer of phosphor particles disposed contiguous to an inner surface thereof which, when excited emits light of a predetermined color, and having means for exciting selected areas of said layer to produce a luminescent informational image, said image being subject to loss of contrast caused by reflection of ambient light from said layer, an improvement comprising a shallow, random, clumped, discontinuous, open dispersion of contrast-enhancing particles of pigment having a body color corresponding generally to said predetermined color located directly on said faceplate beneath said layer and not significantly admixed with said phosphor particles, the percentage of open area of said dispersion of pigment particles and the absorption characteristics thereof being such that said dispersion efficiently filters ambient light at its interface with said layer, first by absorption of directly incident ambient light, and second by absorption of ambient light passing through said open dispersion and scattering back off said phosphor particles to said dispersion, said dispersion representing a tolerable impediment to image light emitted by said phosphor particles due to the shallowness and openness of said dispersion and its non-absorption of light of said predetermined color, said dispersion negligibly absorbing electron beam energy due to its location beneath said layer, making practicable deep filtration of ambient light and thus high picture contrast without a disproportionately countervailing loss in picture brightness.

4,392,078

ELECTRON DISCHARGE DEVICE WITH A SPATIALLY PERIODIC FOCUSED BEAM

Milton L. Noble, Liverpool, and Bryan L. Cleveland, Baldwinsville, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Dec. 10, 1980, Ser. No. 214,917

Int. Cl.³ H01J 25/00

U.S. Cl. 315—4

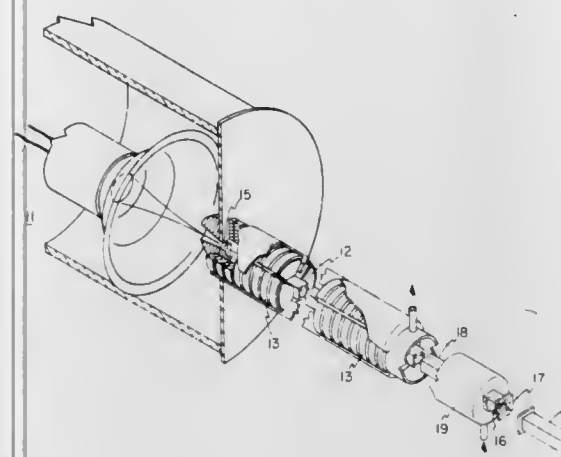
10 Claims

1. In an electron discharge device in which high speed electrons in a beam, subjected to a spatially periodic magnetic field, pursue helical paths, the deceleration of said electrons producing electromagnetic energy at a given frequency, the combination comprising:

- (1) a waveguide having a given phase velocity for waves of said given frequency and a low frequency cut-off below said given frequency;
- (2) an electron gun for projecting a beam of electrons along the axis of said waveguide at a given velocity, the beam being subject to defocusing forces;
- (3) means for producing a circularly polarized transverse magnetic field extending across the interior of the waveguide, the transverse field vector rotating about said waveguide axis at a given pitch which causes the electrons in said beam to pursue helical paths about axes parallel to said waveguide axis and rotating with a pitch equal to that

of said transverse field but mutually displaced by one-quarter rotation, the electron velocities, the spatial periodicity of said helical paths, and said waveguide parameters being selected to cause a deceleration of said electrons and an increase of electromagnetic energy of said given frequency in said waveguide, and

(4) focusing means for producing a first and a second circularly polarized axial magnetic field, each rotating about said waveguide axis at a pitch equal to that of said helical electron paths, said first circularly polarized axial field having a polarization opposite to that of said second circularly polarized axial field, the two circularly polarized axial fields being intertwined and disposed at mutually opposite positions across the axis of the waveguide to



cause the maximum axial field at a given axial coordinate to assume opposite senses at opposite points on the perimeter of said waveguide and a zero value on the waveguide axis, the electrons at said given axial coordinate sharing a common transverse vectorial velocity, of which those lying in two sectors oppositely disposed across said axis are subject to a maximum deflecting force, the axial field having a rotational sense in relation to that of said electron paths such that said maximum deflecting force is inwardly directed for electrons in both sectors, off-axis electrons in all sectors of said beam being periodically exposed to said maximum inwardly directed force as the beam progresses along said axis, whereby all electrons in said beam experience periodic maximum focusing forces, and beam impingement on the interior of said waveguide substantially prevented.

4,392,079

METHOD OF ADJUSTING PHASE SHIFT IN AMPLIFICATION MULTICAVITY KLYSTRON AND DEVICE THEREFOR

Vitaly I. Pasmannik, ulitsa Ostrovityanova, 45, korpus 1, kv. 569, Moscow, and Viktor P. Sakharov, Leninsky raion, poselok Mosrentgen, 29, kv. 50, Moskovskaya oblast, both of U.S.S.R.

PCT No. PCT/SU79/00100, § 371 Date Aug. 12, 1980, § 102(e) Date Aug. 11, 1980, PCT Pub. No. WO80/01332, PCT Pub. Date Jun. 26, 1980

PCT Filed Oct. 24, 1979, Ser. No. 201,061

Claims priority, application U.S.S.R., Dec. 12, 1978, 2695744

Int. Cl.³ H01J 25/10

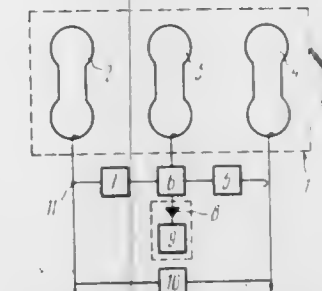
U.S. Cl. 315—5.39

2 Claims

1. A method of adjusting a phase shift in an amplification multicavity klystron including an input resonator, an intermediate resonator and an output resonator, said method comprising the steps of:

- tapping a portion of a signal from the output resonator;
- tapping a portion of a signal from the intermediate resonator;
- adding the signals tapped from the output and intermediate resonators to obtain a sum signal;

applying the sum signal to the input resonator of the klystron; and adjusting amplitudes and phases of the tapped signals so that the tapped signals have equal amplitudes but opposite phases; wherein anode voltage is varied until the phase shift in the klystron changes, and comprising the subsequent step of selecting the phase of the sum signal so as to provide a minimum phase-shift variation in the klystron.



2. A device for adjusting a phase shift in an amplification klystron, comprising an input resonator, an intermediate resonator, an output resonator, and means for transmitting a signal from the output resonator to the input resonator of said klystron, said means for transmitting comprising a phase shifter, a signal adder coupled to the phase shifter, the intermediate resonator and the output resonator, and an additional phase shifter inserted between the adder and the input resonator to provide for selection of the phase of an adjusting signal.

4,392,080

MEANS AND METHOD FOR THE FOCUSING AND ACCELERATION OF PARALLEL BEAMS OF CHARGED PARTICLES

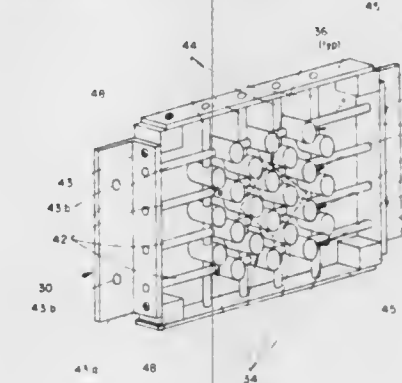
Alfred W. Maschke, East Moriches, N.Y., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 23, 1980, Ser. No. 152,461

Int. Cl.³ H01J 25/10

U.S. Cl. 315—5.41

19 Claims



1. A planar array of electrostatic quadrupoles including a plurality of electrodes suitable for applying strong focusing forces to a plurality of transversely spaced parallel beams of charged particles, said array forming a unitary structure.

4,392,081

LIGHTING UNIT

Thomas A. Brown, Fulton, and William Peil, North Syracuse, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Jul. 31, 1981, Ser. No. 288,855

Int. Cl.³ H02K 17/34; H02P 1/54

U.S. Cl. 315—46

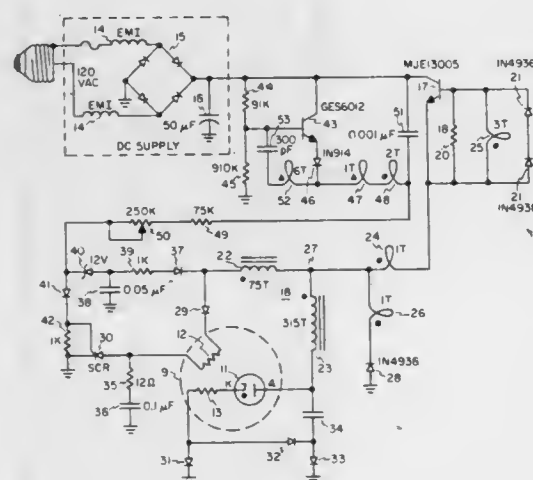
26 Claims

1. A lighting unit comprising:

- A. a dc power supply having two output terminals,
- B. a filamentary lamp and an arc lamp,

C. an operating network comprising:

- (1) a transformer having
 - (a) a core of substantially linear magnetic material forming a first, main magnetic path, aperture means defining a second magnetic path lying within said main magnetic path of lower reluctance than said main magnetic path,
 - (b) a first and a second power winding coupled to said main magnetic path, current flow in either power winding generating flux which has one sense in one segment and an opposing sense in a second segment of said second magnetic path, and
 - (c) flux level dependent control means comprising a primary feedback winding and a secondary feedback winding passing through said aperture means and coupled to said second magnetic path,
- (2) a normally nonconductive switching transistor connected to intermittently complete a current path through said primary feedback winding between one said supply output terminal and a node; said secondary feedback winding being coupled across the input electrodes of said transistor for application



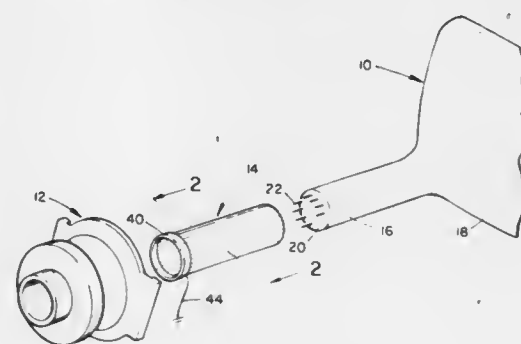
1. A pressure-sensitive ignition plug comprising an insulator assembly accommodating a central electrode to which electric current of a high voltage is applied, a metallic plug body concentrically supporting said insulator assembly and provided with a threaded portion at which said plug body is mounted on an engine, said plug body having a grounded electrode opposing to said central electrode to form therebetween a sparking gap, and a pressure sensing unit incorporated in said plug body and adapted to sense the internal pressure of a cylinder of said engine, wherein said pressure sensing unit has an annular form and is disposed in an annular gap formed between said insulator assembly and said plug body in such a manner as to be able to detect a change in the internal pressure of said cylinder through the displacement of said insulator assembly, said pressure sensing unit having an upwardly projecting signal terminal for transmitting the sensing output, and an amplifier unit for amplifying the sensing output is detachably connected to said pressure sensing unit through said signal terminal.

4,392,083
RADIATION SHIELD FOR A CATHODE RAY TUBE
 Louis B. Costello, Niles, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Nov. 20, 1981, Ser. No. 323,217
 Int. Cl.³ H01J 1/52

U.S. Cl. 315—85

9 Claims



1. An electromagnetic radiation shield (14) adapted for use with a cathode ray tube (10) having a neck (16) wherein means are housed for producing a modulated electron beam deflected

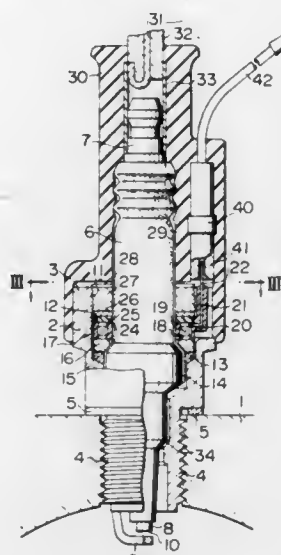
4,392,082
PRESSURE-SENSITIVE IGNITION PLUG
 Koji Harada, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 5, 1981, Ser. No. 290,108
 Claims priority, application Japan, Aug. 15, 1980, 55-111665; Aug. 22, 1980, 55-116064

Int. Cl.³ H01T 13/00

U.S. Cl. 315—55

6 Claims



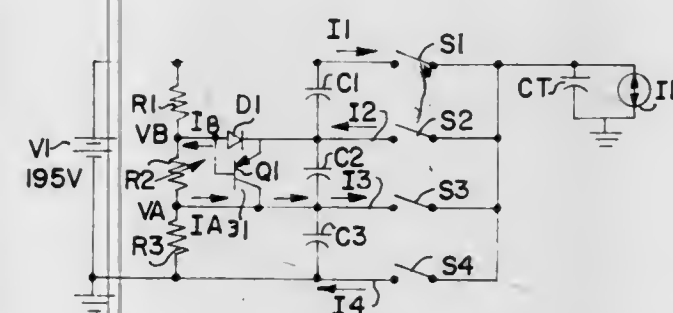
within the cathode ray tube (10) by a yoke coil (12) which generates a magnetic field, the radiation shield comprising: a sleeve (24) of insulating material having inner and outer surfaces and an inner diameter greater than the outer diameter of the neck (16) of the cathode ray tube (10) thus allowing the sleeve (24) to be positioned on the neck (16) of the tube (10), a plurality of first, spaced apart, parallel, conductive, elongated strips of material (30, 32) extending along the inner surface of the sleeve (24) and bonded to the inner surface (26, 28) thereof, a plurality of spaced apart, parallel, second, conductive, elongated strips of material (32) extending along a surface of the sleeve (24) and bonded to the outer surface (28) thereof, said first conductive strips (30) being offset from said second conductive strips (32), and means (40, 42) for electrically connecting one end each of said first and second conductive strips (30, 32) to a ground potential, whereby electromagnetic radiation from the cathode ray tube (10) is highly attenuated and the magnetic field generated by the yoke (12) is allowed to pass through the shield (14) with relatively low attenuation.

4,392,084
SUSTAINER CIRCUIT FOR PLASMA DISPLAY PANELS
 Thomas J. Rebesch, North Haven, and Mohan L. Kapoor, Orange, both of Conn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 13, 1981, Ser. No. 243,292
 Int. Cl.³ H05B 37/00, 41/14; H02J 1/00

U.S. Cl. 315—169.4

4 Claims



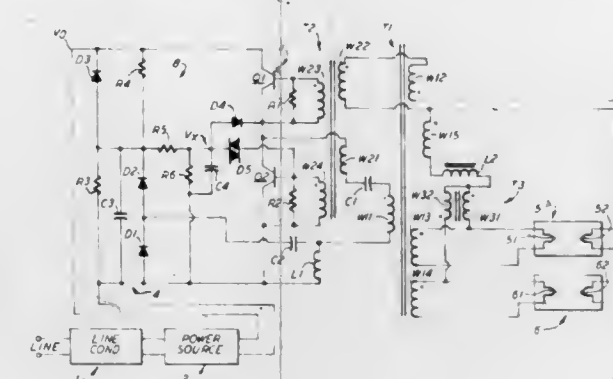
1. A voltage supply circuit for a gaseous discharge display panel comprising two closely spaced parallel transparent dielectric plates having respective sets of interior parallel electrodes, one set being orthogonal to the other to form a matrix of closely spaced intersections, a gaseous medium enclosed between said plates and filling the spaces between said intersections, a power supply having positive and reference terminals, a voltage divider network including first, second and third resistors connected in series between said power supply terminals to provide three predetermined voltage levels for operating said panel, first, second, and third capacitors connected in series across said voltage divider, each capacitor being in parallel with a respective said resistor, a selectively active shunt circuit switching means connected to said second resistor and capacitor, and means for selectively connecting said voltage divider network to said panel to provide writing, erasing and sustaining voltages at selected discrete levels to selected intersections of said panel.

4,392,085
DIRECT DRIVE BALLAST WITH DELAYED STARTING CIRCUIT

William C. Knoll, Turbotville, and David L. Bay, Muncy, both of Pa., assignors to GTE Products Corporation, Stamford, Conn.
 Filed Dec. 19, 1980, Ser. No. 218,386
 Int. Cl.³ H05B 37/00, 39/00

U.S. Cl. 315—173

16 Claims



1. A delayed starting circuit for an electronic ballast system that includes an inverter for driving a fluorescent lamp, a primary voltage source, and a secondary voltage source derived from the inverter output signal, said starting circuit comprising: a charging resistor coupled between the primary voltage source and a charge storage capacitor in the secondary voltage source; a voltage divider having an input coupled to the junction of the charging resistor and the charge storage capacitor; a semiconductor switching device coupled between an output of the voltage divider and an input of the inverter whereby the semiconductor switching device remains non-conductive and the inverter inoperative until the charge storage capacitor becomes charged so that the inverter is protected from transients related to the surge of charge necessarily delivered to the charge storage capacitor subsequent to the energization of the ballast system.

4,392,086
APPARATUS FOR OPERATING A GASEOUS DISCHARGE LAMP

Katsuyuki Ide, Kempo Ohe, both of Yokohama, and Hisao Kobayashi, Fujisawa, all of Japan, assignors to Toshiba Electric Equipment Corporation, Tokyo, Japan
 Filed Sep. 24, 1980, Ser. No. 190,269
 Claims priority, application Japan, Sep. 28, 1979, 54/125666

Int. Cl.³ H05B 41/29, 41/36

U.S. Cl. 315—174

6 Claims



1. An apparatus for operating a fluorescent lamp comprising: an AC power source for producing an AC voltage; a power control means for controlling the phase angle of the AC voltage to generate a controlled output voltage during a power supply period in any half cycle of the AC voltage; an auxiliary power source for generating an auxiliary volt-

age during at least a rest period between the power supply periods;
 means for inverting the controlled output voltage and auxiliary voltage to a high frequency voltage; and
 a fluorescent lamp having a filament, which is energized by the high frequency voltage wherein said auxiliary voltage supplied is of such a value that the output of said inverting means during said rest period is less than the discharge sustaining voltage of said fluorescent lamp and is sufficient to supply heating current to said filament.

4,392,087

TWO-WIRE ELECTRONIC DIMMING BALLAST FOR GASEOUS DISCHARGE LAMPS

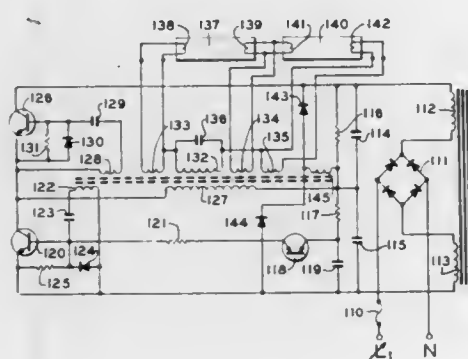
Zoltan Zansky, Roseville, Minn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Nov. 26, 1980, Ser. No. 210,650

Int. Cl.³ H05B 41/29

U.S. Cl. 315—219

29 Claims



1. A two-wire electronic ballast arrangement for one or more gas discharge lamps dimming comprising:
 a source of direct current;
 a source of variable square wave electric power;
 transistor inverter means adapted to be fed by said source of variable square wave electric power;
 transformer means comprising
 at least a first primary winding connected to said inverter and said source of direct current,
 a first secondary winding for supplying power to one or more gas discharge lamps,
 auxiliary secondary windings connected across the heating filaments of each gas discharge lamp,
 said first and said auxiliary secondary windings being disposed in predetermined spaced relation to said primary winding and said auxiliary secondary windings being disposed in predetermined spaced relation to said first secondary winding such that the voltage supplied to the heating filaments of said one or more gas discharge lamps remain substantially constant during variation of the voltage to said primary;
 tuning capacitor means connected across said first secondary winding selected to be in resonance with the leakage inductance of said first secondary winding to produce tuned sinusoidal input to said one or more lamps.

4,392,088

DEVICE FOR CHARGING A CHARGING CAPACITOR

Julius Hartai, Betzy Kjelsbergsvei 232c, 3000 Drammen, Norway

Filed Jan. 12, 1981, Ser. No. 224,020

Claims priority, application Norway, Jan. 11, 1980, 800064

Int. Cl.³ H05B 41/34

U.S. Cl. 315—241 R

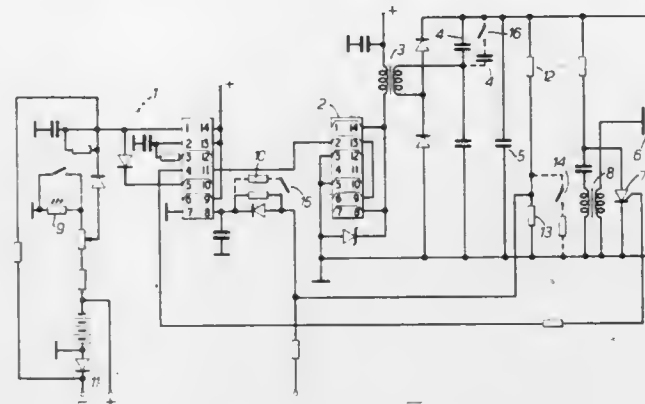
5 Claims

1. Apparatus for charging a charging capacitor, comprising
 (a) a.c. power supply means including a d.c. source and an oscillator circuit connected with said d.c. source, said oscillator circuit comprising a multivibrator and having an a.c. output;
 (b) first transformer means having a primary winding con-

nected with the output of said oscillator circuit, and a secondary winding;

(c) a rectifier circuit connected in series with said secondary winding;

(d) auxiliary capacitor means connecting said secondary winding in series with the charging capacitor, whereby the charging capacitor is buffer charged in accordance with the capacity of said auxiliary capacitor means;



(e) a light source connected in parallel with the charging capacitor;

(f) a thyristor for controlling the discharge of the charging capacitor to cause said light source to flash, said thyristor being activated under control of said multivibrator; and

(g) resistor means for blocking said oscillator for a desired time after discharge of the charging capacitor.

4,392,089

ISOLATOR FOR USE WITH FREQUENCY RESPONSIVE SWITCHING CIRCUIT

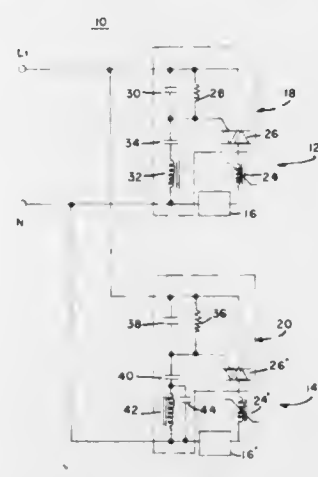
James N. Lester, Rockport, Mass., and Lee A. Prager, Raymond, Me., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jul. 20, 1981, Ser. No. 285,205

Int. Cl.³ H04Q 1/45; H05B 41/36

U.S. Cl. 315—313

20 Claims



1. In a power control system comprising means for selectively generating a frequency control signal, at least one ballasted load, and frequency responsive switch means connected to respond to the frequency control signal by switching from a substantially non-conductive state to a substantially conductive state to enable the conduction of an AC power signal to the ballasted load, the improvement comprising:

an isolator connected in series relation with respect to the frequency responsive switch means and the ballasted load, which isolator comprises an inductor having high impedance, at least at the frequency of said control signal, below a saturation current for said inductor so as to sufficiently block any noise signals induced by said ballasted load which would otherwise cause undesired activation of said frequency responsive switch means.

4,392,090

REMOTE RESPONSIVE TELEVISION RECEIVER FERRORESONANT POWER SUPPLY

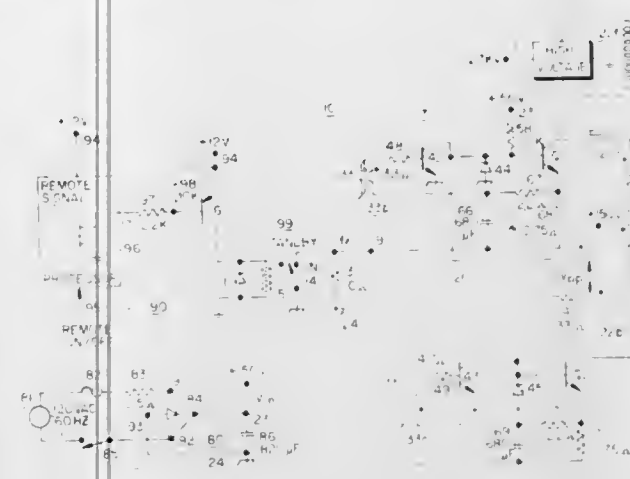
James K. Rinehart, Donald H. Willis, and David W. Luz, all of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 16, 1981, Ser. No. 322,062

Int. Cl.³ H01J 29/70

U.S. Cl. 315—411

13 Claims



1. A television display system with a regulated power supply responsive to the state of a remote on/off command signal, comprising:

a source of first voltage;
 a power oscillator coupled to said source for developing an alternating input voltage of a frequency determined by the frequency of operation of said oscillator, said oscillator including a frequency control terminal that controls the frequency of operation of said oscillator depending upon a control signal applied to said terminal;
 means including a self-regulating circuit energized by said alternating input voltage for producing a regulated supply voltage;
 a load circuit within said television display system energized by said regulated supply voltage; and
 remote control means coupled to said oscillator frequency control terminal and responsive to said remote on/off command signal for applying thereto said control signal such that during the on-state of said command signal said oscillator operates at a frequency that permits normal ferroresonant operation of said self-regulating circuit and during the off-state of said command signal said oscillator operates at a different frequency that disables ferroresonant operation of said self-regulating circuit to thereby substantially deenergize said television display system load circuit.

4,392,091

VEHICLE PROPULSION CONTROL APPARATUS AND METHOD

Richard D. Roberts, South Park Township, Allegheny County, and Lester J. Hoffman, Churchill Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 2, 1981, Ser. No. 298,693

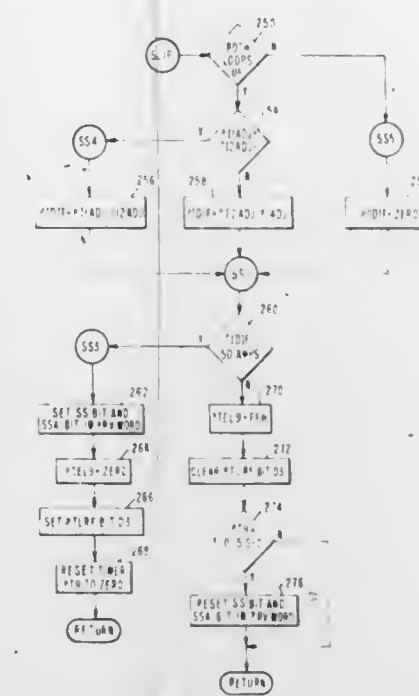
Int. Cl.³ B61C 15/08

U.S. Cl. 318—52

11 Claims

1. In motor control apparatus for a vehicle operative with a track having an adhesion level and provided with a tractive effort request signal and having at least two wheel units, with a different one of a plurality of propulsion motors being coupled with each said wheel unit, the combination of:
 control means responsive to the tractive effort request signal for controlling the propulsion motors to provide one operation of the wheel units,
 means for establishing a first current of the motor coupled with a first of said wheel units,

means for establishing a second current of the motor coupled with the second of said wheel units, and
 means for comparing said first and second currents to provide in response to a predetermined difference between the first and second currents a limit signal to control the



operation of said wheel units in relation to said adhesion level,
 with said control means being responsive to said limit to decrease said tractive effort request such that the average motor current is decreased to provide another operation of the wheel units in accordance with said adhesion level.

4,392,092

OSCILLATING-ARMATURE MOTOR FOR ELECTRIC DRYSHAVERS AND THE LIKE

Gustav Gassner, Kelkheim, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

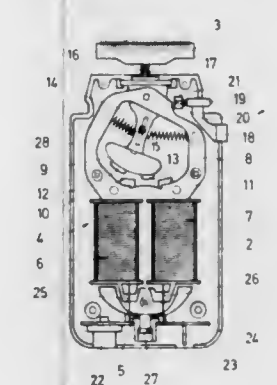
Continuation of Ser. No. 959,188, Nov. 7, 1978, abandoned. This application Dec. 22, 1980, Ser. No. 219,384

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753749

Int. Cl.³ H02K 33/00

U.S. Cl. 318—127

3 Claims



1. A dryshaver, comprising a housing; a cutter block outwardly adjacent said housing and including a plurality of cutter blades; an electric motor mounted in said housing and comprising at least one respective electrical winding and having a pair of stator poles and at least one oscillatory armature carrying said cutter block and having a pair of armature poles; an electric current source for energizing said winding so that said armature is moved between one position in which the armature poles are closer to said stator poles and another position in which said armature poles are farther from the stator poles whereby said cutter block is moved by said arma-

ture between two positions; means for sensing each of said two positions of the cutter block and thus the positions of the armature relative to said stator, said position-sensing means being operative for generating a position signal, and a position-evaluating circuit means connected to said sensing means and to said source and responsive to said position signal, said position-evaluating circuit means being operative for effecting energization of said stator winding only when the armature poles are in said one position.

4,392,093

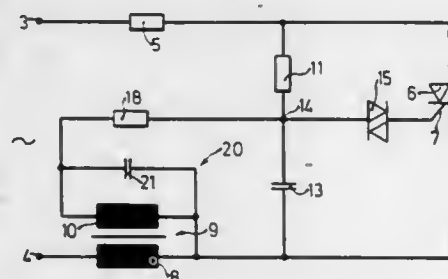
ELECTRONIC CONTROL AND REGULATING SYSTEM
Kurt Paule, Stuttgart; Fritz Schädlich; Martin Gerschner, both of Leinfelden-Echterdingen, and Friedrich Hornung, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
PCT No. PCT/EP80/00038, § 371 Date Jun. 4, 1981, § 102(e) Date Jan. 27, 1981, PCT Pub. No. WO81/01085, PCT Pub. Date Apr. 16, 1981

PCT Filed Jun. 28, 1980, Ser. No. 233,587
Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940195

Int. Cl.³ H02K 23/64

U.S. Cl. 318—245

10 Claims



1. Electronic control and regulating system for a universal motor (5) employing phase control, comprising first and second input terminals (3, 4) connectable to a power grid supplying alternating current power at a predetermined power grid frequency;
- a bilaterally conducting controlled semiconductor switch (6) having a control electrode (7), the main current carrying path of said switch being connected with the motor (5) for controlling current flow at predetermined phase positions through the motor;
- a trigger circuit including a trigger capacitor (13) and a charge resistor (11; 40, 41) connected to the control electrode (7) of the semiconductor switch;
- an inductive current/voltage converter (9) having a current coil (8) serially connected with the motor (5) and the main current carrying path of said semiconductor switch (6) and having a voltage coil (10) inductively coupled to the current coil;
- a resonance circuit (20) including a resonance capacitor (21) connected to the voltage coil (10) of the current/voltage converter which has a resonant frequency of between 0.5 to 0.1 times said predetermined power grid frequency;
- and coupling/decoupling resistance means (14, 18; 30) connecting the resonance circuit to the trigger capacitor (13) and hence to the control electrode of the semiconductor switch to modify the charge on the trigger capacitor applied by the charge resistor (11; 40, 41) in dependence on the voltage of said resonance circuit and hence in dependence on load current, and hence modify the phase angle of triggering of the semiconductor switch in dependence on said load current.

4,392,094

BRUSHLESS D-C MOTOR

Hans Kühnlein, Nuremberg-Grossgrundlach, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

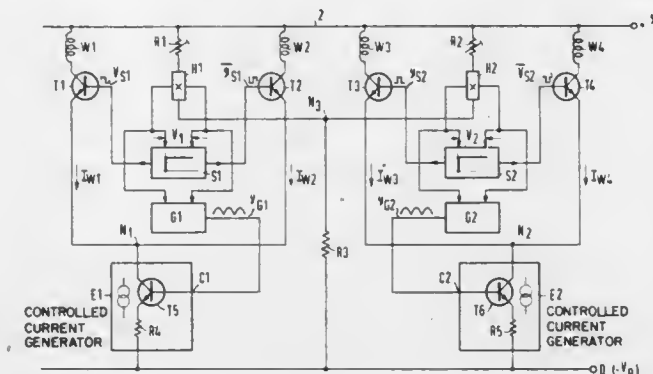
Filed Sep. 5, 1980, Ser. No. 184,468

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937866

Int. Cl.³ H02K 29/02

U.S. Cl. 318—254

5 Claims



1. A brushless D-C motor of the type having a permanently magnetized rotor which has alternately opposite magnetic poles at its circumference; a plurality of stator windings arranged 90° apart with respect to each other; first and second galvanomagnetic transducers disposed in the motor 90° apart from each other for producing first and second control signals, respectively, the control signals being responsive to the position of the rotor; a plurality of semiconductive switching devices connected in series with associated ones of the stator windings, each for controlling a respective stator winding current, the semiconductive switching devices having conductive and nonconductive states selectable in response to the polarity of the first and second control signals; the brushless D-C motor further comprising:

first and second controlled current generator means each for controlling current flowing through selected ones of the semiconductor switching devices which are associated with stator windings which are arranged 180° with respect to each other, each of said controlled current generator means having a control input for receiving a respective one of first and second input signals, and an output for conducting an output current proportional to said respective input signal; and

first and second coupling means each having an input for receiving a respective one of the control signals, and an output terminal connected to said control input of an associated one of said controlled current generator means for providing said respective input signal.

4,392,095

METHOD OF AND APPARATUS FOR GENERATING A UNIQUE INDEX MARK FROM THE COMMUTATION SIGNAL OF A D.C. BRUSHLESS MOTOR

David S. Ruxton, Bank Crescent, and Alex D. Stewart, Cardenden, both of Scotland, assignors to Rodine Limited, Glenrothes, Scotland

Filed Jun. 23, 1982, Ser. No. 391,010

Claims priority, application United Kingdom, Jun. 30, 1981, 8120092

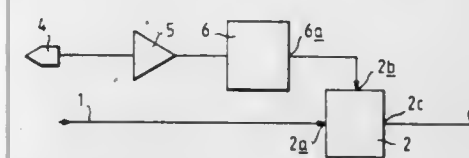
Int. Cl.³ H02K 29/02

U.S. Cl. 318—254

4 Claims

1. A method of generating a unique index mark from the commutation signal of a d.c. brushless motor characterised by, sensing the commutation signal from the motor, dividing the frequency of the commutation signal to provide at least two index signals per revolution, providing at least one track on the disk surface on which magnetic signals synchronised to one of the index signals are stored, said synchronising signals being stored on a

proportion of said at least one track, the other proportion of said at least one track being erased, said proportions being determined by the number of phases of the motor, and



sensing the synchronising signals on said at least one track and correlating the synchronising signals with one index signal to provide a unique index mark, the correlation providing the same unique index mark every revolution of the motor.

4,392,096

SECTIONAL X-RAY TABLE HAVING DUAL SERVO DRIVES

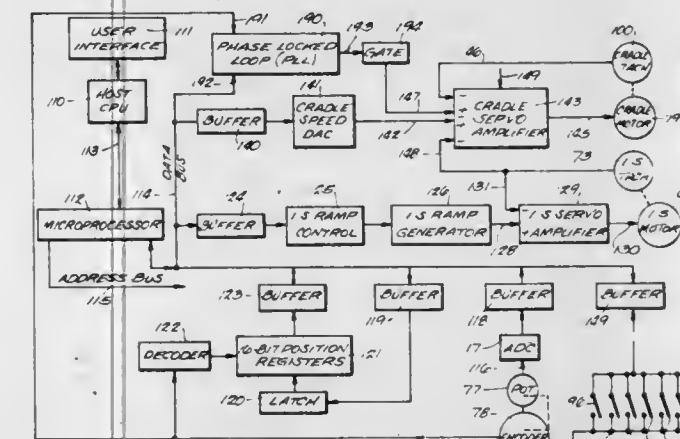
John P. Grajewski, Palmyra, Wis., and Robert J. Loyzim, Hiwassee, Va., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 15, 1981, Ser. No. 311,687

Int. Cl.³ G05B 11/32

U.S. Cl. 318—625

7 Claims



1. An X-ray table system comprising:

a base,
an elongated support means mounted to said base for moving longitudinally,
a reversible support means driving motor (support motor) and means for coupling the motor to the support means for moving said support means selectively between a retracted position and an advanced position and back to a retracted position, relative to the base,
elongated cradle means mounted to the support means for moving longitudinally relative to said support means,
a reversible cradle means driving motor (cradle motor) and means for coupling said motor to the cradle means for moving said cradle means selectively between a retracted position and an advanced position and back to a retracted position relative to said support means,
control means for said motors, said control means being operative to activate one of said motors to accelerate up to a constant speed and move the means to which it is coupled to a predetermined position corresponding to the beginning of a transition zone at said constant speed while the other of said motors is inactive, and said control means being operative to decelerate the one motor and accelerate the other motor correspondingly such that at the end of said transition zone said one motor is stopped and said other motor is running at constant speed for moving the means to which it is coupled at constant speed equal to the former speed of the other means.

4,392,097

CIRCUIT ARRANGEMENT FOR THE CONTINUAL OPERATION MONITORING AND ERROR DIAGNOSIS OF A STEPPER MOTOR

Jürgen B. Landrock, Ehningen; Manfred Perske, Sindelfingen, and Halim S. Tandjung, Gärtringen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

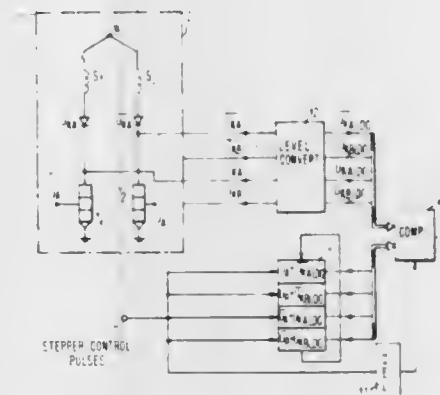
Filed Nov. 3, 1980, Ser. No. 203,752

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1979, 2945458

Int. Cl.³ H02K 29/04

U.S. Cl. 318—696

11 Claims



1. A process for the continual operation monitoring and error diagnosis of a stepper motor controllable at its windings by a control logic stage and driver stage using stepping pulses which are phase-shifted relative to each other, comprising the steps of;

forming signals representative of the respective logical values of said phase-shifted stepping pulses;

forming signals through level conversion having logical values representative of the respective switching states of said driver stage; and

comparing said signals representative of the respective logical values of said phase-shifted stepping pulses with said signals having logical values representative of the respective switching states of said driver stage whereby absence of comparison is indicative of error.

4,392,098

RPM SENSOR FOR ELECTRONIC MOTOR BRAKING

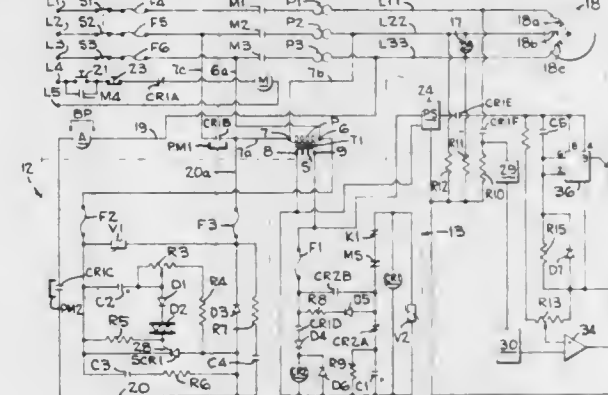
Young K. Min, Milwaukee, Wis., assignor to PT Components, Inc., Indianapolis, Ind.

Filed Oct. 16, 1981, Ser. No. 311,842

Int. Cl.³ H02P 3/24

U.S. Cl. 318—758

9 Claims



1. An RPM sensor for use with an AC induction motor having an electronic braking circuit and an electromechanical brake, said sensor causing said brake to engage said motor when the motor speed decreases to a predetermined value, said sensor comprising:

an electronic filter;

means for connecting said filter to a stator of said motor to obtain an electrical signal having a frequency proportional to the speed of said motor;
a frequency-to-voltage converter connected to said filter for developing an output voltage determined by said motor speed; and
means for using said converter output voltage to cause said brake to engage said motor when said output voltage reaches a predetermined value corresponding to a predetermined motor speed.

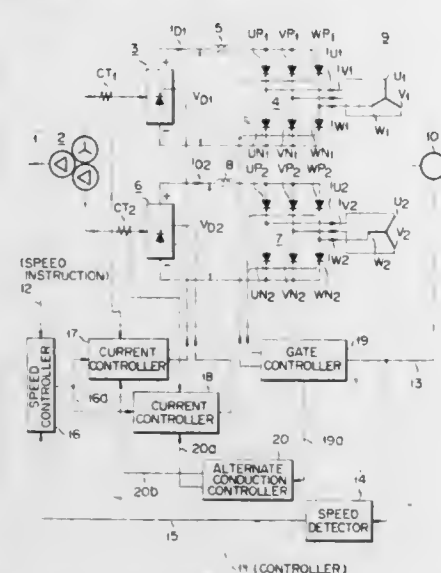
4,392,099

STARTING SYSTEM FOR BRUSHLESS MOTOR

Masateru Kuniyoshi, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Continuation of Ser. No. 119,520, Feb. 7, 1980, abandoned. This application Oct. 19, 1981, Ser. No. 312,901
Claims priority, application Japan, Feb. 20, 1979, 54-18727
Int. Cl.³ H02P 1/26

U.S. Cl. 318—797

5 Claims

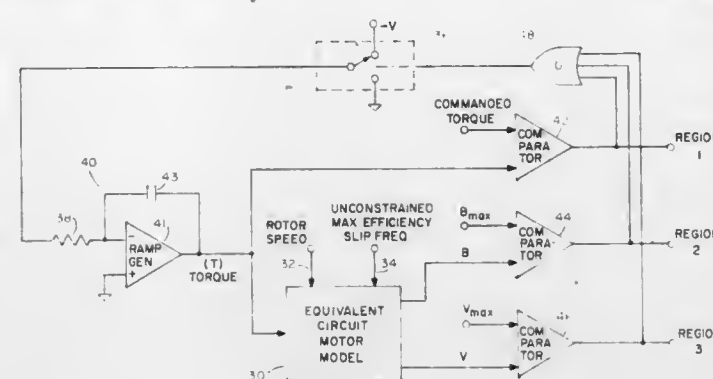


1. In a starting system of a brushless motor in a brushless motor apparatus comprising a first static commutation circuit including a first controllable thyristor rectifier, a first thyristor inverter and a first DC reactor inserted in a DC circuit between said first rectifier and first inverter; a second static commutation circuit including a second controllable thyristor rectifier, a second thyristor inverter and a second DC reactor inserted in a DC circuit between said second rectifier and said second inverter; a power source transformer for supplying three-phase AC voltage having a first phase to said first controllable thyristor rectifier and supplying three-phase AC voltage having a second phase 30 degrees out of phase with said first phase to said second controllable thyristor rectifier and a load including a brushless motor having a rotating motor receiving the outputs of said first and second thyristor inverters; wherein said starting system comprises means for causing one of said first and second static commutation circuits to conduct a DC current therethrough and causing the other one of said first and second static commutation circuits conducting a DC current therethrough to be concurrently substantially cut off, for every 30° electrical angle of rotation of the rotor of said brushless motor at the time of starting said brushless motor.

4,392,100
OPTIMUM EFFICIENCY CONTROL SYSTEM
William E. Stanton, Newton; David B. Eisenhaure, Hull, and Robert D. Drescher, Cambridge, all of Mass., assignors to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.
Filed Aug. 1, 1980, Ser. No. 174,552
Int. Cl.³ H02P 5/40

U.S. Cl. 318—803

3 Claims

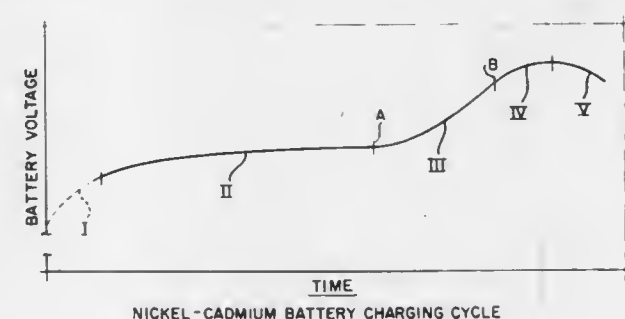


1. An optimum efficiency control system for a variable torque/speed rotary a.c. induction machine comprising:
means for indicating a first fixed slip region in response to the torque exceeding commanded torque;
means for indicating a second flux saturation region in response to the flux exceeding the saturation flux;
means for indicating a third voltage saturation region in response to the voltage exceeding the saturation voltage;
means, responsive to said means for indicating said first fixed slip region, for commanding an excitation frequency as a function of the rotor speed and unconstrained maximum efficiency slip and for commanding an excitation voltage/current as a function of the actual torque/speed and commanded torque/speed; responsive to said means for indicating said second flux saturation region, for commanding an excitation frequency as a function of the rotor speed and slip frequency, and for commanding an excitation voltage/current as a function of the actual flux and the saturation flux; and response to said means for indicating said third voltage saturation region for commanding a saturation voltage as a function of rotor speed and for commanding excitation frequency as a function of slip frequency; and
means responsive to said means for commanding, for varying the frequency and magnitude of the excitation voltage/current supplied to the machine in the three regions of operation.

4,392,101
METHOD OF CHARGING BATTERIES AND APPARATUS THEREFOR
David A. Saar, Timonium, and Richard T. Walter, Baltimore, both of Md., assignors to Black & Decker Inc., Newark, Del.
Continuation of Ser. No. 911,554, May 31, 1978, abandoned.
This application Jan. 5, 1982, Ser. No. 337,174
Int. Cl.³ H01M 10/44

U.S. Cl. 320—20

64 Claims



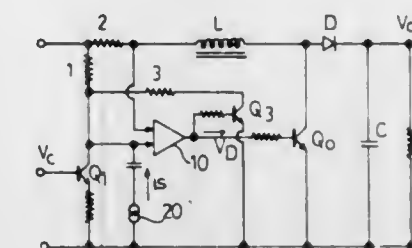
1. A method of rapidly and efficiently charging a battery of the type having characteristic associated therewith that varies

with the state of charge of the battery and in which the characteristic varies with time during charging to exhibit a plurality of inflection points prior to the battery attaining substantial full charge, the method comprising the steps of:
supplying electrical energy to the battery for charging thereof;
monitoring said characteristic drawn by the battery during charging;
analyzing the variation of said monitored characteristic with time to determine the occurrence of the last inflection point exhibited prior to the battery attaining substantial full charge; and
controlling the supply of electrical energy of the battery on the basis of the so-determined occurrence.

4,392,103
CURRENT SENSING REGULATOR
Dermot O'Sullivan, Leiderdorp, and Alan Weinberg, Sassenheim, both of Netherlands, assignors to Organisation Européenne de Recherches Spatiales, Paris, France
Filed Jun. 8, 1981, Ser. No. 271,217
Claims priority, application Belgium, Jun. 10, 1980, 200973
Int. Cl.³ H02P 13/32

U.S. Cl. 323—222

6 Claims



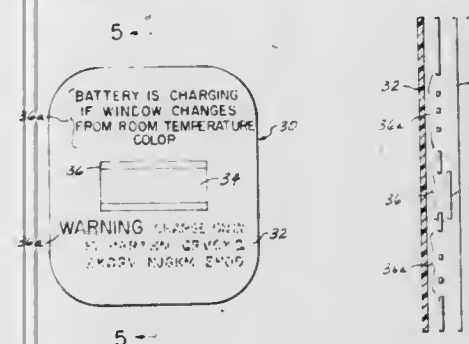
1. In an apparatus for the control of an operating parameter of an installation, said parameter being related to an electric current feeding a regulation unit including a regulating switch arranged for being switched between a first non-conducting logic state and a second conducting logic state in response to a drive signal, an electric controller operating in conductance control mode, comprising:

current reference signal generator means connected to be responsive to a command signal for generating a current reference signal the amplitude of which is a function of said command signal, said current reference signal having an upper control lever and a lower control level;
current sensor means connected to sense said electric current and to generate a sensing signal representing said current;
comparator means connected to compare said current sensing signal to said current reference signal for producing said drive signal for the regulating switch, said comparator means being further connected to a synchronization source for accepting synchronization pulses to switch said drive signal having a first state when the increasing sensing signal is equal to or greater than the lower control level of the current reference signal and having a second state when the decreasing current sensing signal is equal to or lower than the upper control level of the current reference signal.

4,392,102
LIQUID CRYSTAL INDICATOR
Raymond K. Sugalski, and Charles R. Blake, both of Gainesville, Fla., assignors to General Electric Company, Gainesville, Fla.
Continuation of Ser. No. 939,356, Sep. 5, 1978, abandoned, which is a continuation-in-part of Ser. No. 910,517, May 30, 1978, Pat. No. 4,173,733, which is a continuation of Ser. No. 793,012, May 2, 1977, abandoned. This application Apr. 28, 1981, Ser. No. 258,532
The portion of the term of this patent subsequent to Nov. 6, 1996, has been disclaimed.
Int. Cl.³ H02J 7/00

U.S. Cl. 320—48

9 Claims

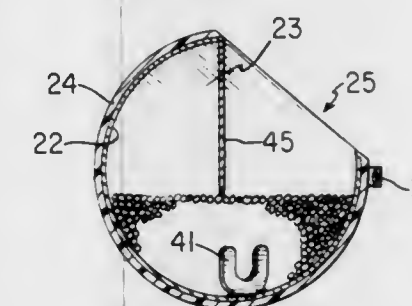


1. A liquid crystal indicator for indicating the flow of current through battery cells in a battery charger for charging, which includes a liquid crystal indicator label comprising:
a substantially transparent substrate having a front surface adapted to provide an exterior surface of said indicator and a back surface on the opposite side thereof;
a liquid crystal material adhered to a predetermined portion of said back surface of said substrate, said predetermined portion being less than the surface area of said back surface, said liquid crystal material being adapted to change color in response to changes in temperature within a predetermined range;
a black background layer adhered at least behind said liquid crystal material within the predetermined portion of said substrate; and
means for attaching the indicator to a desired structure, said liquid crystal indicator label being mounted to the casing of the battery charger substantially directly adjacent heat generating circuit means associated with each battery cell in the battery charger such that said liquid crystal indicator label changes color when charging current flows through said heat generating circuit means to indicate that the associated battery cell is being charged.

4,392,104
DIELECTRIC TEST UNIT
James C. Lewis, Jerry W. Miller, both of Abbeville, Clyde D. Simpson, Calhoun Falls, and Ronald G. Thomasson, Abbeville, all of S.C., assignors to Automation Industries, Inc., Greenwich, Conn.
Filed Jul. 10, 1980, Ser. No. 168,437
Int. Cl.³ G01R 31/12

U.S. Cl. 324—54

12 Claims



1. Apparatus for testing the dielectric integrity of an electrically insulated conductor comprising

- (a) a receptacle formed with an opening and having an axis of rotation,
- (b) means for rotating the receptacle about said axis between first and second positions,
- (c) support means within the receptacle for receiving the insulated conductor through the opening,
- (d) a flowable mass of electrically conductive beads within the receptacle to a level such that in the first position the insulated conductor held by the support means is above the bead mass but in the second position said conductor is immersed with the bead mass, and
- (e) circuit means for establishing a voltage potential between the conductor and mass of beads and for sensing any electrical current flowing therebetween.

4,392,105

TEST CIRCUIT FOR DELAY MEASUREMENTS ON A LSI CHIP

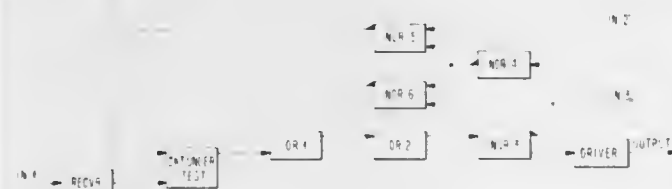
Mark H. McLeod, Poughkeepsie, N.Y., assignor to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 17, 1980, Ser. No. 217,373

Int. Cl.³ G01R 17/02, 29/02, 31/28

U.S. Cl. 324—57 DE

6 Claims



1. For use on an LSI chip, a circuit for measuring the turn-on and turn-off delays of a logic circuit on said chip, said measuring circuit comprising:

- a first loop capable of producing a first signal, and containing said logic circuit;
- a second loop capable of producing a second signal, and not containing said logic circuit; and
- means for insuring that a first portion of each of said first and second signals are related to each other in a manner that is dependent upon the turn-on delay of said logic circuit, and that a second portion of each of said first and second signals are related to each other in a manner that is dependent upon the turn-off delay of said logic circuit.

4,392,106

NON-CONTACT DEVICE FOR MONITORING ELECTRICAL PULSE SIGNALS

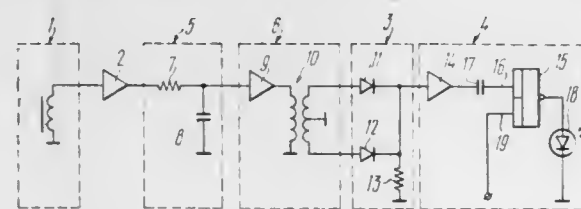
Nikolai I. Yakovlev, ulitsa O. Forsh, 3, kv. 101; Anatoly T. Smolin, Grazhdansky prospekt, 19, korpus 1, kv. 1; Vasily G. Kokovikhin, ulitsa Vernosti, 38, korpus 1, kv. 53, and Alexei A. Kotunov, ulitsa 3 Internatsionala, 57, kv. 46, all of Leningrad, U.S.S.R.

Filed Jan. 7, 1981, Ser. No. 223,047

Int. Cl.³ G01R 31/02

U.S. Cl. 324—72.5

2 Claims



1. A non-contact device for monitoring electrical pulse signals comprising:

- a sensing means responsive to variation with time of the electromagnetic field produced by the monitored pulse signal;
- an amplifier connected to said sensing means and having an output;

a rectifier having an input and output;
a network including an integrator circuit and a differentiating circuit connected in series, said network having an input connected to said output of said amplifier and an output connected to said input of said rectifier; and
an indicator unit having an input connected to said output of said rectifier.

4,392,107

SWITCHING EQUIPMENT FOR TESTING APPARATUS

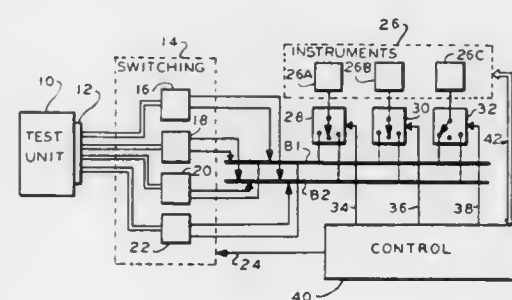
Bernard P. Gollomp, Far Rockaway, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Sep. 9, 1980, Ser. No. 185,452

Int. Cl.³ G01R 15/12

U.S. Cl. 324—73 R

11 Claims



1. In a testing apparatus for measuring with a plurality of instruments the response of a unit under test, which unit has a plurality of test terminals, switching equipment comprising: a common signal bus;
- a plurality of switching networks, each having at least two active states, in each of its active states said switching networks being operable to connect at least one of said plurality of test terminals to said bus, each of said networks having a selection input operable to select its states;
- a plurality of switching couplers each having a control terminal and each having a switched input connected to a different corresponding one of said instruments, each of said couplers being operable by its control terminal to connect and disconnect its corresponding one of said instruments to said common signal bus; and
- control means connected to each of said switching networks and couplers for providing a separate signal to each selection input and each control terminal, said control means being operable for each of said test terminals to connect it to at least one of said instruments through one of said switching networks, said bus and one of said switching couplers, said control means being operable to substitute one of said instruments for another so that said common bus can be time shared.

4,392,108

BROADBAND RADIATION DETECTOR FOR MICROWAVE AND LOWER FREQUENCIES

Samuel Hopfer, Brooklyn, N.Y., assignor to General Microwave Corporation, Farmingdale, N.Y.

Continuation-in-part of Ser. No. 883,632, Mar. 6, 1978, Pat. No. 4,207,518. This application Apr. 24, 1980, Ser. No. 143,365

Int. Cl.³ G01R 21/10, 19/22

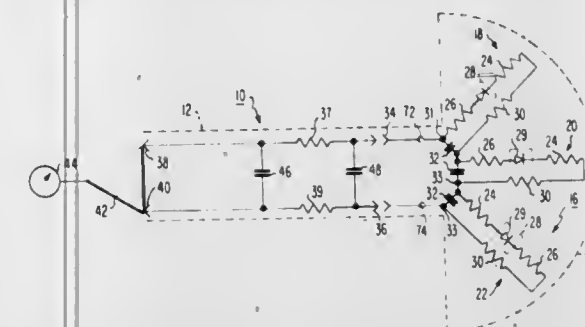
U.S. Cl. 324—95

6 Claims

1. A monitor for detecting free-space radiation at radio frequencies in a broad band of microwave frequencies and in a broad band of lower frequencies; said monitor comprising:

- a resistive strip having a d-c resistance that is substantially uniform over said radiation frequency range and larger than the characteristic impedance of free space for interacting with free-space radiation to have r-f currents induced therein in accordance with particular levels of the intensity of said free-space radiation, said r-f currents for corresponding radiation intensity levels in said band of microwave frequencies being substantially constant in

amplitude with frequency, and said strip having in said microwave band a reactance small relative to said d-c resistance;
said strip being characterized by interacting with free-space radiation in said lower frequency band to produce for corresponding levels of radiation r-f currents of generally varying amplitude over said lower frequency band, and having in said lower band a reactance substantial in magnitude relative to said resistance;



a monitoring circuit including a barrier layer device having a substantial reactance in series with said resistive strip for converting r-f currents induced in said strip by free-space radiation to corresponding d-c signals, said monitoring circuit having means for presenting a resistance in shunt with the reactance of said barrier layer device, and means for presenting in shunt with the reactance of said barrier layer device small and substantial reactance values, respectively, in said microwave and lower frequency bands, and for varying in reactance with said strip reactance in said lower frequency band.

4,392,109

STATIC CORRECTION FOR MAGNETOTELLURIC DATA

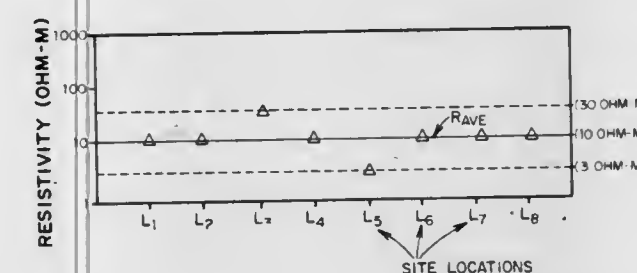
Barry N. Warner, Duncanville, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 14, 1980, Ser. No. 206,920

Int. Cl.³ G01V 3/38

U.S. Cl. 324—350

2 Claims



1. A method for correcting near surface resistive anomalies in magnetotelluric surveys comprising the steps of: receiving magnetotelluric survey data curves; selecting a portion of each curve; computing an average for said portion of each curve; determining a mean value and variance limit for said averages; selecting all curves having said average portion exceeding said variance limit; multiplying said selected curves by a ratio of said average of each curve and said mean value to correct said selected curves; and displaying said corrected curves and said curves having said average portion within said variance limit.

4,392,110

METHODS AND APPARATUS FOR MONITORING THE CONDITION OF DIELECTRIC LIQUID IN ELECTRIC DISCHARGE MACHINING

Mohamed F. El-Menshawey, Birmingham; Peter A. Woodrow, Sevenoaks, and Sushantha K. Bhattacharyya, Birmingham, all of England, assignors to National Research Development Corporation, London, England

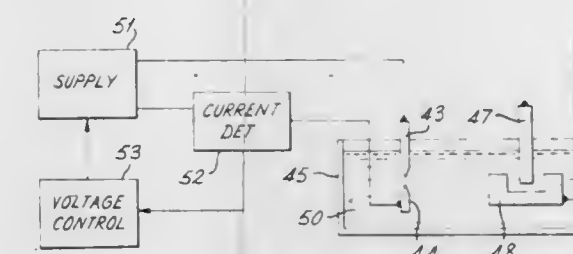
Filed Jun. 12, 1980, Ser. No. 158,813

Claims priority, application United Kingdom, Jun. 12, 1979, 7920444

Int. Cl.³ G01N 27/60

U.S. Cl. 324—453

15 Claims



1. A method of monitoring the condition of dielectric liquid being used in an electrical discharge machining process, comprising:

- causing at least a portion of the dielectric liquid used in an electrical discharge machining process to flow in contact with two adjacent but separated electrodes, and
- at least from time to time, deriving a signal representative of change in at least one component of the impedance across the electrodes due to change in condition of said liquid.

4,392,111

METHOD AND APPARATUS FOR ACCELERATING CHARGED PARTICLES

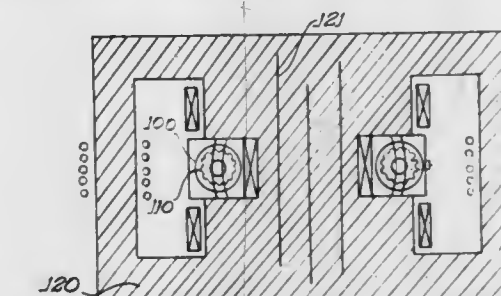
Norman Rostoker, Irvine, Calif., assignor to Maxwell Laboratories, Inc., San Diego, Calif.

Filed Oct. 9, 1980, Ser. No. 195,521

Int. Cl.³ H05H 7/00, 11/00

U.S. Cl. 328—237

18 Claims



7. A device for accelerating charged particles, each having predetermined charge e and predetermined mass m, to ultra-relativistic energies along a path characterized by a radius R which may be infinite, comprising

- means defining an evacuated containment region encompassing the path;
- means for providing a magnetic field having field lines substantially parallel to the path direction;
- means for introducing the charged particles having predetermined charges at low energy $(\frac{1}{2})mv^2$, v being the average velocity of the particles perpendicular to the path, into the evacuated containment region;
- means for increasing the intensity of the magnetic field during and after the time the charged particles are introduced into the containment region so as to compress the charged particles in the containment region in the direction transverse to the path direction to a density n substantially contained in a region along the path characterized by a radius R.

by an average radius a , the density n being approximately related to a beam blow-up time t_b in the absence of the magnetic field by the formula

$$(ct_b)^2 = 2\pi/nr_e$$

c being the velocity of light and r_e the classical electron radius, the density n corresponding to a line density N satisfying the inequality

$$N > \frac{1}{2}(a/R)(mV^2)/e^2;$$

and means for accelerating the charged particles to ultra-relativistic energies more than about 100 Mev to form a beam along the path while the loss of charged particles from the beam occasioned by space charge effects is inhibited, the time t_b being substantially less than the time required to accelerate the charged particles to ultra-relativistic energies, the magnetic field parallel to the path direction inhibiting the loss of charged particles from the beam due to space charge effects acting prior to acceleration to ultra-relativistic energies.

4,392,112

LOW DRIFT AMPLIFIER

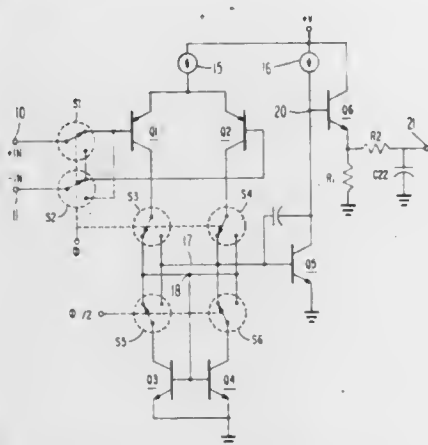
Otto H. Schade, Jr., North Caldwell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 8, 1981, Ser. No. 300,121

Int. Cl.³ H03F 3/45, 1/02

U.S. Cl. 330—252

7 Claims



1. A differential amplifier circuit comprising; inverting and non-inverting input terminals and an output terminal; a differential transistor pair having first and second input terminals and first and second output terminals; first and second load means; first means for alternately connecting said first load means to said first and second output terminals of the differential transistor pair and concurrently alternately connecting said second load means to said second and first output terminals of the differential transistor pair at a first cyclic rate, said first and second load means and said differential transistor pair thereby forming a differential amplifier stage, the load presented to each output terminal of the differential pair being the time average of the first and second load means; second means for alternately connecting said inverting input terminal to the first and second input terminals of the differential pair and concurrently alternately connecting the non-inverting input terminal to the second and first input terminals of the differential pair at a second cyclic rate; and third means alternately connecting the first and second output terminals of said differential transistor pair to said output terminal at said second cyclic rate, the alternate connection of input terminals, output terminals and load means tending

to average out offsets in the circuitry and thereby reducing DC input offset and drift.

4,392,113

PHASE-LOCKED LOOP INCLUDING NON-LINEAR PHASE DETECTOR OF THE SAMPLE AND HOLD TYPE

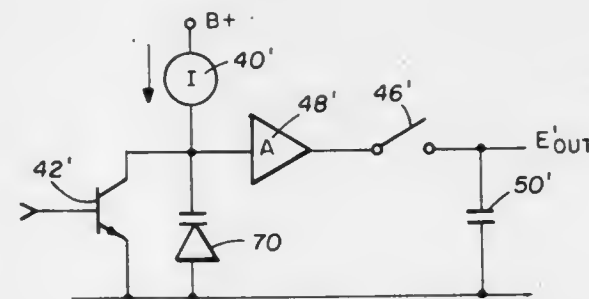
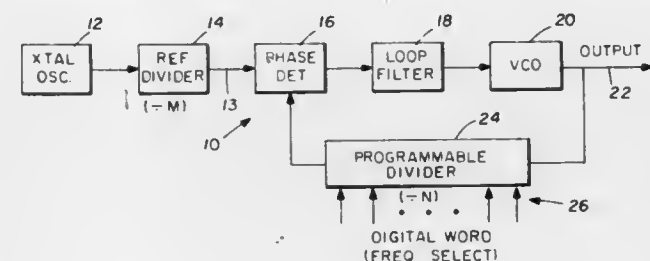
Charles R. Jackson, 1200 - 69th St. N., St. Petersburg, Fla. 33619

Filed Feb. 12, 1981, Ser. No. 233,904

Int. Cl.³ H03L 7/08

U.S. Cl. 331—14

4 Claims



1. Apparatus for automatically compensating for non-linear variations in the gain characteristics of a multi-channel, single loop synthesized frequency generator which occur during tuning from a first frequency channel having a frequency, f_1 , to a second frequency channel having a frequency, f_2 , comprising:

- a voltage controlled oscillator (VCO) incorporating a Varactor tuned resonant circuit and having an input and an output;
- a sample-and-hold phase detector circuit having an output connected to the input of said VCO;
- a feedback loop conductor interconnecting the output of said VCO to said phase detector to form a phase locked loop frequency generator, and
- gain compensation means interconnected in said phase detector and responsive to the first channel frequency, f_1 , and the second channel frequency, f_2 , for reducing non-linear variations in loop gain to 0 db when tuning the frequency generator from f_1 to f_2 .

4,392,114

AUDIO DEVICE HAVING A TONE CONTROL CANCELLING CIRCUIT

Shigeru Yamada, and Kazuya Ohhara, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed May 15, 1981, Ser. No. 263,837

Claims priority, application Japan, May 21, 1980, 55-66396

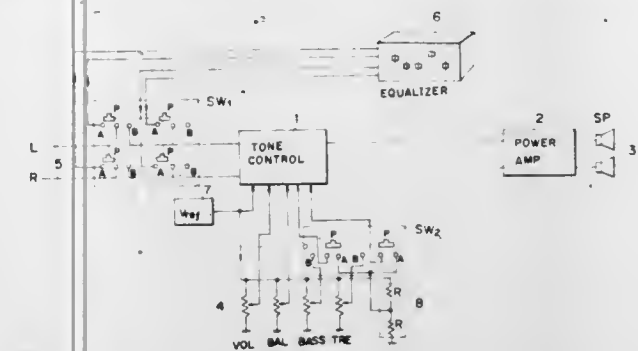
Int. Cl.³ H03H 7/01

U.S. Cl. 333—28 T

5 Claims

1. An audio device comprising:
- an equalizer means;
 - a tone control means having at least bass and treble regulating means;
 - an amplifier supplied with outputs from said tone control means;
 - a reference control means;

a first switch for applying input signals directly or through said equalizer means to said tone control means; a second switch which connects said bass and treble regulating means to said tone control means when said input signals are directly applied to said tone control means and



disconnects said bass and treble regulating means from said tone control means when said input signals are applied to said tone control means through said equalizer means to thereby connect said reference control means to said tone control means.

4,392,115

VOLUME MAGNETOSTATIC WAVE DEVICE

Gerard Volluet, and Pierre Hartemann, both of Paris, France, assignors to Thomson-CSF, Paris, France

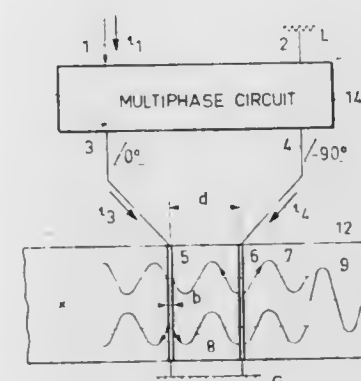
Filed Apr. 13, 1981, Ser. No. 253,268

Claims priority, application France, Apr. 14, 1980, 80 08279

Int. Cl.³ H03H 9/125, 9/38; H03B 5/00

U.S. Cl. 333—141

10 Claims



1. A volume magnetostatic wave device for operating at a predetermined wavelength provided with at least one microstrip transducer at the surface of a wafer of ferrimagnetic material, wherein said transducer comprises at least one pair of filament-type conductive elements spaced at a predetermined interval from each other and having the same length, the terminals of said transducer being connected electrically to the conductive elements through a polyphase transformer circuit, the currents which flow through said conductive elements being equal and in phase quadrature so that the waves produced by said currents add to each other in one direction and cancel each other in the other direction.

4,392,116

TRIPLE TRANSIT CANCELLATION

Adrian J. De Vries, Mount Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 14, 1980, Ser. No. 196,247

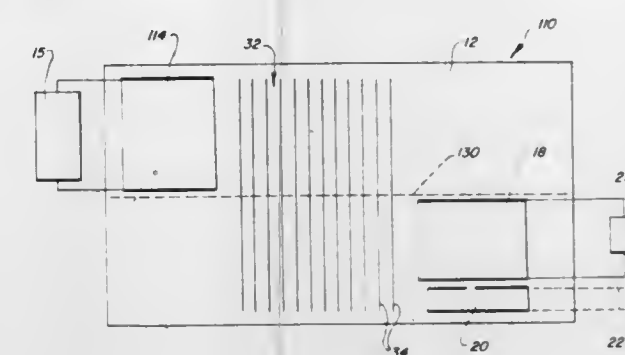
Int. Cl.³ H03H 9/64, 9/42

U.S. Cl. 333—194

10 Claims

3. A surface acoustic device comprising:
- a substrate with at least four laterally separated tracks;
 - means acoustically coupling said tracks;
 - primary input surface acoustic transducer means on a first one of said tracks for generating an acoustic wave, for

receiving a first reflection thereof, and for contributing to a second reflection thereof; dummy input surface acoustic transducer means on a second one of said tracks for also receiving said first reflection and also contributing to said second reflection;



primary output surface acoustic transducer means on a third one of said tracks for receiving said acoustic wave, for contributing to said first reflection thereof, and for receiving said second reflection thereof; and dummy output surface acoustic transducer means on a fourth one of said tracks for also receiving said acoustic wave and also contributing to said first reflection thereof.

4,392,117

SWITCHING MAGNET

Christoph Gibas, Neunkirchener Weg 5, 5908 Neunkirchen, and Michael Müller, Zum Turm 1, 6683 Spiesen, Elversberg, both of Fed. Rep. of Germany

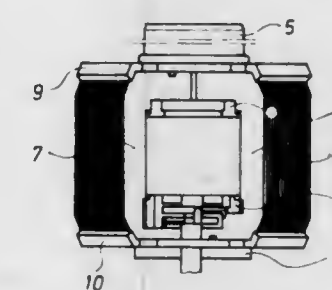
Filed Jul. 8, 1981, Ser. No. 281,387

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1980, 3026725

Int. Cl.³ H01F 3/00

U.S. Cl. 335—297

4 Claims



1. An improved switching magnet structure of the type including a yoke, an armature and a coil spool having a hollow cylindrical portion, spaced flange members on the cylindrical portion and a coil wound around the cylindrical portion, wherein the improvement comprises

- a plurality of U-shaped laminations arranged in bundles, each said lamination having two legs and an interconnecting portion, the outer corner at the junction of each leg with the interconnecting portion being beveled at an acute angle relative to the leg;
- means defining guide slots formed on the outwardly facing surfaces of the flange members for receiving the leg portions of bundles of said laminations to form a yoke, said slots being axially aligned with each other at opposite ends of said spool; and
- first and second cover plates spaced apart in substantially parallel relationship with each other and with the flange members and engaging the bundles of laminations forming said yoke, each said cover plate having contact surfaces positioned to engage said beveled portions of said laminations in

said bundles to restrain said bundles against radial outward movement relative to said core spool.

4,392,118

THERMAL OVERLOAD RELAY HAVING A N.O. OR N.C. CONTACT UNIT SELECTIVELY ADDABLE IN THE FIELD

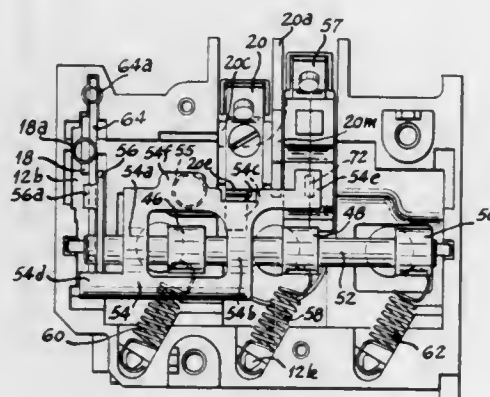
Arthur F. Kolb; Arthur J. Franklin, both of Bowling Green, and Toby I. Miller, Rockfield, all of Ky., assignors to Eaton Corporation, Cleveland, Ohio

Filed Mar. 2, 1982, Ser. No. 354,121

Int. Cl.³ H01H 71/20, 73/22

U.S. Cl. 337—154

10 Claims



1. An overload relay for an electrical power supply circuit comprising in combination;

a relay housing;
a standard switch mounted in said housing and being operable to open in response to an overload current condition to protect said circuit;

a rotatable shaft;
a latched trip lever mounted on said shaft operable upon release to rotate said shaft in a first direction;
means biasing said latched trip lever for rotation in said first direction;

an overload current responsive element having means normally latching said trip lever against rotation and comprising means responsive to an overload current in said circuit for tripping said latch to allow said biasing means to rotate said trip lever and said shaft in said first direction;
a switch operating lever freely rotatably mounted on said shaft and having a finger for operating said standard switch;

means normally biasing said switch operating lever in one rotary direction to cause said finger to hold said standard switch normally closed;

a reset member non-rotatably mounted on said shaft and engaging said switch operating lever to drive the latter in the other rotary direction against the force of its said biasing means when said shaft is rotated in said first direction in response to said overload trip thereby to release said standard switch to allow it to reopen;

a slot in said housing for receiving an auxiliary switch;
an auxiliary switch insertable into said slot and removable therefrom without disassembling said relay;

means to mount said auxiliary switch in said housing slot;
an arm on said switch operating lever for actuating said auxiliary switch at the end of the trip stroke whereby the force required at the beginning of the trip stroke is reduced;

and said auxiliary switch comprising a switch housing enclosing first and second spaced-apart resilient contact strips and a contact actuator, said contact actuator having an aperture through which one of said contact strips extends, and a selected one of two interchangeable contact bias springs, one spring being placed within said aperture below said one contact strip and the bottom of said aperture to provide a normally open switch, and the other spring being alternatively placed between the other contact strip and said switch housing in compression to

provide a normally closed switch, and contacts at corresponding ends of said contacts strips being subjected to wiping action upon closing and opening when said contact actuator is actuated by said arm;
and means for resetting said relay.

4,392,119

APPARATUS AND METHOD FOR MONITORING THE ARRIVAL AND DURATION OF STAY OF A VEHICLE AT A DRIVE-IN WINDOW

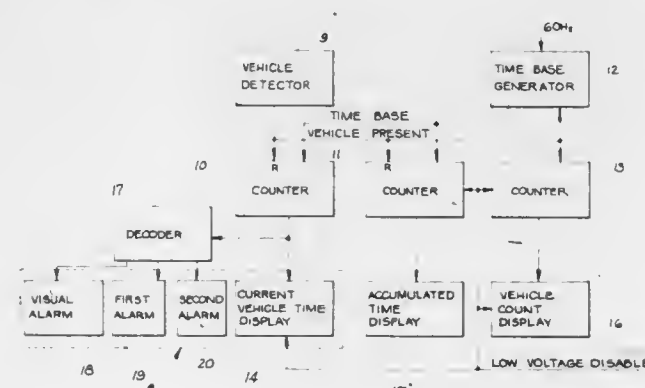
Ronn Price, West Chester; Gary Brown, Springboro; Andrew A. Muraski, Middletown, all of Ohio, and William C. Muraski, Olathe, Kans., assignors to U.S. Computer Systems, Inc., Cincinnati, Ohio

Filed Jun. 15, 1981, Ser. No. 273,645

Int. Cl.³ G08B 21/00

U.S. Cl. 340—38 L

61 Claims



1. Apparatus for monitoring the arrival and duration of stay of a motor vehicle at a transaction station associated with a drive-in business or the like of the type having a building structure including a vertical wall mounting a drive-in window, and a vehicle approach lane positioned alongside the building structure wall, said apparatus comprising:
monitor means producing an electrical signal upon the arrival of a motor vehicle at the transaction station;
means responsive to said electrical signal for timing a duration of stay commencing with the arrival of the vehicle at the transaction station; and
means responsive to said timing means for providing a visually sensible display of said duration of stay.

4,392,120

PATTERN INSPECTION SYSTEM

Kikuo Mita; Masayuki Oyama, both of Yokohama; Takashi Yoshida, Kawasaki; Masato Nakashima; Katsumi Fujihara, both of Yokohama, and Tadao Nakakuki, Kawasaki, all of Japan, assignors to A. Aoki & Associates, Tokyo, Japan
PCT No. PCT/JP79/00271, § 371 Date Jun. 30, 1980, § 102(e) Date Jun. 23, 1980, PCT Pub. No. WO80/01002, PCT Pub. Date May 15, 1980

PCT Filed Oct. 25, 1979, Ser. No. 197,345

Claims priority, application Japan, Oct. 30, 1978, 53-133610; Nov. 13, 1978, 53-155946[U]; Nov. 28, 1978, 53-146865; Nov. 28, 1978, 53-146870

Int. Cl.³ G06K 9/00; G01B 11/02

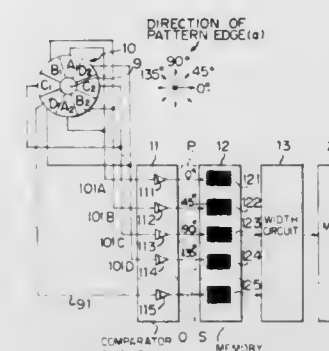
U.S. Cl. 382—22

13 Claims

1. A pattern inspection system for inspecting a pattern formed on a base, the pattern having a body and edges, said inspection system obtaining information regarding the light transmission or lack of light transmission through the pattern by scanning the pattern with a light beam, said inspection system comprising:

detection means, including means for separately detecting the body of the pattern and generating body signals representing the body of the pattern and means for separately detecting the pattern edges and the angle of the edges with

respect to a predetermined line and generating edge signals representing the edge of the pattern;
first memory means having a plurality of memory units, operatively connected to said pattern body detection means and said edge detection means, for separately storing the body signals and the edge signals in separate memory units of said first memory means, wherein a first of the plurality of the memory units stores the body signals,



wherein the remaining units of the plurality of memory units store the edge signals, wherein each of the remaining units represents the angle of the edge signals stored therein; and
width measuring means, operatively connected to said first memory means, for measuring the width of the body of the pattern between two edges of the pattern by summing the body signals between the two edges of the pattern.

4,392,121

RECEIVER FOR A.C. ELECTRICAL SUPPLY SIGNALLING ARRANGEMENT

Frederick M. Gray, Stafford, and Charles G. Leedham, Dovedridge, both of England, assignors to The General Electric Company Limited, London, England

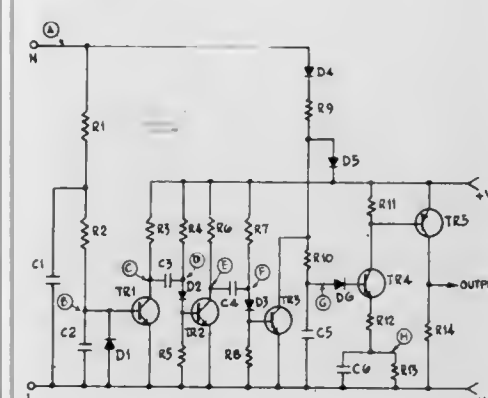
Filed Dec. 2, 1980, Ser. No. 212,209

Claims priority, application United Kingdom, Dec. 7, 1979, 7942399

Int. Cl.³ H04B 3/54

U.S. Cl. 340—310 A

8 Claims



1. A receiver for use in an a.c. electrical supply signalling arrangement of the kind wherein information is conveyed as a pattern of time-spaced voltage reductions impressed on the a.c. supply voltage waveform, each reduction being for a fraction of a cycle of the waveform including a voltage zero crossing, the receiver comprising means for detecting the presence of an impressed voltage reduction by comparing the integral of the supply voltage waveform over a period extending over a small fraction of a cycle ending not later than the voltage zero crossing included in that voltage reduction with the integral over a corresponding period when no voltage reduction is present.

4,392,122

MAGNETICALLY TRIGGERED ON-BOARD ELAPSED TIME INDICATOR

Redvers A. Hocken, 1195 Pershore Rd., Starchley, Birmingham, England

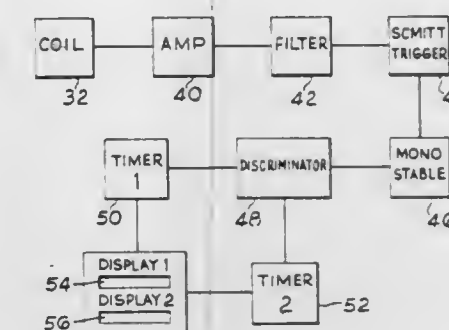
Filed Jun. 25, 1981, Ser. No. 277,399

Claims priority, application United Kingdom, Jun. 26, 1980, 8020899; Apr. 29, 1981, 8113188

Int. Cl.³ G08B 21/00

U.S. Cl. 340—323 R

17 Claims



1. A system for on-board timing for a vehicle traversing a predetermined course, said system comprising sensing coil means adapted to be carried by the vehicle for producing an electrical signal in response to sensing at least one magnet located at at least one predetermined position along said course, on-board timing means and on-board control means responsive to said sensing coil means for controlling operation of the timing means to provide a record of the time interval elapsing between successive or selected electrical signals produced by said sensing coil means.

4,392,123

SIGNAL-TO-NOISE IMPROVING SYSTEM

Harro Brüggemann, Mount Waverley, Australia, assignor to The Dindima Group Pty. Ltd., Ringwood, Australia

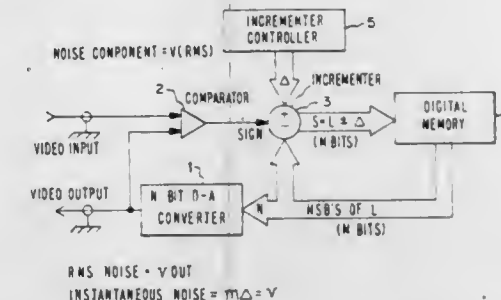
Filed May 19, 1981, Ser. No. 265,114

Claims priority, application Australia, Jun. 2, 1980, PE3840; Dec. 9, 1980, PE6849; Feb. 25, 1981, PE7735

Int. Cl.³ H03K 13/02

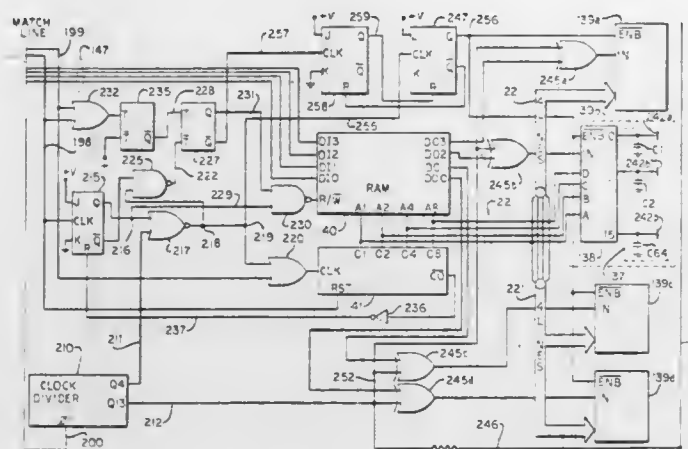
U.S. Cl. 340—347 AD

5 Claims



1. A signal-to-noise improving system comprising, a circuit input for incoming noisy analogue signals and a circuit input for digitally stored input signals which have an improved signal-to-noise ratio provided by the system and which have been converted to analogue form,
said circuit input and said circuit output being connected to inputs of an analogue comparator arranged to give an output signal which signifies that the analogue form of the digitally stored input signal is either higher or lower in magnitude than the incoming noisy analogue signal or that the incoming noisy analogue signal is either higher or lower in magnitude than the analogue form of the digitally stored input signal,
said comparator output signal being connected to a signal incrementor to give a signal output which is the digitally stored input signal incremented higher or lower by a number digitally in response to either a higher or lower signal output from said comparator, said incrementor

said multiplexer including a multiplexer input and addressing means driven by a clock signal characterized by two states from a clock for successively connecting said multiplexer input to said output terminals;
means for connecting said clock signal to said back plane; data means for providing data bits, one at a time, said data bits corresponding to a visible output from said liquid crystal display device; and



switching means connecting said data means and said multiplexer input for providing said data bits to said multiplexer input when said clock signal is in a first state of said two states and alternately for providing the complement of said data bits to said multiplexer input when said clock signal is in a second state of said two states.

4,392,130

METHOD AND DEVICE FOR PRESENTATION OF GRAPHICAL INFORMATION

Jan-Erik Lundström, and Ingemar Rudgard, both of Västerås, Sweden, assignors to ASEA Aktiebolag, Västerås, Sweden

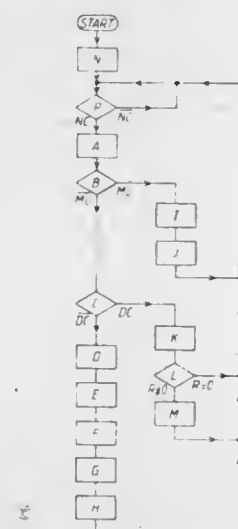
Filed Jan. 15, 1981, Ser. No. 225,228

Claims priority, application Sweden, Jan. 16, 1980, 8000346

Int. Cl.³ G09G 1/16

U.S. Cl. 340—747

6 Claims



1. In a system for generating a display image composed of a plurality of interconnected symbols, each of which is in turn composed of a plurality of symbol modules, wherein an entry module of a symbol is displayed adjacent to an exit module of a precedingly displayed symbol, the system comprising:

a symbol memory for storing a plurality of preselected fields which describe each module of a symbol, the field format for each module including

- a first field comprising bits describing the state of individual pixels constituting the module,
- a second field comprising bits indicating in which display writing directions the module may be an entry or exit module,
- a third field comprising link bits for relating the posi-

tion of a particular module relative to the other modules of a symbol;

input means for selecting symbols desired for display and the direction in which they are to be written; and
symbol generating means connected in circuit with the input means, the memory means, and display means, for detecting the correct entry and exit modules for a selected symbol, dependent upon a selected writing direction, and causing the display of the symbol with its detected entry module adjacent to an exit module of a precedingly displayed symbol.

4,392,131

INTEGRATABLE ACTIVATION MODULE FOR PASSIVE ELECTROOPTICAL DISPLAYS

Karl-Heinz Walter, Grafing, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

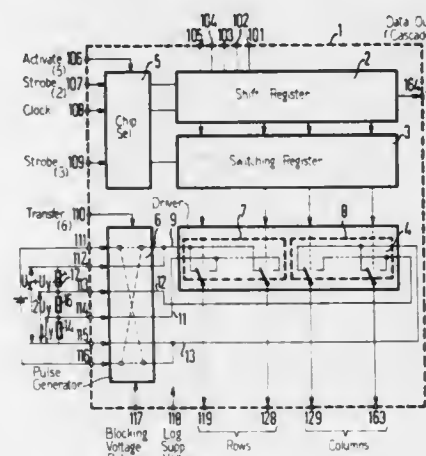
Filed Sep. 10, 1980, Ser. No. 186,142

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939235

Int. Cl.³ G09G 3/00

U.S. Cl. 340—803

6 Claims



1. An activation circuit for a passive electro-optical display which has electrodes in a matrix of columns and rows which are to be driven on a time division multiplex basis, comprising:

a shift register for receiving serial data representing information to be displayed;

a switching register connected to said shift register for receiving the data in parallel;

first and second driver groups, including m and n drivers for connection to the electrodes of the matrix, each driver respectively connected to said switching register and including a two-channel analog switch having two switch positions respectively selected by said switching register and, depending on its switch position, receiving one signal or another of a pair of analog signals; and

a pulse generator including six inputs, four outputs, four select switches which are externally switchable two-channel analog select switches, and two digital switches connected for operation in synchronism in complementary switching positions,

four of said six inputs receiving said different voltages, respectively, the two remaining of said six inputs connected, respectively, with the two terminals d.c. voltage source, two of said four outputs provided to emit the analog signal pairs to the row electrodes and the two other of said four outputs provided to emit analog signal pairs for the column electrodes, said select switches operable to connect a respective output with two of said inputs in such a manner that both driver groups receive, independently of one another, either row signal pairs or column signal pairs.

4,392,132

WIRELESS SIGNALING SYSTEM

Harry G. Derks, Holland, Mich., assignor to Fleetwood Furniture Company, Zeeland, Mich.

Filed Jun. 15, 1981, Ser. No. 273,374

Int. Cl.³ H04Q 9/16, 9/00

U.S. Cl. 340—825.14

8 Claims



1. A signaling system for indicating status information from one or more remote locations to a central location comprising: logic circuit means for generating periodic single frequency signals including synchronization signals and a plurality of time intervals for the insertion of data information therein, wherein each time interval bears a predetermined time relationship to said synchronization signal and corresponds to an assigned remote unit and wherein each time interval includes a plurality of discrete data intervals, at least one remote unit including means for providing status indicating data signals, said providing means coupled to said logic circuit means for the insertion of data during a predetermined data and time interval assigned the remote unit, a centrally located unit for receiving said data signals and including means for displaying one of a plurality of status conditions of said at least one remote location in response to said data signals.

4,392,133

ELECTRONIC LOCK WITH CHANGEABLE OPENING CODE

Sten T. Lundgren, Bruksvägen 6, S-230 47 Akarp, Sweden

PCT No. PCT/SE80/00159, § 371 Date Feb. 5, 1981, § 102(e)

Date Feb. 4, 1981, PCT Pub. No. WO80/02711, PCT Pub.

Date Dec. 11, 1980

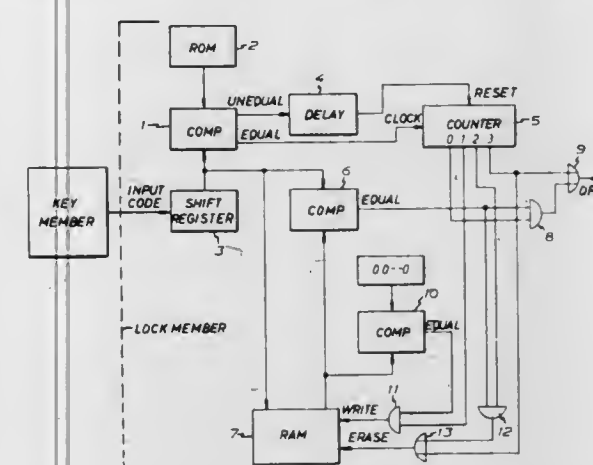
PCT Filed Jun. 4, 1980, Ser. No. 233,607

Claims priority, application Sweden, Jun. 5, 1979, 7904904

Int. Cl.³ H04Q 9/00; E05B 41/00

U.S. Cl. 340—825.31

16 Claims



1. An electronic lock of the type which can receive a plurality of electronic keys, each of said electronic keys having a unique key code associated therewith, one of said keys being a

control key, the remaining said keys being opening keys, said lock comprising:

(A) a read only memory for storing a control code corresponding to said key code associated with said control key;

(B) an erasable memory for storing a set of opening codes; and

(C) a control circuit which compares the key code of each key placed in said lock to both said control code and said opening codes, said control circuit:

(1) opening said lock when said key code of a key placed in said lock corresponds to any one of said opening codes; and

(2) changing said set of opening codes stored in said erasable memory when said control key and one of said opening keys are sequentially placed in said lock.

4,392,134

LOCKING DEVICE WITH PROGRAMMABLE KEY

Dieter Lutz, Schweinfurt, Fed. Rep. of Germany, assignor to Sach-Systemtechnik GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 43,680, May 30, 1979. This application

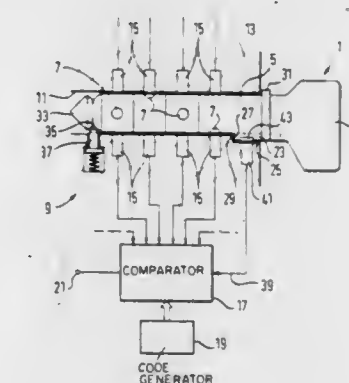
May 13, 1981, Ser. No. 263,186

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824892

Int. Cl.³ E05B 19/18, 47/00

U.S. Cl. 340—825.31

20 Claims



1. Locking device comprising a key and a reading device, said key comprising a grip portion, a plurality of information carrier parts mounted on said grip portion, information elements located in said information carrier parts for determining the locking code of said key, said information carrier parts being adjustably positionable relative to one another for arranging said information elements in a predetermined angular pattern, said reading device arranged to read the locking code on said key and to compare the locking code as read with a predetermined locking code, wherein the improvement comprises means for securing said information carrier parts to said grip portion and providing a common axis extending from said grip portion about which axis said information carrier parts are angularly adjustably positionable, and said reading device includes means for detecting one of the presence or absence of said information elements in at least a portion of the predetermined positions of the angular pattern, said means for securing said information carrier parts comprises an axially elongated member, said information carrier parts comprise annularly spaced parts encircling said axially elongated member and arranged one after the other in the axial direction of said axially elongated member, and at least one said information element on the periphery of each said information carrier part, each of said annularly shaped parts has a polygonally shaped interior surface symmetrical to the axial direction of said axially elongated member and said axially elongated part has a polygonally shaped surface on the exterior thereof complementary to said polygonally shaped interior surface, and the polygonally shaped interior surface of said axially elongated parts extends for less than half of the axial length of said annularly shaped

part and the complementary polygonally shaped exterior surface on said axially elongated member for each of said annularly shaped parts extends for the axial length of the polygonally shaped interior surface on said annularly shaped part.

4,392,135

PAGING RECEIVERS

Takashi Ohyagi, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

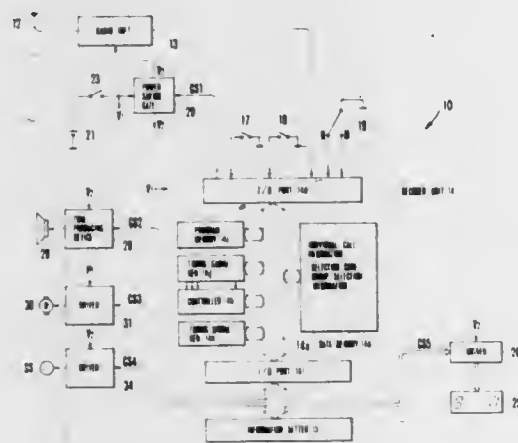
Filed Sep. 29, 1980, Ser. No. 192,173

Claims priority, application Japan, Sep. 29, 1979, 54-134804[U]; Sep. 29, 1979, 54-134806[U]

Int. Cl.³ H04M 11/02; H04B 1/16

U.S. Cl. 340—825.44

6 Claims



1. A paging receiver comprising:
 - an antenna;
 - a radio unit for demodulating a radio signal received by said antenna;
 - an information setter storing information that designates an individually assigned call number;
 - a decoder supplied with the output of said radio unit; and
 - a plurality of informing devices which make reports to a user of said receiver in accordance with decoder outputs;
- said information setter comprising a first memory device storing said information designating said individually assigned call number and information designating the selection of functional options of said receiver including the selection of which of said informing devices make reports to said user; and
- said decoder including a second memory device for storing information stored in said information setter, enabling said decoder to process the output of said radio unit in accordance with the information stored in said second memory device.

4,392,136

CIRCUIT ARRANGEMENT FOR STORING SIGNAL VALUES

Werner Albrecht, Markt Bibart; Klaus Fischer, and Gerhard Grün, both of Nuremberg, all of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 31, 1981, Ser. No. 288,927

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1980, 3029033; Jul. 31, 1980, 8020552[U]

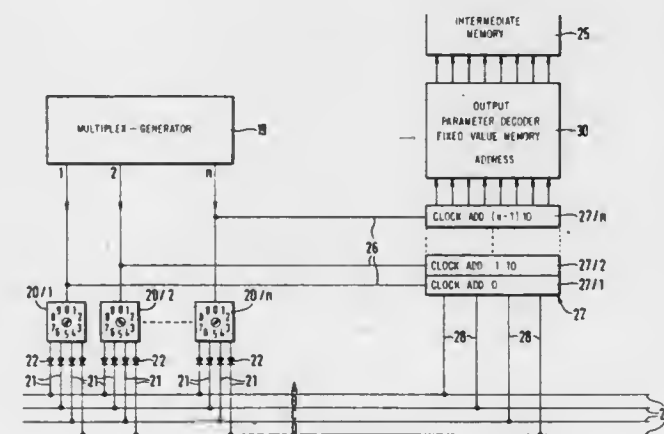
Int. Cl.³ H04Q 9/00; G08C 19/28; H03K 21/36

U.S. Cl. 340—825.56

4 Claims

1. In a circuit arrangement including a plurality of multi-position data switches and a memory connected for storing, in respective addressable memory locations, representations of the positions of the data switches, the improvement wherein each said data switch is a multi-digit coding switch having an actuating input and a plurality of code outputs at which appear a set of signals representative of the setting of said switch upon appearance of a signal at said actuating input, with successive settings of each said coding switch having successive numerical values and the signals appearing at said outputs of each said

coding switch representing the numerical value of the current setting of that switch, and said arrangement further comprises: multiplex generator means having a plurality of clock outputs each connected to said actuating input of a respective coding switch, said generator means being arranged to produce a sequence of pulse signals and to deliver each pulse signal of the sequence to a respective clock output; a bus bar composed of a plurality of conductors equal in number to the number of code outputs of each said coding switch, with each said conductor being connected to a respective coding output of each said coding switch so that the appearance of a signal at said actuating input of one said coding switch causes the set of signals representative of the current setting of that said switch to appear on said conductors; and signal transmitting means connected between said bus bar and said memory, said signal transmitting means comprising adding means having a plurality of data inputs each connected to a respective conductor, a plurality of stages equal in number to the number of coding



switches and each presenting a representation of a selected numerical value and arranged to add that representation to the numerical value representation supplied to that stage via said conductors, and a plurality of data outputs at which appear representations of the results of such additions; and wherein said memory has a plurality of data inputs each connected to a respective data output, and a number of memory locations equal to the number of said coding switches; each said clock output is connected to said adding means and to said memory for causing a pulse signal on a respective clock output to supply the numerical representation signals then appearing on said conductors to a respective associated adding stage and to address a respective associated memory location for storage therein of the representation then appearing at said data outputs; and the selected numerical value representation presented by each said adding means stage represents a numerical value which differs from that of every other stage by at least the number of possible settings of each said coding switch.

4,392,137

RADAR SYSTEM

Michael J. Intlekofer, Bellevue; Jay R. Hanson, Seattle, and Thomas E. Lee, Bothell, all of Wash., assignors to Western Marine Electronics, Inc., Seattle, Wash.

Filed Dec. 22, 1980, Ser. No. 218,805

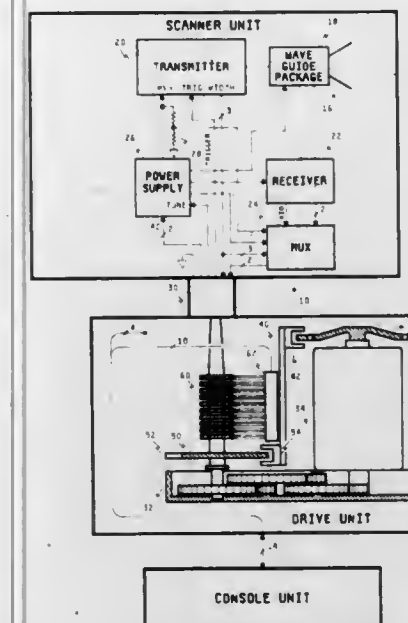
Int. Cl.³ G01S 13/00, 13/10; H01Q 3/00

U.S. Cl. 343—5 SC

5 Claims

5. A rotatably mounted scanner unit for a radar having a directional antenna and a plurality of electronic components powered by a plurality of diverse supply voltages, said scanner unit further including a self-contained, multi-voltage power supply which generates said supply voltage from low-voltage

power applied to said scanner unit through a pair of conventional low-voltage slip rings, thereby eliminating the need for



a large number of slip rings to supply all of said supply voltages.

4,392,138

APPARATUS AND METHOD FOR DETECTING AND INHIBITING SIGNALS INTERFERING WITH A LORAN C SIGNAL

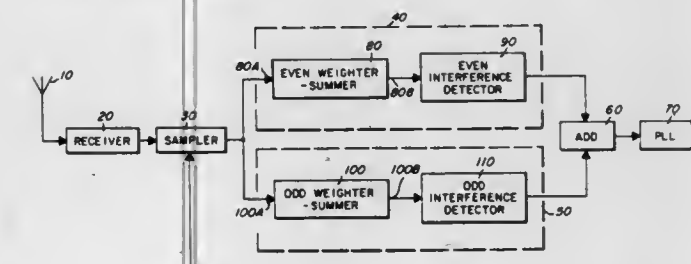
Steven C. Jasper, Schaumburg, and Robert V. Janc, Palos Heights, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 5, 1981, Ser. No. 222,421

Int. Cl.³ H04B 7/00

U.S. Cl. 343—103

1 Claim



1. An interference avoidance apparatus for substantially eliminating the corruptive effects of an interfering signal having a frequency nearly synchronized with a Loran C signal formed by a plurality of even and odd numbered Loran C pulses including in combination:

- receiving means for receiving Loran C signal pulse groups and said interfering signal;
- a single sampling circuit, coupled to said receiving means, for sampling said Loran C signal at most once per Loran C pulse at pulse tracking reference points thereof to generate even and odd numbered Loran C signal samples;
- tapped delay line means, coupled to said sampling circuit, for separating said even numbered Loran C samples from said odd numbered Loran C samples, said even Loran C samples being provided to a first plurality of delay line outputs and said odd Loran C samples being provided to a second plurality of delay line outputs;
- even phase code weighting means coupled to said first plurality of delay line outputs for weighting said even Loran C signal samples according to the respective phase code of each of said even samples to generate weighted even samples;
- first summing means, coupled to said even phase code weighting means, for summing the weighted even samples

- so as to generate one first weighted sum per Loran C pulse group;
- odd phase code weighting means coupled to said second plurality of delay line outputs, for weighting said odd Loran C signal samples according to the respective phase code of each of said odd samples to generate weighted odd samples;
- second summing means, coupled to said odd phase code weighting means, for summing the weighted odd samples so as to generate one second weighted sum per Loran C pulse group;
- even pulse interference detecting means, coupled to said first summing means, for selectively rejecting the even Loran C samples if the absolute value of the summation of a predetermined number of first weighted sums exceeds a predetermined threshold level;
- odd pulse interference detecting means, coupled to said second summing means, for selectively rejecting the odd Loran C samples, if the absolute value of the summation of a predetermined number of second weighted sums exceeds a predetermined threshold level,

whereby the Loran C signal samples affected by said interfering signal are rejected and the remaining samples are provided output.

4,392,139

AIRCRAFT TELEVISION ANTENNA RECEIVING SYSTEM

Frank S. Aoyama, Redmond, and Brian P. Stapleton, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 14, 1979, Ser. No. 103,815

Int. Cl.³ H01Q 1/28

U.S. Cl. 343—705

5 Claims



1. In an aircraft vertical fin structure, a television receiving antenna array comprising:
 - a first pair of cavity backed slot antennas disposed in a first major side surface of said vertical fin structure;
 - a second pair of cavity backed slot antennas disposed in a second major side surface of said vertical fin structure; and,
 - wherein said first pair of cavity backed slot antennas is disposed in said first major side surface of said vertical fin structure intermediate the auxiliary spar and front spar of said vertical fin structure, and said second pair of cavity backed slot antennas is disposed in said second major side surface of said vertical fin structure intermediate the auxiliary spar and front spar of said vertical fin structure.

4,392,140

DUAL CABLE DRIVE ROLLING ARC GIMBAL

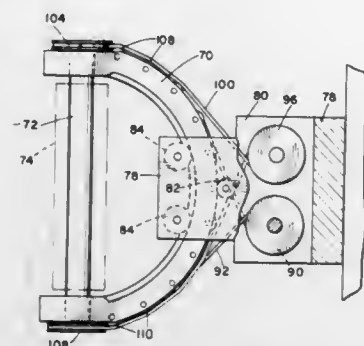
Thomas W. Bastian, Fullerton, and John M. Speicher, Upland, both of Calif., assignors to General Dynamics, Pomona Division, Pomona, Calif.

Filed Jul. 20, 1981, Ser. No. 285,169

Int. Cl.³ H01Q 3/08

U.S. Cl. 343—765

9 Claims



1. A cable drive rolling arc gimbal, comprising: a base having means for attachment to a supporting structure; an arcuate, substantially semicircular yoke supported in said base for rotation about its axis; a platform having a supporting shaft pivotally mounted in said yoke for rotation about an axis substantially orthogonal to the axis of rotation of the yoke; a yoke drive motor and a platform drive motor mounted on said base and separate yoke and platform cable drive means separately connecting each of said motors to a separate one of said yoke and said platform; said platform cable drive means includes a cable connected at opposite ends to separate drive pulleys mounted on opposite ends of said platform supporting shaft; and said platform drive motor is drivingly connected to said cable by means of a pulley intermediate to the ends of the cable.

4,392,141

IMAGE FORMING METHOD

Eiichi Inoue, Tokyo; Yasushi Takatori, Machida, and Masahiro Haruta, Funabashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

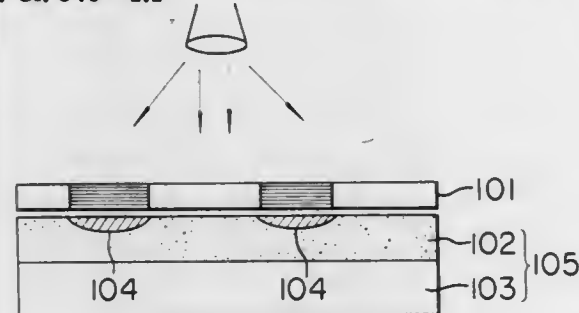
Continuation of Ser. No. 99,889, Dec. 3, 1979, which is a continuation of Ser. No. 902,409, May 3, 1978, abandoned. This application May 14, 1981, Ser. No. 263,608

Claims priority, application Japan, May 16, 1977, 52-56193, 52-56194

Int. Cl.³ G01D 9/00, 15/10, 15/34

U.S. Cl. 346—1.1

12 Claims



1. A high speed image forming method comprising the steps of:
 - (a) forming a visible image at high speed in a heat-sensitive recording medium by imagewise exposing said recording medium with low energy radiant thermal information to thereby form said visible image and a non-image portion, said visible image having a visible contrast with respect to said non-image portion and being capable of absorbing

radiation rays, the wavelength of which ranges from the visible to the infrared region; and
 (b) irradiating said recording medium with said radiation rays, whereby said visible image absorbs more radiation than said non-image portion to thereby selectively increase the optical density of said visible image relative to the optical density of said non-image portion.

4,392,142

INK JET DROPLET SENSING METHOD AND APPARATUS

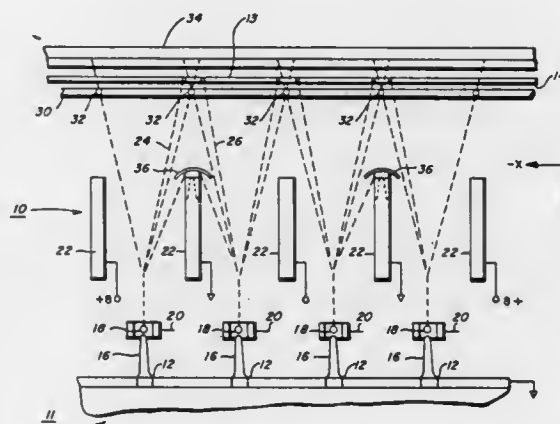
Ned J. Seachman, Penfield, and Edgar E. Price, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 15, 1982, Ser. No. 358,400

Int. Cl.³ G01D 15/18

U.S. Cl. 346—1.1

11 Claims



6. In ink jet printing, a method for sensing droplet passage past a sensing site comprising the steps of: directing light from two light sources through a region through which ink droplets pass in flight; sensing the passage of light through said region; and determining the positioning of ink droplets in said region by comparing the intensities of light from said two sources.

4,392,143

RECORD CARRIER FOR ELECTRO-EROSION PRINTERS

Dietrich J. Bahr, Herrenberg, and Marian Briska, Böblingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

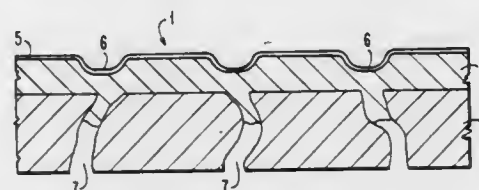
Filed Jul. 30, 1981, Ser. No. 288,632

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1980, 3033069

Int. Cl.³ G01D 15/24

U.S. Cl. 346—135.1

4 Claims



1. A record carrier for use with print electrodes of electro-erosion printers, with a gliding and scratching trace-resistant surface structure of a thin metallic layer provided over a lacquer layer on a carrier material, characterized in that the surface of the lacquer layer (3) and consequently also the surface of the thin metallic layer (5) are provided with a multitude of shallow dimples (6) in the micrometer range which are very small compared with the front surface of the print electrodes, which are of maximum uniformity, whose rims are rounded, and which are roughly cup-shaped and of depth generally lower than their lateral

dimensions, and whose distance from each other is very much smaller than the print electrode diameter.

4,392,144

RECORDING UNIT

Hisao Kurata, Toyohashi, Japan, assignor to Keisuke Honda, Aichi, Japan

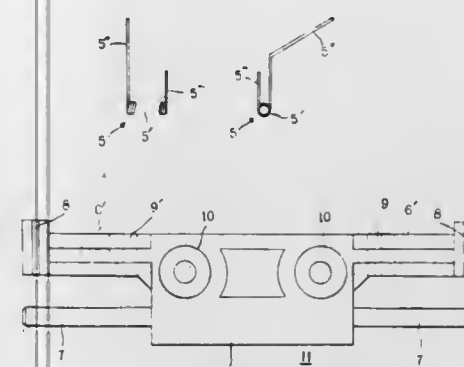
Filed Jan. 7, 1982, Ser. No. 337,946

Claims priority, application Japan, Jul. 1, 1981, 56-98362[U]

Int. Cl.³ G01D 15/06

U.S. Cl. 346—139 C

2 Claims



1. A recording unit comprising an adapter having an adapter body provided with supports at ends of arms projecting from both sides of said adapter body and with hook end supports disposed at the bases of said arms, and a coil support secured to said adapter body in parallel with said arms; and a recording or current collecting needle made of a single hard wire member and formed with a coil through which extends said coil support, one end of said hard wire member being supported by one of said supports of said adapter to act as a recording or current collecting needle and the other end thereof being a hook end which is hooked on one of said hook end supports.

4,392,145

MULTI-LAYER INK JET APPARATUS

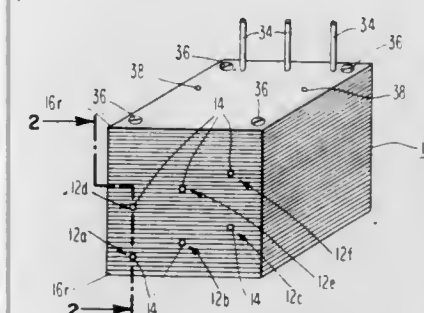
Walter R. Parkola, Newtown, Conn., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Mar. 2, 1981, Ser. No. 239,612

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

11 Claims



1. An ink jet apparatus comprising a plurality of channels, each of said channels including a chamber, an inlet opening to said chamber and an ink drop and ejection orifice, the improvement comprising a plurality of layers, each of said layers performing a different function in more than one channel formed by each said layer, at least one of said plurality of said layers being located between immediately adjacent orifices in different ones of said layers so as to provide a high-density multi-channel array wherein the spacing between immediately adjacent chambers is substantially equal to the spacing between immediately adjacent orifices.

4,392,146

NON-IMPACT DOT PRINTER

Michele Bovio, Brosso; Pierangelo Berruti, Chivasso, and Walter Gillone, Ivrea, all of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

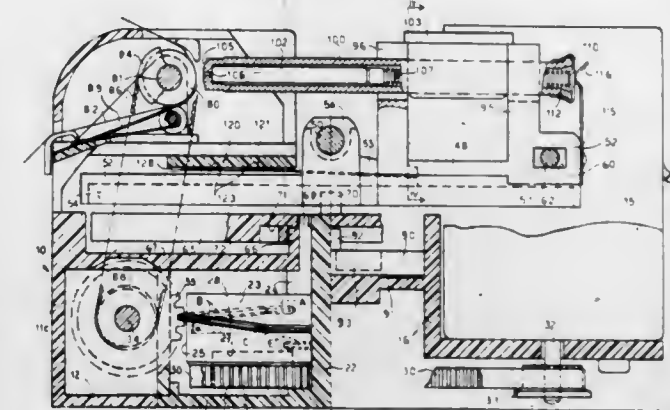
Filed Mar. 19, 1981, Ser. No. 245,370

Claims priority, application Italy, Mar. 20, 1980, 67417 A/80; Feb. 2, 1981, 67134 A/81

Int. Cl.³ G01D 15/08

U.S. Cl. 346—140 R

13 Claims



4. An ink jet head for a printer having a movable carriage and resilient fixing means secured to said carriage, said head comprising an elongated container for the ink and handling means fixed on the container to removably mount said container on said fixing means by manual pressure, in order to permit ready replacement of the container when said ink is exhausted.

4,392,147

APPARATUS FOR SUPPLYING AND REGULATING A WRITING MEDIUM TO THE WRITING UNIT OF A WRITING OR DRAWING MACHINE

Hans-Dieter Rösel, Altdorf, Fed. Rep. of Germany, assignor to J. S. Staedtler KG, Nuremberg, Fed. Rep. of Germany

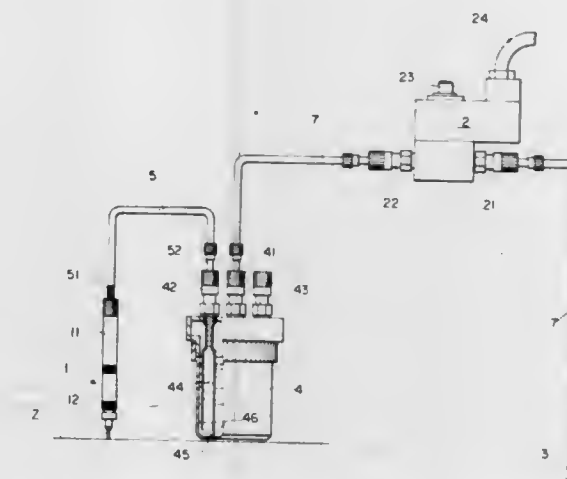
Filed Jun. 30, 1981, Ser. No. 279,160

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1980, 3024678

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

14 Claims



1. In an apparatus for supplying a liquid writing medium to the writing unit of a writing or drawing device or the like, a closed air-tight container for a liquid writing medium having a bottom, said container having a substantially vertical tube therein dipping below the surface of writing medium therein, a writing unit having an ink chamber therein and a writing tip and connected to said tube in the container by a flow line, the bottom of said container disposed in substantially the same horizontal plane as said writing tip of the writing unit, means

connected to said container for supplying air under pressure to the surface of the writing medium within the container, valve means interconnected between said container and said air supplying means for regulating the flow of liquid writing medium to the writing unit by supplying writing medium when the writing unit is operative and interrupting the writing medium when the writing unit is inoperative, the surface area of the writing medium within the container being considerably greater than the surface area of the writing medium in the ink chamber within the writing unit.

4,392,148

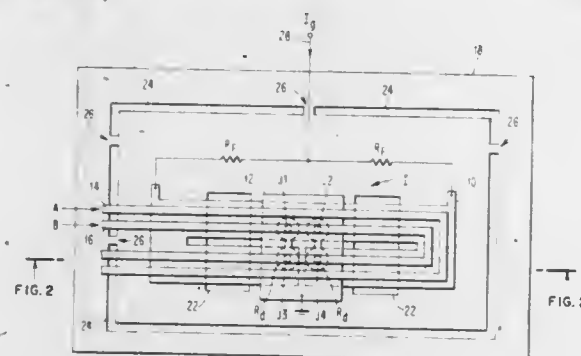
MOAT-GUARDED JOSEPHSON DEVICES

Wen H. Chang, Wappingers Falls; Tushar R. Gheewala, Yorktown Heights, and Erik P. Harris, Somers, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,862
Int. Cl.³ H01L 39/22

U.S. Cl. 357—5

17 Claims



1. A superconductive circuit, comprising: a continuous superconducting ground plane located on a substrate;
- a superconductive circuit device located near said ground plane, said device being susceptible to magnetic flux trapped in said ground plane,
- said ground plane being characterized by a cut therein, said cut extending along a perimeter surrounding said device and being continuous except for at least one small region where there is no cut, said small region being a path connecting the ground plane within the cut to the ground plane external to the cut and providing a path for the flow of electrical current therethrough.

4,392,149

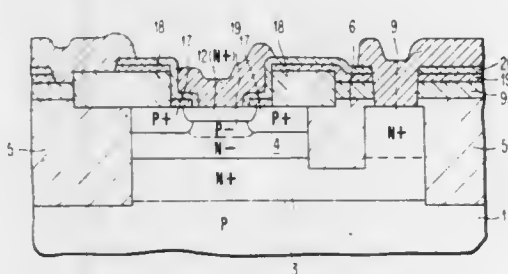
BIPOLAR TRANSISTOR

Cheng T. Horng; Robert O. Schwenker, both of San Jose, Calif., and Paul J. Tsang, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 126,610, Mar. 3, 1980, Pat. No. 4,309,812.
This application Jun. 15, 1981, Ser. No. 273,705

Int. Cl.³ H01L 27/12

U.S. Cl. 357—49

1 Claim



1. A planar self-aligned vertical bipolar transistor structure (FIG. 23), said structure comprising: a monolithic silicon substrate (1); a shallow depth silicon epitaxial layer having a substantially

flat exposed top surface, said epitaxial layer having a thickness of approximately 2 micrometers;

a shallow depth emitter region (FIG. 23, 12) formed in said epitaxial layer, said emitter region having an exposed essentially planar surface, said exposed planar surface of said emitter region being co-planar with said substantially flat exposed top surface of said epitaxial layer, said emitter region having a depth of approximately 200 nanometers;

an intrinsic base region (FIG. 23, 19) formed in said epitaxial layer beneath said emitter region to provide an emitter-base junction, said emitter-base junction being substantially flat and having a predetermined area, said intrinsic base region having a depth measured from beneath said emitter-base junction of approximately 200 nanometers;

an extrinsic base region (FIG. 23, 17) formed in said epitaxial layer, said extrinsic base laterally surrounding said emitter, said intrinsic base and emitter-base said junction;

a collector region (FIG. 23, 4) formed in said epitaxial layer beneath said intrinsic base region to provide a base-collector junction, said base-collector junction being substantially flat and having an area essentially equal to said emitter-base junction;

a subcollector region (FIG. 23, 3) contained in said monolithic silicon substrate beneath said collector and having a lateral extension in a first direction;

a collector reach-through region (FIG. 23, 9) laterally displaced in said first direction from said vertical bipolar transistor, said collector reach-through region extending from said substantially flat exposed top surface of said epitaxial layer to said lateral extension of said subcollector region;

an insulator region (FIG. 23, 6) positioned between said vertical bipolar transistor and said collector reach-through region, said insulator region having an upper essentially planar surface, said upper planar surface of said insulator means being essentially co-planar with substantially said flat exposed top surface of said epitaxial layer, said insulator region extending into said subcollector region and electrically isolating said extrinsic base region from said collector reach-through region;

an extrinsic base polysilicon extension region (FIG. 23, 18) contained on said substantially flat exposed top surface of said epitaxial layer and making intimate physical contact with said extrinsic base region (FIG. 23, 17) formed in said epitaxial layer, said extrinsic base polysilicon extension region having a thickness of 200 to 300 nanometers;

an emitter contact making intimate contact with said emitter region (FIG. 23, 12); and

a thin layer of insulating material consisting of silicon dioxide and silicon nitride and having a thickness of approximately 0.2 to 0.3 micrometers, said thin layer of insulating material being positioned between said emitter contact and said extrinsic base polysilicon contact.

4,392,150

MOS INTEGRATED CIRCUIT HAVING REFRACTORY METAL OR METAL SILICIDE INTERCONNECT LAYER

Francis G. Courreges, Sandy, Utah, assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Oct. 27, 1980, Ser. No. 200,648

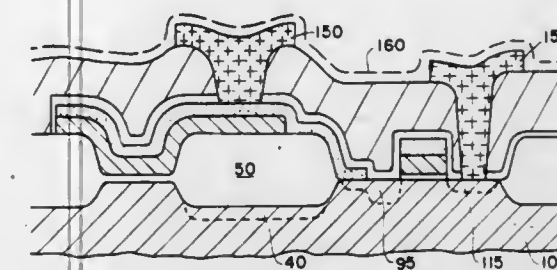
Int. Cl.³ H01L 27/02, 23/48, 29/46

U.S. Cl. 357—51

2 Claims

1. A MOS integrated circuit structure with a low resistance silicide interconnect level comprising: a semiconductor substrate having a plurality of contact regions on the surface thereof;
- an insulating layer over the surface of said substrate with openings at said contact regions so as to expose said contact regions;
- a silicide layer on said insulating layer formed into electrically conductive, low resistance, contact region connect-

ing circuits, said silicide extending to, but not covering up, said contact regions; and



a polycrystalline silicon layer on top of said silicide, formed into said connecting circuits, and extending beyond said silicide layer into said contact regions so as to provide good ohmic contact with said contact regions.

4,392,151

SEMICONDUCTOR DEVICE

Shiro Iwatani, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

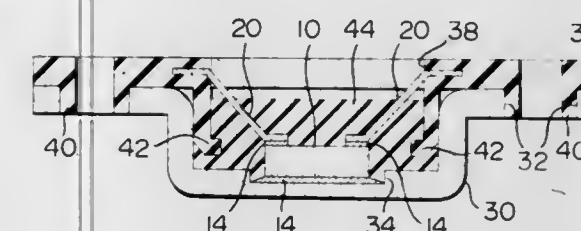
Filed Aug. 26, 1980, Ser. No. 182,404

Claims priority, application Japan, Aug. 29, 1979, 54-119769[U]

Int. Cl.³ H01L 23/30, 23/36

U.S. Cl. 357—72

2 Claims



1. A semiconductor device comprising: a semiconductor element including a pair of opposite main surfaces;
 - a plurality of solder electrodes for external connection disposed on said semiconductor element, one of said solder electrodes being disposed on one of said main surfaces of said semiconductor element, the remaining solder electrodes being disposed in a predetermined pattern on the other main surface of said semiconductor element;
 - a metallic casing including a positioning recess and female fitting means and forming a heat sink;
 - said semiconductor element being disposed in said positioning recess;
 - a plurality of resilient strip-shaped leads connected at first ends thereof to respective of said solder electrodes on said other main surface of said semiconductor element;
 - an electrically insulating plate formed by molding a heat resisting, electrically insulating resinous material so that said plate includes male fitting means capable of being fitted into said female fitting means in said metallic casing, intermediate portions of said strip-shaped leads being buried in said plate, and second ends of said strip-shaped leads extending externally of said plate; and
 - a quantity of a resinous material molded within said metallic casing to encapsulate said semiconductor element with said casing;
- the arrangement being such that said male fitting means on said electrically insulating plate fit into said female fitting means in said metallic casing, thereby to fix said electrically insulating plate to said metallic casing and cause said strip-shaped leads to hold resiliently said semiconductor element in said positioning recess on said metallic casing, followed by soldering of said solder electrodes on said

semiconductor element to said metallic casing and said strip-shaped leads.

4,392,152

SEMICONDUCTOR DEVICE

Yutaka Hirano, Atsugi, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

PCT No. PCT/JP80/00036, § 371 Date Nov. 9, 1980, § 102(e) Date Oct. 31, 1980, PCT Pub. No. WO80/01966, PCT Pub. Date Sep. 18, 1980

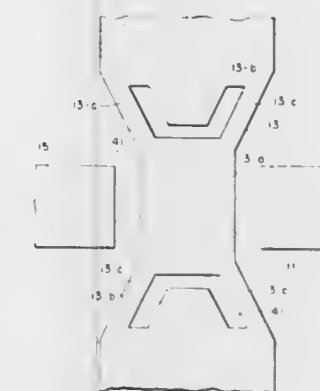
PCT Filed Feb. 29, 1980, Ser. No. 201,410

Claims priority, application Japan, Mar. 9, 1979, 54-27303

Int. Cl.³ H01L 29/40

U.S. Cl. 357—80

10 Claims



1. A semiconductor device, comprising: an insulating substrate, an integral metalized layer formed on said substrate, brazing material, a lead wire extending from said semiconductor element to said metalized layer on which said semiconductor element is mounted, and a hollow hermetically sealing member having an inner wall disposed around said semiconductor element, wherein said metalized layer on which said semiconductor element is bonded by means of said brazing material and to which said lead wire extends is separated by a separation area therein into a semiconductor element bonding area where said semiconductor element is bonded to said metalized layer and a lead wire connecting area where said lead wire is connected to said metalized layer at the inside of said wall of said sealing member.

4,392,153

COOLED SEMICONDUCTOR POWER MODULE INCLUDING STRUCTURED STRAIN BUFFERS WITHOUT DRY INTERFACES

Homer H. Glasecock, II, Scotia; Douglas E. Houston, Ballston Lake; Michael H. McLaughlin, and Harold F. Webster, both of Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 901,792, May 1, 1978. This application Nov. 6, 1978, Ser. No. 958,100

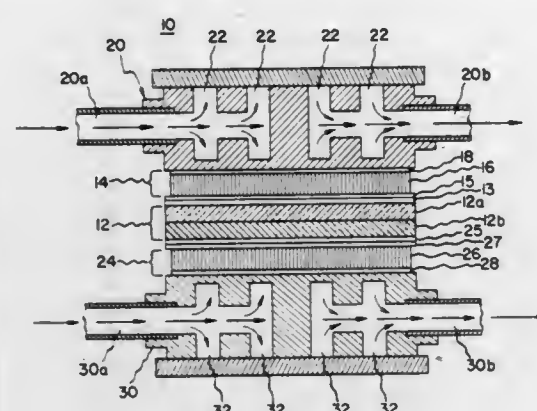
Int. Cl.³ H01L 25/04, 23/48, 29/44

U.S. Cl. 357—82

23 Claims

1. A cooled electronic semiconductor device for operation at high power levels with reduced internal stress comprising: a silicon wafer with at least first and second electrodes on opposite sides of said wafer;
- a first metallic layer atop said first electrode and joined thereto;
- a second metallic layer atop said first metallic layer and joined thereto;
- a first structured copper strain buffer including a bundle of substantially parallel closely packed strands of copper of substantially equal length, said first strain buffer having first and second opposed surfaces, one common end of said strands being thermo-compression diffusion bonded to a first metallic sheet so as to form said first opposed surface, the remaining second opposed surface of said first

strain buffer being thermo-compression diffusion bonded to said second metallic layer;
 first metallic heat sinking means for providing cooling of said device thermo-compression diffusion bonded to said first metallic sheet;
 a third metallic layer below said second electrode and joined thereto;
 a fourth metallic layer below said third metallic layer and joined thereto;
 a second structured copper strain buffer including a bundle



of substantially parallel, closely packed, strands of copper of substantially equal length, said second strain buffer having third and fourth opposed surfaces, one common end of said strands being thermo-compression diffusion bonded to a second metallic sheet so as to form said fourth opposed surface, the remaining third opposed surface of said second strain buffer being thermo-compression diffusion bonded to said fourth metallic layer; and second metallic heat sinking means for providing cooling of said device thermo-compression diffusion bonded to said second metallic sheet.

4,392,154

SOLID-STATE COLOR IMAGE SENSOR

Kenju Horii, Ootsu, Japan, assignor to Matsushita Electronics Corp., Osaka, Japan

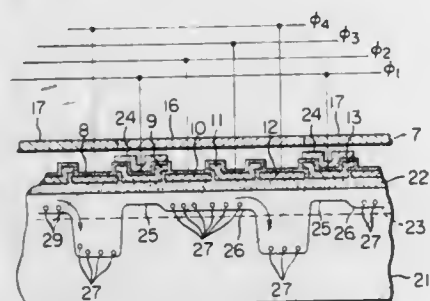
Filed Jun. 10, 1981, Ser. No. 272,169

Claims priority, application Japan, Jun. 17, 1980, 55-82647

Int. Cl.³ H04N 9/07, 3/15

U.S. Cl. 358—44

6 Claims



1. A solid-state image sensor, comprising:
 a plurality of transfer electrodes disposed in parallel with each other on a semiconductor substrate of one conductivity type;
 a plurality of channel stops of the other conductivity type formed on said semiconductor substrate so as to cross said transfer electrodes, whereby a photosensor region is formed;
 each element in said photosensor region comprising a predetermined number of said transfer electrodes;
 one of the transfer electrodes of each element which is adjacent to other elements being optically shielded; and means for applying voltages to the transfer electrodes, respectively, of each element in such a way that during the integration time (i) the potential below one transfer electrode which does not collect signal charges becomes

deeper than the potential below said optically shielded transfer electrode, (ii) the potential below the adjacent channel stop becomes deeper than the potential below said one transfer electrode which does not collect said signal charges, and (iii) the potential below said one transfer electrode which does collect said signal charges becomes deeper than the potential below said adjacent channel stop.

4,392,155

METHOD AND APPARATUS FOR IMAGE SUBTRACTION IN ORDER TO EXTRACT NON-COMMON INFORMATION FROM TWO LIGHT IMAGES

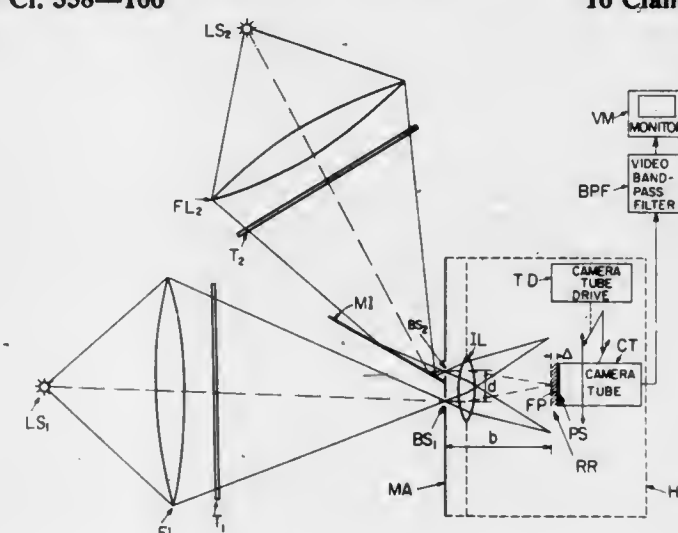
Naim Konforti, Holon, and Emanuel Marom, Tel Aviv, both of Israel, assignors to Ramot University Authority for Applied Research & Industrial Development Ltd., Tel Aviv, Israel

Filed Dec. 12, 1980, Ser. No. 216,009

Int. Cl.³ H04N 7/18

U.S. Cl. 358—106

16 Claims



1. The method of image subtraction for extracting non-common information from two light images, comprising the following steps:

- projecting optically two light images simultaneously from slightly different angles onto a TV camera tube;
- spacing said two light images via a grating a predetermined short distance in front of the photosensitive coating, such that the shadow of the grating interlaces the two light images on the photo-sensitive coating;
- scanning electronically the interlaced light images on the photosensitive coating;
- processing the two images to produce information which is not common to the two images.

4,392,156

VIDEO KEY EDGE GENERATOR FOR INCREASING THE SIZE OF AN ASSOCIATED BORDER, DROP SHADOW AND/OR OUTLINE

James F. Duca, Evergreen, and Jerry A. Moline, Arvada, both of Colo., assignors to Ampex Corporation, Redwood City, Calif.

Filed May 4, 1981, Ser. No. 260,544

Int. Cl.³ H04N 5/22

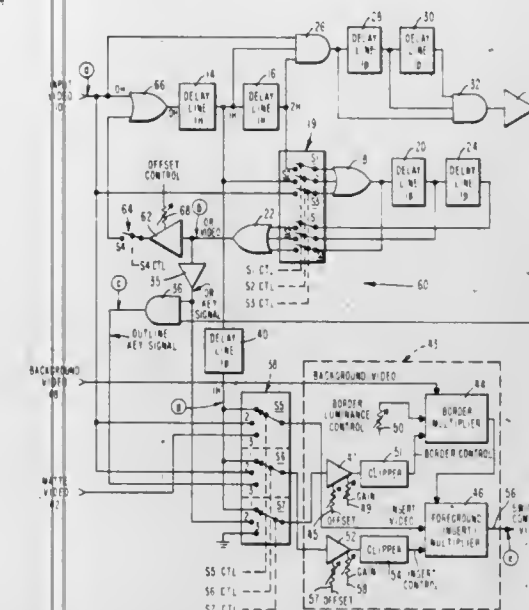
U.S. Cl. 358—183

11 Claims

1. In a switcher apparatus which receives an input video signal and generates a selectively switched composite video signal having selected edge effects about a given background or insert video signal, the apparatus having delay lines of selected horizontal line delays and of selected pixel delays coupled to AND and OR function means to provide selected combinations of the delay lines commensurate with a desired edge effect, an improved edge effects generating circuit comprising:

feedback loop means integral with the delay lines and in-

cluding gate means coupled from the loop means back to the delay lines, wherein the loop means successively feeds back the input video signal to define a loop video signal waveform of selectively modified horizontal and vertical trailing edge; and



switch and multiplier means coupled to the loop means for selectively applying the modified loop video signal to the multiplier means to generate a corresponding composite video signal with the modified horizontal and vertical trailing edge effect commensurate with the desired edge effect.

4,392,157

PATTERN NOISE REDUCTION METHOD AND APPARATUS FOR SOLID STATE IMAGE SENSORS

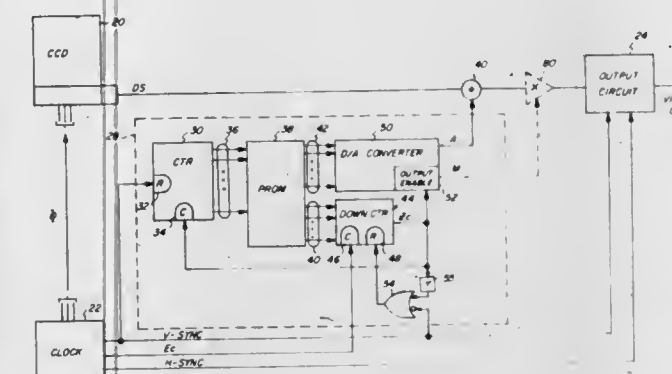
Enrique Garcia, Sandy Hook, Conn., and Peter L. P. Dillon, Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,400

Int. Cl.³ H04N 3/14, 5/30

U.S. Cl. 358—213

10 Claims



1. A method of reducing pattern noise in output signals from an array of solid state image sensing elements, comprising the steps of:

- operating the array under controlled illumination conditions to produce a first set of output signals representing the responses of the respective sensing elements of substantially the entire array to the controlled illumination conditions, said first set of responses forming a statistical distribution having an average and upper and lower extremes;
- forming, from said first set of output signals, response adjustment signals representing (1) the locations in the array of a subset of sensing elements having responses in the upper and lower extremes of the element response distribution, and (2) adjustments to the output signals produced by said subset of sensing elements to move the

individual responses of said subset of elements toward said average element response;

- operating the array under image sensing conditions to produce a second set of output signals; and
- adjusting, in accordance with said individual response adjustment signals, the separate output signals in said second set that were produced by said subset of sensing elements, to reduce the pattern noise in said second set of output signals.

4,392,158

INTERLACED SOLID-STATE IMAGING DEVICE

Masakazu Aoki, Kodaira; Haruhisa Ando, Hachioji; Shinya Ohba; Shoji Hanamura, both of Kokubunji; Iwao Takemoto, Hinodemachi, and Ryuichi Izawa, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

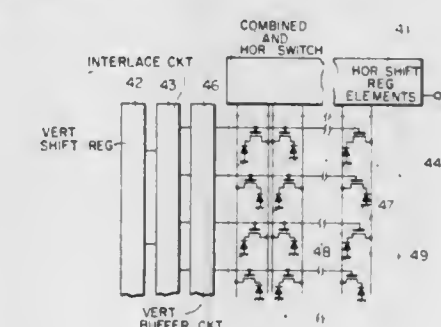
Filed Apr. 24, 1981, Ser. No. 257,461

Claims priority, application Japan, Apr. 25, 1980, 55-54158

Int. Cl.³ H04N 3/14

U.S. Cl. 358—213

7 Claims



1. In a solid-state imaging device having enhanced dynamic range and including a plurality of photodiodes which are arrayed in two dimensions on an identical semiconductor body, a group of horizontal switching elements and a group of vertical switching elements for gating the signal output from the photodiodes, and a horizontal scanning circuit and a vertical scanning circuit which impress scanning pulses having a given voltage level on the horizontal and vertical switching elements respectively, and having an interlaced scanning mechanism for addressing a plurality of vertical scanning lines by means of interlace switching elements so as to permit horizontal scanning of scanning lines of a plurality of rows; said solid-state imaging device characterized in that said interlaced scanning mechanism includes means to restore said voltage level of the scanning pulses after said level has undergone a voltage drop due to said interlace switching elements.

4,392,159

METHOD AND APPARATUS FOR DIGITAL VIDEO SIGNAL PROCESSING

Maurice G. Lemoine, and Leonard A. Pasdera, both of Redwood City, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Feb. 1, 1980, Ser. No. 117,428

Int. Cl.³ H04N 5/76

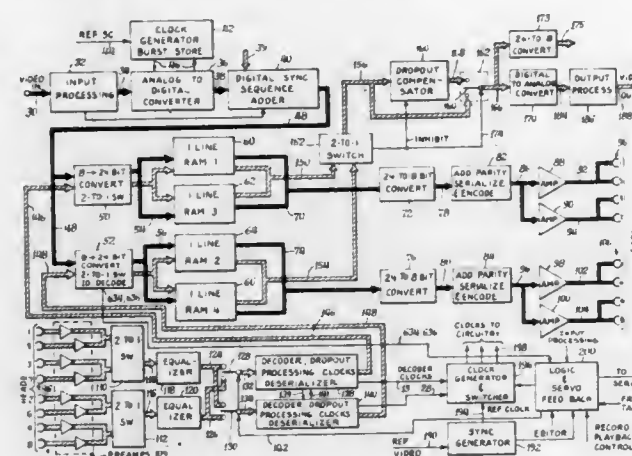
U.S. Cl. 358—319

31 Claims

1. A method of processing a continuous digital television information signal for recording by a recording apparatus to record said digital television information signal, comprising: supplying successively occurring increments of said digital television information at a first rate to a plurality of digital memories wherein said memories are arranged in two groups, with each group being associated with a separate information channel;

writing said increments of said digital television information sequentially into selected memories at said first rate so that each increment of said digital television information is written into one of said memories; and reading increments of digital television information at a second rate that is slower than said first rate simulta-

neously from selected memories of each group onto said associated information channels such that all of said information in said memories is read thereon, the selected



memories being read are other than those into which increments of digital television information are being written.

4,392,160

PLAYBACK SYSTEM FOR VIDEO DISK HAVING PLURAL INFORMATION TRACKS

Koichi Minemura, Fukaya, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

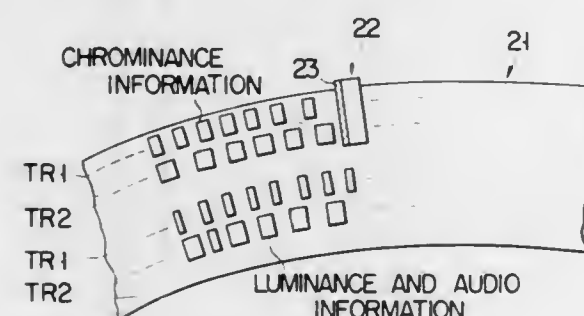
Filed Mar. 26, 1980, Ser. No. 134,324

Claims priority, application Japan, Mar. 27, 1979, 54-36120; Mar. 27, 1979, 54-36121

Int. Cl.³ H04N 5/80; G11B 21/10

U.S. Cl. 358—327

2 Claims



1. A playback system for a video disc which has first and second information tracks adjacently to each other, an FM signal frequency-modulated by a video information signal being recorded on said first information track and an FM signal frequency-modulated by an audio information signal being recorded on said second information track in a different frequency band from that for said FM signal on said first information track, comprising:

stylus means for simultaneously tracing said first and second information tracks;

signal detector means coupled to said stylus means for detecting the FM signal frequency-modulated by the audio information signal and the FM signal frequency-modulated by the video information signal;

first and second filter means coupled to said signal detector means for separating the FM signal frequency-modulated by the audio information signal and the FM signal frequency-modulated by the video information signal included in the output signal of said signal detector means from each other;

first and second rectifying circuit means connected respectively to said first and second filter means;

voltage comparator circuit means connected to said first and second rectifying circuit means;

tracking compensating means connected to said voltage comparator circuit means for restoring said stylus means to a correct tracing position thereof for said first and

second information tracks when said stylus means is shifted from the correct tracing position;

first FM demodulator circuit means connected to said first filter means for demodulating the audio information signal; and

second FM demodulator circuit means connected to said second filter means for demodulating the video information signal.

4,392,161

RECORDED TAPE, SPEED-CHANGE REPRODUCING SYSTEM

Yoshihiko Ota, Yokohama, and Yositeru Kosaka, Kamakura, both of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

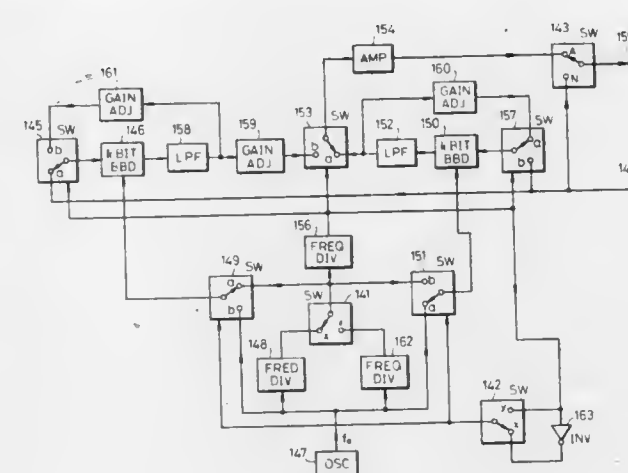
Continuation of Ser. No. 915,760, Jun. 15, 1978, abandoned.

This application Aug. 25, 1980, Ser. No. 181,010

Claims priority, application Japan, Jun. 16, 1977, 52-71374 Int. Cl.³ H04N 5/785

U.S. Cl. 360—10.3

2 Claims



1. A recorded tape, speed-change reproducing system comprising:

tape speed-change transport means for transporting a tape at a speed V which is represented by the equation

$$V = V_0 \left(\frac{n+2}{n} \right)$$

wherein V_0 is the tape speed for normal reproduction (and recording); and n is a positive integer, said tape having a video signal recorded thereon, said tape being transported past a plurality of rotary video heads having gaps of mutually different azimuth angles, said signal being recorded in parallel video tracks disposed obliquely relative to the longitudinal tape direction, and an audio signal recorded by a stationary audio head with an audio track extending in the longitudinal tape direction;

means for causing a plurality of rotary video heads having gaps of said mutually different azimuth angles, to scan said video tracks recorded on said tape when said tape is travelling at any of many different speeds, in order to reproduce said recorded video signal;

means for causing said stationary audio head to scan said audio track on said tape when said tape is travelling at any of many different speeds, in order to reproduce said recorded audio signal;

means for correcting and processing a pitch of said reproduced audio signal so that said pitch becomes substantially equal to the pitch which was originally recorded when said tape was travelling at a normal speed,

said correcting and processing means comprising:

first and second electric charge transferring element means,

the number of stages in each of the first and second electric charge transferring element means being k ;

pulse oscillator means for generating first cyclically recurring pulses having a repetitive frequency f_0 ;

first frequency dividing means for receiving said first recurring pulses and for delivering second recurring pulses having a repetitive frequency $f_0/n/(n+2)$ wherein n is a positive integer;

second frequency dividing means for dividing the frequency of said second recurring pulses in a ratio of $1/k$;

first switching means responsive to the output of said second frequency dividing means for supplying said reproduced audio signal to a selected one of said electric charge transferring element means when said tape is travelling at a speed which is different from that used for recording and to shut off the supply of said reproduced audio signal to the other non-selected electric charge transferring element means;

second switching means responsive to the output of said second frequency dividing means for delivering an audio signal read out of said other non-selected electric charge transferring element means, as an output signal of the correcting and processing means;

third switching means responsive to the output of said second frequency dividing means for supplying said first and second recurring pulses, as clock pulses, to said other non-selected and selected electric charge transferring element means, respectively, at the time of slow-motion reproduction, and to said selected and other non-selected electric charge transferring element means, respectively, at the time of fast-motion reproduction;

said first, second and third switching means for cooperatively causing said first and second electric charge transferring element means to alternately repeat write-in and read-out in response to the output of said second frequency dividing means; and

feedback means responsive to slow-motion reproduction for feeding-back an output of the electric charge transferring element means which is then reading-out to an input of said element means.

4,392,162

DIGITAL VIDEO SIGNAL REPRODUCING APPARATUS

Kaichi Yamamoto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

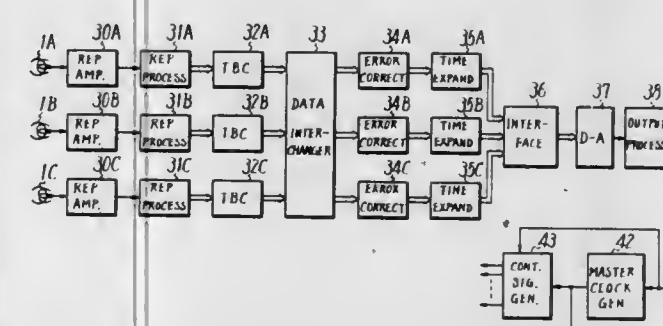
Filed Sep. 30, 1980, Ser. No. 192,196

Claims priority, application Japan, Oct. 4, 1979, 54-128338

Int. Cl.³ H04N 5/785

U.S. Cl. 360—10.3

16 Claims



1. Apparatus for use in a digital video signal playback device of the type having a record medium in which identifiable plural channels of digital video signals are recorded thereon in a like plurality of tracks, said apparatus comprising:

plural transducer means associated with said plural channels for reproducing said digital video signals from said plurality of tracks, each transducer means normally reproducing a respective, predetermined channel of said digital video signals;

detecting means for identifying the particular channel of the

digital video signal reproduced by each of said transducer means; and

signal interchange means having plural channel outputs and responsive to said detecting means for diverting digital video signals that have been reproduced by transducer means associated with channels different from the channels of the digital video signals reproduced thereby to the proper channel outputs as determined by said detecting means.

4,392,163

MAGNETIC TAPE RECORDING AND/OR REPRODUCING APPARATUS WITH AUTOMATIC HEAD POSITIONING

Albert M. A. Rijckaert, Edmond de Niet, and Jacobus P. Beun, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

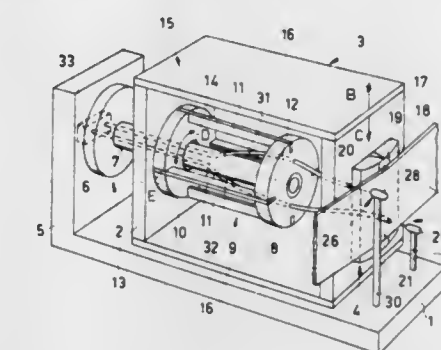
Filed Sep. 16, 1980, Ser. No. 187,656

Claims priority, application Netherlands, Sep. 28, 1979, 7907219

Int. Cl.³ G11B 5/43, 21/10

U.S. Cl. 360—76

9 Claims



1. An apparatus for recording and/or reproducing signals in a plurality of parallel longitudinal tracks on a magnetic tape, comprising:

a head support,

a magnetic head having a head face adapted to allow movement of a magnetic tape thereacross during operation, and air gaps which terminate in a scanning portion of the head face for scanning respective tracks on said magnetic tape, a positioning system attaching said magnetic head to said head support for adjustably positioning the magnetic head relative to said magnetic tape, comprising a first positioning means including piezo-electric elements for moving the head position in a first direction relative to the magnetic tape; a second positioning means comprising piezo-electric elements for pivotally moving said magnetic head in a second direction relative to the magnetic tape about a pivotal axis extending substantially perpendicularly to a plane tangential to said scanning portion of the head face; and first and second control means for generating and applying respective control signals to the piezo-electric elements of the first and second positioning means, said control signals being representative of the difference between the instantaneous and the desired position of the magnetic head relative to the magnetic tape,

characterized in that said first positioning means includes two piezo-electric elements disposed substantially parallel to each other and to said pivotal axis, on opposite sides of the pivotal axis, and arranged for moving the magnetic head in the width direction of the magnetic tape, said second positioning means includes at least three piezo-electric elements each having a longitudinal axis, regularly spaced around said pivotal axis with said longitudinal axes extending substantially parallel to said pivotal axis, and

one of said positioning means is connected to the head support through the other positioning means.

4,392,164
METHOD OF AND APPARATUS FOR CONTROLLING THE GAIN OF CIRCUITRY RESPONSIVE TO READ HEAD OF A MEMORY

Jean Lequien, les Ulis, France, assignor to CII Honeywell Bull, Paris, France

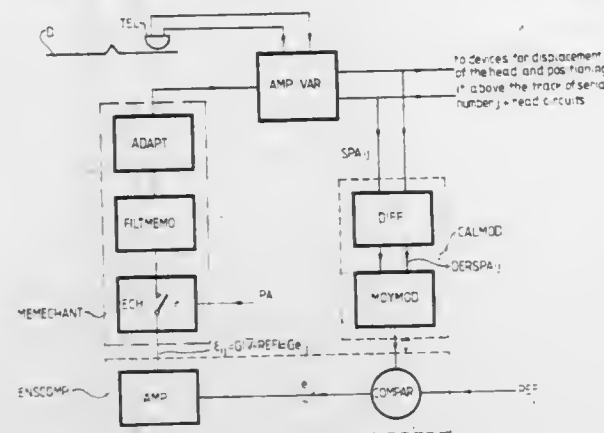
Filed Dec. 2, 1980, Ser. No. 212,155

Claims priority, application France, Dec. 19, 1979, 79 31080

Int. Cl.³ G11B 5/02, 5/09, 21/10

U.S. Cl. 360—77

18 Claims



1. A circuit for controlling the amplitude of signals read by a flux change responsive head from a magnetic disc including plural concentric tracks, each of said tracks including a data zone and a reference zone, the reference zones of a pair of abutting tracks having a first axis, the data zones of a pair of abutting tracks having a second axis, the first axis being displaced from the second axis by approximately one-half the radial width of a track, the head desirably being positioned so it is centered on a data zone and straddles a pair of reference zones, each reference zone including plural cells having magnetic flux transitions which cause the head to derive a pair of opposite polarity pulses as the cells move longitudinally relative to the head, the amplitude of the pulses being a function of: (a) the distance separating the head from the disc; (b) the radial position of the head, and (c) the presence or absence of faults on the magnetic disc so that a pair of the pulses have a waveform approximating a sinusoid with an average value subject to change from cell to cell, said control circuit comprising means responsive to the pulses derived by the head as the cells move longitudinally relative to the head for deriving a first signal indicative of the deviation from a reference value of the absolute value of the derivative of the pulses, and means for controlling the amplitude of a signal derived from the head as a data zone moves longitudinally relative to the head in response to the amplitude of the first signal.

4,392,165
HEAD LIFT MECHANISM

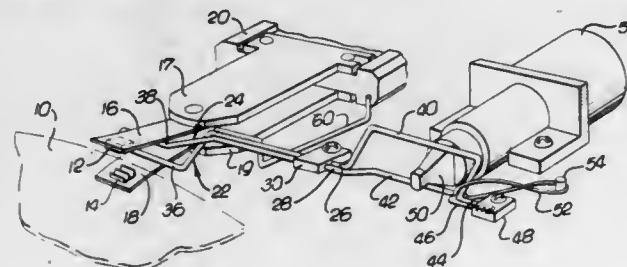
Harold T. Wright, San Carlos, Calif., assignor to Disetron, Inc., Milpitas, Calif.

Filed Mar. 30, 1981, Ser. No. 248,808

Int. Cl.³ G11B 5/54, 5/012, 21/22, 21/16

U.S. Cl. 360—105

8 Claims



1. A mechanism for lifting at least one magnetic head from a rotatable magnetic disc and for gently loading said at least one

magnetic head upon said disc, each said at least one magnetic head being attached to one end of a different movable arm, the other end of the movable arm being attached to a carriage for translating said at least one head radially with respect to said disc, said mechanism comprising:

a rod corresponding to each said magnetic head, said rod having:

a first straight section of its length defining an axis of rotation about which said rod is rotatable;

a second section of its length offset from and parallel to said first section, said second section rotatable about said axis through an arc, said arm and said second section pressing against one another as said second section is rotated through at least a portion of said arc, the tangent to said arc where said arm and second section press against one another remaining approximately perpendicular to said arm; and

a third section of its length offset from and parallel to said first section; and

means at said third section for controllably rotating said rod about said axis so that said second section is rotated selectively in either direction through said arc, said head being lifted from said disc when the second section is rotated in one direction through a portion of said arc and loaded upon said disc when the second section is rotated in the opposite direction through a portion of said arc.

4,392,166
MAGNETORESISTANCE EFFECT TYPE HEAD
 Shinzaburo Ishikawa, Hirakata; Kenji Kanai, Neyagawa; Nobuyuki Kaminaka, Moriguchi, and Tetuo Adachi, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

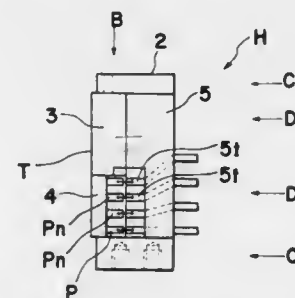
Filed Feb. 23, 1981, Ser. No. 237,408

Claims priority, application Japan, Feb. 25, 1980, 55-23442[U]

Int. Cl.³ G11B 5/30, 5/12, 5/38, 5/20

U.S. Cl. 360—113

5 Claims



1. A magnetoresistance effect type head which comprises: a casing having a U-shaped cross-section recess in one lateral surface and extending from one end edge to the other end edge, the bottom of said recess being a flat surface;

a magnetoresistance effect type head chip and a tape contact surface member in said recess and positioned against said flat surface, said head chip and said tape contact surface member being side by side in a direction across said recess and each having a tape contact surface portion along the edge thereof at one end edge of said casing, said tape contact surface portions having the same cross-sectional shape and being aligned with each other, said magnetoresistance effect type head chip having lead-out terminals on the edge thereof which faces the other end edge of said casing;

a terminal plate member in said recess against said flat surface and having one edge abutting the edges of said magnetoresistance effect type head chip and said tape contact surface member which are on the opposite sides from said tape contact surfaces and having terminal pins extending therethrough having the ends on the side abutting said magnetoresistance effect type head chip aligned with said lead-out terminals thereof; and

a cover plate member in said recess covering said magneto-

resistance effect type head chip, said tape contact surface member and said terminal plate member.

4,392,167
MAGNETIC HEAD, METHOD OF PRODUCING THE MAGNETIC HEAD

Hendrik J. M. Joormann, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

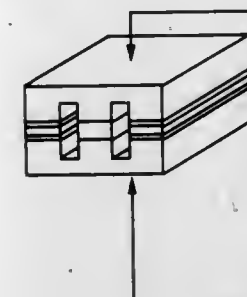
Filed Oct. 24, 1980, Ser. No. 200,112

Claims priority, application Netherlands, Jun. 18, 1980, 8003518

Int. Cl.³ G11B 5/22, 5/251

U.S. Cl. 360—120

5 Claims



1. A magnetic head having a core of a magnetizable material which is interrupted by a gap in which at least one layer of a substantially non-magnetizable material has been provided, characterized in that one layer of substantially non-magnetizable material consists of a mixture of 95-100% of a glass comprising 12-20% by weight of Al₂O₃, 40-48% by weight of B₂O₃ and a total of 35-45% by weight of one or more of the oxides BaO, CaO or SrO and 0-5% by weight of additional constituents.

4,392,168
ROTARY HEAD ASSEMBLY

Teruo Maruyama, Neyagawa; Takashi Ichihyanagi, Hirakata, and Ichizo Otsuda, Ikeda, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

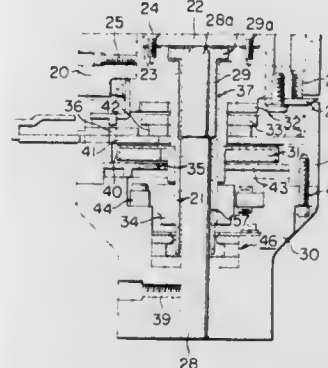
Continuation of Ser. No. 66,438, Aug. 14, 1979, abandoned. This application May 14, 1981, Ser. No. 263,579

Claims priority, application Japan, Aug. 16, 1978, 53-100300

Int. Cl.³ G11B 5/10, 21/18

U.S. Cl. 360—129

11 Claims



1. A rotary head assembly for a magnetic recording and reproducing device, comprising:

(a) a central stationary shaft having one end thereof securely joined to a main body of said assembly, and another free end, said main body comprising a lower housing and a lower cylinder having a cylindrical surface coaxial with said upper cylinder;

(b) a rotary sleeve disposed within said main body and extending into said lower cylinder for rotation about the common axis of said stationary shaft;

(c) an upper cylinder mounted on said rotary sleeve around

the periphery thereof, adjacent one end of said lower cylinder, and carrying one or more video signal magnetic recording and reproducing heads, the diameter of said upper cylinder being substantially equal to the diameter of said cylindrical surface of said lower cylinder;

(d) a hydraulic bearing means defined by upper portions of said stationary shaft and said rotary sleeve, and a lubricant filled in the space between said upper portions of said stationary shaft and said rotary sleeve;

(e) a lubricant passage defined between lower portions of said stationary shaft and said rotary sleeve and in communication with said hydraulic bearing means; and

(f) a magnetic sealing means disposed within said lower housing at the lower end of said lubricant passage.

4,392,169
MAGNETIC SHIELDING SPRING
 Carolus J. Boullart, and Adrianus C. H. J. Liefkens, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

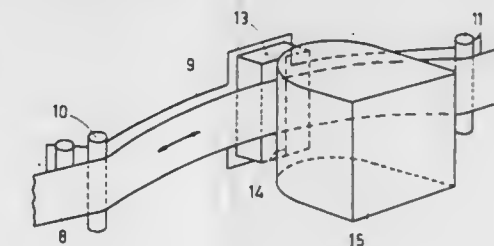
Continuation of Ser. No. 80,360, Sep. 28, 1979, abandoned. This application May 21, 1981, Ser. No. 265,867

Claims priority, application Netherlands, Oct. 3, 1978, 7809966

Int. Cl.³ G11B 15/60

U.S. Cl. 360—130.33

12 Claims



1. A magnetic tape cassette comprising a housing having circumferential walls, one of said walls having an aperture for admitting a magnetic head connected to a magnetic tape apparatus, tape guiding means for guiding a magnetic tape present in the cassette past said aperture, tape pressure means disposed opposite said aperture, a leaf spring arranged to press the tape pressure means against the tape when a magnetic tape is present in the cassette, and means for magnetically shielding a region in the cassette adjacent said pressure means, characterized in that the leaf spring and the means for magnetically shielding together consist of a unitary element which is a strip of soft magnetic metal alloy having an amorphous structure.

4,392,170
MAGNETIC RECORDING DISC CARTRIDGE WITH DISC CLEANING MEANS

Shuhei Okada, Toyonaka, Japan, assignor to Hitachi Maxell, Ltd., Osaka, Japan

Filed Jun. 1, 1981, Ser. No. 268,891

Claims priority, application Japan, Jun. 2, 1980, 55/75151[U]; Jun. 2, 1980, 55/75152[U]

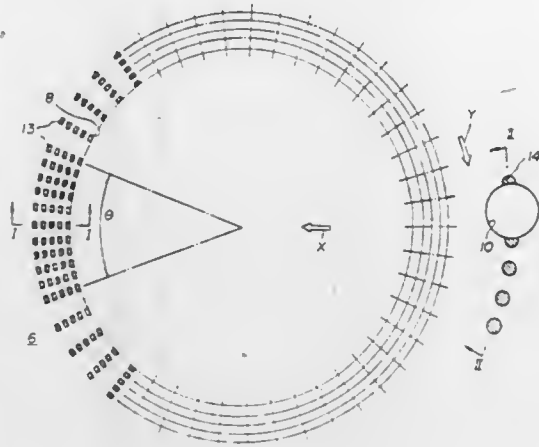
Int. Cl.³ G11B 23/02

U.S. Cl. 360—133

7 Claims

1. A magnetic recording disc cartridge which comprises a magnetic recording disc, a cover jacket means having a chamber defined by a pair of opposed sheet members for rotatable accommodation of the magnetic recording disc, with the sheet members being provided with central windows on each of the sheet members for receiving a drive shaft of a recording/reproducing apparatus, at least one elongated head window for receiving a recording/reproducing head of said apparatus and at least one small index window defined at the peripheral portion of the central window on at least one of the sheet members, at least one cleaning sheet disposed between at least

one of the sheet members and the corresponding surface of the magnetic recording disc, said cleaning sheet being made of a non-woven cloth and having central windows, head windows and index windows each of which is formed corresponding to the windows defined on the sheet members, and thermally



bonding portions for bonding the sheet member and the cleaning sheet, said bonding portions being a plurality of dots formed around the peripheral portion of the central window along a plurality of lines radially extending from the peripheral edge of the central window for a predetermined distance.

4,392,171

POWER RELAY WITH ASSISTED COMMUTATION

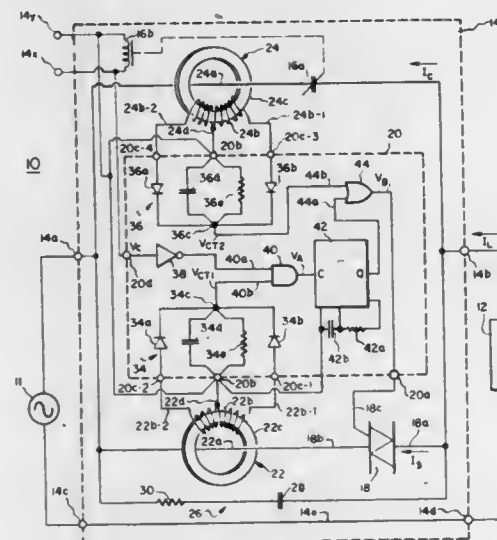
William P. Kornrumpf, Albany, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 8, 1981, Ser. No. 299,763

Int. Cl.³ H01H 33/59

U.S. Cl. 361-5

10 Claims



1. Apparatus for forming a current-carrying connection between an A.C. source and a current-consuming load, responsive to a control signal, comprising:

power relay means for selectably completing and breaking a connection between said source and said load responsive to the respective presence and absence of said control signal;

means for providing a current-carrying path shunting said power relay means responsive to a gate signal; and

means for sensing the flow of current through each of said power relay means and said current-carrying means to provide said gating signal both (a) at least upon commencement of current flow and (b) for at least one-half cycle of the source waveform after cessation of current flow through said power relay means, to prevent formation of an arc in said power relay means during both completing and breaking of said connection.

4,392,172
REACTIVE SNUBBER FOR INDUCTIVE LOAD CLAMP DIODES

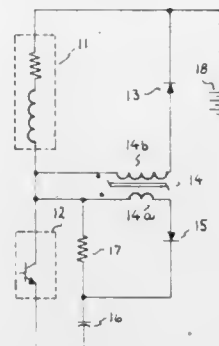
James W. B. Foley, Peru, and David J. Osterhout, Adams, both of Mass., assignors to General Electric Company, Salem, Va.

Filed Oct. 19, 1981, Ser. No. 312,526

Int. Cl.³ H02H 9/04

U.S. Cl. 361-8

6 Claims



1. An improved snubber circuit for use in a power switching circuit including at least one power switch and power clamp diode, the switching circuit being of the type responsive to control signals for connecting and disconnecting an inductive load from a power source, comprising:

(a) a saturable reactor having a primary winding and a secondary winding, said primary winding being connected in series with the clamp diode across the load, the diode being poled so as to permit continuous load current to flow when the load is disconnected from the power source by the power switch; and

(b) a shunt snubber circuit connected across the power switch, said shunt snubber circuit arranged to supply a current pulse to said secondary winding in a manner to force rapid magnetic saturation of said saturable reactor when the load is disconnected from the power source by the power switch whereby load current is rapidly transferred into the clamp diode immediately upon the clamp diode being forward biased.

4,392,173

CIRCUIT FOR REDUCING VOLTAGE STRESS ACROSS A TRANSFORMER

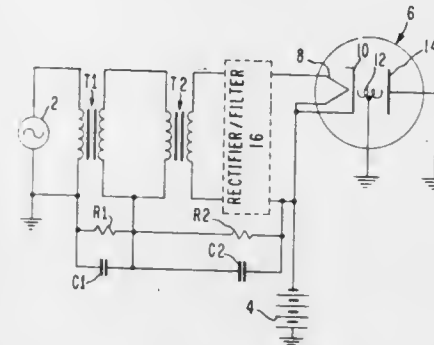
Michael D. Rubin, Saratoga, Calif., assignor to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed Dec. 14, 1981, Ser. No. 330,344

Int. Cl.³ H02H 9/04

U.S. Cl. 361-35

6 Claims



1. A circuit for reducing voltage stress on a first transformer having a primary and a secondary, wherein a load coupled to said secondary has a first voltage thereacross, and an output terminal is connected to said load, to which a second voltage is applied that is much greater than said first voltage; said circuit comprising:

at least one additional transformer, so that the total number of transformers is an integer n, each transformer having a

primary and a secondary, wherein the primary of the jth transformer is connected to the secondary of the (j-1)st transformer for all j such that $2 \leq j \leq n$, and the secondary of the nth transformer is coupled to said load; and a voltage dividing network for shifting some of said second voltage from across said first transformer to across said additional transformer(s), said voltage dividing network comprising:

n resistors, with one resistor connected between a primary and a secondary of each transformer; and n capacitors, each resistor having a capacitor connected thereacross;

where $R_j(C_j + CT_j) = R_k(C_k + CT_k)$ for all integers j, k such that $1 \leq j \leq n$ and $1 \leq k \leq n$, where R_j is the resistance of the jth resistor, C_j is the capacitance of the jth capacitor, CT_j is the interwinding capacitance of the jth transformer, R_k is the resistance of the kth resistor, C_k is the capacitance of the kth capacitor, and CT_k is the interwinding capacitance of the kth transformer.

4,392,174

ELECTRIC PROTECTION DEVICE

Christian Cadet, Taverny; Bernard Dumortier, Montreuil sous Bois, and Georges Souques, Paris, all of France, assignors to La Telemecanique Electrique, France

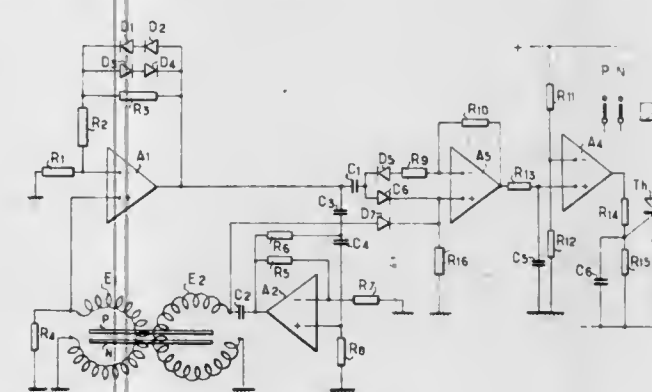
Continuation of Ser. No. 137,923, Apr. 7, 1980, abandoned. This application Jun. 11, 1982, Ser. No. 387,400

Claims priority, application France, Apr. 6, 1979, 79 08732

Int. Cl.³ H02H 3/347

U.S. Cl. 361-45

9 Claims



1. In a protection device comprising first and second differential transformers each having a toroidal magnetic core through which pass the neutral and phase conductors of an alternating current distribution circuit, and a secondary winding, the secondary winding of the first transformer being coupled to the input of a first amplifier followed by a rectifier, a threshold comparator and a control means suitable for actuating a circuit breaker, the secondary winding of the second transformer being coupled to the output of the said first amplifier, the improvement comprising an auxiliary amplifier having an input and an output, the input of the said auxiliary amplifier being coupled to the output of the first amplifier and the output of said auxiliary amplifier being coupled to the secondary winding of the second differential transformer.

4,392,175

PROTECTING DEVICE FOR A GATE TURN-OFF THYRISTOR

Katsuhiko Takigami, Yokohama, and Minami Takeuchi, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Saitai, Japan

Filed Dec. 2, 1980, Ser. No. 212,244

Claims priority, application Japan, Dec. 10, 1979, 54-160168; Dec. 10, 1979, 54-160169

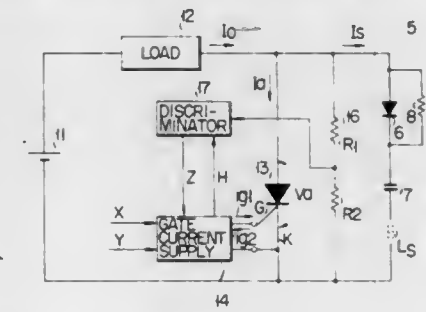
Int. Cl.³ H02H 3/20

U.S. Cl. 361-88

8 Claims

1. A protection device for a gate turn-off (GTO) thyristor included in a thyristor control circuit which comprises a DC

source, a load and a Snubber circuit connected in series, said GTO thyristor being connected through a current transformer to a positive terminal of said Snubber circuit at the anode, to a negative terminal of said Snubber circuit at the cathode and, between the gate and cathode being supplied a positive gate current and a negative gate current from a gate current supply circuit for turning on and off said GTO thyristor, and said GTO thyristor being operated in such a manner that the supply of said negative gate current is commenced at a first time point, a current passage in a region between said anode and cathode is shrunk from said first time point to a second time point, the anode current of said GTO thyristor is decreased from said second time point to a third time point, the anode current is increased from said third time point to a fourth time point at which a transient voltage developed by an inductance in said Snubber circuit is reduced to substantially zero, and said anode



current is decreased again from said fourth time point, wherein said protection device comprises said current transformer and a discriminating circuit, said discriminating circuit comprising: means for receiving an anode current signal from said current transformer and a timing signal supplied from said gate current supply circuit at said first time point, means for obtaining a changed amount of said anode current between said third and fourth time points, means for obtaining a ratio of said changed amount to an anode current in the vicinity of said first time point including said first time point, means for comparing said ratio with a reference value to produce a control signal when said ratio is smaller than said reference value, and means for supplying said control signal to said gate current supply circuit, thereby stopping the supply of said positive gate current to said GTO thyristor.

4,392,176

SELF-CHECKING SAFETY MAT

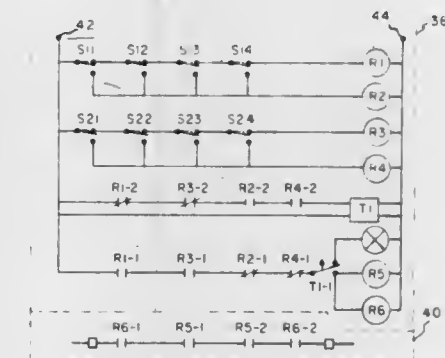
Fernand Kneip, Diekirch, and Ernest Marnach, Colmar-Berg, both of Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 21, 1981, Ser. No. 332,930

Int. Cl.³ H01H 47/22

U.S. Cl. 361-160

8 Claims



1. A safety mat for a power driven machine comprising a supporting plate, yieldable means for supporting said plate at a

predetermined level in the unloaded condition and permitting depression of said plate when supporting a person,

a main circuit for the machine, safety means interlocked with said main circuit disabling operation of the machine if a person is standing on said mat, self-checking means included in said safety means for interrupting said main circuit to prevent operation of the machine when said safety means is defective,

said safety means including a switch means activated in response to movement of said supporting plate between unloaded and depressed positions, said switch means being connected to a first relay and a second relay,

said first relay being energized when said plate is in the unloaded condition and said second relay being energized when said plate is depressed as by a person standing on said mat,

said first relay and said second relay having first contacts which are closed to energize an output relay when said plate is unloaded and which are open to de-energize said output relay when said plate is depressed and said output relay having an output contact in said main circuit for enabling said circuit upon energization of said output relay and disabling said circuit upon de-energization of said output relay,

said first relay and said second relay having second contacts which are closed to energize a timer relay for actuating a timer switch when said plate is depressed to provide said self-checking means,

wherein prior to starting the machine said timer relay is energized in response to depression of said plate and said timer switch is closed and held in a closed position for a predetermined time interval if a component of said safety means is not defective so that upon return of said plate to the unloaded position there will be energization of said first relay and de-energization of said second relay causing said output relay to be energized and said output contact closed to enable said main circuit so that the machine may be operated and wherein prior to starting the machine said timer relay will not be energized in response to depression of said plate if a component of said safety means is defective so that said timer switch will not be closed preventing energization of said output relay and closing of said output contact so that operation of the machine is prevented.

4,392,177

TRANSPORTING ROLLER FOR WEBS OF PHOTSENSITIVE MATERIAL OR THE LIKE

Erwin Geyken, Neubiberg, Fed. Rep. of Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

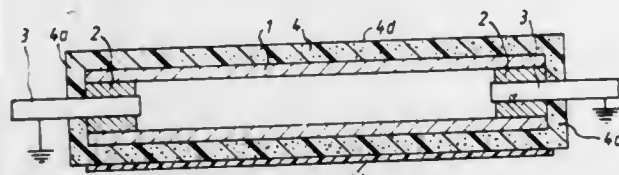
Filed Sep. 23, 1980, Ser. No. 189,826

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939473

Int. Cl.³ H05F 1/00

U.S. Cl. 361-221

22 Claims



1. A device for the guidance and/or transport of flexible radiation-sensitive articles, particularly for the transport of x-ray films in the dry region of a processing machine, comprising a shaft having first and second end portions comprising electrically conductive materials; and a cylindrical article-contacting member coaxially surrounding said shaft so that at least one of said end portions remains exposed, said member comprising a synthetic plastic material selected from the group consisting of hard polyvinyl chloride, fine crystalline polyamides, polypropylene, polyethylene and mixtures thereof, said

member being connected with ground and further comprising pulverulent silver which is embedded in said plastic material to thereby rapidly disperse electrostatic charges and prevent discharges which generate light detrimental to radiation-sensitive articles, said member being in conductive contact with said end portions and the quantity of silver in said plastic material being such that said member has a surface resistance of at least about 1×10^{10} ohms.

4,392,178

APPARATUS FOR THE RAPID CONTINUOUS CORONA POLING OF POLYMERIC FILMS

Peter F. Radice, King of Prussia, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

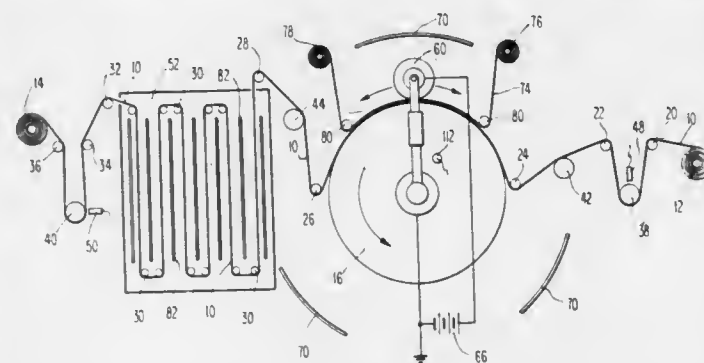
Filed Oct. 16, 1980, Ser. No. 197,463

The portion of the term of this patent subsequent to Dec. 21, 1999, has been disclaimed.

Int. Cl.³ H01F 1/02

U.S. Cl. 361-233

43 Claims



1. Apparatus for continuously enhancing piezoelectric properties of polymeric film exhibiting such properties comprising a rotating drum contacting said film for transport thereof along a defined path, a corona discharge electrode roller mounted for movement along circumference of said drum in an oscillating motion normal to axis of rotation of said rotating drum, said film having at least one area in constant contact with said rotating drum and oscillating electrode, and means for providing continuous corona discharge from said electrode through said film substantially at said contact area for poling said film.

4,392,179

APPARATUS AND METHOD FOR SEPARATING ADHERING MEDIA ELECTROSTATICALLY

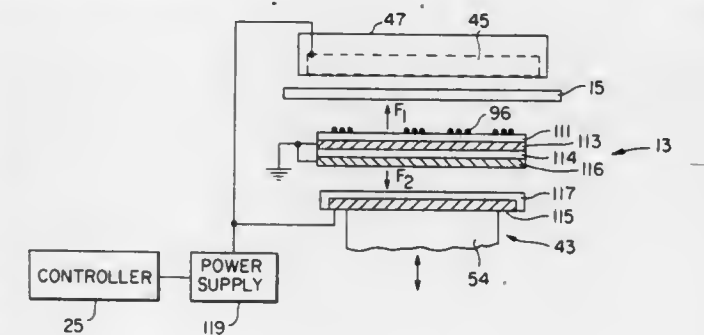
Alfred M. Nelson, Redondo Beach, Calif., and Houshang Rasekhi, Convent Station, N.J., assignors to Wang Laboratories, Inc., Lowell, Mass.

Filed Jul. 9, 1981, Ser. No. 281,747

Int. Cl.³ H01F 13/00

U.S. Cl. 361-234

11 Claims



1. Apparatus for facilitating separation of a first medium from a second medium, the first medium being separably dis-

posed proximate to the second medium, the apparatus comprising:

a member having an electrically conductive first layer and an electrically insulative layer;
the first medium having an image layer disposed for contact with the second medium and an electrically conductive second layer disposed for contact with the insulative layer, the insulative layer being a dielectric positioned between the first and second conductive layers; and
a voltage source coupled to provide a predetermined potential difference between said conductive first and second layers creating an electrostatic force therebetween, attracting the first medium to the member and away from the second medium for a selected period of time.

4,392,180

SCREEN-PRINTABLE DIELECTRIC COMPOSITION

Kumaran M. Nair, East Amherst, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 169,495, Jul. 16, 1980,

abandoned. This application Apr. 29, 1982, Ser. No. 373,279

Int. Cl.³ C04B 35/46

U.S. Cl. 361-321

20 Claims

1. A dielectric powder composition for making hermetic dielectrics having an insulation resistance (IR) drop of no more than one order of magnitude after immersion in water at 50° C. for 10 days consisting essentially of a finely divided admixture of (a) a substituted perovskite of the formula $Ba_{1-x}Sr_xTiO_3$ wherein X is from 0.1 to 0.9, (b) at least one inorganic dopant containing an ionic species selected from the cations Bi^{3+} , Ca^{2+} , Cs^{1+} , Fe^{2+} , Fe^{3+} , Pb^{2+} , Zn^{2+} and the anion F^- and mixtures thereof, and (c) a low temperature melting devitrifiable glass or frit having a specific viscosity ($\log \eta$) at the firing temperature of less than 6 and in which the relative proportions of the components, by weight, are 30-90% (a) 10-35% (b) and 1-7% (c).

20. An hermetic multilayer capacitor having an insulation resistance (IR) drop of no more than one order of magnitude after immersion in water at 50° C. for 10 days and comprising a first conductor terminal and a plurality of alternating printed dielectric films and overlying conductor terminals. The dielectric film consisting essentially of (a) a substituted perovskite of the formula $Ba_{1-x}Sr_xTiO_3$ wherein X is from 0.1 to 0.9, (b) at least one inorganic dopant containing an ionic species selected from the cations Bi^{3+} , Ca^{2+} , Cs^{1+} , Fe^{2+} , Fe^{3+} , Pb^{2+} , Zn^{2+} and the anion F^- and mixtures thereof, and (c) a low temperature melting devitrifiable glass or frit, the assemblage having been fired at below 900° C. to remove the inert liquid therefrom and to effect liquid phase sintering and cooled to effect devitrification of the glass or frit having a specific viscosity ($\log \eta$) at the firing temperature of less than 6, and in which the relative proportions of the components, by weight, are 30-90% (a) 10-35% (b) and 1-7% (c).

4,392,181

CIRCUIT BOARD AND CONTACT ASSEMBLIES

Gary D. Jabben, Shreveport, La., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 1, 1981, Ser. No. 259,748

Int. Cl.³ H05K 1/18

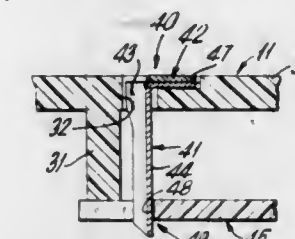
U.S. Cl. 361-401

4 Claims

1. A circuit board and contact assembly which comprises: a substrate having a plurality of mounting apertures formed therein;
a flange depending from a lower surface of the substrate along an edge of the substrate;
a plurality of interconnect terminals, each having an elongated body section mounted in an associated aperture comprising a tail section extending through the aperture and projecting from the lower surface of the substrate a distance greater than the flange depends from the lower surface; and a 90° extending contact head section

fitting flat against an upper surface of the substrate adjacent to the aperture;

a plurality of conductive circuit elements formed on the upper surface of the substrate after the terminals have been mounted on the substrate so that a contact end portion of each circuit element overlaps and is attached to the contact head of a selected terminal so as to provide me-



chanical and electrical connection between the conductive elements and the associated terminals; and
a second substrate having a plurality of apertures formed therein, each aperture of the second substrate being positioned such that one or more surfaces of the walls of each aperture make physical contact with the tail section of a terminal when the second substrate is located against the flange depending from the first substrate.

4,392,182

ARRANGEMENT FOR SCANNING POINTS IN SPACE

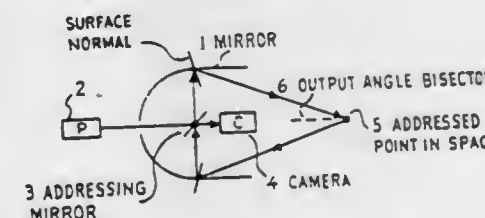
Paul Di Matteo, Huntington, N.Y., assignor to Solid Photography, Inc., Melville, N.Y.

Filed Jun. 12, 1981, Ser. No. 273,044

Int. Cl.³ G03B 15/02

U.S. Cl. 362-5

6 Claims



1. Arrangement for scanning an addressed point in space, comprising: a light source; a camera at which light from a light source is directed; deflector means interposed between said source and camera and through which light can pass from the source to the camera; and rotary addressing mirror means in the path of the light intermediate said deflector means and camera, so that light from the source is deflected by the addressing mirror means, from there to the addressed point in space, and from there via the deflector means and the addressing mirror means to the camera.

4,392,183

DEVICE IN CONNECTION WITH CAMERAS

Roland Östlund, Furuslätten 60, 42700 Billdal, and Rolf Östlund, Trädesvägen 15, 44600 Alfvängen, both of Sweden

Filed May 29, 1981, Ser. No. 268,182

Claims priority, application Sweden, May 30, 1980, 8004046

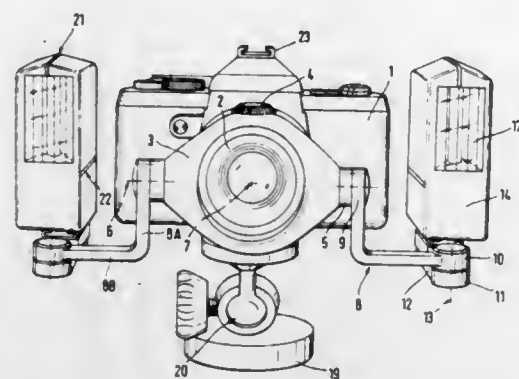
Int. Cl.³ G03B 15/02

U.S. Cl. 362-11

9 Claims

1. A device for supporting a plurality of flashlight units at a camera having a lens with a lens socket defining a central axis, said device comprising: a holder, means for attaching said holder to said lens socket, at least two first arm means connected to said holder at diametrically opposite positions so as to be pivotable about first axes on opposite sides of said socket and at right angles to said central axis, said first arm means having ends remote from said socket, and at least two second

arm means respectively pivotally connected to said remote ends so as to be pivotable about second axes, and at least two



flashlight units respectively supported on said second arm means.

4,392,184

ILLUMINATING METHOD AND APPARATUS FOR CARPENTER'S OR MECHANIC'S LEVELS

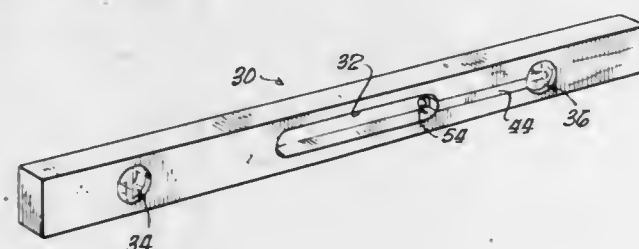
Owen E. Hearold, and Harvey G. Bennett, both of P.O. Box 1065, Minden, Nev. 89423

Filed Feb. 20, 1981, Ser. No. 236,333

Int. Cl.³ F21V 33/00

U.S. Cl. 362-101

5 Claims



1. The method of illuminating a carpenter's or mechanic's level comprising: placing an illuminating device within the body of a level; and directing light from the illuminating device in such manner that it enters the leveling fluid through one end of a vial containing the fluid and travels through the fluid to the other end.

4,392,185

EXPLOSION-PROOF AND FIREDAMP-PROOF HEADLIGHT

Karl Grossmann, Hünxe, and Robert Mullejans, Mülheim, both of Fed. Rep. of Germany, assignors to Friemann & Wolf GmbH, Duisburg, Fed. Rep. of Germany

PCT No. PCT/DE80/00023, § 371 Date Nov. 14, 1980, § 102(e) Date Oct. 10, 1980, PCT Pub. No. WO80/01944, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 1, 1980, Ser. No. 197,999

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2909965

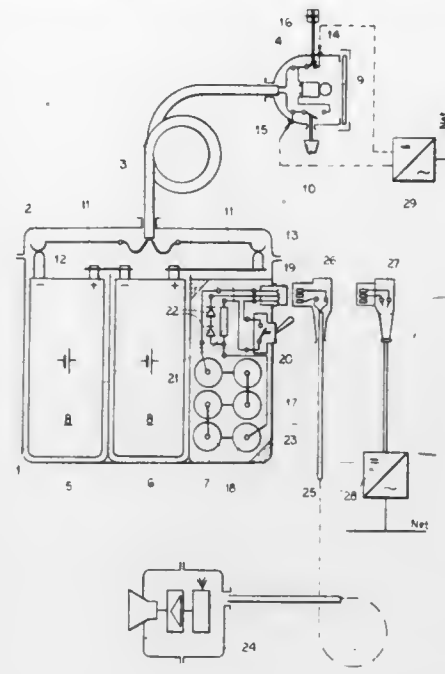
Int. Cl.³ F21L 15/14

U.S. Cl. 362-105

5 Claims

1. An explosion-proof and firedamp-proof headlamp, e.g. for mines or the like, comprising in combination:
a headpiece provided with at least one incandescent lamp;
a connecting cable running to said headpiece and including conductors connected to said incandescent lamp;
a belt-supported battery housing, said battery housing being formed with a plurality of compartments;
a lamp battery replaceable in one of said compartments, said housing being provided with circuitry for connecting the conductors of said cable to said lamp battery;
an additional battery having an intrinsically safe output circuit received in another compartment of said housing and electrically isolated from said circuitry and from said

cable for supplying energy for an electrically operated unit such as an instrument or radio; and



4,392,186

KEY WITH LIGHT IN HANDLE

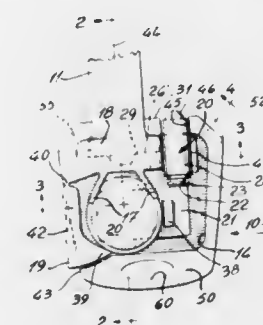
Avi Cziment, 6732 de Vimy Ave., Montreal, Quebec, Canada

Filed Dec. 15, 1980, Ser. No. 216,443

Int. Cl.³ F21V 33/00

U.S. Cl. 362-116

8 Claims



1. A key handle comprising a housing for securement to a key shaft, said housing having a base and a cover member defining an internal chamber therebetween, a key shaft retention cavity defined between said base and cover member to removably retain a connecting end of said key shaft, a switch member formed as a unitary molded part and retained in said chamber, said switch member having two spaced apart outwardly extending flexible arms to bias a flat circular dry cell battery to a first position in said chamber with a first flat wall terminal of said battery lying against a contact element which is in electrical contact with a first terminal of a lamp retainable in said chamber to direct light outwardly of said housing in the direction of said key and further maintaining a circumferential terminal of said battery away from a further contact element in contact with a second terminal of said lamp, said further contact element being said connecting end of said key secured in said housing and centrally aligned between said flexible arms, said connecting portion having a contact portion spaced from said battery and a lamp engaging portion in contact with said second terminal of said lamp, said switch member having an actuable portion accessible from the exterior of said housing to displace said battery in its flat horizontal plane against the biasing force of said flexible guide means whereby said circumferential terminal of said battery is positioned in electrical contact with said further contact element to cause an electric current to flow through said lamp and cause it to light.

4,392,187

COMPUTER CONTROLLED LIGHTING SYSTEM HAVING AUTOMATICALLY VARIABLE POSITION, COLOR, INTENSITY AND BEAM DIVERGENCE

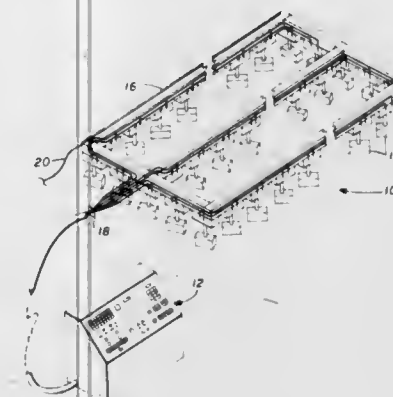
James M. Bornhorst, Duncanville, Tex., assignor to Vari-Lite, Ltd., Dallas, Tex.

Filed Mar. 2, 1981, Ser. No. 239,367

Int. Cl.³ F21P 3/00

U.S. Cl. 362-233

27 Claims



1. A lighting system comprising:
a plurality of light sources for producing directable beams of light, each said light source pivotally mounted to a support member;
at least one dichroic filter pivotally mounted for pivotal motion in each said light beam for transmitting light of a preselected color, the angle of incidence of the light on the dichroic filter being variable to alter the saturation and hue of light transmitted as the dichroic filter is pivoted;
means for pivoting each said dichroic filter;
pivoting means for pivoting each said light source to a preselected position;
controller means for input of information including unique coded addresses each representing a different selected one of said light sources and data representing the preselected position and color of said selected one of said light sources;
transmitter means for transmitting the information;
a communications channel coupled to said transmitter means for carrying all of said information; and
receiver means coupled at spaced apart locations to said communications channel and associated with each of said light sources for receiving the information and reading the coded addresses, each said receiver means responsive to only one of coded addresses for reading the positioning and color data and activating said pivoting means to pivot said selected one of said light sources to the preselected position and further controlling said dichroic filter pivoting means to select the desired color of the light beam.

4,392,188

TROUBLE LIGHT ASSEMBLY POSITIONER

Kenneth E. Norris, 61352 Tombstone Dr., Montrose, Colo. 81401

Filed Mar. 4, 1982, Ser. No. 354,604

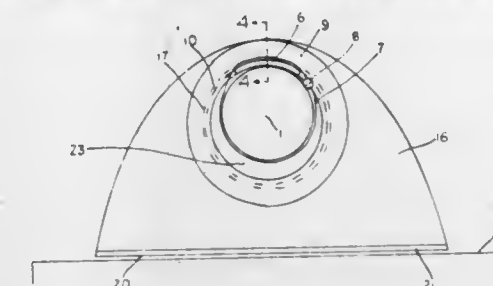
Int. Cl.³ F21V 21/26

U.S. Cl. 362-269

13 Claims

1. A trouble light assembly positioner which comprises:
(a) means for resistably rotating the trouble light assembly about an axis parallel to its longitudinal axis;
(b) means for attaching the resistably rotating means to the trouble light assembly such that they rotate as an integral unit; and
(c) a support member which rotatably engages the resistably rotating means, with the support member horizontal rotational axis, the trouble light assembly horizontal longitudinal rotational axis and the resistably rotating means horizontal rotational axis all parallel, with at least part of the weight of the trouble light assembly transmitted through the resistably rotating means to the support mem-

ber, with the support member having at least one flat bearing surface on its periphery which communicates with a foreign surface to prevent rotation of the support



member, so that the trouble light assembly may be rotated relative to the support member to any position about the horizontal rotational axis of the resistably rotating means, which allows the desired lighting effect.

4,392,189

FRONT LOADING PROJECTION UNIT WITH THREADED RESILIENT RETENTION MEMBER

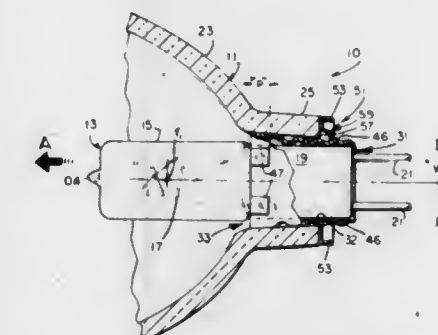
Harold L. Hough, Beverly, and Ronald G. Blaisdell, Saugus, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Dec. 3, 1980, Ser. No. 212,469

Int. Cl.³ F21V 7/00

U.S. Cl. 362-306

7 Claims



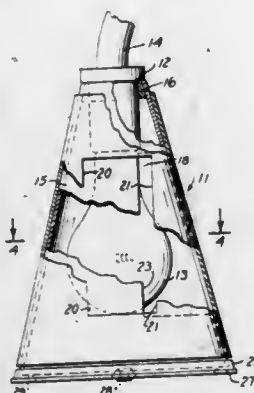
1. In a projection unit including a glass reflector having a front concave reflecting portion and a rear neck portion with an opening therein, an incandescent lamp including an envelope portion and a sealed end adjacent said envelope portion, a first retention member secured to said sealed end of said lamp for retaining said lamp therein and aligning said lamp within said reflector whereby said envelope portion will be positioned substantially within said front concave reflecting portion and said sealed end will be positioned substantially within said opening within said rear neck portion, said first retention member removably positioned within said opening and adapted for being removed through said front concave reflecting portion of said reflector, and a second retention member for retaining said first retention member within said opening of said reflector and permitting removal thereof through said front concave reflecting portion, the improvement wherein said second retention member comprises:

a resilient member rotatively positioned on an external surface of said first retention member and capable of being removed therefrom, said rotative member engaging said rear neck portion of said reflector to effect said retention of said first retention member within said opening of said reflector once said first retention member is fully inserted within said reflector opening, said first retention member being of substantially boxlike configuration and having first and second threaded sections on opposite sides thereof, said resilient member comprising a substantially annular spring nut threaded on said threaded sections to provide said retention.

4,392,190
SHADED LAMP FOR READING AND LIKE PURPOSES
 Garthop Upton, 1218 Montego, Arroyo Grandè, Calif. 93420
 Filed Jan. 6, 1981, Ser. No. 222,951
 Int. Cl.³ F21V 17/02

U.S. Cl. 362—281

8 Claims



1. A lamp for reading or similar purpose comprising:
 a base for supporting a light source therebelow;
 a first shade having a shape to surround said light source;
 means on said base for supporting said first shade at the upper end thereof;
 said first shade having a first opening therein for permitting passage of light therethrough from said light source;
 a second shade having a shape to surround said first shade;
 said second shade having a second opening for permitting passage of said light therethrough from said first opening;
 said second shade adapted for rotational adjustment about said first shade whereby to cause said opening to vary the amount of light passing therethrough;
 a first shade element extending across the lower end of one of the above-mentioned shades;
 said first shade element having a third opening therein;
 a second shade element extending over said first shade element;
 said second shade element having a fourth opening therein for passing light therethrough from said third opening; and
 means supporting said second shade element for movement relative to said first shade element whereby to cause said third and fourth openings to vary the amount of light passing therethrough.

4,392,191
CANDLE ASSEMBLY INCLUDING A WINDOWSILL STABILIZER

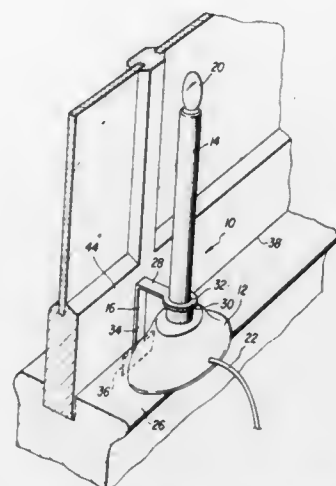
James S. White, Sr., 5931 Westone Rd., Mechanicsville, Va. 23111, assignor to James Sanford White, Sr. and James Sanford White, Jr., both of Mechanicsville, Va.
 Filed Feb. 12, 1982, Ser. No. 348,619
 Int. Cl.³ F21P 1/02

U.S. Cl. 362—392

8 Claims

1. A candle assembly comprising:
 an elongated candle to be normally held at a lower end thereof in a generally vertical orientation and having a light-source means mounted at an upper end thereof for giving off light;
 a base member attached to the lower end of the candle to form a candle/base composite, said base member having a bottom surface for resting on a generally flat surface and thereby supporting said candle in said generally vertical orientation;
 a candle-assembly stabilizer engaging said candle/base composite, said candle-assembly stabilizer including a thin flat means positioned below said basemember bottom surface for insertion into a space at an interface of a rear edge of a windowsill and a lower front face of a sash-type window

frame, said thin, flat, portion providing a force fit in said space to thereby stabilize support for said candle assembly

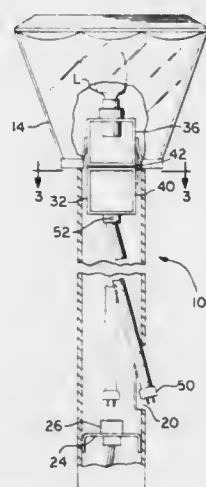


when said bottom surface of said base is resting on said windowsill.

4,392,192
LAMP STANDARD ASSEMBLY
 Rufus P. Steadman, Rte. 1, Box 333, Middleton, Tenn. 38052
 Filed Apr. 29, 1982, Ser. No. 373,129
 Int. Cl.³ F21V 19/02

U.S. Cl. 362—418

11 Claims



1. A lamp standard assembly comprising:
 (a) a lamp standard including an elongate lower ground-supported post having an upper lamp-receiving opening, a lower access opening and an electrical supply means;
 (b) a lamp assembly including a head and a stem, the head including a lamp-carrying means and the stem including conductor means, the conductor means being operatively connected between the lamp carrying means and the electrical supply means; and
 (c) pivot means operatively connecting the lamp-carrying means and the stem to permit relative axial movement between the lamp-carrying means and said stem so that the head can be received through the access opening and pushed longitudinally up the post by the stem and through the lamp receiving opening.

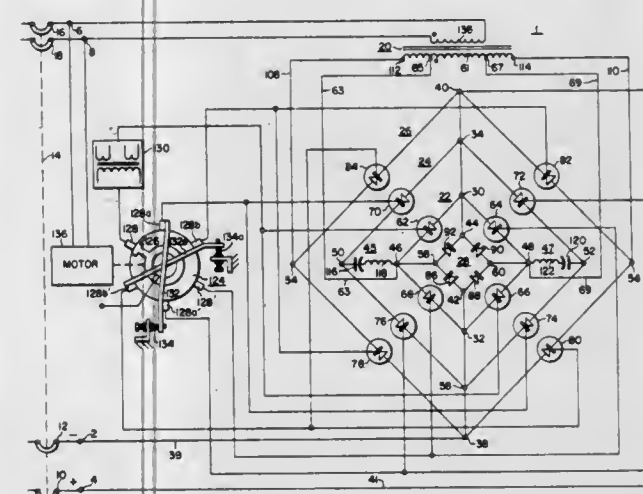
4,392,193
RECTIFYING AND INVERTING APPARATUS
 Frank V. Frola, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
 Filed Sep. 1, 1964, Ser. No. 393,695
 Int. Cl.³ H02M 7/757

U.S. Cl. 363—128

11 Claims

1. In an apparatus for transferring electrical energy between

a unidirectional potential circuit and an alternating potential circuit, a pair of unidirectional potential busses adapted to be connected to the unidirectional potential circuit, a pair of alternating potential busses adapted to be connected to the alternating potential circuit, a transformer having first and second winding parts, said second winding part having first and second pairs of connections, means connecting said first winding part to said alternating potential busses, first and second separately energized current conducting paths connecting said first pair of connections of said second winding part to said unidirectional potential busses for transfer of energy from said unidirectional busses to said alternating potential busses, said first path when conductive being effective to conduct current between said unidirectional busses in one direction and through a first portion of said second winding part in a first direction to thereby induce a potential of a first polarity in said first winding part, said second path when conductive being effective to conduct current between said unidirectional busses in said one direction and through said first portion of said second winding part in a direction opposite to said first direction to thereby induce a potential of a second polarity in said first winding part, said second polarity being opposite to said first polarity, third and fourth separately energized current conducting paths connecting said second pair of connections of said second winding part to said unidirectional potential busses for transfer of energy from said alternating potential busses to said unidirectional potential busses, said



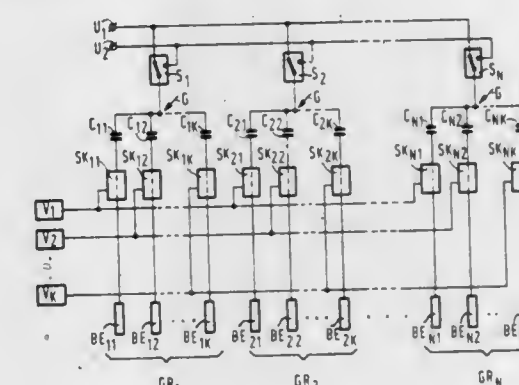
third path when conductive being operable to conduct current between said unidirectional busses in a second direction through a second portion of said second winding part, said fourth path when conductive being operable to conduct current between said unidirectional busses in said second direction through said second portion of said second winding part, the turns of said winding parts being arranged such that the ratio of the turns of said first winding part with respect to the turns of said second winding part which are located between said first connections is greater than the ratio of the turns of said first winding part with respect to the turns of said second winding part which are located between said second connections, and means rendering said first path conductive solely for a first predetermined interval of each first half cycle of current flow through one of said winding parts and thereafter rendering conductive for the remainder of each of first half cycles of said current in said one winding part the one of said third and fourth paths which connects the said second pair of connections for the flow of current from the most positive one of said second pair of connections, said last-named means being operable to render said second path conductive solely for a second predetermined interval of each second half cycle of the current flow through said one winding part and thereafter rendering conductive for the remainder of each of said second half cycle of said current in said one winding part the other of said third and fourth paths.

4,392,194
CIRCUIT ARRANGEMENT FOR CONTROLLING A LARGE NUMBER OF PRINTING ELECTRODES FOR NON-MECHANICAL PRINTING
 Hans D. Hinz, Tornesch, and Herbert Löbl, Hamburg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 25, 1981, Ser. No. 237,817
 Claims priority, application Fed. Rep. of Germany, Feb. 28, 1980, 3007465

Int. Cl.³ G01D 15/06
 U.S. Cl. 346—154

11 Claims



1. A circuit arrangement for controlling a large number of printing electrodes for the non-mechanical parallel printing of character elements or image elements, the printing electrodes being combined to form groups, each of which has a common switching point, corresponding printing electrodes of each group being associated with a common voltage amplifier via electronic control elements, a selected printing electrode being controlled by the switching of a group switch and an amplifier, characterized in that a capacitor (C) is connected between the common switching point (G) of a group of printing electrodes and the electrical control element (SK) associated with each printing electrode (BE), the capacitor (C) associated with an arbitrary printing electrode (BE) being charged to the analog voltage generated in the associated amplifier (V) by the closing of the group switch (S) of the relevant group, said voltage determining the printing effect of the associated printing electrode (BE), the discharging of the capacitor (C) which takes place after the opening of the group switch (S) during the printing time for an image element by the associated printing electrode (BE) being substantially slower than the preceding charging, the capacitors (C) being group-wise successively charged to the voltages which are analogous to the information to be printed, the time required for the charging of all capacitors (C) being less than the printing time for one image element.

4,392,195
METHOD OF AND APPARATUS FOR CONTROLLEDLY MOVING A MOVABLE ELEMENT

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan
 Filed Oct. 1, 1980, Ser. No. 192,876
 Claims priority, application Japan, Oct. 3, 1979, 54-128229
 Int. Cl.³ G06F 15/46

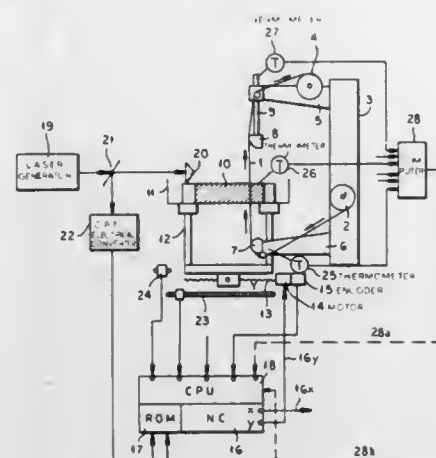
U.S. Cl. 364—167

28 Claims

1. A method of controlledly moving a movable element in a machine tool having a drive member drivingly coupled to the movable element, motor means drivingly coupled to the drive member, and motor driver circuit means for energizing the motor means to drive the drive member, thereby moving the movable element, said method comprising the steps of:
 (a) applying a sequence of feed signals from a command source to said motor driver circuit means, thereby energizing said motor means to achieve a corresponding sequence of desired movements of said movable element;
 (b) sensing an actual displacement of said movable element resulting from the application of each of said feed signals

to said driver circuit means and said motor means to provide a first signal as a function of said actual displacement;

- (c) sensing said feed signals to provide a sequence of second signals each as a function of each of said feed signals;
- (d) successively memorizing on a memory medium, said first signals corresponding to the sequence of said second signals;



- (e) successively reproducing said first signals memorized on said memory medium corresponding to the sequence of said second signals while permitting said feed signals to be issued in sequence from said command source; and
- (f) processing said reproduced first signals and said feed signals to provide a sequence of revised feed signals and applying said revised feed signals to said driver circuit means, thereby achieving the desired movements in sequence of said movable element.

4,392,196

MULTI-PROCESSOR TIME ALIGNMENT CONTROL SYSTEM

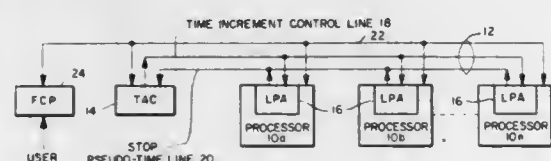
Raymond R. Glenn, and David Bell, both of Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Aug. 11, 1980, Ser. No. 176,798

Int. Cl.³ G06F 1/00

U.S. Cl. 364—200

22 Claims



1. A time alignment control system for aligning a plurality of processors in a multiprocessor system comprising:
- first means for generating a pseudo time reference;
- second means, coupled to said first means, for establishing a respective time window for each processor which time window is based on the master pseudo time reference generated by said master pseudo time generating means to which each processor is coupled;
- third means at each processor coupled to said second means for determining whether the time required for each processor to execute an instruction is within said time window, ahead of said time window, or behind said time window;
- fourth means, at each processor and coupled to said third means, for idling a processor until the time window catches up with said processor if said processor is ahead of the time window; and
- fifth means, at each processor and coupled to said third means, for stopping the master pseudo time generating means if any processor is behind said time window until said processor enters said time window.

4,392,197 PRINT CONTROL CIRCUIT FOR A WORD PROCESSING SYSTEM

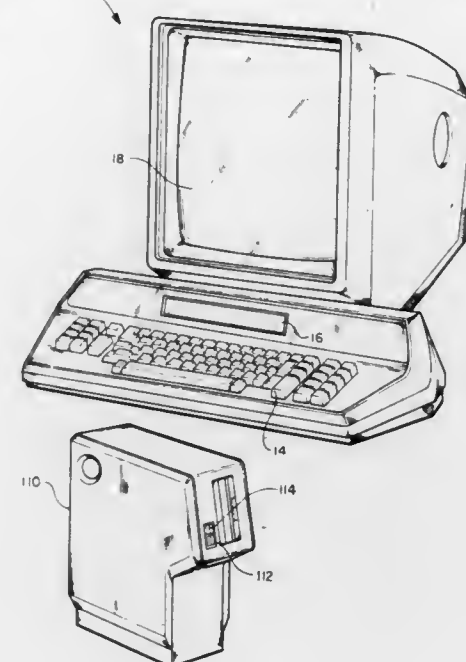
Robert A. Couper, Sunnyvale, and Bruce S. Denning, San Jose, both of Calif., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Aug. 12, 1980, Ser. No. 177,532

Int. Cl.³ G06F 3/023, 3/12, 3/14

U.S. Cl. 364—200

13 Claims



1. A word processing system, comprising:
- (a) a data entry station for entering textual and command information into said system;
- (b) first memory means coupled to said data entry station for storing said entered textual information in specified locations;
- (c) second memory means coupled to said data entry station for storing editing information;
- (d) processing means, responsive to said command information, coupled to said data entry station and said first and second memory means for transferring into corresponding locations of said second memory means particular textual information stored in said specified locations of said first memory means when said particular textual information is deleted in response to said command information entered by said data entry station; and
- (e) printing the means for printing textual information stored in said first and said second memory means.

4,392,198

METHOD OF PRODUCING MICROADDRESSES AND A COMPUTER SYSTEM FOR ACHIEVING THE METHOD

Shigeo Shimazaki, Kanagawa, Japan, assignor to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Jul. 16, 1980, Ser. No. 169,472

Claims priority, application Japan, Jul. 18, 1979, 54-91334

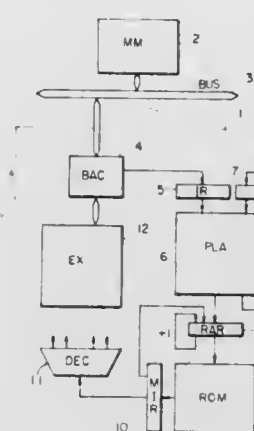
Int. Cl.³ G06F 9/32

U.S. Cl. 364—200

4 Claims

1. A method of producing microaddresses in a microprogrammed computer having a main memory and central processing unit, which computer includes a first means for storing a plurality of microprograms each including at least one microinstruction, a second means for producing a selection control signal; and a third means for producing microaddresses of said microprograms in accordance with a machine language instruction and with said selection-control signal, said third means having a plurality of regions each including a plurality of words each including a microaddress as well as the number of a region to be used next for producing a subsequent microaddress, said method comprising the steps of:

- (a) fetching a machine language instruction from said main memory;
- (b) initializing said selection-control signal;
- (c) selecting a microaddress from said third means in accordance with the combination of said machine language instruction and said selection control signal which assumes an initial value, said microaddress being fed to said first means for reading out and executing a corresponding microprogram;
- (d) simultaneously with step (c) reading information on the



- number of a region to be used next from said third means to change said selection-control signal;
- (e) selecting a new microaddress from said third means in accordance with the combination of said machine language instruction and the changed selection control signal, said newly produced microaddress being fed to said first means for reading out and executing a corresponding microprogram; and
- (f) repeating said steps of (d) to (e) until the microaddresses of microprograms designated by said machine language instruction are produced.

4,392,199

FAULT-TOLERANT SYSTEM EMPLOYING MULTI-MICROCOMPUTERS USING TWO-OUT-OF-THREE MAJORITY DECISION

Ernst Schmitter; Paul Birzele; Klaus Buchmann; Gerhard Geitz; Bernhard Will, and Wolfgang Beifuss, all of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 191,908

Int. Cl.³ G06F 11/18

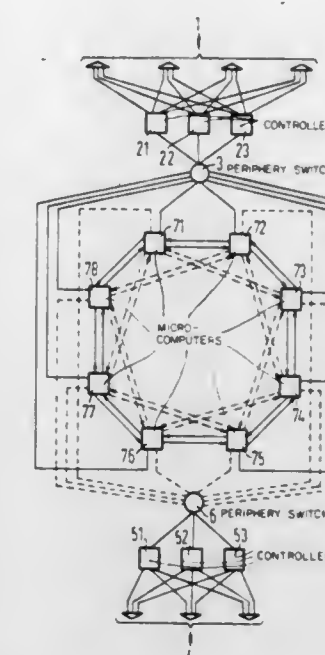
U.S. Cl. 364—200

6 Claims

1. A fault-tolerant system incorporating a plurality of microcomputers which can mutually substitute for each other and in which the principle of two-out-of-three decision is employed for control of the task distribution for the microcomputers, comprising:

- a partially meshed ring interconnecting said microcomputers;
- a plurality of data exchange paths, including data exchange paths between each two adjacent microcomputers in said ring and/or between any microcomputer in said ring and its next-but-one microcomputer;
- three device controllers being connected between said ring and a plurality of periphery lines, whereby data transmission errors may be resolved by a two-out-of-three majority decision, each of said device controllers being connected to each of said periphery lines;
- a passive periphery switch for connecting all of said device controllers to all of said microcomputers;
- a second set of three device controllers being connected between a plurality of user lines and said ring, each of the

controllers of said second set being connectable to all of said user lines; and



a second passive periphery switch for interconnecting all of the device controllers of said second set to all of said microcomputers.

4,392,200

CACHED MULTIPROCESSOR SYSTEM WITH PIPELINE TIMING

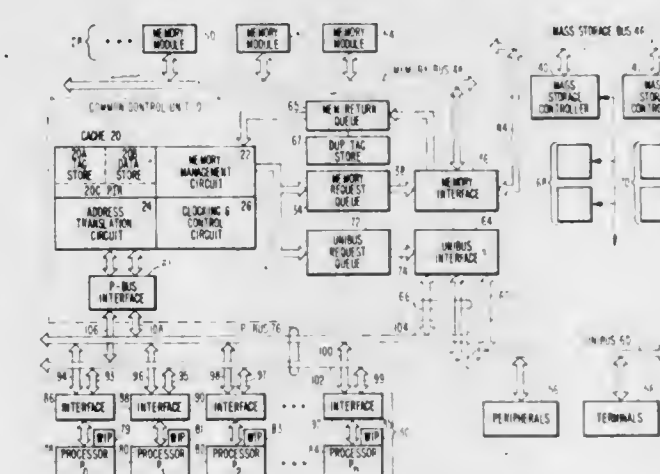
Jega A. Arulpragasam, Stow, Mass.; Robert A. Giggi, Merrimack, N.H.; Richard F. Lary, Colorado Springs, Colo., and Daniel T. Sullivan, Bolton, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation-in-part of Ser. No. 116,083, Jan. 28, 1980, Pat. No. 4,345,309. This application Feb. 27, 1981, Ser. No. 239,129

Int. Cl.³ G06F 9/10

U.S. Cl. 364—200

13 Claims



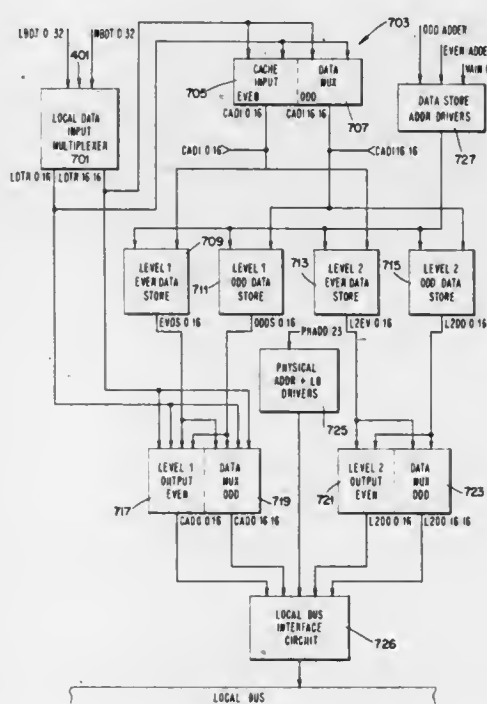
1. A data processing system that provides for the transfer of information among devices in the data processing system wherein the devices issue commands which include data signals and control information, the control information including code signals that specify the type of information transfer operation that is to be performed, device identification signals that identify the device involved in the transfer of information, and address signals that specify a location in the device to which or from which the information is to be transferred, said data processing system comprising:

- A. random access memory means (28) for storing information in a plurality of addressable storage locations therein,
- B. common control means (10) including
- i. pipeline resource means comprising a control section (FIG. 8A) and a data section (FIG. 8B) for processing

b. queuing control means (158) responsive to said tag compare means for entering a command in said queuing means (176) when data requested by said command is not resident in said associative memory means, said queuing control means being further responsive to the control information in said command for entering it in said queuing means (176) when the command seeks to write information in said random access memory means.

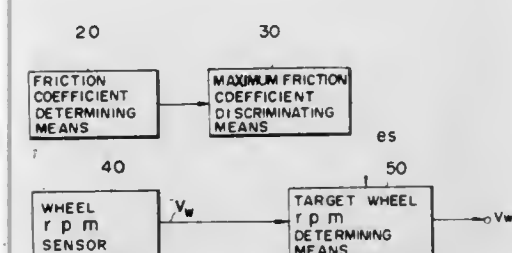
12 Claims

ing a memory request address number identifying the first of the pair of data words requested, a cache memory comprising:
memory means for storing a selected subset of said data words stored in said system memory and for supplying the requested data words to the requesting system elements in the place of the system memory if the requested data words are stored in said memory means, said memory means including an odd memory module for storing said data words identified by said odd address numbers and an even memory module for separately storing said data words identified by said even address numbers;
means for receiving said data words and said associated addresses from said system memory;
cache data input multiplexer means coupled to said receiving means for supplying said received data words to said odd memory module and to said even memory module;
cache address driver means receiving said addresses associated with said received data words and for controlling said cache data input multiplexer means to supply to said odd memory module said transferred data words having associated odd address numbers and to supply to said even memory module said transferred data words having associated even address numbers;
an odd directory memory for storing said address numbers identifying said data words stored in said odd memory module;



hit detector circuit means coupled to said receiving and determining means for generating a full hit signal if both said memory request and said next successive address numbers are determined to be stored in said odd and even directory memories, a partial hit signal if only one of said memory request and said next successive address numbers are determined to be stored in said odd and even directory memories, and a no hit signal if neither said memory request nor said next successive address numbers is determined to be stored in said odd and even directory memories; and

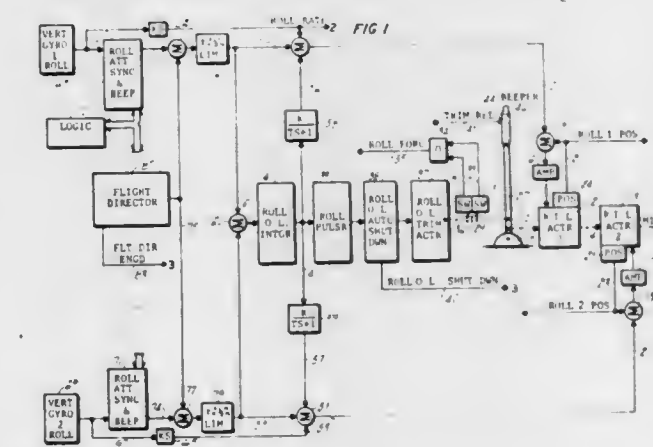
15 Claims



13. In an anti-skid brake control system for an automotive vehicle for controlling application and release of brake pressure to a wheel cylinder to prevent a vehicle from skidding, which system includes a first means for detecting wheel r.p.m. and for sequentially generating a first signal indicative of the detected wheel r.p.m., a second means for determining a friction coefficient between a tire tread and a road surface and for

subtracting said value of said ramp signal from the value of said first signal at the time of detecting said peak of said friction coefficient.

2 Claims



characterized by said signal processing means comprising

means for providing said yaw command signal in response to a lagged function of said roll rate signal.

4,392,204

LUMBER MARKING SYSTEM

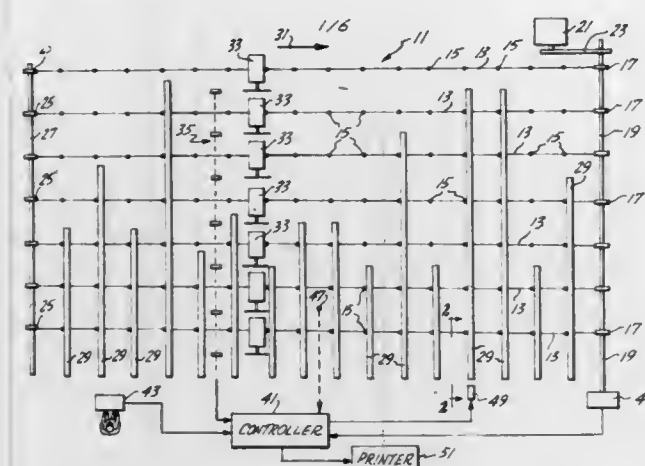
David F. Prim, 4503 Mt. View, Yakima, Wash. 98901, and Carl D. Greiff, 1207 N. 23rd Ave., Yakima, Wash. 98902

Filed Dec. 1, 1980, Ser. No. 211,705

Int. Cl.³ G01N 21/22

U.S. Cl. 364-478

13 Claims



1. A lumber marking system for accumulating information about pieces of lumber and marking the lumber with a related code, said lumber marking system comprising:

conveying means for conveying pieces of lumber on a piece-by-piece basis;

an operator's console, located adjacent to said conveyor means, for an operator, observing pieces of lumber conveyed by said conveyor means, to generate operator data signals related to said observations;

dimension means, associated with said conveying means, for determining the dimensions of pieces of lumber conveyed by said conveying means and producing related dimension data signals, said dimension means including length means for determining the length of said pieces of lumber moved by said conveying means and producing related length data signals, said length means including a curtain of length switches, said dimension means also including width means for determining the width of said pieces of lumber moved by said conveyor means and producing related width data signals, said length and width data signals forming said dimension data signals;

accumulating means coupled to said operator's console and said dimension means for accumulating said operator data signals and said dimension data signals for each piece of lumber as said pieces of lumber are moved by said conveyor means, collating said operator data signals and said dimension data signals for each piece of lumber and producing lumber marking control signals in accordance therewith; and

marking means, located adjacent said conveying means, downstream of said operator's console and said dimension means, and coupled to said accumulating means, for receiving said lumber marking control signals and marking said pieces of lumber with a code in accordance with said lumber marking control signals.

4,392,205 ELECTRONIC DATA CONTROL IN A NUMBERING MACHINE

Takakazu Makizuka, Nara, and Sunao Katoh, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

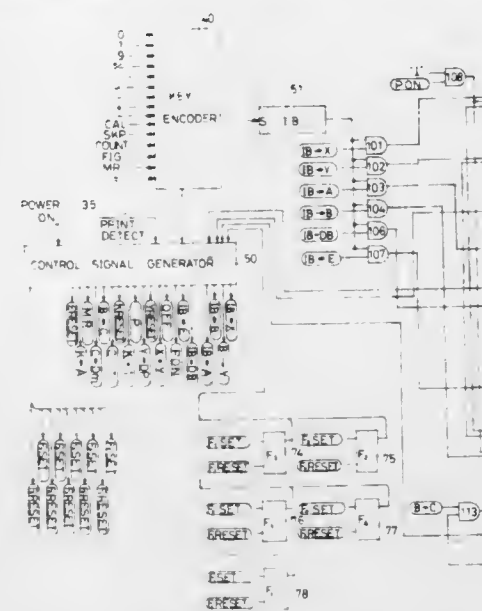
Filed Jan. 23, 1981, Ser. No. 227,986

Claims priority, application Japan, Jan. 24, 1980, 55-7933; Jan. 31, 1980, 55-11823; Feb. 6, 1980, 55-13892; Feb. 6, 1980, 55-13893; Feb. 6, 1980, 55-13894

Int. Cl.³ G06F 3/12

U.S. Cl. 364-518

15 Claims



1. A numbering machine for printing a desired sequence of numbers on a plurality of items comprising:

a digital control system including key input means including numeral keys and function keys;

a control signal generator for developing control signals in response to actuation of said function keys;

a print data memory for storing print data in accordance with said control signals developed by said control signal generator;

a printer unit for printing a sequence of numbers on a plurality of items;

transfer means for transferring said print data stored in said print data memory to said printer unit;

print completion detection means for developing a print completion signal upon completion of each printing operation performed by said printer unit; and

calculation means for varying said print data stored in said print data memory and transferred to said printer unit by a preselected skip number in response to said print completion signal.

4,392,206

PRINTER

Graham Neathway, Ottawa; Allan Cramp, Stittsville, and Albert Hum, Nepean, all of Canada, assignors to Mitel Corporation, Ontario, Canada

Filed Mar. 24, 1980, Ser. No. 133,586

Claims priority, application Canada, Oct. 31, 1979, 338908

Int. Cl.³ G06F 11/30

U.S. Cl. 364-900

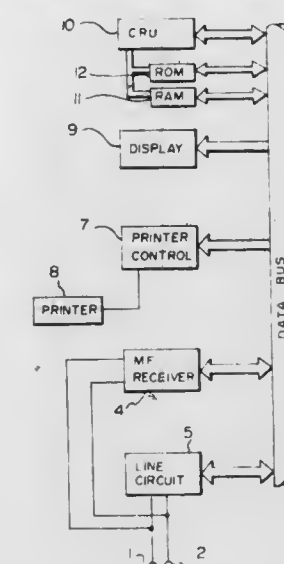
11 Claims

1. A telephone line monitoring system for connection to a telephone line in which a telephone set is connected comprising:

(a) receiver means for connection to the telephone line, for receiving and translating called subscriber identifying dialed digit signals which may be carried by the telephone line into binary signals,

(b) sensing means connected to the telephone line for sensing and translating the on or off hook status of the telephone line into binary signals,

- (c) data bus means for receiving and carrying said binary signals from the sensing means and the receiver means,
- (d) a central processing unit connected to the data bus means for receiving said binary signal, said central processing unit having address terminals,
- (e) first random access memory means connected to the data bus means and to said address terminals for storing said binary signals appearing on the data bus,
- (f) a printer control circuit connected to the data bus means for operating a printer in response to predetermined forms of binary signals which may appear on the data bus means,
- (g) an alphanumeric display connected to the data bus means for displaying alphanumeric symbols in response to at least a portion of said predetermined forms of binary signals which correspond to a predetermined portion of a complete telephone number,
- (h) translating means connected to the data bus means and to said address terminals comprising an interconnection matrix for translating binary signals appearing on the data bus from the receiver means and sensing means into sig-



nals for controlling the central processing unit for causing it to responsively generate said predetermined forms of binary signals for operating the printer control circuit and the display in accordance with the form of its interconnection matrix, and applying said predetermined forms of binary signals to the data bus means,

- (i) said printer control circuit including means for causing the printer to print alphanumeric symbols across a line corresponding to the time and/or said status and/or said dialed digits as said dialed digit and status signals are received by the receiver means and the sensing means from the telephone line, upon receipt of said predetermined forms of said binary signals; wherein the printed alphanumeric symbols are not visible until the paper is advanced, and
- (j) further means for causing the alphanumeric display to display said alphanumeric symbols as said dialed digit signals are received by the receiver means upon receipt of said predetermined forms of said binary signals wherein the displaying of the alphanumeric symbols by the alphanumeric display is prior to display thereof by the printer.

4,392,207

CARD READER-DATA LINK PROCESSOR

Ronald J. Dockal, San Clemente, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sep. 9, 1980, Ser. No. 185,430

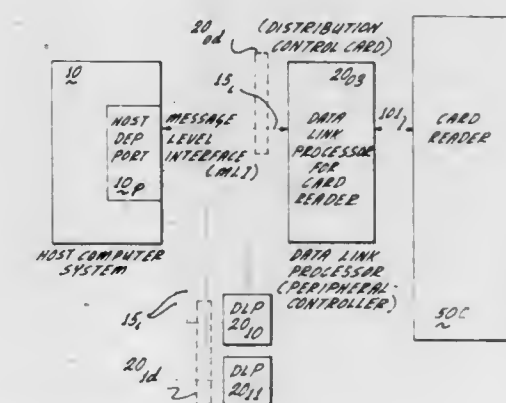
Int. Cl.³ G06F 3/04

U.S. Cl. 364-900

9 Claims

1. A peripheral controller for interfacing a main host computer to a card/reader mechanism which reads information from punched data cards for transmittal to said host computer, said peripheral controller comprising:

- (a) common control circuit means including:
 - (a1) control storage means for storing micro-code word operators, each of said word operators being separately addressable and being selected by control data transmitted via address multiplexor means from a peripheral dependent circuit means;
 - (a2) said address multiplexor means to generate a current address for said control storage means to select a first one of said micro-code word operators, said multiplexor means receiving control data from said peripheral dependent circuit means;
 - (a3) connection means from said address multiplexor to a stack register to generate the address of the next forthcoming micro-code word operator after completion of a subroutine, said stack register providing an incremented address to said address multiplexor;
 - (a4) said stack register means for temporarily holding the current address of said first one of said micro-code word operators during subroutine operation and functioning to supply an incremented address to said address multiplexor means, after completion of said subroutine;
 - (a5) latching register means connected to the output of said control storage means to temporarily store and to convey micro-code operators to said peripheral dependent circuit means for execution;
 - (a6) first connection means carrying output data from a RAM buffer memory storage means and transmitting through said peripheral dependent circuit means via a data communication channel to said main host computer;



- (a7) second connection means connected to said latching register means for communicating information to said peripheral dependent circuit means;
- (a8) said RAM buffer memory storage means for storing informational data received from said card/reader mechanism and for storing control data from said main host computer, said data being received via said peripheral dependent circuit means, said RAM buffer memory storage means including:
 - (i) a first dedicated portion of said memory storage means for storing raw untranslated data;
 - (ii) a second dedicated portion of said memory storage means for storing translated data which has been formatted by a translation means according to commands from said host computer;
- (b) said peripheral dependent circuit means including:
 - (b1) said data communication channel including:
 - (i) an output bus connection means from said RAM buffer storage means to a first receiving means;
 - (ii) said first receiving means providing an input to a data multiplexor;
 - (iii) said data multiplexor functioning to transfer data to a data latch register;
 - (iv) said data latch register for temporarily storing data for output to a first driver means;
 - (v) said first driver means for transmitting data to a host-connection means;

- (vi) said host connection means providing connection to said host computer;
- (b2) op-decoder means receiving control data from said host computer, via said data communication channel, and functioning to provide output signals to said address multiplexor for addressing said control storage means which functions to send control signals to said peripheral dependent circuit means;
- (b3) peripheral-receiving means for receiving informational card data from said card/reader mechanism for transfer to said data multiplexor for subsequent transmittal to said first dedicated portion of said RAM buffer memory;
- (b4) said output bus connection means including:
- a first and second output bus for transmittal of data from said RAM buffer memory storage means, said second output bus for transferring said RAM output data to said translation means, and said first output bus for transferring said RAM output data to said host computer via said data communication channel;
- (b5) RAM address register means receiving address data from said control storage means, and functioning to address memory locations in said RAM buffer;
- (b6) said translation means for receiving raw untranslated data from said first dedicated portion of said RAM buffer memory storage means and for translating said raw data into a selected type of translated format for transfer to said second portion of said RAM buffer memory storage means for subsequent transmittal to said host computer.

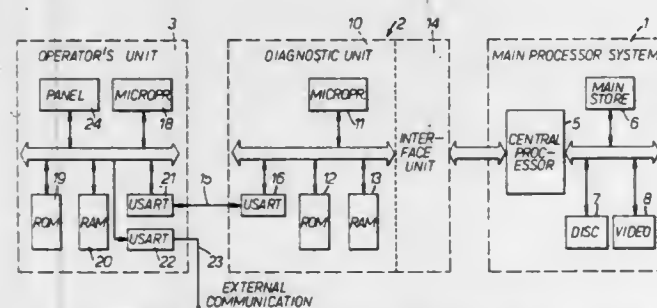
4,392,208

DATA PROCESSING SYSTEM AND DIAGNOSTIC UNIT
James E. Burrows, Stoke on Trent, and Ivan R. Greenaway, Brierley Hill, both of England, assignors to International Computers Limited, London, England
Filed Mar. 18, 1981, Ser. No. 244,864
Claims priority, application United Kingdom, Mar. 19, 1980, 8009306

Int. Cl.³ G06F 9/06, 11/04

U.S. Cl. 364—900

7 Claims



1. A data processing system comprising: a main processor system including a central processor having a writable control store, the operation of the central processor being controlled by a microprogram held in the control store; and diagnostic apparatus connected to receive signals indicative of occurrences in the central processor, the diagnostic apparatus comprising:

- (a) first means coupled to the central processor for producing a first signal whenever the central processor accesses a predetermined location in the control store;
- (b) second means coupled to the central processor for producing a second signal whenever the central processor writes to the control store;
- (c) logic means responsive to the first and second signals for producing an output signal whenever both the first and second signals are present, indicating that the central processor has made a write access to said predetermined location; and
- (d) means coupled to the control store and responsive to said output signal for reading out information held in said

predetermined location and transferring the information to the diagnostic apparatus.

4,392,209

RANDOMLY ACCESSIBLE MEMORY DISPLAY

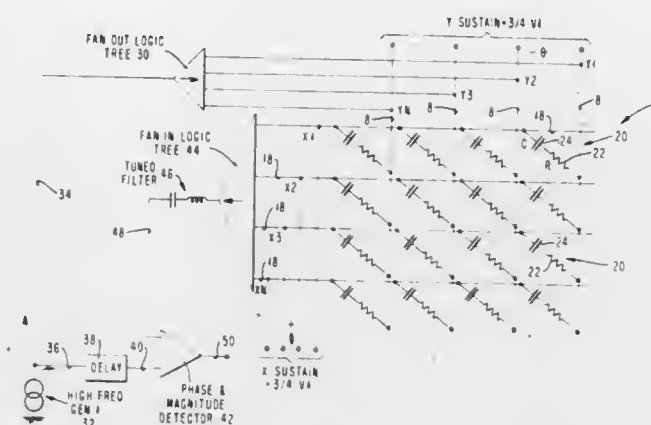
David E. DeBar, Manassas, Va., assignor to IBM Corporation, Armonk, N.Y.

Filed Mar. 31, 1981, Ser. No. 249,555

Int. Cl.³ G11C 13/08

U.S. Cl. 365—110

2 Claims



1. A randomly accessible memory display including an electroluminescent panel laminate having a first layer including a plurality of horizontal X electrodes and a second layer including a plurality of vertical Y electrodes, between said first and second layers there being a layer of electroluminescent material, and a layer of photoresistive material, said panel emitting light at a cell location when the potential difference between juxtaposed X and Y electrodes exceeds a sustaining voltage, each said cell forming a memory element with a first terminal series-connected with a Y-sustaining AC voltage and a Y electrode, and a second terminal series-connected with an X-sustaining AC voltage and an X electrode, the sum of the peak voltage for said X-sustaining AC voltage and said Y-sustaining AC voltage being greater than said sustaining voltage, wherein the improvement comprises:

- a high frequency sinusoidal voltage generator selectively connected to one of said Y electrodes for providing a sinusoidal interrogation signal;
- a phase detector having a first input connected to said high frequency sinusoidal voltage generator and a second input selectively connected to a corresponding one of said X electrodes;
- said phase detector indicating an alteration in the phase of said high frequency sinusoidal interrogation signal after transmission through a selected one of said cells in response to the altered conductivity of the corresponding portion of said photoresistive layer due to the light-emitting state of said selected cell;
- whereby the stored light-emitting state of a plurality of said cells on said electroluminescent panel can be accessed.

4,392,210

ONE TRANSISTOR-ONE CAPACITOR MEMORY CELL
Tsu C. Chan, Carrollton, Tex., assignor to Mostek Corporation, Carrollton, Tex.

Filed Aug. 28, 1978, Ser. No. 937,272

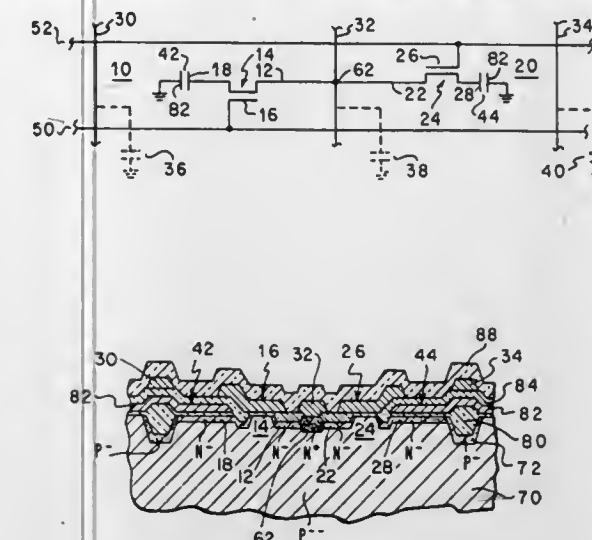
Int. Cl.³ G11C 11/24

U.S. Cl. 365—149

5 Claims

1. In an integrated circuit memory of the type including an array of memory cells fabricated on a semiconductor substrate, each cell including a gate-controlled switch and a charge storage capacitor coupled to said switch, wherein one plate of each charge storage capacitor is formed by a conductive region within said substrate, the improvement comprising a

conductive sheet overlying the cells of the array and insulated with respect to each conductive substrate region, said conduc-



tive sheet defining a common plate for each capacitor in the array.

4,392,211

SEMICONDUCTOR MEMORY DEVICE TECHNICAL FIELD

Masao Nakano, Kawasaki; Fumio Baba, Yokohama; Tomio Nakano, Kawasaki; Yoshihiro Takemae, Yokohama, and Hirohiko Mochizuki, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

PCT No. PCT/JP80/00143, § 371 Date Feb. 25, 1981, § 102(e) Date Feb. 20, 1981, PCT Pub. No. WO81/00027, PCT Pub. Date Jan. 8, 1981

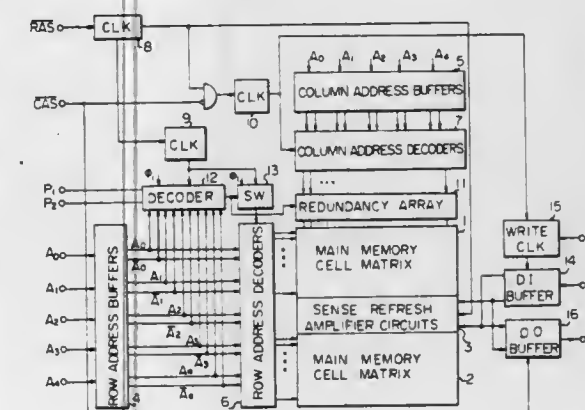
PCT Filed Jun. 24, 1980, Ser. No. 243,927

Claims priority, application Japan, Jun. 25, 1979, 54-79819

Int. Cl.³ G11C 7/00

U.S. Cl. 365—200

7 Claims



1. A semiconductor memory device comprising:
- a main memory cell matrix;
 - a redundancy memory cell array which is incorporated with said main memory cell matrix;
 - a first decoder means for selecting one memory cell array parallel to said redundancy memory cell array within said main memory cell matrix, in accordance with a first address information;
 - a second decoder means for selecting said redundancy memory cell array when said first address information corresponds to a memory cell array having a defective cell therein;
 - a switching means for stopping the transmission of a clock signal for operating said first decoder means when said first address information corresponds to said memory cell array having a defective cell therein and said second decoder means selects said redundancy memory cell array; and
 - a third decoder means for selecting one memory cell array perpendicular to said redundancy memory cell array, within said main memory cell matrix and said redundancy

memory cell array, in accordance with a second address information.

4,392,212

SEMICONDUCTOR MEMORY DEVICE WITH DECODER FOR CHIP SELECTION/WRITE IN

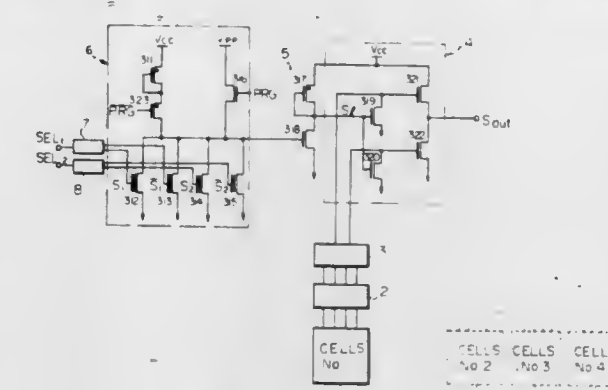
Kiyoshi Miyasaka, Yokohama, and Mitsuo Higuchi, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Nov. 12, 1980, Ser. No. 206,131

Claims priority, application Japan, Nov. 12, 1979, 54-146346

Int. Cl.³ G11C 8/00

U.S. Cl. 365—230

12 Claims



1. A semiconductor memory device for receiving a plurality of external selection signals in which a semiconductor memory chip of said device is selected in accordance with a predetermined combination of the external selection signals, said device comprising:

- a semiconductor memory chip; and
- a decoder circuit for receiving said external selection signals and provided in said semiconductor memory device, said decoder circuit selecting said semiconductor memory chip in accordance with a logic corresponding to the predetermined combination of said external selection signals, said logic capable of being changed by the user of said semiconductor memory device.

4,392,213

CURRENT IMPULSE METHOD AND APPARATUS FOR TESTING GEOPHONE STRINGS

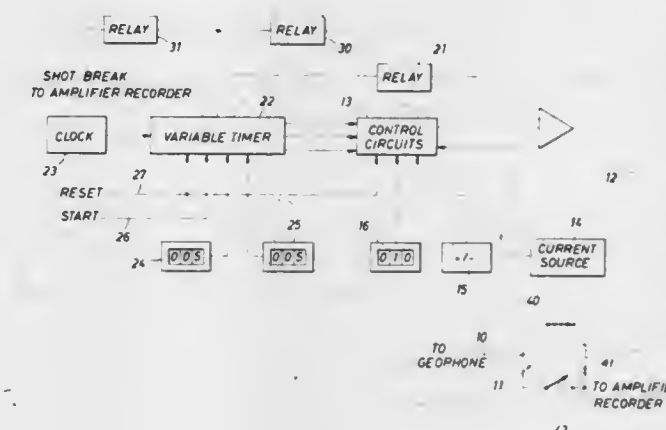
Edward J. Küng, Calgary, Canada, and Eugene D. Bednard, Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 11, 1980, Ser. No. 168,956

Int. Cl.³ G01V 1/16

U.S. Cl. 367—13

6 Claims



5. An apparatus for obtaining data from which the time equivalent of the velocity response of a string of geophones and their associated acquisition system may be determined, said apparatus comprising:

an adjustable current source, said source being adjusted to lift said geophones to a position intermediate their stops; a clock circuit, said clock circuit supplying a constant frequency signal; a variable timer, said timer being responsive to said clock to supply a plurality of timed output signals; a first switch means responsive to one of the signals from said timer for coupling said current source to said geophones, said one signal having a duration sufficiently long to permit said geophones to reach a steady state condition; a second switch means responsive to a second signal from said timer for coupling said acquisition system to said geophones after said current source is decoupled from said geophones; and a third switch means responsive to a third signal from said timer for grounding said acquisition system prior to decoupling said current source and removing said ground prior to said geophones being coupled to said acquisition system.

4,392,214

SOUND-MONITORING DEVICE FOR AN INDUSTRIAL INSTALLATION

Jean Marini, Marly le Roi, and Bernard Audenard, Orgeval, both of France, assignors to Framatome, Courbevoie, France

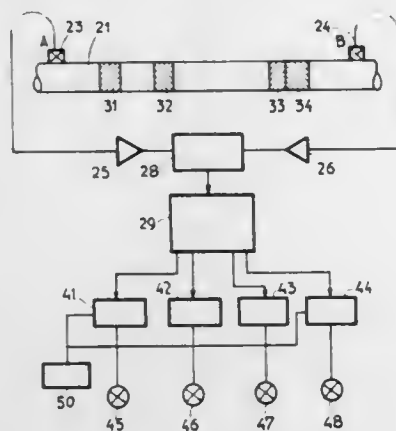
Filed Feb. 17, 1981, Ser. No. 235,226

Claims priority, application France, Feb. 12, 1980, 80 03090

Int. Cl.³ G01S 5/18; G21C 17/00

U.S. Cl. 367—127

1 Claim



1. Sound monitoring device for detecting possible impacts of stray bodies in an industrial installation, using sound sensors for waves emitted on impacts of said stray bodies and comprising

- first and second acoustic sensors arranged adjacent to the wall of said installation at two different points the interval between which is to be monitored; and
- a measuring and alarm circuit to which said sensors are connected, comprising
 - means for measuring the separation in time between the reception of the sound waves at said first and second sensors, respectively; and
 - means for comparing said separation with at least two sets of two predetermined values corresponding to the ends of at least two monitoring zones; and
 - alarm means which is triggered if said separation in time falls between two predetermined values corresponding to one of said monitoring zones.

4,392,215

PEST CONTROL APPARATUS

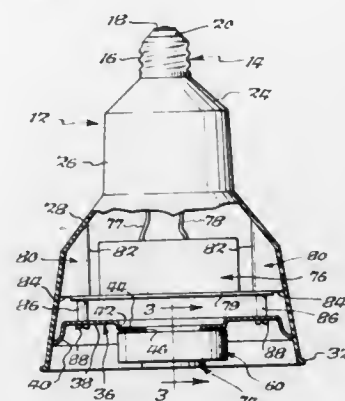
Lester B. Hall, Kenmore, N.Y., assignor to Gary Lester Hall, Kenmore, N.Y.

Continuation-in-part of Ser. No. 840,536, Oct. 11, 1977, Pat. No. 4,178,578. This application Mar. 17, 1978, Ser. No. 887,601

Int. Cl.³ H04B 1/02

U.S. Cl. 367—139

9 Claims



1. Apparatus for generating and radiating ultrasonic sound waves for the control of pests comprising:

- an elongated housing having two ends;
- sound generating means carried by said housing adjacent one end thereof; said sound generating means comprising transducer means having a natural frequency of oscillation for providing sound waves when driven by an electrical signal, said sound waves being in a frequency range normally inaudible to humans and intolerable by pests such as rodents and the like, said sound generating means including driver means operatively connected to said transducer means for applying to said transducer means an electrical signal having a frequency different from the natural frequency of said transducer means thereby causing said transducer means to provide said output sound waves in a varying pattern of frequencies with amplitude peaking;
- said sound generating means being positioned to direct said output sound waves outwardly away from said one end of said housing;
- an electrical connector fixed to the other end of said housing and integral with said housing adapted to be inserted manually in a standard electrical outlet receptacle commonly found in buildings and the like, said connector comprising first and second portions of electrically conductive material on said end of said housing and separated by insulative material, there being mechanical engagement between said connector and the outlet receptacle to mechanically support said housing in the outlet;
- first and second electrical conductor means for connecting said first and second portions, respectively, of said connector electrically to said sound generating means; and
- said connector when inserted in an outlet providing for supply of electric current to said sound generating means and simultaneously providing for mechanical support for said housing.

4,392,216

INTEGRATED CIRCUIT FOR TIMEPIECE

Masuo Tsuji, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Dec. 24, 1980, Ser. No. 219,747

Claims priority, application Japan, Dec. 26, 1979, 54-173312; Sep. 17, 1980, 55-128794

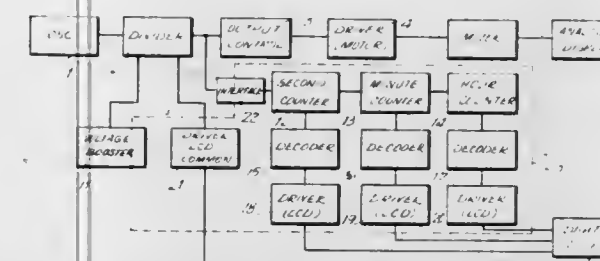
Int. Cl.³ G04B 25/00, 1/00

U.S. Cl. 368—71

6 Claims

1. A circuit for a hybrid timepiece, said timepiece comprising: timekeeping circuit means including oscillator means for generating a high frequency standard signal, divider means for dividing down said high frequency standard

signal to a lower frequency timekeeping signal, controller means for shaping signals from said divider means; an external power supply for powering a portion of the circuits of said hybrid timepiece; booster circuit means operating from said power supply for outputting a boosted voltage at a level exceeding the voltage of said power supply, another portion of circuits of said timepiece operating on said boosted voltage; a liquid crystal display and means for driving said liquid crystal display, said means for driving said liquid crystal display operating on said boosted voltage in response to said lower frequency timekeeping signal;



a step motor driving an analog display; integrated circuit means for providing driving current pulses to said step motor in response to said shaped signals from said divider means, said integrated circuit means for providing driving current pulses to said step motor including at least one CMOS transistor pair, the source and drain terminals of said at least one CMOS transistor pair operating on said power supply voltage, the gates of said at least one CMOS transistor pair being driven by signals at said boosted voltage level.

4,392,217

DEVICE FOR CONTROLLING CORRECTION OPERATIONS OF A TIME DISPLAY DEVICE

Niraj Kumar, Indialantic, Fla., and Marc Mouton, Cornaux, Switzerland, assignors to Ebauches Electroniques, S.A., Switzerland

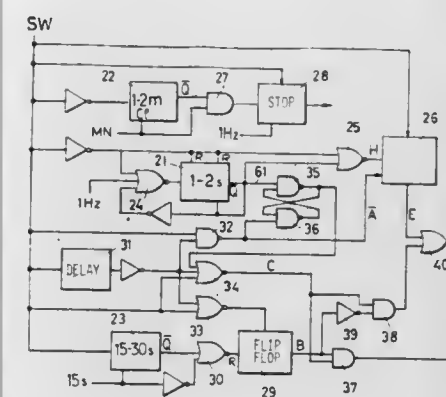
Filed Feb. 17, 1981, Ser. No. 234,459

Claims priority, application Switzerland, Feb. 18, 1980, 1291/80

Int. Cl.³ G04C 9/00

U.S. Cl. 368—188

3 Claims



1. A device for controlling correction operations of a time display device showing hours and minutes comprising a control button and means for distinguishing a short depression from a long depression, depending on the period of actuation of the control button, means for selecting in the case of a short depression a minutes correction mode in which the display advances by one minute for each depression and, in the case of a long depression, an hours correction mode in which the display advances by complete hours as long as the depressions last, and means for defining two different advance speeds, a slower speed and a faster speed, in the hours correction mode, and means for passing automatically firstly to the slow speed to

advance a first hour and then to the fast speed for the following hours.

4,392,218

APPARATUS FOR IDENTIFYING A DICTATE STATION BY PROVIDING AN AUTOMATICALLY GENERATED SEQUENCE OF SIGNALS AND A MANUALLY ENTERED SEQUENCE OF SIGNALS

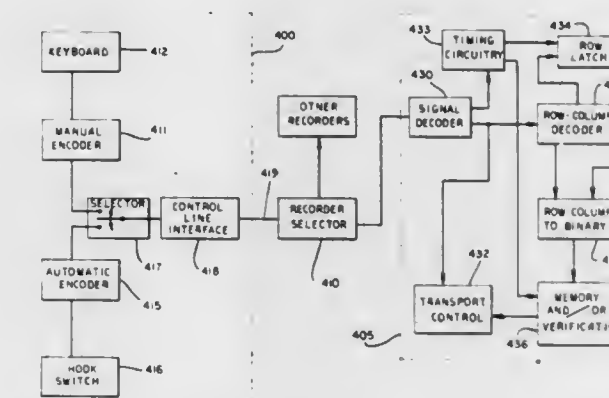
Luther C. Plunkett, Jr., Atlanta, Ga., assignor to Lanier Business Products, Inc., Atlanta, Ga.

Division of Ser. No. 352, Jan. 2, 1979, Pat. No. 4,254,307. This application Oct. 14, 1980, Ser. No. 196,461

Int. Cl.³ G11B 19/02, 19/16

U.S. Cl. 369—29

3 Claims



1. In a dictation recording system including a dictate station, and a recorder selectively operable by said dictate station for the recording of dictation; the improvement of

- a first signal means at said dictate station for automatically generating a predetermined sequence of first signals comprising a first predetermined number of said first signals;
- a second signal means at said dictate station selectively operable by an operator for generating a second predetermined number of second signals as a second sequence of second signals;
- identification means associated with said dictate station for providing a sequence of identification signals in response to said predetermined sequence of said first signals and said second sequence of said second signals; said sequence of identification signals comprising a third predetermined number of said identification signals, said third predetermined number being equal to the sum of said first and second predetermined numbers;
- switching means at said recorder responsive to said sequence of identification signals for providing a transport enable signal in response to receipt of said third predetermined number of said identification signals; and
- operating means at said recorder responsive to said transport enable signal for rendering said recorder operable by said dictate station.

4,392,219

METHOD AND DEVICE FOR RECORDING AND REPRODUCING TRACKING INFORMATION

Norio Yokozawa, Fuchu; Wasao Takasugi, Higashiyamato; Seiji Yonezawa, Hachioji, and Kiichi Ueyanagi, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 43,749, May 30, 1979, abandoned. This application Apr. 9, 1981, Ser. No. 252,593

Claims priority, application Japan, Jun. 9, 1978, 53-68793

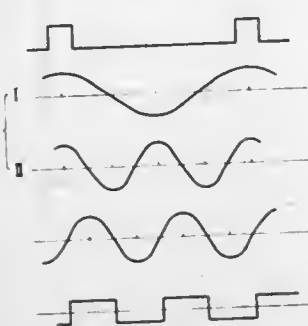
Int. Cl.³ G11B 21/10

U.S. Cl. 369—44

10 Claims

1. A method for recording and reproducing an information train in which synchronizing signals are arrayed at predetermined time intervals between the information to be reproduced, comprising the steps of recording said information train in an information track on a recording medium; while recording, wobbling said information track at a frequency which is an

integral number of times the recurrence frequency of said synchronizing signals and is different in phase by 90° from a harmonic component of said synchronizing signals; reading



out by means of read-out means said information train recorded in said information track; and controlling the position of said read-out means relative to said information track on the basis of the information train read out.

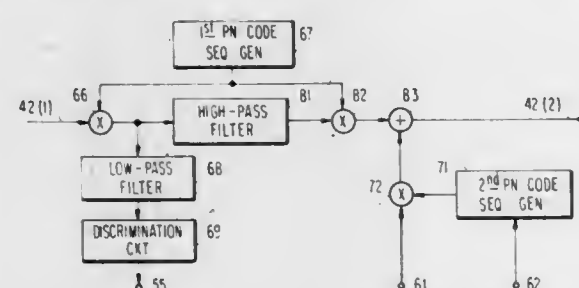
4,392,220

MODEM TO BE COUPLED TO A DIRECTIONAL
TRANSMISSION LINE OF AN SS MULTIPLEX
COMMUNICATION NETWORK

Botaro Hirosaki, and Satoshi Hasegawa, both of Tokyo, Japan,
assignors to Nippon Electric Co., Ltd., Tokyo, Japan
Filed May 15, 1981, Ser. No. 264,163

Claims priority, application Japan, May 30, 1980, 55-72352; Jun. 3, 1980, 55-74468; Jun. 3, 1980, 55-74469; Jun. 3, 1980, 55-74470; Nov. 21, 1980, 55-164344; Feb. 3, 1981, 56-14884; Feb. 3, 1981, 56-14885

Int. Cl.³ H03K 13/01; H04J 11/00, 13/00
U.S. Cl. 370-18 26 Claims



1. A transmitter-receiver for use in a spread spectrum multiplex communication network comprising a directional transmission line and a plurality of modems coupled to said transmission line, said transmitter-receiver being comprised by each of said modems to be responsive to a first spread spectrum signal received from said transmission line and comprising a spread spectrum signal into which a first of a plurality of different pseudo noise code sequences is modulated by a particular information signal for reproducing said particular information signal and to be responsive to a transmission information signal for supplying said transmission line with a second spread spectrum signal comprising a spread spectrum signal into which a second of said pseudo noise code sequences is modulated by said transmission information signal, said transmitter-receiver including reception spread spectrum signal producing means responsive to said first spread spectrum signal for producing a reception spread spectrum signal, pseudo noise code sequence generating means for generating at least one of said different pseudo noise code sequences as said first and said second pseudo noise code sequences, first multiplying means for multiplying said reception spread spectrum signal by the first pseudo noise code sequence generated by said pseudo noise code sequence generating means to produce a first multiplied signal, low frequency component extracting means for extracting a low frequency component from said first multiplied signal to produce a low frequency signal, means responsive to said low frequency signal for producing said particular information signal, second multiplying means for multiplying an input signal by the second pseudo noise code sequence gener-

ated by said pseudo noise code sequence generating means to produce a second multiplied signal, transmission information signal supplying means for supplying said transmission information signal to said second multiplying means as said input signal, and means responsive to a transmission spread spectrum signal -for producing said second spread spectrum signal, wherein the improvement comprises combining means for combining said first and said second multiplied signals into said transmission spread spectrum signal with said low frequency component rejected from said first multiplied signal.

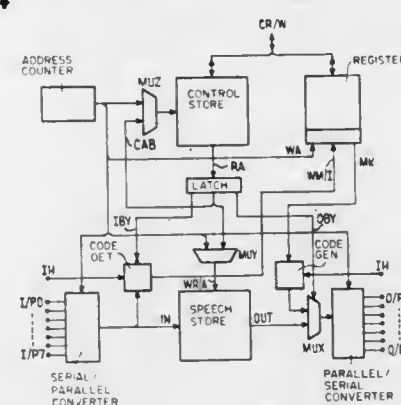
4,392,221

TIME DIVISION MULTIPLEX MODULE FOR USE IN
DIGITAL SWITCHING NETWORK

Truman H. Hesketh, Maidenhead, England, assignor to Plessey Overseas Limited, Ilford, England

Filed Sep. 5, 1980, Ser. No. 184,367
Claims priority, application United Kingdom, Sep. 8, 1979,
7931231

U.S. Cl. 370—54 Int. Cl.³ H04Q 11/04 7 Claims



1. A time-division multiplex switching module for use in a multi-stage digital network, the module comprising a plurality of inlet multiplex paths and a plurality of outlet multiplex paths, a plurality of register means, one for each multiplex input path respectively, a code detector means for detecting the presence of a mark code on the inlet multiplex paths, and code generator means for generating either an idle code or a mark code, in which, when a mark code is detected by the code detector on a particular inlet multiplex path, a mark present bit is set in the register means appropriate to the particular inlet path, whereupon the code generator generates mark codes which are then transmitted on all free outlets of the module.

4,392,222
COMBINED CIRCUIT AND PACKET SWITCHED
SYSTEM

Sumitoshi Ando, Tokyo, Japan, assignor to Kokusai Denshin
Denwa Co., Ltd., Japan

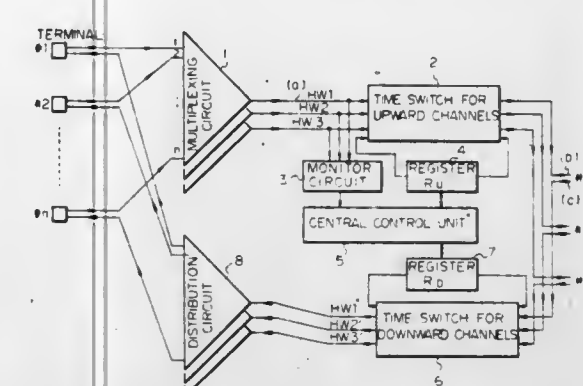
Filed Jan. 15, 1981, Ser. No. 225,205
Claims priority, application Japan, Jan. 28, 1980, 55-7744
Int. Cl.³ H04J 3/12

U.S. Cl. 370—60 3 Claims

1. A combined circuit and packet switching system coupled with a plurality of terminals and trunk lines for connecting each of said terminals to one of the trunk lines with efficient use of the trunk lines, each of said terminals generating a relatively large amount of information continuously in a forward direction from the terminal to the switching system and a relatively small amount of control information relating to said relatively large amount of information in a backward direction from the switching system to

(a) a fixed circuit is assigned in one of said trunk lines for forward information generated by said terminal through a circuit exchange technique; and

(b) a transmission channel for transmitting said control information is provided by packet switching technique



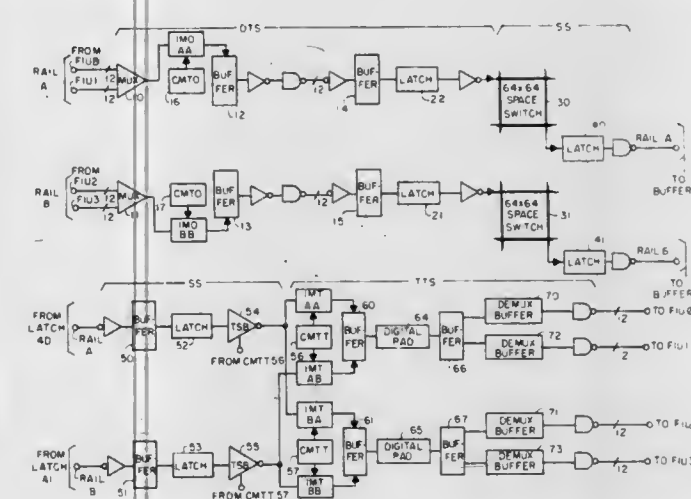
wherein plural calls in the backward direction share a single trunk line simultaneously.

4,392,223

DUAL RAIL TIME AND CONTROL UNIT FOR A
T-S-T-DIGITAL SWITCHING SYSTEM

Nathaniel Simmons; Stig Magnusson, both of Phoenix; Sergio E. Puccini, Scottsdale, all of Ariz.; Donald W. McLaughlin, Naperville, and David J. Stelte, Lombard, both of Ill., assignors to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

U.S. Cl. 370—63 10 Claims



1. In a time-space-time switching system including first and a second buses, each bus transmitting a plurality of PCM voice samples to a switching network, said buses connected between said network and subscriber interface equipment, said switching network comprising:

first and second space switching means; first and second originating time switching means, each of said originating time switching means being operated to switch said PCM voice samples from said subscriber interface equipment, said first and second originating time switching means being connected respectively between said first and second space switching means and said subscriber interface equipment via said first and second buses; each of said originating time switching means including: first and second memory means connected to each of said first and second buses, said first and said second memory means being interconnected so that said first and said second memory means are written into simultaneously in sequential time slots with said PCM samples transmitted via said buses; said first and said second memory means further being operated so that said PCM samples transmitted on said first bus may be switched to said second space switching means for subsequent retransmission and alternatively said PCM samples transmitted on said second bus may be switched

to said first space switching means for subsequent retransmission:

first and second terminating time switching means being connected respectively between said first and said second space switching means and said subscriber interface equipment, said first and second terminating time switching means respectively operated to switch said PCM voice samples from said first and second space switching means to said subscriber interface equipment for transmission to a telephone subscriber;

each of said terminating time switching means including:
first and second memory means connected between each of
said first and second space switching means and said sub-
scriber interface equipment, said first and said second
memory means being interconnected so that said first and
said second memory means are written into simultane-
ously in corresponding time slots for storing said PCM
samples transmitted from said space switching means;

a plurality of buses connected between each of said memory means of said terminating time switching means and said subscriber interface equipment for transmitting said PCM samples to said subscriber interface equipment;

gating means connected respectively between said first and second space switching means and interconnected to each of said memory means of said first and second terminating time switching means, each of said gating means being operated in response to said memory means of said terminating time switching means to transmit said PCM samples from said first and second space switching means to said first and second memory means for each of said plurality of PCM samples; and

said first and said second memory means further being capable of being operated to switch said PCM samples from said first space switching means through said second terminating time switching means to said telephone subscriber and alternatively being capable of being operated to switch said PCM samples from said second space switching means through said first terminating time switching means to said telephone subscriber.

4,392,224
SPEECH PATH SWITCHING SYSTEM IN
TIME-DIVISIONAL ELECTRONIC TELEPHONE
SWITCHING SYSTEM

Hiromichi Mori, Kawasaki; Jun Matsumoto, Tama, and Masanobu Fujioka, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Denshin Denwa Co., Ltd., Tokyo, Japan
Filed Aug. 12, 1980, Ser. No. 177,454
Claims priority, application Japan, Aug. 21, 1979, 54-105520
Int. Cl.³ H04Q 11/04

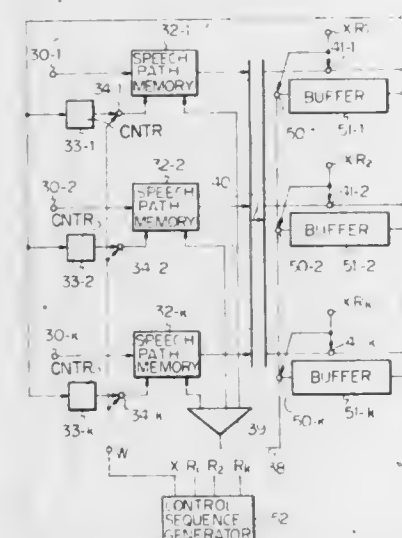
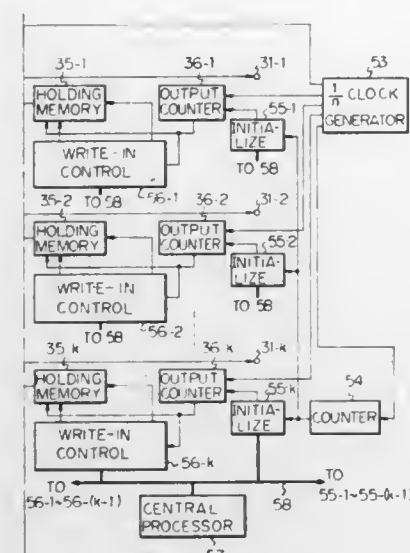
U.S. Cl. 370-67 1 Claim

U.S. Cl. 379—387

1. A speech path switching system in a time divisional electronic telephone switching system for full availability switching between an incoming channel in a plurality of incoming highways and an outgoing channel in a plurality of outgoing highways comprising:

- a plurality of speech path memories each coupled with a related incoming highway for temporarily storing the telephone signals to be switched;
- each of said speech path memories having a related input counter for designating the address of a speech path memory, said input counter being incremented in synchronism with the frame phase of the corresponding incoming highway, the received information on an incoming highway being stored in an address designated by the instantaneous content of the input counter in the corresponding speech path memory;
- a plurality of holding memories, each operable to designate the read out address of a speech path memory to effectively connect an incoming channel to a selected outgoing channel;
- a holding memory being provided for each related outgoing highway, each holding memory having a corresponding

output counter for designating the read out address of the holding memory;



the circulation phase of each output counter being independently adjustable, the frame phase of each outgoing highway being independent from the other outgoing highways by adjusting each output counter independently.

4,392,225

TELEPHONE CARRIER SYSTEM REPEATER AND POWER SUPPLY

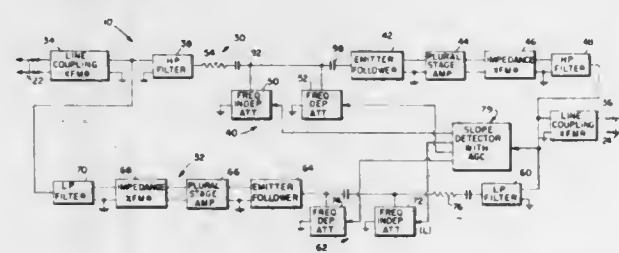
Donald W. Wortman, Central Islip, N.Y., assignor to TII Corporation, Lindenhurst, N.Y.

Filed Feb. 17, 1981, Ser. No. 234,725

Int. Cl.³ H04J 1/10

U.S. Cl. 370-75

7 Claims



1. A signal-amplifying telephone carrier repeater adapted to be connected to a two-conductor transmission line in a plural channel amplitude modulated telephone carrier system in which said transmission line has a preselected cable gauge and is connected to transmit a plurality of first frequency division multiplexed carrier signals in one direction from a signal source to the telephone carrier repeater and to transmit a plurality of second frequency division multiplexed carrier signals in the opposite direction from the telephone carrier

repeater to a termination, said signal-amplifying telephone carrier repeater comprising first means responsive only to a first preselected one of said first carrier signals following its transmission over said line for producing a first d.c. control signal whose magnitude varies as a function of the level of just said first preselected one of said first carrier signals, second means responsive only to a second preselected one of said first carrier signals following its transmission over said line for producing a second d.c. control signal whose magnitude varies as a function of the level of just said second preselected one of said first carrier signals, said first and second preselected ones of the first carrier signals having different frequencies, and further means under the control of said d.c. control signals for automatically adjusting the level of each of said second carrier signals as a function of the cable gauge of said transmission line and the length of said transmission line between said source and said repeater to compensate for both the length and the cable gauge of said transmission line.

4,392,226

MULTIPLE SOURCE CLOCK ENCODED COMMUNICATIONS ERROR DETECTION CIRCUIT

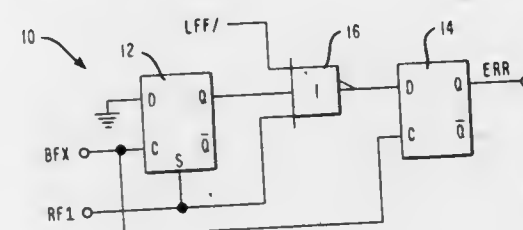
Donald M. Cook, Poway, Calif., assignor to NCR Corporation, Dayton, Ohio

Filed Sep. 28, 1981, Ser. No. 306,118

Int. Cl.³ G06F 11/00

U.S. Cl. 371-61

6 Claims



1. A circuit for detecting an error in a clock signal recovered from a digital data signal comprising:

- means for detecting a transition in the voltage level of the clock signal, said means comprising first switch means clocked at a clock rate equal to that of said recovered clock signal to provide a transition signal indicating whether said transition has occurred;
- gating means to combine an output signal from the clocked switch means with selected parts of said data signal; and
- second switch means clocked at said clock rate and connected to the output of the gating means for sensing the output signal therefrom to provide an error signal if no transition has occurred within a predetermined time period.

4,392,227

TERRACED SUBSTRATE SEMICONDUCTOR LASER

Kunio Itoh, Uji; Takashi Sugino; Masaru Wada, both of Takatsuki, and Hirokazu Shimizu, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 13, 1981, Ser. No. 224,821

Claims priority, application Japan, Jan. 14, 1980, 55-2777; Feb. 5, 1980, 55-13159; Feb. 19, 1980, 55-20256; Mar. 14, 1980, 55-32981; Mar. 19, 1980, 55-35292; Mar. 19, 1980, 55-35293; Mar. 19, 1980, 55-35296; May 16, 1980, 55-65554

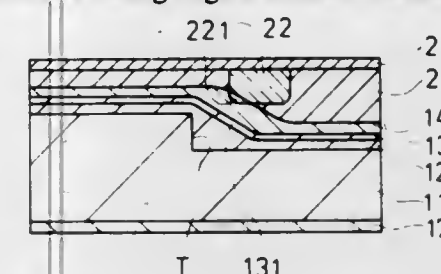
Int. Cl.³ H01S 3/19

U.S. Cl. 372-46

15 Claims

- In a semiconductor laser: a terraced-shaped semiconductor substrate having a thinner part and a thicker part with a step inbetween, a first clad layer which is formed on said substrate and has a lower part formed on said thinner part, an upper part formed on said thicker part and a central part formed to

connect said lower part and said upper part, having an oblique upper face with respect to the principal face of said substrate and having a larger thickness than those of said lower part and said upper part, an active layer formed on said first clad layer and having a horizontal lower part formed on said lower part of said first clad layer, a horizontal upper part formed on said upper part of said first clad layer and an oblique central region as a lasing region formed on said central part of



said first clad layer and connecting said horizontal lower part and said horizontal upper part therewith with a lower bending and an upper bending inbetween, and a second clad layer formed on said active layer, characterized in that a current injection region of a stripe-shaped pattern is formed penetrating said second clad layer to contact the latter at a part above said oblique central region of said active layer, and to form an ohmic junction with a width smaller than a width of said oblique central region.

4,392,228

TERRACED SUBSTRATE SEMICONDUCTOR LASER

Takako Okabe, Kusatsu; Kunio Itoh, Uji, and Takashi Sugino, Takatsuki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

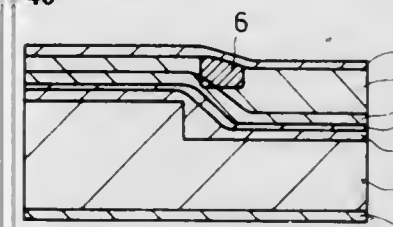
Filed May 11, 1981, Ser. No. 262,773

Claims priority, application Japan, May 16, 1980, 55-65554

Int. Cl.³ H01S 3/19

U.S. Cl. 372-46

10 Claims



1. In a semiconductor laser:

- a terraced semiconductor substrate (9) which has a thicker part and a thinner part with a step inbetween, semiconductor layers (10, 11, 12) including an active layer (11) formed on said terraced semiconductor substrate (9) in a manner to have an inclined part (111) ranging from the position above said step to the part shifted to the side of said thinner part, an overriding layer (13) having the opposite conductivity type to that of the uppermost layer (12) of said semiconductor layers (10, 11, 12) and formed on said uppermost layer (12), characterized by further comprising: a last layer (14) having the same conductivity type to that of the overriding layer (13) formed on the latter layer (13), said last layer (14) having a stripe-shaped through-opening (141) at the position which is a shifted position from the part immediately above said inclined part (111), thereby exposing a surface of said overriding layer (13) at the bottom of the through-opening (141), a conduction region (15) formed at least on the bottom and

side faces of said stripe-shaped opening, in a manner to reach and contact said uppermost layer (12), a first electrode layer formed to contact to said conduction layer in said through-opening and a second electrode formed on the bottom face of said terraced semiconductor substrate.

4,392,229

RING LASER WITH PLASMA STARTER

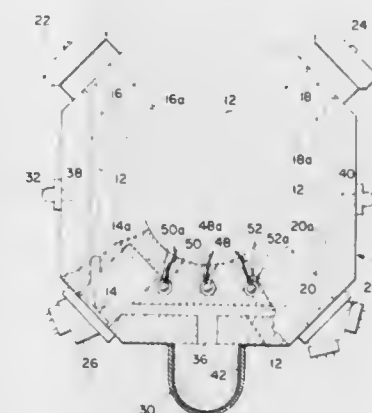
James W. Hostettler, Thousand Oaks, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Dec. 15, 1980, Ser. No. 216,543

Int. Cl.³ H01S 3/08

U.S. Cl. 372-94

7 Claims



1. In combination:

- a ring laser, including a resonant cavity enclosing laser gas, at least one cathode and at least one anode attached to said ring laser for energizing gain sections of said ring laser when a voltage is connected between said cathodes and anodes; and an illumination source illuminating the surfaces of at least one of said cathodes such that the intensity and spectrum of the illumination is sufficient to produce photoemission from at least one of said cathodes.

4,392,230

METHOD AND APPARATUS FOR THE MANUFACTURE OF SILICON BY CRUCIBLE-FREE ZONE MELTING

Wolfgang Keller, Munich; Hans-Christian Grassmann, Igelsdorf, and Karl Schmidt, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

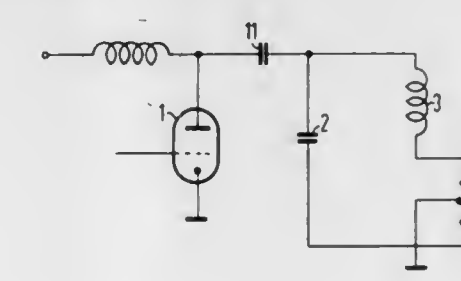
Filed Sep. 10, 1980, Ser. No. 185,752

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1979, 2938348

Int. Cl.³ B01J 7/10

U.S. Cl. 373-139

7 Claims



- Method of producing silicon by crucible-free zone melting a substantially vertically held silicon rod with which a melting zone, produced by an induction heating coil which, together with an oscillating-circuit coil connected in series therewith and determining the oscillating-circuit frequency and having a high inductance in comparison with that of the induction heating coil heating up the rod material, forms the inductive component of a heating parallel oscillating circuit fed by a high-frequency generator and has a heating circuit capacitor

connected in parallel with the heating coil, is passed through the silicon rod in direction of the rod axis, which comprises dimensioning the component resonance circuit formed by the induction heating coil and the heating-circuit capacitor to a frequency deviating by less than a factor of 2 from the frequency of the high-frequency generator.

4,392,231

SPREAD SPECTRUM FH-MFSK DECODER

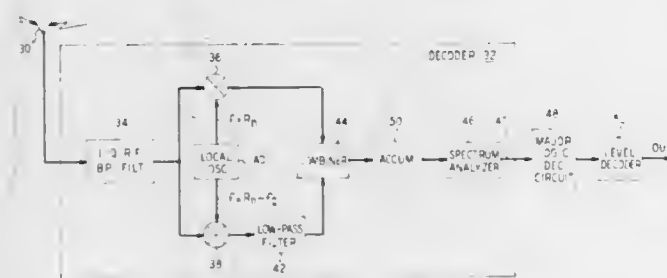
Paul S. Henry, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation-in-part of Ser. No. 164,160, Jun. 30, 1980, abandoned. This application Jul. 1, 1981, Ser. No. 279,472

Int. Cl.³ H03K 13/01

U.S. Cl. 375—80

6 Claims



4. A method of decoding one of one or more concurrently received L-length frequency-hopped, Q-level frequency shift keyed input signals, each input signal being originally formed by modulating a particular user's L-length frequency-hopping address sequence with the particular user's message signal encoded as one of Q possible frequencies, where Q is an integer characterized in that

the method comprises the steps of:

- mixing the frequencies of the particular user's frequency-hopping address sequence which are in the same band of Q frequencies as the input signal with the frequencies in the received input signal which are equal to or above the corresponding address sequence frequencies in each L-length sequence for generating a resultant signal comprising difference frequencies within Q baseband frequency levels;
- concurrent with step (a) mixing the frequencies of the particular user's frequency-hopping address sequence which are in the next lower band of Q frequencies than the input signal with the frequencies in the received input signal for generating difference frequencies within the Q baseband frequency levels of step (a); and
- combining the resultant signals generated in steps (a) and (b) for generating a demodulated and decoded output signal.

4,392,232

SIMPLIFIED TRANSVERSAL CORRELATOR FOR MSK AND MSK RELATED WAVEFORMS

Carl F. Andren, Indiatlantic, and William H. Mosley, Jr., St. Petersburg, both of Fla., assignors to B-Systems, Inc., Dallas, Tex.

Filed Sep. 28, 1981, Ser. No. 306,490

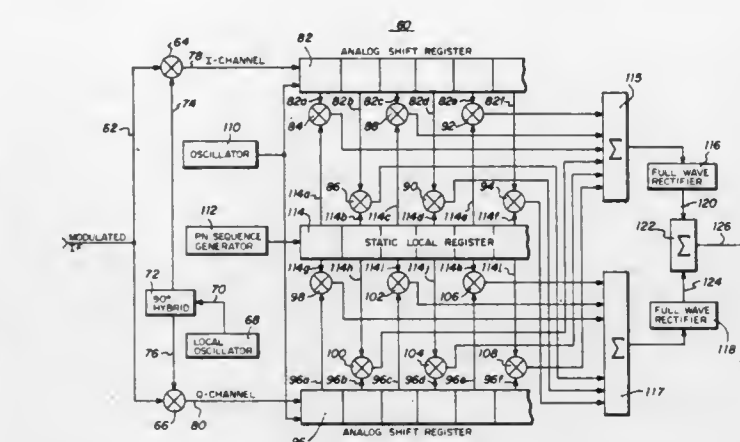
Int. Cl.³ H04L 27/06, 27/22; G06F 15/34

U.S. Cl. 375—86

14 Claims

1. A transversal correlator for demodulating a phase shift keyed (PSK) signal, comprising:
 - means for producing quadrature I-channel and Q-channel signals derived from said PSK signal;
 - means for sampling said I-channel and said Q-channel signals to produce sequential samples;
 - means for storing a plurality of said samples for each of said I and Q-channel signals;
 - means for storing a plurality of bits comprising a selected digital code sequence;
 - means for correlating said digital code sequence with alter-

nate samples of said I and Q-channel signals in said means for storing to produce a first summation signal; means for correlating said digital sequence with the remain-



ing alternate samples in said means for storing to produce a second summation signal; and means for combining said first and said second summation signals to produce a correlation output signal.

4,392,233

METHOD OF FILTERING ELECTROMAGNETIC WAVES AND DUAL CHANNEL AUDIO CODE FILTER THEREFOR

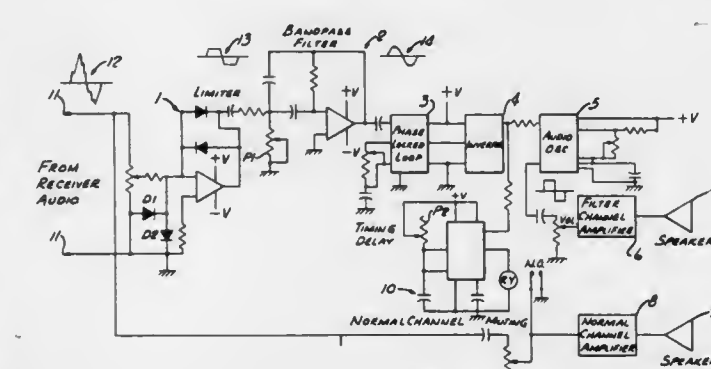
Ernest M. Laughner, 101 Henry Way, Jeannette, Pa. 15644

Filed May 11, 1981, Ser. No. 262,332

Int. Cl.³ H04B 15/00

U.S. Cl. 375—93

10 Claims



1. The method of filtering an original electromagnetic continuous wave which is broken up into discrete lengths to form intelligence comprising the steps of, converting the original broken-up electromagnetic wave into corresponding discrete lengths of a D.C. voltage signal through the use of a phase-locked loop circuit, utilizing said D.C. voltage signal to activate an audio oscillator and thereby generating a new broken-up audio wave corresponding to the original wave being filtered, audibly producing said new wave with speaker means, and simultaneously audibly producing said original wave with speaker means.

4,392,234

PCM SIGNAL INTERFACE APPARATUS

Rikio Maruta, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed May 8, 1981, Ser. No. 261,923

Claims priority, application Japan, May 16, 1980, 55-64016

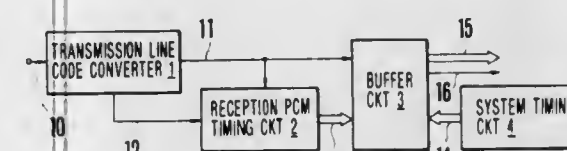
Int. Cl.³ H04L 7/08

U.S. Cl. 375—118

5 Claims

1. A PCM signal interface apparatus comprising:
 - a buffer memory into which PCM signals may be asynchronously written and from which said PCM signals may be

asynchronously read wherein said buffer memory receives writing clock signals and reading clock signals; means coupled to said buffer memory for inserting frame markers to said PCM signal upon writing said PCM signal into said buffer memory; means, coupled to said buffer memory for determining if said frame markers are contained in output signal from said buffer memory upon the occurrence of an external read frame position designating pulse; means coupled to said buffer memory for resetting the contents of said buffer memory and temporarily stopping writing clock signals and reading clock signals to said



buffer memory when at least one of said frame markers is not delivered out at a predetermined time; means coupled to said buffer memory for resuming said writing clock signals to said buffer memory upon receipt of a write frame position designating pulse; and means coupled to said buffer memory for resuming said reading clock signals to said buffer memory upon receipt of said external read frame position designating pulse at a predetermined time lapse after said resumption of said writing clock signals; whereby the data written into said buffer memory can be read out at a desired frame phase and rate without duplicating and missing data.

4,392,235

ELECTRONICALLY SCANNED X-RAY TOMOGRAPHY SYSTEM

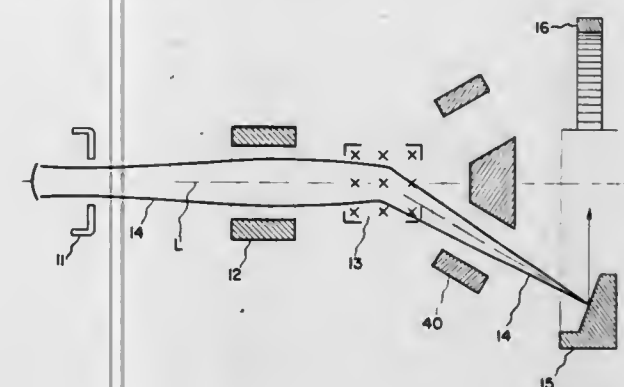
John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 66,932, Aug. 16, 1979, abandoned. This application May 26, 1981, Ser. No. 267,184

Int. Cl.³ G03B 41/16

U.S. Cl. 378—10

6 Claims



1. An x-ray apparatus for use in computed tomography comprising:
 - an electrode gun producing an electron beam having substantially circular cross section;
 - an arcuate anode ring;
 - means to focus and bend said electron beam so that said beam impinges on said anode ring at selectable points along its circumference;
 - an evacuable housing containing said electron gun and said anode ring;
 - electromagnetic deflection means disposed adjacent to said electron beam path, said deflection means being disposed along at least a portion of said electron beam path between said anode ring and said focussing and bending means to oscillatorily deflect said electron beam in a radial direc-

tion with respect to said anode ring, so that after passing through said focussing and bending means said electron beam effectively exhibits an elongate cross section having substantially parallel sides and rounded ends, prior to impinging upon said anode ring, the long axis of said elongate cross section pointing toward an axis perpendicular to the plane containing said anode ring and passing through the center of said ring; and a plurality of x-ray detectors configured in a substantially annular array so as to receive x-ray radiation produced at said anode ring.

4,392,236

SYSTEM AND METHOD OF MIGRATORY ANIMAL IDENTIFICATION BY FLUORESCENCE SPECTROSCOPY OF ELEMENT CODED IMPLANTED TAGS, AND TAGS USED THEREIN

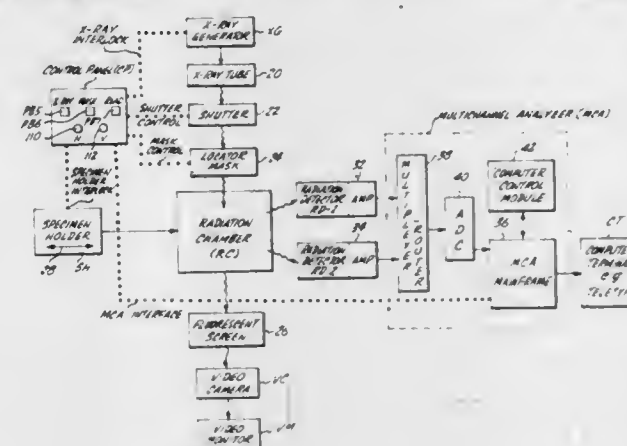
Donald R. Sandstrom, Pullman, and Farrel W. Lytle, Seattle, both of Wash., assignors to Guardsman Chemicals, Inc., Grand Rapids, Mich.

Filed Mar. 16, 1981, Ser. No. 243,820

Int. Cl.³ A01K 61/00; G01N 23/22; G06K 7/12

U.S. Cl. 378—045

52 Claims



1. The method of identifying the code of an identification tag implanted for a time in the body of a migratory animal, wherein the tag code comprises one or more coding elements including one or more naturally occurring, non-radioactive higher atomic numbered chemical elements in stable solid form and each present in the amount of at least about 15 micrograms, said method comprising:

- irradiating the tag with an X-ray beam at an energy level higher than the absorption edge of any coding element(s) in the tag and at an intensity, disregarding absorptive losses in the animal tissue surrounding the tag, of at least about 3×10^{10} photons/cm²-sec;
- masking all but the tag and the animal tissue immediately surrounding the tag from irradiation by the X-ray beam; and
- determining the extent of fluorescent X-ray radiation emitted by any coding element(s) in the tag and from such determination identifying the coding element(s) present in the tag and thus the code thereof.

4,392,237

SCANNING X-RAY INSPECTION SYSTEM

John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 25, 1980, Ser. No. 181,161

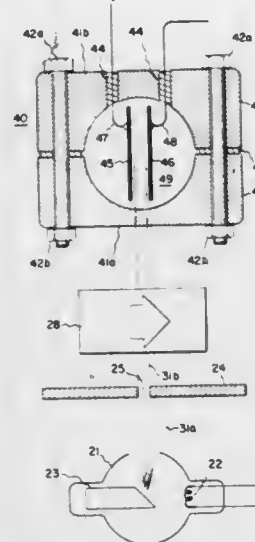
Int. Cl.³ G01N 23/00

U.S. Cl. 378—51

10 Claims

1. An x-ray scanning system for generating signals corresponding to x-ray absorption levels in an object comprising:
 - means for translationally moving said object;
 - x-ray means for subjecting said object to a substantially flat, fan-shaped x-ray beam, said beam being in a plane which does not contain the direction of motion of said object;

a detector, said detector having a substantially planar power electrode and a plurality of substantially planar signal electrodes spaced apart from and parallel to said power electrode, said signal electrodes being configured so as to lie in a plane substantially parallel to said power electrode, said power electrode and said signal electrodes being parallel to the plane of said fan-shaped x-ray beam and



positioned so that said beam passes between said power electrode and said signal electrodes, all of said electrodes being disposed in an x-ray transmissive housing containing a gaseous detecting medium;
means to impress a voltage on said power electrode relative to said signal electrodes;
means to sense current passing through each of said signal electrodes.

4,392,238

ROTARY ANODE FOR AN X-RAY TUBE AND METHOD OF MANUFACTURING SUCH AN ANODE

Bernhard Lersmacher, Aachen, and Hans Lydtin, Stolberg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

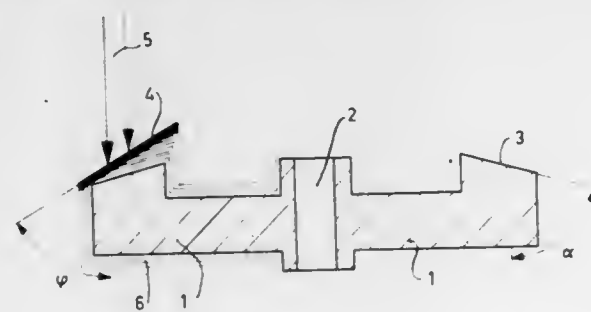
Filed Jul. 14, 1980, Ser. No. 167,950

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1979, 2928993

Int. Cl.³ H01J 35/10

U.S. Cl. 378-144

7 Claims



1. A rotary anode for an X-ray tube including:

- (a) a carbon body;
 - (b) a pyrolytic graphite coating on the body's surface, having a plurality of crystallographic layers extending parallel to said surface, said coating being cut through at an angle exposing ends of the crystallographic layers to form a face; and
 - (c) an X-ray generating metallic layer on said face.
6. A method of manufacturing a rotary anode for an X-ray tube comprising:

- (a) depositing a pyrolytic graphite coating on the surface of a carbon anode body, said coating having a plurality of crystallographic layers extending parallel to said surface;

- (b) cutting through the coating at an angle exposing ends of the crystallographic layers to form a face; and
- (c) providing an X-ray generating metallic layer on said face.

4,392,239

X-RAY DIAGNOSTIC SYSTEM FOR ANGIOGRAPHIC X-RAY PHOTOGRAPHIC SERIES

Achim Wilkops, Langensendelbach-Brauningshof, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 150,601, May 16, 1980, abandoned.

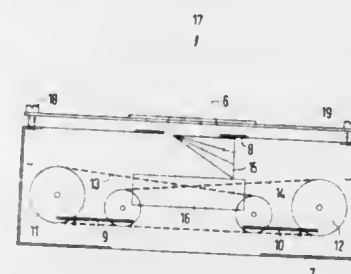
This application Jun. 24, 1982, Ser. No. 391,709

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925274

Int. Cl.³ G01K 1/04

U.S. Cl. 378-146

5 Claims



1. An x-ray diagnostic system for the preparation of angiographic x-ray photographic series over an entire area to be detected corresponding to the course of a contrast medium in a vessel system, said x-ray diagnostic system comprising a patient support (1), an x-ray tube (3) having a diaphragm installation (7) including diaphragm plates for the limitation of the x-ray beam irradiating the patient, and a cassette changer for x-ray film cassettes, characterized in that the cassette changer (4) is a cassette changer having film support means of a total longitudinal extent corresponding to the entire area to be detected, and that the diaphragm installation (7) comprises a fixed diaphragm (8) which limits the maximum size of the x-ray beam (6) to a beam configuration covering said entire area to be detected and covering said total longitudinal extent of said cassette changer while the x-ray tube is in a fixed position, individually adjustable diaphragm plates (9, 10) disposed on opposed sides of said x-ray beam for defining therebetween a resultant x-ray beam for irradiating the patient, and means (11, 12) for effecting the individual, independent adjustment of said diaphragm plates (9, 10) for selectively setting the dimension of the resultant x-ray beam in the longitudinal direction of the patient support and for directing the resultant x-ray beam toward selective respective segments of said total longitudinal extent of said cassette changer which segments lie in respective different directions from the x-ray tube requiring corresponding changes in the longitudinal axes of the respective resultant x-ray beams while said x-ray tube remains in said fixed position.

4,392,240

METHOD AND DEVICE FOR SAMPLING RADIATION FROM X-RAY MACHINES FOR ANALYSIS

Richard Tremblay, Les Saules, and Jean Tremblay, Ste-Foy, both of Canada, assignors to Ministère Des Affaires Sociales, Quebec, Canada

Filed Oct. 14, 1981, Ser. No. 311,190

Int. Cl.³ A61B 6/00; H05G 1/00; G01T 1/11

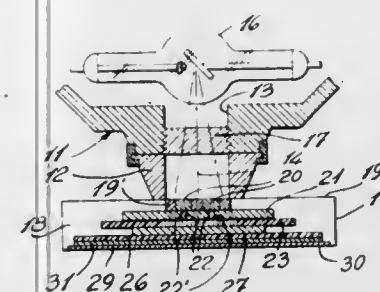
U.S. Cl. 378-207

11 Claims

9. A method of sampling a radiation field emitted from an X-ray machine for the determination of certain operational characteristics of said machine, said method comprising:

- (i) disposing a cassette container having one or more ther-

mo-luminescent crystals supported therein under a respective filter, each filter having different densities from one another, said container also having an X-ray sensitive film supported under a further plurality of filters also having different densities from one another,



- (ii) operating said machine to produce an X-ray beam over a predetermined area of said container and for a predetermined exposure time, and
- (iii) analyzing said thermo-luminescent crystals and film to determine said operational characteristics of said machine.

4,392,241

DIGITAL INTERFACE SYSTEM

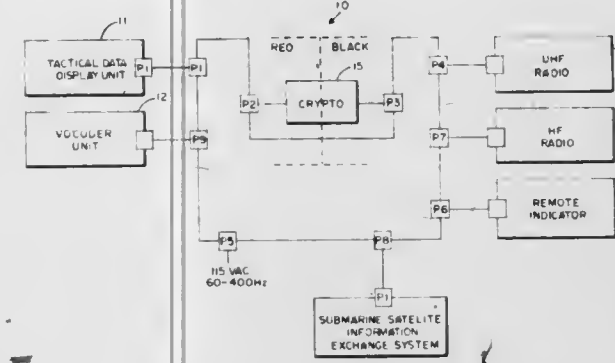
Dennis P. Hurst, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 30, 1981, Ser. No. 258,987

Int. Cl.³ H04K 1/00

U.S. Cl. 455-26

3 Claims



1. A system for interfacing unclassified information and classified information to and from a pair of discrete radio links comprising:

- means for generating and receiving classified and unclassified tactical data;
- means for generating and receiving classified and unclassified voice coded data;
- means coupled to the tactical data generating and receiving means and the voice coded data generating and receiving means for encrypting information sent therefrom and for decrypting information sent thereto;
- first means coupled to the encrypting and decrypting means, the tactical data generating and receiving means and the voice coded data generating and receiving means for transmitting and receiving information to satellites in the high frequency spectrum;
- means coupled to the encrypting and decrypting means, the tactical data generating and receiving means and the voice coded data generating and receiving means for transmitting and receiving information in the ultra-high frequency spectrum;
- means for connecting either the tactical data generating and receiving means or the voice coded data generating and receiving means to the encrypting and decrypting means; and

means operatively coupled for providing power for the system.

4,392,242

MOBILE COMMUNICATION SYSTEM

Tomokazu Kai, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1981, Ser. No. 240,937

Claims priority, application Japan, Mar. 10, 1980, 55-30127

Int. Cl.³ H04B 1/00

U.S. Cl. 455-33

3 Claims



1. In a mobile communication system wherein a plurality of radio zones, each including one radio base station, the base stations of all radio zones being controlled by a control center which controls a paging signal and an origination signal of a mobile unit, are arranged to form a service area, and each radio zone is provided with at least one mobile access channel and a single mobile paging channel assigned to a radio frequency common to all radio zones, thus establishing speech channels for the mobile units, the improvement wherein said at least one mobile access channel of one radio zone is assigned to a radio frequency which is different from that assigned to adjacent radio zones, said control center is provided with means for controlling an origination signal of said mobile unit for selecting at least one channel among available channels allocated to a radio base station associated with said mobile unit, circuit switching means operatively connected to said origination signal control means for establishing said mobile access channel and means for broadcasting a channel number of said established mobile access channel to all radio zones through said mobile paging channel; and wherein each mobile is provided with a receiver for receiving said channel number on the mobile access channel, means for updating and storing said received channel number and means for sequentially receiving radio waves transmitted through said stored access channel and for comparing intensities of said received radio waves from each of said radio zones with each other to select a mobile access channel adapted to send out said origination signal of said mobile unit.

4,392,243

TRANSCIVER HAVING INTERPHONE SYSTEM

Shiro Ohhashi, Fumiyoshi Ubusawa, Shoji Iwasaki, and Tet-suyuki Manaka, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed Apr. 9, 1981, Ser. No. 252,570

Claims priority, application Japan, Apr. 9, 1980, 55-45680

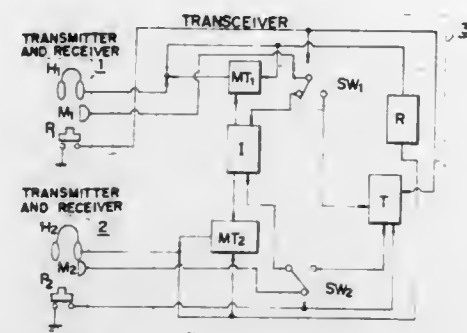
Int. Cl.³ H04B 1/40

U.S. Cl. 455-74

3 Claims

1. A transceiver having an interphone system, comprising: two microphones; two audio transducers; two manually operable switches; radio transmitter means; radio receiver means connected to said transducers; an interphone circuit;

first and second switch means each responsive to a respective one of said manually operable switches for selectively connecting a respective one of said microphones to one of said interphone circuit and said radio transmitter means; and



first and second muting means operatively coupling said interphone circuit to respective ones of said transducers and responsive to signals output to said transducers by said radio receiver means for muting output signals from said interphone circuit.

4,392,244

AUTOMATIC TRANSMISSION AND RECEPTION CONTROL SYSTEM

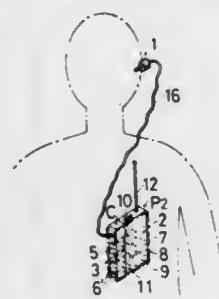
Naomi Yoshizawa, and Akira Terashima, both of Hatano, Japan, assignors to Pilot Mannenhitu Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 144,518, Apr. 28, 1980, Pat. No. 4,323,999. This application Dec. 16, 1980, Ser. No. 217,375

Claims priority, application Japan, Feb. 29, 1980, 55-24105 Int. Cl.³ H04B 1/44

U.S. Cl. 455-79

4 Claims



1. In an automatic transmission and reception control system for a transmitting and receiving device including a vibration pick-up type microphone for picking up bone-conducted voice signals, a speaker for hearing received voice sounds, and means for switching over between transmission and reception; the improvement comprising means coupled to said microphone for producing control signals from impact vibrations except voice signals uttered by a microphone wearer himself, transmitted through his bones and picked up by the microphone, and that said switching means comprises means responsive to said signals for alternately switching between transmission and reception according to the input order in which control signals are applied.

4,392,245

RADIO TRANSMITTER HAVING AN OUTPUT POWER CONTROL CIRCUIT

Masataka Mitama, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1980, Ser. No. 218,477

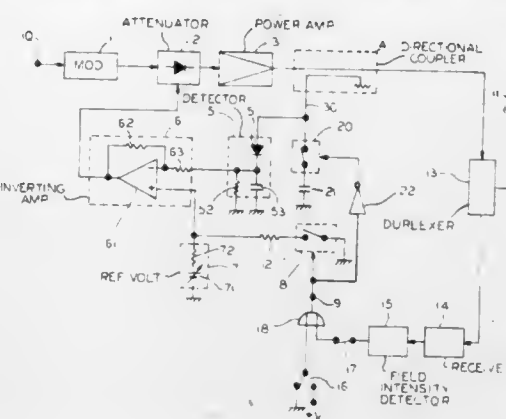
Claims priority, application Japan, Jan. 10, 1980, 55-1542[U] Int. Cl.³ H04B 7/005

U.S. Cl. 455-115

10 Claims

1. A radio transmitter having a forward power output control circuit comprising power amplifier means, directional coupler means coupled to said power amplifier means, detector means for detecting the forward power output of said direc-

tional coupler means, generator means for generating a difference voltage responsive to a difference between an output voltage of said detector means and a reference voltage, power regulator means for varying the output power for said power amplifier means in response to the output of said generator



means, and first means between said directional coupler means and said detector means for varying the power applied from said power amplifier means via said directional coupler to said detector means in response to a control signal, thereby extending a controllable range for output power of said radio transmitter.

4,392,246

BROADCAST WAVE RECEIVING SYSTEM

Takeharu Niioka, and Isao Kobayashi, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

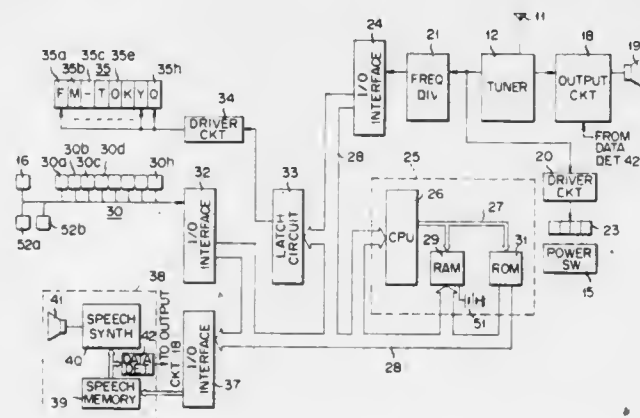
Filed Aug. 24, 1981, Ser. No. 296,247

Claims priority, application Japan, Sep. 1, 1980, 55-120952; Sep. 1, 1980, 55-120955; Sep. 1, 1980, 55-120956; Sep. 1, 1980, 55-120957; Sep. 1, 1980, 55-120958

Int. Cl.³ H04B 1/26

U.S. Cl. 455-158

6 Claims



1. A broadcast wave receiving system comprising: a tuner device; means for storing a plurality of alphanumeric characters; means for sequentially reading said characters from said storing means; means for specifying a received channel call sign presetting mode; means for producing a desired call sign data by successively selecting desired ones of said characters read out by said reading means; call sign data storage means for successively storing call sign data from said call sign data producing means and received broadcast wave frequency data corresponding to said call sign data when said presetting mode is specified; means for comparing data corresponding to received broadcast wave frequencies obtained from said tuner device and

frequency data stored in said call sign storage means at a time of reception after said successive data storing; means for reading out a call sign data from said call sign data storage means in response to a frequency data coincidence output of the comparing means; and means for informing the user of said call sign data.

4,392,247

BROADCAST RECEIVER WITH SEARCH TUNING

Theodorus H. M. van Deursen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

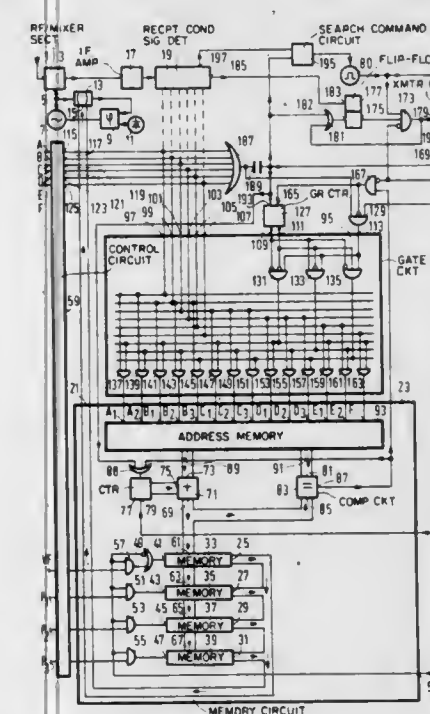
Filed Apr. 22, 1981, Ser. No. 256,365

Claims priority, application Netherlands, May 29, 1980, 8003087

Int. Cl.³ H03J 7/00

U.S. Cl. 455-161

2 Claims



1. A broadcast receiver including a search tuning circuit comprising a group selection circuit for selecting from a plurality of groups of tuning data stored in a memory circuit, each group of tuning data being associated with a given region, a search action of the search tuning circuit for scanning a selected group of tuning data being initiated when a transmission which corresponds to a tuning datum from the selected group provides reception which is too weak, the search action being terminated when a transmission which corresponds to a tuning datum from the selected group provides sufficiently strong reception, characterized in that the receiver further includes an automatic control circuit comprising means for activating said group selection circuit to select one of said groups of tuning data, a transmitter counter, means for initializing said transmitter counter and for activating said search tuning circuit for scanning said selected group of tuning data for a transmission that would provide sufficiently strong reception, means for incrementing said transmitter counter each time a transmission is accepted and for continuing said scanning by said search tuning circuit until said entire selected group of tuning data is scanned, means for causing said group selection circuit to select said selected group of tuning data if the number of accepted transmissions in said selected group of tuning data, as indicated by said transmitter counter, is equal to or exceeds a predetermined number, and means for reactivating said group selection circuit to select another one of said plurality of groups of tuning data for scanning if the number of accepted transmissions in said selected group of tuning data, as indicated by said transmitter counter, is less than said predetermined number, whereby said automatic control circuit automatically selects for reception, under the control of said counter, when this counter has counted a sufficient number of transmissions which are receivable with sufficient strength and which corre-

spond to tuning data from the same group, that particular group.

4,392,248

ATTENTION SIGNAL RECEIVER FOR EMERGENCY BROADCAST SYSTEMS

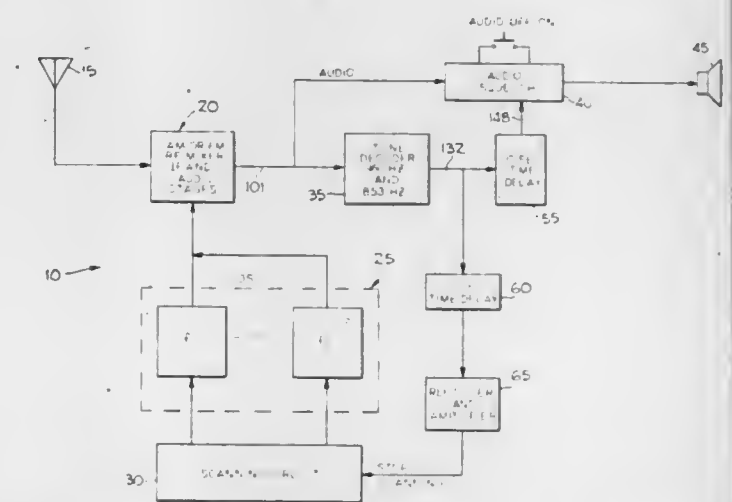
Calvin Eckels, San Jose, and John James, Los Gatos, both of Calif., assignors to Time and Frequency Technology, Inc., Santa Clara, Calif.

Filed Oct. 5, 1981, Ser. No. 308,611

Int. Cl.³ H04B 1/26; H03J 7/20

U.S. Cl. 455-161

12 Claims



7. An attention receiver for use in emergency broadcast systems comprising:

- first means for picking up radio frequency signals each having a carrier modulated by an attention signal;
- second means including a first detector for receiving said radio frequency signals;
- oscillating means applying different respective oscillating frequencies to said first detector for producing an intermediate frequency signal modulated by an attention signal;
- a scanning circuit connected to said oscillating means to control the operation thereof to produce continuously and sequentially different respective oscillating frequencies;
- a second detector connected to said second means for producing an attention audio signal from said intermediate frequency signal modulated by the attention signal;
- alert means for alerting an operator;
- a circuit connected to said second detector for operating said alert means in response to receiving said attention audio signal;
- a tone decoder connected to said second detector for detecting said attention audio signal; and
- third means including a time delay circuit connected to said tone decoder and said scanning circuit, said third means applying a stop scan signal to said scanning circuit in response to detection of said attention audio signal by said tone decoder for a period of time in excess of a predetermined period of time to lock in said second means for reception of one of said attention signal modulated carrier signals.

4,392,249

ELECTRONIC CHANNEL SELECTION APPARATUS WITH SURFACE ACOUSTIC WAVE DEVICE

Shigeo Matsuura, and Ikuo Yuki, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 25, 1981, Ser. No. 247,268

Claims priority, application Japan, Mar. 25, 1980, 55-36867 Int. Cl.³ H04B 1/26; H03J 7/28, 7/26

U.S. Cl. 455-164

6 Claims

1. An electronic channel selection apparatus with a surface acoustic wave device comprising:

- an electronic tuner including a voltage-controlled local

means for developing a local oscillator signal having a frequency which effectively selects a received signal frequency and rejects signals at frequencies substantially different from said received signal frequency;

mechanical tuning means operative in a tuning mode for tuning said front end means to a desired signal frequency in accordance with the position of at least one mechanically movable tuning element which provides an associated variable tuning impedance having a magnitude determined in accordance with the position of said movable tuning element, the local oscillator signal frequency being determined by and corresponding to the magnitude of said tuning impedance;

electronic tuning means operative in a locked tuning mode for maintaining said receiver front end means tuned to a received signal frequency by developing a control voltage and utilizing said control voltage to control the frequency of said local oscillator means such that the tuning of said front end means tracks the received signal frequency; and switch means for implementing said tuning mode and utilizing said movable tuning element to provide a desired magnitude of said associated variable tuning impedance for initially selecting a desired received signal frequency, and for implementing said locked tuning mode while terminating said tuning mode by subsequently disconnecting said movable tuning element and said associated variable tuning impedance from control of said local oscillator signal frequency and effectively connecting said electronic tuning means to substantially control the frequency of said local oscillator signal, whereby mechanical vibrations during the locked tuning mode which move the position of the movable tuning element and thereby alter the magnitude of said associated variable impedance do not affect the local oscillator signal frequency.

4,392,255

COMPACT SUBHARMONIC MIXER FOR EHF WAVE RECEIVER USING A SINGLE WAVE GUIDE AND RECEIVER UTILIZING SUCH A MIXER

Michel Del Giudice, Paris, France, assignor to Thomson-CSF, Paris, France

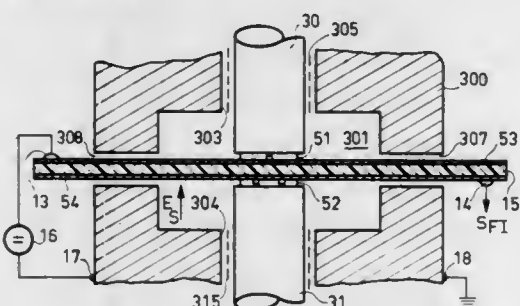
Filed Jan. 8, 1981, Ser. No. 223,474

Claims priority, application France, Jan. 11, 1980, 80 00613

Int. Cl.³ H04B 1/26

U.S. Cl. 455—328

6 Claims



1. A subharmonic mixer for an extremely high frequency wave receiver for receiving high frequency waves including a waveguide carrying the signal to be received, wherein said waveguide further comprises:

a local oscillator means for producing a signal at one half the frequency of said received high frequency waves wherein said local oscillator includes a first module having a conductive support, a semiconductor diode with a negative resistance, wherein one electrode of said diode is in contact with the support of said first module and wherein the other electrode is in electrical contact with a metal coating with said metal coating extending over a dielectric material placed on the support and surrounding said diode;

a detector means including a second module having a second conductive support, two semiconductor diodes mounted in antiparallel connection, with each of said diodes having an electrode in electrical contact with said second support

and the other electrode of each of said diodes is in electrical contact with a second metal coating with said second metal coating extending over a second dielectric placed on said second support and surrounding said two diodes; first connecting means in mechanical and electrical contact with said first metal coating for connecting said local oscillator module to a D.C. supply means; and second connecting means in mechanical and electrical contact with said second metal coating for connecting said detector means to processing circuits of said receiver.

4,392,256

MECHANICAL REMOTE CONTROL DEVICE FOR A TELEVISION RECEIVER

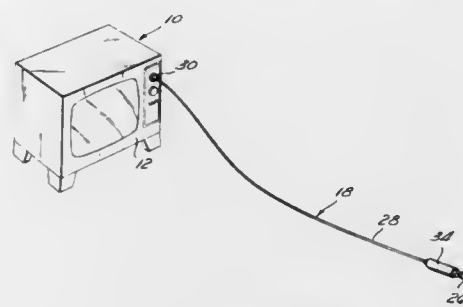
Jerry E. Russell, 124 Via Baja, Ventura, Calif. 93003

Filed Jul. 18, 1980, Ser. No. 170,138

Int. Cl.³ H04B 1/06; H04N 5/44

U.S. Cl. 455—354

2 Claims



1. In combination with a television receiver, said television receiver having a rotatable volume control shaft, said volume control shaft being longitudinally movable between a retracted position and an extended position, with said volume control shaft in said retracted position said television receiver is inoperative, with said volume control shaft in said extended position said television receiver is operative, a mechanical remote control device for moving said volume control shaft, said device comprising:

a sleeve for snugly receiving said volume control shaft; a twisted stranded cable secured to said sleeve, said twisted stranded cable extending a spaced distance from said television receiver terminating in a free end; a manually graspable knob assembly attached to said twisted stranded cable at said free end; and encasing means covering said twisted stranded cable and a portion of said manually graspable knob assembly, said encasing means being secured against longitudinal movement in respect to said television receiver yet permitting lateral flexibility of said twisted stranded cable relative to said television receiver, said twisted stranded cable being rotatable within said encasing means and also being longitudinally movable relative to said encasing means during movement of said volume control shaft between said retracted position and said extended position, said encasing means comprises a cover located about said twisted stranded cable, said cover being connected to a second sleeve, said second sleeve having an internal chamber, a portion of said manually graspable knob assembly being located within said internal chamber and being longitudinally movable in respect thereto.

DESIGNS

JULY 5, 1983

269,559

CONFECTION ON A STICK

Jose M. Sellares, c/o McCann Erickson SA, Gran Via Carlos III, 136-138 Barcelona, Spain

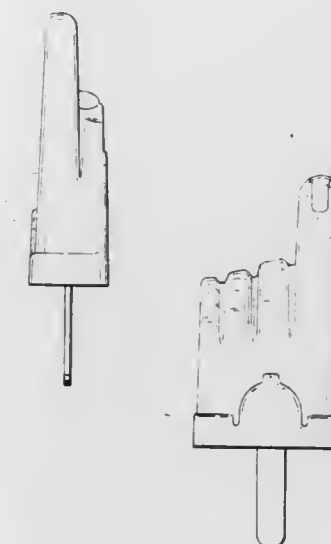
Filed Feb. 6, 1981, Ser. No. 232,296

Claims priority, application United Kingdom, Aug. 7, 1980, 996057

Term of patent 14 years

Int. Cl. D01—01

U.S. Cl. D1—22



269,561

COMBINED VEST AND BACK PACK

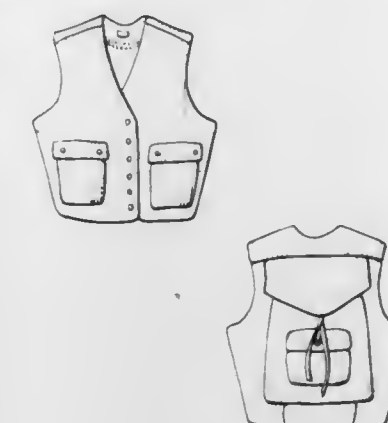
Robert L. Scott, 1651 Market St., Suite 202, San Francisco, Calif. 94103

Filed Jul. 16, 1982, Ser. No. 398,933

Term of patent 14 years

Int. Cl. D2—02

U.S. Cl. D2—184



269,562

SURGICAL HOOD

Jacob A. Glassman, 1680 Michigan Ave., Miami Beach, Fla. 33139

Filed Apr. 6, 1981, Ser. No. 251,495

Term of patent 14 years

Int. Cl. D02—03

U.S. Cl. D2—243



269,560

PANTS

Mark T. Sheppard, and Lynda J. Timbers, both of 105 E St., Roseville, Calif. 95678

Filed Feb. 6, 1981, Ser. No. 231,973

Term of patent 14 years

Int. Cl. D2—02

U.S. Cl. D2—28



269,563

SELF DEFENSE KEY RING

Kent H. M. Lee, 2122 20th St., Santa Monica, Calif. 90405

Filed Oct. 27, 1980, Ser. No. 208,053

Term of patent 14 years

Int. Cl. D3—01

U.S. Cl. D3—62



**269,564
LUGGAGE**

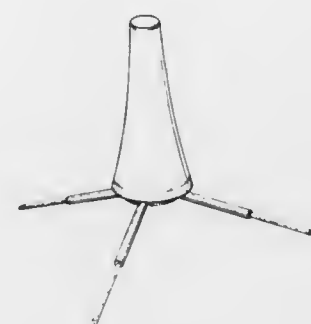
Ted Stark, 60 Eagle Rock Way, Montclair, N.J.
Filed Feb. 4, 1980, Ser. No. 100,811
Term of patent 14 years
Int. Cl. D3—01

U.S. Cl. D3-71



269,567
MUSICAL INSTRUMENT STAND OR SIMILAR ARTICLE
Robert A. Lorenzini, P.O. Box 91, Hancock, Mass. 01237
Filed Jun. 4, 1981, Ser. No. 270,259
Term of patent 14 years
Int. Cl. D6—99

U.S. Cl. D6-29

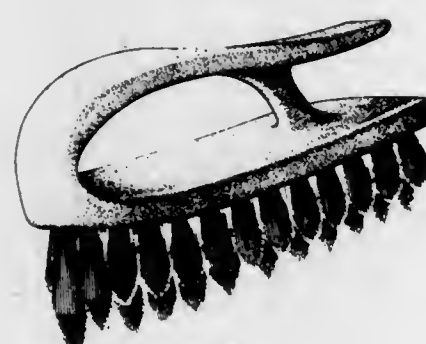


269,565
SCRUB BRUSH

SCRUB BRUSH
Sylvia Goldstaub, 5777B Sims Rd., Palm Greens, Delray Beach,
Fla. 33445

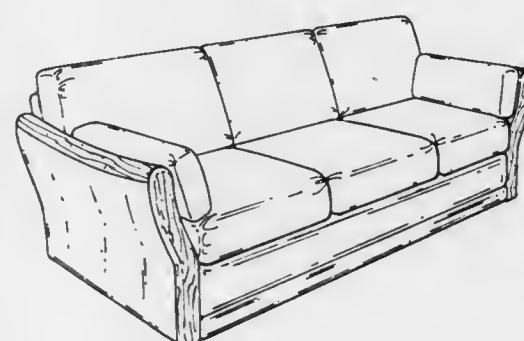
Filed Oct. 6, 1980, Ser. No. 193,936
Term of patent 14 years
Int. Cl. D4-01

U.S. Cl. D4-10



269,568
SOFA
Deborah Nelson, Knoxville, Tenn., assignor to The Berkline
Corporation, Morristown, Tenn.
Filed Dec. 8, 1980, Ser. No. 213,816
Term of patent 14 years
Int. Cl. D6—01

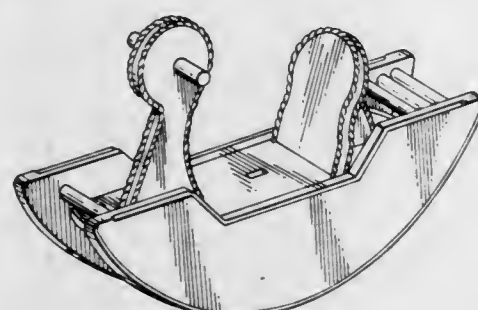
U.S. Cl. D6-63



269,566
CHILD'S ROCKER

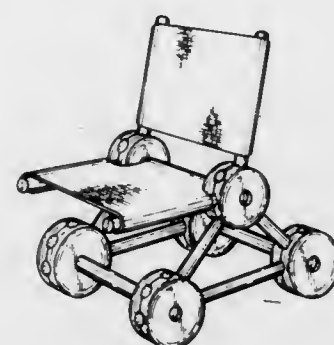
Eugene Sexton, 118 Kings Dr., Warren, Ohio 44481
Filed May 26, 1981, Ser. No. 266,893
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6—11



269,569
SPOOL AND SPINDLE CHAIR
Michael W. Bowen, 1847 Parr Hwy., Adrian, Mich. 49221
Filed Jun. 25, 1981, Ser. No. 277,258
Term of patent 14 years
Int. Cl. D6—01

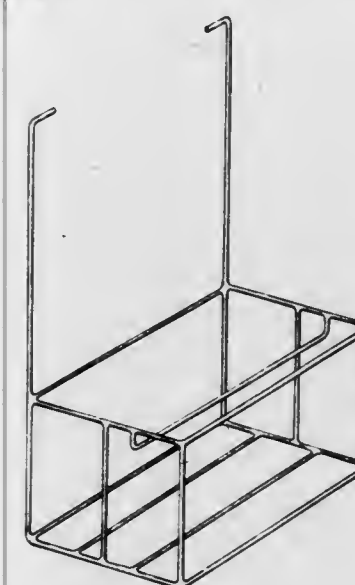
U.S. Cl. D6-75



JULY 5, 1983

269,570
AUXILIARY TOILET PAPER ROLL HOLDER
Charles B. O'Keefe, 2579 N. Miller Rd., Scottsdale, Ariz. 85257
Division of Ser. No. 84,591, Oct. 15, 1979, Pat. No. Des.
263,009. This application Apr. 16, 1981, Ser. No. 254,964
Term of patent 14 years
Int. Cl. D23—02; D6—06

U.S. Cl. D6-97



269,573
EQUIPMENT ORGANIZER USED PRIMARILY BY
BARBERS AND BEAUTICIANS
Stanley T. Sikora, 1710 Highland Blvd., Hoffman Estates, Ill.
60195

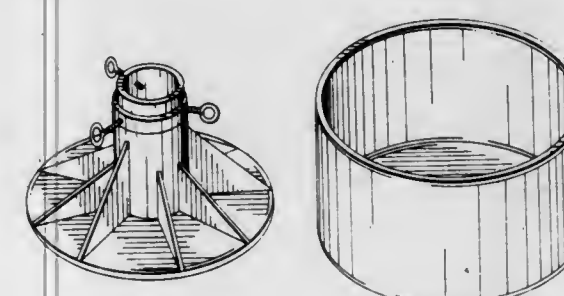
Filed Feb. 10, 1981, Ser. No. 233,213
Term of patent 14 years
Int. Cl. D06—04

U.S. Cl. D6—188



269,571
COMBINED CHRISTMAS TREE STAND AND
CONTAINER THEREFOR
Herbert W. Geshwind, 11408 N. 30th Ave., Phoenix, Ariz. 85029
Filed Nov. 25, 1981, Ser. No. 325,092
Term of patent 14 years
Int. Cl. D6—99

U.S. Cl. D6-105



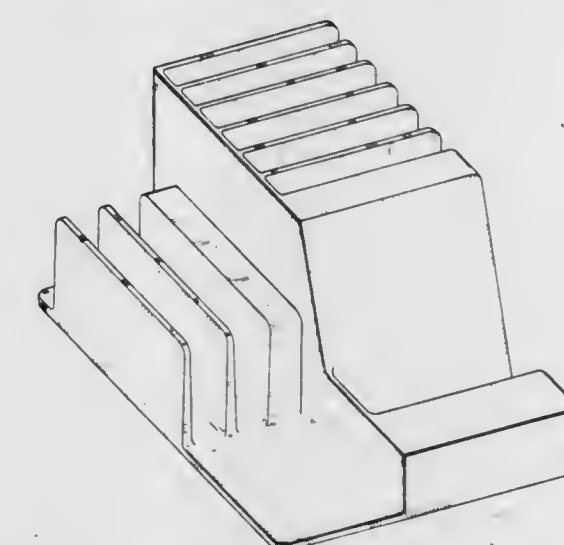
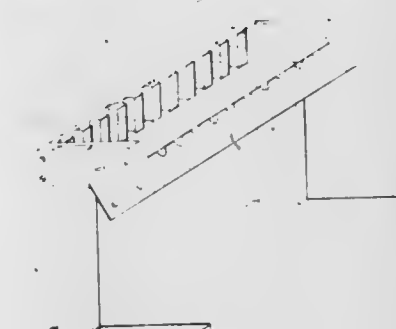
269,574
RACK FOR HOLDING BEVERAGE ORDER CHECKS
Robert G. Dougherty, 12375 Dodd Blvd., Rosemount, Minn.
55068

Filed Mar. 12, 1981, Ser. No. 242,834
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—189

269,572
PISTOL RACK
John E. Aspenwall, 1327 Madrid Way, Sandy, Utah 84070
Filed Nov. 7, 1980, Ser. No. 205,683
Term of patent 14 years
Int. Cl. D06—04

U.S. Cl. D6-188



269,575

COMBINED PILLOW AND FINGER PUPPETS

A. Edward Fogarty, and Bonnie R. Fogarty, both of 3513 School Ave., Sarasota, Fla. 33579

Filed Dec. 29, 1980, Ser. No. 220,706

Term of patent 14 years
Int. Cl. D6-09; D21-01

U.S. Cl. D6-203



269,577

TABLECLOTH OR THE LIKE

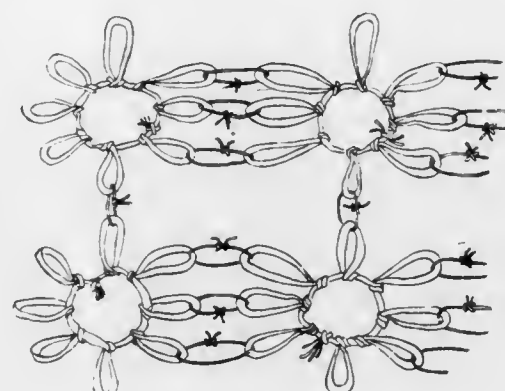
Zana J. Wilson, 1625 Mesquito St., Abilene, Tex. 79601

Filed Aug. 14, 1980, Ser. No. 178,102

Term of patent 14 years

Int. Cl. D6-13

U.S. Cl. D6-275



269,578

MOLD FOR FORMING FROZEN FOOD PRODUCT

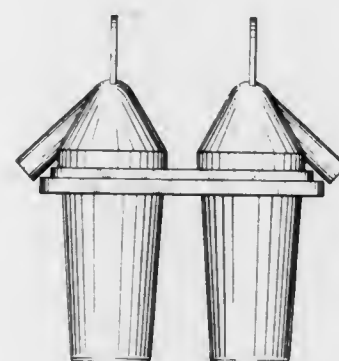
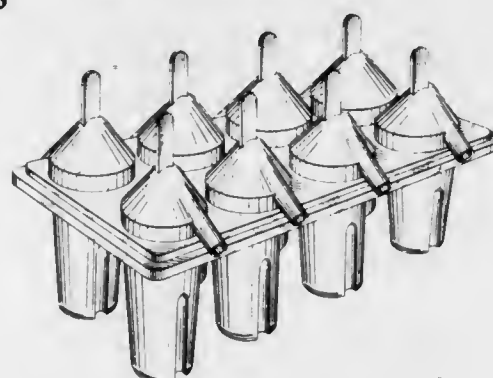
Paul Straubinger, 21-33 28th St., Astoria, N.Y. 11105

Filed Apr. 24, 1980, Ser. No. 143,312

Term of patent 14 years

Int. Cl. D07-04

U.S. Cl. D7-43



269,576

INDUSTRIAL TRAFFIC CURTAIN STRIP

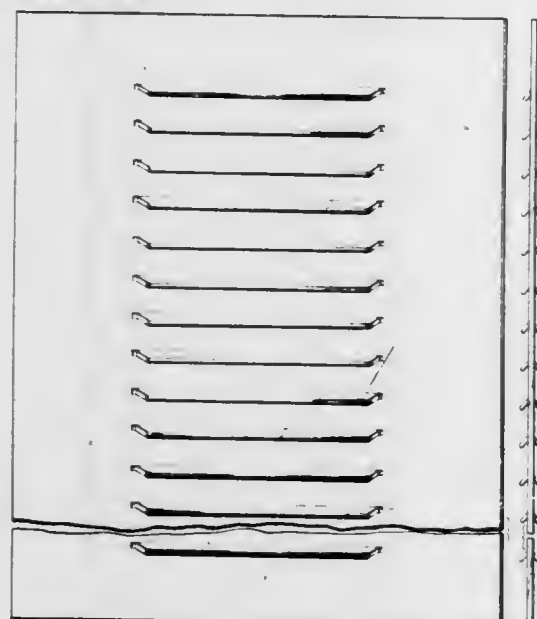
Edward S. Robbins, Jr., Rte. 7, Box 322, Florence, Ala. 35630

Filed Apr. 14, 1981, Ser. No. 254,200

Term of patent 14 years

Int. Cl. D6-10

U.S. Cl. D6-208.1



269,579

MOLD FOR CONFECTIONERY OR BAKERY PRODUCT OR THE LIKE

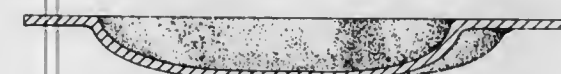
Beryl E. Carlomagno, 4120 Stillmeadow Way, Sacramento, Calif. 95821

Filed Feb. 25, 1982, Ser. No. 351,850

Term of patent 14 years

Int. Cl. D07-02

U.S. Cl. D7-44



269,581

CONDIMENT MILL

William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505

Filed Aug. 10, 1981, Ser. No. 291,306

Term of patent 14 years

Int. Cl. D07-06

U.S. Cl. D7-53



269,580

CONDIMENT MILL

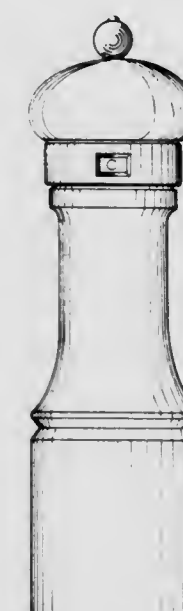
William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505

Filed Aug. 10, 1981, Ser. No. 291,297

Term of patent 14 years

Int. Cl. D07-06

U.S. Cl. D7-53



269,582

CONDIMENT MILL

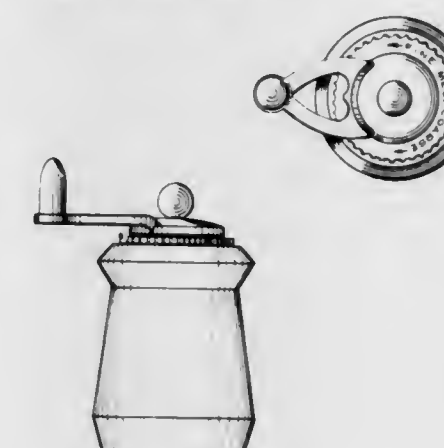
William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505

Filed Aug. 10, 1981, Ser. No. 291,307

Term of patent 14 years

Int. Cl. D07-06

U.S. Cl. D7-53



269,583

CONDIMENT MILL

William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505
 Filed Aug. 10, 1981, Ser. No. 291,308
 Term of patent 14 years
 Int. Cl. D07-06

U.S. Cl. D7-53

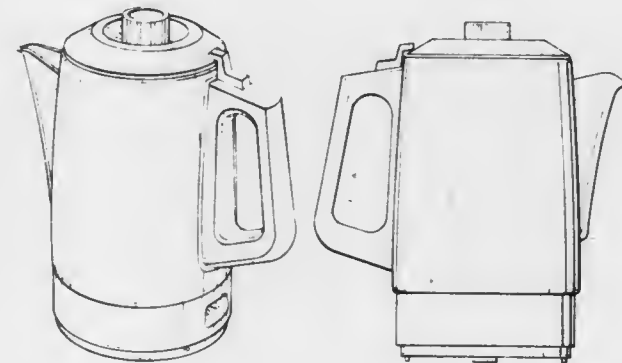


269,585

PERCOLATOR

Alan A. Phillips, Kewaskum, Wis., assignor to Dart Industries Inc., Northbrook, Ill.
 Filed Mar. 12, 1981, Ser. No. 243,098
 Term of patent 14 years
 Int. Cl. D07-02

U.S. Cl. D7-321



269,586

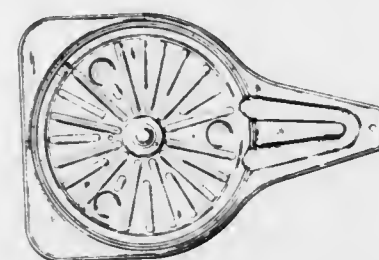
DISPOSABLE PAN FOR HEATING AND SERVING FOOD

David F. Allgeyer; Philip P. Johnson, both of Conway, and John W. Gilliom, Wooster, all of Ark., assignors to UMC Industries, Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 240,800, Mar. 5, 1981. This application Oct. 19, 1981, Ser. No. 312,382

Term of patent 14 years
 Int. Cl. D07-02

U.S. Cl. D7-359

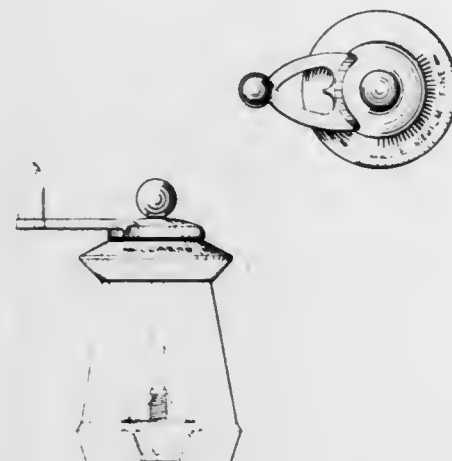


269,584

CONDIMENT MILL

William E. Bounds, 3737 W. 240th St., Torrance, Calif. 90505
 Filed Aug. 10, 1981, Ser. No. 291,778
 Term of patent 14 years
 Int. Cl. D07-06

U.S. Cl. D7-53

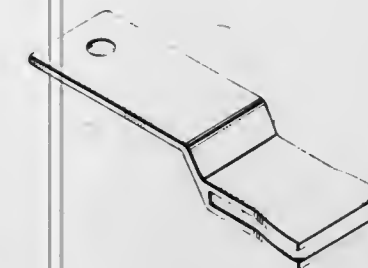


269,587

PULL TAB OPENER

Mark H. Hanslmair, 10037 Culver Blvd., Culver City, Calif. 90230
 Filed May 29, 1981, Ser. No. 268,192
 Term of patent 14 years
 Int. Cl. D07-99

U.S. Cl. D8-40



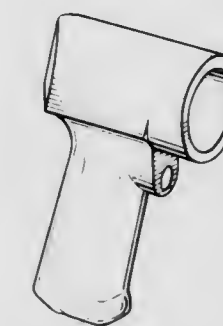
269,588

TOOL HANDLE

David Ludwig, St. Louis, Mo., assignor to Allan Air Products, St. Louis, Mo.

Filed Jan. 21, 1981, Ser. No. 226,873
 Term of patent 14 years
 Int. Cl. D8-05

U.S. Cl. D8-107

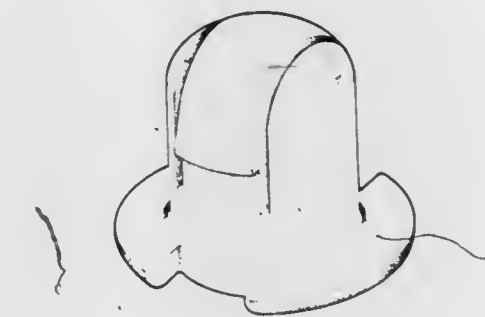


269,590

SNAP LOCK FASTENER

Conny Jansson, Enköping, Sweden, assignor to AB Bahco Verktyg, Enköping, Sweden
 Filed Oct. 9, 1980, Ser. No. 195,507
 Claims priority, application Sweden, Apr. 18, 1980, 80-0809
 Term of patent 14 years
 Int. Cl. D8-08

U.S. Cl. D8-382



269,591

BOTTLE

Henri D'Orleans, Paris, France, assignor to L'Oreal, Clichy, France

Filed Nov. 6, 1980, Ser. No. 204,573
 Term of patent 14 years
 Int. Cl. D9-01

U.S. Cl. D9-335



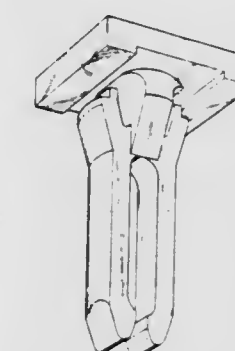
269,589

COMBINED FIXING AND RETAINING CLIP FOR ELONGATE BODIES

Daiji Nakama, Chigasaki, Japan, assignor to Nifco, Inc., Yokohama, Japan

Filed Oct. 27, 1980, Ser. No. 200,741
 Claims priority, application Japan, May 31, 1980, 55-21589
 Term of patent 14 years
 Int. Cl. D8-08

U.S. Cl. D8-356



269,592

COMBINED BOTTLE AND CAP

Michael Barney, Leeds, England, assignor to Lever Brothers Company, New York, N.Y.

Filed Jul. 26, 1979, Ser. No. 61,139

Claims priority, application United Kingdom, Jan. 30, 1979, 988336

Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—367



269,594

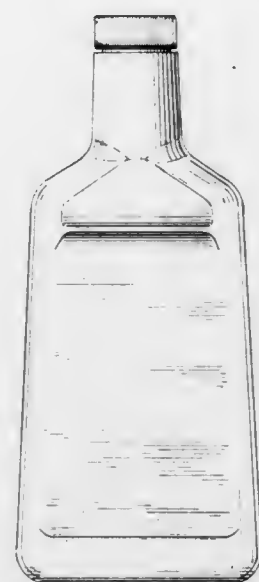
BOTTLE OR SIMILAR ARTICLE

William R. Gurolnick, Morton Grove, Ill., assignor to Gold Eagle Co., Chicago, Ill.

Filed Jan. 16, 1981, Ser. No. 225,465

Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—389



269,595

BOTTLE

Donald Murray, Succasunna, N.J., assignor to J. L. Prescott Co., Passaic, N.J.

Filed Mar. 24, 1981, Ser. No. 246,925

Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—413



269,593

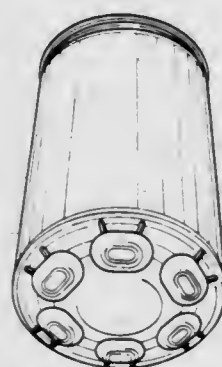
CONTAINER FOR LIQUIDS OR THE LIKE

Robert J. Gruodis, Oak Lawn; William T. Franz, Palos Park, and Edward J. Hayes, Elmhurst, all of Ill., assignors to The Continental Group, Inc., Stamford, Conn.

Filed Mar. 27, 1981, Ser. No. 248,663

Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—370



269,596

POURING SPOUT ATTACHMENT FOR A PAINT CAN OR SIMILAR ARTICLE

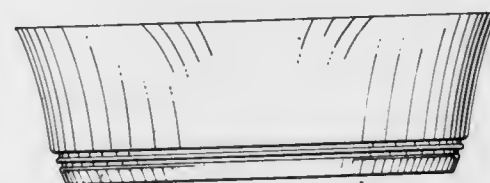
James C. Fowkes, 6060 Briggs Lake Dr., Brighton, Mich. 48116

Filed Apr. 15, 1981, Ser. No. 254,459

Continuation-in-part of Ser. No. 46,005, Jun. 6, 1979

Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—447



269,597

LID FOR A CONTAINER

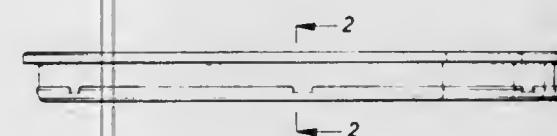
Alun Harries, London, England, assignor to Metal Box Limited, Reading, England

Filed Dec. 1, 1980, Ser. No. 211,933

Claims priority, application United Kingdom, Jun. 12, 1980, 995299

Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—454



269,599

SCALE FOR WEIGHING PRECIOUS METALS AND THE LIKE

Richard W. Perry, Seekonk, Mass., and Ronald J. Medeiros, East Providence, R.I., assignors to Four R's Mfg. Corp., East Providence, R.I.

Filed Mar. 10, 1981, Ser. No. 242,203

Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—87



269,600

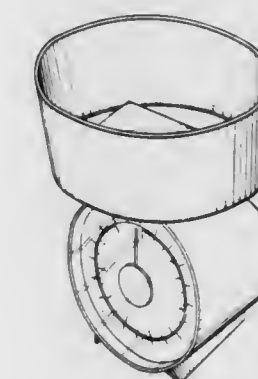
ROUND HOUSEHOLD SCALE

Dana W. Mox, Elk Grove Village, Ill., assignor to Tricolor Corporation, Las Cruces, N. Mex.

Filed Jul. 28, 1980, Ser. No. 173,683

Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—91



269,598

SURVEYOR'S STAKE

Edward E. Anderson, 9323 Bennet Lake Rd., Fenton, Mich. 48430

Filed Jun. 29, 1981, Ser. No. 278,732

Term of patent 14 years
Int. Cl. D10—06

U.S. Cl. D10—66



269,601

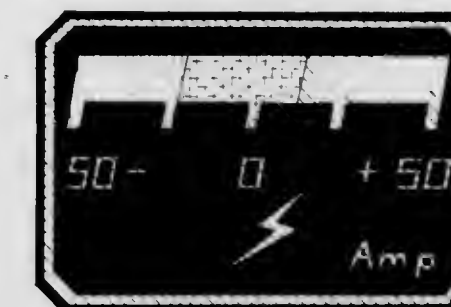
FACE FOR MOTOR VEHICLE AMPERE METER

John L. O'Driscoll, 41 Saranac Ave., Youngstown, Ohio 44505

Filed Mar. 18, 1981, Ser. No. 244,177

Term of patent 14 years
Int. Cl. D10—07

U.S. Cl. D10—125



269,602

NOVELTY SCULPTURE

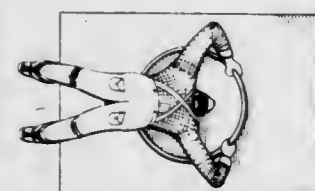
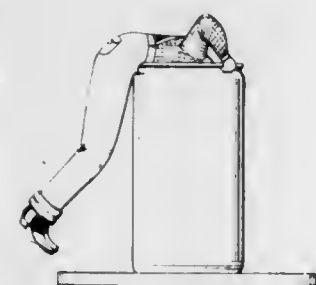
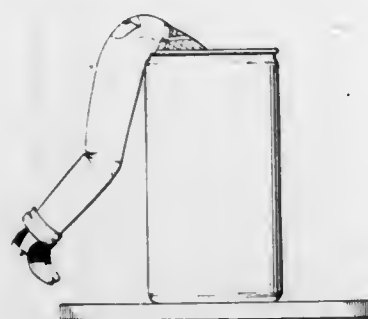
Diana J. Fedora, Rte. 1, Box 178, Sidney, Mont. 59270

Filed Jan. 15, 1981, Ser. No. 225,730

Term of patent 14 years

Int. Cl. D11-02

U.S. Cl. D11-160



269,603

WHEEL COVER

Herbert F. Whitmarsh, High Barnet, England, assignor to Initial

Plastics Limited, High Barnet, England

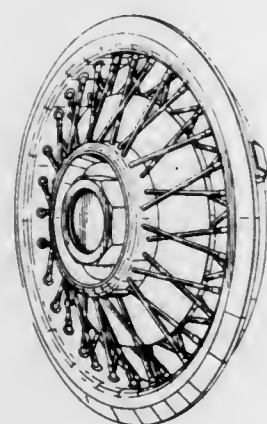
Filed May 26, 1981, Ser. No. 267,052

Claims priority, application United Kingdom, Jan. 8, 1981, 998377

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-205



269,604

SLURRY DISPENSER CONTROL CONSOLE

William A. Strong, and Kenneth Church, both of Pine Bluff, Ark.,

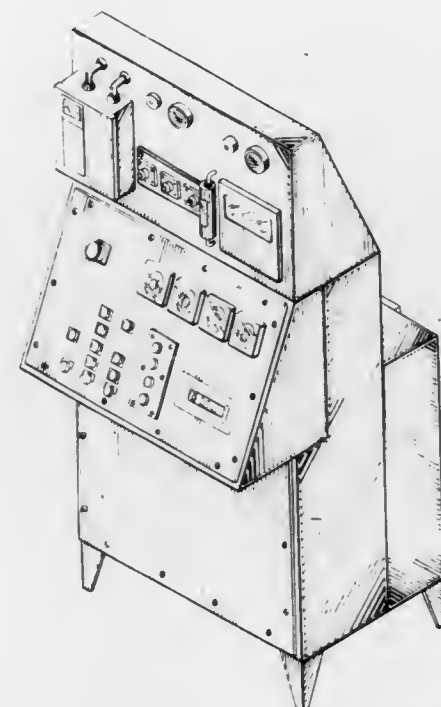
assignors to Strong Manufacturing Co., Inc., Pine Bluff, Ark.

Filed Jul. 7, 1980, Ser. No. 165,857

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-12



269,605

PROGRAMMABLE CONTROLLER HOUSING

Salvatore R. Provanzano, Melrose, Mass., and John J. Finnegan, Jr., Hudson, N.H., assignors to Gould Inc., Rolling

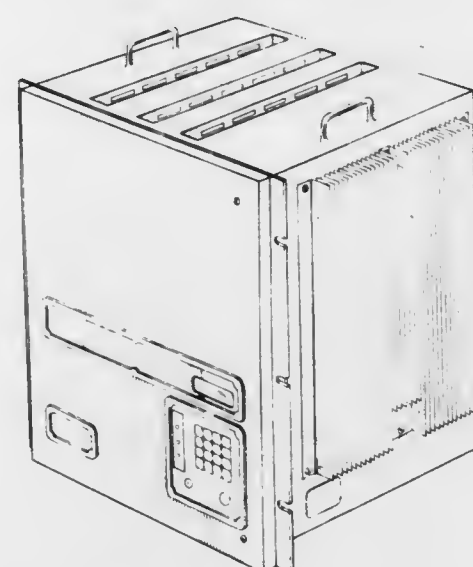
Meadows, Ill.

Filed Oct. 3, 1980, Ser. No. 193,593

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-12



269,606

HEAT SINK OR SIMILAR ARTICLE

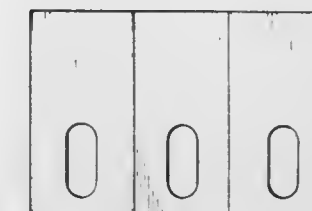
William D. Jordan, and Howard G. Hinshaw, both of Dallas, Tex., assignors to Thermalloy Incorporated, Dallas, Tex.

Filed May 26, 1981, Ser. No. 267,359

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-23



269,607

SWITCH FRAME

Shigeo Ohashi, c/o Nihon Kaiheiki Kogyo Kabushiki Kaisha,

5-14 Minamimagome 1-chome, Ohta-ku, Tokyo, Japan

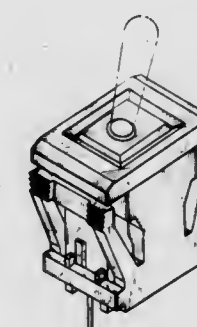
Filed May 14, 1981, Ser. No. 263,617

Claims priority, application Japan, Nov. 10, 1980, 55-047028

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-32



269,608

VIDEO GAME CONTROL UNIT

Syng N. Kim, Hoffman Estates, Ill., assignor to Wico Corpora-

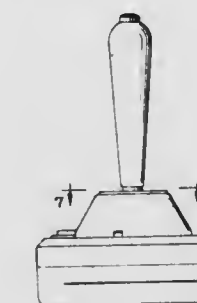
tion, Niles, Ill.

Filed Jun. 21, 1982, Ser. No. 390,382

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-38



269,609

VIDEO GAME CONTROL UNIT

Syng N. Kim, Hoffman Estates, Ill., assignor to Wico Corpora-

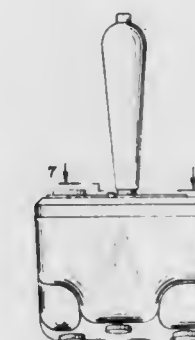
tion, Niles, Ill.

Filed Jul. 1, 1982, Ser. No. 394,262

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D13-38



269,610

AUTOMOBILE STEREO SYSTEM MULTI-CHANNEL

ELECTRONIC CROSS-OVER NETWORK

Hideyuki Matsubara, Tokyo, Japan, assignor to Pioneer Kabu-

shiki Kaisha, Tokyo, Japan

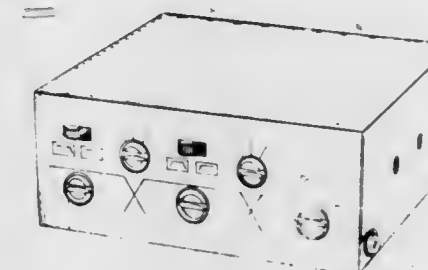
Filed Nov. 10, 1980, Ser. No. 205,699

Claims priority, application Japan, May 8, 1980, 55-17999

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-1



269,611

HEADPHONES

Tomonaga Saito, Ichikawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 19, 1981, Ser. No. 294,188

Claims priority, application Japan, Feb. 19, 1981, 56-6436

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-36



269,613

TELEPHONE WITH FUNCTION KEYS

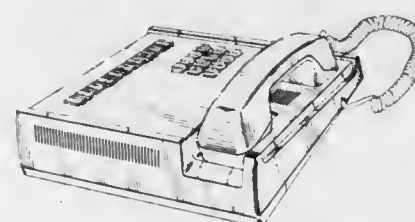
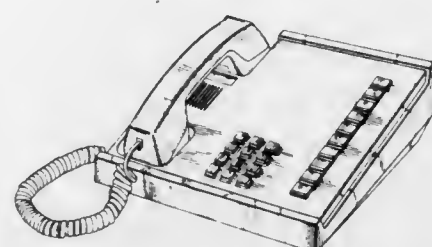
Donald A. Foggia, Ocean, N.J.; Deepak R. Muzumdar, Boca Raton, Fla.; Gerhart F. Klaiber, Boca Raton, Fla., and Rolf E. Schneider, Boca Raton, Fla., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 23, 1980, Ser. No. 199,990

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-58



269,614

CASE FOR TELETYPE INTERFACE

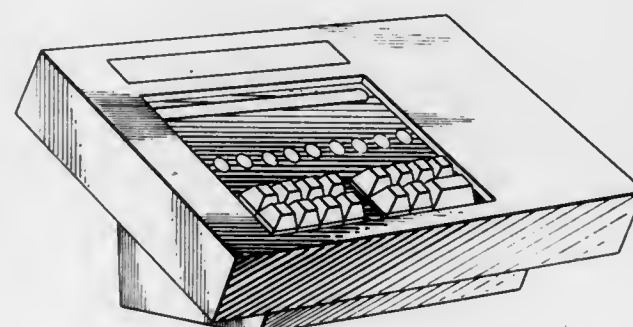
John M. Murphy, Los Gatos, Calif., assignor to CHAT Corporation, Los Gatos, Calif.

Filed Feb. 17, 1981, Ser. No. 234,877

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D14-93



269,612

LARGE TELEPHONE KEYSER WITH DISPLAY

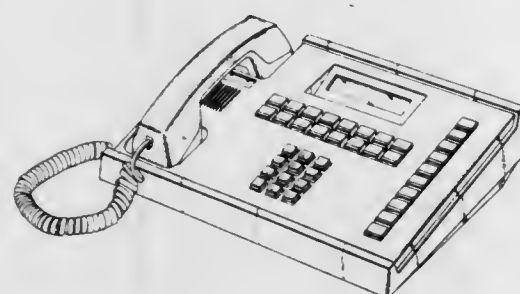
Donald A. Foggia, Ocean, N.J.; Deepak R. Muzumdar, Boca Raton, Fla.; Gerhart F. Klaiber, Boca Raton, Fla., and Rolf E. Schneider, Boca Raton, Fla., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 23, 1980, Ser. No. 199,985

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-58



269,615

COMBINED AMPLIFIER AND TUNER

Kazuhiko Nishiyama, Tokyo, and Takao Itoh, Tachikawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

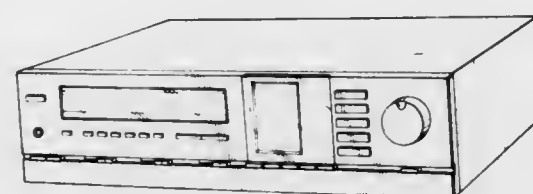
Filed Apr. 21, 1981, Ser. No. 256,089

Claims priority, application Japan, Jan. 19, 1981, 56-1038

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-96



269,616

PISTON WORKING FIXTURE

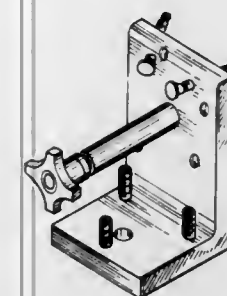
James R. Crum, P.O. Box 1271, St. Charles, Mo. 63301

Filed Oct. 31, 1980, Ser. No. 202,615

Term of patent 14 years

Int. Cl. D15-09; D8-05

U.S. Cl. D15-140



269,617

RESISTANCE WELDING ELECTRODE

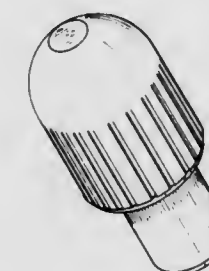
Russell A. Nippert, Delaware, Ohio, assignor to The Nippert Company, Delaware, Ohio

Filed Jul. 3, 1980, Ser. No. 165,519

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D15-144



269,618

COMBINED PHOTOCOPIER, SORTER AND DOCUMENT FEEDER

Louis J. H. Lucker, Tegelen, Netherlands, assignor to Oce-Nederland B.V., Venlo, Netherlands

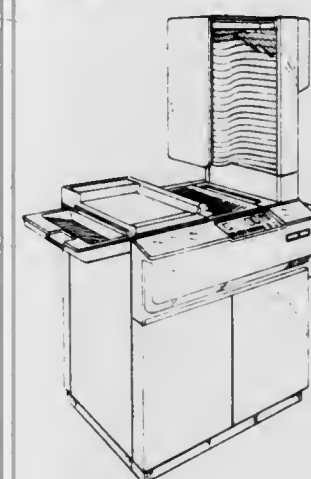
Filed Mar. 7, 1980, Ser. No. 128,302

Claims priority, application Benelux, Sep. 13, 1979, 54043-00

Term of patent 14 years

Int. Cl. D16-03

U.S. Cl. D16-30



269,619

SPECTACLE HOLDER

Stefan Engelmann, 61-38 164th St., Flushing, N.Y. 11365

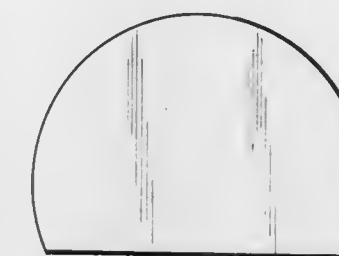
Division of Ser. No. 16,952, Mar. 2, 1979, Pat. No. Des. 260,527.

This application Feb. 26, 1981, Ser. No. 238,170

Term of patent 14 years

Int. Cl. D16-06; D6-99

U.S. Cl. D16-129



269,620

AUDIO CONTROL PANEL

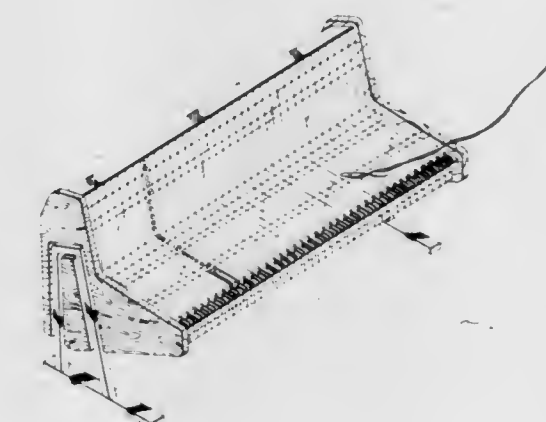
Lance Parker, 1467 S. 50 East, Orem, Utah 84057

Filed Sep. 15, 1980, Ser. No. 187,202

Term of patent 14 years

Int. Cl. D17-01

U.S. Cl. D17-1



269,621

GUITAR BOWL

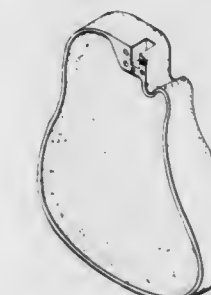
Charles H. Kaman, Prattling Pond Rd., Farmington, Conn. 06032

Filed Apr. 24, 1981, Ser. No. 257,182

Term of patent 14 years

Int. Cl. D17-03

U.S. Cl. D17-20



269,622

DRUM ROD ATTACHABLE DRUM KEY HOLDER

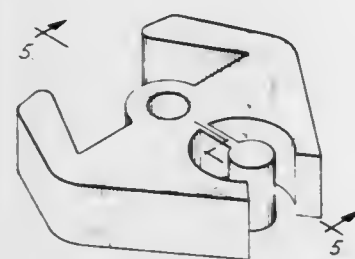
Bruce N. Hardy, Elkhart, Ind., assignor to Silver Street, Inc., Elkhart, Ind.

Filed Mar. 25, 1981, Ser. No. 247,343

Term of patent 14 years

Int. Cl. D17-04; D8-08

U.S. Cl. D17-22



269,624

ELECTRONIC CALCULATOR

Keiji Sakata, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan

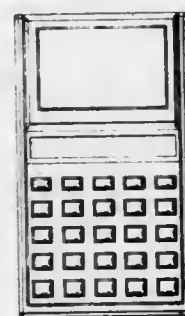
Filed Sep. 15, 1981, Ser. No. 302,584

Claims priority, application Japan, Mar. 27, 1981, 56-13009

Term of patent 14 years

Int. Cl. D18-01

U.S. Cl. D18-7



269,623

CASH REGISTER OR SIMILAR ARTICLE

Shuzo Kato, Hiratsuka, and Satoru Sakama, Isehara, both of Japan, assignors to NCR Corporation, Dayton, Ohio

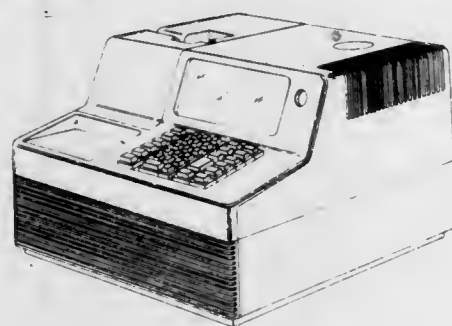
Filed Jul. 15, 1981, Ser. No. 283,588

Claims priority, application Japan, Mar. 3, 1981, 56-8344; Mar. 3, 1981, 56-8345; Mar. 3, 1981, 56-8346; Mar. 3, 1981, 56-8347

Term of patent 14 years

Int. Cl. D20-02

U.S. Cl. D18-4



269,625

HOLDER FOR A RULE BOOK AND SCORE CARD

Roy C. Draddy, 9 Dunfries Pl., Floreat Park, Western Australia, Australia

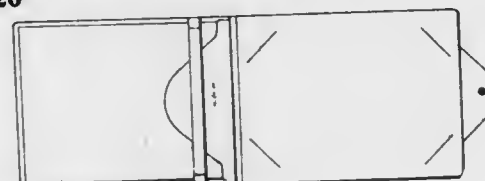
Filed Jan. 30, 1981, Ser. No. 230,282

Claims priority, application Australia, Aug. 15, 1980, 81803

Term of patent 14 years

Int. Cl. D19-04

U.S. Cl. D19-26



269,626

HOLDER FOR A RULE BOOK AND SCORE CARD

Roy C. Draddy, 9 Dunfries Pl., Floreat Park Western Australia, Australia

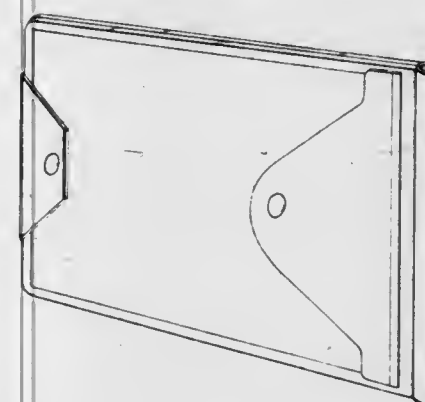
Filed Jan. 30, 1981, Ser. No. 230,285

Claims priority, application Australia, Aug. 15, 1980, 81804

Term of patent 14 years

Int. Cl. D19-04

U.S. Cl. D19-26



269,628

CARD-SHUFFLING DEVICE

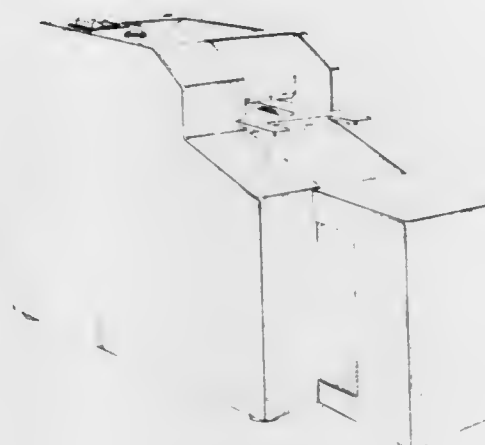
Leo Willette, and Betty Willette, both of 1823 W. 144th St., Gardena, Calif. 90249

Filed Oct. 13, 1981, Ser. No. 284,655

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-58



269,629

BEAD PUZZLE

Christopher C. Wiggs, 48A Queenstown Rd., London SW8 3RY, and Christopher J. C. Taylor, Flat 3, 17 Queensgate Pl., London, SW7, both of England

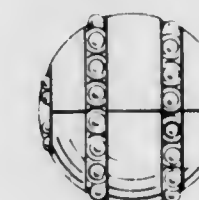
Filed Apr. 5, 1982, Ser. No. 365,286

Claims priority, application United Kingdom, Oct. 9, 1981, 1002925

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-104



269,627

GAME BOARD

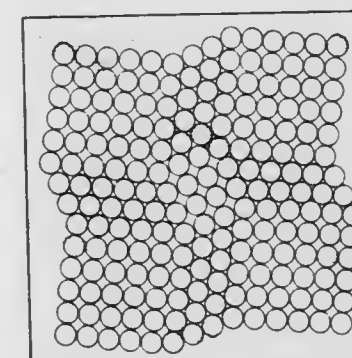
David A. Westell, Box 69792, Station "K", Vancouver, B.C., Canada

Filed Jan. 12, 1981, Ser. No. 224,314

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-34



269,630

ACTION TOY

Masaki Mayuzumi, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

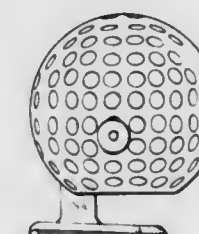
Filed Nov. 12, 1980, Ser. No. 206,027

Claims priority, application Japan, Oct. 16, 1979, 54-43728

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-150



269,631
GUN TARGET

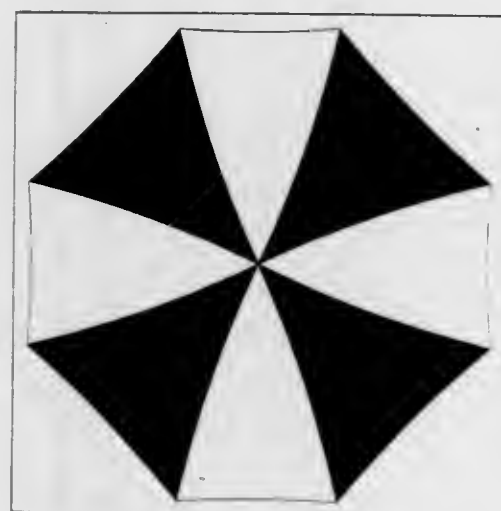
Charles R. Dulude, 33 Burnside Ave., P.O. Box 8301, East Hartford, Conn. 06108

Filed Feb. 10, 1981, Ser. No. 233,067

Term of patent 14 years

Int. Cl. D22—04

U.S. Cl. D22—15



269,633
CHECK VALVE

Allan H. Willinger, 351 E. 84th St., New York, N.Y. 10028, and Tsuyoshi Itakura, Itakura Soki Kabushiki Kaisha, 17-20, Unoki 3-Chome, Ohta-Ku, Tokyo, Japan

Filed Sep. 8, 1980, Ser. No. 185,001

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—22



269,634
WATER CLOSET

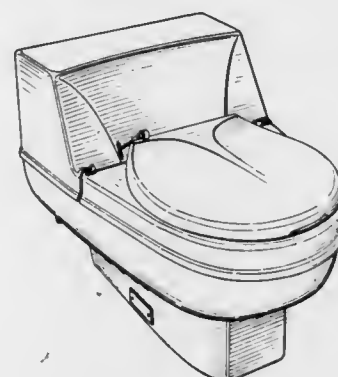
John D. Inch, Lansdowne, and Arnold Hennessy, Wellington, both of Canada, assignors to International Water Saver Toilets, Inc., Wellington, Canada

Filed Nov. 3, 1980, Ser. No. 203,096

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—65



269,632
FLYING INSECT TRAP

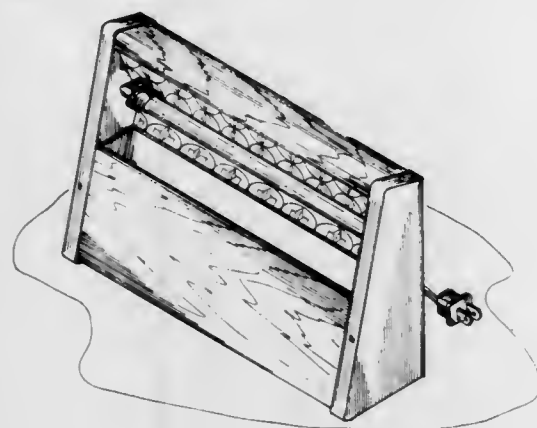
E. Wayne Roberston, and Tommy R. Watkins, both of Jonesboro, Ark., assignors to Flintrol Incorporated, Jonesboro, Ark.

Filed Apr. 27, 1981, Ser. No. 257,892

Term of patent 14 years

Int. Cl. D22—06

U.S. Cl. D22—19



269,635
FALSE TOOTH

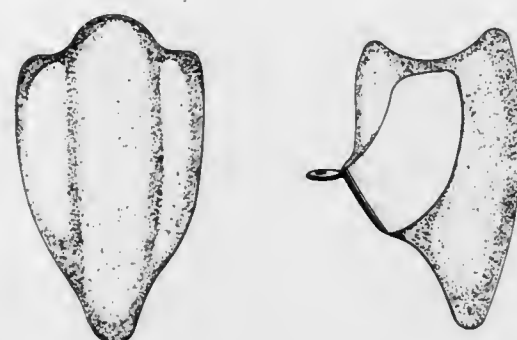
Ehrenfried G. B. Wolf, Rte. 1, Box 143 A, Raymond, Wash. 98577

Filed Jun. 9, 1980, Ser. No. 139,784

Term of patent 14 years

Int. Cl. D24—03

U.S. Cl. D24—33



269,636
FOOT MASSAGER

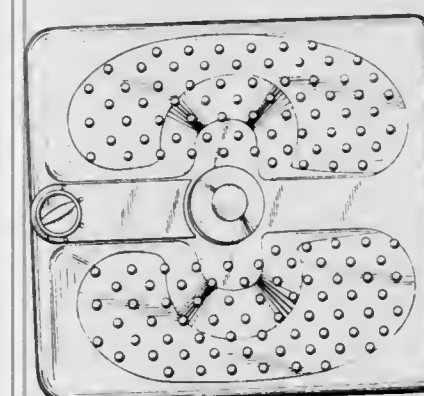
Francis W. MacGregor, New Britain, and Robert H. Bruno, Avon, both of Conn., assignors to Clairol Incorporated, New York, N.Y.

Filed Aug. 22, 1980, Ser. No. 180,532

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D24—42



269,638
CANDLE BASE

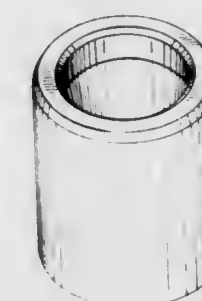
Elam C. Frye, Jr., 4212 Calculus Rd., Dallas, Tex. 75234, and David R. Frye, Rte. 8, Box 161C, Longview, Tex. 75602

Filed Nov. 28, 1980, Ser. No. 211,393

Term of patent 14 years

Int. Cl. D26—01

U.S. Cl. D26—9



269,639
LUMINAIRE

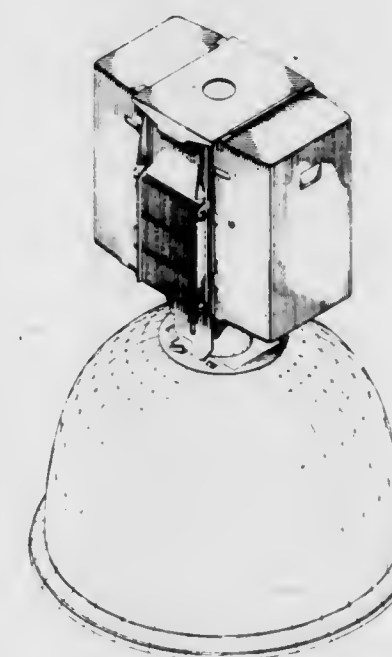
William R. Eargle, Jr., and Winfried N. Westermann, both of Vicksburg, Miss., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 30, 1981, Ser. No. 229,898

Term of patent 14 years

Int. Cl. D26—05

U.S. Cl. D26—88



269,637
HANDRAIL

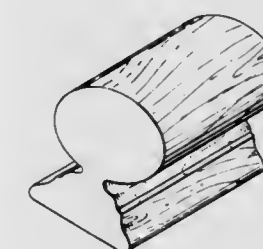
Brian Challis, 9 Northridge Way, Sandy, Utah 84070

Filed Sep. 2, 1980, Ser. No. 183,292

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—73



269,640

MEDICINAL TABLET

Robert J. H. Hiscock, Crowborough, England, assignor to Burroughs Wellcome Co., Raleigh, N.C.

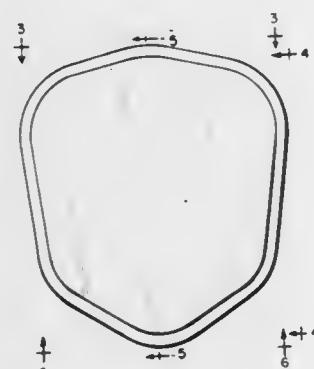
Filed Jul. 6, 1982, Ser. No. 395,334

Claims priority, application United Kingdom, Jan. 27, 1982, 1004834

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,641

HOT WAX EPILATION APPLICATOR

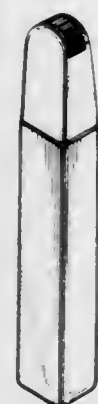
Samuel J. Mann, Englewood, N.J., assignor to Inverness International Corporation, Englewood, N.J.

Filed Jan. 29, 1982, Ser. No. 344,137

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—10



269,642

COMBINED AUTO WINDSHIELD DETERGENT
RESERVOIR, COVER AND SCRUBBER/SQUEEGEE

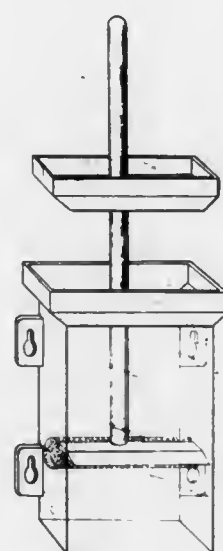
Gary R. Sommers, 18426 Plymouth Dr., Castro Valley, Calif. 94546

Filed Feb. 4, 1980, Ser. No. 118,457

Term of patent 7 years

Int. Cl. D7—05

U.S. Cl. D32—45



269,643

TRASH CAN AND LID

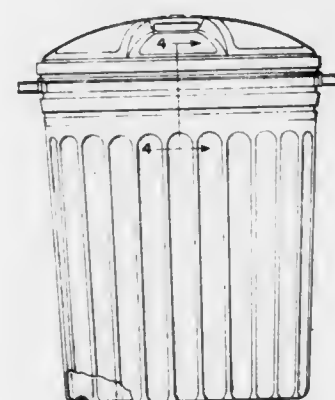
Robert G. Hartman, Greensboro, and Clayton J. Ammondson, Reidsville, both of N.C., assignors to Zarn, Inc., Reidsville, N.C.

Filed Mar 5, 1981, Ser. No. 340,894

Term of patent 14 years

Int. Cl. D7—05

U.S. Cl. D34—7



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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- Alps Electric Co., Ltd.: See—
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- Ambros, Peter: See—
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- Daniels, William A.; and Zawadzki, Rainer K., 4,391,992, Cl. 564-441.000.
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 Cummins, Donald L., 4,391,576, Cl. 425-241.000.
- Amigo Sales, Inc.: See—
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- Ampex Corporation: See—
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- Anderson, Colin C. Shearing cradle. 4,391,173, Cl. 83-424.000.
- Anderson, John G.: See—
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- Anderson, Philip A., to Outboard Marine Corporation. CD Ignition with automatic spark retard. 4,391,236, Cl. 123-149.00C.
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- Aoyagi, Takaaki: See—
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- Pearlman, Samuel R., 4,391,795, Cl. 424-1.000.
- Bednard, Eugene D.: See—
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- Beecroft, Julian B. Exercise apparatus. 4,391,443, Cl. 272-145.000.
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- Buckley, Reginald R.; and Ostermayer, Frederick W., Jr., 4,391,683, Cl. 204-129.300.
- Curtis, Hazen, III, 4,392,031, Cl. 200-16.00R.
- Feldmann, William L.; Rowell, John M.; and Schmidt, Paul H., 4,391,657, Cl. 148-133.000.
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Jackson, Ian D.; Berry, Derek; Rowden, George A.; and Dilley, Malcolm, 4,391,711, Cl. 210-634.000.

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Betts, Robert E., to United States of America, Army. Add-on igniter for pyrogen type igniter. 4,391,196, Cl. 102-202.000.

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Lyon, Robert C., 4,391,546, Cl. 403-189.000.

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Hoefelmayr, Tilman; and Maier, Jakob, 4,391,221, Cl. 119-14.080.

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Bloise, Rene; Lorang, Marcel; Morizot, Georges; and Boissonnade, Genevieve, to Bureau de Recherches Geologiques et Minieres. Method for obtaining photostable valentinite and valentinite thus obtained. 4,391,792, Cl. 423-617.000.

Blume, Ernst; Schaper, Wolfgang; Raether, Wolfgang; and Dittmar, Walter, to Hoechst Aktiengesellschaft. 1-(1,3-Dioxolan-2-ylmethyl)-azoles, their salts and their use. 4,391,805, Cl. 424-246.000.

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Boden, Richard M., to International Flavors & Fragrances Inc. 3,4,5,6-Pentamethyl hexanol-2 and alkyl homologues thereof; process for preparing same and organoleptic uses thereof. 4,391,999, Cl. 568-840.000.

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Engel, Herbert; and Boettger, Horst, 4,391,094, Cl. 60-245.000.

Boggs, Luther M.; and Gardner, William B., to Western Electric Co., Inc.; and Bell Telephone Laboratories, Incorporated. Method of determining an index of refraction profile of an optical fiber. 4,391,516, Cl. 356-73.100.

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Boller, Arthur; Schadt, Martin; and Villiger, Alois, to Hoffmann-La Roche Inc. Hydrogenated naphthalenes. 4,391,731, Cl. 252-299.620.

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Bolton, Joseph A.: See—
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Bolza-Schunemann, Hans-Bernhard, to Koenig & Bauer AG. Reciprocal supporting arrangement for contacting cylinders of a printing unit. 4,391,191, Cl. 101-216.000.

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Bonet, Jose D. Adjustable multiple bolt locking system. 4,391,460, Cl. 292-37.000.

Bonis, Laszlo J., to Composite Container Corporation. Peel resistant coextruded sheet. 4,391,863, Cl. 428-35.000.

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Bonnor, Yannick; Raison, Gerard; and Honnorat, Yves, to Creusot-Loire. Process for the production of shaped parts from powders comprising spheroidal metal particles. 4,391,772, Cl. 419-23.000.

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Bornancini, Jose C. M., to Forjas Taurus S/A. Retaining means for revolver cylinders. 4,391,056, Cl. 42-62.000.

Bornancini, Jose C. M., to Forjas Taurus S/A. Actuator system for the return of the trigger in double-action revolvers. 4,391,057, Cl. 42-65.000.

Bornhorst, James M., to Vari-Lite, Ltd. Computer controlled lighting system having automatically variable position, color, intensity and beam divergence. 4,392,187, Cl. 362-233.000.

Bornstein, Norman D.; and Walters, Johnnie J., to W. R. Grace & Co., Cryovac Division. Pasteurizable thermoplastic film and receptacle therefrom. 4,391,862, Cl. 428-35.000.

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Bianchi, Valerio; Ehrentraut, Franz-Josef; and Wobky, Peter, 4,391,249, Cl. 123-438.000.

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Bossu, Frank P.: See—
Bacon, Dennis R.; and Bossu, Frank P., 4,391,723, Cl. 252-90.000.

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Boxler, Dena L.; and Chen, Albert C., to Rhone-Poulenc Agrochimie. Novel polycyclic insecticidal esters. 4,391,823, Cl. 424-306.000.

Boyadjieff, George I.; and Campbell, Andrew B., to Varco International, Inc. Well casing jack mechanism. 4,391,333, Cl. 166-379.000.

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Lynn, Malcolm; and May, Peter E., 4,391,675, Cl. 202-158.000.

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Bresnahan, Thomas P.: See—
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Nakauchi, Hideo; Kato, Shingo; and Ando, Yukio, 4,391,942, Cl. 524-526.000.

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Brinton, Michael B. J.; Barnes, John; and Chandler, Peter D., to R.N.L.I. (Trading) Limited. Inversion protection of outboard marine engines. 4,391,239, Cl. 123-198.00E.

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Brockmeyer, Jerry W., to Swiss Aluminium Ltd. Ceramic foam filter and aqueous slurry for making same. 4,391,918, Cl. 501-127.000.

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Brois, Stanley J.; and Gutierrez, Antonio, to Exxon Research & Engineering Co. Thio bis-lactone compounds derived from n-octenyl succinic anhydride. 4,391,981, Cl. 549-252.000.

Bromley, Eric, to Coleco Industries, Inc. Electronic game providing formation changes and method. 4,391,444, Cl. 273-94.000.

Broms, Stig; and Freese, Lennart, to Innovation Aktiebolag. Hydraulic blocking valve. 4,391,183, Cl. 91-461.000.

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- Canon Kabushiki Kaisha: See—
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- Carlson, David J., to RCA Corporation. Television remote control system for selectively controlling a plurality of external apparatus. 4,392,022, Cl. 179-2.0TV.
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- Catalfamo, Giuseppe. Adjustable actuator for plural dispensing devices. 4,391,389, Cl. 222-135.000.
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- Champion International Corporation: See—
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- Lepisto, J. George, 4,391,310, Cl. 141-286.000.
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- Chan, Tsui C., to Mostek Corporation. One transistor-one capacitor memory cell. 4,392,210, Cl. 365-149.000.
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- Chang, Tsuan Y., to Halcon SD Group, Inc.; The. Gasification of coal. 4,391,612, Cl. 48-202.000.
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- Chant, Bernard J.: See—
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- Charles, Barry G.: See—
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- Chen, Si-Yu. Key-(touch-) controlled gas range. 4,391,265, Cl. 126-39.00E.
- Cherian, Abraham, to Xerox Corporation. Voice coil actuator registration system. 4,391,510, Cl. 355-3.0SH.
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- Cheriton, Leslie W.: See—
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- Chermey, Dale M., to Hayssen Manufacturing Company. Control system for cyclic machines. 4,391,079, Cl. 53-396.000.
- Chevron Research Company: See—
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- Rosenthal, Joel W., 4,391,699, Cl. 208-8.0LE.
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- Chu, Chin-Chiun, to Mobil Oil Corporation. Zeolite catalysts modified with group IA metals. 4,391,739, Cl. 252-455.00Z.
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- Ciarlei, Joseph A.; Tobin, Curtis L.; and Jennings, William B., to Carrier Corporation. Wire guide for use with a heat exchange unit. 4,391,322, Cl. 165-125.000.
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- Ciba-Geigy Corporation: See—
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- Maier, Ludwig; and Durr, Dieter, 4,391,624, Cl. 71-86.000.
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- Vlatts, Isidoros, 4,391,808, Cl. 424-250.000.
- Zergenyi, Janos, 4,391,980, Cl. 548-239.000.
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- Cincinnati Mine Machinery Company, The: See—
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- Coburn, Joel T.: See—
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- Colburn, William A., to Process Development Corporation. Method and apparatus for pulverizing materials by vacuum comminution. 4,391,411, Cl. 241-1.000.
- Coleco Industries, Inc.: See—
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- Colgate Palmolive Company: See—
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- Collins, William T. Door holding clamp. 4,391,437, Cl. 269-254.0CS.
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- Colt Industries Operating Corp.: See—
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- Columbus Show Case Company, The: See—
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- Smith, Donald A.; and Pote, Bruce M., 4,391,561, Cl. 414-218.000.
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- De Carlo, Leonard J., 4,391,327, Cl. 166-307.000.
- Reinert, A. Joe, 4,391,228, Cl. 122-28.000.
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- Constance, Lillie B. Thermal drapery construction. 4,391,865, Cl. 428-74.000.
- Constructors John Brown Limited: See—
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- Cook, Donald M., to NCR Corporation. Multiple source clock encoded communications error detection circuit. 4,392,226, Cl. 371-61.000.
- Cook, John R.; and James, William A., to Johnson & Johnson Baby Products Company. Nonwoven fibrous product. 4,391,869, Cl. 428-218.000.
- Cook, Kenneth V.; Cunningham, Robert A., Jr.; and Murrin, Horace T., to United States of America, Energy. Ultrasonic probe for inspecting double-wall tube. 4,391,143, Cl. 73-623.000.
- Cook, Lynn W.; and Brown, David P., to Envirotech Corporation. Ballasting digester covers. 4,391,705, Cl. 210-218.000.
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- Cooper, Glenn D., to General Electric Company. Polyphenylene ether composition and process for production. 4,391,950, Cl. 525-132.000.
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- Costa Bastart, Enrique. Door catch. 4,391,463, Cl. 292-263.000.
- Costello, Louis B., to Teletype Corporation. Radiation shield for a cathode ray tube. 4,392,083, Cl. 315-85.000.
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- Couper, Robert A.; and Denning, Bruce S., to Pitney Bowes Inc. Print control circuit for a word processing system. 4,392,197, Cl. 364-200.000.
- Courrages, Francis G., to National Semiconductor Corporation. MOS integrated circuit having refractory metal or metal silicide interconnect layer. 4,392,150, Cl. 357-51.000.
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- Cousins, Otto J., to Harper-Wyman Company. Rapid response thermal switch for isolated load control. 4,392,050, Cl. 219-491.000.
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Crosby, Gary A., to Red Fox Industries, Inc. Marine sewage treatment with biological filter. 4,391,703, Cl. 210-151.000.

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Crossley, Roger, to John Wyeth and Brother Limited. Process for preparing 5H-pyrrolo[2,1-c]-[1,4]thiazepine-1,5-diones. 4,391,752, Cl. 260-239.30B.

Crowe, Laurie M.: See—
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Cruz, Mamerto M., Jr., to Morca, Inc. Readily hydratable cellulose and preparation thereof. 4,391,973, Cl. 536-56.000.

CTS Corporation: See—
Buss, Gary L., 4,392,030, Cl. 200-11.00R.

Cullis, Herbert M.; and Stamminger, Reinhard, to Monegon, Ltd. Combined electrical and thermal solar collector. 4,392,008, Cl. 136-248.000.

Cummins, Donald L., to AMF Incorporated. Rotary drum dough divider. 4,391,576, Cl. 425-241.000.

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Curtis, Hazen, III, to Bell Telephone Laboratories, Incorporated. Miniature electrical switch. 4,392,031, Cl. 200-16.00R.

Cutter Laboratories, Inc.: See—
Mittra, Gautam; Coan, Michael H.; and Wada, Shohachi, 4,391,746, Cl. 260-112.00B.

Ng, Paul K.; and Fournel, Michael A., 4,391,801, Cl. 424-177.000.

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Sarcia, Domenico S., 4,391,103, Cl. 62-6.000.

Czechka, Franz. Spring strips for connections between printed circuit board. 4,391,482, Cl. 339-59.00M.

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Block, Hans-Dieter; and Dahmen, Hans, 4,391,761, Cl. 260-969.000.

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Gaus, Hermann, 4,391,165, Cl. 74-869.000.

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Okoshi, Noboru; Kudo, Kin-ichi; and Shimoyama, Shoichi, 4,391,640, Cl. 106-29.000.

Daiwa Seiko Inc.: See—
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Dan T. Moore Co.: See—
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Daniel, Chelliah, to Ashland Oil, Inc. Oxydehydrogenation of isobutyric acid and its lower alkyl esters. 4,391,989, Cl. 562-599.000.

Daniel, Vernon T., to Burlington Industries, Inc. Non-contact infrared fabric temperature monitoring. 4,391,584, Cl. 432-8.000.

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Jackson, Ian D.; Berry, Derek; Rowden, George A.; and Dilley, Malcolm, 4,391,711, Cl. 210-634.000.

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Deare, Frederick A. Retractable tracted cart. 4,391,343, Cl. 180-198.000.

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Koning, Richard W.; Meiers, Gerald F.; and Anstey, Henry D., 4,391,187, Cl. 100-88.000.
Rice, Dennis A., 4,391,065, Cl. 49-465.000.

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Depa S.p.A.: See—
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Didier-Werke A.G.: See—
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Don, Johannes A.; and Scholten, Joseph J. F., to Stamicarbon, B.V. Process for the preparation of a cycloalkene through partial hydrogenation of the corresponding aromatic hydrocarbon. 4,392,001, Cl. 585-269.000.

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Dougherty, Emery W., to Dentsply Research & Development Corp. Cartridge for viscous material. 4,391,590, Cl. 433-90.000.

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Michael, David J.; and Wishon, Berhl E., 4,391,917, Cl. 501-100.000.

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- Edison International, Inc.: See—
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- Edstrom, Lars G., to Malmohus Invest AB. Method and apparatus for calibration and adjustment of inserter for sheeted material. 4,391,439, Cl. 271-90.000.
- Edwards, Elgin: See—
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- Egami, Tsuneyuki; Kawai, Hisasi; Kohama, Tokio; and Obayashi, Hideki, to Nippon Soken, Inc. Gas flow measuring apparatus. 4,391,132, Cl. 73-118.000.
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- Eggett, Janet M.: See—
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- Eheim, Franz, to Robert Bosch GmbH. Fuel injection pump for internal combustion engines. 4,391,257, Cl. 123-503.000.
- Ehrentauf, Franz-Josef: See—
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- Eigen, Edward: See—
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- Einem, Robert E., to International Telephone & Telegraph Corp. Mosaic printer and ribbon guide therefor. 4,391,541, Cl. 400-248.000.
- Eisenhaure, David B.: See—
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- Electric Power Research Institute, Inc.: See—
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- Electrochemical Technology Corp.: See—
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- Ellett, James R., to Bralorne Resources Limited. Sampler. 4,391,152, Cl. 73-863.840.
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- Ellis, Earle R., to Monsanto Company. Spray-suppression device. 4,391,870, Cl. 428-218.000.
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- Elsing, John W., to Magnetic Peripherals Inc. Quick disconnect pack. 4,391,543, Cl. 403-24.000.
- Elslager, Edward F., to Warner-Lambert Company. Methods for treating psoriasis. 4,391,809, Cl. 424-251.000.
- Embro, Joseph J.: See—
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- Emerson Electric Company: See—
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- Emich, Werner, to Friedrich Sanner GmbH & Co. KG. Container having a safety closure. 4,391,382, Cl. 215-213.000.
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- G. Siempelkamp GmbH & Co.: See—
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- Herrington, Daniel R.: See—
Kuch, Philip L.; Herrington, Daniel R.; and Eggett, Janet M., 4,391,756, Cl. 260-430.000.
- Hershel, Ronald S., to General Signal Corporation. Apparatus for projecting a series of images onto dies of a semiconductor wafer. 4,391,494, Cl. 350-442.000.
- Herzl, Peter J., to Fischer & Porter Company. Doppler-type ultrasonic flowmeter. 4,391,149, Cl. 73-861.250.
- Hesketh, Truman H., to Plessey Overseas Limited. Time division multiplex module for use in digital switching network. 4,392,221, Cl. 370-54.000.
- Hetzner, Randall H. Adjustable trailer drawbar. 4,391,562, Cl. 414-483.000.
- Heye, Hermann: See—
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- Schaar, Lothar, 4,391,578, Cl. 425-525.000.
- Heyman, Joseph S.: See—
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- Hibino, Yutaka: See—
Horikawa, Takahiro; Hibino, Yutaka; and Maki, Seiichi, 4,391,218, Cl. 118-621.000.
- Hickam, William M.: See—
Lin, Ching-Yu; and Hickam, William M., 4,391,690, Cl. 204-412.000.
- Higuchi, Mitsuo: See—
Miyasaka, Kiyoshi; and Higuchi, Mitsuo, 4,392,212, Cl. 365-230.000.
- Hildebrand, Dietrich, to Bayer Aktiengesellschaft. Dyeing process and printing process using reactive dyestuffs. 4,391,607, Cl. 8-549.000.
- Hildebrand, Karl J.; and Leeman, John, to Leeman Labs Inc. Scannable detector system for echelle grating spectrometers. 4,391,523, Cl. 356-328.000.
- Hilfiker, Harold O., deceased: See—
Hilfiker, William K.; Hilfiker, Harold O., deceased; and Hilfiker, William B., 4,391,557, Cl. 405-287.000.
- Hilfiker, Louise E., executor: See—
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- Hilfiker Pipe Co.: See—
Hilfiker, William K.; Hilfiker, Harold O., deceased; and Hilfiker, William B., 4,391,557, Cl. 405-287.000.
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- Hilker, George D., to Phelps Dodge Industries, Inc. Method for manufacturing magnet wire. 4,391,848, Cl. 427-118.000.
- Hill, Charles D. B.: See—
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- Hill, Gilman A.: See—
Ford, Franklin C.; Hill, Gilman A.; and Vincent, Coye T., 4,391,337, Cl. 175-4.600.
- Hill, Richard N., Sr.; and Hill, Charles D. B. Foam control during production of phosphoric acid. 4,391,784, Cl. 423-320.000.
- Hill, Robert S.: See—
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- Hilti Aktiengesellschaft: See—
Mauthe, Peter, 4,391,662, Cl. 156-64.000.
- Hinz, Claus-Dieter; and Pasternack, Adalbert, to Dragerwerk Aktiengesellschaft. Heat protection garment. 4,390,997, Cl. 2-81.000.
- Hinz, Hans D.; and Lobl, Herbert, to U.S. Philips Corporation. Circuit arrangement for controlling a large number of printing electrodes for non-mechanical printing. 4,392,194, Cl. 346-154.000.
- Hiraishi, Hisashi: See—
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- Hirano, Yutaka, to Fujitsu Limited. Semiconductor device. 4,392,152, Cl. 357-80.000.
- Hirao, Hiroshi, to Fujitsu Limited. Schmidt trigger circuit. 4,392,066, Cl. 307-290.000.
- Hirasawa, Yoshihei: See—
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- Hirashima, Kenzo: See—
Takemura, Toji; and Hirashima, Kenzo, 4,391,356, Cl. 192-84.00C.
- Hirata, Isao, to Tokai Metals Company Limited. Foldable cup. 4,391,366, Cl. 206-218.000.
- Hirosaki, Botaro; and Hasegawa, Satoshi, to Nippon Electric Co., Ltd. Modem to be coupled to a directional transmission line of an SS multiplex communication network. 4,392,220, Cl. 370-18.000.
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- Aoki, Masakazu; Ando, Haruhisa; Ohba, Shinya; Hanamura, Shoji; Takemoto, Iwao; and Izawa, Ryuichi, 4,392,158, Cl. 358-213.000.
- Harada, Koji, 4,392,082, Cl. 315-55.000.
- Iso, Yoshimi; Inoue, Shigeki; and Shibuya, Toshifumi, 4,392,020, Cl. 179-1.0GE.
- Kojima, Takafumi; Tamaki, Kenzo; and Yokota, Shiro, 4,392,026, Cl. 179-175.30R.
- Kuwabara, Kouji; Sugawara, Hiroyuki; Shirakura, Toshiharu; Sasaki, Kouji; and Takemori, Satoshi, 4,391,519, Cl. 356-153.000.
- Matsuura, Shigeo; and Yuki, Ikuro, 4,392,249, Cl. 455-164.000.
- Suzuki, Masayoshi; and Sagawa, Akio, 4,392,069, Cl. 307-252.00A.
- Tomita, Yoshifumi; and Nakai, Hiromitsu, 4,391,885, Cl. 430-28.000.
- Yokozawa, Norio; Takasugi, Wasao; Yonezawa, Seiji; and Ueyanagi, Kiichi, 4,392,219, Cl. 369-44.000.
- Hitachi Maxell, Ltd.: See—
Okada, Shuhei, 4,392,170, Cl. 360-133.000.
- Yamakawa, Tohru; and Akiyama, Kozi, 4,391,669, Cl. 156-539.000.
- Hobourn-Eaton Limited: See—
Bristow, Ian T.; and Thornelew, Alec, 4,391,569, Cl. 417-302.000.
- Hocken, Redvers A. Magnetically triggered on-board elapsed time indicator. 4,392,122, Cl. 340-323.00R.
- Hodogaya Chemical Co., Ltd.: See—
Takematsu, Tetsuo; Isogawa, Takayuki; and Sakuraba, Yasuya, 4,391,631, Cl. 71-118.000.
- Hoechst Aktiengesellschaft: See—
Becker, Wilhelm, 4,391,957, Cl. 525-454.000.
- Blume, Ernst; Schaper, Wolfgang; Raether, Wolfgang; and Dittmar, Walter, 4,391,805, Cl. 424-246.000.
- Eckardt, Peter; and Voetz, Franz J., 4,391,644, Cl. 106-85.000.
- Haas, Hans; and Kowalski, Werner, 4,391,783, Cl. 423-315.000.
- Kaiser, Karl; and Ohorodnik, Alexander, 4,391,972, Cl. 528-499.000.
- Kersting, Hans-Joachim; Wolfrum, Erhard; Portz, Willi; and Strauss, Georg, 4,391,786, Cl. 423-442.000.
- Kuhls, Jurgen; Mayer, Franz; and Fitz, Herbert, 4,391,940, Cl. 524-458.000.
- Mehdorn, Frank R.; and Seelig, Johann, 4,391,025, Cl. 28-289.000.
- Nahn, Helmut; and Granzer, Erno, 4,391,995, Cl. 568-637.000.
- Preisler, Eberhard; Hofmann, Bernhard; and Holzem, Johannes, 4,391,714, Cl. 210-670.000.
- Hoechst, Lonnie D.: See—
Weber, Henry J.; Hoechst, Lonnie D.; Christensen, James R.; and Watts, Verne C., 4,391,344, Cl. 180-271.000.
- Hoefelmayer, Tilman; and Maier, Jakob, to Biomektechnik Hoefelmayer & Co. Method for mechanical milk removal. 4,391,221, Cl. 119-14.080.
- Hoegerle, Karl; Gsell, Laurenz; and Wehrli, Rudolf, to Ciba-Geigy Corporation. 2-Methyl-4-N,N-dimethylcarbamoyloxy-6-aminopyrimidines and salts thereof, processes for producing them, and their use for combating pests. 4,391,810, Cl. 424-251.000.
- Hoer, Ralph A.: See—
Ederle, John A.; Hoer, Ralph A.; and Irwin, George H., 4,391,840, Cl. 426-641.000.
- Hoffman, Lester J.: See—
Roberts, Richard D.; and Hoffman, Lester J., 4,392,091, Cl. 318-52.000.

- Hoffmann-La Roche Inc.: See—
Boller, Arthur; Schadt, Martin; and Villiger, Alois, 4,391,731, Cl. 252-299.620.
Imhof, Rene; and Kyburz, Emilio, 4,391,978, Cl. 546-138.000.
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Preisler, Eberhard; Hofmann, Bernhard; and Holzem, Johannes, 4,391,714, Cl. 210-670.000.
Hohulin, Alpha L.: See—
Heaslip, Lawrence J.; Hohulin, Alpha L.; and Mitchell, Joseph R., 4,391,319, Cl. 164-259.000.
Hokko Chemical Industry Company, Ltd.: See—
Ohyama, Hiroshi; Morita, Ken; Wada, Takuo; and Miyahara, Masahiko, 4,391,804, Cl. 424-245.000.
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Holl, Helmar; and Kessler, Rolf, to Dorina Nahmaschinen GmbH. Method and device for forming an overcast seam by means of a zigzag sewing machine. 4,391,214, Cl. 112-269.100.
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Hollier, Joseph H., Jr., to Sutco, Inc. Facilitating the exchange of a finished package with a new core. 4,391,415, Cl. 242-56.900.
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Ahad, Munir J.; Hollowell, William; Tanaka, Akira; and Ziv, Avraham, 4,391,420, Cl. 242-107.40A.
Holmes, Allen B., to United States of America, Army. Electro fluidic actuator. 4,391,299, Cl. 137-831.000.
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Bindernagel, Ali; Holthoff, Helmut; and Diel, Hartmut, 4,391,357, Cl. 192-94.000.
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Preisler, Eberhard; Hofmann, Bernhard; and Holzem, Johannes, 4,391,714, Cl. 210-670.000.
Holzeleiter, Johann, to Bombardier-Rotax G.m.b.H. Internal combustion engine comprising means for controlling the axial extent of a port in a cylinder. 4,391,234, Cl. 123-65.00V.
Honda Giken Kogyo Kabushiki Kaisha: See—
Ban, Keisuke; and Arai, Takeo, 4,391,161, Cl. 74-579.00E.
Kawabata, Etsuo; Ogura, Masahiko; Takagi, Akinobu; and Fujimura, Akira, 4,391,246, Cl. 123-391.000.
Nishikawa, Masao; Toshimitsu, Yoshihiko; Aoyama, Toshihiko; Takaoka, Tokuro; Aoki, Takashi; and Sato, Yoichi, 4,391,342, Cl. 180-143.000.
Ohmori, Taiji, 4,391,452, Cl. 280-6.100.
Honeywell Inc.: See—
Stiglich, Ralph E., 4,392,065, Cl. 307-247.00A.
Zansky, Zoltan, 4,392,087, Cl. 315-219.000.
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Brown, Richard P.; Barlow, George J.; and Peters, Arthur, 4,392,201, Cl. 364-200.000.
Honjo, Shigeru: See—
Kitane, Syoiti; Honjo, Shigeru; Ohe, Kuniyoshi; and Tobioka, Fumio, 4,391,658, Cl. 148-188.000.
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Bonnor, Yannick; Raison, Gerard; and Honnorat, Yves, 4,391,772, Cl. 419-23.000.
Hook, Richard J.; and Rule, Mark, to Eastman Kodak Company. Process for the separation of isophthalic acid from terephthalic acid. 4,391,985, Cl. 562-414.000.
Hoose, Demetrius H. Rail car coupler interlock. 4,391,380, Cl. 213-76.000.
Hopfer, Samuel, to General Microwave Corporation. Broadband radiation detector for microwave and lower frequencies. 4,392,108, Cl. 324-95.000.
Hori, Hisako; Kitamura, Nobu; Shirahata, Isao; and Nakamura, Nobuyuki, to Furukawa Electric Co., Ltd. The Process for cross-linking polycarbonate resins. 4,391,955, Cl. 525-462.000.
Horie, Yoshio: See—
Maeda, Umio; Shoji, Hirofumi; Wada, Yasusuke; and Horie, Yoshio, 4,391,743, Cl. 252-518.000.
Horii, Kenju, to Matsushita Electronics Corp. Solid-state color image sensor. 4,392,154, Cl. 358-44.000.
Horikawa, Takahiro; Hibino, Yutaka; and Maki, Seiichi, to Sumitomo Electric Industries, Ltd. Method and apparatus for forming corrosion-resistant layer and surface electrically conductive layer on cable and apparatus for practicing same. 4,391,218, Cl. 118-621.000.
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Paule, Kurt; Schadlich, Fritz; Gerschner, Martin; and Hornung, Friedrich, 4,392,093, Cl. 318-245.000.
Horstmann, Aloys: See—
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Horvat, Marian L. Breast support. 4,391,277, Cl. 128-492.000.
Hosaka, Akihiko; Okuyama, Kiyotaka; and Isobe, Yukihiro, to TDK Electronics Co., Ltd. Magnetic recording medium. 4,391,864, Cl. 428-64.000.
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Tamamura, Junichi; Yasuda, Mamoru; Hosoda, Motomi; and Saeki, Shinichi, 4,392,025, Cl. 179-111.00R.
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Kronman, Albert F., 4,391,010, Cl. 5-484.000.
Hosteller, James W., to Litton Systems, Inc. Ring laser with plasma starter. 4,392,229, Cl. 372-94.000.
Hough, Harold L.; and Blaisdell, Ronald G., to GTE Products Corporation. Front loading projection unit with threaded resilient retention member. 4,392,189, Cl. 362-306.000.
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Glascok, Homer H., II; Houston, Douglas E.; McLaughlin, Michael H.; and Webster, Harold F., 4,392,153, Cl. 357-82.000.
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Nigol, Olaf; and Houston, Herbert J., 4,391,125, Cl. 73-11.000.
Houston, John M., to General Electric Company. Electronically scanned x-ray tomography system. 4,392,235, Cl. 378-10.000.
Houston, John M., to General Electric Company. Scanning x-ray inspection system. 4,392,237, Cl. 378-51.000.
Howard, Arthur G. Chemical-mixing and dispensing apparatus. 4,391,390, Cl. 222-136.000.
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Howell, Peter A., to Minnesota Mining and Manufacturing Company. Glass bubbles of increased collapse strength. 4,391,646, Cl. 106-97.000.
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Ishizaka, Sunao; and Hozumi, Toshiaki, 4,391,488, Cl. 350-257.000.
Hsiao, James C., to Union Special Corporation. Feed mechanism for sewing machines. 4,391,216, Cl. 112-316.000.
Hsiung, Du Y.; Davis, Chester A.; and Nicholson, Harold J., to Helene Curtis Industries. Hair conditioning and composition therefor. 4,391,286, Cl. 132-7.000.
Hsu, Yun-Tung, to Chiu, Pei-Liang. Gravity return hinge having an axle rod in an axle sleeve. 4,391,020, Cl. 16-314.000.
Huber, Calvin O.; Schick, Karl G.; and Coburn, Joel T., to Wisconsin Alumni Research Foundation; and Electric Power Research Institute, Inc. Method of and system for determining particular species of chlorine in a water sample. 4,391,775, Cl. 422-68.000.
Huggins, Raymond W., to Xerox Corporation. Method of development. 4,391,842, Cl. 427-14.100.
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Small, Augustus B.; Hughes, Vincent L.; and Benitez, Francisco M., 4,391,961, Cl. 526-76.000.
Huhn, Helmut; and Kaiser, Siegfried, to Wolff Walsrode Aktiengesellschaft. Coupled tubular casing for foodstuffs. 4,391,302, Cl. 138-118.100.
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Ueno, Kunihiro; Ishii, Akiyasu; Hukuda, Masazi; and Nakayama, Kazuyuki, 4,391,763, Cl. 264-15.000.
Hum, Albert: See—
Neathway, Graham; Cramp, Allan; and Hum, Albert, 4,392,206, Cl. 364-900.000.
Humber, Leslie G.: See—
Bellini, Francesco; Sestan, Kazimir; and Humber, Leslie G., 4,391,825, Cl. 424-319.000.
Hume, Ronald W. Apparatus for reconstituting a concentrate. 4,391,291, Cl. 137-99.000.
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Harris, Robert H.; Humphrey, Troy G.; and Stimson, John J., Jr., 4,391,085, Cl. 56-330.000.
Hundertmark, James M., to Brunswick Corporation. Hydraulic trim-tilt system. 4,391,592, Cl. 440-61.000.
Hungerford, Gordon P., to Mobil Oil Corporation. Polymer film treatment with organic impregnant. 4,391,939, Cl. 524-377.000.
Hunsberger, Dale L.; and Harwath, Frank L., to Sundstrand Corporation. Liquid fuel supply system for an atomization burner nozzle. 4,391,580, Cl. 431-1.000.
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Kelly, Thomas J.; and Robinson, Mark L., 4,391,634, Cl. 75-124.000.
Huntleigh Medical Ltd.: See—
Schild, Rolf; Melrose, Denis G.; and Hawkins, Brian M., 4,391,009, Cl. 5-453.000.
Hurst, Dennis P., to United States of America, Navy. Digital interface system. 4,392,241, Cl. 455-26.000.
Hutson, Donald G., to Cal Detect, Inc. Apparatus for measuring breath alcohol. 4,391,777, Cl. 422-84.000.
Hutter, Charles G., III. Method of curing adhesive. 4,391,663, Cl. 156-64.000.
Huwiler, Alfred; and Tenud, Leander, to Lonza Ltd. Process for the preparation of (2-amino-thiazol-4-yl)-acetic acid hydrochloride. 4,391,979, Cl. 548-194.000.

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Johnson, Virgil E., Jr.; Sundaram, T. R.; and Conn, Andrew F., 4,391,339, Cl. 175-393.000.
Ibau Hamburg Ingenieurgesellschaft Endustriebau mbH: See—
Klein-Albenhausen, Heinrich, 4,391,528, Cl. 366-15.000.
Ichikawa, Katsumi; Amano, Itaru; Ozaki, Keiji; and Suzuki, Seiichi, to Bridgestone Tire Co., Ltd.; and Kabushiki Kaisha Kobe Seiko Sho. Apparatus for loading unvulcanized tires on tire vulcanizing machine. 4,391,769, Cl. 264-326.000.
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Maruyama, Tetsuo; Ichiyanagi, Takashi; and Otsuda, Ichizo, 4,392,168, Cl. 360-129.000.
Icking, Friedrich; and Stolte, Friedrich, to Westfalia Separator AG. Milk meter for measuring the total amount of milk from a cow in the course of a milking. 4,391,222, Cl. 119-14.170.
Ide, Katsuyuki; Ohe, Kempo; and Kobayashi, Hisao, to Toshiba Electric Equipment Corporation. Apparatus for operating a gaseous discharge lamp. 4,392,086, Cl. 315-174.000.
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Kishimoto, Kenjiro; Igarashi, Hideaki; and Kono, Migaki, 4,391,036, Cl. 29-623.200.
Iizuka, Haruhiko: See—
Sugawara, Fukashi; and Iizuka, Haruhiko, 4,391,240, Cl. 123-198.00F.
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Peterson, Francis C., 4,392,033, Cl. 200-80.00R.
Imada, Michio; and Naito, Masayuki, to Olympus Optical Co., Ltd. Aperture stop for microscope condensers. 4,391,497, Cl. 350-523.000.
Imai, Toshihiro; and Yamada, Toyotaka, to Olympus Optical Co., Ltd. Photometer having asymmetrical aperture and with compensation for direction of incidence. 4,391,521, Cl. 356-225.000.
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IMED Corporation: See—
Jenkins, Jon A., 4,391,599, Cl. 604-118.000.
Imhof, Rene; and Kyburz, Emilio, to Hoffmann-La Roche Inc. Phenyl-quinolizidines. 4,391,978, Cl. 546-138.000.
Immel, Wolfgang: See—
Fauth, Karl-Heinz; Mohr, Heinrich; and Immel, Wolfgang, 4,391,959, Cl. 526-70.000.
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Barham, Peter J.; and Selwood, Alan, 4,391,766, Cl. 264-210.100.
Falkenberg, Hans R.; Krause, Siegfried; and McGuinness, Robert C., 4,391,965, Cl. 528-112.000.
Leigh, Thomas, 4,391,983, Cl. 560-124.000.
Martin, Graham E., 4,391,770, Cl. 264-236.000.
Pears, Gordon E. A., 4,391,767, Cl. 264-210.300.
Renfrew, Andrew H. M., 4,391,754, Cl. 260-380.000.
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Schaad, William J.; Black, Charles E., III; and Halstead, Raymond T., 4,392,029, Cl. 200-5.00B.
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Halliday, Jonathan, 4,392,019, Cl. 179-1.0GQ.
Industrial Dynamics Company, Ltd.: See—
Calhoun, Frederick L., 4,391,372, Cl. 209-523.000.
Industrial Filter & Pump Mfg. Co.: See—
Schmidt, Henry, Jr., 4,391,709, Cl. 210-332.000.
Ing. C. Olivetti & C. S.p.A.: See—
Bovio, Michele; Berruti, Pierangelo; and Gillone, Walter, 4,392,146, Cl. 346-140.00R.
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Reph, Arthur C., 4,391,475, Cl. 384-226.000.
Wilson, Joseph G., 4,391,613, Cl. 55-1.000.
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Innovation Aktiebolag: See—
Brons, Stig; and Freese, Lennart, 4,391,183, Cl. 91-461.000.
Inoue, Eiichi; Takatori, Yasushi; and Haruta, Masahiro, to Canon Kabushiki Kaisha. Image forming method. 4,392,141, Cl. 346-1.100.
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Inoue-Japax Research Incorporated: See—
Inoue, Kiyoshi, 4,392,042, Cl. 219-69.00W.
Inoue, Kiyoshi, 4,392,043, Cl. 219-69.00P.
Inoue, Kiyoshi, 4,392,195, Cl. 364-167.000.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Method of and apparatus for electroerosively wire-cutting a conductive workpiece. 4,392,042, Cl. 219-69.00W.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Pulse generator. 4,392,043, Cl. 219-69.00P.
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Inoue, Yozo; Ito, Yoji; Hara, Kiyoshi; Usami, Kiyoshi; and Iwata, Yasuhiro, to Nippondenso Co., Ltd. Method and an apparatus for air conditioning for vehicles by controlling circulation of inside air and introduction of outside air. 4,391,320, Cl. 165-2.000.
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Hamelin, Claude, 4,391,688, Cl. 204-180.00G.
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- J. R. Simplot Company: See—
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- Jackisch, Rudolph. Internal-combustion engine. 4,391,233, Cl. 123-61.00R.
- Jacklin, Roger L., to Deere & Company. Bevel gear and pinion drive with biased thrust bearing. 4,391,157, Cl. 74-402.000.
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- James, William A.: See—
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- Janssen, Craig R., to Padco, Inc. Finishing tool for smoothing wall-board tape joints. 4,391,013, Cl. 15-210.00R.
- Janssen, Sylvain; and Sequies, Jean, to Giers. Fluid-pressure responsive apparatus. 4,391,145, Cl. 73-704.000.
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- Jenkins, Jon A., to IMED Corporation. Apparatus for providing a controlled flow of intravenous fluid to a patient. 4,391,599, Cl. 604-118.000.
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- Jensen, Bruno: See—
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- Jeschke, Peter; and Plath, Jürgen, to Didier-Werke A.G. Sliding closure unit. 4,391,392, Cl. 222-598.000.
- Jin, Sungho; and Tiesel, Thomas H., to Bell Telephone Laboratories, Incorporated. Isotropic and nearly isotropic permanent magnet alloys. 4,391,656, Cl. 148-102.000.
- Jirousek, Norman F.; and Shipitalo, William M., to Towmotor Corporation. Parking disc brake actuator. 4,391,351, Cl. 188-18.00A.
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- Johnson & Johnson Dental Products Company: See—
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- Johnson, Robert D., to Dow Corning Corporation. Elastomeric silicone sponge. 4,391,921, Cl. 521-66.000.
- Johnson, Robert L. Board game. 4,391,449, Cl. 273-260.000.
- Johnson, Virgil E., Jr.; Sundaram, T. R.; and Conn, Andrew F., to Hydronautics, Incorporated. Cavitating liquid jet assisted drill bit and method for deep-hole drilling. 4,391,339, Cl. 175-393.000.
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- Jones, Darrell L., to Vetco Offshore, Inc. Mooring system bearing for a tensioned leg platform. 4,391,554, Cl. 405-224.000.
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- Jorgens, Douglas M. One-hand key ring. 4,391,113, Cl. 70-459.000.
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- Jurd, Leonard, to United States of America, Agriculture. Dibutylor-thobenzylmethoxybenzenes and dibutylor-thocinnamylmethoxybenzenes as mosquito larvae growth inhibitors. 4,391,828, Cl. 424-340.000.
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- Kawamura, Teruaki; Harada, Nobuhiko; Komatsu, Yukihiko; and Sakai, Masaru, 4,391,016, Cl. 15-302.000.
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- Kabushiki Kaisha Suwa Seikosha: See—
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- Kadim, Azriel, to Orlite Engineering Ltd. Ammunition magazine. 4,391,055, Cl. 42-50.000.
- Kagan, Jonathan, to Becton, Dickinson and Company. Filtered hub device for aspirating and injecting liquids. 4,391,274, Cl. 604-190.000.
- Kaganowicz, Grzegorz; and Robinson, John W., to RCA Corporation. Adherent perfluorinated layers. 4,391,843, Cl. 427-41.000.
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- Kai, Tomokazu, to Nippon Electric Co., Ltd. Mobile communication system. 4,392,242, Cl. 455-33.000.
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- Kamath, Venkatesh: See—
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- Kamel, Fouad A., to Whittin Roberts Company. Apron drafting system. 4,391,021, Cl. 19-253.000.
- Kamezaki, Yasushi; Inoue, Eiichi; Nishihama, Hitoshi; Fushida, Akira; and Matsumoto, Joji, to Mita Industrial Co., Ltd. Multiple copy electrophotographic process using dye sensitized ZnO. 4,391,892, Cl. 430-126.000.
- Kaminaka, Nobuyuki: See—
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- Kanda, Yoshitsugu; Kurikawa, Minoru; Morimoto, Toru; and Nakaniishi, Kiyoshi, to N.D.C. Co., Ltd. Method of making a bearing material containing an aluminum base alloy. 4,391,854, Cl. 427-192.000.
- Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: See—
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- Kansas University Endowment Association: See—
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- Kaplan, Jonathan I., to Polaroid Corporation. Electric wire terminal connecting method. 4,391,039, Cl. 29-884.000.
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- Karl Otto Braun K.G.: See—
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- Karner & Co AB: See—
Karner, Franz, 4,391,395, Cl. 223-94.000.
- Karner, Franz, to Karner & Co AB. Clothes hanger. 4,391,395, Cl. 223-94.000.
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- Kato, Osamu: See—
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- Katoh, Sunao: See—
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- Kawabata, Etsuo; Ogura, Masahiko; Takagi, Akinobu; and Fujimura, Akira, to Honda Giken Kogyo Kabushiki Kaisha. Throttle opener device for vehicle engines. 4,391,246, Cl. 123-391.000.
- Kawahara, Hiroshi: See—
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- Kawamoto, Tamotsu: See—
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- Kay Laboratories, Inc.: See—
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- Keathley, Anthony C.; Stanton, Howard F.; and Wagie, Mahesh M., to Tubing Technology, Inc. Shear forming apparatus for elongated non-rotating metal tubes. 4,391,114, Cl. 72-78.000.
- Keenan, John R., to General Signal Corp. Packing for equalizing reservoir cut-out valve. 4,391,293, Cl. 137-312.000.
- Keep, Henry, Jr. Railroad switch heater. 4,391,425, Cl. 246-428.000.
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Mitchell, Larry D.; and Keith, Charles W., Jr., 4,391,007, Cl. 5-60.000.
- Keldmann, Erik C. V., to Elpan ApS. Temperature regulating system for the control of temperature in a room. 4,391,913, Cl. 236-36.000.
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- Kelly, Thomas J.; and Robinson, Mark L., to Huntington Alloys, Inc. Weldable oxide dispersion strengthened alloys. 4,391,634, Cl. 75-124.000.
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- Kent, William C., to Western Electric Company, Inc. Apparatus for applying fluid to articles. 4,391,220, Cl. 118-707.000.
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- Kishimoto, Kenjiro; Igarashi, Hideaki; and Kono, Migaki, to Yuasa Battery Company Limited. Process for producing sealed lead-acid battery. 4,391,036, Cl. 29-623.200.
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- Kleinschmidt, Peter; and Magori, Valentin, to Siemens Aktiengesellschaft. Trigger device and piezo-ignition coupler with galvanic decoupling. 4,392,074, Cl. 310-327.000.
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- Knepper, Hermann, to Brinkmann, Heinrich Bernhard. Method for making of solid fertilizer by separation of liquid manure and device for carrying out this method. 4,391,623, Cl. 71-21.000.
- Knight, Houston W., to FMC Corporation. Mono-rail boom supported articulated service line. 4,391,297, Cl. 137-615.000.
- Knobloch, Joy E. Animal feed composition and method for producing same. 4,391,831, Cl. 426-93.000.
- Knoll, William C.; and Bay, David L., to GTE Products Corporation. Direct drive ballast with delayed starting circuit. 4,392,085, Cl. 315-173.000.
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- Kobayashi, Isao: See—
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- Kobelt, Jacob. Fluid actuated positioner. 4,391,182, Cl. 91-378.000.
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- Koenig & Bauer AG: See—
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Wieland, Erich G., 4,391,192, Cl. 101-350.000.
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- Kohler, Gerd: See—
Edinger, Egon; and Kohler, Gerd, 4,391,764, Cl. 264-25.000.
- Koide, Hiroshi, to Ricoh Company, Ltd. Driving method and apparatus for illumination type imaging system. 4,391,506, Cl. 355-8.000.
- Koike, Richard, to Rheinmetall GmbH. Method and means for controlling the firing rate from a machine gun. 4,391,180, Cl. 89-129.000.
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- Kokusai Denshin Denwa Co., Ltd.: See—
Ando, Sumitoshi, 4,392,222, Cl. 370-60.000.
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- Kolb, Arthur F.; Franklin, Arthur J.; and Miller, Toby I., to Eaton Corporation. Thermal overload relay having a N.O. or N.C. contact unit selectively addable in the field. 4,392,118, Cl. 337-154.000.
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- Konoshima, Katunaga, to Olympus Optical Company Ltd. Cleaning apparatus for endoscope. 4,391,287, Cl. 134-99.000.
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- Korczak, Alexander; and Levis, William W., Jr., to BASF Wyandotte Corporation. Propylene oxide adducts of toluenediamine. 4,391,728, Cl. 252-182.000.
- Korn, Elmer J.: See—
Wang, Teh P.; and Korn, Elmer J., 4,392,044, Cl. 219-118.000.
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Reinhard, Max; and Kornmayer, Horst, 4,391,140, Cl. 73-432.00R.
- Kornrumpf, William P., to General Electric Company. Power relay with assisted commutation. 4,392,171, Cl. 361-5.000.
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- Kosar, Walter F. Water deflector. 4,391,068, Cl. 52-97.000.
- Koski, Erkki, to Valmet OY. Size press with coating pool suppressing arrangement. 4,391,217, Cl. 118-405.000.
- Koster, Robertus J. C., to Procter & Gamble Company, The. Detergent composition containing low levels of amine oxides. 4,391,726, Cl. 252-99.000.
- Kosuge, Hideaki, to Nissan Motor Company, Limited. Turbo-compound internal combustion engine. 4,391,098, Cl. 60-602.000.
- Kotunov, Alexei A.: See—
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- Kovacs, Lloyd, to Hayssen Manufacturing Company. Method of and apparatus for forming, filling and sealing packages. 4,391,081, Cl. 53-436.000.
- Kovacz, Gabor: See—
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Velmin, Rolf; Kovatch, Michael S.; and Mautz, Gus H., Jr., 4,391,674, Cl. 201-41.000.
- Kovats, Ferenc: See—
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- Krautkramer-Branson, Inc.: See—
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- Krill, Alvin G.: See—
Young, Jack W.; and Krill, Alvin G., 4,392,128, Cl. 340-616.000.
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- Kronman, Albert F., to Hospitable Products Inc. Disposable draw sheet. 4,391,010, Cl. 5-484.000.
- Kroy Inc.: See—
Connoy, Thomas P., 4,391,539, Cl. 400-208.000.
- Kruckenberg, Winfried; Schundehutte, Karl H.; and Hederich, Volker, to Bayer Aktiengesellschaft. Azo polyether dyestuffs, formulations of these dyestuffs, their preparation and their use. 4,391,606, Cl. 8-525.000.
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Hedrich, Wilhelm; Krumm, Heinz; and Haeuser, Erhard, 4,391,529, Cl. 366-266.000.
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Herman, Daniel F.; and Kruse, Uno, 4,391,928, Cl. 523-201.000.
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- Krynock, Robert A., to FMC Corporation. Method of and apparatus for separating elongated articles by length. 4,391,374, Cl. 209-540.000.
- Kubo, Seitoku; Kuramochi, Koujiro; and Terakura, Yukio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Hydraulic fluid pressure control system for an automatic transmission. 4,391,166, Cl. 74-869.000.
- Kubota, Ltd.: See—
Murakami, Shinichi; Morichika, Toshiaki; Hiraishi, Hisashi; and Shiokawa, Hiroyuki, 4,391,635, Cl. 75-125.000.
- Kubota, Yutaka: See—
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- Kuch, Philip L.; Herrington, Daniel R.; and Eggett, Janet M., to Standard Oil Company, The. Organo-monovalent aurous complex catalysts for the manufacture of olefin oxides. 4,391,756, Cl. 260-430.000.
- Kudo, Kin-ichi: See—
Okoshi, Noboru; Kudo, Kin-ichi; and Shimoyama, Shoichi, 4,391,640, Cl. 106-29.000.
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- Kuhls, Jurgen; Mayer, Franz; and Fitz, Herbert, to Hoechst Aktiengesellschaft. Fluoropolymers with shell-modified particles, and processes for their preparation. 4,391,940, Cl. 524-458.000.
- Kuhn, Werner: See—
Zilske, Wolfgang; and Kuhn, Werner, 4,391,679, Cl. 204-43.00G.
- Kuhnlein, Hans, to Siemens Aktiengesellschaft. Brushless D-C motor. 4,392,094, Cl. 318-254.000.
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- Kung, Edward J.; and Bednard, Eugene D., to Shell Oil Company. Current impulse method and apparatus for testing geophone strings. 4,392,213, Cl. 367-13.000.
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- Kurakami, Hiroshi: See—
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- Kuraray Company, Limited: See—
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- Kurata, Hisao, to Keisuke Honda. Recording unit. 4,392,144, Cl. 346-139.00C.
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- Kurikawa, Minoru: See—
Kanda, Yoshitsugu; Kurikawa, Minoru; Morimoto, Toru; and Nakanishi, Kiyoshi, 4,391,854, Cl. 427-192.000.
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- Kusunose, Tetsuhiro: See—
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Imhof, Rene; and Kyburz, Emilio, 4,391,978, Cl. 546-138.000.
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- L.G.T. Laboratoire General des Telecommunications: See—
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- La Jolla Cancer Research Foundation: See—
Engvall, Eva S.; and Ruoslahti, Erkki I., 4,391,749, Cl. 260-123.700.
- La Telemecanique Electrique: See—
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- LaBate, Micheal D. Ceramic insert. 4,391,434, Cl. 266-196.000.
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- Labeco Harvesters, Inc.: See—
Harris, Robert H.; Humphrey, Troy G.; and Stimson, John J., Jr., 4,391,085, Cl. 56-330.000.
- Laird, William F.; and Wood, Kenneth A., to Hartford Fibres, Ltd. Cutter with angular blades and method for cutting rope therewith. 4,391,169, Cl. 83-37.000.
- Lakin, Willis: See—
Lakin, Willis M.; Goodman, Faith L.; and Savoca, Diane L., 4,391,064, Cl. 46-130.000.
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- Lamar, Richard S.; Ferreira, Laurence E.; and Cloud, Robert C., to Standard Oil Company (Indiana). Mineral treatment and composition. 4,391,733, Cl. 252-378.00R.
- Lamar, Richard S.: See—
Ferreira, Laurence E.; Lamar, Richard S.; and Bertolacini, Ralph J., 4,391,734, Cl. 252-378.00R.
- Lance Austin Enterprises, Inc.: See—
Grimes, Fred K., 4,391,428, Cl. 248-546.000.
- Land, Cecil E.; and Percy, Paul S., to United States of America, Energy. Photosensitivity enhancement of PLZT ceramics by positive ion implantation. 4,391,901, Cl. 430-495.000.
- Landrock, Jurgen B.; Perske, Manfred; and Tandjung, Halim S., to International Business Machines Corporation. Circuit arrangement for the continual operation monitoring and error diagnosis of a stepper motor. 4,392,097, Cl. 318-696.000.
- Lange, Karl-Heinz, to Balda-Werke Photographische Gerate und Kunststoff GmbH & Co., KG. Camera with attachable flash device. 4,391,501, Cl. 354-149.000.
- Lange, Wolfgang, to Akzo NV. Porose, pulverformige polymerteilchen. 4,391,920, Cl. 521-61.000.
- Langenberg, Helmut; Grisebach, Hans-Theodor; and Weinhold, Heinz, to Gewerkschaft Eisenhutte Westfalen. Method of, and apparatus for, winning mineral material. 4,391,470, Cl. 299-11.000.
- Langer, Arthur W., Jr., to Exxon Research and Engineering Co. Catalyst for olefinic polymerization. 4,391,738, Cl. 252-429.00B.
- Langer, Robert S., Jr.: See—
Folkman, Moses J.; and Langer, Robert S., Jr., 4,391,797, Cl. 424-19.000.
- Lanier Business Products, Inc.: See—
Plunkett, Luther C., Jr., 4,392,218, Cl. 369-29.000.
- Lanzillotti, Harry V.: See—
Burnett, George H.; Claffin, Warren E.; Lanzillotti, Harry V.; Lilly, A. Clifton, Jr.; Nienow, John F.; Osdene, Thomas S.; and Wayte, Alline R., 4,391,285, Cl. 131-364.000.
- Lapointe, Joseph A. Sample splitter. 4,391,359, Cl. 193-23.000.
- Larson, William C., to Colt Industries Operating Corp. Pressure operated three-position throttle stop assembly. 4,391,245, Cl. 123-339.000.
- Lary, Richard F.: See—
Arulpragasam, Jega A.; Giggi, Robert A.; Lary, Richard F.; and Sullivan, Daniel T., 4,392,200, Cl. 364-200.000.
- Lasag AG: See—
Fankhauser, Franz; van der Zypen, Eugen; and Roussel, Philippe, 4,391,275, Cl. 128-303.100.
- Latsch, Reinhard, to Robert Bosch GmbH. Method for closed-loop control of the ignition angle or the composition of the operational mixture furnished an internal combustion engine. 4,391,248, Cl. 123-425.000.
- Laughner, Ernest M. Method of filtering electromagnetic waves and dual channel audio code filter therefor. 4,392,233, Cl. 375-93.000.
- Laugier, Yves D., to Technal International S.A. Method of assembling two shaped sections with a cotter. 4,391,031, Cl. 29-526.00R.
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Czuba, Leonard F.; and Laurin, Dean G., 4,391,029, Cl. 29-450.000.
- Lawson, J. William; and Matthews, Robert M., to Kellwood Company. Panty hose with body bulge control. 4,390,999, Cl. 2-409.000.
- Lazarus, Harrison; and Nelson, James A. Peritoneal catheter. 4,391,276, Cl. 604-266.000.
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- Lee, Chi-long; and Spells, Sherwood, to Dow Corning Corporation. Microwave cured silicone elastomeric foam. 4,391,765, Cl. 264-26.000.
- Lee, Thomas E.: See—
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- Leedham, Charles G.: See—
Gray, Frederick M.; and Leedham, Charles G., 4,392,121, Cl. 340-310.00A.
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- Lyons, John E.: See—
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- Lytle, Farrel W.: See—
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Planteline, Pierre; and Machetel, Roger, 4,391,251, Cl. 123-440.000.
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Slattery, William; Brechany, Thomas; and MacLeod, Colin J., 4,391,115, Cl. 72-131.000.
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- Maier, Jakob: See—
Hoefelmayer, Tilman; and Maier, Jakob, 4,391,221, Cl. 119-14.080.
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- Majkrzak, David S. Vehicle exhaust gas warm-up heater system. 4,391,235, Cl. 123-142.50R.
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- Malott, Theodore A.; and Wolfe, Robert W., to Clark Equipment Company. Biased transmission control shaft. 4,391,158, Cl. 74-473.00R.
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- Mannesmann Aktiengesellschaft: See—
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- Marcy, Russell A., to Waterbury Companies, Inc. Latching mechanism for dispenser apparatus. 4,391,111, Cl. 70-162.000.
- Mardis, Wilbur S.; and Finlayson, Claude M., to NL Industries, Inc. Rheological additive for non-aqueous fluid systems. 4,391,637, Cl. 106-20.000.
- Mariani, Luigi; and Tarzia, Giorgio, to Gruppo Lepetit S.p.A. Pyrrolidiazepine derivatives and their pharmaceutical compositions. 4,391,817, Cl. 424-274.000.
- Marini, Jean; and Audenard, Bernard, to Framatome. Sound-monitoring device for an industrial installation. 4,392,214, Cl. 367-127.000.
- Mark, Victor: See—
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- Marnach, Ernest: See—
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- Marom, Emanuel: See—
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- Marsh, Douglas D.; Feldman, Arthur E.; and Newlin, John C. Utility cart with detachable and reversible shelves. 4,391,454, Cl. 280-47.350.
- Martens, Jurgen: See—
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- Marti, Ernst, to Karl Kassbohrer Fahrzeugwerke GmbH. Water-closet for vehicles, particularly motor coaches. 4,391,002, Cl. 4-321.000.
- Martin, Graham E., to Imperial Chemical Industries PLC. Process for spinning amino-formaldehyde fibers. 4,391,770, Cl. 264-236.000.
- Martin, Wayne A., to United States Steel Corporation. Mechanism for forming a hole through a forged workpiece. 4,391,118, Cl. 72-356.000.
- Martini, Leonard J. Thrust shaft seal with slidably mounted bearing sleeve. 4,391,474, Cl. 384-152.000.
- Martino, Germain: See—
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- Maruta, Rikio, to Nippon Electric Co., Ltd. PCM signal interface apparatus. 4,392,234, Cl. 375-118.000.
- Maruyama, Teruo; Ichinaga, Takashi; and Otsuda, Ichizo, to Matsushita Electric Industrial Co., Ltd. Rotary head assembly. 4,392,168, Cl. 360-129.000.
- Masamoto, Junzo; Hamada, Minoru; Suzuki, Isamu; and Yoshida, Takeo, to Asahi Kasei Kogyo Kabushiki Kaisha. Polyoxymethylene composition. 4,391,741, Cl. 252-511.000.
- Maschke, Alfred W., to United States of America, Energy. Means and method for the focusing and acceleration of parallel beams of charged particles. 4,392,080, Cl. 315-5.410.
- Mashio, Fujio; and Kitamura, Shuji, to Mitsui Toatsu Inorganic Chemicals, Inc. Chelate resin prepared by reacting butane-1,2,3,4-tetra-carboxylic acid or anhydride with polyethylene polyamine. 4,391,945, Cl. 524-600.000.
- Mashio, Sakae, to Tama Manufacturing Co., Limited. Control device for auxiliary members of a vehicle. 4,391,242, Cl. 123-198.00R.
- Mason, Arthur D., Jr.; Johnson, Avery A., Jr.; and Ritchey, Charles R., to United States of America, Army. Protective gel composition for treating white phosphorus burn wounds. 4,391,799, Cl. 424-132.000.
- Masotti, Maurizio; Zentile, Antonio; and Cau, Pasqualino, to Montedison S.p.A. Bumper for motorvehicles and the like, made of plastic materials, and having its cross section closed by a rear reinforcing part. 4,391,464, Cl. 293-120.000.
- Massey, Freddie L.; and Callander, Douglas D., to Goodyear Tire & Rubber Company. The color improvement and acetaldehyde reduction in high molecular weight polyesters. 4,391,971, Cl. 528-481.000.
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- Masuda, Isao: See—
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- Mathauser, William R. Hand operated hydraulic bicycle brake. 4,391,353, Cl. 188-24.120.
- Mathes, Donovan B.; Hamilton, Floyd B.; and Spreng, Douglas C., to Solar Dynamics Inc. Solar water heater control and protection system. 4,391,268, Cl. 126-437.000.
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- Matsuda, Toshiro, to Nissan Motor Company, Limited. Method and apparatus for anti-skid brake control of an automotive vehicle. 4,392,202, Cl. 364-426.000.
- Matsui, Fujio, to Fuji Jukogyo Kabushiki Kaisha; and Nissan Motor Co., Ltd. System for detecting the operation of the throttle valve. 4,391,250, Cl. 123-438.000.
- Matsui, Hiroshi; Tsuchida, Takayasu; and Nakamori, Shigeru, to Ajinomoto Company Incorporated. Method for producing L-valine by fermentation. 4,391,907, Cl. 435-115.000.
- Matsui, Takahiro, to Kabushiki Kaisha Morita Seisakusho. Dental treatment chair. 4,391,588, Cl. 433-33.000.
- Matsumoto, Joji: See—
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- Matsumoto, Jun: See—
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- Matsumoto, Masataka: See—
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- Matsumoto, Reiko: See—
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- Matsuo, Yushin: See—
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- Matsumita Electric Industrial Co., Ltd.: See—
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- Ishikawa, Shinzaburo; Kanai, Kenji; Kaminaka, Nobuyuki; and Adachi, Tetuo, 4,392,166, Cl. 360-113.000.
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- Shimazaki, Shigeo, 4,392,198, Cl. 364-200.000.
- Matsumita Electronics Corp.: See—
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- Matsuura, Shigeo; and Yuki, Ikuo, to Hitachi, Ltd. Electronic channel selection apparatus with surface acoustic wave device. 4,392,249, Cl. 455-164.000.
- Matteini, Silvano. Tubular rotary furnace for incinerating refuse and the like, with inner demountable grid. 4,391,206, Cl. 110-246.000.
- Matthews, Robert M.: See—
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- Maurer, Herman J.: See—
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- Maurice, Terrence J.: See—
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- Mautz, Gus H., Jr.: See—
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- Maxey, Frank S., deceased (by Maxey, Gertrude, legal representative); and Mowdood, Syed K., to Goodyear Tire & Rubber Company, The. Composite of rubber and metal reinforcement therefor. 4,391,318, Cl. 152-359.000.
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- Maxwell Laboratories, Inc.: See—
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- Miller, Roscoe E. Enema apparatus improvements relating to double contrast studies. 4,391,280, Cl. 128-654.000.
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- Mina, Nabil L., to Appleton Electric Company. Electrical terminal. 4,391,480, Cl. 339-32.00R.
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- Mindt, Walter, to Mannesmann Aktiengesellschaft. Device for the chemical or electrochemical surface treatment or material in a heated liquid treatment medium, more particularly a strip pickling plant. 4,391,692, Cl. 204-206.000.
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- Miskinis, Robert J. Teflon ground glass adaptor. 4,391,779, Cl. 422-99.000.
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- Mitchell, Larry D.; and Keith, Charles W., Jr., to B-W Health Products, Inc. Multi-position wall spacer. 4,391,007, Cl. 5-60.000.
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- Yatomi, Takeshi; and Tanaka, Yutaka, 4,392,041, Cl. 219-69.00W.
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- Miyano, Hiroshi, to Alps Electric Co., Ltd. Serial printer. 4,391,538, Cl. 400-145.100.
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- Mobil Oil Corporation: See—
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- Godbey, John K.; and Ballard, B. G., 4,391,135, Cl. 73-155.000.
- Hungerford, Gordon P., 4,391,939, Cl. 524-377.000.
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- Warner, Barry N., 4,392,109, Cl. 324-350.000.
- Wu, Margaret M., 4,391,998, Cl. 568-781.000.
- Yan, Tsoung-Yuan, 4,391,782, Cl. 423-7.000.
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- Mochizuki, Keisuke: See—
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- Mollenkopf, Lloyd C.; and Branson, Daniel J., to Rosemount Office Systems, Inc. Movable panel assembly. 4,391,073, Cl. 52-241.000.
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- Morita, Eiichi, 4,391,953, Cl. 525-351.000.
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- Merani, Gianfranco; and Anzuino, Giuseppe, 4,391,968, Cl. 528-321.000.
- Mookherjee, Braja D.; Trenkle, Robert W.; Chant, Bernard J.; Ouwkerk, Anton V.; Kamath, Venkatesh; and Mussinan, Cynthia J., to International Flavors & Fragrances Inc. Use of isomeric farnesene product-by-process for augmenting or enhancing the aroma of per-

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Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., 4,391,829, Cl. 426-28.000.

Mori, Goro; and Ogura, Masaaki, to Ricoh Company, Ltd. Copying machine control apparatus comprising variable length program control. 4,391,507, Cl. 154-10.00R.

Mori, Hiromichi; Matsumoto, Jun; and Fujioka, Masanobu, to Kokusai Denshin Denwa Co., Ltd. Speech path switching system in time-divisional electronic telephone switching system. 4,392,224, Cl. 370-67.000.

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Morimoto, Toru: See—

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Moshofsky, Jerome F., to Smith, Lawrence M. Surgical staplers and staple. 4,391,401, Cl. 227-19.000.

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Mostek Corporation: See—

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Myers, Frederick F., Jr.: See—

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Myers, John E. Support assembly having releasable lever mounting for handle bar. 4,391,160, Cl. 74-551.800.

N.D.C. Co., Ltd.: See—

Kanda, Yoshitsugu; Kurikawa, Minoru; Morimoto, Toru; and Nakanishi, Kiyoshi, 4,391,854, Cl. 427-192.000.

Nabisco Brands, Inc.: See—

Spinelli, Louis A., 4,391,362, Cl. 198-855.000.

Nahm, Helmut; and Granzer, Erno, to Hoechst Aktiengesellschaft. 4-Phenoxy-phenoxy-alkane-carboxylic acid derivatives and process for their manufacture. 4,391,995, Cl. 568-637.000.

Nair, Kumaran M., to Du Pont de Nemours, E. I., and Company. Screen-printable dielectric composition. 4,392,180, Cl. 361-321.000.

Naito, Masayuki: See—

Imada, Michio; and Naito, Masayuki, 4,391,497, Cl. 350-523.000.

Naitoh, Katsumi; and Yanagihara, Hideo, to NSK-Warner K. K. Retractor for seat belt with an alleviating device. 4,391,421, Cl. 242-107.700.

Nakagawa, Kenji; and Masuda, Isao, to Hoya Corporation. Alkali-free glass for photoetching mask. 4,391,916, Cl. 501-62.000.

Nakagawa, Yasuo: See—

Akiyama, Nobuyuki; Kembo, Yukio; Nakagawa, Yasuo; Aiuchi, Susumu; and Nomoto, Mineo, 4,391,511, Cl. 355-40.000.

Nakai, Hiromitsu: See—

Tomita, Yoshifumi; and Nakai, Hiromitsu, 4,391,885, Cl. 430-28.000.

Nakajima, Masao: See—

Shioyama, Giichi; Hata, Yoshitaka; and Nakajima, Masao, 4,391,247, Cl. 123-403.000.

Nakakuki, Tadao: See—

Mita, Kikuo; Oyama, Masayuki; Yoshida, Takashi; Nakashima, Masato; Fujihara, Katsumi; and Nakakuki, Tadao, 4,392,120, Cl. 382-22.000.

Nakamori, Shigeru: See—

Matsui, Hiroshi; Tsuchida, Takayasu; and Nakamori, Shigeru, 4,391,907, Cl. 435-115.000.

Nakamura, Mikio; and Miyake, Makoto, to Kanzaki Paper Manufacturing Co., Ltd. Process for preparing an acceptor coated sheet. 4,391,852, Cl. 427-150.000.

Nakamura, Nobuyuki: See—

Hori, Hisako; Kitamura, Nobu; Shirahata, Isao; and Nakamura, Nobuyuki, 4,391,955, Cl. 525-462.000.

Nakamura, Shunji; and Arao, Kozo, to Canon Kabushiki Kaisha. Developing device using magnetic developer. 4,391,512, Cl. 355-3.0DD.

Nakamura, Shunji: See—

Tamura, Yasuyuki; Kanbe, Junichiro; Nakamura, Shunji; Toyono, Tsutomu; and Takahashi, Tooru, 4,391,891, Cl. 430-120.000.

Nakane, Shigeru, to Takara Co., Ltd. Toy robot vehicle assembly. 4,391,060, Cl. 46-22.000.

Nakanishi, Kiyoshi: See—

Kanda, Yoshitsugu; Kurikawa, Minoru; Morimoto, Toru; and Nakanishi, Kiyoshi, 4,391,854, Cl. 427-192.000.

Nakanishi, Toyohiko: See—

Katayama, Tsutomu; and Nakanishi, Toyohiko, 4,391,835, Cl. 426-573.000.

Nakano, Jiro; and Ono, Hironobu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of and apparatus for communicating the operating condition of an internal combustion engine. 4,391,130, Cl. 73-117.300.

Nakano, Masao; Baba, Fumio; Nakano, Tomio; Takemae, Yoshihiro; and Mochizuki, Hirohiko, to Fujitsu Limited. Semiconductor memory device technical field. 4,392,211, Cl. 365-200.000.

Nakano, Tomio: See—

Nakano, Masao; Baba, Fumio; Nakano, Tomio; Takemae, Yoshihiro; and Mochizuki, Hirohiko, 4,392,211, Cl. 365-200.000.

Nakashima, Masato: See—

Mita, Kikuo; Oyama, Masayuki; Yoshida, Takashi; Nakashima, Masato; Fujihara, Katsumi; and Nakakuki, Tadao, 4,392,120, Cl. 382-22.000.

Nakauchi, Hideo; Kato, Shingo; and Ando, Yukio, to Bridgestone Tire Co., Ltd. Vibration-insulating rubber composition. 4,391,942, Cl. 524-526.000.

Nakayama, Kazuyuki: See—

Ueno, Kunihiko; Ishii, Akiyasu; Hukuda, Masazi; and Nakayama, Kazuyuki, 4,391,763, Cl. 264-15.000.

Nakazawa, Sadaharu, to Nissan Motor Co., Ltd. Vehicle cabin heater. 4,391,407, Cl. 237-12.30B.

Nalco Chemical Company: See—

Tai, Wun T., 4,391,932, Cl. 523-337.000.

Napoli, Joseph D., to Exxon Research and Engineering Co. Solar power module. 4,392,009, Cl. 136-251.000.

Naruo, Kyoichi: See—

Yamamoto, Nobuyuki; Naruo, Kyoichi; and Okita, Tsutomu, 4,391,874, Cl. 428-336.000.

National Hydro-Hoist Company: See—

Rutter, Henry A., 4,391,550, Cl. 405-7.000.

National Latex Products Co., The: See—

Gill, H. Ross, III, 4,391,063, Cl. 46-90.000.

National Research Development Corporation: See—

El-Menshawy, Mohamed F.; Woodrow, Peter A.; and Bhattacharyya, Sushantha K., 4,392,110, Cl. 324-453.000.

Mathieson, Ernest; Smith, Graham C.; and Gilvin, Philip J., 4,392,057, Cl. 250-385.000.

Sainz, Antonio J.; and Roberts, Victor C., 4,391,148, Cl. 73-861.250.

Smith, Kenneth C. A., 4,392,058, Cl. 250-492.200.

National Semiconductor Corporation: See—

Courreges, Francis G., 4,392,150, Cl. 357-51.000.

Sauer, Don R., 4,392,016, Cl. 179-1.0GS.

National Starch and Chemical Corporation: See—

Chiu, Chung-Wai, 4,391,836, Cl. 426-578.000.

Nattel, William, to GTE Sylvania Canada Limited. Electrical wiring box arrangement with alignable grounding strap. 4,392,012, Cl. 174-51.000.

NCR Corporation: See—

Cook, Donald M., 4,392,226, Cl. 371-61.000.

Pfeifer, Robert F.; and Trudel, Murray L., 4,391,650, Cl. 148-1.500.

Neary, Robin P.: See—

Carter, Leewood C.; and Neary, Robin P., 4,391,202, Cl. 108-51.300.

Neathway, Graham; Cramp, Allan; and Hum, Albert, to Mitel Corporation. Printer. 4,392,206, Cl. 364-900.000.

Negele, Richard; and Pfeifle, Dieter, to SKF Kugellagerfabriken GmbH. Roller-bearing. 4,391,476, Cl. 308-207.00R.

Negishi, Fumio: See—

Ota, Akiho; and Negishi, Fumio, 4,391,381, Cl. 215-1.00C.

Nel-Tech Development, Inc.: See—

Iwata, Hideki, 4,392,125, Cl. 340-518.000.

Nelson, Alfred M.; and Rasekhi, Houshang, to Wang Laboratories, Inc. Apparatus and method for separating adhering media electrostatically. 4,392,179, Cl. 361-234.000.

Nelson, James A.: See—

Lazarus, Harrison; and Nelson, James A., 4,391,276, Cl. 604-266.000.

Nelson, John W.; and Jensen, Bruno, to PIXE International Corporation. Circular two-stage air particulate and gas sampler. 4,391,151, Cl. 73-863.230.

Nermes, Esko O.: See—

Aaltonen, Olavi A.; Malmstrom, Rolf E.; Nermes, Esko O.; and Tuominen, Tapio K., 4,391,632, Cl. 75-26.000.

Nespor, Tony. Automatic remote car starter. 4,392,059, Cl. 290-38.00D.

Newlin, John C.: See—

Marsh, Douglas D.; Feldman, Arthur E.; and Newlin, John C., 4,391,454, Cl. 280-47.350.

Neyret, Guy, to Sodex-Magister, Societe d'Exploitation. Piston-type locks. 4,391,112, Cl. 70-364.00A.

Ng, Kwokei J.: See—

Andresen, Brian D.; and Ng, Kwokei J., 4,391,778, Cl. 422-89.000.

Ng, Paul K.; and Fournel, Michael A., to Cutter Laboratories, Inc. Plasma protein fraction substantially free of acetate ions. 4,391,801, Cl. 424-177.000.

Nicholson, Harold J.: See—

Hsiung, Du Y.; Davis, Chester A.; and Nicholson, Harold J., 4,391,286, Cl. 132-7.000.

Nielsen, Anker J., Jr., to Omco Inc. Barrel lock sleeve. 4,391,110, Cl. 70-34.000.

Nienow, John F.: See—

Burnett, George H.; Claflin, Warren E.; Lanzillotti, Harry V.; Lilly, A. Clifton, Jr.; Nienow, John F.; Osdene, Thomas S.; and Wayte, Alline R., 4,391,285, Cl. 131-364.000.

Nifco Inc.: See—

Mizusawa, Akira, 4,391,559, Cl. 411-45.000.

Nigol, Olaf; and Houston, Herbert J., to Slater Steel Industries Limited. Method and apparatus for testing and/or adjusting vibration absorber for suspended cables. 4,391,125, Cl. 73-11.000.

Nigrelli, Biagio J., to Nigrelli Corporation. Loading blades for packaging apparatus. 4,391,078, Cl. 53-251.000.

Nigrelli Corporation: See—

Nigrelli, Biagio J., 4,391,078, Cl. 53-251.000.

Nihon Tokushu Noyaku Seizo K.K.: See—

Aya, Masahiro; Saito, Junichi; Yasui, Kazuomi; Kakabu, Shinzo; Kamochi, Atsumi; and Yamaguchi, Naoko, 4,391,629, Cl. 71-94.000.

Ninomi, Naoyuki; and Watanabe, Kunihiko, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with musical composition fashion selectors. 4,391,176, Cl. 84-1.170.

Nioka, Takeharu; and Kobayashi, Isao, to Tokyo Shibaura Denki Kabushiki Kaisha. Broadcast wave receiving system. 4,392,246, Cl. 455-158.000.

Niizeki, Jiro: See—

Kogoma, Kiyoshi; Ohashi, Yu; Niizeki, Jiro; Sone, Norio; and Tobita, Takashi, 4,391,994, Cl. 568-593.000.

Nilsson, Claes T., to PLM AB. Preform of a thermoplastic. 4,391,861, Cl. 428-35.000.

Nilsson, Gosta. Method and a device for effecting rinsing of an inverted siphon, which forms part of a sewer. 4,391,288, Cl. 137-15.000.

Nimry, Tayseer S.; and Fields, Ellis K., to Standard Oil Company (Indiana). Polyimides-polyamides from tricyclo [4.2.1.0^{2,5}] nonane-3,4-dimethyl-3,4,7,8-tetracarboxylic acid dianhydride and dicarboxylic acids. 4,391,967, Cl. 528-189.000.

Nippon Electric Co., Ltd.: See—

Hirosaki, Botaro; and Hasegawa, Satoshi, 4,392,220, Cl. 370-18.000.

Kai, Tomokazu, 4,392,242, Cl. 455-33.000.

Maruta, Rikio, 4,392,234, Cl. 375-118.000.

Mitama, Masataka, 4,392,245, Cl. 455-115.000.

Ohayagi, Takashi, 4,392,135, Cl. 340-825.440.

Nippon Gakki Seizo Kabushiki Kaisha: See—

Niinomi, Naoyuki; and Watanabe, Kunihiko, 4,391,176, Cl. 84-1.170.

Nippon Kayaku Kabushiki Kaisha: See—

Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,391,986, Cl. 562-444.000.

Nippon Kogaku K.K.: See—

Ishizaka, Sunao; and Hozumi, Toshiaki, 4,391,488, Cl. 350-257.000.

Nippon Oil Co., Ltd.: See—

Uemura, Seiichi; Yamamoto, Shunichi; Hirose, Takao; Takashima, Hiroaki; and Kato, Osamu, 4,391,788, Cl. 423-447.600.

Nippon Soda Company Limited: See—

Maeda, Umio; Shoji, Hirofumi; Wada, Yasuoke; and Horie, Yoshio, 4,391,743, Cl. 252-518.000.

Nippon Soken, Inc.: See—

Egami, Tsuneyuki; Kawai, Hisasi; Kohama, Tokio; and Obayashi, Hideki, 4,391,132, Cl. 73-118.000.

Nippon Steel Corporation: See—

Murakami, Shozo; Yamanaka, Hiroaki; Yokoyama, Kazuhiro; Yone, Yasuhiro; and Yamaguchi, Tokuji, 4,391,702, Cl. 209-10.000.

Murakami, Tadashi; and Kishida, Toshikatsu, 4,391,587, Cl. 432-121.000.

Takechi, Hiroshi; Kato, Hiroshi; Koyama, Kazuo; and Usami, Kazuhide, 4,391,653, Cl. 148-12.00C.

Nippon Telegraph & Telephone Public Corporation: See—

Kojima, Takafumi; Tamaki, Kenzo; and Yokota, Shiro, 4,392,026, Cl. 179-175.30R.

Shinoi, Tsuyoshi; Mochizuki, Keisuke; Suzuki, Yoshimi; Kudoh, Masaru; and Hashimoto, Wataru, 4,392,024, Cl. 179-99.00R.

Nippondenso Co., Ltd.: See—

Dohshita, Hidetoshi; Ishii, Yoshiya; and Fujitani, Nobuyuki, 4,391,241, Cl. 123-198.00B.

Inoue, Yoza; Ito, Yoji; Hara, Kiyoshi; Usami, Kiyoshi; and Iwata, Yasuhiro, 4,391,320, Cl. 165-2.000.

Ito, Shinzo, 4,391,133, Cl. 73-119.00A.

Kobashi, Mamoru; Tanaka, Shinichiro; and Saji, Hideo, 4,391,244, Cl. 123-339.000.

Nishihama, Hitoshi: See—

Kamezaki, Yasushi; Inoue, Eiichi; Nishihama, Hitoshi; Fushida, Akira; and Matsumoto, Joji, 4,391,892, Cl. 430-126.000.

Nishikawa, Masaji, to Olympus Optical Company Limited. Electrophotographic apparatus having means for adjusting the reproduction properties of subsequent copies after a first copy has been produced. 4,391,502, Cl. 355-3.0DD.

Nishikawa, Masao; Toshimitsu, Yoshihiko; Aoyama, Toshihiko; Takaoka, Tokuro; Aoki, Takashi; and Sato, Yoichi, to Honda Giken Kogyo Kabushiki Kaisha. Steering mechanism for vehicles equipped with power steering system. 4,391,342, Cl. 180-143.000.

- Nishizawa, Rinzo: See—
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,391,986, Cl. 562-444.000.
- Nissan Motor Company, Limited: See—
Kosuge, Hideaki, 4,391,098, Cl. 60-602.000.
Matsuda, Toshiro, 4,392,202, Cl. 364-426.000.
Matsui, Fujio, 4,391,250, Cl. 123-438.000.
Nakazawa, Sadaharu, 4,391,407, Cl. 237-12.30B.
Shioyama, Giichi; Hata, Yoshitaka; and Nakajima, Masao, 4,391,247, Cl. 123-403.000.
Sugasawa, Fukashi; and Iizuka, Haruhiko, 4,391,240, Cl. 123-198.00F.
Takahashi, Takao, 4,391,305, Cl. 139-435.000.
Takamura, Tousaku, 4,391,566, Cl. 415-209.000.
Takemura, Toji; and Hirashima, Kenzo, 4,391,356, Cl. 192-84.00C.
Yamane, Ken; and Nissan Motor Co., Ltd., 4,391,184, Cl. 92-100.000.
- Nisshin Steel Company, Ltd.: See—
Yamauchi, Takashi; Maruhashi, Shigeaki; and Hasegawa, Morihiro, 4,391,633, Cl. 75-53.000.
- Nisso Petrochemical Industrie Co., Ltd.: See—
Kogoma, Kiyoshi; Ohashi, Yu; Niizeki, Jiro; Sone, Norio; and Tobita, Takashi, 4,391,994, Cl. 568-593.000.
- Nitro Nobel AB: See—
Persson, Ingemar P., 4,391,403, Cl. 228-107.000.
- Nitsuko Limited: See—
Shinoi, Tsuyoshi; Mochizuki, Keisuke; Suzuki, Yoshimi; Kudoh, Masaru; and Hashimoto, Wataru, 4,392,024, Cl. 179-99.00R.
- Nitto Boseki Co., Ltd.: See—
Shono, Hiroaki; and Kikuchi, Toshiaki, 4,391,619, Cl. 65-12.000.
- Nixdorf Computer AG: See—
Baltz, Gunter, 4,391,542, Cl. 400-605.000.
- NL Industries, Inc.: See—
Herman, Daniel F.; and Kruse, Uno, 4,391,928, Cl. 523-201.000.
Mardis, Wilbur S.; and Finlayson, Claude M., 4,391,637, Cl. 106-20.000.
- Noble, Milton L.; and Cleveland, Bryan L., to General Electric Company. Electron discharge device with a spatially periodic focused beam. 4,392,078, Cl. 315-4.000.
- Noga, Helen H.: See—
Medel, Louis W., Jr.; and Barak, Yoram, 4,391,574, Cl. 418-195.000.
- Nogradi, Mihaly: See—
Korbonits, Dezo; Nogradi, Mihaly; Vermes nee Szluha, Borbala; Strelisky, Janos; Wolfner, Andras; Heja, Gergely; Kovacz, Gabor; Szegi, Jozsef; and Virag, Sandor, 4,391,821, Cl. 424-283.000.
- Nomoto, Mineo: See—
Akiyama, Nobuyuki; Kembo, Yukio; Nakagawa, Yasuo; Aiuchi, Susumu; and Nomoto, Mineo, 4,391,511, Cl. 355-40.000.
- Norris, Kenneth E. Trouble light assembly positioner. 4,392,188, Cl. 362-269.000.
- Northern Telecom Limited: See—
Trumble, William P.; Finn, Roger; and Jackson, Charles F. C., 4,392,014, Cl. 174-92.000.
- NSK-Warner K. K.: See—
Naitoh, Katsumi; and Yanagihara, Hideo, 4,391,421, Cl. 242-107.700.
- NSK-Warner K. K.: See—
Morinaga, Masaru, 4,391,024, Cl. 24-230.00A.
- Oak Industries Inc.: See—
Denley, Ronald S., 4,391,845, Cl. 427-58.000.
- Obayashi, Hideki: See—
Egami, Tsuneyuki; Kawai, Hisasi; Kohama, Tokio; and Obayashi, Hideki, 4,391,132, Cl. 73-118.000.
- Occidental Chemical Corporation: See—
Mundhenke, Rudolph F.; and Fifolt, Michael J., 4,391,991, Cl. 564-412.000.
- Oda, Kiyoshi, to Yoshida Kogyo K. K. Automatic lock slider for slide fasteners. 4,391,022, Cl. 24-205.14R.
- Officine Minnetti Di Ornella Raveggi & C.S.a.s.: See—
Minnetti, Federico, 4,391,360, Cl. 198-412.000.
- Ogawa, Toshiyuki: See—
Shibusawa, Mitsuo; and Ogawa, Toshiyuki, 4,391,508, Cl. 355-14.00C.
- Ogura, Masaaki: See—
Mori, Goro; and Ogura, Masaaki, 4,391,507, Cl. 355-14.00R.
- Ogura, Masahiko: See—
Kawabata, Etsuo; Ogura, Masahiko; Takagi, Akinobu; and Fujimura, Akira, 4,391,246, Cl. 123-391.000.
- O'Hara, John W., to Bechtel International Corp. Apparatus and method for eliminating champagne effect in compressed air energy storage systems. 4,391,552, Cl. 405-59.000.
- Ohara, Osamu: See—
Saito, Koichi; and Ohara, Osamu, 4,391,857, Cl. 427-385.500.
- Ohashi, Yu: See—
Kogoma, Kiyoshi; Ohashi, Yu; Niizeki, Jiro; Sone, Norio; and Tobita, Takashi, 4,391,994, Cl. 568-593.000.
- Ohba, Shinya: See—
Aoki, Masakazu; Ando, Haruhisa; Ohba, Shinya; Hanamura, Shoji; Takemoto, Iwao; and Izawa, Ryuichi, 4,392,158, Cl. 358-213.000.
- Ohe, Kempo: See—
Ide, Katsuyuki; Ohe, Kempo; and Kobayashi, Hisao, 4,392,086, Cl. 315-174.000.
- Ohe, Kuniyoshi: See—
Kitane, Syoiti; Honjo, Shigeru; Ohe, Kuniyoshi; and Tobioaka, Fumio, 4,391,658, Cl. 148-188.000.
- Ohhara, Kazuya: See—
Yamada, Shigeru; and Ohhara, Kazuya, 4,392,114, Cl. 333-28.00T.
- Ohhashi, Shiro; Ubusawa, Fumiyoshi; Iwasaki, Shoji; and Manaka, Tetsuyuki, to Clarion Co., Ltd. Transceiver having interphone system. 4,392,243, Cl. 455-74.000.
- Ohio State University, The: See—
Andresen, Brian D.; and Ng, Kwokei J., 4,391,778, Cl. 422-89.000.
- Ohmori, Taiji, to Honda Giken Kogyo Kabushiki Kaisha. Control circuit for vehicle leveling system. 4,391,452, Cl. 280-6.100.
- Ohmura, Kaoru; Kimura, Takeo; and Kusunose, Tetsuhiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Fine-patterned thick film conductor structure and manufacturing method thereof. 4,392,013, Cl. 174-68.500.
- Ohorodnik, Alexander: See—
Kaiser, Karl; and Ohorodnik, Alexander, 4,391,972, Cl. 528-499.000.
- Ohya, Takashi, to Nippon Electric Co., Ltd. Paging receivers. 4,392,135, Cl. 340-825.440.
- Ohya, Hiroshi; Morita, Ken; Wada, Takuo; and Miyahara, Masahiko, to Hokko Chemical Industry Company, Ltd. Imidazole derivatives and fungicidal composition containing the same. 4,391,804, Cl. 424-245.000.
- Okabe, Takako; Itoh, Kunio; and Sugino, Takashi, to Matsushita Electric Industrial Co., Ltd. Terraced substrate semiconductor laser. 4,392,228, Cl. 372-46.000.
- Okada, Shuhei, to Hitachi Maxell, Ltd. Magnetic recording disc cartridge with disc cleaning means. 4,392,170, Cl. 360-133.000.
- Okamoto, Yoshihisa, to B. F. Goodrich Company, The. Process for preparing colorless hydroxyl epihalohydrin polymers. 4,391,970, Cl. 528-408.000.
- Okaya Electric Industries Co., Ltd.: See—
Kamegaya, Takeo; Sekigawa, Tadahiko; Kurakami, Hiroshi; and Suzuki, Yoshiro, 4,392,075, Cl. 313-584.000.
- Okita, Tsutomu: See—
Yamamoto, Nobuyuki; Naruo, Kyoichi; and Okita, Tsutomu, 4,391,874, Cl. 428-336.000.
- Okoshi, Noboru; Kudo, Kin-ichi; and Shimoyama, Shoichi, to Dainippon Ink & Chemicals, Inc. Process for producing oil-modified and rosin-modified phenolic resin for printing inks. 4,391,640, Cl. 106-29.000.
- Okuyama, Kiyotaka: See—
Hosaka, Akihiko; Okuyama, Kiyotaka; and Isobe, Yukihiro, 4,391,864, Cl. 428-64.000.
- O'Laughlin, Richard L.: See—
Wang, Yu-Chang J.; Dursch Friedrich; O'Laughlin, Richard L.; and Prusik, Thaddeus, 4,391,755, Cl. 260-397.450.
- Olenikov, Evgeny F.: See—
Bykhovsky, David G.; Voropaev, Albert A.; Olenikov, Evgeny F.; and Lopatina, Alla V., 4,392,047, Cl. 219-145.210.
- Olson, Allan H., to Du Pont de Nemours, E. I., and Company. Stabilized suspension of glass bubbles in an aqueous dispersion of tetrafluoroethylene polymer. 4,391,930, Cl. 523-219.000.
- Olson, Allan R.: See—
Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., 4,391,829, Cl. 426-28.000.
- Olympus Optical Company Limited: See—
Ando, Otaru; and Suwaki, Toshitaka, 4,391,282, Cl. 128-660.000.
Imada, Michio; and Naito, Masayuki, 4,391,497, Cl. 350-523.000.
Imai, Toshihiro; and Yamada, Toyotaka, 4,391,521, Cl. 356-225.000.
Konoshima, Katunaga, 4,391,287, Cl. 355-3.0DD.
Nishikawa, Masaji, 4,391,502, Cl. 355-3.0DD.
Osana, Akira, 4,391,416, Cl. 242-68.100.
- Omco Inc.: See—
Nielsen, Anker J., Jr., 4,391,110, Cl. 70-34.000.
- Ono, Hironobu: See—
Nakano, Jiro; and Ono, Hironobu, 4,391,130, Cl. 73-117.300.
- Opalka, Chester J., Jr.: See—
Leshner, George Y.; Opalka, Chester J., Jr.; and Page, Donald F., 4,391,811, Cl. 424-263.000.
- Organisation Europeenne de Recherches Spatiales: See—
O'Sullivan, Dermot; and Weinberg, Alan, 4,392,103, Cl. 323-222.000.
- Original Hanau Heraeus GmbH: See—
Schmid, Helmut; Bock, Martin; and Kampf, Gunther, 4,391,522, Cl. 356-326.000.
- Orlando, Charles M.: See—
Cleveland William K. S.; Webb, Jimmy L.; and Orlando, Charles M., 4,391,996, Cl. 568-726.000.
- Orlite Engineering Ltd.: See—
Kadim, Azriel, 4,391,055, Cl. 42-50.000.
- Orlowski, Ronald C.; and Seyler, Jay K., to Armour Pharmaceutical Company. Des asparagine-3-calcitonin. 4,391,747, Cl. 260-112.50T.
- Orshansky Transmission Corporation: See—
Miller, Robert W., 4,391,292, Cl. 137-269.000.
- Orloff, John E., to Exxon Production Research Co. Multiline piggyback fluid swivel. 4,391,298, Cl. 137-615.000.
- Osakabe, Yoshio: See—
Yamada, Takaaki; Osakabe, Yoshio; and Tsuda, Yukio, 4,392,253, Cl. 455-165.000.
- Osana, Akira, to Olympus Optical Co., Ltd. Reel shaft device of a magnetic recording tape running apparatus. 4,391,416, Cl. 242-68.100.
- Osdene, Thomas S.: See—
Burnett, George H.; Claffin, Warren E.; Lanzillotti, Harry V.; Lilly, A. Clifton, Jr.; Nienow, John F.; Osdene, Thomas S.; and Wayte, Alline R., 4,391,285, Cl. 131-364.000.

- Osrow, Harold, to Osrow Products Corp. Kitchen appliance for making farinaceous products. 4,391,575, Cl. 425-190.000.
- Osrow Products Corp.: See—
Osrow, Harold, 4,391,575, Cl. 425-190.000.
- Osterhout, David J.: See—
Foley, James W. B.; and Osterhout, David J., 4,392,172, Cl. 361-8.000.
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- Scourtes, George, to Allen Group Inc., The. Transmission testing apparatus and method. 4,391,131, Cl. 73-118.000.
- Seachman, Ned J.; and Price, Edgar E., to Xerox Corporation. Ink jet droplet sensing method and apparatus. 4,392,142, Cl. 346-1.100.
- Seagraves, Steven G., Sr.: See—
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- Sealectro Corporation: See—
Wessel, Kenneth R., 4,391,479, Cl. 339-18.00C.
- Sears, Michael L., to Transaction Technology, Inc. Off-hook telephone sensing system. 4,392,023, Cl. 179-2.0DP.
- Secon, Edward, to Sherwood Corporation, The. Shelving console furniture. 4,391,378, Cl. 211-187.000.
- Secor, Arthur D.; and Secor, Jerome G., to Great Lakes Industries, Inc. Expandable chuck assembly. 4,391,451, Cl. 279-2.00A.
- Secor, Jerome G.: See—
Secor, Arthur D.; and Secor, Jerome G., 4,391,451, Cl. 279-2.00A.
- Seelig, Johann: See—
Mehdorn, Frank R.; and Seelig, Johann, 4,391,025, Cl. 28-289.000.
- Seggio, Gianfranco. Anti-skid device for vehicle wheels. 4,391,316, Cl. 152-213.00A.
- Seitz, Alan F., to Data Motion, Incorporated. Manually assemblable sheet-feed tractor. 4,391,399, Cl. 226-74.000.
- Sekigawa, Tadahiko: See—
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- Selinko, George J.: See—
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Janssen, Sylvain; and Sequies, Jean, 4,391,145, Cl. 73-704.000.

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Seyler, Jay K.: *See*—
Orlowski, Ronald C.; and Seyler, Jay K., 4,391,747, Cl. 260-112.50T.

Shamp, Donald E.: *See*—
Daman, Lloyd W.; and Shamp, Donald E., 4,391,581, Cl. 431-160.000.

Shandon Southern Products Limited: *See*—
Gordon, Alan J., 4,391,710, Cl. 210-361.000.

Shann, Peter C. Detonation of explosive charges and equipment therefor. 4,391,195, Cl. 102-201.000.

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Makizuka, Takakazu; and Katoh, Sunao, 4,392,205, Cl. 364-518.000.

Sharpless, Edward N.; Gordon, Marvin; and Lichtenstein, Joseph, to Whitman Medical Corporation. Incentive spirometer. 4,391,283, Cl. 128-725.000.

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Wolfe, Saul; and Shaw, Chia-Cheng, 4,391,975, Cl. 544-90.000.

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Kung, Edward J.; and Bednard, Eugene D., 4,392,213, Cl. 367-13.000.

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Durette, Philippe L.; and Shen, Tsung-Ying, 4,391,800, Cl. 424-177.000.

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Shepherd, Norris W.: *See*—
Riley, Eric K.; Smith, Colin D.; Yates, Garry J.; and Shepherd, Norris W., 4,391,585, Cl. 432-23.000.

Sherwood Corporation, The: *See*—
Secon, Edward, 4,391,378, Cl. 211-187.000.

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Iso, Yoshimi; Inoue, Shigeki; and Shibuya, Toshifumi, 4,392,020, Cl. 179-1.0GE.

Shimazaki, Shigeo, to Matsushita Electric Industrial Company, Limited. Method of producing microaddresses and a computer system for achieving the method. 4,392,198, Cl. 364-200.000.

Shimazu, Ken-ichi; and Deutsch, Albert, to Polychrome Corporation. Colored photosensitive composition. 4,391,894, Cl. 430-154.000.

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Itoh, Kunio; Sugino, Takashi; Wada, Masaru; and Shimizu, Hirokazu, 4,392,227, Cl. 372-46.000.

Shimizu, Hiroshi; Sakai, Sigeo; Matsuda, Fumihiko; and Matsumoto, Reiko, to Japan Organo Co., Ltd. Process for regenerating a strongly acidic cation exchange resin. 4,391,649, Cl. 127-46.200.

Shimizu, Norihiko: *See*—
Munekata, Kenichi; Unno, Kunihiko; and Shimizu, Norihiko, 4,391,066, Cl. 51-165.870.

Shimoyama, Shoichi: *See*—
Okoshi, Noboru; Kudo, Kin-ichi; and Shimoyama, Shoichi, 4,391,640, Cl. 106-29.000.

Shin, Kju H., to Ethyl Corporation. Adenine production. 4,391,977, Cl. 544-277.000.

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Shinoi, Tsuyoshi; Mochizuki, Keisuke; Suzuki, Yoshimi; Kudoh, Masaru; and Hashimoto, Wataru, to Nitsuko Limited; and Nippon Telegraph & Telephone Public Corporation. Electronic key telephone set circuit for permitting dialing during failure of commercial power supplied to the set. 4,392,024, Cl. 179-99.00R.

Shinozaki, Satoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of making v-isolation grooves by over-filling with polycrys-

talline silicon of graded conductivity and etching. 4,391,033, Cl. 29-576.00W.

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Murakami, Shinichi; Morichika, Toshiaki; Hiraishi, Hisashi; and Shiohara, Hiroyuki, 4,391,635, Cl. 75-125.000.

Shioyama, Giichi; Hata, Yoshitaka; and Nakajima, Masao, to Nissan Motor Company, Limited. Air flow detection arrangement. 4,391,247, Cl. 123-403.000.

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Jirousek, Norman F.; and Shipitalo, William M., 4,391,351, Cl. 188-18.00A.

Shirahata, Akihiko, to Toray Silicone Company, Ltd. Organopolysiloxane photosensitizers and methods for their preparation. 4,391,963, Cl. 528-37.000.

Shirahata, Isao: *See*—
Hori, Hisako; Kitamura, Nobu; Shirahata, Isao; and Nakamura, Nobuyuki, 4,391,955, Cl. 525-462.000.

Shirai, Tadashi: *See*—
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,391,986, Cl. 562-444.000.

Shirakura, Toshiharu: *See*—
Kuwabara, Kouji; Sugawara, Hiroyuki; Shirakura, Toshiharu; Sasaki, Kouji; and Takemori, Satoshi, 4,391,519, Cl. 356-153.000.

Shireman, Phillip E.: *See*—
Bayne, Robert T.; and Shireman, Phillip E., 4,391,387, Cl. 221-13.000.

Shishido, Tadao: *See*—
Toyoda, Takashi; Shishido, Tadao; and Tsujikawa, Teruaki, 4,391,900, Cl. 430-355.000.

Shoji, Hirofumi: *See*—
Maeda, Umio; Shoji, Hirofumi; Wada, Yasusuke; and Horie, Yoshio, 4,391,743, Cl. 252-518.000.

Shono, Hiroaki; and Kikuchi, Toshiaki, to Nitto Boseki Co., Ltd. Air nozzle apparatus for use in drawing glass fibers. 4,391,619, Cl. 65-12.000.

Shotbolt, Keith, to Constructors John Brown Limited. Guides for use in forming pipe connections and a process of forming pipe connections. 4,391,331, Cl. 166-342.000.

Sieffert, William G., to Champion International Corporation. Fiberboard shipping container having laminated spacing members. 4,391,371, Cl. 206-597.000.

Siegmund, Walter P., to American Optical Corporation. Method of making lenses having a spherical face. 4,391,621, Cl. 65-31.000.

Siemens Aktiengesellschaft: *See*—
Edinger, Egon; and Kohler, Gerd, 4,391,764, Cl. 264-25.000.

Keller, Wolfgang; Grassmann, Hans-Christian; and Schmidt, Karl, 4,392,230, Cl. 373-139.000.

Kleinschmidt, Peter; and Magori, Valentin, 4,392,074, Cl. 310-327.000.

Kuhnlein, Hans, 4,392,094, Cl. 318-254.000.

Metzler, Hans-Georg, 4,391,190, Cl. 101-211.000.

Schmitter, Ernst; Birzele, Paul; Buchmann, Klaus; Geitz, Gerhard; Will, Bernhard; and Beifuss, Wolfgang, 4,392,199, Cl. 364-200.000.

Schulte, Heinz, 4,391,032, Cl. 29-571.000.

Troebel, Werner; and Bottcher, Martin, 4,392,036, Cl. 200-322.000.

Walter, Karl-Heinz, 4,392,131, Cl. 340-803.000.

Wilkens, Achim, 4,392,239, Cl. 378-146.000.

Silbering, Ludwig. Process and apparatus for hydrogen production. 4,391,794, Cl. 423-650.000.

Silverberg, Morton, to Xerox Corporation. Over-platen document registration apparatus. 4,391,505, Cl. 355-3.00R.

Simandoux, Jean-Claude: *See*—
Billon, Alain; Le Page, Jean-Francois; Peries, Jean-Pierre; and Simandoux, Jean-Claude, 4,391,700, Cl. 208-86.000.

Simjian, Luther G. Exercise apparatus. 4,391,441, Cl. 272-126.000.

Simmons, Nathaniel; Magnusson, Stig; Puccini, Sergio E.; McLaughlin, Donald W.; and Stelte, David J., to GTE Automatic Electric Laboratories, Inc. Dual rail time and control unit for a T-S-T digital switching system. 4,392,223, Cl. 370-63.000.

Simpson, Clyde D.: *See*—
Lewis, James C.; Miller, Jerry W.; Simpson, Clyde D.; and Thomasson, Ronald G., 4,392,104, Cl. 324-54.000.

Singer Company, The: *See*—
Sansone, Eugene A., 4,391,215, Cl. 112-275.000.

Vermillion, Don W.; Gromek, Francis S.; and Bair, Scott S., III, 4,391,018, Cl. 15-339.000.

Siuta, Gerald J.; and Bernstein, Seymour, to American Cyanamid Company. Ureylenebis (hydroxy naphthalenesulfonic acids). 4,391,824, Cl. 424-315.000.

Sizemore, Howard; and Bruner, Robert. Knife with removable blades. 4,391,043, Cl. 30-330.000.

SKF Kugellagerfabriken GmbH: *See*—
Negele, Richard; and Pfeifle, Dieter, 4,391,476, Cl. 308-207.00R.

Skinner, Stuart M., Jr.: *See*—
Kerfoot, William B.; and Skinner, Stuart M., Jr., 4,391,137, Cl. 73-204.000.

Skiver, Bruce W.: *See*—
Galland, Lesley A.; and Skiver, Bruce W., 4,391,172, Cl. 83-403.000.

Slagteriermes Forskningsinstitut: *See*—
Petersen, Olfert H., 4,391,141, Cl. 73-433.000.

Slate, Matthew W., to Technical Communications Corporation. Secure facsimile transmission system using time-delay modulation. 4,392,021, Cl. 179-1.50R.

Slater Steel Industries Limited: *See*—
Nigol, Olaf; and Houston, Herbert J., 4,391,125, Cl. 73-11.000.

Slattery, William; Brechany, Thomas; and MacLeod, Colin J., to Caledonian Mining Company Limited. Method and apparatus for bending metal beams. 4,391,115, Cl. 72-131.000.

Small, Augustus B.; Hughes, Vincent L.; and Benitez, Francisco M., to Exxon Research & Engineering Co. Process for preparing light colored petroleum resins and resins produced thereby (CS-203). 4,391,961, Cl. 526-76.000.

Smeets, Gerard G. F. Punch press machine with adjustable tool positioning. 4,391,174, Cl. 83-552.000.

Smith, Alfred A. Transfer bench. 4,391,006, Cl. 4-559.000.

Smith, Allan L. Sprinkler with transversely mounted splash plate. 4,391,410, Cl. 239-498.000.

Smith, Colin D.: *See*—
Riley, Eric K.; Smith, Colin D.; Yates, Garry J.; and Shepherd, Norris W., 4,391,585, Cl. 432-23.000.

Smith, Derrick A. Closed loop hermetically sealed solar power generator. 4,391,100, Cl. 60-641.110.

Smith, Donald A.; and Pote, Bruce M., to Combustion Engineering, Inc. Solids pumping apparatus. 4,391,561, Cl. 414-218.000.

Smith, Donald D.: *See*—
Frenkel, Jacob K.; and Smith, Donald D., 4,391,822, Cl. 424-283.000.

Smith, Graham C.: *See*—
Mathieson, Ernest; Smith, Graham C.; and Gilvin, Philip J., 4,392,057, Cl. 250-385.000.

Smith, Jeremy G. B., to AECI Limited. Explosive. 4,391,659, Cl. 149-2.000.

Smith, Kenneth C. A., to National Research Development Corporation. Electron beam lithography. 4,392,058, Cl. 250-492.200.

Smith, Lawrence M.: *See*—
Moshofsky, Jerome F., 4,391,401, Cl. 227-19.000.

Smith, Peter A. Water chair. 4,391,466, Cl. 297-452.000.

Smith, Verity C., to Vapronics Inc. Reverse osmosis unit-degasifier system. 4,391,713, Cl. 210-652.000.

Smith, Wayne G.; and Maurer, Herman J., to J. I. Case Company. Tooth assembly. 4,391,050, Cl. 37-142.00A.

Smolin, Anatoly T.: *See*—
Yakovlev, Nikolai I.; Smolin, Anatoly T.; Kokovikhin, Vasily G.; and Kotunov, Alexei A., 4,392,106, Cl. 324-72.500.

SMS Schloemann-Siemag Aktiengesellschaft: *See*—
Priebe, Fritz, 4,391,122, Cl. 72-481.000.

Snow, Harold D.: *See*—
Rand, Robert W.; Snow, Harold D.; Elliott, David G.; and Haskins, Glenn M., 4,392,040, Cl. 219-10.710.

Societe Anonyme Francelco: *See*—
Desourteaux, Dominique E., 4,391,483, Cl. 339-94.00R.

S.A. PRB n.v.: *See*—
Creff, Hubert S., 4,391,926, Cl. 523-132.000.

Societe des Ciments Francais: *See*—
Dupain, Jean, 4,391,774, Cl. 422-63.000.

Societe Nationale Industrielle Aerospatiale: *See*—
Barkats, Gerard; Girard, Alain; Marchal, Jean; and Morel, Charles, 4,392,007, Cl. 136-248.000.

Societe Navale Chargeurs Delmas-Vieljeux: *See*—
Loreal, Guy, 4,391,462, Cl. 292-207.000.

Societe Nouvelle de Bouchons Plastiques S.N.B.P.: *See*—
Babiol, Pierre, 4,391,383, Cl. 215-256.000.

Societe Pri: *See*—
Carter, Brian, 4,392,048, Cl. 219-367.000.

Societe Vetrotex Saint-Gobain: *See*—
Lecron, Jacques; Manera, Maxime; Faure, Jean-Paul; and Renaudin, Jean-Pierre, 4,391,618, Cl. 65-1.000.

Sodex-Magister, Societe d'Exploitation: *See*—
Neyret, Guy, 4,391,112, Cl. 70-364.00A.

Solar Dynamics Inc.: *See*—
Mathes, Donovan B.; Hamilton, Floyd B.; and Spreng, Douglas C., 4,391,268, Cl. 126-437.000.

Solarex Corporation: *See*—
Lindmayer, Joseph, 4,392,010, Cl. 136-256.000.

Solid Photography, Inc.: *See*—
Di Matteo, Paul, 4,392,182, Cl. 362-5.000.

Solid State Systems, Inc.: *See*—
Mehaffey, Joseph H.; and Szlam, Aleksander, 4,392,129, Cl. 340-765.000.

Solvay & Cie: *See*—
Ryckaert, Andre; and Servais, Michel, 4,392,000, Cl. 570-104.000.

Somerville, Ronald: *See*—
Pickens, Robert C., Jr.; Thomas, Reese R.; and Somerville, Ronald, 4,391,866, Cl. 428-92.000.

Sone, Norio: *See*—
Kogoma, Kiyoshi; Ohashi, Yu; Niizeki, Jiro; Sone, Norio; and Tobita, Takashi, 4,391,994, Cl. 568-593.000.

Sony Corporation: *See*—
Yamada, Takaaki; Osakabe, Yoshio; and Tsuda, Yukio, 4,392,253, Cl. 455-165.000.

Yamamoto, Kaichi, 4,392,162, Cl. 360-10.300.

Sorensen, Jens O. Atmospheric thermal energy conversion utilizing inflatable pressurized rising conduit. 4,391,099, Cl. 60-641.600.

Souques, Georges: *See*—
Cadet, Christian; Dumortier, Bernard; and Souques, Georges, 4,392,174, Cl. 361-45.000.

Sparks, Jacob D. Springless nipple waterer valve. 4,391,225, Cl. 119-72.500.

Spaziente, Placido M.; and Giuffre, Luigi. Process for methyl isocyanate production. 4,391,758, Cl. 260-453.00P.

Speak, Trevor H., to Rolls-Royce Limited. Nozzle guide vane assemblies for turbomachines. 4,391,565, Cl. 415-189.000.

Speicher, John M.: *See*—
Bastian, Thomas W.; and Speicher, John M., 4,392,140, Cl. 343-765.000.

Spells, Sherwood: *See*—
Lee, Chi-long; and Spells, Sherwood, 4,391,765, Cl. 264-26.000.

Sperry Corporation: *See*—
Waldrop, T. William, 4,391,363, Cl. 198-865.000.

Young, Terry A.; and Mast, Aquila D., 4,391,364, Cl. 198-865.000.

Spindler, Manfred; Tanner, Herbert; Geiger, Friedhelm; Bittner, Friedrich; and Martens, Jurgen, to Degussa Aktiengesellschaft. Process for the production of aqueous sodium methionine solutions. 4,391,987, Cl. 562-559.000.

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Spinelli, Louis A., to Nabisco Brands, Inc. Speed controlled infeed conveyor system. 4,391,362, Cl. 198-855.000.

Spitz, Robert J.: *See*—
Cordova, Samuel; and Spitz, Robert J., 4,391,059, Cl. 43-15.000.

Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., to General Foods Corporation. Dual enzyme digestion for a dog food of improved palatability. 4,391,829, Cl. 426-28.000.

Sprague, Robert B.: *See*—
Tyler, Truman V.; and Sprague, Robert B., 4,391,712, Cl. 210-652.000.

Sprecker, Mark A.; Hanna, Marie R.; Tokarzowski, Richard J.; Belko, Robert P.; Watkins, Hugh; and Vock, Manfred H., to International Flavors & Fragrances Inc. Use in modifying smoking tobacco aroma and flavor or mono-oxomethyl substituted polyhydromethanophthalene derivatives. 4,391,284, Cl. 131-276.000.

Spreng, Douglas C.: *See*—
Mathes, Donovan B.; Hamilton, Floyd B.; and Spreng, Douglas C., 4,391,268, Cl. 126-437.000.

Spring, Kurt: *See*—
Dreier, Ernst; and Spring, Kurt, 4,391,213, Cl. 112-246.000.

Springs, Daniel R.: *See*—
Goss, David C.; and Springs, Daniel R., 4,392,051, Cl. 219-528.000.

SPS Technologies, Inc.: *See*—
Cadwallader, James W., 4,391,544, Cl. 403-155.000.

SRI International: *See*—
Green, Philip S., 4,391,281, Cl. 128-660.000.

Staempfli, Jackie, to Tulcea, S.A. Disposable syringe. 4,391,272, Cl. 604-110.000.

Staerzl, Richard E., to Brunswick Corporation. Atomization compensation for electronic fuel injection. 4,391,254, Cl. 123-478.000.

Staerzl, Richard E., to Brunswick Corporation. Programmed sequential fuel injection in an internal combustion engine. 4,391,255, Cl. 123-481.000.

Stahl, Edward L.; and Kreeger, Elmer W., to Pinckney Molded Plastics, Inc. Four-level stacking container. 4,391,369, Cl. 206-506.000.

Stamicarbon, B.V.: *See*—
Don, Johannes A.; and Scholten, Joseph J. F., 4,392,001, Cl. 585-269.000.

Stamminger, Reinhard: *See*—
Cullis, Herbert M.; and Stamminger, Reinhard, 4,392,008, Cl. 136-248.000.

Standard Change-Makers, Inc.: *See*—
Bayne, Robert T.; and Shireman, Phillip E., 4,391,387, Cl. 221-13.000.

Standard Oil Company, The: *See*—
Kuch, Philip L.; Herrington, Daniel R.; and Eggett, Janet M., 4,391,756, Cl. 260-430.000.

Standard Oil Company (Indiana): *See*—
Ferreira, Laurence E.; Lamar, Richard S.; and Bertolacini, Ralph J., 4,391,734, Cl. 252-378.00R.

Lamar, Richard S.; Ferreira, Laurence E.; and Cloud, Robert C., 4,391,733, Cl. 252-378.00R.

Nimry, Tayseer S.; and Fields, Ellis K., 4,391,967, Cl. 528-189.000.

Palm, John W.; and Reed, Robert L., 4,391,790, Cl. 423-574.00R.

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Pappas, Peter G., 4,391,721, Cl. 252-51.50A.

Stanley, Robert C., to FMC Corporation. System for controlling a juice extraction facility. 4,391,185, Cl. 99-489.000.

Stanton, Howard F.: *See*—
Keathley, Anthony C.; Stanton, Howard F.; and Wagle, Mahesh M., 4,391,114, Cl. 72-78.000.

Stanton, William E.; Eisenhaure, David B.; and Drescher, Robert D., to Charles Stark Draper Laboratory, Inc., The. Optimum efficiency control system. 4,392,100, Cl. 318-803.000.

Stapleton, Brian P.: *See*—
Aoyama, Frank S.; and Stapleton, Brian P., 4,392,139, Cl. 343-705.000.

Steadman, Rufus P. Lamp standard assembly. 4,392,192, Cl. 362-418.000.

Steele, Derek E. Moisture meters of a type especially suitable for estimating the moisture content of organic materials. 4,392,127, Cl. 340-604.000.

Steigerwald, Wolf-Erhard; Ambros, Peter; and Gatzke, Erich. Paste composition for the production of electrically conductive and solderable structures. 4,391,742, Cl. 252-512.000.

- Steigmeier, Edgar F.; and Auderset, Heinrich, to RCA Corporation. Method for determining the quality of light scattering material. 4,391,524, Cl. 356-338.000.
- Stein, Israel M., to Clinical Data, Inc. Electrode belt. 4,391,279, Cl. 128-643.000.
- Steiner Corporation: See—
Steiner, Robert L., 4,391,308, Cl. 141-18.000.
Steiner, Robert L., 4,391,309, Cl. 141-18.000.
- Steiner, Robert L., to Steiner Corporation. Soap dispensing system. 4,391,308, Cl. 141-18.000.
- Steiner, Robert L., to Steiner Corporation. Soap dispensing system. 4,391,309, Cl. 141-18.000.
- Steinkraus, Richard W. Filter element sealing device for filter pan. 4,391,706, Cl. 210-232.000.
- Stelte, David J.: See—
Simmons, Nathaniel; Magnusson, Stig; Puccini, Sergio E.; McLaughlin, Donald W.; and Stelte, David J., 4,392,223, Cl. 370-63.000.
- Sterling Drug Inc.: See—
Coates, Colin F., 4,391,715, Cl. 210-696.000.
Leshner, George Y.; Opalka, Chester J., Jr.; and Page, Donald F., 4,391,811, Cl. 424-263.000.
Lewis, Frederick M., 4,391,208, Cl. 110-346.000.
- Stetter, Jorg; Reiser, Wolf; and Faust, Wilfried, to Bayer Aktiengesellschaft. Alokylamide compounds and herbicidal antidote compositions. 4,391,626, Cl. 71-88.000.
- Stevenson, John; Cross, Alan; and Anderson, John G., to Fosco International Limited. Alkali metal silicate binder compositions. 4,391,642, Cl. 106-38.230.
- Stewart, Alex D.: See—
Ruxton, David S.; and Stewart, Alex D., 4,392,095, Cl. 318-254.000.
- Stichnoth, Andreas: See—
Stichnoth, Otto; and Stichnoth, Andreas, 4,391,602, Cl. 8-149.100.
- Stichnoth, Otto; and Stichnoth, Andreas. Process for smoothing and drying washed shaped articles of mixed fabric. 4,391,602, Cl. 8-149.100.
- Stiglich, Ralph E., to Honeywell Inc. Electronic circuit for eliminating chatter. 4,392,065, Cl. 307-247.00A.
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- Stubby, Kenneth P., to International Business Machines Corporation. Thermally compensated shadow mask. 4,391,034, Cl. 29-579.000.
- Studhalter, Walter R.; Amend, William E.; and Helgeson, Norman L., to Biphasic Energy Systems. Fresh water production from power plant waste heat. 4,391,102, Cl. 60-649.000.
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- Stutzman, Clarence. Apparatus for cooling a ceiling mounted fan motor. 4,391,570, Cl. 417-353.000.
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- Sugasawa, Fukashi; and Iizuka, Haruhiko, to Nissan Motor Company, Limited. Internal combustion engine. 4,391,240, Cl. 123-198.00F.
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- Sugimoto, Hitoshi: See—
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- Sugino, Takashi: See—
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- Sugisita, Kaneo: See—
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Horikawa, Takahiro; Hibino, Yutaka; and Maki, Seichi, 4,391,218, Cl. 118-621.000.
Inamoto, Jiro; and Hayata, Naohiro, 4,391,314, Cl. 152-210.000.
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- Sunderland, Ned E. Cutting apparatus for cutting a non-circular opening. 4,391,042, Cl. 30-316.000.
- Sundstrand Corporation: See—
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- Sung, Rodney L.; Sweeney, William M.; and Crawford, Wheeler C., to Texaco Inc. Liquid hydrocarbon fuel containing a corrosion inhibitor, dialkoxylated alkyl polyoxyalkyl primary amine. 4,391,610, Cl. 44-56.000.
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Hollier, Joseph H., Jr., 4,391,415, Cl. 242-56.900.
- Sutherland, Ray; and Wood, Mark S., to Rockwell International Corporation. Plastic water meter main case. 4,391,139, Cl. 73-273.000.
- Suwaki, Toshitaka: See—
Ando, Otaro; and Suwaki, Toshitaka, 4,391,282, Cl. 128-660.000.
- Suzaki, Shunichi: See—
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Masamoto, Junzo; Hamada, Minoru; Suzuki, Isamu; and Yoshida, Takeo, 4,391,741, Cl. 252-511.000.
- Suzuki, Koichi: See—
Kawai, Shinji; Suzuki, Koichi; and Yamaguchi, Yuji, 4,391,004, Cl. 4-443.000.
- Suzuki, Masao: See—
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,391,986, Cl. 562-444.000.
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- Suzuki, Seiichi: See—
Ichikawa, Katsumi; Amano, Itaru; Ozaki, Keiji; and Suzuki, Seiichi, 4,391,769, Cl. 264-326.000.
- Suzuki, Teruo, to Toppan Printing Co., Ltd. Method of making a half-tone gravure printing plate. 4,391,899, Cl. 430-307.000.
- Suzuki, Togi; Tsunawaki, Kiyokazu; Wada, Osamu; and Kimura, Akio, to Teijin, Ltd. Hollow water-absorbing polyester filament textile material. 4,391,872, Cl. 428-224.000.
- Suzuki, Yoshimi: See—
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- Suzuki, Yoshiro: See—
Kamegaya, Takeo; Sekigawa, Tadahiko; Kurakami, Hiroshi; and Suzuki, Yoshiro, 4,392,075, Cl. 313-584.000.
- Swan Corporation, The: See—
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- Sweeney, William M.: See—
Sung, Rodney L.; Sweeney, William M.; and Crawford, Wheeler C., 4,391,610, Cl. 44-56.000.
- Swiss Aluminium Ltd.: See—
Brockmeyer, Jerry W., 4,391,918, Cl. 501-127.000.
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Grunert, Hans C., 4,391,478, Cl. 312-320.000.
- Sylvain, Daniel, to Clesid. Apparatus for storing a variable length of strip. 4,391,400, Cl. 226-113.000.
- Sysak, Peter K., to Du Pont de Nemours, E. I., and Company. Ionic copolymers in photographic light-sensitive silver halide films. 4,391,903, Cl. 430-629.000.
- Syva Company: See—
Litman, David J.; and Ullman, Edwin F., 4,391,904, Cl. 435-7.000.
- Szabolcsi, Gertrud: See—
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- Szkolnik, Michael, to Cornell Research Foundation, Inc. Vapor phase fungicidal method. 4,391,813, Cl. 424-269.000.
- Szlam, Aleksander: See—
Mehaffey, Joseph H.; and Szlam, Aleksander, 4,392,129, Cl. 340-765.000.
- T. A. Systems, Inc.: See—
Taruntaev, V., 4,391,121, Cl. 72-406.000.
- Tabuchi, Takeshi; and Abe, Matazo, to Takeda Chemical Industries, Ltd. Method for producing citric acids. 4,391,908, Cl. 435-144.000.
- Taghon, Daniel, to Poclain. Supporting chassis for a working machine, such as a hydraulic shovel. 4,391,341, Cl. 180-9.20R.
- Taguchi, Kenichi: See—
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- Tahara, Iwao: See—
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- Tai, Wun T., to Nalco Chemical Company. Polycationic latices of dimethylaminopropyl-acrylamide, and their use as sludge dewatering agents and/or paper retention aids. 4,391,932, Cl. 523-337.000.
- Tajima, Akira; and Tsuji, Sadahiko, to Canon Kabushiki Kaisha. Method to increase focal distance at telephotographic side of a zoom lens system. 4,391,493, Cl. 350-422.000.
- Takada, Masaniko: See—
Yamane, Kazumasa; Kobayashi, Masahiro; and Takada, Masaniko, 4,391,944, Cl. 524-548.000.
- Takagi, Akinobu: See—
Kawabata, Etsuo; Ogura, Masahiko; Takagi, Akinobu; and Fujimura, Akira, 4,391,246, Cl. 123-391.000.
- Takahashi, Naoki: See—
Wakabayashi, Takuo, deceased; Wakabayashi, Shigemasa, legal representative; Tahara, Iwao; Aihara, Toshiharu; Takahashi, Naoki; and Matsuo, Yushin, 4,391,530, Cl. 368-63.000.
- Takahashi, Sachio: See—
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- Takahashi, Takao, to Nissan Motor Co., Ltd. Weft picking device of air jet type weaving loom. 4,391,305, Cl. 139-435.000.
- Takahashi, Tohru: See—
Tamura, Yasuyuki; Kanbe, Junichiro; Nakamura, Shunji; Toyono, Tsutomu; and Takahashi, Tohru, 4,391,891, Cl. 430-120.000.
- Takamura, Totsuaki, to Nissan Motor Co., Ltd. Diffuser and exhaust gas collector arrangement. 4,391,566, Cl. 415-209.000.
- Takaoka, Tokuro: See—
Nishikawa, Masao; Toshimitsu, Yoshihiko; Aoyama, Toshihiko; Takaoka, Tokuro; Aoki, Takashi; and Sato, Yoichi, 4,391,342, Cl. 180-143.000.
- Takara Co., Ltd.: See—
Nakane, Shigeru, 4,391,060, Cl. 46-22.000.
- Takashima, Hiroaki: See—
Uemura, Seiichi; Yamamoto, Shunichi; Hirose, Takao; Takashima, Hiroaki; and Kato, Osamu, 4,391,788, Cl. 423-447.600.
- Takasugi, Wasao: See—
Yokozawa, Norio; Takasugi, Wasao; Yonezawa, Seiji; and Ueyanagi, Kiichi, 4,392,219, Cl. 369-44.000.
- Takatori, Yasushi: See—
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- Takayama, Kenichiro: See—
Kimura, Kazuo; Takayama, Kenichiro; Ado, Yutaka; Kawamoto, Tamotsu; and Masuraga, Izumi, 4,391,910, Cl. 435-232.000.
- Takechi, Hiroshi; Katoh, Hiroshi; Koyama, Kazuo; and Usami, Kazuhide, to Nippon Steel Corporation. Process for producing cold rolled steel strip having excellent mechanical strength and useful for motor vehicles. 4,391,653, Cl. 148-12.00C.
- Takeda Chemical Industries, Ltd.: See—
Minato, Ichiro; Shibata, Koichi; and Fujinami, Kimiya, 4,391,958, Cl. 525-504.000.
- Tabuchi, Takeshi; and Abe, Matazo, 4,391,908, Cl. 435-144.000.
- Takemae, Yoshihiro: See—
Nakano, Masao; Baba, Fumio; Nakano, Tomio; Takemae, Yoshihiro; and Mochizuki, Hirohiko, 4,392,211, Cl. 365-200.000.
- Takematsu, Tetsuo; Isogawa, Takayuki; and Sakuraba, Yasuya, to Hodogaya Chemical Co., Ltd. Herbicidal composition. 4,391,631, Cl. 71-118.00A.
- Takemori, Satoshi: See—
Kuwabara, Kouji; Sugawara, Hiroyuki; Shirakura, Toshiharu; Sasaki, Kouji; and Takemori, Satoshi, 4,391,519, Cl. 356-153.000.
- Takemoto, Iwao: See—
Aoki, Masakazu; Ando, Haruhisa; Ohba, Shinya; Hanamura, Shoji; Takemoto, Iwao; and Izawa, Ryuchi, 4,392,158, Cl. 358-213.000.
- Takemura, Toji; and Hirashima, Kenzo, to Nissan Motor Co. Ltd. Clutch engageable/disengageable by momentary energization of solenoid means. 4,391,356, Cl. 192-84.00C.
- Takeuchi, Minami: See—
Takigami, Katsuhiko; and Takeuchi, Minami, 4,392,175, Cl. 361-88.000.
- Takigami, Katsuhiko; and Takeuchi, Minami, to Tokyo Shibaura Denki Kabushiki Kaisha. Protecting device for a gate turn-off thyristor. 4,392,175, Cl. 361-88.000.
- Talerico, Joseph M.; and Fleischer, Henry. Water-saving device for use with toilets. 4,391,003, Cl. 4-415.000.
- Tama Manufacturing Co., Limited: See—
Mashio, Sakae, 4,391,242, Cl. 123-198.00R.
- Tamaki, Kenzo: See—
Kojima, Takafumi; Tamaki, Kenzo; and Yokota, Shiro, 4,392,026, Cl. 179-175.30R.
- Tamamura, Junichi; Yasuda, Mamoru; Hosoda, Motomi; and Saeki, Shinichi, to Hosiden Electronics Co., Ltd. Condenser microphone. 4,392,025, Cl. 179-111.00R.
- Tamiya, Yoshimichi; Eguchi, Yasukata; and Makabe, Hachiro, to Janome Sewing Machine Co., Ltd. Electronic control sewing machine. 4,391,212, Cl. 112-158.00E.
- Tamosauskas, Albert E.; and Temple, Chester S., to PPG Industries, Inc. Aqueous peroxide emulsion for use with glass fibers. 4,391,876, Cl. 428-392.000.
- Tamura, Yasuyuki; Kanbe, Junichiro; Nakamura, Shunji; Toyono, Tsutomu; and Takahashi, Tohru, to Canon Kabushiki Kaisha. Developing method using (alternating electric field and) a developer of the field-dependent type and an apparatus therefor. 4,391,891, Cl. 430-120.000.
- Tanaka, Akira: See—
Ahad, Munir J.; Hollowell, William; Tanaka, Akira; and Ziv, Avraham, 4,391,420, Cl. 242-107.40A.
- Tanaka, Hideharu; Ishijima, Koji; and Koda, Toshihide, to Mitsubishi Denki Kabushiki Kaisha. Horizontal rotary compressor with oil forced by gas discharge into crankshaft bore. 4,391,573, Cl. 418-63.000.
- Tanaka, Kobun; and Kawaharazaki, Takashi, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Buckle arrangement for seat belts. 4,391,023, Cl. 24-230.0AL.
- Tanaka, Shinichiro: See—
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- Tanaka, Yutaka: See—
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- Tandjung, Halim S.: See—
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- Tanner Companies, The: See—
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- Tanner, Herbert: See—
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- Tarro, Giulio, to Depa S.p.A. Preparation of herpes simplex antigen for the diagnosis of carcinoma. 4,391,911, Cl. 435-239.000.
- Taruntaev, V., to T. A. Systems, Inc. Orbital tool assembly for forming rivet heads. 4,391,121, Cl. 72-406.000.
- Tarzia, Giorgio: See—
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- Tatebe, Yoshikazu; Egami, Masafumi; and Miyawaki, Toshimitsu, to Mitsubishi Jukogyo Kabushiki Kaisha. Cylinder head for air-cooled engines. 4,391,231, Cl. 123-41.690.
- Tavss, Edward A.; and Eigen, Edward, to Colgate-Palmolive Company. Non-irritating dentifrice. 4,391,798, Cl. 424-52.000.
- Taylor, Lloyd D.: See—
Schwarzel, William C.; and Taylor, Lloyd D., 4,391,895, Cl. 430-215.000.
- Taylor, Ray A.: See—
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- Taylor, Ray M., to Taylor, Ray A. Warp tension structure. 4,391,304, Cl. 139-100.000.
- Taylor, Robert A., to United States of America, Agriculture. Segmented fiber sampler. 4,391,153, Cl. 73-864.410.
- Taylor, William D., Jr. Firewood carrier. 4,391,397, Cl. 224-265.000.
- TDK Electronics Co., Ltd.: See—
Hosaka, Akihiko; Okuyama, Kiyotaka; and Isobe, Yukihiro, 4,391,864, Cl. 428-64.000.
- Shibata, Fujio; Kawahara, Hiroshi; and Azegami, Hitoshi, 4,391,877, Cl. 428-457.000.
- Technal International S.A.: See—
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- Technical Communications Corporation: See—
Slate, Matthew W., 4,392,021, Cl. 179-1.50R.
- Teijin, Ltd.: See—
Suzuki, Togi; Tsunawaki, Kiyokazu; Wada, Osamu; and Kimura, Akio, 4,391,872, Cl. 428-224.000.
- Tektronix, Inc.: See—
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- Telefonaktiebolaget L M Ericsson: See—
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- Teletype Corporation: See—
Costello, Louis B., 4,392,083, Cl. 315-85.000.
- Telford, Clive D.: See—
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- Temple, Chester S.: See—
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- Tencor Instruments: See—
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- Tenney, William L. Gas compressor. 4,391,568, Cl. 417-237.000.
- Tenud, Leander: See—
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- Terakura, Yukio: See—
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- Teramachi, Hiroshi. Linear bearing unit. 4,391,473, Cl. 308-6.00C.
- Terashima, Akira: See—
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- Terry, Richard H.: See—
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- Tetra Pak Developpement SA: See—
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- Texaco Inc.: See—
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- Virk, Kashmir S., 4,391,095, Cl. 60-286.000.
- Texas Iron Works, Inc.: See—
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- Thermon Manufacturing Company: See—
Goss, David C.; and Springs, Daniel R., 4,392,051, Cl. 219-528.000.
- Theurer, Josef; Hansmann, Johann; and Riessberger, Klaus, to Franz Plasser Bahnaumaschinen-Industriegesellschaft m.b.H. Measuring apparatus for rail head running surface irregularities. 4,391,134, Cl. 73-146.000.
- Thies, Peter W.; and David, Samuel, to Kali-Chemie Pharma GmbH. 2,9-Dioxo tricyclo [4,3,1,0^{3,7}] decane compounds and process of making same. 4,391,819, Cl. 424-278.000.
- Thomas & Betts Corporation: See—
Israeli, Hyman, 4,391,661, Cl. 156-49.000.
- Thomas, Reese R.: See—
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- Thomasson, Ronald G.: See—
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- Thompson, David J.: See—
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- Thompson, Thomas C., to Quest Medical, Inc. Intravenous drug additive delivery system with electronic control. 4,391,598, Cl. 604-65.000.
- Thomson - CSF: See—
Benoit-Gonin, Roger; Berger, Jean L.; and Coutures, Jean L., 4,392,124, Cl. 340-347.0AD.
- Del Giudice, Michel, 4,392,255, Cl. 455-328.000.
- Papuchon, Michel; and Puech, Claude, 4,391,486, Cl. 350-96.140.
- Volluet, Gerard; and Hartemann, Pierre, 4,392,115, Cl. 333-141.000.
- Thorn Emi Domestic Electrical Appliances Limited: See—
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- Thornelow, Alec: See—
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- Thunberg, Svante. Heat exchanger in plants for ventilating rooms or buildings. 4,391,321, Cl. 165-54.000.
- Thurston, Michael E.; Cassada, William A., III; and Schardein, Daniel J., to Reynolds Metals Company. Treatment for the alleviation of high temperature oxidation of aluminum. 4,391,655, Cl. 148-20.600.
- Thysen Industrie AG: See—
Benthake, Heinz; Kronert, Curt; and Kunnen, Josef, 4,391,163, Cl. 74-768.000.
- Tibbals, Edward C., Jr., to Loeffler, William R. Electric motor drive with infinitely variable speed transmission. 4,391,156, Cl. 74-336.500.
- Tibbetts, Gary G., to General Motors Corporation. Method for growing graphite fibers. 4,391,787, Cl. 423-447.300.
- Tidstrom, Erling, to Aktiebolaget Bofors. Combat vehicle. 4,391,179, Cl. 89-46.000.
- Tiefel, Thomas H.: See—
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- TII Corporation: See—
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- Time and Frequency Technology, Inc.: See—
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- Timex Corporation: See—
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- Tincher, Cline A.: See—
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- TJT Food Flavoring, Inc.: See—
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- Tobin, Curtis L.: See—
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- Tobioka, Fumio: See—
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- Tobita, Takashi: See—
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- Tokai Metals Company Limited: See—
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- Tokarzowski, Richard J.: See—
Sprecker, Mark A.; Hanna, Marie R.; Tokarzowski, Richard J.; Belko, Robert P.; Watkins, Hugh; and Vock, Manfred H., 4,391,284, Cl. 131-276.000.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
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- Kuniyoshi, Masateru, 4,392,099, Cl. 318-797.000.
- Minemura, Koichi, 4,392,160, Cl. 358-327.000.
- Nioka, Takeharu; and Kobayashi, Isao, 4,392,246, Cl. 455-158.000.
- Shinozaki, Satoshi, 4,391,033, Cl. 29-576.00W.
- Takigami, Katsuhiko; and Takeuchi, Minami, 4,392,175, Cl. 361-88.000.
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- Tomita, Yoshifumi; and Nakai, Hiromitsu, to Hitachi, Ltd. Method of manufacturing fluorescent screens of cathode ray tubes. 4,391,885, Cl. 430-28.000.
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- Torres, Luis R. Telephone handset lifting device. 4,392,017, Cl. 179-1.0HS.
- Tortella, Michele. Variable speed digging machine provided with a gearbox having an orientable drive. 4,391,154, Cl. 74-15.400.
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- Toshimitsu, Yoshihiko: See—
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- Towmotor Corporation: See—
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- Toyono, Tsutomu: See—
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- Ito, Sumio, 4,391,253, Cl. 123-478.000.
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Sears, Michael L., 4,392,023, Cl. 179-2.0DP.
- Treasurywala, Adi: See—
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- Trumble, William P.; Finn, Roger C.; and Jackson, Charles F. C., to Northern Telecom Limited. Telephone cable splices. 4,392,014, Cl. 174-92.000.
- TRW Inc.: See—
Kiefer, Karl, 4,391,330, Cl. 166-341.000.
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- Tsuda, Yukio: See—
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- Tsuji, Sadahiko: See—
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- Tsujikawa, Teruaki: See—
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Keathley, Anthony C.; Stanton, Howard F.; and Wagle, Mahesh M., 4,391,114, Cl. 72-78.000.
- Tulcea, S.A.: See—
Staempfli, Jackie, 4,391,272, Cl. 604-110.000.
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- Tzeng, Huan-Jang. Electronic device for arc welding equipment. 4,392,046, Cl. 219-130.100.
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- Ueno, Kunihiro; Ishii, Akiyasu; Hukuda, Masaz; and Nakayama, Kazuyuki, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process for the manufacture of halogen-containing resin particles of larger bulk density comprising mixing particles of the resin with inorganic salts, treated in a mixture in a gaseous phase and separating the inorganic salt from the product. 4,391,763, Cl. 264-15.000.
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Litman, David J.; and Ullman, Edwin F., 4,391,904, Cl. 435-7.000.
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- Chan, John K., 4,391,759, Cl. 260-453.300.
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- Union Special Corporation: See—
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- United States Tennis Gut Association, Inc.: See—
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- Urban, Milfred W. Fuel conditioner and method of conditioning fuel to an internal combustion engine therewith. 4,391,259, Cl. 123-557.000.
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- Usami, Kiyoshi: See—
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- Van de Heuvel, Johannes H. P.: See—
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Fusco, Gerard A.; and van Lier, Glenn, 4,391,638, Cl. 106-20.000.
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- Verhelst, Willem F.: See—
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- Vermillion, Eugene F., to Columbus Show Case Company, The. Free standing wall. 4,391,069, Cl. 52-126.400.
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Jones, Darrell L., 4,391,554, Cl. 405-224.000.
- Vetter, Rudi O. H.: See—
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- Vietor, Francis H., to J. I. Case Company. Bucket position indicator assembly. 4,391,563, Cl. 414-698.000.
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- Vincent, Coyte T.: See—
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- Wada, Yasusuke: See—
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- Wagenaar, Loren B.: See—
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Choudhury, Hrishikesh; and Zaha, Juergen H., 4,391,028, Cl. 29-235.000.
- Zahnradfabrik Friedrichshafen AG: See—
Bucksch, Manfred, 4,391,354, Cl. 188-71.500.
- Zansky, Zoltan, to Honeywell, Inc. Two-wire electronic dimming ballast for gaseous discharge lamps. 4,392,087, Cl. 315-219.000.
- Zawadzki, Rainer K.: See—
Daniels, William A.; and Zawadzki, Rainer K., 4,391,992, Cl. 564-441.000.
- Zdaniewski, Joseph J., to General Electric Company. Insulated coil assembly and method of making same. 4,392,070, Cl. 310-43.000.
- Zeblisky, Rudolph J., to Kollmorgen Technologies Corporation. Passivation of metallic equipment surfaces in electroless copper deposition processes. 4,391,841, Cl. 427-12.000.
- Zeiringer, Rudolf: See—
Krempel, Peter W.; Claassen, Peter; and Zeiringer, Rudolf, 4,391,147, Cl. 73-730.000.
- Zenith Radio Corporation: See—
De Vries, Adrian J., 4,392,116, Cl. 333-194.000.
- Libman, Philomena C., 4,392,077, Cl. 313-474.000.
- Zentile, Antonio: See—
Masotti, Maurizio; Zentile, Antonio; and Cau, Pasqualino, 4,391,464, Cl. 293-120.000.
- Zergenyi, Janos, to Ciba-Geigy Corporation. Aryloxymethyl oxazolinium derivatives. 4,391,980, Cl. 548-239.000.
- Ziaylek, Theodore, Jr. Knock-down assembly for supporting oxygen tanks. 4,391,377, Cl. 211-71.000.
- Ziegel, Douglas H., to RCA Corporation. Technique for optical alignment of a workpiece. 4,391,520, Cl. 356-154.000.
- Zilske, Wolfgang; and Kuhn, Werner, to Degussa Aktiengesellschaft. Electrolytic bath and process for the deposition of gold alloy coatings. 4,391,679, Cl. 204-43.00G.
- Ziv, Abraham: See—
Ahad, Munir J.; Hollowell, William; Tanaka, Akira; and Ziv, Abraham, 4,391,420, Cl. 242-107.40A.
- Zollo International, Inc.: See—
Gordon, Ellison T., 4,391,707, Cl. 210-242.300.
- Zucker, Jerry: See—
Jo, Byeong H.; and Zucker, Jerry, 4,391,875, Cl. 428-378.000.
- Zucker, Joseph; and Fitch, Arthur H., to GTE Automatic Electric Laboratories, Inc. Method of measuring splice loss in optical fibers. 4,391,517, Cl. 356-73.100.
- Zummer, Anthony S., to Metaport Corporation. Releasable locking connector. 4,391,545, Cl. 403-189.000.
- Zyo, Hiroshi: See—
Murakami, Naoyuki; and Zyo, Hiroshi, 4,391,346, Cl. 181-147.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Beecham Group p.l.c.: See—
Dowrick, John S., Re. 31,301, Cl. 424-23.000.
Dawson, Ray H.: See—
Moore, John O.; and Dawson, Ray H., Re. 31,297, Cl. 239-121.000.
Dowrick, John S., to Beecham Group p.l.c. Intramammary compositions. Re. 31,301, Cl. 424-23.000.
Eaton Corporation: See—
Richards, Elmer A., Re. 31,296, Cl. 74-339.000.
Herbenar, Edward J., to TRW Inc. Spring shackle assembly. Re. 31,298, Cl. 267-54.00A.
Hoper, Jens: See—
Kessler, Manfred; and Hoper, Jens, Re. 31,299, Cl. 204-415.000.
Kessler, Manfred; and Hoper, Jens, to Max Planck Gesellschaft zur Foerderung der Wissenschaften. Ion-selective electrode device for polarographic measurement of oxygen. Re. 31,299, Cl. 204-415.000.
Max Planck Gesellschaft zur Foerderung der Wissenschaften: See—
Kessler, Manfred; and Hoper, Jens, Re. 31,299, Cl. 204-415.000.

Moore, John O.; and Dawson, Ray H., to Sprayrite Manufacturing Co. Full coverage recirculating sprayer. Re. 31,297, Cl. 239-121.000.
Richards, Elmer A., to Eaton Corporation. Transmission with resiliently loaded mainshaft gears. Re. 31,296, Cl. 74-339.000.
Sprayrite Manufacturing Co.: See—
Moore, John O.; and Dawson, Ray H., Re. 31,297, Cl. 239-121.000.
Stambler, Leon. Validation systems for credit card or the like. Re. 31,302, Cl. 340-825.340.
Stauffer Chemical Company: See—
Uhing, Eugene H.; and Toy, Arthur D. F., Re. 31,300, Cl. 260-543.00P.
Toy, Arthur D. F.: See—
Uhing, Eugene H.; and Toy, Arthur D. F., Re. 31,300, Cl. 260-543.00P.
TRW Inc.: See—
Herbenar, Edward J., Re. 31,298, Cl. 267-54.00A.
Uhing, Eugene H.; and Toy, Arthur D. F., to Stauffer Chemical Company. Process for preparing alkyl- or arylphosphonothioic dihalides. Re. 31,300, Cl. 260-543.00P.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

Christini, Theodore Peter; Eustice, Albert Lawrence; and Graham, Arthur Hughes, to E. I. du Pont de Nemours and Company. Method for concomitant particulate diamond deposition in electroless plating, and the product thereof. B1 Re. 29,285, Cl. 428-544.
E. I. du Pont de Nemours and Company: See—
Christini, Theodore Peter; Eustice, Albert Lawrence; and Graham, Arthur Hughes. B1 Re. 29,285, Cl. 428-544.
Stein, Karl-Ulrich, to Siemens Aktiengesellschaft. Regenerating circuit in the form of a keyed flip-flop. B1 3,892,984, Cl. 307-530.

Siemens Aktiengesellschaft: See—
Stein, Karl-Ulrich. B1 3,892,984, Cl. 307-530.

Sternberg, Ben K.; Miller, Dale E.; and Bahjat, Dhari S., to Conoco, Inc. Electrode prospecting method providing calculable electromagnetic coupling for the indirect detection of hydrocarbon reservoirs. B1 4,295,096, Cl. 324-357.

Conoco, Inc.: See—
Sternberg, Ben K.; Miller, Dale E.; and Bahjat, Dhari S. B1 4,295,096, Cl. 324-357.

LIST OF DESIGN PATENTEEES

AB Bahco Verktyg: See—
Jansson, Conny, 269,590, Cl. D8-382.000.
Allan Air Products: See—
Ludwig, David, 269,588, Cl. D8-107.000.
Allgeyer, David F.; Johnson, Philip P.; and Gilliom, John W., to UMC Industries, Inc. Disposable pan for heating and serving food. 269,586, 7-5-83, Cl. D7-359.000.
Ammondson, Clayton J.: See—
Hartman, Robert G.; and Ammondson, Clayton J., 269,643, Cl. D34-7.000.
Anderson, Edward E. Surveyor's stake. 269,598, 7-5-83, Cl. D10-66.000.
Aspenwall, John E. Pistol rack. 269,572, 7-5-83, Cl. D6-188.000.
Barney, Michael, to Lever Brothers Company. Combined bottle and cap. 269,592, 7-5-83, Cl. D9-367.000.
Berkline Corporation, The: See—
Nelson, Deborah, 269,568, Cl. D6-63.000.
Bounds, William E. Condiment mill. 269,580, 7-5-83, Cl. D7-53.000.
Bounds, William E. Condiment mill. 269,581, 7-5-83, Cl. D7-53.000.
Bounds, William E. Condiment mill. 269,582, 7-5-83, Cl. D7-53.000.
Bounds, William E. Condiment mill. 269,583, 7-5-83, Cl. D7-53.000.
Bounds, William E. Condiment mill. 269,584, 7-5-83, Cl. D7-53.000.
Bowen, Michael W. Spool and spindle chair. 269,569, 7-5-83, Cl. D6-75.000.

Bruno, Robert H.: See—
MacGregor, Francis W.; and Bruno, Robert H., 269,636, Cl. D24-42.000.
Burroughs Wellcome Co.: See—
Hiscock, Robert J. H., 269,640, Cl. D28-2.000.
Carlomagno, Beryl E. Mold for confectionery or bakery product or the like. 269,579, 7-5-83, Cl. D7-44.000.
Challis, Brian. Handrail. 269,637, 7-5-83, Cl. D25-73.000.
CHAT Corporation: See—
Murphy, John M., 269,614, Cl. D14-93.000.
Church, Kenneth: See—
Strong, William A.; and Church, Kenneth, 269,604, Cl. D13-12.000.
Clairol Incorporated: See—
MacGregor, Francis W.; and Bruno, Robert H., 269,636, Cl. D24-42.000.
Continental Group, Inc., The: See—
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., 269,593, Cl. D9-370.000.
Crum, James R. Piston working fixture. 269,616, 7-5-83, Cl. D15-140.000.
Dart Industries Inc.: See—
Phillips, Alan A., 269,585, Cl. D7-321.000.
D'Orleans, Henri, to L'Oreal. Bottle. 269,591, 7-5-83, Cl. D9-335.000.

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Dougherty, Robert G. Rack for holding beverage order checks. 269,574, 7-5-83, Cl. D6-189.000.
Draddy, Roy C. Holder for a rule book and score card. 269,625, 7-5-83, Cl. D19-26.000.
Draddy, Roy C. Holder for a rule book and score card. 269,626, 7-5-83, Cl. D19-26.000.
Dulude, Charles R. Gun target. 269,631, 7-5-83, Cl. D22-15.000.
Eargle, William R., Jr.; and Westermann, Winfried N., to Westinghouse Electric Corp. Luminaire. 269,639, 7-5-83, Cl. D26-88.000.
Engelmann, Stefan. Spectacle holder. 269,619, 7-5-83, Cl. D16-129.000.
Fedora, Diana J. Novelty sculpture. 269,602, 7-5-83, Cl. D11-160.000.
Finnegan, John J., Jr.: See—
Provanzano, Salvatore R.; and Finnegan, John J., Jr., 269,605, Cl. D13-12.000.
Flintrol Incorporated: See—
Roberston, E. Wayne; and Watkins, Tommy R., 269,632, Cl. D22-19.000.
Fogarty, A. Edward; and Fogarty, Bonnie R. Combined pillow and finger puppets. 269,575, 7-5-83, Cl. D6-203.000.
Fogarty, Bonnie R.: See—
Fogarty, A. Edward; and Fogarty, Bonnie R., 269,575, Cl. D6-203.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., to Siemens Corporation. Large telephone keyset with display. 269,612, 7-5-83, Cl. D14-58.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., to Siemens Corporation. Telephone with function keys. 269,613, 7-5-83, Cl. D14-58.000.
Four R's Mfg. Corp.: See—
Perry, Richard W.; and Medeiros, Ronald J., 269,599, Cl. D10-87.000.
Fowkes, James C. Pouring spout attachment for a paint can or similar article. 269,596, 7-5-83, Cl. D9-447.000.
Franz, William T.: See—
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., 269,593, Cl. D9-370.000.
Frye, David R.: See—
Frye, Elam C., Jr.; and Frye, David R., 269,638, Cl. D26-9.000.
Frye, Elam C., Jr.; and Frye, David R. Candle base. 269,638, 7-5-83, Cl. D26-9.000.
Geshwind, Herbert W. Combined Christmas tree stand and container therefor. 269,571, 7-5-83, Cl. D6-105.000.
Gilliom, John W.: See—
Allgeyer, David F.; Johnson, Philip P.; and Gilliom, John W., 269,586, Cl. D7-359.000.
Glassman, Jacob A. Surgical hood. 269,562, 7-5-83, Cl. D2-243.000.
Gold Eagle Co.: See—
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., to Continental Group, Inc., The. Container for liquids or the like. 269,593, 7-5-83, Cl. D9-370.000.
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., to Continental Group, Inc., The. Container for liquids or the like. 269,593, 7-5-83, Cl. D9-370.000.
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., to Continental Group, Inc., The. Container for liquids or the like. 269,593, 7-5-83, Cl. D9-370.000.
Hanslmair, Mark H. Pull tab opener. 269,587, 7-5-83, Cl. D8-40.000.
Hardy, Bruce N., to Silver Street, Inc. Drum rod attachable drum key holder. 269,622, 7-5-83, Cl. D17-22.000.
Harries, Alun, to Metal Box Limited. Lid for a container. 269,597, 7-5-83, Cl. D9-454.000.
Hartman, Robert G.; and Ammondson, Clayton J., to Zarn, Inc. Trash can and lid. 269,643, 7-5-83, Cl. D34-7.000.
Hayes, Edward J.: See—
Gruodis, Robert J.; Franz, William T.; and Hayes, Edward J., 269,593, Cl. D9-370.000.
Hennessy, Arnold: See—
Inch, John D.; and Hennessy, Arnold, 269,634, Cl. D23-65.000.
Hinshaw, Howard G.: See—
Jordan, William D.; and Hinshaw, Howard G., 269,606, Cl. D13-23.000.
Hiscock, Robert J. H., to Burroughs Wellcome Co. Medicinal tablet. 269,640, 7-5-83, Cl. D28-2.000.
Hitachi, Ltd.: See—
Nishiyama, Kazuhiko; and Itoh, Takao, 269,615, Cl. D14-96.000.
Inch, John D.; and Hennessy, Arnold, to International Water Saver Toilets, Inc. Water closet. 269,634, 7-5-83, Cl. D23-65.000.
Initial Plastics Limited: See—
Whitmarsh, Herbert F., 269,603, Cl. D12-205.000.
International Water Saver Toilets, Inc.: See—
Inch, John D.; and Hennessy, Arnold, 269,634, Cl. D23-65.000.
Inverness International Corporation: See—
Mann, Samuel J., 269,641, Cl. D28-10.000.
Itakura, Tsuyoshi: See—
Willinger, Allan H.; and Itakura, Tsuyoshi, 269,633, Cl. D23-22.000.
Itoh, Takao: See—
Nishiyama, Kazuhiko; and Itoh, Takao, 269,615, Cl. D14-96.000.
J. L. Prescott Co.: See—
Murray, Donald, 269,595, Cl. D9-413.000.
Jansson, Conny, to AB Bahco Verktyg. Snap lock fastener. 269,590, 7-5-83, Cl. D8-382.000.

Johnson, Philip P.: See—
Allgeyer, David F.; Johnson, Philip P.; and Gilliom, John W., 269,586, Cl. D7-359.000.
Jordan, William D.; and Hinshaw, Howard G., to Thermalloy Incorporated. Heat sink or similar article. 269,606, 7-5-83, Cl. D13-23.000.
Kaman, Charles H. Guitar bowl. 269,621, 7-5-83, Cl. D17-20.000.
Kato, Shuzo; and Sakama, Satoru, to NCR Corporation. Cash register or similar article. 269,623, 7-5-83, Cl. D18-4.000.
Kim, Syng N., to Wico Corporation. Video game control unit. 269,608, 7-5-83, Cl. D13-38.000.
Kim, Syng N., to Wico Corporation. Video game control unit. 269,609, 7-5-83, Cl. D13-38.000.
Klaiber, Gerhart F.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,612, Cl. D14-58.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,613, Cl. D14-58.000.
Lee, Kent H. M. Self defense key ring. 269,563, 7-5-83, Cl. D3-62.000.
Lever Brothers Company: See—
Barney, Michael, 269,592, Cl. D9-367.000.
L'Oreal: See—
D'Orleans, Henri, 269,591, Cl. D9-335.000.
Lorenzini, Robert A. Musical instrument stand or similar article. 269,567, 7-5-83, Cl. D6-29.000.
Lucker, Louis J. H., to Oce-Nederland B.V. Combined photocopyier, sorter and document feeder. 269,618, 7-5-83, Cl. D16-30.000.
Ludwig, David, to Allan Air Products. Tool handle. 269,588, 7-5-83, Cl. D8-107.000.
MacGregor, Francis W.; and Bruno, Robert H., to Clairol Incorporated. Foot massager. 269,636, 7-5-83, Cl. D24-42.000.
Mann, Samuel J., to Inverness International Corporation. Hot wax epilation applicator. 269,641, 7-5-83, Cl. D28-10.000.
Matsubara, Hideyuki, to Pioneer Kabushiki Kaisha. Automobile stereo system multi-channel electronic cross-over network. 269,610, 7-5-83, Cl. D14-1.000.
Mayuzumi, Masaki, to Tomy Kogyo Co., Inc. Action toy. 269,630, 7-5-83, Cl. D21-150.000.
Medeiros, Ronald J.: See—
Perry, Richard W.; and Medeiros, Ronald J., 269,599, Cl. D10-87.000.
Metal Box Limited: See—
Harries, Alun, 269,597, Cl. D9-454.000.
Mox, Dana W., to Tricolor Corporation. Round household scale. 269,600, 7-5-83, Cl. D10-91.000.
Murphy, John M., to CHAT Corporation. Case for teletype interface. 269,614, 7-5-83, Cl. D14-93.000.
Murray, Donald, to J. L. Prescott Co. Bottle. 269,595, 7-5-83, Cl. D9-413.000.
Muzumdar, Deepak R.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,612, Cl. D14-58.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,613, Cl. D14-58.000.
Nakama, Daiji, to Nifco, Inc. Combined fixing and retaining clip for elongate bodies. 269,589, 7-5-83, Cl. D8-356.000.
NCR Corporation: See—
Kato, Shuzo; and Sakama, Satoru, 269,623, Cl. D18-4.000.
Nelson, Deborah, to Berkline Corporation. The. Sofa. 269,568, 7-5-83, Cl. D6-63.000.
Nifco, Inc.: See—
Nakama, Daiji, 269,589, Cl. D8-356.000.
Nippert Company, The: See—
Nippert, Russell A., 269,617, Cl. D15-144.000.
Nippert, Russell A., to Nippert Company, The. Resistance welding electrode. 269,617, 7-5-83, Cl. D15-144.000.
Nishiyama, Kazuhiko; and Itoh, Takao, to Hitachi, Ltd. Combined amplifier and tuner. 269,615, 7-5-83, Cl. D14-96.000.
Oce-Nederland B.V.: See—
Lucker, Louis J. H., 269,618, Cl. D16-30.000.
O'Driscoll, John L. Face for motor vehicle ampere meter. 269,601, 7-5-83, Cl. D10-125.000.
O'Keefe, Charles B. Auxiliary toilet paper roll holder. 269,570, 7-5-83, Cl. D6-97.000.
Parker, Lance. Audio control panel. 269,620, 7-5-83, Cl. D17-1.000.
Perry, Richard W.; and Medeiros, Ronald J., to Four R's Mfg. Corp. Scale for weighing precious metals and the like. 269,599, 7-5-83, Cl. D10-87.000.
Phillips, Alan A., to Dart Industries Inc. Perculator. 269,585, 7-5-83, Cl. D7-321.000.
Pioneer Kabushiki Kaisha: See—
Matsubara, Hideyuki, 269,610, Cl. D14-1.000.
Provanzano, Salvatore R.; and Finnegan, John J., Jr., to Gould Inc. Programmable controller housing. 269,605, 7-5-83, Cl. D13-12.000.
Robbins, Edward S., Jr. Industrial traffic curtain strip. 269,576, 7-5-83, Cl. D6-208.100.
Roberston, E. Wayne; and Watkins, Tommy R., to Flintrol Incorporated. Flying insect trap. 269,632, 7-5-83, Cl. D22-19.000.
Saito, Tomonaga, to Sony Corporation. Headphones. 269,611, 7-5-83, Cl. D14-36.000.
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Kato, Shuzo; and Sakama, Satoru, 269,623, Cl. D18-4.000.
Sakata, Keiji, to Sharp Corporation. Electronic calculator. 269,624, 7-5-83, Cl. D18-7.000.

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- Schneider, Rolf E.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,612, Cl. D14-58.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,613, Cl. D14-58.000.
Scott, Robert L. Combined vest and back pack. 269,561, 7-5-83, Cl. D2-184.000.
Sellers, Jose M. Confection on a stick. 269,559, 7-5-83, Cl. D1-22.000.
Sexton, Eugene. Child's rocker. 269,566, 7-5-83, Cl. D6-11.000.
Sharp Corporation: See—
Sakata, Keiji, 269,624, Cl. D18-7.000.
Sheppard, Mark T.; and Timbers, Lynda J. Pants. 269,560, 7-5-83, Cl. D2-28.000.
Siemens Corporation: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,612, Cl. D14-58.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,613, Cl. D14-58.000.
Sikora, Stanley T. Equipment organizer used primarily by barbers and beauticians. 269,573, 7-5-83, Cl. D6-188.000.
Silver Street, Inc.: See—
Hardy, Bruce N., 269,622, Cl. D17-22.000.
Sommers, Gary R. Combined auto windshield detergent reservoir, cover and scrubber/squeegee. 269,642, 7-5-83, Cl. D32-45.000.
Sony Corporation: See—
Saito, Tomonaga, 269,611, Cl. D14-36.000.
Stark, Ted. Luggage. 269,564, 7-5-83, Cl. D3-71.000.
Straubinger, Paul. Mold for forming frozen food product. 269,578, 7-5-83, Cl. D7-43.000.
Strong Manufacturing Co., Inc.: See—
Strong, William A.; and Church, Kenneth, 269,604, Cl. D13-12.000.
Strong, William A.; and Church, Kenneth, to Strong Manufacturing Co., Inc. Slurry dispenser control console. 269,604, 7-5-83, Cl. D13-12.000.
Taylor, Christopher J. C.: See—
Wiggs, Christopher C.; and Taylor, Christopher J. C., 269,629, Cl. D21-104.000.
Thermalloy Incorporated: See—
Jordan, William D.; and Hinshaw, Howard G., 269,606, Cl. D13-23.000.
- Timbers, Lynda J.: See—
Sheppard, Mark T.; and Timbers, Lynda J., 269,560, Cl. D2-28.000.
Tomy Kogyo Co., Inc.: See—
Mayuzumi, Masaki, 269,630, Cl. D21-150.000.
Tricolor Corporation: See—
Mox, Dana W., 269,600, Cl. D10-91.000.
UMC Industries, Inc.: See—
Allgeyer, David F.; Johnson, Philip P.; and Gilliom, John W., 269,586, Cl. D7-359.000.
Watkins, Tommy R.: See—
Robertson, E. Wayde; and Watkins, Tommy R., 269,632, Cl. D22-19.000.
Westell, David A. Game board. 269,627, 7-5-83, Cl. D21-34.000.
Westermann, Winfried N.: See—
Eargle, William R., Jr.; and Westermann, Winfried N., 269,639, Cl. D26-88.000.
Westinghouse Electric Corp.: See—
Eargle, William R., Jr.; and Westermann, Winfried N., 269,639, Cl. D26-88.000.
Whitmarsh, Herbert F., to Initial Plastics Limited. Wheel cover. 269,603, 7-5-83, Cl. D12-205.000.
Wico Corporation: See—
Kim, Syng N., 269,608, Cl. D13-38.000.
Kim, Syng N., 269,609, Cl. D13-38.000.
Wiggs, Christopher C.; and Taylor, Christopher J. C. Bead puzzle. 269,629, 7-5-83, Cl. D21-104.000.
Willette, Betty: See—
Willette, Leo; and Willette, Betty, 269,628, Cl. D21-58.000.
Willette, Leo; and Willette, Betty. Card-shuffling device. 269,628, 7-5-83, Cl. D21-58.000.
Willinger, Allan H.; and Itakura, Tsuyoshi. Check valve. 269,633, 7-5-83, Cl. D23-22.000.
Wilson, Zana J. Tablecloth or the like. 269,577, 7-5-83, Cl. D6-275.000.
Wolf, Ehrenfried G. B. False tooth. 269,635, 7-5-83, Cl. D24-33.000.
Zarn, Inc.: See—
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LIST OF PLANT PATENTEES

- Fischer, Arnold W., to Pan-American Plant Company. African Violet named Big Star. 5,066, 7-5-83, Cl. 69.000.
Pan-American Plant Company: See—
Fischer, Arnold W., 5,065, Cl. 69.000.
Fischer, Arnold W., 5,066, Cl. 69.000.
Fischer, Arnold W., to Pan-American Plant Company. African Violet named Pink Lady. 5,065, 7-5-83, Cl. 69.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 5TH DAY OF JULY, 1983

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

- Carr, Timothy W.; Needham, Charles D.; and Villette, Robert T., Jr. Thin layer deposition process. T103,203, 7-5-83, Cl. 427-91.000.
Cruickshank, Philip A. Intermediates and process for insecticidal 4-phenyl-2-indanyl esters. T103,205, 7-5-83, Cl. 560-124.000.
Dillard, Ewell F.: See—
Frazier, Alva W.; and Dillard, Ewell F., T103,202, Cl. 423-321.00R.
Lewis, Harry T.; and Dillard, Ewell F., T103,206, Cl. 564-363.000.
Dorrell, Carter E.; Gutscher, Donald E.; and Huffman, Carol J. Process control display panel. T103,204, 7-5-83, Cl. 428-42.000.
Frazier, Alva W.; and Dillard, Ewell F. Production of purified strong wet-process phosphoric acid. T103,202, 7-5-83, Cl. 423-321.00R.
Gutscher, Donald E.: See—
Dorrell, Carter E.; Gutscher, Donald E.; and Huffman, Carol J., T103,204, Cl. 428-42.000.
Huffman, Carol J.: See—
Dorrell, Carter E.; Gutscher, Donald E.; and Huffman, Carol J., T103,204, Cl. 428-42.000.
Lewis, Harry T.; and Dillard, Ewell F. Production of urea phosphate. T103,206, 7-5-83, Cl. 564-363.000.
Needham, Charles D.: See—
Carr, Timothy W.; Needham, Charles D.; and Villette, Robert T., Jr., T103,203, Cl. 427-91.000.
Robinson, James D. Adjustable recline-control mechanism for furniture and furniture comprising the mechanism. T103,201, 7-5-83, Cl. 297-367.000.
Villette, Robert T., Jr.: See—
Carr, Timothy W.; Needham, Charles D.; and Villette, Robert T., Jr., T103,203, Cl. 427-91.000.

CLASSIFICATION OF PATENTS

ISSUED JULY 5, 1983

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2		236	4,391,052	12	4,391,619	CLASS 75		158 E	4,391,212	CLASS 134	
9	4,390,995	CLASS 40		26	4,391,620	26	4,391,632	246	4,391,213	99	4,391,287
70	4,390,996	152	4,391,053	31	4,391,621	53	4,391,633	269.1	4,391,214	CLASS 136	
81	4,390,997	154	4,391,054	66	4,391,622	124	4,391,634	275	4,391,215	285	4,392,005
180	4,390,998	CLASS 42		138	4,391,105	125	4,391,635	316	4,391,216	246	4,392,006
409	4,390,999	50	4,391,055	193	4,391,106	130 R	4,391,636	CLASS 118		248	4,392,007
423	4,391,000	62	4,391,056	CLASS 66		CLASS 81		405	4,391,217	251	4,392,008
CLASS 4		65	4,391,057	CLASS 68		3.46 R	4,391,167	621	4,391,218	256	4,392,009
236	4,391,001	69 A	4,391,058	133	4,391,107	CLASS 83		630	4,391,219	261	4,392,010
321	4,391,002	CLASS 43		143	4,391,108	34	4,391,168	707	4,391,220	CLASS 137	
415	4,391,003	15	4,391,059	CLASS 69		37	4,391,169	CLASS 119		15	4,391,288
443	4,391,004	CLASS 44		30	4,391,109	71	4,391,170	14.08	4,391,221	81.1	4,391,289
490	4,391,005	1 SR	4,391,608	CLASS 70		82	4,391,171	14.17	4,391,222	99	4,391,290
559	4,391,006	56	4,391,609	34	4,391,110	403	4,391,172	19	4,391,223	269	4,391,291
CLASS 5		62	4,391,610	162	4,391,111	424	4,391,173	29	4,391,224	312	4,391,292
60	4,391,007	CLASS 46		364 A	4,391,112	552	4,391,174	72.5	4,391,225	493.8	4,391,293
200 R	4,391,008	22	4,391,060	459	4,391,113	678	4,391,175	109	4,391,226	522	4,391,294
453	4,391,009	44	4,391,061	CLASS 71		CLASS 84		CLASS 122		523	4,391,295
484	4,391,010	88	4,391,062	21	4,391,623	1.17	4,391,176	16	4,391,227	615	4,391,296
CLASS 8		90	4,391,063	86	4,391,624	196	4,391,177	28	4,391,228	CLASS 123	
94.15	4,391,601	130	4,391,064	88	4,391,625	CLASS 89		25 B	4,391,229	831	4,391,297
149.1	4,391,602	CLASS 48		90	4,391,626	36 H	4,391,178	25 E	4,391,230	CLASS 138	
424	4,391,603	197 R	4,391,611	92	4,391,627	46	4,391,179	41.69	4,391,231	99	4,391,300
477	4,391,604	202	4,391,612	94	4,391,628	129 R	4,391,180	51 BA	4,391,232	103	4,391,301
495	4,391,605	CLASS 49		105	4,391,629	CLASS 91		61 R	4,391,233	118.1	4,391,302
525	4,391,606	465	4,391,065	118	4,391,630	29	4,391,181	65 V	4,391,234	166	4,391,303
549	4,391,607	CLASS 51		CLASS 72		378	4,391,182	142.5 R	4,391,235	CLASS 139	
CLASS 12		165.87	4,391,066	78	4,391,114	461	4,391,183	149 C	4,391,236	100	4,391,304
1 B	4,391,011	CLASS 52		131	4,391,115	CLASS 92		179 H	4,391,237	435	4,391,305
10.5	4,391,012	97	4,391,067	168	4,391,116	100	4,391,184	193 C	4,391,238	CLASS 140	
CLASS 15		126.4	4,391,068	224	4,391,117	CLASS 99		198 DB	4,391,241	92.1	4,391,306
210 R	4,391,013	127.2	4,391,069	356	4,391,118	489	4,391,185	198 E	4,391,239	140	4,391,307
231	4,391,014	169.5	4,391,070	384	4,391,119	CLASS 100		198 F	4,391,240	CLASS 141	
250.42	4,391,015	211	4,391,071	403	4,391,120	7	4,391,186	198 R	4,391,242	18	4,391,308
302	4,391,016	241	4,391,072	406	4,391,121	88	4,391,187	339	4,391,243	286	4,391,310
313	4,391,017	241	4,391,073	464	4,391,123	229 A	4,391,188	391	4,391,244	CLASS 144	
339	4,391,018	367	4,391,074	481	4,391,122	CLASS 101		403	4,391,245	193 D	4,391,311
CLASS 16		404	4,391,075	CLASS 73		36	4,391,189	425	4,391,246	193 E	4,391,312
105	4,391,019	553	4,391,076	1 DV	4,391,124	211	4,391,190	438	4,391,247	CLASS 148	
314	4,391,020	747	4,391,077	11	4,391,125	216	4,391,191	440	4,391,248	1.5	4,391,650
CLASS 19		253	4,391,021	35	4,391,126	350	4,391,192	440	4,391,251	6.15 R	4,391,651
CLASS 24		251	4,391,078	37.7	4,391,127	415.1	4,391,193	440	4,391,252	12 C	4,391,653
205.14 R	4,391,022	396	4,391,079	38	4,391,128	471	4,391,194	478	4,391,253	16.6	4,391,654
230 A	4,391,024	426	4,391,080	64.4	4,391,129	CLASS 102		481	4,391,254	20.6	4,391,655
230 AL	4,391,023	436	4,391,081	117.3	4,391,130	201	4,391,195	489	4,391,255	102	4,391,656
CLASS 28		520	4,391,082	118	4,391,131	202	4,391,196	503	4,391,256	133	4,391,657
289	4,391,025	575	4,391,083	119 A	4,391,133	334	4,391,197	508	4,391,257	188	4,391,658
CLASS 29		1	4,391,613	146	4,391,134	401	4,391,198	557	4,391,258	CLASS 149	
121.6	4,391,026	2	4,391,614	155	4,391,135	444	4,391,199	568	4,391,259	2	4,391,659
157.3 B	4,391,027	16	4,391,615	189	4,391,136	CLASS 104		584	4,391,260	19.9	4,391,660
235	4,391,028	35	4,391,616	204	4,391,137	20	4,391,200	618	4,391,262	CLASS 152	
450	4,391,029	82	4,391,617	223	4,391,138	70	4,391,201	CLASS 124		171	4,391,313
509	4,391,030	CLASS 56		273	4,391,139	CLASS 106		35 A	4,391,263	210	4,391,314
526 R	4,391,031	27.5	4,391,084	432 R	4,391,140	20	4,391,637	50	4,391,264	213 A	4,391,315
571	4,391,032	330	4,391,085	610	4,391,142	22	4,391,638	CLASS 126		330 RF	4,391,317
576 W	4,391,033	CLASS 57		623	4,391,143	29	4,391,639	39 E	4,391,265	359	4,391,318
579	4,391,034	22	4,391,086	629	4,391,144	36	4,391,640	123	4,391,266	CLASS 156	
603	4,391,035	58.52	4,391,087	704	4,391,145	38.23	4,391,641	400	4,391,267	49	4,391,661
623.2	4,391,036	234	4,391,088	718	4,391,146	74	4,391,642	437	4,391,268	64	4,391,662
716	4,391,037	261	4,391,089	730	4,391,147	85	4,391,643	CLASS 127		71	4,391,663
829	4,391,038	279	4,391,090	861.25	4,391,148	90	4,391,644	46.2	4,391,649	72	4,391,664
884	4,391,039	340	4,391,091	861.29	4,391,150	97	4,391,646	CLASS 128		84	4,391,666
CLASS 30		CLASS 60		863.23	4,391,151	115	4,391,647	203.12	4,391,270	205	4,391,667
201	4,391,040	39.29	4,391,092	863.84	4,391,152	308 M	4,391,648	303.1	4,391,271	308.2	4,391,668
296 R	4,391,041	245	4,391,093	864.41	4,391,153	CLASS 108		492	4,391,272	539	4,391,669
316	4,391,042	286	4,391,094	CLASS 74		51.3	4,391,202	640	4,391,273	CLASS 162	
330	4,391,043	335	4,391,095	15.4	4,391,154	CLASS 109		643	4,391,274	12	4,391,670
CLASS 33		398	4,391,096	89.2	4,391,155	25	4,391,203	654	4,391,275	30.1	4,391,671
27 L	4,391,045	602	4,391,097	336.5	4,391,156	39	4,391,204	660	4,391,276	192	4,391,672
174 P	4,391,044	641.11	4,391,098	339	Re.31,296	CLASS 110		660	4,391,277	217	4,391,673
CLASS 34		641.11	4,391,099	402	4,391,157	224	4,391,205	660	4,391,278	CLASS 164	
93	4,391,046	646.1	4,391,100	473 R	4,391,158	246	4,391,206	725	4,391,279	259	4,391,319
97	4,391,047	646	4,391,101	516	4,391,159	342	4,391,207	CLASS 131		CLASS 165	
CLASS 36		649	4,391,102	551.8	4,391,160	346	4,391,208	276	4,391,284	2	4,391,320
28	4,391,048	CLASS 62		579 E	4,391,161	349	4,391,209	364	4,391,285		
114	4,391,049	6	4,391,103	579 R	4,391,162	CLASS 112		CLASS 132			
CLASS 37		79	4,391,104	768	4,391,163	104	4,391,210	7	4,391,286		
142 A	4,391,050	CLASS 65		781 R	4,391,164	121.12	4,391,211				
142	4,391,051	1	4,391,618	869	4,391,165						

[illegible]

183	4,392,156	54	4,392,221	302	4,391,569	583	4,391,837	CLASS 434	CLASS 525
213	4,392,157	60	4,392,222	353	4,391,570	606	4,391,838	95	4,391,947
	4,392,158	63	4,392,223	403	4,391,571	626	4,391,839		4,391,948
319	4,392,159	67	4,392,224			641	4,391,840	CLASS 435	4,391,949
327	4,392,160	75	4,392,225	CLASS 418				7	4,391,950
				45	4,391,572			14	4,391,951
CLASS 360		CLASS 371		63	4,391,573	CLASS 427		14	4,391,952
10.3	4,392,161	61	4,392,226	195	4,391,574	12	4,391,841	42	4,391,953
	4,392,162					14.1	4,391,842	115	4,391,954
76	4,392,163			CLASS 419		41	4,391,843	144	4,391,955
77	4,392,164	46	4,392,227	23	4,391,772	44	4,391,844	178	4,391,956
105	4,392,165		4,392,228			58	4,391,845	232	4,391,957
113	4,392,166	94	4,392,229	CLASS 422		99	4,391,846	239	4,391,958
120	4,392,167			22	4,391,773	106	4,391,847	241	4,391,912
129	4,392,168			63	4,391,774	118	4,391,848		
130.33	4,392,169	139	4,392,230	68	4,391,775	129	4,391,849		
133	4,392,170			78	4,391,776	130	4,391,851		
CLASS 361		CLASS 375		84	4,391,777	150	4,391,850	61	4,391,592
5	4,392,171	80	4,392,231	89	4,391,778		4,391,852	70	4,391,593
8	4,392,172	86	4,392,232	99	4,391,779	152	4,391,853		
35	4,392,173	93	4,392,233	102	4,391,780	358	4,391,854	CLASS 440	
45	4,392,174	118	4,392,234	125	4,391,781	383.7	4,391,855	26	4,392,241
88	4,392,175			CLASS 376		385.5	4,391,856	33	4,392,242
160	4,392,176	451	4,391,771	7	4,391,782	407.1	4,391,857	74	4,392,243
221	4,392,177			CLASS 378		421	4,391,858	79	4,392,244
233	4,392,178	10	4,392,235	315	4,391,783	423	4,391,859	115	4,392,245
234	4,392,179	51	4,392,237	320	4,391,784			116	4,392,252
321	4,392,180	105	4,392,236	442	4,391,785	CLASS 428		158	4,392,246
401	4,392,181	145	4,392,238	447.3	4,391,786	BI Re. 29.285		161	4,392,247
		206	4,392,239	447.6	4,391,787		4,391,861	164	4,392,248
CLASS 362		247	4,392,240	457	4,391,789	544	4,391,862	165	4,392,253
5	4,392,182			574 R	4,391,790	35	4,391,863	173	4,392,254
11	4,392,183				4,391,791	64	4,391,864	327	4,392,255
101	4,392,184	22	4,392,120	617	4,391,792	74	4,391,865	328	4,392,256
105	4,392,185			648 R	4,391,793	92	4,391,866	354	4,392,257
116	4,392,186			650	4,391,794	195	4,391,867		
233	4,392,187	152	4,391,474	659	4,391,880	215	4,391,868	CLASS 464	
269	4,392,188	226	4,391,475			218	4,391,869	80	4,391,594
281	4,392,189			CLASS 400		219	4,391,870		
306	4,392,190			1	4,391,795	224	4,391,871	CLASS 474	
392	4,392,191	120	4,391,535	9	4,391,796	297	4,391,872	33	4,391,595
418	4,392,192	144.2	4,391,536	19	4,391,797	224	4,391,873	CLASS 493	
			4,391,537	23	Re. 31.301	336	4,391,874	425	4,391,596
CLASS 363		145.1	4,391,538	52	4,391,798	378	4,391,875	CLASS 494	
128	4,392,193	208	4,391,539	132	4,391,799	392	4,391,876	20	4,391,597
		212	4,391,540	177	4,391,800	457	4,391,877	CLASS 501	
CLASS 364		248	4,391,541		4,391,801	479.6	4,391,878	4	4,391,914
167	4,392,195	605	4,391,542	236	4,391,802	551	4,391,879	8	4,391,915
200	4,392,196			239	4,391,803			48	4,391,916
	4,392,197			245	4,391,804	CLASS 429		62	4,391,917
	4,392,198	24	4,391,543	246	4,391,805		4,391,882	100	4,391,918
	4,392,199	155	4,391,544	248.4	4,391,806	96	4,391,883	127	4,391,919
	4,392,200	189	4,391,545		4,391,807	111	4,391,881	725	4,391,920
	4,392,201		4,391,546	250	4,391,808	CLASS 430		61	4,391,921
426	4,392,202	341	4,391,547	251	4,391,809		4,391,884	66	4,391,922
434	4,392,203	348	4,391,548		4,391,810	17	4,391,885	88	4,391,923
478	4,392,204			263	4,391,811	28	4,391,886	178	4,391,924
518	4,392,205			267	4,391,812	41	4,391,887		
900	4,392,206	87	4,391,549	269	4,391,813	57	4,391,888	CLASS 518	
	4,392,207			272	4,391,814	59	4,391,889	CLASS 521	
	4,392,208			274	4,391,815	110	4,391,890	61	4,391,920
CLASS 365		7	4,391,550		4,391,816	120	4,391,891	66	4,391,921
110	4,392,209	43	4,391,551		4,391,817	126	4,391,892	86	4,391,922
149	4,392,210	59	4,391,552		4,391,818	137	4,391,893	98	4,391,923
200	4,392,211	141	4,391,553	277	4,391,819	154	4,391,894	178	4,391,924
230	4,392,212	224	4,391,554	278	4,391,820	215	4,391,895	CLASS 523	
		264	4,391,555	283	4,391,821	223	4,391,896	130	4,391,925
		287	4,391,556		4,391,822	302	4,391,897	132	4,391,926
CLASS 366			4,391,557	306	4,391,823	306	4,391,898	161	4,391,927
15	4,391,528			315	4,391,824	307	4,391,899	201	4,391,928
266	4,391,529			319	4,391,825	355	4,391,900	218	4,391,929
		110	4,391,558	324	4,391,826	495	4,391,901	219	4,391,930
CLASS 367				331	4,391,827	501	4,391,902	318	4,391,931
13	4,392,213	45	4,391,559	340	4,391,828	629	4,391,903	337	4,391,932
127	4,392,214			CLASS 425				454	4,391,933
139	4,392,215			190	4,391,575	CLASS 431		CLASS 524	
		CLASS 414		241	4,391,576		4,391,580	43	4,391,934
CLASS 368				338	4,391,577	160	4,391,581	82	4,391,935
63	4,391,530			525	4,391,578	266	4,391,582	89	4,391,936
71	4,392,216			548	4,391,579			119	4,391,937
188	4,392,217	698	4,391,563			4	4,391,583	270	4,391,938
239	4,391,531			CLASS 415		8	4,391,584	377	4,391,939
250	4,391,532					23	4,391,585	458	4,391,940
281	4,391,533	126	4,391,564	28	4,391,829	58	4,391,586	526	4,391,941
284	4,391,534	189	4,391,565	43	4,391,830	121	4,391,587	538	4,391,942
		209	4,391,566	93	4,391,831			548	4,391,943
CLASS 369				275	4,391,832	CLASS 433		600	4,391,944
29	4,392,218			523	4,391,833		4,391,588	849	4,391,945
44	4,392,219	146 R	4,391,567	565	4,391,834	33	4,391,589		4,391,946
				573	4,391,835	63	4,391,590		
CLASS 370		CLASS 417		578	4,391,836	90			
				190	4,391,575				
				241	4,391,576				
				338	4,391,577				
				525	4,391,578				
				548	4,391,579				
				CLASS 426					
				28	4,391,829				
				43	4,391,830				
				93	4,391,831				
				275	4,391,832				
				523	4,391,833				
				565	4,391,834				
				573	4,391,835				
				578	4,391,836				
				190	4,391,575				
				241	4,391,576				
				338	4,391,577				
				525	4,391,578				
				548	4,391,579				
				CLASS 426					
				28	4,391,829				
				43	4,391,830				
				93	4,391,831				
				275	4,391,832				
				523	4,391,833				
				565	4,391,834				
				573	4,391,835				
				578	4,391,836				
				190	4,391,575				
				241	4,391,576				
				338	4,391,577				
				525	4,391,578				
				548	4,391,579				
				CLASS 426					
				28	4,391,829				
				43	4,391,830				
				93	4,391,831				
				275	4,391,832				
				523	4,391,833				
				565	4,391,834				
				573	4,391,835				
				578	4,391,836				
				190	4,391,575				
				241	4,391,576				
				338	4,391,577				
				525	4,391,578				
				548	4,391,579				
				CLASS 426					
				28	4,391,829				
				43	4,391,830				
				93	4,391,831				
				275	4,391,832				
				523	4,391,833				
				565	4,391,834				
				573	4,391,835				
				578	4,391,836				
				190	4,391,575				

CLASSIFICATION OF DESIGNS

D1—	22	269,559	189	269,574	107	269,588	D11—	160	269,602	D15—	140	269,616	D22—	150	269,630
D2—	28	269,560	203	269,575	356	269,589	D12—	205	269,603	D16—	144	269,617		15	269,631
	184	269,561	208.1	269,576	382	269,590	D13—	12	269,604		30	269,618		19	269,632
D3—	243	269,562	275	269,577	335	269,591			269,605	D17—	129	269,619	D23—	22	269,633
	62	269,563	43	269,578	367	269,592		23	269,606		1	269,620		65	269,634
D4—	71	269,564	44	269,579	370	269,593		32	269,607	D18—	20	269,621	D24—	33	269,635
D6—	10	269,565	53	269,580	389	269,594		38	269,608		22	269,622		42	269,636
	11	269,566		269,581	413	269,595	D14—	1	269,610		4	269,623	D25—	73	269,637
	29	269,567		269,582	447	269,596		36	269,611	D19—	7	269,624	D26—	9	269,638
	63	269,568		269,583	454	269,597		58	269,612		26	269,625		88	269,639
	75	269,569		269,584	66	269,598			269,613	D21—	34	269,627	D28—	2	269,640
	97	269,570	321	269,585	87	269,599		93	269,614		58	269,628		10	269,641
	105	269,571	359	269,586	91	269,600		96	269,615		104	269,629	D32—	45	269,642
	188	269,572		269,587	125	269,601							D34—	7	269,643
		269,573	D8—	40											

CLASSIFICATION OF PLANTS

P.—	69	5,065	5,066						
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DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

297—	367	T103,201	423—	321	R T103,202	427—	91	T103,203	428—	42	T103,204	560—	124	T103,205	564—	363	T103,206
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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 :	4,391,188	4,391,433	4,392,226	4,391,719	4,392,033	4,391,339
	4,391,196	4,391,447	4,392,229	4,391,784	4,392,050	4,391,498
	4,391,423	4,391,449	4,392,241	4,391,870	4,392,077	4,391,686
	4,391,518	4,391,467	4,392,248	4,391,883	4,392,083	4,391,923
	4,391,833	4,391,474	4,392,256	4,392,102	4,392,116	4,391,927
	4,391,993	4,391,490	4,391,059	4,392,113	4,392,138	4,392,008
04 :	4,391,005	4,391,492	4,391,307	4,392,196	4,392,254	4,392,010
	4,391,226	4,391,514	4,391,411	4,392,217	4,392,027	4,392,059
	4,391,268	4,391,515	4,391,424	4,392,232	4,391,085	4,392,101
	4,391,368	4,391,517	4,391,572	4,391,080	4,391,092	4,391,011
	4,391,549	4,391,525	4,391,697	4,391,370	4,391,266	4,391,039
	4,391,773	4,391,531	4,391,733	4,391,516	4,391,280	4,391,101
	4,391,846	4,391,541	4,391,873	4,391,830	4,391,367	4,391,110
	4,391,924	4,391,552	4,392,156	4,392,045	4,391,387	4,391,137
	4,392,018	4,391,554	4,392,188	4,392,129	4,391,390	4,391,150
	4,392,067	4,391,557	4,391,053	4,392,218	4,391,454	4,391,279
	4,392,128	4,391,574	4,391,111	4,391,352	4,391,520	4,391,408
05 :	4,392,223	4,391,579	4,391,168	4,391,172	4,391,563	4,391,487
	Re.31,297	4,391,589	4,391,170	4,391,028	4,391,696	4,391,526
	4,391,415	4,391,597	4,391,223	4,391,029	4,391,806	4,391,523
06 :	4,390,995	4,391,599	4,391,365	4,391,064	4,391,807	4,391,540
	4,391,006	4,391,609	4,391,378	4,391,071	4,391,826	4,391,558
	4,391,008	4,391,660	4,391,399	4,391,177	4,391,848	4,391,617
	4,391,017	4,391,699	4,391,425	4,391,216	4,391,905	4,391,630
	4,391,026	4,391,704	4,391,444	4,391,229	4,391,906	4,391,713
	4,391,044	4,391,712	4,391,561	4,391,233	4,391,935	4,391,797
	4,391,074	4,391,734	4,391,613	4,391,236	4,391,954	4,391,856
	4,391,099	4,391,740	4,391,621	4,391,286	4,392,017	4,391,863
	4,391,102	4,391,746	4,391,751	4,391,294	4,392,022	4,391,895
	4,391,113	4,391,749	4,391,771	4,391,308	4,392,028	4,391,897
	4,391,129	4,391,777	4,391,827	4,391,309	4,392,090	4,391,941
	4,391,155	4,391,779	4,391,888	4,391,335	4,391,050	4,392,021
	4,391,167	4,391,780	4,392,084	4,391,371	4,391,065	4,392,031
	4,391,208	4,391,801	4,392,145	4,391,480	4,391,157	4,392,089
	4,391,224	4,391,828	4,392,157	4,391,545	4,391,187	4,392,100
	4,391,230	4,391,849	4,392,203	4,391,580	4,391,225	4,392,172
	4,391,267	4,391,865	4,391,627	4,391,652	4,391,361	4,392,189
	4,391,269	4,391,904	4,391,903	4,391,665	4,391,834	4,392,200
	4,391,281	4,391,952	4,391,922	4,391,666	4,391,259	4,392,201
	4,391,292	4,392,016	4,391,936	4,391,709	4,391,822	4,392,296
	4,391,296	4,392,023	4,391,966	4,391,721	4,392,062	Re.31,298
	4,391,297	4,392,040	4,391,061	4,391,747	4,391,042	4,391,043
	4,391,300	4,392,063	4,391,100	4,391,829	4,392,118	4,391,120
	4,391,324	4,392,111	4,391,151	4,391,831	4,391,136	4,391,121
	4,391,329	4,392,140	4,391,185	4,391,845	4,391,347	4,391,131
	4,391,333	4,392,149	4,391,271	4,391,866	4,391,703	4,391,158
	4,391,337	4,392,159	4,391,291	4,391,869	4,391,707	4,391,159
	4,391,358	4,392,165	4,391,373	4,391,902	4,391,789	4,391,171
	4,391,372	4,392,173	4,391,427	4,391,932	4,391,961	4,391,178
	4,391,376	4,392,179	4,391,428	4,391,946	4,391,977	4,391,204
	4,391,410	4,392,190	4,391,441	4,391,948	4,392,181	4,391,205
	4,391,420	4,392,197	4,391,567	4,391,967	4,391,405	4,391,245
	4,391,429	4,392,207	4,391,706	4,392,029	4,391,299	

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4,391,355	4,391,637	4,391,610	4,391,127	4,391,312	4,391,799
4,391,369	4,391,638	4,391,612	4,391,209	4,391,349	4,391,949
4,391,379	4,391,645	4,391,634	4,391,277	4,391,363	4,392,051
4,391,380	4,391,647	4,391,641	4,391,290	4,391,364	4,392,109
4,391,481	4,391,656	4,391,648	4,391,310	4,391,374	4,392,187
4,391,551	4,391,657	4,391,670	4,391,318	4,391,377	4,392,210
4,391,562	4,391,661	4,391,673	4,391,351	4,391,393	4,392,250
4,391,614	4,391,680	4,391,729	4,391,384	4,391,402	4,392,251
4,391,722	4,391,683	4,391,811	4,391,404	4,391,434	4,391,276
4,391,728	4,391,698	4,391,813	4,391,436	4,391,448	4,391,328
4,391,765	4,391,717	4,391,823	4,391,451	4,391,475	4,391,705
4,391,768	4,391,720	4,391,824	4,391,472	4,391,544	4,392,150
4,391,787	4,391,727	4,391,841	4,391,548	4,391,590	4,391,034
4,391,809	4,391,738	4,391,842	4,391,570	4,391,594	4,391,142
4,391,855	4,391,739	4,391,860	4,391,581	4,391,611	4,391,285
4,391,937	4,391,744	4,391,890	4,391,595	4,391,690	4,391,397
4,392,032	4,391,755	4,391,894	4,391,608	4,391,782	4,391,576
4,392,132	4,391,760	4,391,896	4,391,650	4,391,868	4,391,586
4,391,013	4,391,785	4,391,914	4,391,674	4,391,875	4,391,651
4,391,014	4,391,795	4,391,939	4,391,685	4,391,876	4,391,655
4,391,041	4,391,798	4,391,950	4,391,723	4,391,878	4,391,678
4,391,073	4,391,800	4,391,982	4,391,724	4,391,917	4,391,716
4,391,082	4,391,808	4,391,991	4,391,725	4,391,923	4,391,909
4,391,146	4,391,812	4,391,996	4,391,737	4,391,933	4,392,191
4,391,194	4,391,836	4,391,997	4,391,756	4,391,938	4,392,209
4,391,278	4,391,843	4,392,006	4,391,757	4,391,943	4,391,076
4,391,311	4,391,880	4,392,035	4,391,778	4,391,947	4,391,315
4,391,348	4,391,925	4,392,068	4,391,818	4,391,951	4,391,334
4,391,539	4,391,928	4,392,078	4,391,838	4,391,956	4,391,353
4,391,543	4,391,973	4,392,080	4,391,844	4,392,038	4,391,396
4,391,568	4,391,981	4,392,081	4,391,953	4,392,070	4,391,409
4,391,591	4,391,992	4,392,105	4,391,970	4,392,085	4,391,422
4,391,600	4,391,998	4,392,107	4,391,971	4,392,091	4,391,430
4,391,646	4,391,999	4,392,108	4,391,989	4,392,178	4,391,450
4,391,732	4,392,011	4,392,126	4,391,990	4,392,193	4,391,535
4,392,087	4,392,044	4,392,142	4,392,004	4,392,233	4,392,060
4,391,001	4,392,112	4,392,148	4,392,055	4,391,375	4,392,137
4,391,007	4,392,231	4,392,153	4,392,056	4,391,018	4,392,139
4,391,046	4,391,901	4,392,171	4,392,076	4,391,153	4,392,204
4,391,072	4,392,065	4,392,180	4,392,119	4,391,862	4,392,236
4,391,186	Re.31,300	4,392,182	4,391,228	4,391,871	4,391,327
4,391,485	Re.31,302	4,392,215	4,391,330	4,391,934	4,391,759
4,391,625	4,390,998	4,392,225	4,391,336	4,391,985	4,391,867
4,391,636	4,391,010	4,392,235	4,391,418	4,392,104	4,391,919
4,391,840	4,391,052	4,392,237	4,391,550	4,391,086	4,391,930
4,391,847	4,391,054	4,390,999	4,391,643	4,391,143	4,391,078
4,392,005	4,391,095	4,391,021	4,391,736	4,391,438	4,391,079
4,391,735	4,391,124	4,391,067	4,391,790	4,391,886	4,391,081
4,391,663	4,391,293	4,391,084	4,391,791	4,392,034	4,391,104
4,391,853	4,391,322	4,391,156	4,391,160	4,392,072	4,391,189
4,391,969	4,391,338	4,391,437	4,391,295	4,392,073	4,391,254
4,392,184	4,391,340	4,391,499	4,391,401	4,392,192	4,391,255
4,391,012	4,391,406	4,391,584	4,391,457	4,391,135	4,391,263
4,392,009	4,391,440	4,391,918	4,391,461	4,391,220	4,391,301
4,391,003	4,391,442	4,391,921	4,391,494	4,391,264	4,391,459
4,391,088	4,391,468	4,392,030	4,391,289	4,391,289	4,391,477
4,391,107	4,391,479	4,391,235	4,391,298	4,391,325	4,391,592
4,391,108	4,391,495	4,391,344	4,391,118	4,391,326	4,391,687
4,391,202	4,391,504	4,391,030	4,391,128	4,391,345	4,391,775
4,391,215	4,391,505	4,391,038	4,391,139	4,391,547	4,392,015
4,391,283	4,391,509	4,391,063	4,391,149	4,391,598	4,392,053
4,391,284	4,391,510	4,391,069	4,391,219	4,391,689	4,392,096
4,391,362	4,391,537	4,391,075	4,391,274	4,391,693	4,392,098
4,391,388	4,391,575	4,391,093	4,391,304		4,391,058
4,391,560	4,391,582	4,391,114			

DESIGN PATENTS

01 : 269,576	269,581	12 : 269,562	269,599	269,595	269,617
04 : 269,570	269,582	269,565	269,605	269,612	269,568
269,571	269,583	269,575	269,569	269,613	269,577
05 : 269,586	269,584	269,573	269,596	269,641	269,606
269,604	269,587	269,593	269,598	269,578	269,638
269,632	269,614	269,594	269,574	269,619	269,572
06 : 269,560	269,628	269,600	269,639	269,633	269,620
269,561	269,642	269,608	269,588	269,643	269,637
269,563	269,621	269,609	269,616	269,566	269,635
269,579	269,631	269,622	269,602	269,601	269,585
269,580	269,636	269,567	269,601		

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

01 : T103,202	T103,206	08 : T103,204	34 : T103,205	36 : T103,203	
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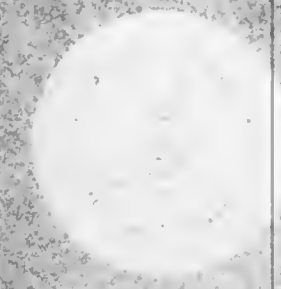
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	670.00
International Fees	
• Basic Fees (first 30 pages)	265.00
• Basic Supplemental Fee (for each page over 30)	5.00
• Designation fee (for each national or regional office)	65.00
GERALD J. MOSSINGHOFF, Commissioner of Patents and Trademarks.	
Dec. 3, 1982.	

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,034,622, Re. S.N. 493,428, Filed May 10, 1983, Cl. 74/501, INFINITELY ADJUSTABLE CABLE-CONTROLLED APPARATUS AND METHOD, James R. Deck, Owner of Record: *Caterpillar Tractor Co., Peoria, Ill.*, Attorney or Agent: Paul S. Lempio, Ex. Gp.: 352

4,226,300, Re. S.N. 486,817, Filed Apr. 20, 1983, Cl. 182/2, SELF PROPELLED AND EXTENSIBLE BOOM LIFT, Rallie P. Rallis, et al., Owner of Record: *Mark Industries, Carson City, Calif.*, Attorney or Agent: Robert R. Thornton, Ex. Gp.: 354

4,257,702, Re. S.N. 475,540, Filed Mar. 15, 1983, Cl. 355/71, APPARATUS FOR ASCERTAINING COLOR BALANCE OF PHOTOGRAPHIC PRINTING PAPER, Bertram W. Miller, Owner of Record: *Inventor*, Attorney or Agent: David G. Parkhurst, Ex. Gp.: 211

4,267,930, Re. S.N. 484,547, Filed Apr. 13, 1983, Cl. 209/31, RAISIN SEPARATING DEVICE, Douglas H. Melkonian, Owner of Record: *Inventor*, Attorney or Agent: Louis J. Knobbe, Ex. Gp.: 312

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

Des. 256,345, Reexam. No. 90/000,388, Requested: May 31, 1983, Cl. D12/202, TIRE CARRIER FOR A VAN TYPE VEHICLE, Raywood C. Weiler, Owner of Record: *BMC Products, Chicago, Ill.*, Attorney or Agent: Nathan N. Kraus, Ex. Gp.: 291, Requester: William J. Wade, Long Beach, Calif.

Re. 30,659, Reexam. No. 90/000,386, Requested: June 1, 1983, Cl. 401/209, PEN POINTS FOR WRITING INSTRUMENTS, Nobuyuki Otake, et al., Owner of Record: *Requester*, Attorney or Agent: Parkhurst & Oliff, Ex. Gp.: 336, Requester: Tokyo Boshi, Kabushiki Kaisha, Tokyo, Japan

3,788,284, Reexam. No. 90/000,390, Requested: June 2, 1983, Cl. 123/571, FEEDBACK MODULATION OF EXHAUST GASES IN INTERNAL COMBUSTION ENGINES, Conrad O. Gardner, Owner of Record: *Conrad O. Gardner, West Edmonds, Wash.*, Attorney or Agent: Morris A. Case, Ex. Gp.: 340, Requester: Owner

4,019,666, Reexam. No. 90/000,396, Requested: June 6, 1983, Cl. 227/119, FASTENER ATTACHING MACHINE HAVING MEANS FOR ORIENTING CAPS, BUTTONS AND THE LIKE, Jonathan Asa Foults, Owner of Record: *Scovill Mfg. Co., Waterbury, Conn.*, Attorney or Agent: Dallett Hoopes, Ex. Gp.: 320, Requester: Rau Fastener Div. of U.S. Industries, Inc., Providence, R.I.

4,020,830, Reexam. No. 90/000,395, Requested: June 6, 1983, Cl. 128/632, SELECTIVE CHEMICAL SENSITIVE FET TRANSDUCERS, Curtis C. Johnson, et al., Owner of Record: *University of Utah, Salt Lake City, Utah*, Attorney or Agent: Criddle, Thorpe, & Western, Ex. Gp.: 330, Requester: Leon Horne, Arlington, Va.

Department of Commerce Patent and Trademark Office 37 CFR Part 2 [Docket No. 30428-69]

Trademark Applications and Examination Proceedings; Trademark Interference, Concurrent Use, Opposition and Cancellation Proceedings; Trademark Post-Registration Proceedings; Correction

Agency: Patent and Trademark Office, Commerce.

Action: Final rule, correction.

Summary: This document corrects a final rule notice appearing in the *Federal Register* on May 23, 1983 (48 FR 23122) that amended the Patent and Trademark Office rules of practice in trademark cases to revise or codify existing practices, simplify procedures, or establish time periods for the purpose of facilitating the orderly and prompt resolution of issues before the Office in several types of proceedings.

For Further Information Contact: Miss Janet E. Rice by telephone at (703) 557-3551 or by mail addressed to the

JULY 12, 1983

U.S. PATENT AND TRADEMARK OFFICE

1032 OG 13

Commissioner of Patents and Trademarks, Attention: Miss Janet E. Rice, Crystal Square 5, Suite 1008, Washington, D.C. 20231.

The following corrections are made:

- On page 23122, third column, line 8, "\$1.101" should read "\$2.101".
- On page 23129, first column, line 11, "(f)" should read "(f)(5)".
- On page 23129, second column, line 11, the word "is" should read "in".
- On page 23131, first column, line 57, "\$2.120(c)(2)" should read "\$2.122(c)(2)".
- On page 23131, third column, line 35, the word "deception" should read "exception".
- On page 23134, second column, line 26, the word "filing" should read "filings".
- On page 23135, column 1, in the tenth line after the heading "\$2.96 Issue; burden of proof.", the word "party" should appear after the word "junior".
- On page 23135, column 2, line 10, the word "this" should read "his".
- On page 23135, column 2, line 22, the word "file" should read "filing".
- On page 23135, column 2, line 50, the word "and" should read "an".
- On page 23135, column 3, line 30, the comma after the word "examiner" should be a semicolon.
- On page 23136, column 1, in the first line after the heading "\$2.113 Notification of cancellation proceeding.", the designation "(a)" should be stricken.
- On page 23138, column 2, line 58, the "w" in "when" should be capitalized.
- On page 23139, column 2, line 22, the 3 asterisks should be stricken. An additional line should be added directly below line 22. The new line 23 should consist of 5 asterisks along the center of the line, with four spaces between each asterisk. The text should then be resumed on line 24 with what was previously line 23.
- On page 23140, column 3, line 38, the word "due" should be inserted after the word "be".
- On page 23142, column 3, line 6, the "p" in "part" should be capitalized.

DONALD J. QUIGG,
Acting Commissioner of
Patents and Trademarks.

[FR Doc. 83-15831 Filed 6-13-83; 8:45 am]

BILLING CODE 3510-16-M

National Technical Information Service

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Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

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Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

Please cite the number and title of inventions of interest.

GEORGE KUDRAVETZ,
Program Manager,

Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

DEPARTMENT OF AGRICULTURE

SN 6-202,396 (4,382,813). ENCAPSULATION BY EN-

TRAPMENT WITHIN STARCH ADDUCT MATRIX.

SN 6-245,461 (4,382,950). INSECT REPELLANTS.
SN 6-300,784 (4,383,390). METHOD AND APPARATUS FOR HOT-CALLUSING GRAFT UNIONS.

SN 6-385,204 (4,384,866). PROCESS FOR PRODUCING DURABLE PRESS FABRICS THROUGH PHOSPHORYLATION.

ENVIRONMENTAL PROTECTION AGENCY

SN 6-149,541 (4,384,843). COMBUSTION METHOD AND APPARATUS WITH CATALYTIC TUBES.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

SN 6-468,776. DRILL GUIDE FOR BONE PLATE FIXATION

SN 6-491,789. ANTINEOPLASTIC 1-HYDROXY-4-(SUBSTITUTED AMINOALKYL-AMINO) ANTHRAQUINONES.

SN 6-495,725. MONOCLONAL ANTIBODIES AGAINST NON SMALL CELL LUNG CANCER.

NATIONAL SECURITY AGENCY

SN 6-180,075 (4,383,261). METHOD FOR LASER RECORDING UTILIZING DYNAMIC PRE-HEATING.

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,734,758, Henryk A. Cyba and Allen K. Sparks, NOVEL FLAME RETARDANT COMPOSITIONS OF MATTER, Interference No. 100,053, decided Feb. 23, 1983, claim 1.

Patent No. 3,854,888, Gunther Fritzsche and Peter Krause, DEVICE FOR THE PURIFICATION OF WASTE GASES OF INTERNAL COMBUSTION ENGINES, Interference No. 100,898, decided Apr. 1, 1983, claims 1 & 3.

Patent No. 3,865,446, Pasquale P. J. Mastronardi, STORAGE MEANS WITH SHIFTABLE UNITS, Interference No. 100,955, decided May 3, 1983, claims 1-6 & 8.

Patent No. 3,884,693, Sigrid Bauer and Helga Sikora, LIGHT-SENSITIVE TRANSFER MATERIAL, Interference No. 99,991, decided Feb. 10, 1982, claims 1, 3-9 & 12.

Patent No. 3,974,931, Thomas G. Moller, BOTTLE CAP, Interference No. 100,243, decided Apr. 23, 1982, claim 7.

Patent No. 4,050,508, Bruce S. Buckley, CONTROL-LABLE HEAT TRANSMISSION PANELS, Interference No. 100,232, decided Jan. 21, 1983, claims 16 & 18.

Patent No. 4,060,110, Allen M. Bower, VAPOUR RECOVERY NOZZLE, Interference No. 100,179, decided Feb. 10, 1983, claims 1 & 2.

Patent No. 4,231,246, Edward J. Gorenc, Ulles E. Fox and Imre A. Lesko, CRIMPING TOOL FOR TUBULAR-LIKE OBJECTS AND METHOD, Interference No. 100,853, decided May 13, 1983, claims 1, 6, 11, 12, 13 & 16.

Patent No. 4,263,100, Dieter Stalherm and Janos Bocsanczy, METHOD AND APPARATUS FOR REDUCING FINE DUST EMISSION WHILE CHARGING PREDRIED AND PREHEATED COAL INTO COKE OVENS, Interference No. 100,938, decided Apr. 14, 1983, claims 1, 5 & 6.

Patent No. 4,278,599, Gary T. Clark, MONO AZO DYES FROM (2-ALKOXY-5-ALKANOYLAMINO-ANILINO) ALKOXY OR ARYLOXY ALKANES, Interference No. 100,922, decided Apr. 14, 1983, claims 1-3, 5 & 6.

NANNIE B. HENRY,
Deputy Clerk,
Board of Patent Interferences.

PATENT NOTICES

Certificates of Correction for the Week of July 12, 1983

D. 268,277	4,340,486	4,359,578	4,374,839
3,850,752	4,342,075	4,360,615	4,374,869
4,132,463	4,343,982	4,360,708	4,376,398
4,142,399	4,344,800	4,360,788	4,376,638
4,153,825	4,346,227	4,361,387	4,377,482
4,211,571	4,346,343	4,361,620	4,378,096
4,243,431	4,348,584	4,361,773	4,378,376
4,249,342	4,350,871	4,364,494	4,378,773
4,264,198	4,350,877	4,364,875	4,380,312
4,271,839	4,351,981	4,365,929	4,380,610
4,276,379	4,352,026	4,366,411	4,380,638
4,279,034	4,352,068	4,366,741	4,380,734
4,283,990	4,352,135	4,368,510	4,381,165
4,300,661	4,352,920	4,370,653	4,381,374
4,302,648	4,354,518	4,371,200	4,381,491
4,308,868	4,354,886	4,371,403	4,381,680
4,312,876	4,355,098	4,372,708	4,381,715
4,333,099	4,357,219	4,372,738	4,382,299
4,335,355	4,357,665	4,372,835	4,382,671
4,338,534	4,358,774	4,373,073	4,383,109
4,338,768	4,359,055	4,374,050	4,383,267
4,339,078	4,359,178	4,374,257	4,383,423
4,339,743	4,359,512	4,374,733	

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Disclaimers

4,108,029.—*Alexander Borzym*, Dearborn, Mich. CUT-OFF DIE SET. Patent dated Aug. 22, 1978. Disclaimer filed May 4, 1983, by the assignee, *Alpha Industries, Inc.*

Hereby enters this disclaimer to claim 12 of said patent.

4,345,234.—*Steven A. Reich*, Waterloo, Iowa. MULTIPLE ELEMENT THERMAL ACTUATOR. Patent dated Aug. 17, 1982. Disclaimer filed Dec. 27, 1982, by the assignee, *Deere & Co.*

Hereby enters this disclaimer to all claims of said patent.

Dedication

3,870,515.—*Norbert H. Kaupp*, Newark, N.Y. METHOD FOR ELECTROSTATIC PAPER STRIPPING BY NEUTRALIZATION OF TRANSFER CHARGE. Patent dated Mar. 11, 1975. Dedication filed Oct. 21, 1982, by the assignee, *Xerox Corp.*

Hereby dedicates to the Public the entire remaining term of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
	Chicago Public Library	(312) 269-2865
Illinois	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Louisiana	Boston Public Library	(617) 536-5400 Ext. 265
Massachusetts	Detroit Public Library	(313) 833-1450
Michigan	Minneapolis Public Library & Information Center	(612) 372-6552
Minnesota	Kansas City: Linda Hall Library	(816) 363-4600
Missouri	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 749-4176
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

All of the above-listed libraries offer CASSIS (Classification And Search Support Information System), which provides direct, on-line access to Patent and Trademark Office data.

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

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PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF April 2, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-1-82
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	3-09-82
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director	1-12-82
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufac- ture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-22-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-30-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Op- tics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy; Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	1-05-81
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing; Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director	5-12-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	8-25-80
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	1-30-81
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-18-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—STEPHEN G. KUNIN, Director	7-27-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director	8-27-82
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Gener- ation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director	9-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1983, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

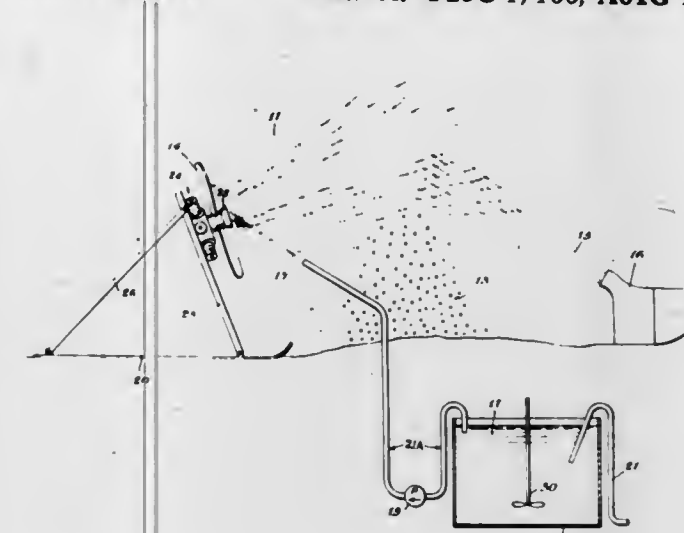
Patents Numbers 3,243,822 to 3,248,737, inclusive
Plant Patents Numbers 2,616 to 2,627 inclusive

REEXAMINATIONS

JULY 12, 1983

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 2,968,164 (104th)
METHOD OF GENERATING SNOW
Alden W. Hanson, 3124 Valley Dr., Midland, Mich. 48640
Reexamination Request No. 90/000,158, Feb. 12, 1982.
Reexamination Certificate for Patent No. 2,968,164 issued
Jan. 17, 1961, Ser. No. 716,906, Feb. 24, 1958.
U.S. Cl. 62/74 Int. Cl.³ F25C 1/100; A01G 15/100



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-3 and 5-7 is confirmed.

Claim 4 was previously disclaimed.

1. The method of forming, distributing, and depositing snow upon a surface, including: mechanically providing a large volume movement of air at atmospheric pressure, said movement of air created by a motor-driven propeller, said air having an ambient temperature at or below about 30 degrees Fahrenheit; and projecting water into said movement of air in an amount and at a rate such that substantially all of the water so-introduced is at least partially crystallized prior to depositing on said surface.

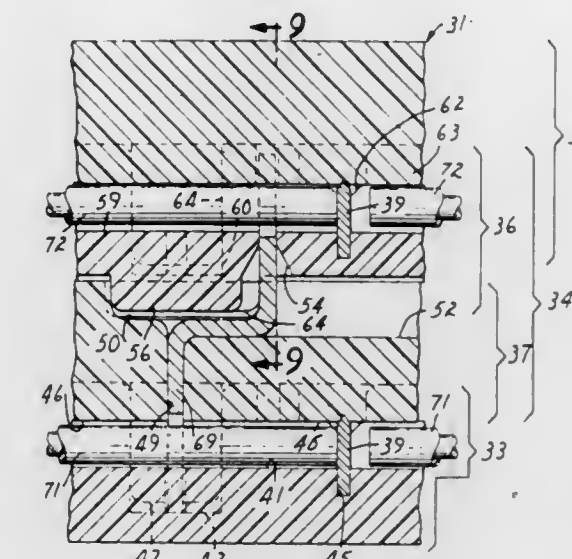
B1 3,708,779 (105th)
WIRE-SPlicing APPARATUS AND METHOD
Dennis J. Enright, St. Paul; Richard D. Kahabka, Burnsville; Donald F. Miller, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-Part of Ser. No. 823,598, May 12, 1969.
Reexamination Request No. 90/000,032, Jul. 23, 1981.
Reexamination Certificate for Patent No. 3,708,779, issued
Jan. 2, 1973, Ser. No. 91,781, Nov. 23, 1970.
U.S. Cl. 339/99 R Int. Cl.³ H01R 13/38, 11/20

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-23 is confirmed.

1. A body member adapted for assembly with cooperating base and cover members in providing modular connection between corresponding wires of opposing cable-ends, said body member comprising an elongate insulating body having opposing faces, transversely grooved

across one face to provide a series of parallel open-ended wire-receiving channels, transversely ridged across the opposing face to provide a corresponding series of parallel wire-supporting ridges, and containing contact elements extending through said body between said chan-



nels and the opposing ridges for making electrical connection between wires supported along substantially the entire length thereof which lie within said channels and wires supported along substantially the entire length thereof which lie on said ridges.

B1 3,866,100 (106th)
UNIVERSAL MOTOR CONTROL
Daniel P. Palenchar; Wayne H. Lecker; David P. Lock, all of Marietta, Ohio, assignors to Kardex Systems, Inc., New York
Reexamination Request No. 90/000,215, Jun. 7, 1982.
Reexamination Certificate for Patent No. 3,866,100, issued
Feb. 11, 1975, Ser. No. 365,241, May 30, 1973.
U.S. Cl. 318/257 Int. Cl.³ G05B 11/14

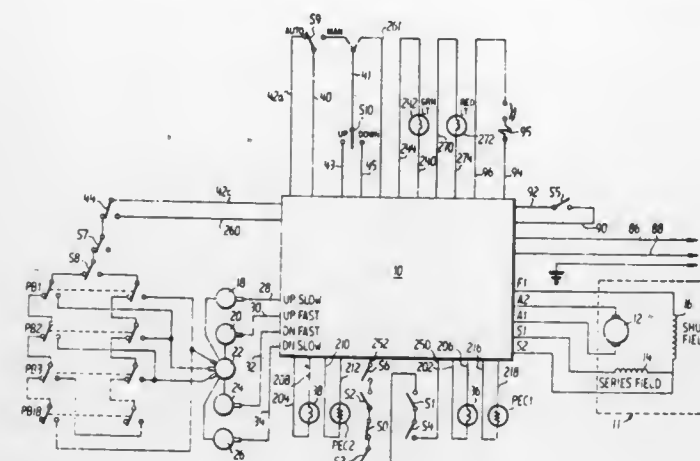
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 2, 3, 5-7, and 9-12 is confirmed.

Claims 1, 4 and 8, having been finally determined to be unpatentable, are cancelled.

[1. A motor control circuit for controlling a motor having an armature and a series field winding, said motor control circuit comprising:
a source of full wave rectified AC voltage;
means connecting said armature and said series field winding in series across said source of voltage, said means including gating means for selectively connecting said source and said armature so that current may flow through said armature in a first or second direction;
comparator means responsive to a reference voltage and feedback signal for producing output pulses each having a duration proportional to the difference in magnitude of the signals being compared;
means responsive to said source for applying a reference voltage to said comparator means;
feedback means responsive to a signal from said motor representing motor speed for applying a feedback signal to said comparator means;

logic circuit means including means for selectively generating a first and second direction command; and,



phase controller means responsive to said source, said comparator, and said direction commands for selectively producing phase control pulses;
said gating means being responsive to said phase control pulses and said direction commands for selectively connecting said source and said armature.]

REISSUES

JULY 12, 1983

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

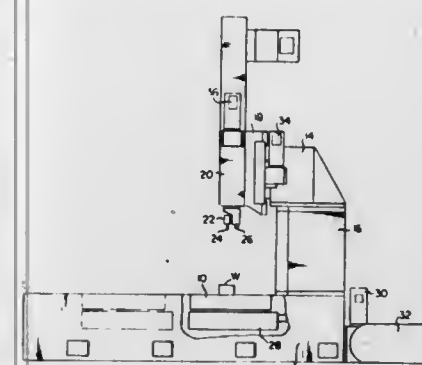
Re. 31,304
**MACHINE FOR DRILLING HOLES IN
RIGHT-ANGULAR WORK SURFACES**
Yoshihiro Tsukiji, Komatsu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Original No. 4,097,175, dated Jun. 27, 1978, Ser. No. 757,057, Jan. 5, 1977. Application for reissue Jan. 3, 1980, Ser. No. 109,260

Claims priority, application Japan, Jun. 20, 1975, 50-074370

Int. Cl.³ B23B 7/00, 39/14, 41/00

U.S. Cl. 29—27 C

3 Claims



4. In a machine tool, in combination, a turntable, a crossrail extending parallel to the surface of said turntable, a carriage mounted on said crossrail for movement therealong, means for moving said carriage along said crossrail, a ram mounted on said carriage for movement toward and away from said turntable, said ram being further movable with said carriage along said crossrail, means for moving said ram toward and away from said turntable, a toolhead substantially integrally provided with a sleeve rotatably supported at that end of said ram which is disposed opposite to said turntable, said toolhead being pivotable relative to said ram about the axis of said sleeve extending at right angles with said crossrail and parallel to the surface of said turntable, a first drive shaft within said ram, means for imparting the rotation of said first drive shaft to said sleeve and thus for pivoting said toolhead relative to said ram, a toolholder rotatably supported by said toolhead for rotation about an axis lying in a plane parallel to said crossrail and at right angles with the surface of said turntable, a spindle rotatably mounted within said sleeve, a second drive shaft within said ram, means for imparting the rotation of said second drive shaft to said spindle, means for imparting the rotation of said spindle to said toolholder, a rotary cutting tool supported by said toolholder for simultaneous rotation therewith, a turning tool removably mounted directly on said end of said ram, locking means adapted to be actuated by said second drive shaft for securely but releasably locking said turning tool in position on said ram, and means for rotating said turntable relative to said turning tool.

Re. 31,305
LIFE PRESERVER OF THE ENCAPSULATED TYPE
Harold J. Moran, Trenton, N.J., assignor to Switlik Parachute Company, Inc., Trenton, N.J.
Original No. 4,297,758, dated Nov. 3, 1981, Ser. No. 115,982, Jan. 28, 1980. Application for reissue Apr. 1, 1982, Ser. No. 364,283

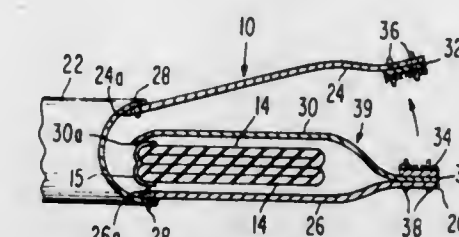
Int. Cl.³ B63C 9/16

U.S. Cl. 441—123

12 Claims

1. In an inflatable life preserver of the encapsulated type including an inflatable cell means, said life preserver further including a cover adapted to provide a primary protective enclosure for the cell means in [an inflated] a collapsed condition of said means, said cover having flexible, normally con-

nected panels in protective embracing relation to the [inflated] collapsed cell means and also having separable fastener elements on the panels adapted to disengage for separation of the panels in response to inflation of the cell means, the improvement that comprises a protective flap inside the cover adapted to cooperate with at least one of the panels to provide an auxiliary enclosure for the cell means in the event of accidental separation of the panels with the cell means in [an



inflated] a collapsed condition, the panels having inner edges connected together [to define said open center] and [have] having outer edges along which the [fastened] fastener elements are disposed, said flap having an outer edge secured to the outer edge of said one panel, the flap and said one panel being substantially coextensive in width with the flap having a free inner edge overlying and in close proximity to the inner edge of said one panel.

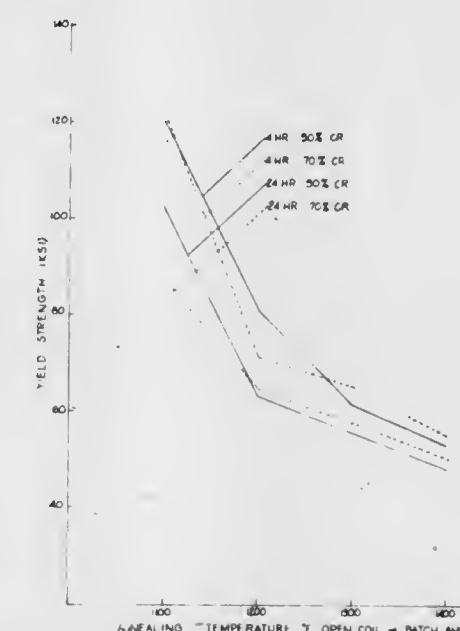
Re. 31,306
**COLD ROLLED, DUCTILE, HIGH STRENGTH STEEL
STRIP AND SHEET AND METHOD THEREFOR**
James A. Elias, deceased, late of Middletown, Ohio (by June G. Elias, executrix); John R. Newby, and Marvin B. Pierson, both of Middletown, Ohio, assignors to Armco Inc., Middletown, Ohio

Original No. 4,067,754, dated Jan. 10, 1978, Ser. No. 674,862, Apr. 8, 1976. Division of Ser. No. 554,158, Feb. 28, 1975, Pat. No. 3,963,531. Application for reissue May 6, 1981, Ser. No. 260,904

Int. Cl.³ C21D 7/02, 7/14

U.S. Cl. 148—12 F

7 Claims



1. A method of producing cold reduced low carbon steel strip and sheet stock having a 0.2% offset yield strength of at least 90 ksi and an elongation in two inches of greater than 10%

in the annealed condition, comprising the steps of providing a vacuum degassed, fully killed low carbon steel casting consisting essentially of, by weight percent, from 0.02% to about 0.10% carbon, about 0.1% to 0.9% manganese, 0.02% to about 0.18% columbium, residual phosphorus, sulfur, silicon, oxygen and nitrogen, about 0.01% to about 0.08% aluminum, and balance essentially iron except for incidental impurities, the columbium being substantially completely combined with carbon, hot rolling to intermediate gauge, coiling at a temperature [not higher than] of about 1000° to about 1300° F., removing hot mill scale, cold reducing to final gauge with a reduction in thickness of 40% to 70%, and annealing at a temperature and for a time sufficient to recover ductility but not recrystallize whereby to obtain an elongation of greater than 10% with a yield strength of at least 90 ksi.

Re. 31,307

METHOD FOR PREPARING CLAY-BASED GREASE COMPOSITIONS

Kenneth A. MacKenzie, Burlington, and Abraham Verhoeff, Toronto, both of Canada, assignors to Shell Internationale Research Maatschap, IJ B.V., The Hague, Netherlands
Original No. 4,122,022, dated Oct. 24, 1978, Ser. No. 815,691, Jul. 14, 1977. Application for reissue Sep. 29, 1980, Ser. No. 192,060

Claims priority, application Canada, Aug. 3, 1976, 258332; Aug. 3, 1976, 258332

Int. Cl.³ C10M 1/10, 3/02, 5/02, 7/04

U.S. Cl. 252-28

19 Claims

1. In the method for preparing a clay-bearing grease which comprises mixing an aqueous clay hydrogel and a conjugate acid surfactant formed from an acid and an organic amine, which mixture is combined, with mixing, with a major proportion of a lubricating oil to result in a pre-grease phase containing the oil, clay and surfactant and a water phase; followed by separating the pre-grease phase from the water phase; the improvement which comprises:

- mixing with the pre-grease, from about 0.1 to about 20 weight percent of an epoxide, based upon the weight of the pre-grease before or after a dehydration step;
- heating the mixture [to a temperature not greater than 250° F.] to cure the epoxide; and
- milling the dried and cured mixture to form a clay-bearing grease.

Re. 31,308

Patent Not Issued For This Number

Re. 31,309

HIGH SOLIDS AMBIENT TEMPERATURE CURING COATINGS OF ACRYLIC-FATTY ACID DRYING OIL RESINS

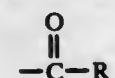
Joseph A. Antonelli, Riverton, N.J.; Renee J. Kelly, Media, and Joseph E. McLaughlin, Philadelphia, both of Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Original No. 4,242,243, dated Dec. 30, 1980, Ser. No. 58,662, Jul. 18, 1979. Application for reissue Jul. 7, 1981, Ser. No. 281,201

Int. Cl.³ C08L 25/14, 33/12

U.S. Cl. 523-459

20 Claims

1. A high solids coating composition comprising a polymer having a backbone of polymerized monomers selected from the group consisting of an alkyl methacrylate, an alkyl acrylate, styrene or mixtures thereof and polymerized hydroxyl containing monomers selected from the group consisting of a hydroxyl alkyl acrylate, a hydroxy alkyl methacrylate [of] or mixtures thereof, wherein the active hydrogen of at least one pendant hydroxyl group of the backbone is replaced by



where R is the residual of a drying oil fatty acid and wherein the polymer has a glass transition temperature of at least 20° C.

and up to about 65° C. and the polymer has a number average molecular weight of about 1,500-8,000 and a weight average molecular weight of about 6,000-30,000 and a molecular weight distribution of about 1-5; wherein the composition contains about 0.01-5% by weight, based on the weight of the coating composition, of an organo metallic drier selected from the group consisting of cobalt, copper, lead, zirconium, calcium, iron, nickel, tin, zinc and lithium organo metallic driers and about 0.1-5% based on the weight of the polymer, of aluminum metal from an organo aluminum complex.

Re. 31,310

IMPACT RESISTANT VINYL ESTER RESIN AND PROCESS FOR MAKING SAME

Daniel J. Najvar, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Original No. 3,892,819, dated Jul. 1, 1975, Ser. No. 343,716, Mar. 21, 1973. Continuation of Ser. No. 753,395, Dec. 22, 1976, abandoned. Application for reissue Feb. 25, 1980, Ser. No. 124,055

Int. Cl.³ C08F 283/10; C08G 59/16

U.S. Cl. 525-531

16 Claims

1. A process for preparing a thermosettable resin having improved impact resistance in the thermoset state which comprises [simultaneously] reacting the epoxide moieties of a polyepoxide having an average of more than one epoxide group per molecule with the acid moieties of an unsaturated monocarboxylic acid and a liquid carboxy terminated polydiene rubber wherein the combined acid equivalents of said unsaturated acid and said polydiene ranges from about 0.8 to 1.2 equivalents per epoxide equivalent and wherein at least about 80 percent of said acid equivalents comprises said unsaturated acid and the balance between 0.01 and 20 percent comprises said polydiene, provided that the polydiene rubber content is at least about 4 weight percent and wherein said resin is prepared by the simultaneous reaction of said polyepoxide, said polydiene rubber and said monocarboxylic acid or by the sequential reaction wherein said polyepoxide and said polydiene rubber are reacted followed by addition and reaction of said monocarboxylic acid with the product of that first reaction.

Re. 31,311

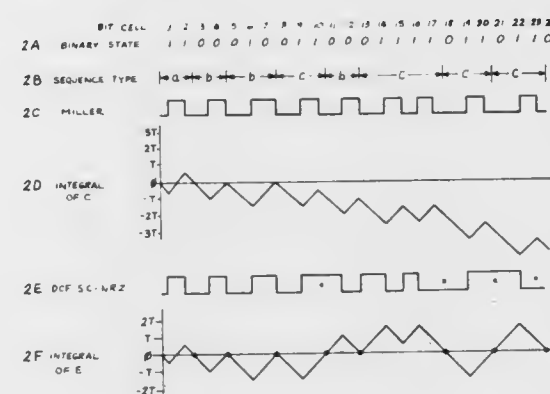
DC FREE ENCODING FOR DATA TRANSMISSION SYSTEM

Jerry W. Miller, Menlo Park, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Original No. 4,027,335, dated May 31, 1977, Ser. No. 3,191,976. Application for reissue Jul. 13, 1981, Ser. No. 282,846

Int. Cl.³ G11B 5/09

U.S. Cl. 360-40

14 Claims



1. In a self-clocking transmission system for transmitting binary data sequentially in successive clocked bit cells of a transmission channel wherein logical first bit states are normally transmitted as signal transitions relatively early in [the] respective bit cells and logical second bit states are normally transmitted as signal transitions relatively late in respective bit cells and any [transitions] transition relatively early in a bit cell following a transition relatively late in the next preceding

bit cell is suppressed, apparatus for modifying the transmitted signal to remove any net DC component, said apparatus comprising first indicating means responsive to bit states for producing at the onset of a sequence of second bit states following a first bit state a first indicating signal indicating any such sequence that might introduce a DC component into the trans-

mitted signal with normal transmission, and means responsive to said first indicating signal, a current bit and but one next succeeding bit for modifying the transmission of signal transitions to eliminate any DC [components] component.

PLANT PATENTS

GRANTED JULY 12, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,067

ROSE PLANT — MEIMAGARMIC VARIETY

Marie L. Meiland, Antibes, France, assignor to Conard-Pyle Company, West Grove, Pa.

Filed Nov. 23, 1981, Ser. No. 324,255

Claims priority, application France, Dec. 29, 1980, 2980

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—11

1. A new and distinct variety of Hybrid Tea rose plant, substantially as illustrated and described, by the fact that: from the physical standpoint the plant with light green adult wood has a semi-erect growth habit, forms dark green shiny leaves, and forms double flowers which are empire yellow and are edged with an amaranth red flush; and from the biological standpoint the plant has vigorous and regular vegetation, an abundant and repeated florescence,

the ability for its flowers to last a long time and for the petals to detach cleanly.

5,068

AFRICAN VIOLET NAMED SWAN LAKE

Arnold W. Fischer, Hanover, Fed. Rep. of Germany, assignor to Pan-American Plant Company, Parrish, Fla.

Filed Apr. 9, 1981, Ser. No. 252,316

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—69

1. A new variety of African Violet plant, substantially as herein shown and described, characterized by its profuse production of large, deep pink flowers borne on upright stems to cluster above the plant foliage.

PATENTS

GRANTED JUL. 12, 1983

ERRATA

For CLASS	See PATENT NO.
089-033	4,392,407
604-202	4,392,491
604-082	4,392,492
123-342	4,392,502
180-217	4,392,536
128-079	4,392,526
427-194	4,392,908
376-133	4,392,918
428-355	4,393,080
424-074	4,393,086
323-355	4,393,157
377-056	4,393,301
382-022	4,393,366
361-074	4,393,487

PATENTS

GRANTED JULY 12, 1983

GENERAL AND MECHANICAL

4,392,257 METHOD OF MAKING DRESSES FOR DOLLS AND THE LIKE AND PRODUCT OBTAINED BY THIS METHOD

Giulio S. Furga, Via Fatebenefratelli 12, Milan, Italy

Filed Oct. 4, 1979, Ser. No. 82,213

Int. Cl.³ A41D 1/22; B32B 33/00

U.S. Cl. 2—105

7 Claims



7. A dress for a doll or the like, said dress being defined by boundaries, said dress comprising two superposed portions of synthetic fabric, electronic weld lines joining said portions together located in closely spaced relation to said boundaries of said dress to simulate sewn seams, and said two portions of fabric having figures, designs, trimmings or the like, which define clothing portions such as collars, belts, pockets and the like, directly woven in said portions of said fabric, for instance, by a Jacquard system.

4,392,258

SHADE SHIRT

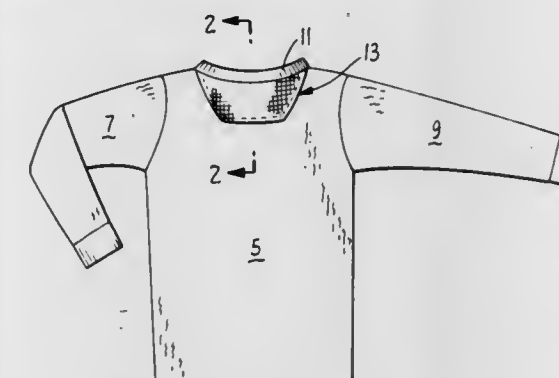
Michael H. O'Neill, 1071 41st Ave., Santa Cruz, Calif. 95062

Filed Dec. 16, 1982, Ser. No. 435,908

Int. Cl.³ A42B 1/06; A41B 1/00

U.S. Cl. 2—209.1

1 Claim



1. A convertible article of clothing having a fabric covering the upper torso in the manner of a T-shirt or sweater and having a neck opening defining a rear margin and a semistiff bill attached to said rear margin of the neck opening whereby said article of clothing can be worn as a shirt with the bill depending from the back of the garment or placed over the head with the bill in front serving as an eyeshade.

4,392,259

TROUSER CONSTRUCTION

Guido Bredo, No. 3, Via di Sant'Eustachio, 00186 Rome, Italy

Filed Aug. 7, 1980, Ser. No. 176,227

Claims priority, application Italy, Aug. 29, 1979, 50127 A/79; Mar. 12, 1980, 48145 A/80

Int. Cl.³ A41D 1/06

U.S. Cl. 2—227

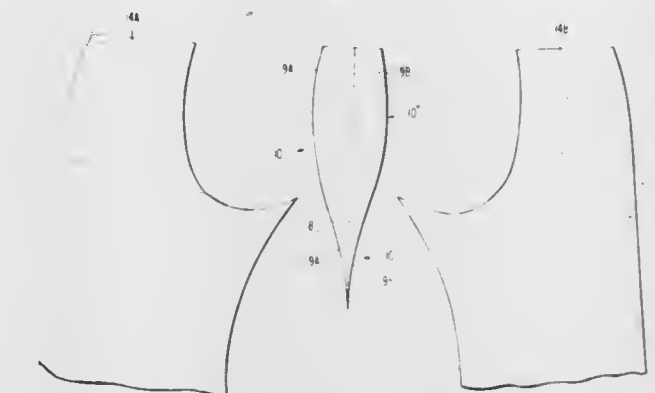
19 Claims

1. A trouser construction comprising right and left front

parts and right and left rear parts for covering the respective front and rear of a wearer's right and left hip and thigh, each said rear part having a top edge, a bottom edge, an outer edge extending substantially continuously between said top and bottom edges, a lower inner edge extending from said bottom edge to a region corresponding to the sacrum of the wearer and an upper inner edge extending from the region corresponding to the sacrum to the top edge,

each said front part having a central portion, a top edge, a bottom edge, an outer edge extending substantially continuously between said top and bottom edges, a lower inner edge extending from the bottom edge to the region of the sacrum of the wearer, said lower inner edge slanting away from said central portion in the region of the thigh of the wearer, a concave crotch edge extending from the region of the sacrum toward said central portion, and an upper inner edge extending from said crotch edge to said top edge,

an elongated crotch piece having a multiplicity of sides including elongated right and left continuous concave sides converging at one end thereof in an acute angle, the remainder of said sides forming a crotch piece top, wherein said right and left front parts have their upper inner



edges shaped for complementary construction with said crotch piece top across the abdomen of the wearer, said right front and rear parts are joined by a right outer seam along their outer edges and by a right inseam along their lower inner edges,

said left front and rear parts are joined by a left outer seam along their outer edges and by a left inseam along their lower inner edges,

said right and left rear parts are joined by a back seam along their upper inner edges,

said right front part is joined to said crotch piece by a right crotch joint along the crotch edge of said right front part and said right converging side of said crotch piece,

said left front part is joined to said crotch piece by a left crotch joint along the crotch edge of said left front part and said left converging side of said crotch piece,

whereby said back seam, said inseams and said crotch joints converge in the region of the sacrum, said acute angle of said converging sides of said crotch piece points rearwardly and said right and left crotch joints extend along anatomical lines from said sacrum to positions on the sides of the navel of the wearer,

and said right and left front parts have their upper edges joined with said crotch piece top in complementary connection across the abdomen of the wearer.

4,392,260

FLUSHING APPARATUS WITH SELECTIVE QUANTITY CONTROL

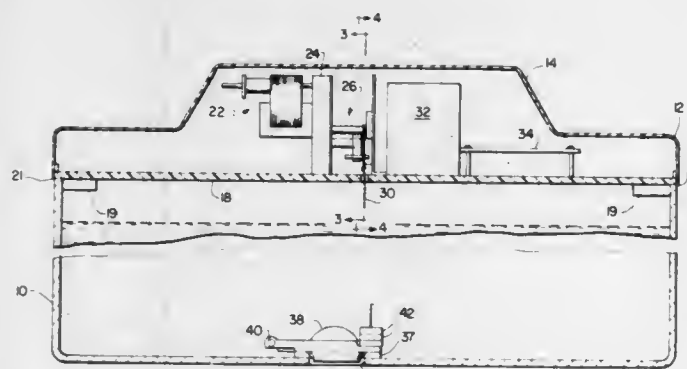
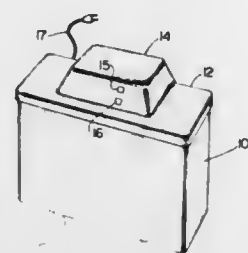
Court M. Bensen, 1250 Ralston St., Reno, Nev. 89503

Filed Jul. 6, 1982, Ser. No. 395,746

Int. Cl.³ E03D 1/14, 3/12

U.S. Cl. 4—324

3 Claims



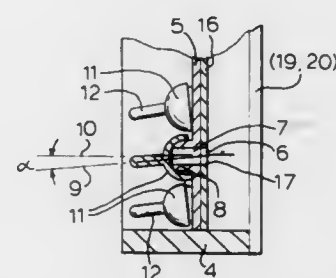
1. An apparatus for selectively dispensing either of two predetermined quantities of flushing water from the storage tank of a toilet of the type having an opening in the bottom thereof through which flushing water passes, a valve member operable to open and close the opening, the valve member normally exhibiting a net positive buoyant force in water when removed from the opening, and upwardly extending means for operating the valve member by lifting it away from the opening, the apparatus comprising

weight means attached to said valve member for changing the buoyancy thereof from positive to negative;
motor means coupled to said means for operating, said motor means being operative, when energized, to exert an upward force on said means for operating to lift said valve member away from said opening, to hold said valve member in the lifted position against the downward force of said weight means, and to lower said valve member to its closed position without regard to the water level in the storage tank;

housing means for supporting said motor means above the water in said tank;

timing means for selectively producing energizing signals for said motor means in pairs to lift and lower said valve member, the leading edges of the signals in one said pair being separated by a first time interval and the leading edges of the signals in a second said pair being separated by a second, longer time interval; and

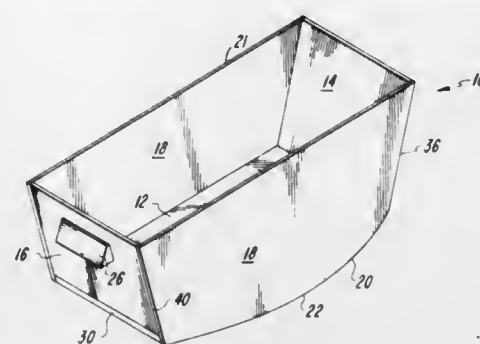
manually operable switch means for selecting one of said signal pairs, thereby selecting the interval said valve member is held in the open position.



4,392,261
BABY CRADLE
Loretta C. Ivory, 6263 S. Niagara Way, Englewood, Colo. 80111, and Frederick D. Hartmann, Aurora, Colo., assignors to Loretta C. Ivory, Englewood, Colo.
Filed Dec. 16, 1980, Ser. No. 216,805
Int. Cl.³ A47D 9/00

U.S. Cl. 5—101

9 Claims



1. In a cradle for a baby lying in a preselected orientation wherein the baby's head is nearer a head panel of said cradle, said cradle further having two longitudinally extending side panels and a foot panel, said foot panel and head panel are connected to the side panel, the side panels, foot panel and head panel are connected along a bottommost edge to a bottom panel and to each other, the cradle being adapted to rock on a floor surface, the improvement comprising:

support means for said cradle integral to each of said side panels and having a longitudinally extending curvilinear surface for rocking said cradle in a longitudinal plane on said floor surface, said support means connected to said cradle, said curvilinear surface being asymmetric with respect to a transverse plane through a midpoint of the length of the cradle whereby said baby lies in said cradle in a head up position relative to the baby's feet when the cradle is in equilibrium regardless of the longitudinal position of the baby within said cradle.

U.S. Cl. 6—9

25 Claims

4,392,262
APPARATUS FOR BREEDING QUEEN HONEYBEES
Johann R. Stickler, Klammweg 68, Willendorf, Austria A-2732
Filed Oct. 19, 1981, Ser. No. 312,715
Claims priority, application Austria, Oct. 17, 1980, 5169/80
Int. Cl.³ A01K 47/04, 49/00

1. An apparatus for breeding queen honeybees in cells, which comprises a breeding frame, a honeycomb cell plate having a front face and a rear face, the honeycomb cell plate being affixed to the breeding frame, a multiplicity of tubular sockets projecting from the rear face of the honeycomb cell plate, the plate defining a like multiplicity of open cells extending from the front face through the cell plate, with each cell aligned with a socket such that an opening is formed extending completely through the cell plate and socket, and cup-shaped elements displaceably mounted on the sockets for closing the cells at the rear face.

4,392,263

PORTABLE RESCUE TOOL

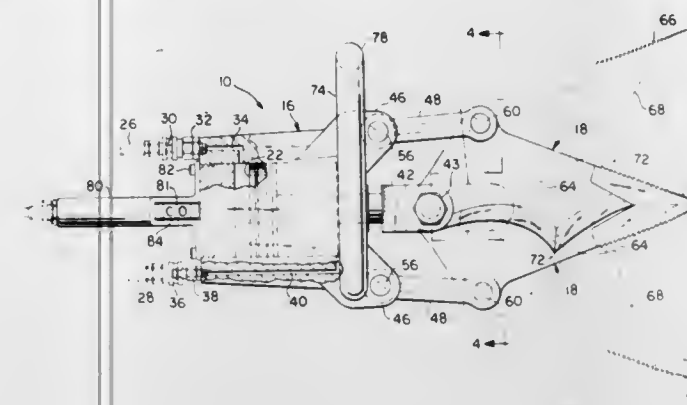
Michael J. Amoroso, 210 N. Shoreland, Marion, Ill. 62959

Filed Feb. 2, 1981, Ser. No. 230,622

Int. Cl.³ B25F 1/00

U.S. Cl. 7—100

22 Claims



1. A tool for rescue work comprising:

- (a) a body,
- (b) a first jaw member having an outer prying and clamping portion and an inner cutting portion,
- (c) a second jaw member having an outer prying and clamping portion and an inner cutting portion, said second member being offset from said first member and at least partially overlapping said first member to provide the cutting action, and
- (d) means connecting said first and second jaw members to the body for opening and closing said jaw members, the cutting portion of the jaw members and the prying and clamping portion of the jaw members being operatively disposed on the same side of the connection means and said outer prying and clamping portions of the jaw members being interengageable in the closed position to facilitate the clamping and prying action and to facilitate use as a wedge.

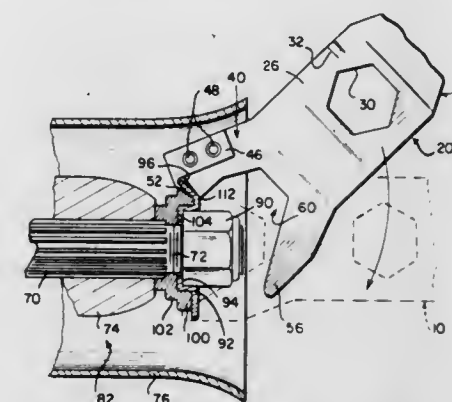
4,392,264
COMBINATION TOOL FOR REMOVING AND REPLACING A NUT
James M. Booe, Jr., 7812 E. Vermont St., Indianapolis, Ind. 46219

Filed Feb. 26, 1981, Ser. No. 238,211

Int. Cl.³ B25B 27/00; B25F 1/04

U.S. Cl. 7—138

6 Claims



1. A combination tool for use in removing and replacing a nut which is locked on a threaded shaft by a locking member having bendable locking tabs projecting outwardly therefrom; the tool comprising an elongated lever having a proximal end section including a handle, a distal end section including a first finger for engaging and bending one tab upward upon movement of the lever, and a second finger for engaging and bending an opposing tab downward, the two fingers being separated by an outwardly opening space, and a wrench section interposed between the two end sections for engaging the nut,

the first finger including means for engaging both upper and lower surfaces of the one tab, thereby to provide a fulcrum for the movement of the lever to bend the one tab upward and the opposing tab downward.

4,392,265
METHOD OF MODIFYING THE DYE AFFINITY OF CELLULOSE FIBER-CONTAINING STRUCTURE WITH BENZENE SULFONYL CHLORIDE
Takahiro Fujii, Funabashi; Masao Nakajima, Tokyo, and Shigeru Okano, Musashino, all of Japan, assignors to Toppan Printing Co., Ltd., Japan

Filed Nov. 12, 1981, Ser. No. 320,763

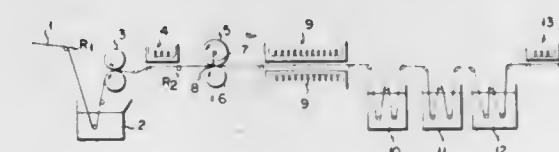
Claims priority, application Japan, Jun. 15, 1981, 56-92043; Jun. 19, 1981, 56-94925

The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

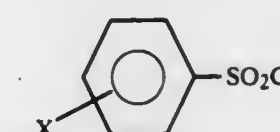
Int. Cl.³ C09B 62/00; D06P 5/22

U.S. Cl. 8—120

9 Claims



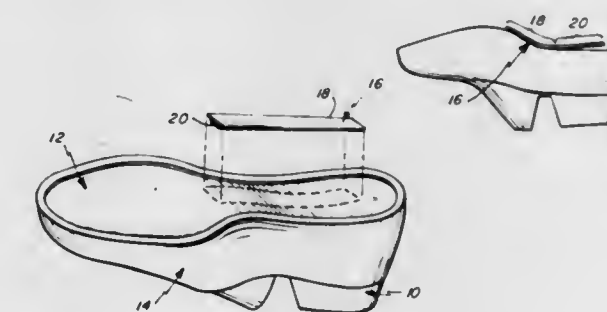
1. A method of modifying the dye affinity of a cellulose fiber-containing structure, comprising the steps of treating a cellulose fiber structure or a mixed structure of a cellulose fiber and a synthetic fiber with an alkaline agent, coating the structure with an aqueous emulsion of an acid chloride having the formula:



(wherein X is —H, —NO₂, —CH₃ or —SO₂Cl) and subjecting the coated structure to heat treatment prior to drying of the emulsion to cause chemical modification.

4,392,266
MOLDED SHANKS
Steven M. LeBaron, Swampscott, Mass., assignor to Bush Universal, Inc., Woburn, Mass.
Filed Jan. 15, 1982, Ser. No. 339,784
Int. Cl.³ A43D 31/00, 21/00
U.S. Cl. 12—146 S

11 Claims



9. A method for forming and applying a shank stiffener on the bottom of a shoe sole, said stiffener initially being in the form of an elongate flexible activatable material, the method comprising: placing the stiffener material on the bottom of the insole; supporting a portion of the stiffened material in spaced relation to the insole;

effecting curing of the stiffener material while said portion of the stiffener material is so supported whereby a part of the stiffener will cure in contact and conformity with the bottom of the insole and where a portion of the stiffener will cure in a spaced relation to the insole.

4,392,267

APPARATUS FOR CONTINUOUSLY PICKLING THE OUTER SURFACES OF TUBULAR MATERIALS

Yoshiro Tanaka; Hayato Moroi; Yukihiko Komatsu; Kazuo Akagi; Ryujiro Shitamatsu, all of Shimonoseki, and Tadashi Nishimura, Yokohama, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

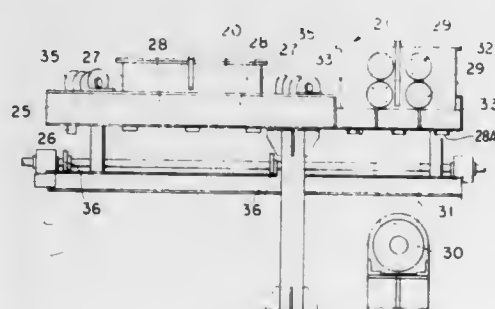
Filed Oct. 1, 1981, Ser. No. 307,676

Claims priority, application Japan, Aug. 12, 1981, 56-120156[U]

Int. Cl.³ B08B 9/02

U.S. Cl. 15—88

6 Claims



1. An apparatus for continuously pickling the outer surface of hermetically plugged tubular members comprising: a plurality of liquid containing tanks which separately contain different pickling liquids and define through-holes in respective front and rear walls thereof on at least one common longitudinal line to permit the successive passage of the tubular members therethrough; means for successively feeding the tubular members through said through-holes and for rotating the tubular materials around their respective longitudinal axes; a cleaning tank containing a cleaning liquid; and a cleaning brush unit positioned upstream of said plurality of tanks and downstream of said cleaning tank wherein said cleaning tank further comprises at least one ultrasonic cleaning oscillator disposed therein and defining sealed through-holes in the front and rear walls thereof for allowing said tubular members to pass through said cleaning tank and subsequently to said cleaning brush unit.

4,392,268

CHALKBOARD ERASER CLEANER SYSTEM

Victor M. Bueno, 708 Opelousas Ave., Algiers, La. 70114

Filed Dec. 14, 1981, Ser. No. 330,687

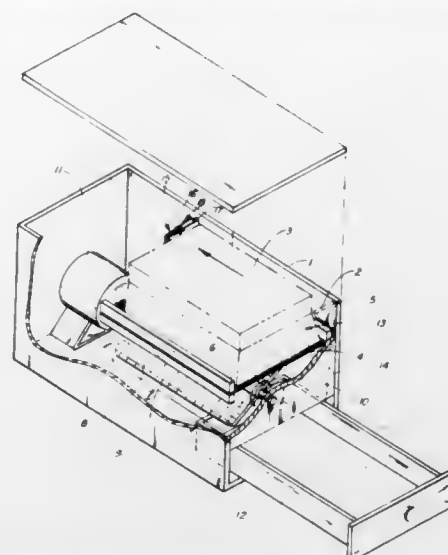
Int. Cl.³ A47L 25/00

U.S. Cl. 15—91

9 Claims

1. A chalkboard eraser cleaner, comprising: an at least generally closed housing having wall portions; a cyclically moveable beater having impact members located in said container; drive means associated with said beater for forcefully moving it; and flexible mesh netting means supported by said wall portions and located adjacent to and above said beater for supporting the chalkboard eraser while it is being cleaned by

impacts from said beater when it is moved, said beater impact members impacting the underside of said flexible



mesh netting means when said beater is forcefully moved by said drive means.

4,392,269

MOP CARRIER

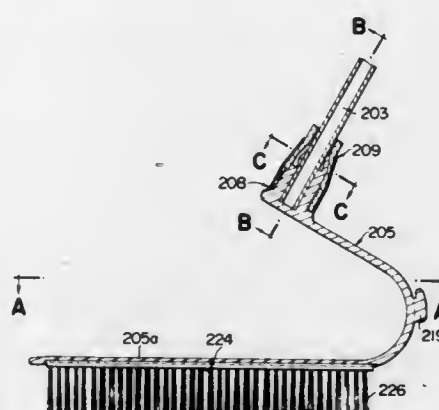
Masanobu Nishiyama, Higashi; Fusao Kanazawa, Neyagawa; Hisaji Tanaka, and Tatsuo Nishimura, both of Osaka, all of Japan, assignors to Dusk Franchise Kabushiki Kaisha and Kabushiki Kaisha Sunpack, both of Osaka, Japan

Filed Mar. 5, 1981, Ser. No. 240,827

Int. Cl.³ A46B 17/02; A47L 13/24; B25G 3/04

U.S. Cl. 15—145

3 Claims



1. A mop carrier for removably mounting a mop and/or a brush to a mop handle; said mop carrier comprising: an elongated, continuous resilient blade including a first portion which at one end leads into a second, arcuate portion which at one end leads into a third, straight portion which is longer than said first portion and generally horizontal; said first portion spacedly overlying said third portion; means integrally providing an upwardly projecting cylindrical boss upon said first portion distally of said second portion, said boss having means defining an upwardly opening socket therein of a diameter to receive a mop handle lower end, said boss including a lower, barrel portion provided with a band of external threading, and being longitudinally split above said barrel portion into a plurality of angularly adjacent petals; an internally threaded collar constructed and arranged to thread onto said boss and to radially inwardly urge said petals; means providing a hook outwardly projecting on said second portion, said hook being constructed and arranged to detachably hold a mop loop for removably holding a mop sleeved on said third portion of said mop carrier resilient blade; and

means providing a laterally directed flange means about two sides and an outer end of said third portion, whereby said third portion is constructed and arranged to longitudinally slidingly, removably receive a brush.

4,392,270

SURFACE CLEANING APPARATUS

S. Jim Magee, Coquitlam, Canada, assignor to Magee Enterprises Ltd., Coquitlam, Canada

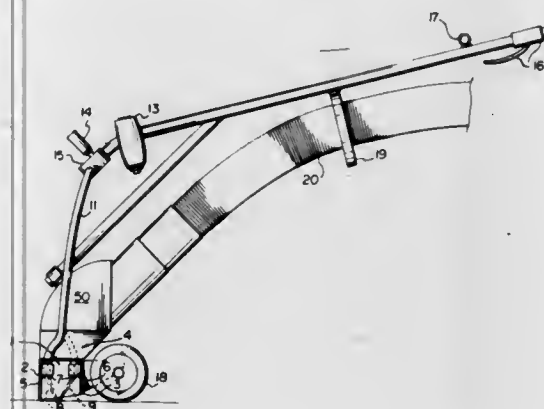
Filed May 11, 1981, Ser. No. 262,255

Claims priority, application Canada, Jun. 9, 1980, 353588

Int. Cl.³ E01H 1/08, 1/10

U.S. Cl. 15—322

16 Claims



1. A surface clearing apparatus comprising a vacuum chamber having an open bottom and an upper exhaust port, and high pressure liquid jet spraying means mounted within the chamber a predetermined height above the bottom thereof, the spraying means being comprised of a plurality of high pressure spray heads mounted along one of the front or rear of the vacuum chamber each adapted to emit a fan shaped spray at an angle toward the surface to be cleaned and being directed away from the adjacent front or rear of the chamber coextensive and noninterfering with the spray from an adjacent spray head, so as to form a substantially ungapped transverse line across the chamber along said surface.

4,392,271

ELECTRIC VACUUM CLEANER WITH WINDOW FOR VIEWING BELT

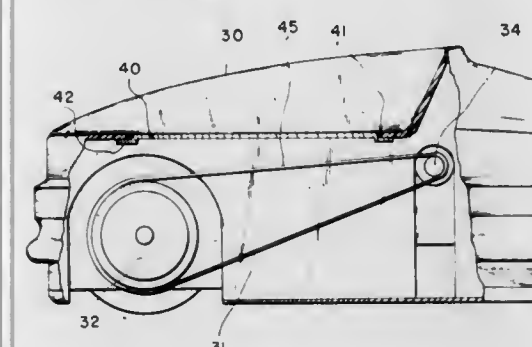
Arnold L. Sepke, Lake Bloomington, Ill., assignor to National Union Electric Corporation, Bloomington, Ill.

Filed Sep. 21, 1981, Ser. No. 303,715

Int. Cl.³ A47L 9/00

U.S. Cl. 15—339

8 Claims



1. In a vacuum cleaner having a housing enclosing at least upwardly a beater brush rotatable about a horizontal axis, a motor, and a belt transmitting rotary motion from said motor to said beater brush; the improvement wherein said housing is opaque for the greater part thereof, and has a transparent window fixedly mounted therein to enable a portion of said belt to be viewed from externally of said housing, said belt having distinctive markings thereon, whereby its speed of

movement or lack of movement, and regularity of movement, can be observed through said window.

4,392,272

TRACK AND PANEL GUIDE FOR SLIDING SHOWER DOORS OR THE LIKE

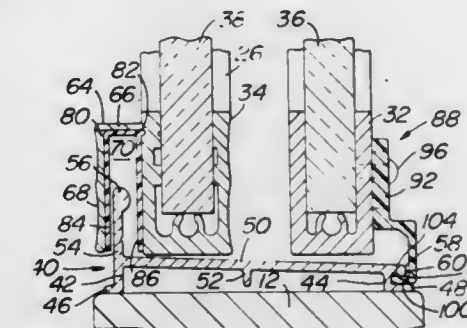
Abram R. Finkel, Royal Palm Beach, Fla., assignor to KSD Industries, Inc., Southampton, Pa.

Filed Feb. 17, 1981, Ser. No. 234,859

Int. Cl.³ A47K 3/14; E05D 13/02

U.S. Cl. 16—95 R

13 Claims



1. Guide means for shower doors and the like having respective inner and outer sliding doors comprising: an elongated lower track member, a planar upper face inclined downwardly from an outer to an inner edge of said track member, a guide rail projecting upwardly from said upper face adjacent to said outer edge, and a partly enclosed horizontally opening guide channel disposed along the inner edge of said track member, first guide members coupled to the inner sliding door, said first guide members having a horizontally extending portion adapted to project into said guide channel and a terminal enlargement interengageable with said guide channel to slidably secure the inner sliding door to said lower track member, and a second guide member associated with the outer sliding door, said second guide member comprising a downwardly opening channel adapted to overlies and interengageably receive said guide rail.

4,392,273

POULTRY PROCESSING APPARATUS

Horace J. De Long, Garrison Rd., Rte. 6, Box 257A, Macon, Ga. 31201

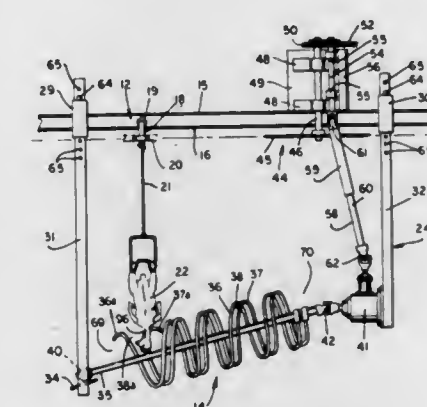
Division of Ser. No. 68,204, Aug. 20, 1979, Pat. No. 4,336,633.

This application Jun. 29, 1982, Ser. No. 393,247

Int. Cl.³ A22C 21/00

U.S. Cl. 17—12

8 Claims



1. Apparatus for processing poultry for use in a poultry processing line of the type including conveyor means for moving a plurality of birds suspended in an inverted attitude in series through a plurality of processing steps, said apparatus comprising a support frame, a rotary element comprising a pair of helical, coaxial overlapping bars mounted on a common axle, said axle rotatably mounted on said support frame, said pair of helical bars defining an open-ended helical path there-

between for receiving the necks of birds on the conveyor means, and drive means in driving engagement with said axle for connection to the conveyor means for rotating said helical bars in response to the movement of the conveyor means and conveying the necks of the birds.

4,392,274

APPARATUS FOR PULLING-OFF THE SKIN OF SHEEP CARCASSES IN SLAUGHTERING

Terje Noroy, Tronerudveien 17, N-3550 Gol, Norway
PCT No. PCT/NO80/00022, § 371 Date Mar. 3, 1981, § 102(e)
Date Mar. 3, 1981, PCT Pub. No. WO81/00040, PCT Pub.
Date Jan. 22, 1981

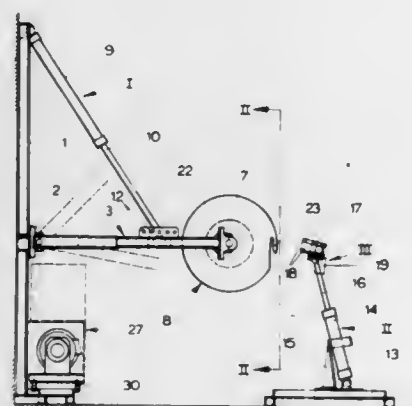
PCT Filed Jul. 4, 1980, Ser. No. 247,531

Claims priority, application Norway, Jul. 6, 1979, 792255

Int. Cl.³ A22B 5/16

U.S. Cl. 17-21

8 Claims



1. An apparatus for pulling-off the skin of sheep, lamb or similar carcasses in connection with slaughtering, comprising an essentially horizontal drum which is arranged to pull off the skin during winding thereof on the drum, the drum being moved along the dorsal side of a vertically suspended carcass characterized in that the drum (8) has a gradually increasing diameter from the central portion (20) towards both ends and a clamping means to affix the skin to the drum at the beginning of the cycle, said drum being mounted at the free end of a pivotable beam (3) which is provided with a means (9) for pivoting movement of the beam during the pulling-off operation, along and in engagement with the dorsal side of said carcass and that there is provided a means (24) for rotation of the drum (8), said drum (8) being rotated synchronously with the pivoting movement of the beam (3) and with a speed which is adapted to the pivoting movement of the beam traversing said dorsal side of said carcass whereby varying amounts of force at varying angles are exerted on the skin responsive to the locus of the drum along the carcass, to most effectively and uniformly carry out the skin removal process with minimal damage to the skin.

4,392,275

APPARATUS FOR SUPPORTING FIBER BALES

Ferdinand Lelfeld, Kempen; Hans-Jürgen Marx, and Rolf Scheuermann, both of Monchen-Gladbach, all of Fed. Rep. of Germany, assignors to Tritschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Mar. 23, 1981, Ser. No. 246,694

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1980, 3010937

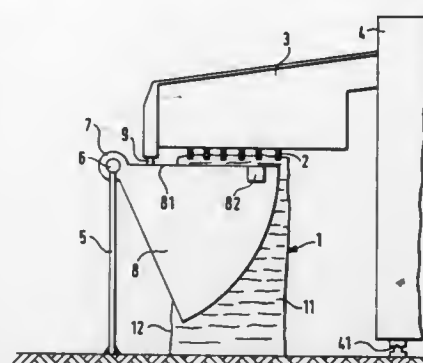
Int. Cl.³ D01G 7/06

U.S. Cl. 19-81

17 Claims

1. In a bale supporting apparatus for stabilizing fiber bales during opening of the fiber bales from the top; the apparatus including a support element arranged to engage a vertical end face of a bale and further arranged for stepwise, vertically downwardly oriented motion as the bale height decreases during the bale opening process; the improvement comprising

a stationary carrier structure situated horizontally adjacent the space occupied by the fiber bales undergoing opening and



4,392,276

FIBER SEPARATOR FOR FEEDING A FREED-FIBER SPINNING UNIT

Roger Gauvain, Buhl, and Michel Kueny, Brunstatt, both of France, assignors to Societe Alsacienne de Constructions Mecaniques de Mulhouse, Mulhouse, France

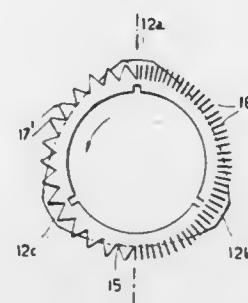
Filed Apr. 1, 1981, Ser. No. 249,988

Claims priority, application France, Apr. 4, 1980, 80 07652

Int. Cl.³ D01H 1/12; D01G 19/10, 15/14

U.S. Cl. 19-97

11 Claims



1. A device for separating individual fibers of a sliver, comprising:

means for feeding the sliver;

means adjacent said feeding means for opening the sliver, comprising a combing and drafting cylinder, said combing and drafting cylinder being constituted by a shaft having a stack of disks mounted thereon, the edges of said disks having teeth or needles for combing the sliver and smooth portions on the periphery thereof for drafting the sliver, said disks being relatively angularly offset from one another, a pressure roller in close proximity to said combing and drafting cylinder;

a guiding means mounted between said feeding means and said combing and drafting cylinder; and

fiber discharging duct means positioned downstream of said opening means.

4,392,277

LOCK TONGUE FOR SAFETY BELTS

Manfred Müller, Deizisau, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 8, 1981, Ser. No. 271,360

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1980, 3021387

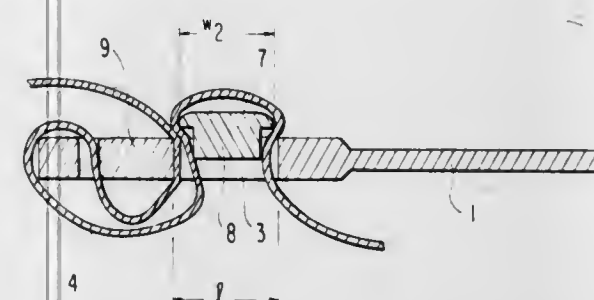
Int. Cl.³ A44B 11/10

U.S. Cl. 24-196

6 Claims

1. A lock tongue for a safety belt system, comprising two passage openings for accommodating a belt strap of the safety belt system, a central web means for separating the two passage openings, and clamping means adapted to be attached in one of the passage openings for clamping the belt strap, the

clamping means extending along an entire longitudinal extension of the passage opening so as to rest on both sides in marginal zones of the lock tongue adjoining narrow sides of the passage opening so that the clamping means supports the belt strap extended therearound when the clamping means is in the passage opening, the belt strap passes through the passage openings so that the lock tongue is firmly attachable in a certain location of the belt strap due to a loop around friction occurring under load, the attachment of the lock tongue is effected by repeated deflection of the belt strap by the clamp-



ing means, the clamping means includes a clamping bracket having a base portion and a head portion, the head portion has a width wider than a width of the base portion such that the bracket has an approximately mushroom-shaped cross section, the base portion is adapted to be inserted into the passage opening, the width of the base portion is less than the length of the narrow sides of the passage opening by about three times a thickness of the belt strap, a width of the head portion corresponds approximately to the length of the narrow sides of the passage opening, and means are provided for attaching the clamping bracket to the lock tongue.

4,392,278

FASTENER

Peter R. Mugglestone, Ormond, Australia, assignor to Illinois Tool Works Inc., Chicago, Ill.

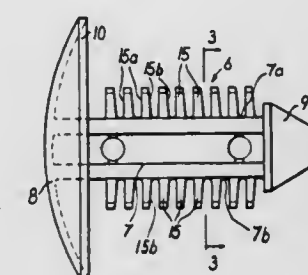
Filed Feb. 27, 1981, Ser. No. 239,224

Claims priority, application Australia, Feb. 20, 1980, PE2462

Int. Cl.³ A44B 17/00

U.S. Cl. 24-213 R

8 Claims



1. A reusable fastener of the one-piece push-in type having a longitudinal axis and laterally extending fronds on a shank to inhibit withdrawal of the fastener shank when inserted into a preformed hole, said fastener shank being generally H-shape in cross-section with opposite side faces and adapted to fit neatly within a hole into which the fastener is to be fitted, a plurality of axially spaced fronds on each said opposite side face of the shank to form two rows of fronds in opposed relationship, said fronds being resilient and adapted to engage the inner wall of said hole to resist withdrawal of the fastener therefrom, a head at one end of the shank, whereby when said fastener is positioned in said hole said H-shape shank centrally locates said longitudinal axis of said fastener relative to the central axis of said hole thereby insuring engagement of both rows of fronds with said inner wall of said hole.

4,392,279

SELF-LOCKING TWO-PART FASTENER

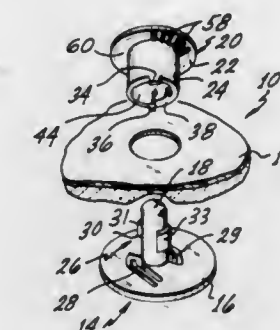
Frederic A. Schwager, Manhattan Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Sep. 14, 1981, Ser. No. 301,495

Int. Cl.³ A44B 21/00, 1/38; A63H 3/38

U.S. Cl. 24-221 R

6 Claims



2. A self-locking two-part fastener, comprising: a first fastener part including a first base and a spindle upstanding from said first base; a second fastener part including a second base and a hollow tubular member upstanding from said second base, and means for locking said hollow tubular member to said spindle and said first base, said locking means including a resilient stop member on said first base, a cam face on said spindle, a protuberance extending from said hollow tubular member and a shoulder provided on the inner wall of said tubular member, whereby said spindle may be inserted into said hollow tubular member and rotated with respect thereto until said cam face and said shoulder force said protuberance into locked engagement with said stop member, said stop member being formed integrally with said first base and comprising a resilient finger mounted in an arcuate opening in said first base, said opening being of greater extent than said finger, whereby said protuberance may be trapped in said opening by the free end of said finger.

4,392,280

CLEVIS SAFETY BELT BUCKLE

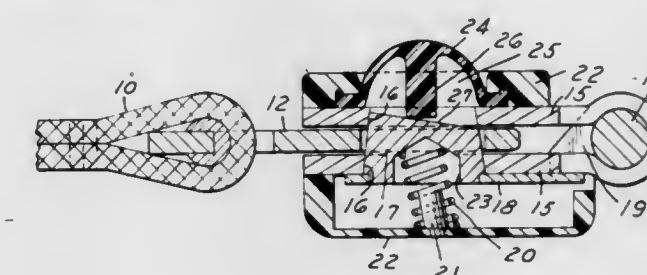
James A. Gavagan, Centerline, Mich., assignor to Irvin Industries, Inc., Madison Heights, Mich.

Filed Jan. 30, 1981, Ser. No. 229,883

Int. Cl.³ A44B 11/26

U.S. Cl. 24-230 A

17 Claims



1. A safety belt buckle comprising a connector tongue adapted for attachment to a first belt end, a housing having a base, clevis means mounted within said housing extending longitudinally as an aligned tension element on both sides of said tongue with a transverse closed end adapted for attachment to a second belt end, alignable apertures in said connector tongue and both adjacent sides of said clevis means, latch means extending upwardly from the base through said apertures engaging said tongue and both sides of said clevis means, resilient means mounted within said housing normally retaining said latch means in engaging position, and exposed manually actuatable means for moving said latch means downwardly

relative to both clevis and tongue to a position for disengaging said connector tongue.

4,392,281

RELEASEABLE FASTENER

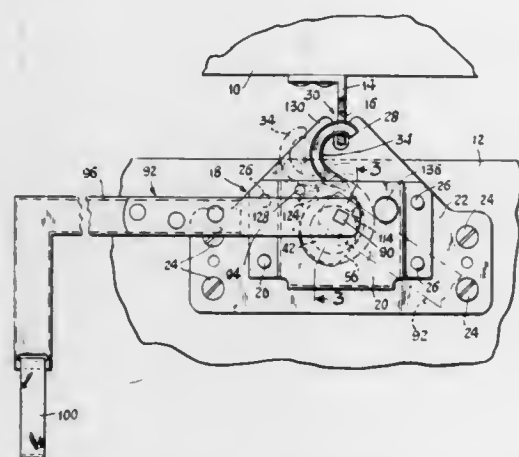
Joseph R. Metz, Ridgefield, and Michael F. Barnes, Sandy Hook, both of Conn., assignors to Norco, Inc., Ridgefield, Conn.

Filed Feb. 6, 1981, Ser. No. 232,097

Int. Cl.³ A43C 11/08; A44B 13/00

U.S. Cl. 24—230.5 R

13 Claims



1. In a releasable, hook-type fastener, in combination:
 - (a) a drive shaft,
 - (b) means for turnably mounting said shaft on equipment which requires fastening,
 - (c) an eccentric bushing turnable with said shaft,
 - (d) a pair of separate and distinct, similarly-shaped spring hooks disposed side-by-side and substantially in broadside contact with each other, having looped bearing portions frictionally and slidably engaged with the eccentric bushing and having laterally-registered coextensive bill portions aligned with each other and directed in the same direction, and
 - (e) means separate from said spring hooks and held captive thereby and disposed adjacent the eccentric bushing, said means being engageable and movable with said hooks to continually maintain the same in registration with one another.

4,392,282

LOCK FOR SAFETY BELTS

Franz Wier, Göggingen, Fed. Rep. of Germany, assignor to REPA Feinstanzwerk, Alfdorf, Fed. Rep. of Germany

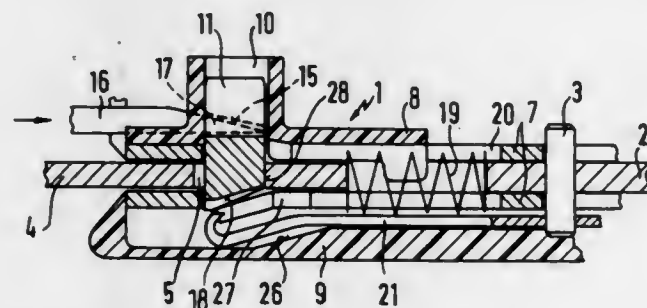
Filed Mar. 3, 1981, Ser. No. 240,154

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1980, 3008298

Int. Cl.³ A44B 11/16

U.S. Cl. 24—230 AL

16 Claims



1. Lock for a safety belt comprising a belt lock with spaced plates defining an insertion path, a plug-in tongue for insertion in the insertion path, a latch movable transversely to the insertion path to the locked position in which the latch is interposed

in the path of the tongue and to the open position in which the latch does not block passage of the tongue in the insertion path, a manually operated pressure element to move the latch from the locked position to the open position, spring means retaining the latch in the open position when the tongue is withdrawn from the insertion path, and an insertion lock in the belt lock activated by a pulling force on the plug-in tongue exceeding a predetermined value to restrain said spring means to permit withdrawal of the tongue from the insertion path and prevent renewed insertion after such withdrawal.

4,392,283

GROMMET CLIP

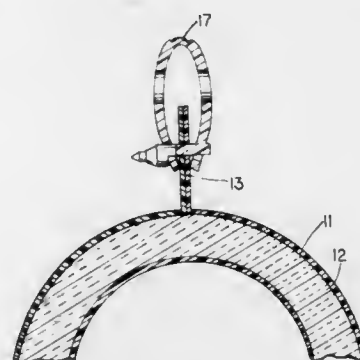
David R. Timmons, Newport Beach, Calif., assignor to Automation Industries, Inc., Greenwich, Conn.

Filed Oct. 31, 1980, Ser. No. 202,641

Int. Cl.³ A44B 21/00

U.S. Cl. 24—255 SL

2 Claims



1. In combination with a penetratable web, a grommet clip for penetrating said web and providing hanger means therefor comprising:

- (a) a flat body having first and second portions adapted to be brought together along a single fold line thinner than the remainder of the body in one predetermined overlapping position,
- (b) a connecting hole in the first body portion remote from the fold line,
- (c) a pointed snap-in pin projecting from the second body portion remote from the fold line for forcibly penetrating the web and the connecting hole when the body portions are in said overlapping positions to lock the body portions together about the penetrated web,
- (d) finger guard extension means integral with said first body portion and projecting outwardly from that side of the flat body opposite the projecting pin for preventing finger contact with the pointed pin as the body portions are locked together about the penetrated web, and
- (e) first and second eyelet holes located in the respective body portions which are aligned to receive suspension means when the body portions are in said interlocked overlapped position.

4,392,284

WATCHBAND ENDPiece WITH CAPTURING BEAD

Joseph R. LePage, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Jul. 20, 1981, Ser. No. 284,899

Int. Cl.³ A44C 5/18

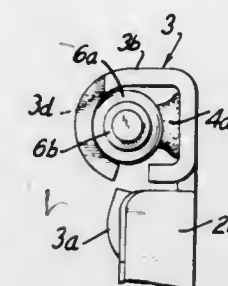
U.S. Cl. 24—265 B

8 Claims

1. In a watch band endpiece construction, the combination of:

- (a) tubular endpiece member having open ends and an access opening intermediate the ends,

- (b) a resilient capturing bead deposited inside said endpiece member opposite the access opening therein, and



- (c) a connector bar member retained inside said endpiece member by frictional engagement with said capturing bead.

4,392,285

DEVICE HAVING YARN PASSAGE OF SPECIFIED DIMENSIONS FOR INTERLACING FILAMENTS OF MULTIFILAMENT YARN

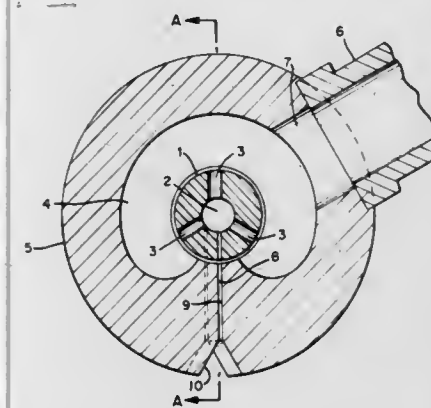
Wilbur L. Stables, Matoaca; David Pendlebury, Chester; Anthony M. Saich, Colonial Heights, all of Va., and Maxwell C. Hamlyn, Cary, N.C., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Oct. 19, 1981, Ser. No. 312,587

Int. Cl.³ D02J 1/08

U.S. Cl. 28—276

4 Claims



1. An improved apparatus for commingling multifilament yarn comprising an elongated body having
 - a straight yarn passageway passing through said elongated body, said yarn passageway having an effective diameter of from about 1/4 inch to 5/16 inches;
 - at least three orifices substantially equally spaced about the periphery of said body at substantially the same level, said orifices having a diameter of from about 0.060 inches to 0.080 inches;
 - at least two of said orifices having an extended centerline offset to one side from the radius of a circle of the effective diameter of a cross section of said yarn passageway at the orifice level and at least one of said orifices centerlines offset in a direction counter to the said other offset orifices, and so that none of said extended centerlines intersect the center of said effective diameter also provided that the intersection of the extended centerlines forms a polygon which must have a side nearer to the center of said effective diameter than an apex, also provided that the polygon side must measure greater than 0.1 percent but less than 7.5 percent of the effective diameter, and said side must be at a distance greater than 0.1 percent but less than 5.0 percent of the effective diameter from the center of said effective diameter;
- said orifices communicating with a source of high pressure fluid so that any yarn passing linearly through said passageway would have continuous filaments commingled with one another.

4,392,286

APPARATUS FOR TAKING UP A BUNDLE OF FILAMENTS

Satoshi Yakushiji; Atsushi Yamamoto, both of Matsuyama; Yukio Kitamura, Kobe, and Nobuo Yoshioka, Iwakuni, all of Japan, assignors to Teijin Limited, Tokyo, Japan

Continuation of Ser. No. 892,418, Mar. 31, 1978, abandoned.

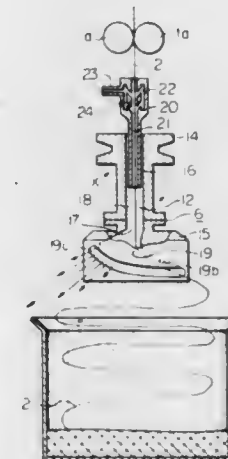
This application Jan. 30, 1981, Ser. No. 229,940

Claims priority, application Japan, Apr. 5, 1977, 52-38138

Int. Cl.³ B65H 54/82

U.S. Cl. 28—289

17 Claims



1. An apparatus for taking a bundle of filaments from a supply source thereof in a container, the apparatus including a rotary member mounted for rotation about a vertical axis and having a guide passage formed therein, the guide passage extending from an entrance opening coaxial with the vertical axis at the top of the rotary member to a discharge opening displaced downwardly and radially outward from the entrance opening, means for rotating the rotary member about the vertical axis in a predetermined direction, and an ejector for sucking in a bundle of filaments from a supply source and delivering the bundle of filaments in a stream of compressed air into the entrance opening of said guide passage for ejection from the discharge opening thereof along a spiral locus, wherein the improvement comprises:

- said guide passage of the rotary member including a vertical upper portion extending from the entrance opening at the top of the rotary member; and
- a lower portion comprising a gradually spreading passage having a front wall with respect to the rotational direction of said rotary member extending from a turning point at the lower end of the vertical upper portion to the discharge opening of the guide passage on a peripheral face of said rotary member and a rear wall extending downwardly and outwardly from said turning point at the lower end of the vertical upper portion, the position of said rear wall at said discharge opening being located below the position of said front wall at said discharge opening, the rear wall of said gradually spreading passage diverging smoothly and continuously from the front wall with increasing distance in the radial direction such that said filament-bundle is guided along the rear wall of said lower portion of the guide passage, while said compressed air stream is discharged along the front wall of said lower portion of the guide passage, whereby the discharged air stream is diverted from the path followed by the ejected bundle of filaments.

4,392,287

QUARTZ RESONATOR PROCESSING SYSTEM

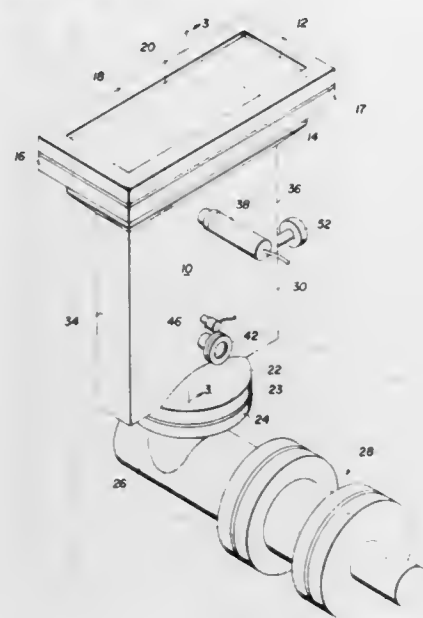
Roswell D. M. Peters, Rustburg, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 1, 1980, Ser. No. 174,771

Int. Cl.³ H01L 41/22

U.S. Cl. 29—25.35

18 Claims



1. Apparatus for processing quartz crystal resonators in a relatively high vacuum environment, comprising:
 - a unitary processing chamber including means for evacuating said chamber during a multi-step fabrication procedure;
 - a rotatable resonator component holder, for at least one set of resonator components including a frame containing a resonator element, cover means therefore and a separator element for positioning cover means in spaced-apart relationship adjacent said frame, said holder being located in said chamber and removable therefrom;
 - means for rotating said holder past a plurality of processing stations;
 - means located at a first of said plurality of processing stations for applying a metallization pattern defining electrode means on said resonator element;
 - means located at a second of said plurality of processing stations for positioning said cover means on said frame including an actuator means for moving said cover means past said separator element and into registration with said frame; and
 - means located at a third of said plurality of processing stations for sealing said cover means on said frame to provide a hermetically sealed unit.

4,392,288

DEVICE FOR ACTION ON WEBS OF MATERIAL WITH AT LEAST ONE CYLINDER

Helmut Anstötz, Tönisvorst; Klaus Kubik, Krefeld, and Heinz Paulussen, Mönchengladbach, all of Fed. Rep. of Germany, assignors to Eduard Küsters, Krefeld, Fed. Rep. of Germany

Filed Jun. 29, 1981, Ser. No. 278,457

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1980, 3024570

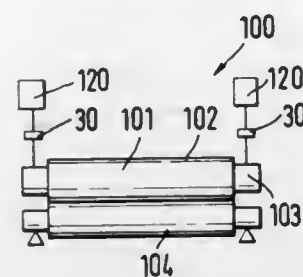
Int. Cl.³ B21B 13/14

U.S. Cl. 29—116 AD

10 Claims

1. In a device for acting on webs of material comprising: at least one roll, which comprises a revolving hollow cylinder constituting the working roll circumference; a crosshead going through the cylinder with spacing on all sides, and against which the hollow cylinder is braced by means of a fluid pressure medium contained in its interior between the crosshead and the inside of the hollow cylinder in at least one chamber; force members which operate in the action plane of the roll and engage the ends of the crosshead protruding from the hollow

cylinder, or corresponding points of a counter roll; and a control for holding the forces exerted by the fluid pressure medium on the one hand and by the force members on the other hand substantially in equilibrium, the improvement com-



prising: force measuring cells inserted between the force members and the ends of the crosshead or the corresponding points of a counter roll, respectively, which cells substantially transmit the entire exerted force; and means for feeding the signal of said cells to the control.

4,392,289

MANUFACTURE OF JEWELRY BY CASTING WITH PRESET GEMS

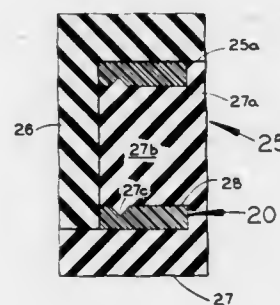
Franck Michaud, Lyons, France, assignor to Charles Hoffert of America, Inc., Miami, Fla.

Filed Jun. 1, 1981, Ser. No. 268,780

Int. Cl.³ B22C 7/02, 9/04; B22D 19/00

U.S. Cl. 29—160.6

9 Claims



1. In the manufacture of an article of jewelry cast in precious metal by a lost wax procedure and having a seat in which a gem is preset, the gem having a girdle and the seat having a sidewall formed with opposing undercut grooves in which portions of the girdle engage as gem retention means, the method comprising the steps of molding a wax model having a seat with a sidewall formed with opposing undercut grooves, the wax model being formed from a wax having a predetermined resiliency enabling flexing of the sidewall of said seat, snapping a gem having said girdle into set position in said seat by application of downward pressure on the gem to resiliently flex said sidewall permitting portions of the girdle to enter into engagement with said opposing undercut grooves, mounting the wax model with the gem set in the seat on a wax tree, embedding the wax tree in investment material in a flask, raising the temperature of the flask by predetermined increments and time intervals to a predetermined temperature to remove the wax and cure the investment material providing a mold cavity with the gem suspended therein, injecting molten precious metal into the mold cavity to form a metal casting in which the girdle of said suspended gem is engaged by undercut grooves of the metal casting, cooling the flask and its contents, and breaking the investment material after the flask and its contents cool to remove the precious metal article with the gem preset in said seat.

4,392,290

APPARATUS SEPARATING HYBRID SUBSTRATE

Andrzej J. Krzeptowski, San Carlos, Calif., assignor to GTE Automatic Electric Incorporated, Northlake, Ill.

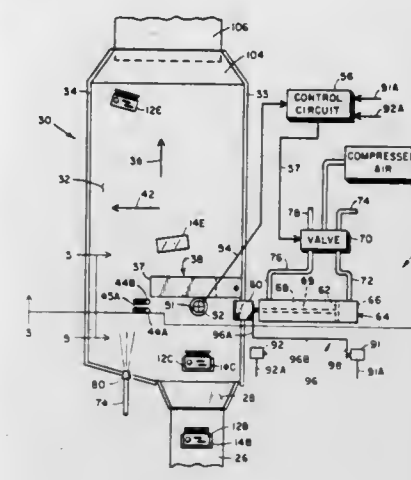
Division of Ser. No. 129,508, Mar. 11, 1980, Pat. No. 4,327,472.

This application Oct. 26, 1981, Ser. No. 314,826

Int. Cl.³ B23P 19/04

U.S. Cl. 29—239

8 Claims



1. Apparatus for separating a leaded hybrid substrate from a heat conductive carrier plate that it is sitting on, the flat bottom of the substrate being contiguous with and stuck to the flat top surface of the plate by semi-liquid solder flux following a reflow solder operation, comprising:

- a work table having a flat top, the flat bottom of the plate resting on the flat table top;
- a stop member in a fixed position on the table top and projecting a prescribed distance above it that is less than the thickness of the plate;
- first means for producing a first force in one direction in a plane that is generally parallel to the table top and positioned above the latter for being applied to a non-leaded edge of the substrate that is adjacent to a leaded side thereof rather than to the edge of a plate of a stacked pair thereof, the first force exerted on the edge of a substrate moving the plate of a stacked pair thereof against said stop member for restricting movement of the plate in the one direction so as to enable separation of the substrate and plate along the broad contacting surfaces thereof; and
- second means for releasing said stop member for allowing continued movement of the plate, or a flat part resting on the table top in the position of the plate, in the one direction when the force exerted on or translated to the plate or part by said first means and stop member exceeds a prescribed value.

4,392,291

METHOD FOR ASSEMBLING SLIDE FASTENER STRINGERS

Kenichiro Iai, Kurobe, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Aug. 31, 1981, Ser. No. 298,094

Claims priority, application Japan, Sep. 25, 1980, 55-133479

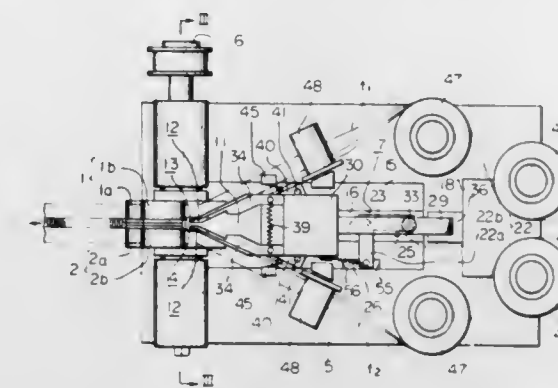
Int. Cl.³ B21D 53/50; B29D 5/00

U.S. Cl. 29—408

7 Claims

1. An assembling apparatus for slide fastener stringers comprising a pair of laterally disposed feed rollers for feeding a pair of laterally disposed slide fastener stringers successively each having spaced sections where there are no scoops in continuous rows of scoops; a binder member fixedly positioned on the feeding side of said feed rollers for engaging said stringers; a pair of laterally disposed claws for protruding into the spaced sections of the stringers and engaging with the leading edges of scoop rows directly following said spaced sections; a differential transmission mechanism for retarding the rotational velocity of the one of said two feed rollers which feeds the leading stringer with which one of said two claws is engaged while and

accelerating the rotational velocity of the other roller until the leading edges of said two stringers are aligned with each other; said claws being adapted to come out from the spaced sections of the stringers when the leading edges of the scoop rows of the stringers are aligned; characterized in that a pair of laterally disposed detecting levers are provided to protrude into the succeeding spaced sections of said stringers as they arrive and



then to come out therefrom; and a detector is provided to detect the movement of the detecting lever so as to judge whether the engagement of the pair of stringers is proper and to produce either a signal to protrude the claw into the spaced section directly succeeding the detecting lever if the stringer alignment is proper or a signal to stop operating the feed roller if said alignment is not proper.

4,392,292

FORMING PROCESS

Ian B. Irons, Reading, England, assignor to Johnson, Matthey & Co., Limited, London, England

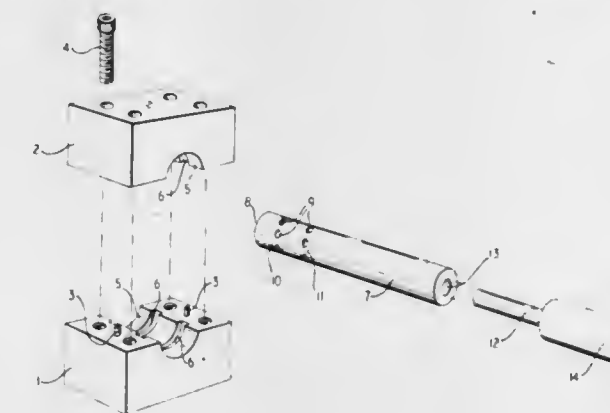
Filed Jun. 5, 1980, Ser. No. 156,853

Claims priority, application United Kingdom, Jun. 6, 1979, 7919705; Jul. 19, 1979, 79/25205

Int. Cl.³ B21D 26/02; B23P 17/00

U.S. Cl. 29—421 R

6 Claims



1. A method for forming couplings or individual sockets from ductile metal comprising:

- (i) inserting into a section of the ductile metal tubing a hollow mandrel having a blind end and containing one or more apertures, each aperture extending from the interior of the mandrel to the circumferential surface, the interior of the mandrel containing a plastic filler metal material;
- (ii) holding at least an end portion of said section of tubing in support means, the end portion containing the mandrel, the said support means having a supporting surface adapted to contact substantially the entire periphery of said end portion and a cavity being provided in said supporting surface, the relative position of the mandrel within said portion of tubing to said support means being such that the apertures are substantially in registration with the cavity,

(iii) inserting into the open end of said hollow mandrel a ram to apply pressure to the said plastic filler metal material, forcing the said material through said apertures to distend that portion of said ductile metal tubing in registration with said cavity into said cavity, the interior or the resulting distension being thereby simultaneously provided with a deposit of plastic filler metal material.

4,392,293

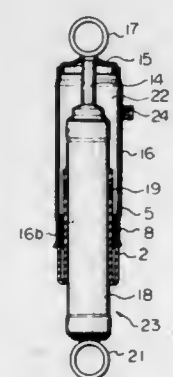
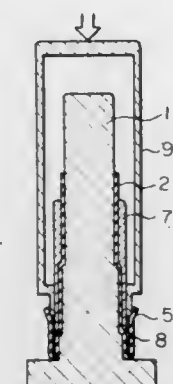
METHOD OF ASSEMBLING COMBINATION SHOCK ABSORBER AND AIR SPRING

Kiyoshi Yamaguchi, and Naoki Makita, both of Yokohama, Japan, assignors to Tokico Ltd., Kanagawa, Japan
Filed Oct. 2, 1980, Ser. No. 193,104

Claims priority, application Japan, Oct. 8, 1979, 54/129769
Int. Cl.³ B23P 19/00

U.S. Cl. 29—436

3 Claims



1. A method of assembling a combination shock absorber and air spring including a tubular shock absorber having an outer tube and a piston rod reciprocally projecting from one end of the outer tube, and an air spring consisting of a resilient diaphragm member having an outer wall portion connected to a cylindrical housing secured to the projecting end of the piston rod, an inner concentric wall portion secured to the outer tube of the shock absorber, and a rolling wall portion formed between said inner and outer wall portions, the method comprising the steps of:

expanding radially outwardly and rolling back one end portion of a tubular resilient diaphragm member to form the outer wall portion and the rolling wall portion, while preventing deformation radially inwardly of the remaining portion of said resilient diaphragm member, said expanding and rolling back of said resilient diaphragm member being performed by fitting said resilient diaphragm member on a mandrel having steppingly increasing outer diameters, and displacing said resilient diaphragm member along said mandrel while abutting said one end portion of said resilient diaphragm member against a surface of said mandrel and thereby inverting said resilient diaphragm member;

fitting the tubular resilient diaphragm member on the outer tube of the shock absorber;

securing the other end portion of the resilient diaphragm member to the outer tube of the shock absorber;

locating the free end of the outer wall portion of resilient diaphragm member in the cylindrical housing secured to the piston rod; and

securing the free end of the outer wall portion within the cylindrical housing by utilizing the retaining ring.

4,392,294

METHOD FOR MAKING POLYOLEFIN PIPE CONNECTOR SLEEVE

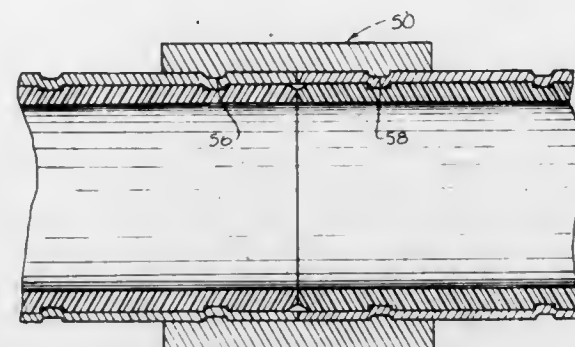
Steve Campbell, Manchester, Mo., assignor to Pipe Systems, Incorporated, Fenton, Mo.

Division of Ser. No. 144,668, Apr. 12, 1980, Pat. No. 4,310,184.
This application Mar. 9, 1981, Ser. No. 241,568

Int. Cl.³ B23P 11/02

U.S. Cl. 29—451

3 Claims



1. A method for press-fitting an open ended tube-like metallic connector sleeve upon a compressible polyolefin pipe end which comprises performing a mechanical rolling or pressing operation on the exterior of the connector sleeve to simultaneously form an external groove and an underlying registering rib at a plurality of axially spaced locations along said sleeve to form a plurality of grooves and ribs axially aligning the connector sleeve having a plurality of circumferentially extending axially spaced internal ribs with an open ended polyolefin pipe end having a plurality of external circumferential grooves axially spaced from one another the same distance as the aforementioned axial spacing of the ribs of said connector sleeve, the external diameter of said pipe end being slightly greater than the internal diameter of said connector sleeve, forcefully moving said pipe end and connector sleeve toward one another to engage one another and causing said pipe end to be compressed and fitted within said connector sleeve and interfitting said ribs of the connector sleeve with the grooves of said pipe end to provide a mating relation and butting the fitted connector sleeve and pipe end to a like connector sleeve and pipe end and connecting the same by a sleeve-like coupling having internal ribs engaging the external grooves in the butted connector sleeves.

4,392,295

METHOD AND APPARATUS FOR FORMING DRUM SEAM

Mitsuo Sasai; Kiyozu Tomikawa, and Kazuo Kajiwara, all of Tokyo, Japan, assignors to Nittetsu Steel Drum Co., Ltd., Tokyo, Japan

Filed Feb. 10, 1981, Ser. No. 233,285

Claims priority, application Japan, Oct. 27, 1980, 55/149281;
Dec. 4, 1980, 55/170203; Jan. 9, 1981, 56/1053

Int. Cl.³ B21D 39/00; B65D 6/34

U.S. Cl. 29—509

9 Claims

1. A method of forming a drum seam which comprises the steps of:

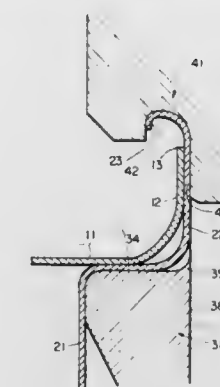
fitting a tray-like end plate, having a cylindrical portion forming an indented shape and an end plate flange formed

by the edge of the cylindrical portion extending outward from the edge of the cylindrical portion, into the end of a cylindrical drum body having a body flange extending outward from the edge of the cylindrical body perpendicular to the cylindrical axis of the body with said end plate flange overlapping and extending along and beyond the body flange;

fitting a seaming chuck having a cylindrical forming face into the tray-like end plate for holding the body and end plate together with the forming face of the seaming chuck against the inner surface of said cylindrical portion, and said seaming chuck having a fillet on the end adjacent the position where said end plate flange extends from said cylindrical portion, said fillet having an inclined surface extending from the forming face outwardly thereof;

rotating said seaming chuck for rotating the end plate and drum body around the cylindrical axis of the drum body; and

pressing a seaming roll having a circumferential forming groove therein opening toward the forming face of said



seaming chuck radially inwardly toward the forming face of the seaming chuck for engaging the flanges and bending them over for interlocking them and forming them into a seam, the bending comprising circularly curving the body and end plate flanges along a first circular cross-sectional portion of the forming groove, then further circularly curving the body and end plate flanges along a second circular cross-sectional portion of the forming groove having a smaller radius of curvature than that of the first circular cross-sectional portion, repeating the two step curving actions on successively more radially inward portions of the flanges until the body and end plate flanges form a seven-fold seam, the inclined surface of the fillet facing the second circular cross-sectional portion of the forming groove diagonally across the seam being formed and supporting the corners of the flanges where they bend from the drum body and the cylindrical portion, respectively, and finally pressing the formed seam between the forming face of the seaming chuck and the bottom of the forming groove in the direction of the radius of the drum.

4,392,296

METHOD OF JOINING TWO METAL MEMBERS

Hisanobu Kanamaru; Akira Tohkairin, both of Katsuta; Hideo Tatsumi, Mito; Naotatsu Asahi, Katsuta, and Mitsuo Haginoya, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 3, 1980, Ser. No. 193,442

Claims priority, application Japan, Oct. 5, 1979, 54-129290
Int. Cl.³ B21D 39/00; B23P 11/00

U.S. Cl. 29—520

15 Claims

1. A method of joining two metal members, each having a joining surface arranged in such a manner that the joining surfaces of the two metal members are in spaced juxtaposed relation, by way of a third metal member comprising the steps of:

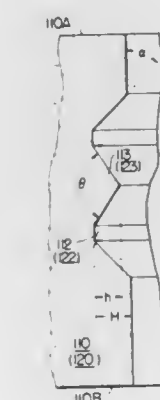
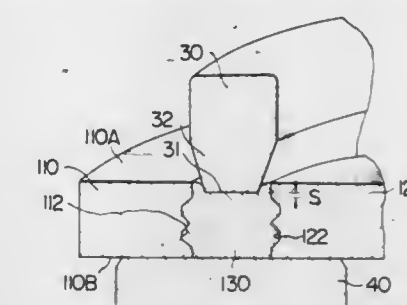
forming an annular groove on each of said joining surfaces of said two metal members;

inserting a metal ring, of which said third member is com-

prised, in a gap defined between the joining surfaces of said two metal members; and

applying pressure to said connecting ring to cause part of the material thereof to flow into said annular groove, to form a joint; wherein the improvement comprises the steps of: forming in each of said annular groove, simultaneously with or after forming said annular groove, at least one annular angled member having a height h that is substantially smaller than the depth H of said annular groove in accordance with the relationship $\frac{1}{2}H \leq h \leq (\frac{1}{2})H$ and being substantially triangular in shape in axial cross section.

6. A method of joining two metal members, each having a joining surface, one of said metal members having a higher deformation resistance than the other, comprising the steps of:



forming an annular groove on the joining surface of the one of said two metal members having higher deformation resistance; arranging the two metal members in such a manner that the joining surfaces of the two metal members are in juxtaposed relation; and applying pressure to the other metal member of lower deformation resistance to cause part of the material thereof to flow into said groove to form a joint;

wherein the improvement comprises the step of:

forming in said annular groove, simultaneously with or after forming said annular groove, at least one annular angled member having a height h that is substantially smaller than the depth H of said annular groove in accordance with the relationship $\frac{1}{2}H \leq h \leq (\frac{1}{2})H$ and being substantially triangular in shape in axial cross section.

4,392,297

PROCESS OF MAKING THIN FILM HIGH EFFICIENCY SOLAR CELLS

Roger G. Little, Bedford, Mass., assignor to Spire Corporation, Bedford, Mass.

Division of Ser. No. 209,541, Nov. 20, 1980, abandoned. This application Jun. 21, 1982, Ser. No. 390,172

Int. Cl.³ H01L 31/18

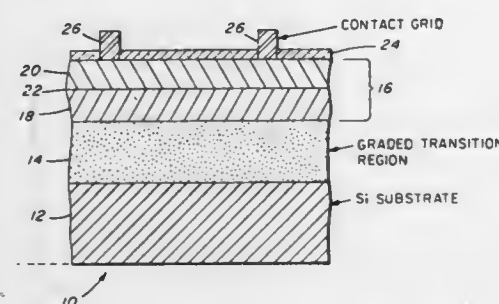
U.S. Cl. 29—572

9 Claims

1. A process of forming a high efficiency single-crystal, thin film, homojunction gallium arsenide solar cell on a single-crystal silicon substrate comprising:

(a) forming a single-crystal silicon substrate;

- (b) forming a graded transition region on said substrate by deposition of a thin layer of germanium directly on said silicon substrate and pulsing said layer with an electron beam to effectuate thereby zone refining and mixing of said germanium layer and said silicon substrate;
- (c) epitaxially growing a thin gallium arsenide film on said transition region;



- (d) doping said thin gallium arsenide film with one dopant species;
- (e) forming a homojunction in said thin, doped gallium arsenide film by introducing therein a second dopant species; and
- (f) forming front ohmic contacts on said gallium arsenide film.

4,392,298

INTEGRATED CIRCUIT DEVICE CONNECTION PROCESS

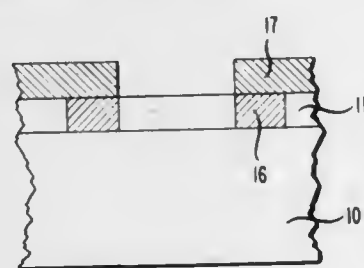
Robert A. Barker, Plainfield, and Edith C. Ong, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 27, 1981, Ser. No. 287,439

Int. Cl.³ H01L 21/28

U.S. Cl. 29—577 C

4 Claims



1. The method of forming electrical connections in an integrated circuit device comprising the steps of preparing an integrated circuit device comprising a silicon chip which includes a dielectric coating, providing a two-level photosensitive masking layer over the dielectric coating of which the first level is sensitive to ultraviolet light and the second level is sensitive to visible light, patterning said masking layer in accordance with the pattern of openings desired in the dielectric coating to permit connection therethrough by first irradiating with visible light and patterning the second level and then irradiating with ultraviolet light and patterning the second level, making openings in said coating in accordance with the pattern by reactive ion etching to provide substantially vertical sidewalls in the openings, depositing a conductive layer over the masking layer and in the openings in the dielectric coating of a thickness substantially to match the thickness of the dielectric coating, dissolving the masking layer, thereby lifting off the overlying portion of the conductive layer, while leaving a plug portion of the conductive layer in the opening in the dielectric coating, and forming over the dielectric coating a conductive layer which makes low resistance connection to the plug portion.

4,392,299 METHOD OF MANUFACTURING LOW RESISTANCE GATES AND INTERCONNECTIONS

Joseph M. Shaw, Cranbury, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 8, 1981, Ser. No. 223,493

Int. Cl.³ H01L 21/285

U.S. Cl. 29—590

4 Claims

1. A process for forming a low resistance refractory metal silicide on a substrate comprising the steps of: positioning the substrate in a reaction chamber maintained at a first temperature; depositing, in a single low pressure chemical vapor deposition step, a composite of a refractory metal and silicon on the substrate by simultaneously passing a gaseous mixture of both a refractory metal carbonyl and silane gas through the chamber and over the substrate; and heating the composite in a non-oxidizing atmosphere to a second temperature, higher than the first temperature, to form the silicide of the metal.

4,392,300

APPLICATOR TOOL FOR LOOSE MINIATURE SPRING SOCKETS

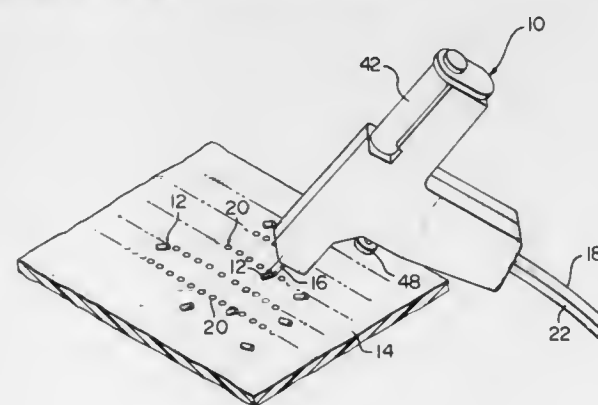
Timothy B. Billman, Carlisle, and Jon F. Kautz, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 22, 1981, Ser. No. 313,544

Int. Cl.³ H05K 3/30

U.S. Cl. 29—739

2 Claims



1. An application tool for picking up a loose miniature spring socket and inserting it into a hole in a printed circuit board, the tool comprising:
 - a frame consisting of a handle depending from an elongated perpendicular member;
 - control means in the handle with trigger means for activating the control means;
 - a nozzle at the forward end of the perpendicular member;
 - a reciprocating ram mounted in the perpendicular member and extending into the nozzle;
 - driving means to drive the ram, said means being controlled by the control means; and
 - means to supply a vacuum to the nozzle so that a socket is drawn into the nozzle and retained there so that the ram may be driven forward by the driving means to drive the socket out of the nozzle and into a hole in a printed circuit board.

4,392,301

DEVICE FOR INSERTING AND REMOVING CIRCUIT MODULES WITH MULTIPLE LEADS

John S. Hannes, Lisle, and Robert V. Harringer, Joliet, both of Ill., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Jun. 1, 1981, Ser. No. 268,612

Int. Cl.³ H05K 13/04, 3/30

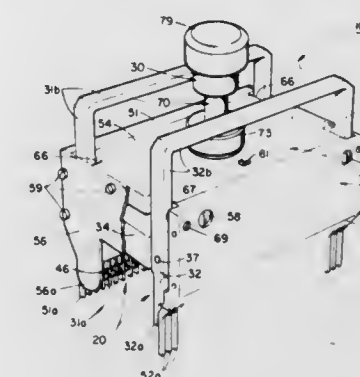
U.S. Cl. 29—741

11 Claims

1. A device for selectively inserting the leads of circuit

modules into and withdrawing them from lead-engaging sockets secured to an associated substrate, said device comprising: a gripping jaw assembly including a support member and a mutually disposed pair of gripping jaws, means mounting said jaws pivotally on said support member and spring means for biasing said jaws in a direction toward each other, with each of said jaws having a corresponding notch formed in the inner surface thereof for receiving and supporting a peripheral edge portion of a circuit module when positioned between and gripped by said jaws;

a stationary support assembly including a mutually disposed pair of sidewall members for receiving the gripping jaw assembly therebetween, each of said sidewall members having a downwardly extending finger positioned adjacent a different one of said gripping jaws, and being formed at the lower end thereof to be selectively supported on an aligned socket, even when the socket is



positioned beneath the associated jaw, and on an associated socket-supporting substrate, means on said sidewall members for engaging the gripping jaws to hold said gripping jaws against said biasing means in position adjacent to said fingers, and for linear movement relative to said fingers;

means extending from said jaws for pivoting said jaws away from said engaging means and against said biasing means to move said jaw notches away from each other to receive the peripheral edge at the circuit module; and

an actuable mechanism mounted on said stationary support assembly, coupled to said gripping jaw assembly, and having means moveable, in one of two directions, to impart precisely controlled linear displacement of said gripping jaws, and a given circuit module when clamped therebetween, in a related direction relative to said stationary support assembly while said fingers engage and hold the sockets.

4,392,302

METHOD OF MANUFACTURING A MOVABLE CONTACT MEMBER

Shigemasa Saito, Gyoda, Japan, assignor to Fuji Electric Company, Ltd., Kanagawa, Japan

Filed Dec. 23, 1980, Ser. No. 219,992

Claims priority, application Japan, Dec. 31, 1979, 54-172073

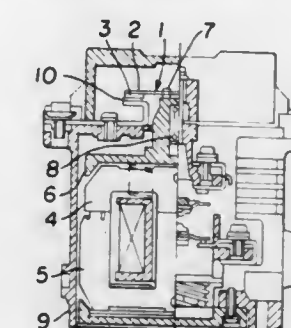
Int. Cl.³ H01R 43/02

U.S. Cl. 29—879

6 Claims

1. A method of manufacturing a movable contact member formed from a flat spring and a contact tip bonded to it, which comprises the steps of: age-hardening to a one-half hard temper a solution-treated

age-hardenable copper alloy that is to be used as the material of the flat spring, grinding the surface of the age-hardened spring material,



applying a rust-preventing film to the spring material, and bonding the contact tip to the spring material.

4,392,303

ONE-PIECE RAZOR HANDLE

John T. Ciaffone, Bridgeport, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.

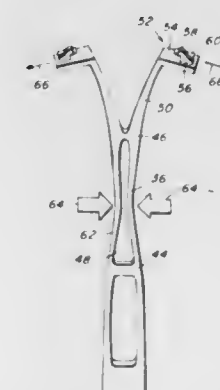
Continuation of Ser. No. 108,742, Dec. 31, 1979, abandoned.

This application Aug. 5, 1981, Ser. No. 290,263

Int. Cl.³ B26B 21/52

U.S. Cl. 30—85

1 Claim



1. In a razor system of the type including a separable blade cartridge having one or more blades each having a single cutting edge, said cartridge being formed with ribs having apertures and a slide, said cartridge being operable dually and selectively to make a pivotal connection with a handle having fingers or stub shafts insertable in said apertures and to make a sliding connection with a handle having a track for engaging said slide;

an improved plastic handle structure providing an alternative connection with said blade cartridge: comprising a pair of flexible arms joined to define a yoke, each yoke formed with a stub shaft operable to engage a mating aperture in said cartridge ribs and pads individual to each arm adjacent each stub shaft cooperating with mating ribs on said cartridge to block pivoting of the cartridge.

4,392,304

UNIVERSAL MANUAL GRAFTING DEVICE

Laszlo Plesa, Szentendre, Hungary, assignor to Aranykalasz Mgtz, Rakve, Hungary

Filed May 14, 1981, Ser. No. 263,604

Claims priority, application Hungary, May 20, 1980, 1254

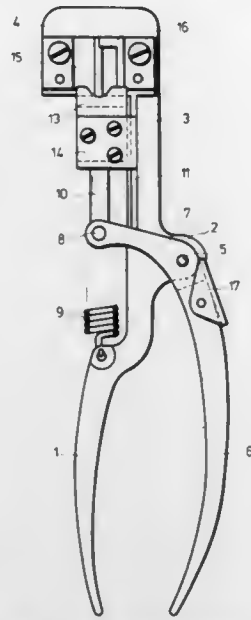
Int. Cl.³ A01G 1/06

U.S. Cl. 30—178

4 Claims

1. A cutting tool for grafting comprising first and second members pivotally interconnected at a common pivot, each member including a handle portion on one side of the pivot and a working portion on the other side, the working portion of the second member being connected with the handle portion of the first member via a spring and being also pivotally connected

with one end of an arm whose other end is pivotally joined with a movable workpiece locating member slidably guided



along the length of the working portion of the first member toward and away from a cutting edge attached to the first member.

4,392,305

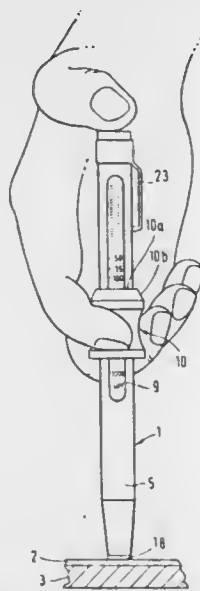
PENCIL SHAPED MAGNETIC COATING THICKNESS GAUGE

Hans Nix, and Herbert Szary, both of Cologne, Fed. Rep. of Germany, assignors to Elektro-Physik Hans Nix & Dr. Ing. E. Steingrover, K.G., Cologne, Fed. Rep. of Germany
Filed May 12, 1981, Ser. No. 263,041

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1980, 3025783; Jul. 8, 1980, 8018275[U]
Int. Cl.³ G01B 7/06

U.S. Cl. 33—169 F

17 Claims



1. Magnetic coating-thickness gauge for measuring the thickness of a non-magnetic coating on a ferromagnetic substrate of the type wherein a permanent magnet is suspended by spring means for axial movement within a tubular housing resembling a pencil, said housing being provided with an axially extending slot, the magnet having a pole surface for contact with a coating to be measured on said substrate through an opening at one end of the housing, manually operable slide means encircling the exterior of the housing for slidable movement along the length of the housing in a generally straight line, connecting means extending through said slot between the slide means and spring means to permit the slide means to exert increasing force on said magnet when the slide means is moved away from said one end of the housing to dislodge the magnet from said coating and scale means on said

housing with said slide means to denote coating thickness as a function of the force exerted on said magnet, said slide means including friction means engageable with a surface of the housing to hold the slide means in position when released by an operator of the gauge.

4,392,306

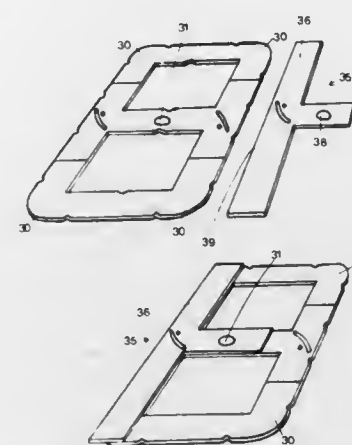
LETTERGUIDE

George A. Johnstone, P.O. Box 6, Grantham, Q.4347, Australia
Filed May 29, 1981, Ser. No. 268,582

Claims priority, application Australia, Jun. 9, 1980, PE03953
Int. Cl.³ B43L 13/20

U.S. Cl. 33—174 B

8 Claims



1. A stencil comprising a substantially rectangular plate and a corner forming piece wherein the substantially rectangular plate consists of two regions of substantially equal surface area, each of said regions having an aperture located substantially centrally within the region, the substantially rectangular plate being provided with indication means proximal to its perimeter, wherein, at least one corner formed by the intersection of any two sides of the perimeter of the plate is a radiused corner and wherein the corner forming piece may be pivotally mounted on the rectangular plate and has at least one right angle corner formed on its perimeter such that one of the said radiused corner(s) of the said plate may have one of the said right angle corner(s) of the corner forming piece substantially superimposed thereover so as to form a right angle corner thereon.

4,392,307

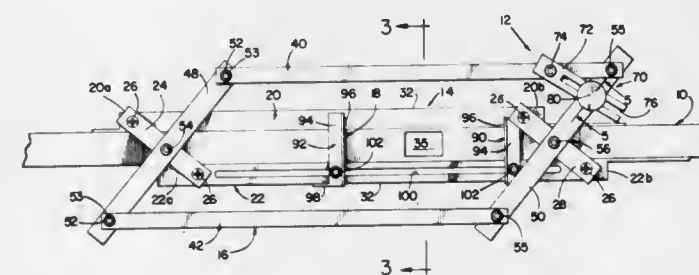
ADJUSTABLE FACE-PLATE TEMPLATE

William Wightman, Jr., 1034 Rimpau Ave., Corona, Calif. 91720
Filed Dec. 4, 1981, Ser. No. 327,363

Int. Cl.³ B27G 17/08

U.S. Cl. 33—197

7 Claims



1. An adjustable face-plate template for forming a recess in a door to receive a door-lock face-plate, the template comprising:

- a clamping means defined by a first parallelogram structure adapted to be clamped to the longitudinal edge of a door;
- a first guide means defined by a second parallelogram structure, said second parallelogram structure being operably connected to said first parallelogram structure, each struc-

ture thereof being independently adjustable relative to the other;
a second guide means adjustably mounted to said clamping means; and
locking means attached to said first guide means to secure said second parallelogram structure in its respective position relative to the forming of a specific recess configuration.

4,392,308

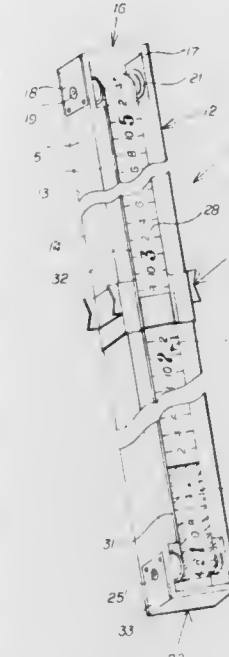
LEVEL ROD FOR GRADING

Theodore W. Case, 778 Center St., Wallingford, Conn. 06492
Filed Oct. 16, 1978, Ser. No. 951,600

Int. Cl.³ G01C 15/06

U.S. Cl. 33—293

10 Claims



1. A device for use in grading operations for determining and visually indicating the depth of cut or fill required to establish a desired grade level in one place relative to grade level indicating means positioned in another place, the device comprising:

- an elongated rod having front, rear and side surfaces;
- an endless band extending longitudinally around said elongated rod along said front and rear surfaces, said endless band comprising a first band portion of a given color and having a first set of graduations ascending from zero at one end thereof to a first value at the other end thereof and a second band portion of a color clearly distinguishable from said given color and having a second set of graduations ascending from zero at one end thereof to a second value at the opposite end thereof, said one end of said first band portion being attached to said one end of said second band portion and said opposite end of said first band portion being attached to said opposite end of said second band portion;

mounting means supporting said endless band on said elongated rod and accommodating circumvolutionary movement therearound; and

- a slide mechanism mounted for longitudinal sliding movement on said elongated rod, said slide mechanism comprising clamp means for selectively and alternatively either securing said slide mechanism to said endless band so as to prevent relative movement therebetween or releasing said slide mechanism from said endless band so as to allow relative movement therebetween, said slide mechanism while secured to said band being slidable longitudinally to establish generally horizontal alignment between said slide mechanism and said indicating means to visually indicate a length on said endless band between said zero and one of said graduations, said length corresponding to the depth of the required cut or fill.

4,392,309

APPARATUS FOR HEAT TREATING A CONTINUOUSLY MOVING WEB

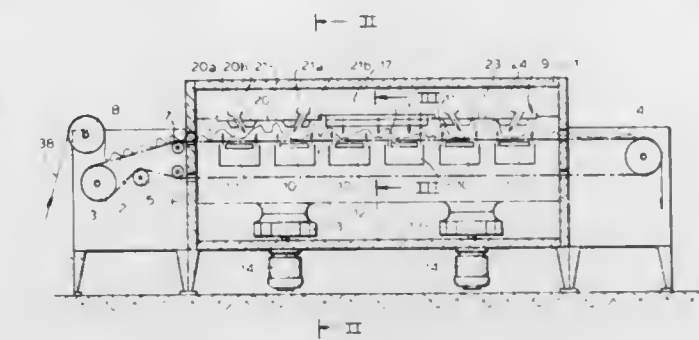
Alfons Schrader, Remscheid-Lennep, and Waldemar Schreiner, Winsen, both of Fed. Rep. of Germany, assignors to Babcock Textilmaschinen GmbH, Sevetal, Fed. Rep. of Germany
Filed Sep. 14, 1981, Ser. No. 301,974

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1980, 3036669

Int. Cl.³ F26B 13/06

U.S. Cl. 34—54

8 Claims



1. An apparatus for heat-treating an elongated textile web, comprising:

- a gas-pervious conveyor belt having a stretch defining a treatment path having an upstream end and a downstream end;
- means for feeding the web to said upstream end and for advancing said belt to advance said web toward said downstream end along said path;
- a plurality of upwardly directed lower slot nozzles underneath said stretch along said path, said lower nozzles being generally perpendicular to said path;
- a plurality of downwardly directed upper slot nozzles above said stretch along said path, said lower slot nozzles being transverse to at least some of said upper slot nozzles;
- means for feeding a hot gas alternately to said upper and lower nozzles; and
- a plurality of distribution boxes supporting said stretch and each formed with two such lower nozzles, some of said upper nozzles extending generally parallel to said path and the balance of said upper nozzles extending transverse to said path.

4,392,310

DRYING APPARATUS

Charles M. Hohman, Granville; Mark A. Propster, Gahanna, and Stephen Seng, Bladensburg, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed Jun. 18, 1981, Ser. No. 274,968

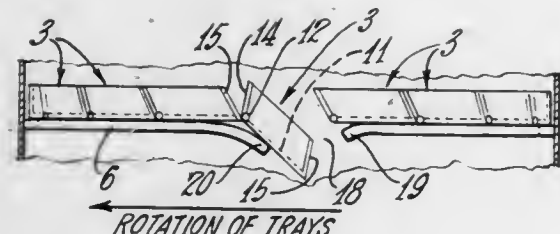
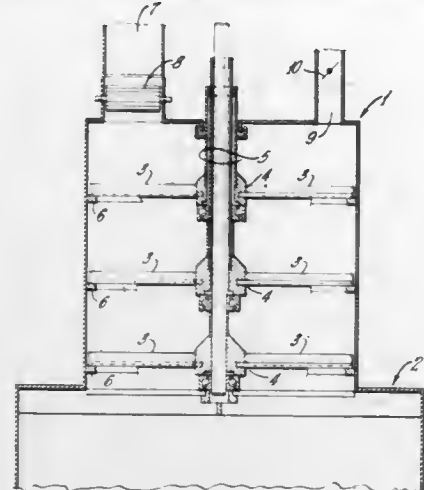
Int. Cl.³ F26B 17/32

U.S. Cl. 34—172

9 Claims

- 1. A particulate dryer comprising:
 - (a) a vessel having a gas inlet and outlet and a particulate inlet and outlet;
 - (b) at least one porous tray positioned within said vessel and adapted for horizontal rotation within said vessel, said tray comprising a plurality of sections, each of said sections comprising upstanding walls comprising a leading wall, a trailing wall, an inner wall and an outer wall, said inner wall, said outer wall, and said trailing wall each being separate from said leading wall and each fixedly attached to a porous bottom surface, and a hinged support affixed to the leading edge of said section, said section leading edge comprising the bottom part of said lead wall and the leading part of said porous bottom surface;
 - (c) an inward rotatable support and an outer discontinuous support of said sections; and,
 - (d) means for rotating said tray within said vessel to sequentially superimpose said sections above the discontinuous

portion of said outer support and to pivot said sections, exclusive of said leading wall, downwardly at said discon-



tinuous portion to discharge particulate matter from said section.

4,392,311

EXPANDABLE OVERSHOE

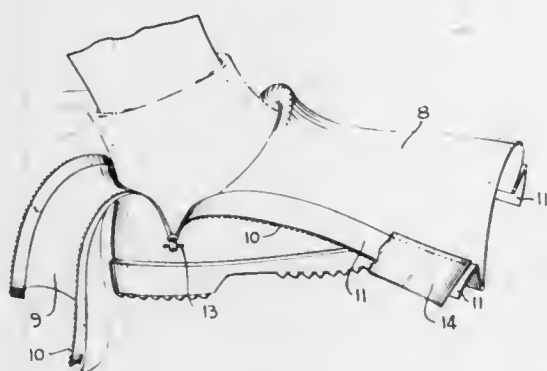
Warren P. Rudolf, and Susan A. Rudolf, both of 8210 Brandon Dr., Millersville, Md. 21108

Filed Aug. 3, 1981, Ser. No. 289,764

Int. Cl.³ A43B 1/10, 11/00

U.S. Cl. 36—7.3

7 Claims



1. An overshoe comprising a sole having toe, arch, and heel portions and an upper secured to said sole, said upper comprising a forward portion extending from about said arch portion of the sole to the end of the toe and an ankle portion of flexible material extending from about said arch portion to the end of the heel portion and upward to below the knee of the wearer, said ankle portion being divided into front and back sections by two opposing longitudinal apertures each extending vertically on either side of said ankle portion from just about said heel portion to the top of said ankle portion to facilitate putting on or taking off the overshoe, each of said apertures being adapted to be closed by respective closure means extending the length thereof; the back section of said ankle portion being adapted when the apertures are open to provide means for grasping said overshoe from the rear further to facilitate pulling it on or removing it.

4,392,312

OUTSOLE FOR ATHLETIC SHOE

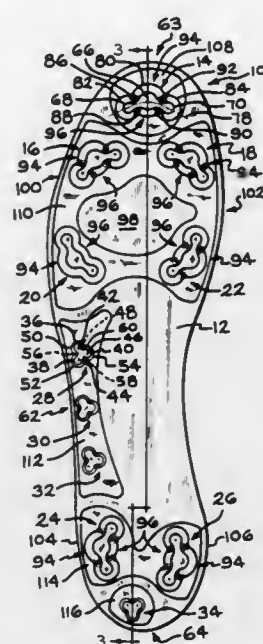
Kevin J. Crowley, Newburyport, Mass., and Channing Souther, Chesterfield, Mo., assignors to Converse Inc., Wilmington, Mass.

Filed Oct. 14, 1981, Ser. No. 311,484

Int. Cl.³ A43C 15/02

U.S. Cl. 36—67 R

8 Claims



1. An outsole for an athletic shoe, comprising: a substantially planar outsole member having a plurality of projections therefrom; said projections including a plurality of first projections and a plurality of second projections, said second projections being longer than said first projections; each said first projection having a shape characterized by three identical partially-overlapping frustoconical bodies, each having a major axis, said major axes being parallel to each other, said major axes defining the apexes of an equilateral triangle, said shape including fillet portions connecting the sides of said identical frustoconical bodies; each said second projection having a shape characterized by three partially-overlapping frustoconical bodies of equal height and unequal volume, two said bodies being smaller than a third said body, said third body being disposed between said smaller bodies, each said body having a major axis, said major axes defining points on an arc, said shape including fillet portions interconnecting the sides of said frustoconical bodies, said shape defining a convex side and a concave side.

4,392,313

SHOE FOR USE WITH A CROSS-COUNTRY SKI

Josef Linecker, Rosengasse 5, A 5230 Mattighofen, Austria

Division of Ser. No. 892,770, Apr. 3, 1978, Pat. No. 4,235,452.

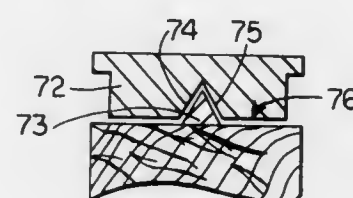
This application Feb. 19, 1980, Ser. No. 122,698

Claims priority, application Austria, Apr. 13, 1977, 2578/77; Feb. 9, 1978, 924/78

Int. Cl.³ A43B 5/04, 13/12

U.S. Cl. 36—117

20 Claims



1. A ski shoe for use with a cross-country ski having a web projecting from the ski surface and extending in the longitudinal direction of the ski, comprising a sole means of synthetic

resin, the sole means including a heel portion defining a recess of V-shaped cross section extending in said direction for engaging the web and thereby holding the heel portion on the ski against lateral displacement, and upwardly projecting lateral edges arranged only forwardly of the heel portion.

4,392,314

BOOM AND DIPPER STICK CONSTRUCTION

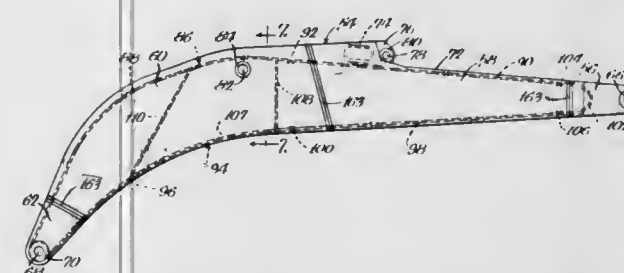
Allan J. Albrecht, Rothschild, and Richard C. Van Ooyen, Schofield, both of Wis., assignors to J. I. Case Company, Racine, Wis.

Filed Feb. 16, 1982, Ser. No. 349,003

Int. Cl.³ E02F 5/02

U.S. Cl. 37—103

13 Claims



1. In an earth working vehicle having a self-powered frame structure, a platform supported on said frame structure, a boom having a first end pivotally secured to said platform about a substantially horizontal axis, a dipper stick pivoted intermediate its ends about a substantially horizontal axis to a second end of said boom, a material handling attachment pivoted to a first end of said dipper stick about a substantially horizontal axis, a first fluid motor means extending between said platform and an intermediate portion of said boom, a second fluid motor means extending between an intermediate portion of said boom and a second end of said dipper stick, and a third fluid motor means extending between an intermediate portion of said dipper stick and said material handling attachment; an improved boom construction comprising: a pair of spaced apart outside side plate assemblies, said outside side plate assemblies having front and rear connecting ear plates which have first and second bearing means respectively connected thereto for receipt of pivot pins to connect same respectively to said platform and said dipper stick, said side plate assemblies having front and rear side plates which are secured together in an end to end abutting relationship and secured between said connecting ear plates in an end to end abutting relationship, said front side plates having third bearing means mounted therebetween for pivotal receipt of said second fluid motor means, said rear side plates having fourth bearing means mounted therebetween for pivotal receipt of said first fluid motor means; a top plate assembly secured between the upper portions of said side plate assemblies; a bottom plate assembly secured between the lower portions of said side plate assemblies; an inside rear plate secured between said top plate assembly and said bottom plate assembly and said rear side plates rearward of said fourth bearing means; an inside forward plate secured between said top plate assembly and said bottom plate assembly and said rear side plates forward of said fourth bearing means; and a pair of spaced inside center plates secured between said inside rear plate and said inside forward plate so as to form a box structure therewith, said fourth bearing means extending through and secured to said rear side plates and said inside center plates.

4,392,315

DESTRUCTION AND DYE RESISTANT TAG; TAGGED TEXTILE ARTICLE AND METHOD OF IDENTIFYING TEXTILES SUBJECT TO A DYEING AND FINISHING PROCESS

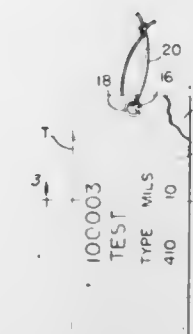
William A. Irving, and Robert E. Thornton, Jr., both of Knoxville, Tenn., assignors to Standard Knitting Mills, Inc.

Filed Jan. 12, 1982, Ser. No. 338,960

Int. Cl.³ G09F 3/02; B32B 27/06, 27/34; D21D 3/00

U.S. Cl. 40—27

29 Claims



1. A method of identifying textile units subject to a chemical treatment process including dyeing of the unit comprising: (a) applying color-contrast indicia directly onto an aramid paper layer of an abrasion and dye resistant tag, (b) attaching the tag to a textile unit, the (c) subjecting said textile unit with said tag attached to the chemical treatment process for dyeing and treating said unit, said color-contrast indicia remaining visible after completion of said process and wherein said aramid paper layer consists essentially of a nonwoven, nonfused commingled mixture of floc of a nonfusible aromatic polyamide and fibrils of a nonfusible aromatic polyamide.

4,392,316

CEILING SUSPENDED PRODUCT DISPLAY

Paul D. Thomas, 208 S. College, McKinney, Tex. 75069

Filed Jan. 31, 1980, Ser. No. 117,108

Int. Cl.³ G09F 7/22, 15/00, 1/08; A47G 1/16

U.S. Cl. 40—617

35 Claims



1. A ceiling suspended product display comprising: a plurality of display panels having sale product mounted thereon, each display panel further having at least one eyelet formed therein; hinge means pivotally interconnecting said display panels at

adjacent edges of said display panels, said hinge means permitting said display to be folded in a compact form for storage or shipment with said display panels in facing relationship;
a ceiling hook connected to a ceiling;
suspension means suspending said display panels from said ceiling hook, said suspension means being connected to said display panels at said eyelets, said suspension means having swivel means permitting said display panels to rotate relative to said ceiling hook; and
each of said display panels being pivotal about said hinge means to unfold said display with the edges of two of said display panels opposite the hinged edges abutting to form a multi-sided structure, the said product being mounted on the side of each of said display panels facing outward when said display is unfolded, said display permitting said display panels to rotate relative to said ceiling hooks to attract attention, the multi-sided structure maintaining the product in view continuously during rotation.

4,392,317

SIGN LETTER CONSTRUCTION

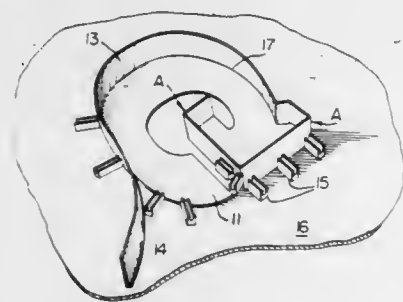
Edwin F. Boothman, 117 Marion Dr., Sherwood Park, Alberta, Canada

Filed Jul. 1, 1981, Ser. No. 279,263

Claims priority, application Canada, Nov. 10, 1980, 364402

Int. Cl.³ G09F 7/02

U.S. Cl. 40—618



1. A sign letter structure, comprising:
a first letter-form member, cut from a generally thin, rigid sheet material,
a second letter-form member, having an outer profile corresponding to that of the first letter-form member and cut from a lightweight, rigid sheet material,
a thin, pliable plastic strip material, having a lip on one edge, such strip material being bent around the periphery of the letter-form members so as to conform to the outer profile of those members, the thickness and depth of the lip being such that it readily deforms at sharp bends in the strip material, and
securing means for securing the first letter-form member to the interior side of the strip material at a position abutting the lip on the one edge thereof and the second letter-forming member to the interior side of the strip material near the other edge thereof, the members being maintained in parallel spaced relation.

4,392,318

SAFETY STRAP FOR HANDGUNS

William J. Daniels, 3229 Wallace, Kansas City, Mo. 64129

Filed Sep. 15, 1981, Ser. No. 302,363

Int. Cl.³ F41C 27/00

U.S. Cl. 42—1 LP

10 Claims

1. A safety strap arrangement for a handgun having a gun body and an exposed hammer that can be cocked to prepare the gun for firing, said safety strap arrangement comprising:
an elongate flexible strap adapted to be drawn around the gun body and having opposite ends positionable adjacent one another when the strap is drawn around the gun body in a taut condition;
means in a selected portion of said strap providing an open-

ing in the strap adapted to fit over the hammer when same is cocked and the strap is applied to the gun and drawn around the gun body, said selected portion of the strap being located between the hammer and gun body to prevent firing of the hammer when said opening is fitted over the hammer; and



releasable fastening means for releasably fastening said opposite ends of the strap together to maintain the strap on the gun in a taut condition with said opening of the strap fitted over the hammer, thereby preventing firing of the gun until said fastening means is released and the strap is removed from the gun.

4,392,319

SAFETY DEVICE FOR THE TRIGGER MECHANISM OF A SHOT-GUN OF THE GAS-PUMP TYPE

Leonardo Ottolini, Brescia, Italy, assignor to Luigi Franchi S.p.A., Fornaci, Italy

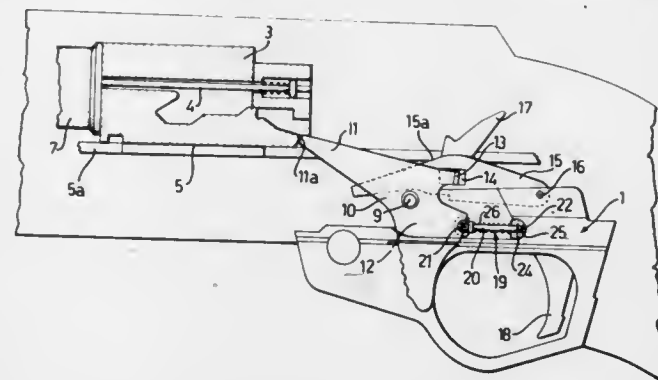
Filed Oct. 20, 1981, Ser. No. 313,084

Claims priority, application Italy, Nov. 10, 1980, 25858 A/80

Int. Cl.³ F41C 11/06

U.S. Cl. 42—69 B

3 Claims



1. In a gas-pump-type shot gun having a firing chamber; a breechblock carrier supporting a breechblock for translational movement between a first position in which said firing chamber is closed and a second position in which said firing chamber is open; a trigger mechanism; and a stop member defining lever mounted on a pivot pin carried by a housing of said trigger-mechanism for pivotal movement about an axis perpendicular to the direction of movement of the breechblock carrier between an operative position, in which a free end thereof bears against said breechblock carrier when said breechblock is in said first position, and an inoperative position in which said free end lies out of the path of movement of said carrier,

a safety device for said trigger mechanism comprising a spring assembly pivotally connected at one end of said lever and at the opposite end to a fixed point on said shot gun, such that pivoting a said lever between said operative position and said inoperative position causes pivoting of said spring assembly between a first position and a second position respectively, said spring assembly defining a straight line of action which in said second position lies on one side of a straight line joining said fixed point to a point on said axis of the lever so that the spring assembly biases the lever towards said inoperative position, and said straight line of action of the spring assembly coinciding

with said straight line joining said fixed point to said point on said axis in the maximum loading condition of said spring assembly.

4,392,320

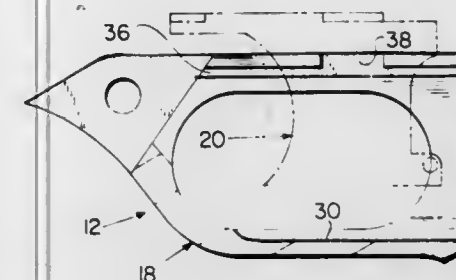
TRIGGER RETAINING AND STABILIZING MEANS

Robert L. Hillberg, 26 Mount Sanford Rd., Cheshire, Conn. 06410, and Frederick F. Stevens, 177 Brett Rd., Fairfield, Conn. 06430

Filed Apr. 29, 1982, Ser. No. 373,263

Int. Cl.³ F41C 17/00

U.S. Cl. 42—69 R



1. In a gun having a frame and a trigger supported in assembly in a guideway defined by the frame for reciprocal movement longitudinally of the frame between ready and firing positions the improvement comprising said frame having a longitudinally extending guide track communicating with said guideway and at least one opening communicating with said guideway and said guide track, said trigger having longitudinally spaced apart guide elements slidably received within said guide track and retaining said trigger in assembly with said frame within said guideway, said trigger having an assembly position relative to said frame wherein one of said guide elements is aligned with said one opening for movement through said one opening and said trigger is free to move into and out of assembled relation with said frame.

4,392,321

RIMMED CARTRIDGE MAGAZINE LOADER

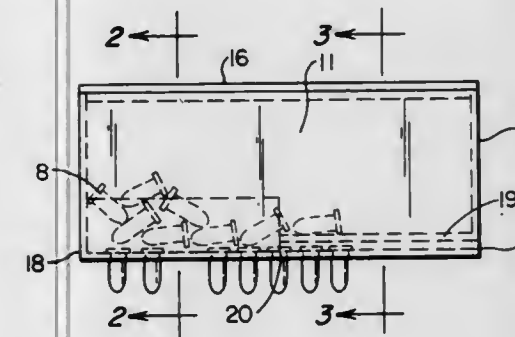
Jack L. Bosworth, 5674 Kingship Loop, Columbus, Ohio 43229

Filed Sep. 30, 1980, Ser. No. 192,461

Int. Cl.³ F42B 39/06

U.S. Cl. 42—87

6 Claims



1. A rimmed cartridge magazine loader comprising:
parallel elongated members forming a slot for slidably retaining cartridges by the rims thereof in the slot formed by said parallel members,
a portion of said slot formed by said members communicating with a bulk cartridge reservoir which contains means for directing the cartridges into said slot whereby the body of the cartridge can pass from the reservoir through the slot and the rim of the cartridge is retained by said elongated members,
a portion of said slot being closed on the back by means capable of slidably retaining the cartridges in the slot, said slot having an opening at the end of the closed portion

of the slot suitable for discharge of the cartridges into a magazine.

4,392,322

DISPOSABLE FLY TRAP

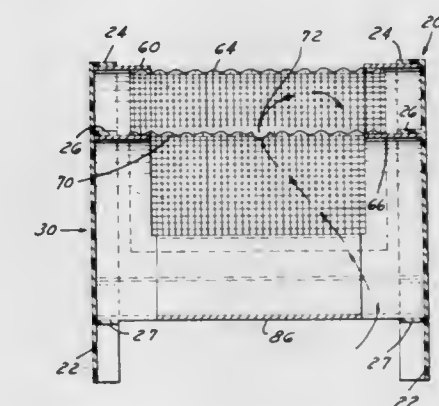
Robert J. Kaveloski, 39663 Balboa, Sterling Heights, Mich. 48078

Filed Aug. 6, 1981, Ser. No. 290,483

Int. Cl.³ A01M 1/10

U.S. Cl. 43—118

7 Claims



1. In a fly trap of the type utilizing spaced outer and an inner arch-shaped walls each having an outer light transmitting opening closed by a translucent sheet of material, and a base and fly inlet opening adjacent the base, that improvement which comprises:
(a) a pair of independent end plates each provided with spaced outer and an inner confining means extending inwardly from said plates, and
(b) a disposable central bridging unit of flexible material between said walls formed of a closed loop shaped to provide an outer arch confined by said outer confining means, and to provide an inner arch below and spaced from the outer arch and confined by said inner confining means, a portion of said loop below said inner arch being folded down in a direction opposite to the inner arch to provide a bottom for said trap with ends open to admit flies to the inner arch.

4,392,323

TOY WITH TURNABLE ELEMENTS FOR FORMING GEOMETRIC SHAPES

Ernö Rubik, Budapest, Hungary, assignor to Politoys Ipari Szövetkezet, Budapest, Hungary

Filed Jul. 24, 1981, Ser. No. 286,458

Claims priority, application Hungary, Nov. 18, 1980, 2752/80

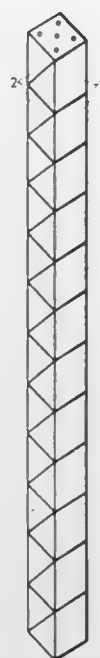
Int. Cl.³ A63H 33/00

U.S. Cl. 46—1 R

4 Claims

1. A toy for constructing different geometric shapes comprising: a plurality of identical toy elements each comprising an isosceles right triangular prism having two square side faces and a quadratic hypotenuse face; means connecting the elements in a row with side faces of each intermediate identical element abutting side faces of other identical elements for rotation of each element about the axis normal to each abutting side face

and relative to the remaining elements; and means for positively maintaining each element in any one of four equally



spaced discrete angular orientations relative to the adjacent elements.

4,392,324

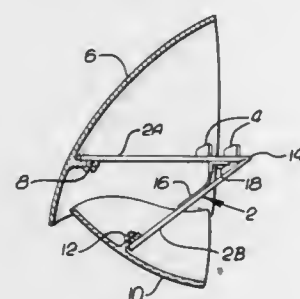
MOUTH OPERABLE MASK DEVICE

Jeff Harris, Los Angeles; Charles A. Chambers, Burbank, and Jack M. Horwitz, Los Angeles, all of Calif., assignors to Minkey Farms Partnership, Los Angeles, Calif., a part interest

Filed Aug. 5, 1981, Ser. No. 290,389
Int. Cl.³ A63H 33/00; A42B 1/18

U.S. Cl. 46—1 F

1 Claim

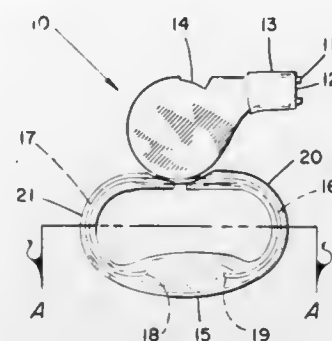


1. A mouth operable mask comprising:
 - a flexible V-shaped element capable of being inserted into the wearer's mouth;
 - at least one brace, attached to one of the legs of said V-shaped element, which may be gripped by the wearer's teeth;
 - an upper mask portion attached to one of the legs of said V-shaped element and a lower mask portion attached to the other of the legs of said V-shaped element, whereby flexing of said V-shaped element produces relative motion between said upper and lower mask portions;
 - wherein said V-shaped element includes a flexible hinge composed of resilient plastic whereby the resiliency of said hinge biases said V-shaped element in an open position; and
 - a metal element attached to the interior side of one of said legs of said V-shaped element and being in contact with the interior side of said other of said legs, wherein said metal element generates a clicking noise when said V-shaped element is flexed.

4,392,325
SPORTS WHISTLE WITH FINGER GRIP
Eli M. Woronets, 14413 Mansa Dr., La Mirada, Calif. 90638
Filed Sep. 17, 1981, Ser. No. 302,982
Int. Cl.³ A63H 5/00

U.S. Cl. 46—179

7 Claims



1. An improved, mouth-blown whistle, comprising:
 - (a) a hollow body having an air inlet and an air outlet;
 - (b) cushioning means disposed peripherally about the outside of said air inlet to prevent chipping of the user's teeth as the air inlet end of the whistle is inserted into the user's mouth to blow said whistle and even while the whistle is being blown;
 - (c) a C-shaped finger gripping member secured to the underside of said body; and
 - (d) resilient covering means over said finger gripping member and bridging the opening between the open ends of said C-shaped member, said portion of said resilient covering means bridging the space bulbously enlarged to fill the empty space between the two fingers which engage the finger gripping member thereby creating a frictional gripping action between said resilient covering means and the two fingers inserted therein to hold the whistle.

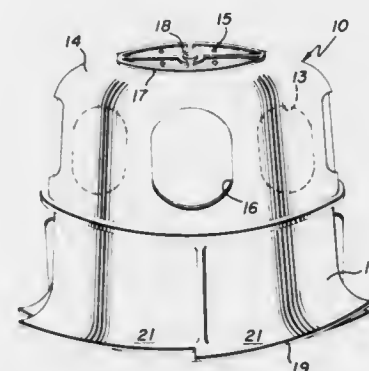
4,392,326

PLANT SHELTER

Thomas J. Boria, 34 Howe St., Millbury, Mass. 01527
Filed Jun. 25, 1981, Ser. No. 277,102
Int. Cl.³ A01G 13/00

U.S. Cl. 47—28 R

13 Claims



1. Plant shelter, comprising:
 - (a) a dome-like lower shell having a generally vertical transparent wall with primary apertures which are sufficiently large to allow passage of bees, and
 - (b) an upper shell conforming generally to the upper portion of the lower shell and having a generally vertical transparent wall which overlaps at least the upper half of the vertical wall of the lower shell and has primary apertures which are sufficiently large to allow passage of bees, the upper and lower shells being held together for relative sliding movement from a first position at which the apertures of the upper shell are coextensive with the apertures of the lower shell to allow air and bee movement in and out of the shelter to a second position at which the apertures of the upper shell are non-coextensive with the

apertures of the lower shell, the upper shell being provided with a rain-collecting ridge in its upper portion in the form of a closed figure, said upper shell having secondary apertures lying within the figure, and the lower shell having similar secondary apertures for cooperation with the secondary apertures in the upper shell to drain rain water from within the ridge to the interior of the lower shell.

4,392,327

PLANT GROWING UNIT, METHOD AND SYSTEM
Bernard Sanders, Jersey, Channel Islands, assignor to Bonar Horticulture, Ltd., Dundee, Scotland

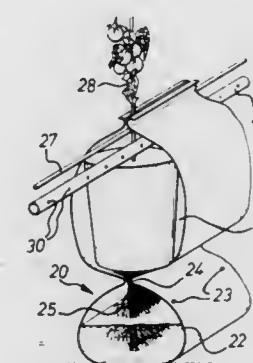
Filed Jun. 19, 1981, Ser. No. 275,194

Claims priority, application United Kingdom, Jun. 20, 1980, 8020224

U.S. Cl. 47—59

Int. Cl.³ A01G 31/00

14 Claims



1. A method for growing plants utilizing a plant growing system constructed from a sheet of flexible plastic material folded to provide opposite walls and said opposite walls being secured along a longitudinal division to form elongated upper and lower compartments, said upper compartment having an elongated top portion and constituting a multiple plant root-ball container open along said top portion for upward growth of multiple plants in said container, and said lower compartment constituting a reservoir for water, said lower compartment having level restricting means for establishing a maximum level of water in the reservoir, and means including a water carrier of flexible capillary material secured along said longitudinal division and leaving openings from said container to said reservoir in said lower compartment, said water carrier extending between said upper and lower compartments, said method comprising the steps of:

- placing multiple plants in a row in said upper compartment providing said container of said system;
- supporting said sheet of flexible plastic material by an elongated member extending along the elongated top portion of said upper compartment so that said upper and lower compartments hang below said supported portion;
- introducing water into said container onto plants therein and draining the water through said openings into said lower compartment providing a reservoir;
- establishing a maximum level of water in said reservoir by said level restricting means and producing an air space between said water level and the root-balls of said plants in said container bridged by said water carrier;
- venting said air space;
- supplying air and water to the root-balls of said plants in said container from said vented air space and said reservoir in said lower compartment through said openings and said water carrier for growing the plants; and
- replenishing the water in said lower compartment by introducing water into said container onto plants therein and draining water from said container through said openings to maintain a reservoir of water and a vented air space above the water level for supply of air and water to the root-balls of said plants in said container.

4,392,328

CELLULAR MOIST FILM PLANT CULTURE SYSTEM

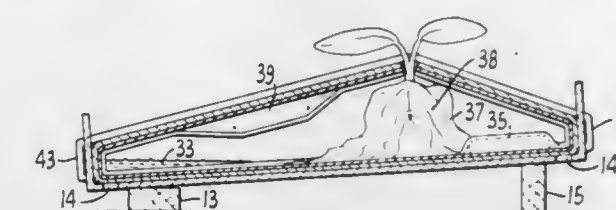
Fred L. Walker, 55 San Marcos Ct., Salinas, Calif. 93901

Filed Jul. 6, 1981, Ser. No. 280,358

Int. Cl.³ A01G 31/00

U.S. Cl. 47—62

8 Claims



1. A moist film plant culture system for growing plants comprising:
 - impermeable envelope having top and side wall means confining an air space in which roots of plants can grow, said envelope means having a seam along at least one edge thereof;
 - support means for supporting the root ball of a plant within said air space;
 - a first water absorbent matting material of high capillarity fastened within the envelope and a second water absorbent matting material of high capillarity surrounding the root ball, the surrounded root ball and expanding root system and the growing plant structure being supported on said first matting material within said air space;
 - said envelope being two ply with one ply including a flexible moisture impermeable outer sheet and a second ply including said first matting material, said envelope further including a plurality of stiff cross ribs to maintain the walls and top means of the envelope in an elevated position to maintain said interior air space when the seam is closed, said flexible envelope being collapsible for shipping the culture system;
 - a dry chemical nutrient packet, said packet being formed by a third water absorbent matting material enclosing a dry chemical nutrient, said nutrient pack being in contact with said first water absorbent material and spaced from the root ball, a nutrient transfer means for transferring nutrient from said packet to said plant structure, said transfer means including said matting materials, whereby when said water absorbent materials are wet, dissolved chemicals are leached from said nutrient packet and will migrate from the chemical packet to the root ball and to all root bearing surfaces;
 - means for closing the seam of said envelope around the individual stems of a plurality of plants whereby the root balls and growing roots of said plants are surrounded by a confined pocket of highly humid air within said envelope and in contact with said water absorbent material and the leaves and stems of said plant protrude beyond said seams, and
 - a water reservoir spaced from said root ball and from said chemical packet and located to maintain water in contact with said first matting material and out of free water contact with the dry chemical packet.

4,392,329

PIVOTABLE WINDOW MOVED BETWEEN LOCKED AND OPENED POSITIONS BY MEANS OF A SINGLE OPERATING HANDLE

Jyuji Suzuki, Sayama, Japan, assignor to Nippon Elumin Sash Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1980, Ser. No. 215,551

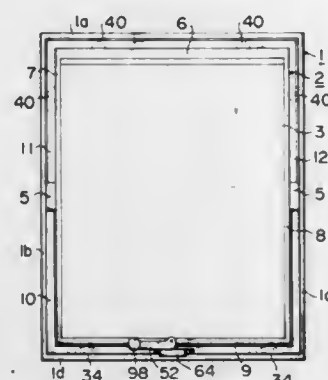
Int. Cl.³ E05F 9/00

U.S. Cl. 49—356

15 Claims

1. A window comprising:
 - a window frame including upper, lower, left, and right frame members, and defining a plurality of corners and an inner,

peripheral groove extending around the interior of the frame;
 a window screen;
 means connecting the window screen to the window frame for pivotal movement therewithin between open and closed positions;
 a movable endless belt extending around the interior of the window frame and including
 upper, lower, left, and right sliding members supported by the window frame for reciprocating movement within the inner peripheral groove of the frame,
 a plurality of rollers connecting ends of adjacent sliding members to translate reciprocating movement thereof around the corners of the frame, and
 means supported by the frame for guiding movement of the rollers around the corners of the frame;



locking means including
 first means secured to the window screen,
 second means supported by the window frame for movement between a locking position, to engage the first means and securely hold the window screen in the closed position, and an unlocking position, disengaged from the first means, and
 link means connecting the second means with the endless belt to move the second means between the locking and unlocking positions; and
 an operating mechanism connected to the endless belt to move the endless belt and the second means between the said locking and unlocking positions, and also connected to the window screen to move the window screen between its open and closed positions.

4,392,330

CASEMENT WINDOW

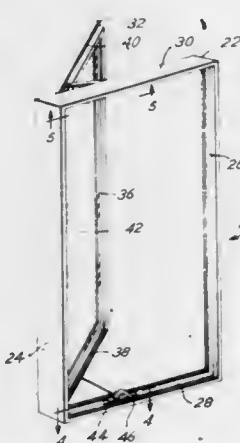
Terry J. Buhr, Pella, Iowa, assignor to Rolscreen Company, Pella, Iowa

Filed Jun. 2, 1981, Ser. No. 269,628

Int. Cl.³ E05D 15/00

U.S. Cl. 49—381

5 Claims



1. A casement window operable in a vent-egress mode and a wash mode comprising:
 a window frame;

a window sash movably mounted on said frame;
 a sash hinge plate mounted on said sash;
 a hinge shoe with a channel-travelling flange member;
 hinge means for providing pivotal movement of said sash relative to said hinge shoe, said hinge means being connected to said sashhinge plate and hinge shoe; and
 mode-shifting means for shifting of the sash to and from the vent-egress and wash modes, the mode-shifting means including a channel-forming slide member secured to the window frame, the channel-travelling flange of the hinge shoe being slidably secured to the slide member, and means for releasably locking the hinge shoe to the slide member in two positions of the hinge shoe relative to the slide member, one of the two positions being a vent-egress position in which the sash is in the vent-egress mode and the other of the two positions being a wash position in which the sash is in the wash mode.

4,392,331

CLAMPABLE APPARATUS FOR GRINDING SPHERICAL SURFACES

Günter Schmitz, An der Reute, 7923 Königsbrunn, and Horst Reiche, Uhländstr. 36, 7923 Königsbrunn, Zang, both of Fed. Rep. of Germany

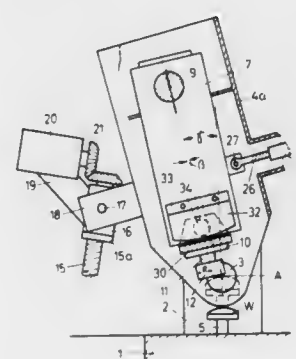
Filed Sep. 18, 1980, Ser. No. 188,585

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1979, 2937977

Int. Cl.³ B24B 13/00

U.S. Cl. 51—55

17 Claims



1. Clampable apparatus operable at a heated operating temperature for producing convex and/or concave spherical surfaces in workpieces such as optical lenses, comprising

a frame,
 a swivel arm substantially in the form of a gantry and mounted on the frame such that its angle of inclination relative thereto is adjustable, the swivel arm including two support portions having an axle extending therebetween,
 a rocker arm pivotally and adjustably mounted on the axle, the swivel arm and rocker arm being adjustably locatable and securable in a selective adjustment position,
 a spindle sleeve housing axially displaceably mounted on the rocker arm and having a tool spindle for carrying a machine tool and being received in the housing and mounted for rotation about a tool spindle axis of rotation lying in a tool spindle plane, which plane is normal to the axle, in any adjustment position of the swivel arm and rocker arm,
 a workpiece spindle for supporting a workpiece to be machined by the machine tool and being arranged at the frame such that the machine tool and workpiece are locatable in the plane of the axis of rotation of the tool spindle, and
 a pair of clamping devices for retaining the swivel arm and rocker arm in any such adjustment position, said clamping devices being substantially identical and symmetrically disposed relative to the axis of rotation of the tool spindle so as to be substantially mirror images of one another, each clamping device having two cooperating members which are clampingly embraceable by frictional

engagement with one another, one such member being mounted on the swivel arm and the other such member being mounted on the rocker arm, one of the members of each clamping device being arranged for operative displacement to a heated operating temperature displacement location relative to the arm on which it is mounted, when the apparatus is at its corresponding heated operating temperature, for operative engagement at such displacement location with the other member of such clamping device, whereby to prevent lateral deviation of the rocker arm and in turn of the tool spindle axis of rotation from the tool spindle plane.

4,392,332

ICE SKATE SHARPENER

Glenn Sakcriska, Ypsilanti, Mich., assignor to Canadian Skate Contours, Ltd., Mississauga, Canada

Continuation of Ser. No. 70,408, Aug. 27, 1979, Pat. No.

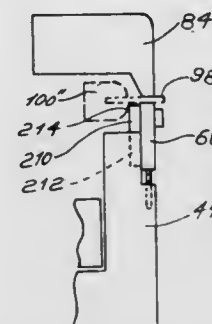
4,294,043, which is a division of Ser. No. 869,696, Jan. 16, 1978, Pat. No. 4,172,343, which is a continuation-in-part of Ser. No. 745,362, Nov. 26, 1976, Pat. No. 4,069,620. This application Jun.

22, 1981, Ser. No. 275,794

Int. Cl.³ B24B 9/04

U.S. Cl. 51—92 BS

3 Claims



1. In an ice skate sharpening fixture having opposed jaws for retaining an ice skate therein, and follower means on said fixture, the ice skate having longitudinally curved blade clamp lips engaging the ice skate blade and an equivalent center location on the blade, and the fixture having a fixed centerline relative to the fixture follower means,

the improvement comprising separate blade clamp lip locating means adjacent at least one jaw and equidistant from the fixture centerline, each of said separate blade clamp lip locating means not extending in a direction parallel to jaw clamping movement beyond the clamping surface of the jaw thereadjacent upon clamping an ice skate in said fixture, and said separate blade clamp lip locating means positioned to engage at least one of the blade clamp lips equidistant from the equivalent center location on the blade and adjacent the exposed portion of the blade.

4,392,333

GUIDE WHEELS FOR BELT GRINDER

Walter N. Welsch, Tonawanda, N.Y., assignor to Dynabrade, Inc., Tonawanda, N.Y.

Filed Aug. 17, 1981, Ser. No. 293,096

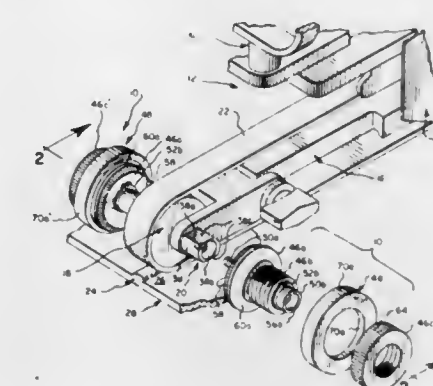
Int. Cl.³ B24B 23/06

U.S. Cl. 51—170 EB

5 Claims

1. Guide means for an abrading device of the type having an endless abrasive belt trained over a contact wheel supported for rotation about an axis, said guide means including wheel means for guiding said contact wheel relative to the surface of a workpiece engaged by said belt while passing over said contact wheel, said wheel means defining an annularly extending groove disposed concentrically of said axis and bounded by radially outwardly divergent surfaces, said groove being characterized as having a maximum diameter and a minimum diameter, said wheel means being adjustable to selectively vary the width of said groove in a direction aligned with said axis; and a tire received within said groove, said tire being formed of a

relatively rigid material and having an outer surface for engaging said workpiece, a concentrically arranged through opening and opposite side surface portions extending between said outer surface and said through opening and arranged for engagement with said surfaces of said groove, said outer surface having a diameter exceeding said maximum diameter, said



4,392,334

FLUID DISPERSING APPARATUS FOR USE IN PRODUCING OPHTHALMIC LENSES

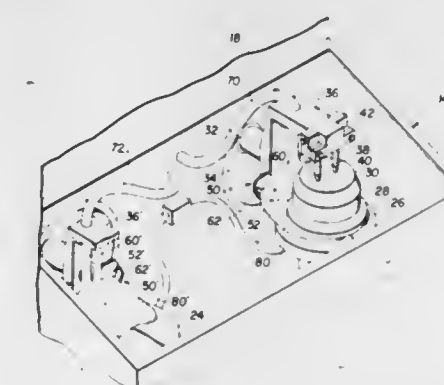
Joseph Tusinski, and Phillip D. Hill, both of Muskogee, Okla., assignors to Coburn Optical Industries, Inc., Muskogee, Okla.

Filed Nov. 19, 1980, Ser. No. 208,376

Int. Cl.³ B24B 57/00, 55/02

U.S. Cl. 51—263

5 Claims



1. A fluid dispersing apparatus operable for use in ophthalmic lens producing machines and the like, said fluid dispersing apparatus comprising:

a dispersing member having,
 a landing surface operable to be positioned at an angle with respect to a free flowing column of fluid, and
 an extension strip extending away from said landing surface in an intended direction of flow of the fluid at an obtuse angle with respect to said landing surface, said extension strip being fashioned with an arcuate front edge portion when viewed in a plan perspective, and being curved away from the intended direction of travel of the sheet of fluid away from said landing surface extension strip; and

means connected to said dispersing member for operably mounting said dispersing member upon a machine adjacent to a source of generally columnar flowing fluid.

4,392,335

FLEXIBLE CEMENTITIOUS COATINGS

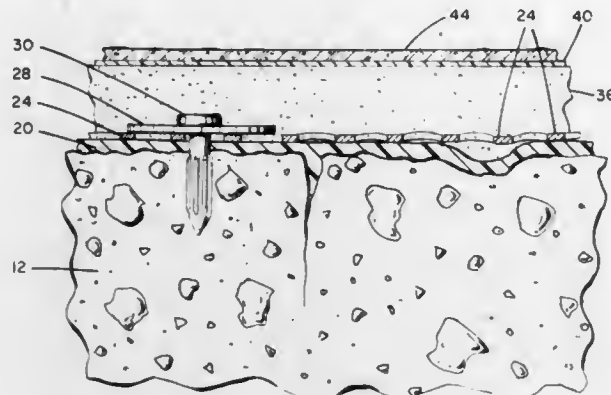
Robert B. Heiman, Los Angeles, Calif., assignor to Astro-Steel Grip International, Inc., San Francisco, Calif.

Filed Apr. 12, 1982, Ser. No. 368,211

Int. Cl.³ E01C 15/00; B05D 3/00; B32B 13/04

U.S. Cl. 52—309.17

19 Claims



1. A flexible cementitious overlayer for installation over the unsealed surface of a base material comprising, in combination: a hardened underlayer of adhesive of a kind to which a combination of Portland cement and polymeric resin will adhere and which has the quality of penetrating and bonding to unsealed base material surfaces; a layer of hardened cementitious material comprising a mixture of polymeric resins and hydrolyzed Portland cement overlying and bonded to said underlayer of adhesive; and an overlayer of epoxy adhesive paint overlying said layer of hardened cementitious material.
2. The invention defined in claim 1 which further comprises a layer of metal screening embedded in said layer of hardened cementitious material.
3. The invention defined in claim 2 which further comprises fastening means in the form of mechanical fasteners extending through said metal screening and through said adhesive underlayer for mechanically fastening said metal screening to a base material.

4,392,336

DRYWALL CONSTRUCTION AND ARTICLE OF MANUFACTURE THEREFOR

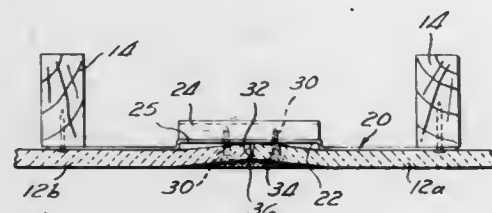
Jack L. Ganssle, 29567 Fountainwood, Agoura Hills, Calif. 91301

Filed Mar. 13, 1981, Ser. No. 243,611

Int. Cl.³ E04B 2/00

U.S. Cl. 52—417

1 Claim



1. An article of manufacture, for use in molding wallboard panels between studs, which comprises: an elongated substantially rigid unitary strap member having elongated end portions which are substantially co-planar with respect to each other, an elongated recessed portion centrally located between said end portions, said elongated co-planar end portions extending inwardly of said studs for a substantial distance and said elongated recessed portion therebetween extending for a distance of about 5-9 inches in length, and substantially less than the distance between studs, predrilled openings defined within the ends of each of said elongated co-planar end portions,

tions, and a stiffener means affixed to said elongated recessed portion to resist pulling forces on said strap member.

4,392,337

APPARATUS FOR ATTACHMENT OF CARRIER SHEET TO CONTAINERS

Kunio Hara, Kawasaki, Japan, assignor to Nifco, Inc., Tokyo, Japan

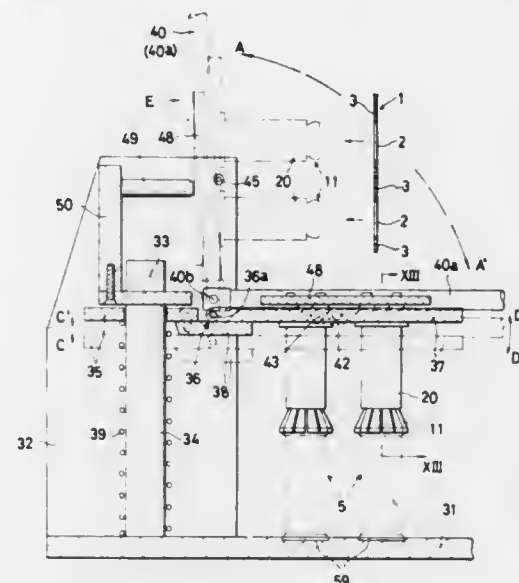
Filed Dec. 18, 1979, Ser. No. 104,926

Claims priority, application Japan, Dec. 18, 1978, 53-154881

Int. Cl.³ B65B 27/04

U.S. Cl. 53—48

2 Claims



1. An apparatus for the attachment of a carrier sheet to containers wherein the carrier sheet containing openings of a diameter smaller than the diameter at the peripheral edges of the containers and permitting insertion therethrough of the containers is attached below the peripheral edges of the containers by causing the circumferential portions surrounding the openings in the carrier sheet to be forcibly expanded outwardly to be passed over the peripheral edges, which apparatus comprises: vertical funnel members for carrying said carrier sheet each having an upper portion of a diameter smaller than the diameter of the openings in the carrier sheet and a funnel-shaped portion having an intermediate portion of a diameter substantially equal to the diameter of the openings and a lower large diameter leading end portion engageable with the peripheral edge of the container positioned below the funnel, each of the funnel members containing slits cut in the axial direction upwardly from the lower end of the large diameter portion thereof to permit the large diameter portion to be contracted in the radial directions; sleeve members each having an upper end and a lower edge and containing an inner space large enough to embrace therein the funnel member wholly and slits cut in the axial direction in the wall defining the inner space upwardly from said edge thereof to divide the wall and enable said edge of the opening to be expanded in the radial directions over said funnel leading end portion thereby pushing said carrier sheet over the containers, the edge of the opening in a normal condition having a diameter smaller than the largest diameter of the large diameter portion of the funnel member and contracting members each disposed concentrically between the funnel member and the sleeve member, slidably mounted relative to both the aforementioned members, so that the leading end thereof is moved into contact with the funnel-shaped portion of the funnel member and, through the medium of the funnel-shaped portion, contract the leading end of the funnel member to a diameter smaller than the diameter of the opening in the carrier sheet to permit mounting of said carrier sheet on the funnel; a bottom plate member which stabilizes the apparatus and supports the containers to be packaged, said sleeve members being fastened at their upper ends to a sleeve support member positioned above the bottom plate member, the funnel members pass through said sleeve support

member at an end portion opposite said leading end thereof and penetrate the sleeve members to the portions thereof having a diameter substantially equal to the diameter of the openings in the carrier sheet, the funnel members and the sleeve members are interposed to stop means each adapted to enable the funnel member to be slid in the axial direction only upwardly from the position which the funnel member has reached in the penetration of the sleeve member, the contracting members pass through the sleeve support member and are fastened to an actuating member disposed at a prescribed distance from the sleeve support member, and the actuating member is supported in a manner slideable in the direction of the sleeve support member; the actuating member to which the contracting members are fastened being separated by the prescribed distance from the sleeve support means through the medium of intervening spring means; a member for holding the sleeve support member at a height such that the sleeves supported by the sleeve support member face downwardly toward the bottom plate member and the leading ends of the funnel members engage with the peripheral edges of containers, hinge means allowing the sleeve support member to rotate upwardly away from the bottom plate member and relative to the holding member, a stop member to prevent the sleeve support member from rotating in the downward direction, energizing means for supporting the holding member at its original position corresponding to the aforementioned height at which the sleeve support member is supported and, after the holding member has been vertically lowered, relative to the bottom plate member, from the original position in conjunction with the sleeve support member, imparting to the holding member an energizing force capable of returning the holding member to the original position, means actuated, upon an upward rotation of the sleeve support member, to come into engagement with the actuating member having the contracting member fastened thereto and press the actuating member against the sleeve support member.

4,392,338

PACKETS AND THE MANUFACTURE THEREOF

Austin L. Fox, London, England, assignor to Molins Limited, London, England

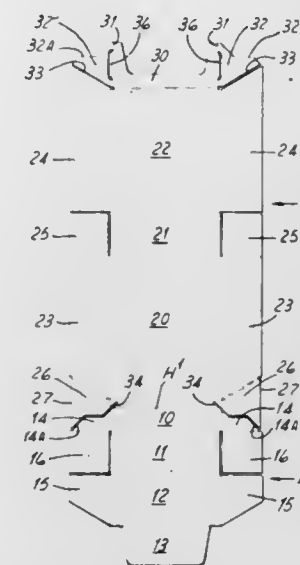
Continuation of Ser. No. 956,159, Oct. 31, 1978, abandoned, which is a continuation-in-part of Ser. No. 775,023, Oct. 7, 1977, abandoned. This application Nov. 24, 1980, Ser. No. 209,614

Claims priority, application United Kingdom, Mar. 15, 1976, 10324/76; Nov. 8, 1977, 46491/77

Int. Cl.³ B65B 11/48; B65D 5/66, 85/10

U.S. Cl. 53—462

4 Claims



1. A method of erecting a one-piece blank made of a single layer of material of substantially rectangular configuration cut and scored for folding about contents to form a hinged lid packet having a lid portion hinged to a body portion;

(a) wherein said blank comprises:

1. a central portion extending from the top to the bottom

of said blank and divided by at least six parallel spaced-apart transverse foldable scored lines into, consecutively from the top to the bottom of said blank, a panel, a front wall, a bottom wall and a rear wall for forming said body portion and a rear wall, a top wall and a front wall for forming said lid portion, the combined length of said panel and front wall of said body portion being substantially the same as the combined length of said rear walls of said body and lid portions; and

2. an outer portion at each of the left and right sides of said central portion, each outer portion comprising a side flap foldably attached to said panel, an outer flap foldably attached to said front wall of said body portion, said side flap having a top edge facing away from said outer flap, an inner flap foldably attached to said rear wall of said body portion, the length of said inner flap of said body portion being greater than the length of said outer flap of said body portion, an inner flap foldably attached to said rear wall of said lid portion and an outer flap foldably attached to said front wall of said lid portion, the bottom edge of said inner flap of said lid portion being coextensive with a straight line coextensive with the foldable scored line between said top wall and rear wall of said lid portion, and the top edge of said inner flap of said lid portion being spaced from said bottom edge thereof, the length of said outer flap of said lid portion being greater than the length of said inner flap of said lid portion;
3. the relative dimensions of said inner flap of said lid portion and said side flap of said body portion of each of said outer portions being such that the distance of said top edge of said inner flap of said lid portion from a straight line coextensive with the foldable scored line between said rear wall and bottom wall of said body portion, said distance being measured parallel to the fold line between said inner flap and said rear wall of said body portion, is at least as great as the distance of said top edge of said side flap of said body portion from a straight line coextensive with the foldable scored line between said front wall and bottom wall of said body portion, said distance being measured parallel to the fold line between said side flap and said front wall of said body portion, at corresponding locations along the entire lengths of said top edge of said inner flap of said lid portion and said top edge of said side flap of said body portion;

(b) said method comprising the following steps in the recited order:

1. forming said rear wall, bottom wall, front wall, panel and inner flaps of said body portion and said rear wall, top wall, front wall and inner flaps of said lid portion about said contents;
2. folding each of said side flaps of said body portion and securing said side flaps of said body portion to the respective inner flaps of said body portion with said lid portion in closed position;
3. then folding each of said outer flaps of said body and lid portions and securing said outer flaps of said body and lid portions to the respective inner flaps of said body and lid portions with said lid portion maintained in closed position, whereby said top edge of each said side flap of said body portion and the respective top edge of said inner flap of said lid portion confront each other along their entire lengths, and said side flap of said body portion does not overlap said inner flap of said lid portion, said relative dimensions of said respective inner flaps of said lid portion and said side flaps of said body portion assuring that said side flaps of said body portion do not intervene between and are not secured to said inner and outer flaps of said lid portion during said folding and said securing of the respective body and lid portions.

4,392,339

CROP WINDROWING MACHINE HAVING DOUBLE WINDROW-FORMING ATTACHMENT

Marc A. Berlivet, and Abel A. J. Guerineau, both of Coex, France, assignors to Hesston Corporation, Hesston, Kans.

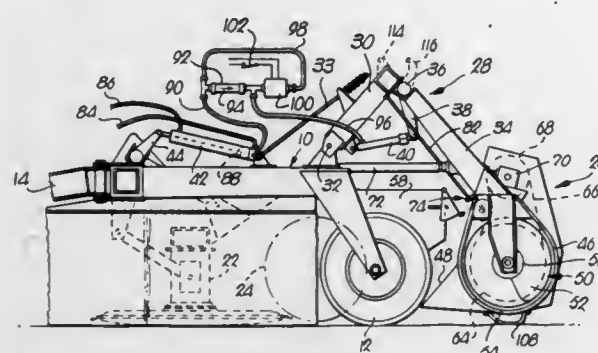
Filed Nov. 25, 1981, Ser. No. 324,814

Claims priority, application France, Nov. 26, 1980, 80 25099

Int. Cl.³ A01D 57/30

U.S. Cl. 56—192

5 Claims



1. A machine for harvesting crops comprising: a mobile frame; crop severing means carried by said frame at the normally forward extremity of the latter; means for coupling said frame to a vehicle in such manner that the crop severing means is located in laterally offset relationship to the path of travel of the vehicle; means for converging the severed crop centrally of the cut taken by the severing means and for discharging the converged crop rearwardly into a centrally disposed windrow behind the frame; and selectively operable double windrow forming mechanism carried by the frame, said mechanism including a transverse conveyor and means for selectively positioning said conveyor in a location behind the severing means to intercept the centrally converged and rearwardly discharged crop before the latter forms a windrow on the ground, said conveyor having a discharge end disposed for discharging crop laterally outboard of the cut taken by said severing means and into the path of travel of said vehicle behind the latter when said conveyor is in its said crop intercepting location whereby to permit formation of a second windrow adjacently alongside of a first windrow prepared during the next preceding pass of the machine with said conveyor positioned out of its said crop intercepting location, said severing means being mounted on said frame for movement between a raised, transport position and a lowered, working position, said severing means being provided with a fluid pressure operated power unit for effecting said raising and lowering of the severing means, said power device for the conveyor being fluid pressure operated and being coupled in parallel fluid flow relationship with said power unit of the severing means, said power device further being responsive to a lower pressure force than said power unit whereby to permit raising of the conveyor out of said crop intercepting location thereof without raising said severing means when the power unit and the power device are both pressurized.

4,392,340

YARN MONITOR FOR TWO-YARN CABLING OR TWISTING MACHINE

Aloys Horstmann, Greven; Heinz Eckholt, Münster, and Reinhard Veltel, Everswinkel, all of Fed. Rep. of Germany, assignors to Volkmann GmbH & Co., Krefeld, Fed. Rep. of Germany

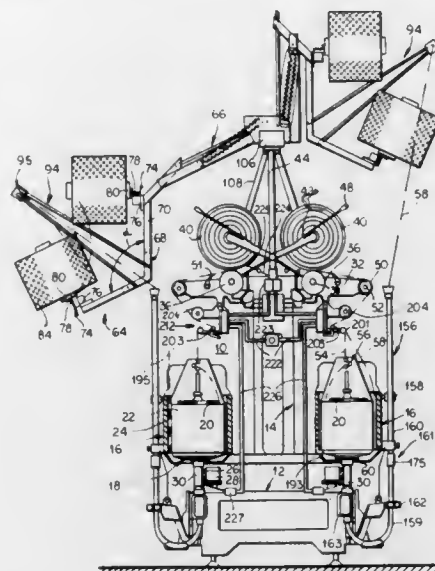
Filed Sep. 26, 1980, Ser. No. 191,024

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939435

Int. Cl.³ D01H 1/24, 13/16

U.S. Cl. 57—83

8 Claims



1. A method of operating a textile machine comprising the steps of: feeding two primary yarns under relatively low longitudinal tension from respective yarn supplies to a combining location; combining said primary yarns at said location; feeding the combined yarns from said location under relatively high longitudinal tension to a takeup station; continuously monitoring the tension in said combined yarns between said location and said takeup station; generating an output when the tension in said combined yarns drops from said high tension below a predetermined level at least equal to said relatively low tension as a result of breakage of one of said primary yarns; interrupting the feeds of said yarns when said output is generated, said yarns being fed and longitudinally tensioned by being wound up on a takeup element at said takeup station, said yarns being combined by being wound together; and spinning one of said primary yarns about the respective supply as a balloon upstream of said location, said tension being monitored by: passing said combined yarns over a roller forming a deflecting element between said location and station, urging said deflecting element in a direction increasing the length of the path of said combined yarns between said location and said station, and detecting the position of said element to determine the tension in said combined yarns by the release of a member acting upon said element.

4,392,341

TWISTING MACHINE

Werner Grill, Kempten, Fed. Rep. of Germany, assignor to Saurer-Allma GmbH, Kempten, Fed. Rep. of Germany

Filed May 18, 1982, Ser. No. 379,413

Claims priority, application Fed. Rep. of Germany, May 21, 1981, 8115081[U]

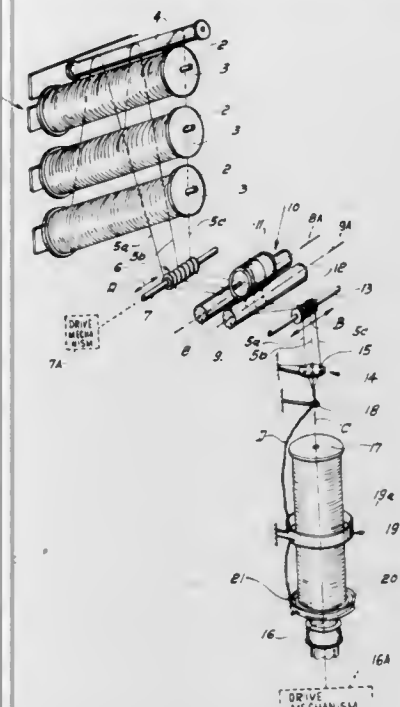
Int. Cl.³ D01H 1/02, 13/04

U.S. Cl. 57—90

7 Claims

1. In a machine for twisting several filament yarn strands wrapped on spools, including a creel for supporting the spools,

a delivery system which includes several feed rollers, a first thread guide supported along the thread path between the spools and the delivery system for movement back and forth in directions parallel to the axes of the feed rollers and having a guideway for each of the yarn strands, thread-guiding means following the delivery system, a rotatable spindle for supporting a winding bobbin, a second thread guide arranged along an extension of the axis of the spindle and having a respective guide eyelet for each yarn strand, and a third thread guide



which follows the second thread guide and has an opening through which all yarn strands are guided together, the improvement comprising wherein the first thread guide is a first guide roller which has a circumferential guide groove for each yarn strand and is freely rotatable about an axis which extends generally parallel to the feed roller axes, and wherein the thread-guiding means includes a second guide roller which is supported for rotational and axial movement with respect to an axis generally parallel to the feed roller axes and which has a circumferential guide groove for each yarn strand.

4,392,342

CABLE STRANDING APPARATUS AND METHOD OF OPERATING IT

Johan F. R. Meijer, Zaandam, Netherlands, assignor to N.K.F. Groep B.V., Rijswijk, Netherlands

Filed May 7, 1981, Ser. No. 261,430

Claims priority, application Netherlands, May 14, 1980, 8002786

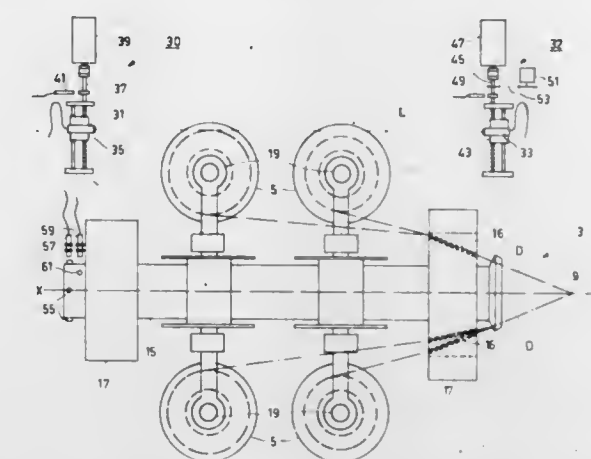
Int. Cl.³ D07B 3/06, 7/06

U.S. Cl. 57—264

11 Claims

1. A method of manufacturing a stranded product, comprising: mounting a plurality of feed reels, each containing material wound thereon, in a feed cage, rotating the feed cage about an axis, controlling the speed of the cage rotation, pulling the material from the feed reels through a stranding device, and winding the stranded product onto a take-up reel, characterized in that said rotating and controlling steps comprise: directing an energy beam past said feed reels such that interruption of the beam by the charge of the material on a feed reel is a function of the size of the charge; monitoring the charge on a feed reel by sensing the beam energy which passes the reel without interruption; and

controlling the speed of cage rotation responsive to said monitoring such that centrifugal force due to rotation of the cage



and feed reels is maintained approximately constant at a maximum safe value.

4,392,343

FRICTION SPINNING APPARATUS

Alan Parker, 7 Darvel Close, Brightmet, Bolton, Lancashire; William M. Farnhill, 335 Colne Rd., Burnley, Lancashire, and Douglas O. Clough, 26 Parkwood Dr., Rawtenstall, Rossendale, Lancashire, all of England

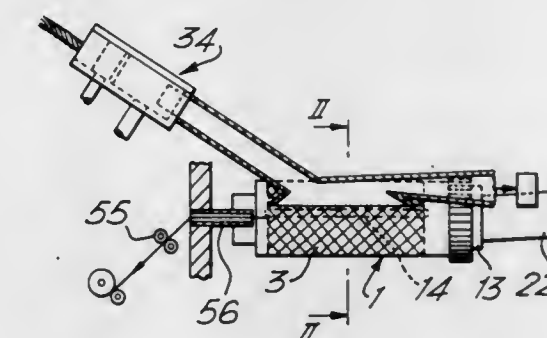
Filed Oct. 6, 1981, Ser. No. 308,955

Claims priority, application United Kingdom, Oct. 8, 1980, 8032417

Int. Cl.³ D01H 7/882

U.S. Cl. 57—401

6 Claims



1. Apparatus for open end spinning of yarns comprising two bodies of rotation each defining a surface and arranged such that the surfaces lie closely adjacent at a line of closest approach so as to define between them an elongate throat which narrows toward the line of closest approach, at least one of the surfaces being perforated, means defining a slot adjacent said at least one surface, suction means for drawing air through that portion of the surface delineated by the slot, a feed duct for feeding fibres into the throat, the feed duct terminating within the throat and adjacent the line in an elongate mouth substantially parallel to the line and spaced from the line a distance less than the radius of curvature of each of the bodies and including two surfaces each lying along a respective side of the mouth and arranged closely adjacent to a respective body surface and each being curved in a direction away from the mouth so as to follow the curvature of the adjacent portion of body surface and be separated therefrom by a gap distance of at most 0.5 mm., means for rotating each of the bodies about a respective axis so as to twist the fibres in the area into a yarn, and means for withdrawing the yarn from the area.

4,392,344

CHAIN-LINK CABLE CARRIER

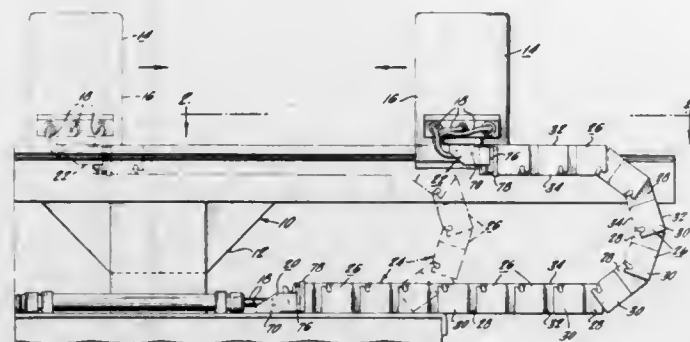
Edmund A. Gordon, deceased, late of Philadelphia, Pa. (by Alvina A. Gordon, and Emma C. Cnudde Administratrices), and by John Yaecker, Administrator, North Wales, Pa., assigns to Central Safety Equipment Company, Burlington, N.J.

Filed Jun. 30, 1981, Ser. No. 279,080

Int. Cl.³ F16G 13/16

U.S. Cl. 59—78.1

7 Claims



1. A chain-link type of cable carrier suitable for holding electrical cables, wires, hoses or the like, comprising: a plurality of links pivotally connected to each other end-to-end in a series chain; each of said links being of integral tubular plastic construction, having a substantially rectangular cross-section at least adjacent its opposite ends to form a box having open ends, and comprising pivot means adjacent each of said opposite ends thereof for providing pivotal connection of each link to immediately adjacent links in said chain; one end of each of said links being narrower than its other wider end and the top and bottom of each link having recesses therein adjacent said other end for receiving between its side walls said narrower end of the adjacent link; said pivot means of each said link being positioned adjacent but inboard of said opposite end thereof, the pivot axes of said pivot means extending at right angles to said side walls so that when said each link is pivoted about one of its pivot axes in one sense with respect to the immediately adjacent link into which it extends, its pivoting is limited by abutment of the top of said narrower end of each said link against the recessed top of the adjacent link, with the top surfaces of said each link and said adjacent link aligned with each other; said pivot means comprising stop means for limiting pivoting of said each link with respect to said immediately adjacent link in the opposite sense at a predetermined angular position to define the minimum permitted radius of curvature of said carrier along its longitudinal axis; and said links when pivoted toward said predetermined angular position producing an opening between the top surfaces of adjacent links.

4,392,345

BYPASS CONTROL SYSTEM

Carl H. Geary, Jr., Greensburg, Pa., assignor to Elliott Turbomachinery Co., Inc., Jeannette, Pa.

Filed Oct. 13, 1981, Ser. No. 310,942

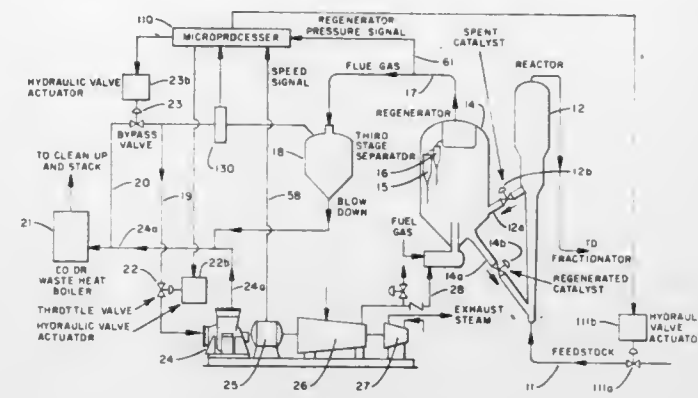
Int. Cl.³ F02G 3/00; B65D 75/00; B01J 37/12

U.S. Cl. 60—39.02

21 Claims

1. A bypass control system for protecting a power recovery expander comprising: a power recovery expander; a first fluid path for supplying combustion gas which is subject to containing large amounts of particulates to said expander as a motive fluid; first valve means for controlling the flow of gas in said first fluid path;

a second fluid path connected to said first fluid path for bypassing said expander; second valve means for controlling the flow of gas in said second fluid path; means for determining the particulate concentration in said



combustion gas in said first fluid path and for generating a signal indicative thereof; and means for fully opening said second valve means in response to said signal when said signal represents a predetermined particulate level so as to prevent said particulates from passing through said expander.

4,392,346

COGENERATION PROCESS USING AUGMENTED BRAYTON CYCLE

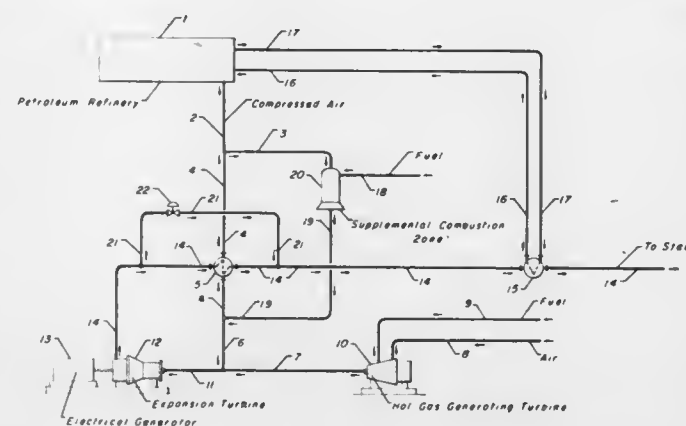
Allen H. Fink, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 171,225, Jul. 22, 1980, Pat. No. 4,338,788. This application Feb. 12, 1981, Ser. No. 234,070

Int. Cl.³ F02C 6/00

U.S. Cl. 60—39.04

9 Claims



1. A power producing cycle which comprised the steps of: (a) heating a feed air stream having a pressure above 15 psig and a temperature above 65° C. by indirect heat exchange against at least a portion of a hereinafter characterized turbine effluent stream and thereby heating the feed air stream to a temperature above 370° C.; (b) admixing the feed air stream and a high temperature gas stream and forming a power gas stream; (c) heating a second air stream in a combustion zone; (d) admixing said second air stream after heating with said high temperature gas stream prior to passage into a hereinafter characterized turbine; (e) depressurizing the power gas stream in a turbine and thereby producing the turbine effluent stream; and (f) cooling the turbine effluent stream by indirect heat exchange against the feed air stream of step (a).

4,392,347

GAS TURBINE ENGINE FUEL SYSTEM

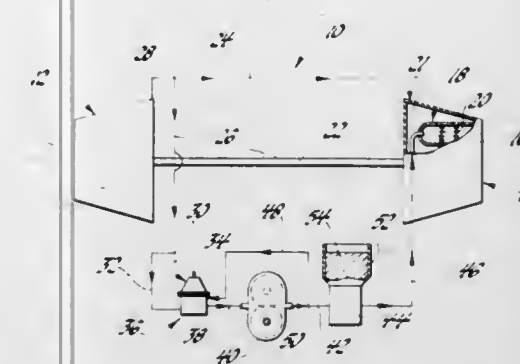
Everett W. Shows, Lake Orion, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 27, 1981, Ser. No. 287,524

Int. Cl.³ F02C 3/26, 9/20

U.S. Cl. 60—39.27

3 Claims



1. In a gas turbine engine having an operating range between idle and full power and including a combustor, a compressor adapted to supply pressurized air at a variable compressor discharge pressure proportional to engine power to said combustor for fuel combustion within said combustor, a fuel supply apparatus operative to supply a metered quantity of powdered combustible fuel, and nozzle means at said combustor for dispersing a mixture of said powdered fuel and air into said combustor for combustion therein, the improvement comprising, an air pump driven independently of said compressor having an inlet and a discharge wherefrom a stream of air is provided at a pump discharge pressure proportional to pump inlet flow area, means connecting said pump discharge to said nozzle means so that said airstream is dispersed by said nozzle means into said combustor, means connecting said fuel supply apparatus to said pump discharge so that said metered quantity of powdered fuel is entrained in said airstream at said pump discharge pressure and delivered thereby to said nozzle means for dispersal into said combustor, inlet restricting valve means at said pump inlet operative to restrict pump inlet flow area thereby to control said pump discharge pressure, and control means connected to said valve means responsive to said compressor discharge pressure and to said pump discharge pressure to operate said valve means so that said pump discharge pressure varies directly with said compressor discharge pressure and is maintained in excess of said compressor discharge pressure by a constant preselected amount in at least a portion of the operating range of said gas turbine engine.

4,392,348

DEVICE FOR BLEEDING MOTOR GASES THRU MOTOR POLE PIECE

Jerry J. Wesson, Winter Park, Fla., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 5, 1981, Ser. No. 290,138

Int. Cl.³ F02K 9/80

U.S. Cl. 60—229

6 Claims

1. A rocket motor case having a motor flange connected at one end of the rocket case and said flange having a flat surface means with a multiplicity of passages opening from the interior of said rocket motor case through said flat surface means, a rocket nozzle flange having a flat surface and means securing said rocket nozzle flange flat surface to said motor flange flat surface means, said rocket nozzle flange having a plurality of

openings therein that extend from said flat surface outwardly to ducts, said openings in said rocket nozzle flange and said



passages in said motor flange being in communication with each other.

4,392,349

SPACED APART WAVE GENERATOR FLOAT ARRAY

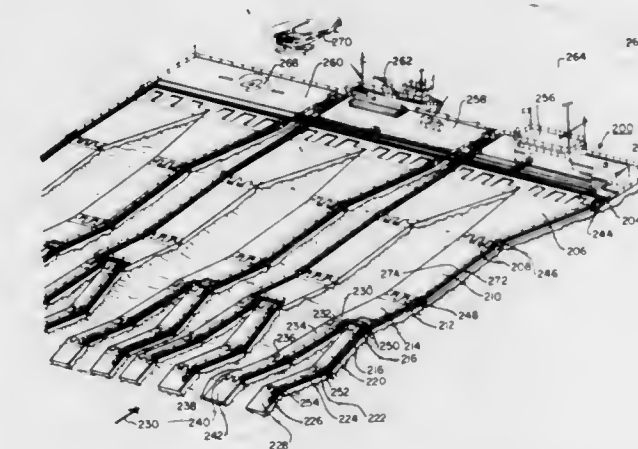
Glenn E. Hagen, 13342 Dwyer Blvd., New Orleans, La. 70129

Filed Jul. 21, 1980, Ser. No. 169,509

Int. Cl.³ F03B 13/12

U.S. Cl. 60—500

2 Claims



1. An apparatus floating in a fluid that exhibits wave motion, comprising: a plurality of adjoining Hagen arrays; each of said Hagen arrays consisting of a plurality of floating elements, each of said elements being sized to be maximally responsive to a different wave length of said wave motion; each element of said array being separated from the same sized element of an adjoining array by approximately one-half the specific wave length to which said elements are sized to be maximally responsive.

4,392,350

STIRLING ENGINE POWER CONTROL AND MOTION CONVERSION MECHANISM

David T. Marks, Birmingham, Mich., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Mar. 23, 1981, Ser. No. 246,665

Int. Cl.³ F02G 1/06

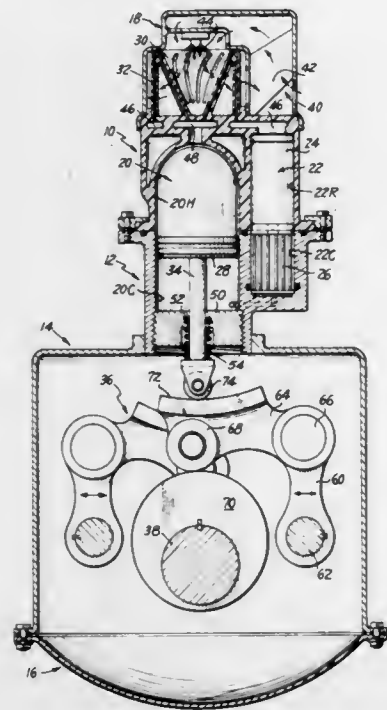
U.S. Cl. 60—518

9 Claims

1. A power control/motion conversion device for a Stirling engine having a plurality of pistons for moving a working gas cyclically through a closed working space containing a heater, regenerator and cooler which creates a pressure wave in the gas in the working space, and for moving under the influence of the pressure wave to produce reciprocating output power, the reciprocating output power being converted hereby to rotary output power of a shaft mounted in the engine crankcase on an axis lying perpendicular to the axes of the pistons,

said power control comprising a plurality of control mechanisms, each including:

- a power lever having a cam follower on one end and a bearing surface against which the piston operatively bears;
- a cam mounted on said shaft in contact with said cam follower;
- a pivot at the other end of said power lever for pivotally mounting said lever in said crankcase to swing in a plane



perpendicular to said shaft and containing said piston axis; and means for moving said pivot in said plane laterally with respect to said shaft to change the lever arm between said cam follower and the point at which said piston operatively bears on said lever bearing surface, and thereby change the stroke of said piston and the force of said cam follower on said cam.

4,392,351

MULTI-CYLINDER STIRLING ENGINE

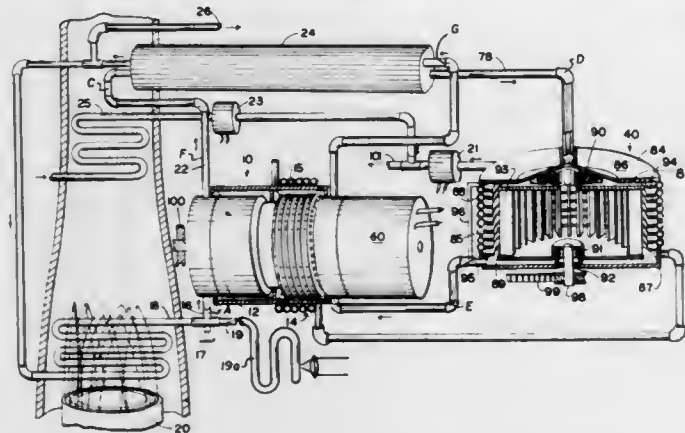
George J. Doundoulakis, 2498 Kayron La., North Bellmore, N.Y. 11710

Filed Feb. 25, 1980, Ser. No. 124,518

Int. Cl.³ F02G 1/04

U.S. Cl. 60—526

6 Claims



1. A multi-cylinder Stirling cycle engine comprising: heater means for heating a working fluid to a working temperature;
- a high temperature heat exchanger associated with said heater means for carrying the working fluid past said heater means to bring the working fluid to the working temperature;
- rotary expansion chamber means having an input connected to said high temperature heat exchanger for receiving the

working fluid at the working temperature and reducing the temperature thereof to produce work;

a bidirectional regenerator connected to an output of said rotary expansion chamber means for carrying the working fluid in a first path and further reducing the temperature thereof;

a low temperature heat exchanger connected to said regenerator for receiving the working fluid and still further reducing the temperature thereof;

rotary compressor chamber means connected to said low temperature heat exchanger for receiving the working fluid from said low temperature heat exchanger and compressing it to a working pressure, said rotary compressor chamber means having an output connected to said regenerator;

said regenerator receiving the working fluid from said compressor means output and carrying it in a second path in counter current flow relationship with said first path to heat the working fluid from said compressor means and cool the working fluid from said rotary expansion chamber means;

said high temperature heat exchanger connected to said regenerator for receiving the heated working fluid;

said rotary expansion chamber means being connected to said rotary compressor chamber means, said rotary expansion chamber means and said rotary compressor chamber means having a common rotating shaft on which the work produced is applied and,

said regenerator comprising an insulating housing, a heat conductive dividing wall extending in said insulating housing dividing said housing into first and second parallel passages, and a plurality of heat conducting fins extending normally from said dividing wall forming said first and said second parallel passages, the working fluid moving in said first passage in said first path and in said second passage in said second path.

4,392,352

APPARATUS FOR REGULATING TURBOCHARGERS AND INTERNAL COMBUSTION ENGINES ASSOCIATED THEREWITH

Gerhard Stumpp, Stuttgart, and Wolf Wessel, Oberriexingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

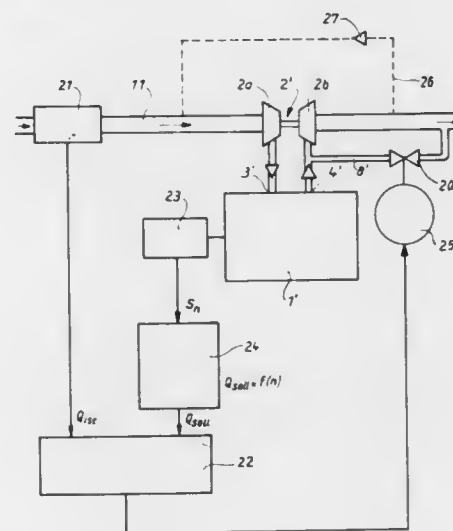
Division of Ser. No. 40,795, May 21, 1979, abandoned. This application Jun. 24, 1981, Ser. No. 276,758

Claims priority, application Fed. Rep. of Germany, May 27, 1978, 2823255

Int. Cl.³ F02B 37/12

U.S. Cl. 60—602

2 Claims



1. A regulator and anti-overload apparatus for turbochargers for use with an internal combustion engine comprising an air intake manifold, an exhaust tube, an exhaust turbocharger, said turbocharger including a turbine wheel and a compressor

element, said turbine wheel being disposed in said exhaust tube of said engine and said compressor element of said turbocharger being disposed in said intake manifold for delivering combustion air to the engine at increased pressure, an exhaust bypass line that bypasses said turbocharger; said anti-overload apparatus further including an exhaust gas flow control means which in accordance with turbocharger-engine parameters controls flow of partial quantities of exhaust gas through said exhaust bypass line, an air flow rate meter which produces an output value dependent on the flow of air through the air intake manifold, an rpm meter which produces an output value dependent on the rpm of said internal combustion engine, a curve generator to which said output value of said rpm meter is delivered, said curve generator generating a set-point air quantity (Q_{set}) which corresponds to the particular engine rpm at that time, an electronic regulator having an input which input is connected to the output of said curve generator which delivers said generated set-point air quantity thereto and to the output of said air flow rate meter producing a control signal corresponding to a deviation of the output value of said air flow rate meter from said set-point, said electronic regulator producing an output which is connected to said exhaust gas flow control means for controlling partial quantities of exhaust gas through said exhaust bypass line.

4,392,353

METHOD OF RECOVERING EXHAUST GAS FROM BOILER IN ELECTRICAL POWER GENERATING DEVICE USING COMBUSTIBLE MATERIAL AS FUEL AND APPARATUS FOR PERFORMING SUCH METHOD

Kyoichi Shibuya, Matsudo, and Tomomi Ihara, Narashino, both of Japan, assignors to Sumitomo Semento Kabushiki Kaisha, Japan

PCT No. PCT/JP81/00028, § 371 Date Oct. 15, 1981, § 102(e) Date Sep. 30, 1981, PCT Pub. No. WO81/02257, PCT Pub. Date Aug. 20, 1981

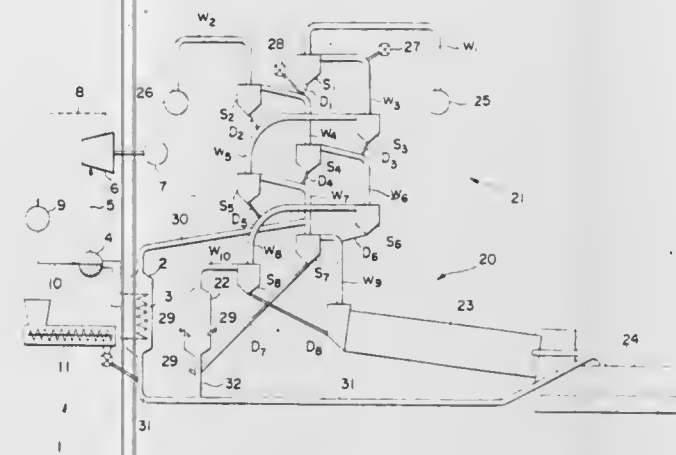
PCT Filed Feb. 13, 1981, Ser. No. 308,531

Claims priority, application Japan, Feb. 15, 1980, 55-016535

Int. Cl.³ F01K 15/00; F27B 15/00

U.S. Cl. 60—657

8 Claims



1. Apparatus for recovering exhaust gas which comprises a powder raw material sintering device and a thermal electric power generating device, said sintering device comprising a preheat section, a calcining section and a cooling section, said electric power generating device comprising a boiler, a heat exchange water pipe passing through said boiler, a turbine and an electric power generator, and the exhaust gas outlet of said boiler being connected to said preheat section of said sintering device through an exhaust gas conduit.

4,392,354

CONSTANT PRESSURE AIR STORAGE INSTALLATION WITH WATER SUPPLY FOR GAS TURBINE POWER PLANTS

Alfred Schwarzenbach, Wettingen, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland

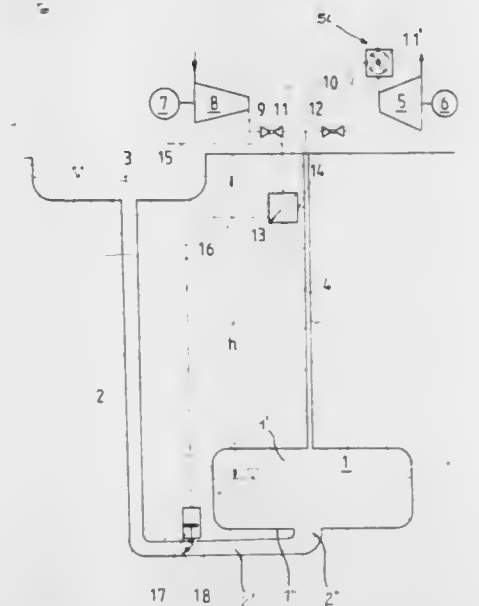
Filed Oct. 2, 1980, Ser. No. 193,097

Claims priority, application Switzerland, Dec. 5, 1979, 10786/79

Int. Cl.³ F02C 9/14

U.S. Cl. 60—727

2 Claims



1. A constant pressure air storage installation having a water supply for gas turbine power plants containing a gas turbine, comprising:
 - a subterranean cavern;
 - an air compressor;
 - an electric motor for driving the air compressor independently of the gas turbine;
 - said subterranean cavern serving for the storage of compressed air delivered by the air compressor;
 - connection lines extending between the cavern and the air compressor and the gas turbine;
 - a compensation basin;
 - a riser tube connecting the compensation basin with the cavern; and
 - means for regulating the throughflow resistance within the riser tube in dependency upon a course as function of time of a pressure drop arising within the cavern, in order to safeguard against unintentional outflow of water out of the cavern and through the riser tube, to thereby prevent blow-out of water from the cavern due to the action of the compressed air in the cavern.

4,392,355

COMBUSTION LINER

Albert J. Verdouw, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 13, 1969, Ser. No. 876,254

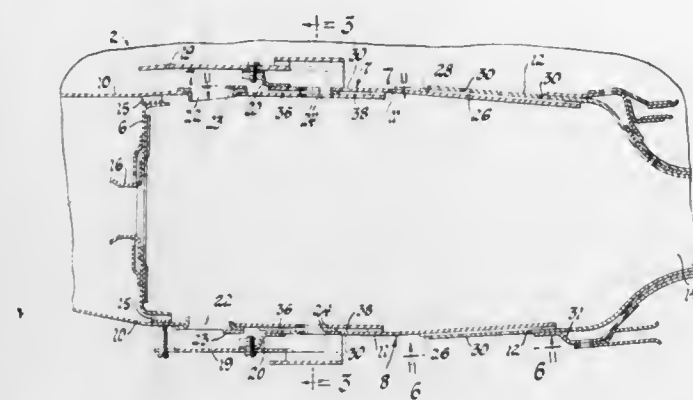
Int. Cl.³ F23R 3/00

U.S. Cl. 60—752

3 Claims

1. A combustion liner for a gas turbine engine combustion chamber or the like, the liner being of a type dividing an air space, from which combustion air is supplied, from a combustion space in which air and combustion products flow longitudinally of the liner to a combustion products outlet, the liner including a wall dividing the air space from the combustion space; the wall comprising, in combination, a forward wall section and a rearward wall section; the rearward wall section including a portion overlapping and outwardly spaced from the forward wall section, the forward wall section including a portion overlapping and inwardly spaced from the rearward wall section, the said portions defining between them an inlet

from the air space to the combustion space for cooling air to flow along the rearward wall section for film cooling of the rearward wall section; the said wall portions defining combustion air holes extending through the said wall portions for flow



transverse to the cooling air flow; barrier means blocking the cooling air inlet downstream of the combustion air holes; and auxiliary cooling air inlets defined by and extending through the rearward wall section into the cooling air inlet immediately downstream of the barrier means.

4,392,356

MAGNETIC HEAT PUMPING

Gerald V. Brown, Lakewood, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

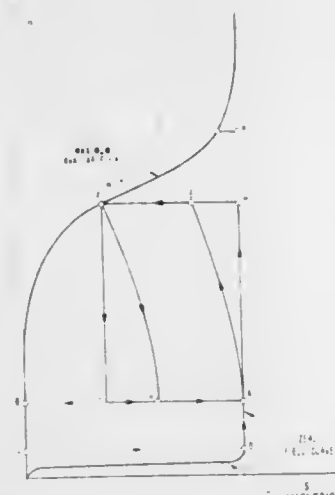
Continuation of Ser. No. 829,319, Aug. 31, 1977, abandoned.

This application Feb. 19, 1981, Ser. No. 235,868

Int. Cl.³ F25B 21/02

U.S. Cl. 62—3

7 Claims



1. A magnetic heat pump comprising:
a working component which is essentially a single ferromagnetic or ferrimagnetic material selected from the group consisting of rare earth elements and intermetallic compounds and alloys containing rare earth elements;
means for subjecting said component successively to a magnetic field to first, second, third and fourth strengths, and then back to said first strength; and
means for changing said element successively from a first to a second temperature, then to a third temperature; then to a fourth temperature; and then back to said first temperature, said first, second, third and fourth temperatures coinciding with said first, second, third and fourth strengths of said magnetic field.

4,392,357
METHOD AND MEANS CONTROLLING DEFROST CYCLES OF A COOLING UNIT

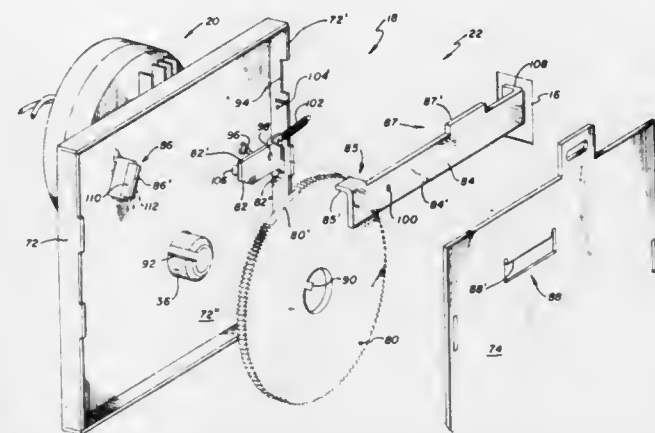
Brian D. Kinsey, and Steven W. Smock, both of Indianapolis, Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Filed Apr. 27, 1981, Ser. No. 257,870

Int. Cl.³ F25D 21/06

U.S. Cl. 62—153

7 Claims



1. A control system for controlling defrost cycles of a cooling unit comprising:
(a) defrost means,
(b) cam means, constant speed drive means coupled to said cam means, and switch means responsive to said cam means controlling electrical current to said defrost means, and
(c) monitoring means coupled to said cam means and responsive to an opening and closing of a door of said cooling unit to intermittently advance said cam means so as to shorten time lengths between defrost cycles comprising a ratchet having a section void of teeth to prevent advancement of the ratchet during a defrost mode of operation, means coupling said ratchet to said cam means, and a pawl engaging said door and said ratchet to advance same in response to an opening of said door.

4,392,358

APPARATUS AND METHOD OF DETECTING FAILURE IN A REFRIGERATOR DEFROST SYSTEM

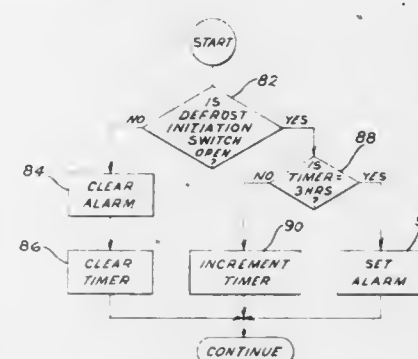
Frederick E. Hicks, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jun. 29, 1981, Ser. No. 278,302

Int. Cl.³ F25D 21/06

U.S. Cl. 62—155

6 Claims



1. The method of detecting defrost circuit failure in a refrigerating system having a refrigerating mode and a defrosting mode including an evaporator with an electric resistance heater in heat transfer relationship with the evaporator comprising:
energizing the heater periodically to initiate the defrost mode by actuating a normally open defrost initiation switch responsive to a timer,
de-energizing the heater responsive to a normally closed

defrost terminating thermostat switch opening at a predetermined elevated temperature,
periodically sensing for voltage across the normally open defrost initiation switch and generating a signal when voltage in the heater circuit is interrupted,
storing the multiple voltage signals generated in a memory bank over a predetermined period of time,
clearing the memory bank each time the defrost terminating thermostat switch closes, and
actuating an alarm when the voltage in the heater circuit is interrupted for the predetermined period of time.

4,392,359

DIRECT EXPANSION SOLAR COLLECTOR-HEAT PUMP SYSTEM

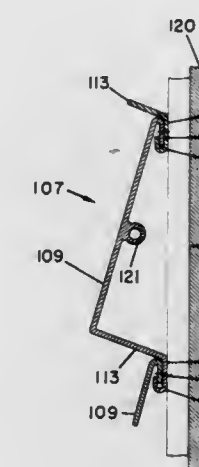
James L. Franklin, Richland, Wash., assignor to Sigma Research, Inc., Richland, Wash.

Continuation of Ser. No. 857,569, Dec. 5, 1977, abandoned. This application Feb. 11, 1980, Ser. No. 120,227

Int. Cl.³ F25B 27/00, 13/00

U.S. Cl. 62—235.1

1 Claim



1. A combined solar collector-heat pump heating system comprising at least one metallic surface member lying in a substantially vertical plane and secured to the exterior wall of a building, said metallic surface member comprising a plurality of long narrow parallel metal plates exposed directly to the ambient atmosphere and positioned to directly receive solar radiation, each plate comprising a main surface member extending horizontally, a tube extending longitudinally of said main surface member, in direct heat exchange relation therewith, a first flange extending longitudinally along a first edge of said main surface member and making an acute angle with the rear face of said main surface member, a second flange extending longitudinally along a second edge of said main surface member and extending rearwardly therefrom, and a footpiece extending from the rear edge of said second flange and lying substantially in a common vertical plane with said first flange, said footpiece being bent forwardly to form a U-shaped hook member, the footpiece of each plate being secured to the exterior wall of said building and the first flange of one plate being gripped in the hook member of an adjacent plate, said plates forming the exterior siding of said building, said tubes being joined together so as to form a conduit means, a compressor, an inlet line connecting a first end of said conduit means with the suction side of said compressor, a condenser means for extracting heat from said condenser, an outlet line connecting the high pressure side of said compressor with a first end of said condenser, a return line connecting a second end of said condenser with a second end of said conduit means, a restriction means in said return line, and a working fluid filling said conduit means, inlet line, compressor, outlet line, condenser, and return line, said working fluid having a boiling point such that it is vaporized in said conduit means and condensed in said condenser.

4,392,360

STRIP CURTAIN FOR DISPLAY TYPE REFRIGERATORS

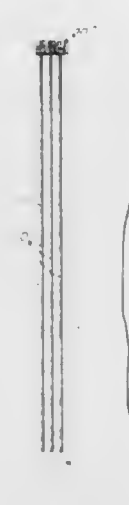
Kenneth N. Gidge, and Henry J. Richard, both of Nashua, N.H., assignors to BSL Corporation, Nashua, N.H.

Filed Sep. 25, 1981, Ser. No. 305,462

Int. Cl.³ A47F 3/04

U.S. Cl. 62—249

7 Claims



1. A closure for disposition across the opening of a display refrigerator, comprising:
a plurality of strips extending over said opening;
first fastening means attached to at least certain of the strips on a given surface thereof for mounting the strips in proximity to the opening;
second fastening means attached to the refrigerator in proximity to an edge of the opening for reciprocally mating with and engaging the first fastening means on at least certain of the strips to releasably mount at least certain of the strips directly to the refrigerator in a substantially sidewise adjacent relationship to at least partially cover the opening; and
third fastening means attached to at least certain of the strips on a second given surface different from said first given surface for reciprocally mating with and engaging said first fastening means of an adjacent strip to releasably mount said strips together in a substantially superimposed stacked relationship to at least temporarily uncover at least a portion of the opening, thereby to allow at least certain of the strips to be attached to outer faces of certain other strips to facilitate loading and unloading of the refrigerator while maintaining the strips in locations convenient to the opening for rapid assembly and disassembly of the closure.

4,392,361

SELF-CONTAINED ICE CREAM APPARATUS

Alfredo Cavalli, Via Galileo Galilei 9, Pessano Con Bornago (Milano), Italy

Filed May 28, 1981, Ser. No. 267,874

Claims priority, application Italy, May 30, 1980, 22480 A/80; Jul. 10, 1980, 23366 A/80; Dec. 2, 1980, 26354 A/80; Jan. 19, 1981, 19198 A/81

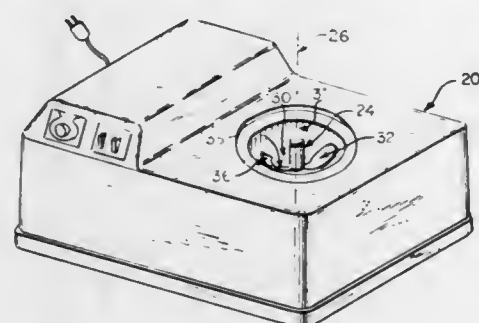
Int. Cl.³ A23G 9/00

U.S. Cl. 62—343

45 Claims

1. A self contained apparatus for making an ice cream type mixture from a plurality of ingredients therefor comprising a mixing chamber having a base wall and a side wall with respect thereto, refrigeration means for controllably cooling the interior of said chamber, blade means rotatably mountable in said mixing chamber for rotation about an axis of said chamber, and means for controllably driving said blade means within said chamber about said axis, said blade means comprising means for scraping said side and base walls for forcing said ingredients from said side wall toward said axis and upwardly

away from said base wall and for forcing said ingredients from said axis toward said side wall and downwardly toward said base wall as said blade means rotates about said axis for stirring and intermixing said ice cream ingredients throughout said chamber interior, said blade means being configured and dis-



posed for substantially continually transporting the warmer portions of the mixture toward the colder areas thereof and the colder portions of the mixture toward the warmer areas thereof during the rotation of said blade means for providing a substantially uniform temperature gradient for substantially the entire resultant ice cream mixture.

4,392,362

MICRO MINIATURE REFRIGERATORS

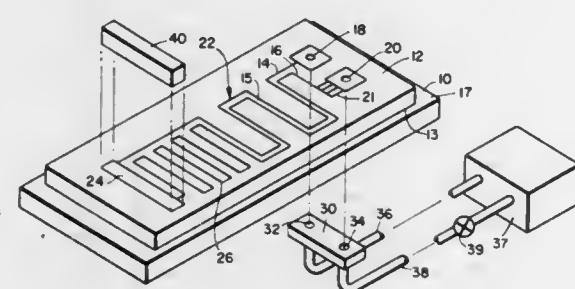
William A. Little, Palo Alto, Calif., assignor to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Continuation-in-part of Ser. No. 23,245, Mar. 23, 1979, abandoned. This application May 1, 1981, Ser. No. 259,688

Int. Cl.³ F25B 19/00

U.S. Cl. 62—514 R

26 Claims



1. A compact refrigerator comprising a plurality of plate or platelike members all of materials having substantially the same coefficient of thermal expansion, means bonding said members together in sealed pressure-tight surface contact into a laminated structure and means forming in said structure a low-temperature chamber connected with input and output fluid ports by respective supply and return fluid passages, said supply passage being adapted for conducting incoming highly compressed gas and including a capillary or porous section leading into the cooling chamber whereby the incoming high-pressure gas is allowed to expand and reduce in temperature before entering said chamber, and said return passage having a section extending substantially coextensively in heat exchange relation adjacent at least part of said supply passage, and means whereby said chamber may be in heat exchange contact with a device to be cooled.

4,392,363

SLIDE FASTENER STRINGER WITH VENT HOLES

Yoshio Matsuda, Nyuzen, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

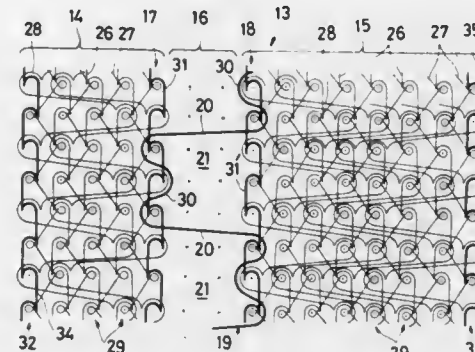
Filed Aug. 15, 1980, Ser. No. 178,309

Claims priority, application Japan, Nov. 27, 1979, 54-163930[U]

Int. Cl.³ D04B 23/08

U.S. Cl. 66—193

6 Claims



1. A venting slide fastener stringer comprising:
 - (a) a warp-knit stringer tape including a pair of longitudinal warp-knit webs spaced transversely from each other, with a longitudinal wale-free region therebetween, and having a pair of marginal wales, respectively, confronting each other across said wale-free region, and a connecting thread having portions laid only in said marginal wales and substantially parallel adjacent portions all spaced longitudinally of and extending transversely across said wale-free region in a direction substantially perpendicular to said marginal wales, thereby defining a plurality of substantially rectangular vent holes longitudinally along said wale-free region, each of said webs comprising foundation threads constituting a plurality of wales juxtaposed across said each web, said marginal wales being composed of threads that are more rigid than said foundation threads; and
 - (b) a row of coupling elements mounted on one of said webs remotely from said wale-free region.

4,392,364

FLAT BED KNITTING MACHINE

Roger F. N. Curry, 46, Cleveland Sq., London, W.2, England

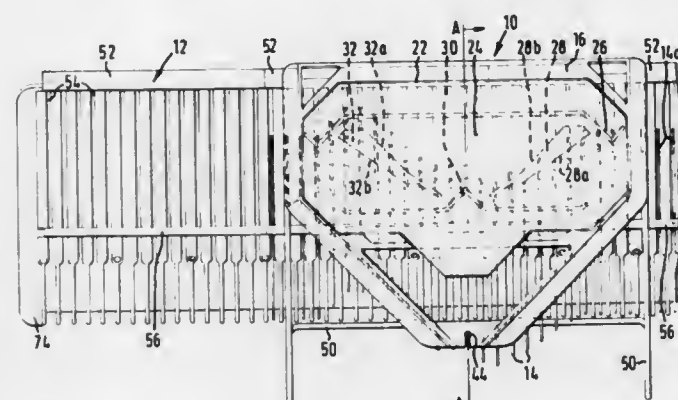
Filed Mar. 2, 1981, Ser. No. 239,603

Claims priority, application United Kingdom, Mar. 13, 1980, 8008567

Int. Cl.³ D04B 7/00

U.S. Cl. 66—60 H

8 Claims



1. A flat bed knitting machine comprising a flat elongate bed on which is retained a plurality of parallel, latchable, needles equally spaced along the length of the bed and each movable relative to the bed in a direction lengthwise of the needles and transverse of the bed length, a carriage slidably mounted on the bed for movement transversely of the needles, and a nee-

dle-engaging cam plate releasably located in a recess in an upper surface of the carriage and retained in the recess, the carriage having a handle gripped by the user of the machine to transverse the carriage back and forth along the length of the bed.

4,392,365

APPARATUS FOR TREATING TEXTILE MATERIAL FOR CONTINUOUS LENGTH

Mitsuyasu Miyamoto, Itami; Osamu Ishimaru, Matsubara, and Nobuyoshi Fukube, Takatsuki, all of Japan, assignors to Hisaka Works, Ltd., Osaka, Japan

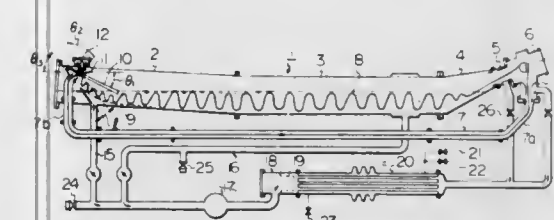
Continuation of Ser. No. 213,615, Dec. 5, 1980, abandoned, which is a continuation of Ser. No. 84,072, Oct. 12, 1979, abandoned. This application Oct. 20, 1981, Ser. No. 313,320

Claims priority, application Japan, Oct. 18, 1978, 53-127265; Feb. 24, 1979, 54-23235

Int. Cl.³ D06B 3/28

U.S. Cl. 68—19

8 Claims



1. An apparatus for treating a textile material in a continuous loop form, comprising a circular treating passageway comprised of a laterally elongated bath for allowing transient residence of the textile material while transferring the textile material in a zigzag form in a treating liquor, the level of said treating liquor being kept below half of the depth of the residence bath, a section for jetting the treating liquor connected to an outlet portion of the residence bath, and a passageway located generally below the bath for transferring the textile material along with a rapid flow of the treating liquid and having an outlet end connected to an inlet portion of the bath and an inlet end connected to an outlet portion of the treating liquor jetting section, at least one port for intaking the treating liquor provided in the bath, a suction pipe communicating with the port, a pump connected to the suction pipe for discharging treating liquor to the treating liquor jetting section and a heat exchanger downstream of the pump, characterized in that the residence bath is inclined so as to gradually increase the depth of the treating liquor in the advancing direction of the textile material, a baffle plate provided at the inlet portion of the bath above the level of the treating liquor at a prescribed interval of distance from the outlet end of the transfer passageway disposed so that the textile material strikes against the baffle plate above the level of the treating liquor in the bath, and a perforated plate is provided, with an inclination, below the baffle plate and on to which the textile material is deflected by the baffle plate for smooth advancement of the textile material.

4,392,366

FLOW CONTROLLER

Thomas E. Godfrey, Moore, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Apr. 28, 1981, Ser. No. 258,410

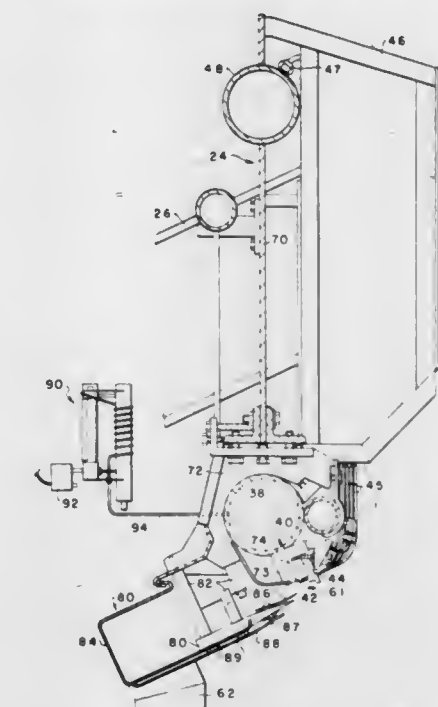
Int. Cl.³ D06B 1/02

U.S. Cl. 68—205 R

11 Claims

1. Apparatus for applying non-Newtonian fluids moving material comprising: means for conveying the material in a pre-determined path of travel, liquid application means mounted above the path of travel of the material having a row of outlets positioned each having a discharge axis to discharge a corresponding row of generally parallel streams downwardly toward the path of travel of the material, manifold means supplying non-Newtonian fluid under pressure to said row of outlets, means to supply non-Newtonian fluid to said manifold

means, fluid deflecting means having discharge axes positioned on one side of said row of outlets so that discharge axes of said fluid deflecting means intersect the discharge axes of the outlets for selectively deflecting the streams of liquid from said outlets away from the path of travel of the material, and a liquid collection chamber positioned on the other side of the discharge axes of the row of outlets from said deflecting means, said liquid collection chamber having an opening extending



4,392,367

PROCESS AND APPARATUS FOR THE ROLLING OF STRIP METAL

Wilfried Bald, Hilchenbach, Fed. Rep. of Germany, assignor to Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

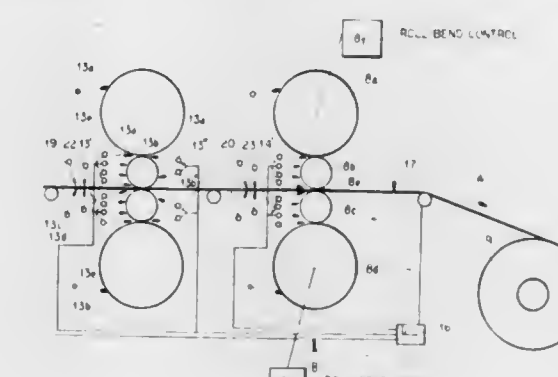
Filed Jul. 9, 1980, Ser. No. 167,015

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1979, 2927769

Int. Cl.³ B21B 37/10, 27/06

U.S. Cl. 72—12

13 Claims



1. A method of operating a plane rolling line comprising a multiplicity of cold rolling stands, each having a pair of working rolls defining a gap, said gap being traversed by a strip of steel or nonferrous metal with said strip passing through a

penultimate stand and a last stand in succession prior to emerging from said line, the rolls of each stand being cooled by respective arrays of nozzles training coolant on the surfaces of said rolls, said method comprising the steps of:

- monitoring deviations from planarity of said strip at a location downstream of said last stand in the direction of movement of said strip through said line and across said strip, said deviations having a maximum value;
- proportionally controlling coolant flow through nozzles of said last stand exclusively in response to measured planarity deviation values up to a threshold planarity deviation less than said maximum deviation in a sense tending to reduce the measured deviations; and
- additionally controlling the nozzles of at least said penultimate stand in response to the measured deviation values only upon the measured deviation values exceeding said threshold, said threshold planarity deviation corresponding to substantially 30% of said maximum value, the control of the flow of coolant being effected by directing coolant only along the upstream side on the surface of the rolls of the last stand and by directing coolant on both the upstream and downstream sides of the rolls of the other stands.

6. In a cold-rolling line for the cold reduction of steel or nonferrous metal strip, wherein said strip is passed in succession between working rolls of a multiplicity of rolling stands and respective arrays of nozzles at each of said stands train coolant onto surfaces of the respective rolls, said strip passing through a penultimate stand and a last stand prior to emergence from said line, the improvement comprising:

- means for monitoring the planarity of said strip downstream of said last stand in the direction of movement of said strip for producing signals representing deviations from planarity at locations across said strip;
- means responsive to said signals for controlling the nozzles of said last stand exclusively upon the detection of planarity deviations up to a threshold value of substantially 30% of the maximum deviation of planarity; and
- means automatically responsive to said signals for additionally controlling the nozzles of said penultimate stand upon the measured planarity deviation exceeding said threshold value, the means responsive to said signals being constructed and arranged to controllably cool the rolls of said penultimate and last stands so as to reduce the measured deviation, said means responsive to said signals including a proportional controller, said nozzles being provided only on the upstream side of said last but on both the upstream and the downstream sides of the other stands of said line.

4,392,368

ARRANGEMENT FOR PRESSES

Hans Folkesson, Trollhättan, and Ulf Öberg, Gothenburg, both of Sweden, assignors to Saab-Scania Aktiebolag, Linköping, Sweden

PCT No. PCT/SE79/00093, § 371 Date Dec. 17, 1980, § 102(e) Date Nov. 24, 1980, PCT Pub. No. WO80/02239, PCT Pub. Date Oct. 30, 1980

PCT Filed Apr. 17, 1979, Ser. No. 216,998

Int. Cl.³ B21D 22/12

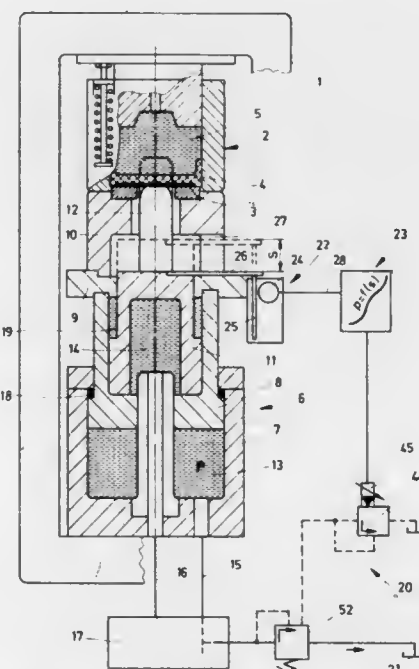
U.S. Cl. 72—63

5 Claims

1. Apparatus for a sheet metal forming press wherein there is at least one component which moves in relation to another part of the press during a forming operation and is controlled in its movements by hydraulic fluid under pressure, said apparatus providing for control of the pressure of said hydraulic fluid in accordance with a predetermined but readily alterable program of relationships between position of said component and magnitude of said pressure, and said apparatus comprising a position transducer that produces a position output which varies in dependence upon the position of said component and pressure regulating means for changing the magnitude of said pressure in correspondence with changes in value of a charac-

teristic of an electrical control current fed to said pressure regulating means, said apparatus being characterized by:

- a plurality of elongated, laterally spaced apart position conductors, one for each of a plurality of positions of said component, all extending substantially in one direction;
- a plurality of elongated, laterally spaced apart pressure value conductors, one for each of a plurality of magnitudes of said pressure and each extending transversely to all of said position conductors but out of contact with them to be electrically connectable to any selected one of said position conductors by means of a readily disconnectable connector;
- input current means normally connected with all of said pressure value conductors for feeding an input current to all of them that has a magnitude for each of them which is different from that of the input current fed to the others and which, for each, corresponds to a unique magnitude of said pressure;



(D) circuit control means comprising:

- a decoder connected with said position transducer to receive said position output therefrom, and
- means under the control of said decoder for establishing each of said position conductors selectively and alternatively in a state of connection with said pressure regulating means or in a state of disconnection therefrom and whereby the position conductor for the existing position of said component is established in one of said states and all of the others are maintained in the other of said states; and

(E) electrical circuit means for so connecting all of said pressure value conductors with said pressure regulating means as to feed to the latter a control current having a value that substantially corresponds to the magnitude of the input current fed to a pressure value conductor connected with the position conductor that is in its said one state.

4,392,369

DIAGONAL ROLLING OF HOLLOW STOCK

Detlef Ramdohr, Krefeld; Walter Knauf; Karl-Heinz Brensing, both of Düsseldorf, and Rolf Kümmerling, Essen, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Mar. 23, 1981, Ser. No. 246,178

Claims priority, application Fed. Rep. of Germany, Apr. 1, 1980, 3013127

Int. Cl.³ B21B 19/06

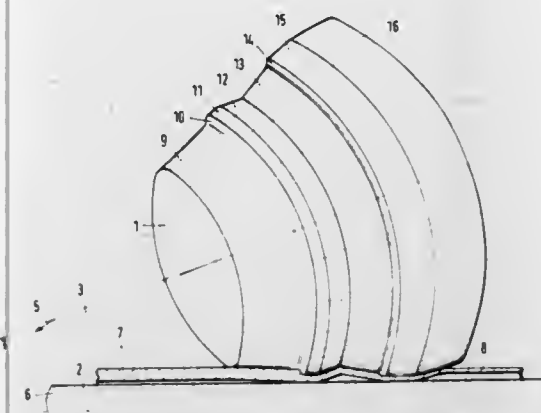
U.S. Cl. 72—96

3 Claims

1. In a diagonal rolling mill for stretching seamless hollows, using at least two rolls of overall truncated configuration,

being arranged in a common plane of rolling transverse to an axis of rolling and having obliquely disposed axes, further being oriented so that a smaller end of each of the rolls faces the oncoming hollow, the improvement comprising, in combination, each of the rolls having:

- a first annular, radially projecting working shoulder, projecting from the conical smaller end;
- a second, larger, annular, radially projecting working shoulder;



an annular recess between the shoulders and a conical surface as transition from the recess to the second shoulder; and

a circular cylindrical mandrel rod for coaction with the rolls, wherein said first shoulder urges material of the hollow against the mandrel for reducing the wall thickness of the hollow and stretching same, said recess receiving material radially displaced because of the stretching, the second shoulder further stretching the hollow, all in coaction with the cylindrical mandrel.

4,392,370

TWO-HIGH ROLLING STAND FOR BAR AND/OR WIRE ROLLING MILL

Per-Olof Strandell, Bockstigen 3, 183 51 Täby, Sweden

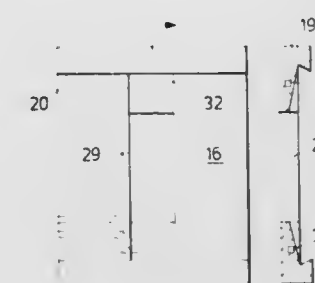
Filed Oct. 20, 1980, Ser. No. 198,593

Claims priority, application Sweden, Oct. 23, 1979, 7908779

Int. Cl.³ B21B 31/02

U.S. Cl. 72—201

13 Claims



1. A two-high rolling stand for use in a plurality of stands constituting a rolling mill comprising a roll package having a pair of rolls with axial directions arranged in parallel, said roll package including bearing devices and housing therefor operable to support said rolls within said stand, end members arranged to exert force on said roll package, each of said end members having a roll gap adjustment means associated therewith for exerting force between said rolls, a pair of side plates arranged to contact said end members on either side thereof along a pair of planes parallel to the axial direction of said pair of rolls, said side plates releasably engaged with said end members and arranged to take up the roll forces exerted by said roll package, and said side plates having the main extension planes thereof substantially in parallel with a plane passing through the center lines of said pair of rolls.

4,392,371

METHOD OF PLATE ROLLING AND EQUIPMENT THEREFOR

Taketo Okumura; Taiji Tsukahara; Takashi Mikuriya; Hideki Watanabe, and Katsutoshi Katada, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

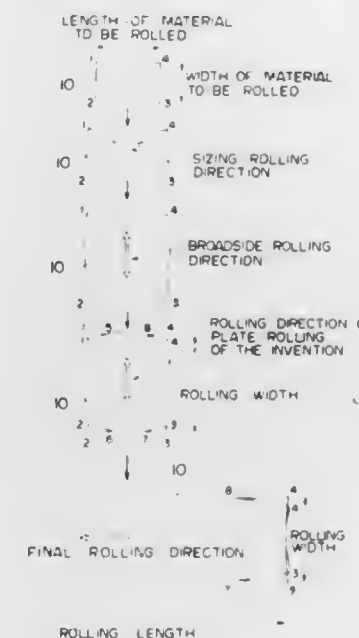
Continuation of Ser. No. 167,122, Jul. 9, 1980, abandoned. This application Sep. 3, 1982, Ser. No. 414,838

Claims priority, application Japan, Jul. 13, 1979, 54-89567

Int. Cl.³ B21B 1/02

U.S. Cl. 72—231

4 Claims



1. A method for manufacturing a heavy plate having no side crop portions bulging outwardly by rolling a rectangular slab, comprising the steps of:

- rolling said slab in the longitudinal direction thereof;
- rolling said slab in the lateral direction perpendicular to the longitudinal direction of said slab;
- rolling opposite end portions of said slab by upper and lower rolls in said lateral direction of said slab with a gap between said upper and lower rolls being tapered toward axially outer directions of said upper and lower rolls so that said end portions are bevelled, whereby each corner of said end portions projects outwardly; and
- forming said heavy plate by rolling said slab having bevelled end portions in said longitudinal direction of said slab.

4,392,372

METHOD AND APPARATUS FOR FLANGING TUBE ENDS

Alexander Brodsky, and Richard J. Clark, both of Auckland, New Zealand, assignors to Fisher & Paykel Limited, Auckland, New Zealand

Filed Feb. 20, 1981, Ser. No. 236,272

Claims priority, application New Zealand, Mar. 3, 1980, 193022

Int. Cl.³ B21D 7/04, 51/18

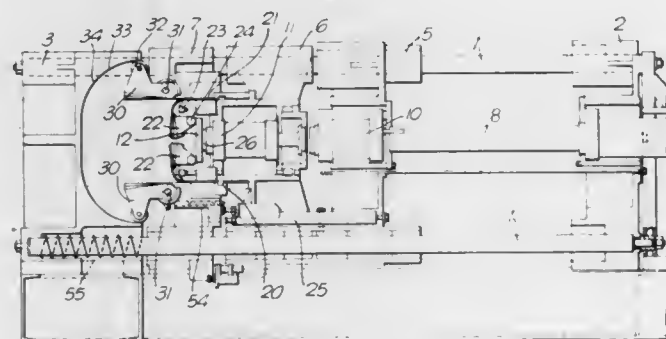
U.S. Cl. 72—311

11 Claims

1. A method of flanging one end of a thin metal tube comprising the steps of mounting a sheet metal tube on a carriage, clamping the tube to the carriage, placing complementary pivotal inner and outer forming tools with parts thereof in contact with the inner and outer surfaces respectively of one end portion of said tube, the inner forming tools being pivotal on an inner frame and the outer forming tools being pivotal on an outer carriage, and forming a radially inwardly directed flange on said one end portion by pivotally moving the inner and outer forming tools with said tube end portion between them to displace said one end portion radially inwardly and form ribs thereon, and moving the pivot axes of said forming tools relatively to each other in a direction parallel to the tube axis and slidably with respect to said one end portion during

the formation of said flange and ribs to produce said flange having a cross-sectional shape which includes two sets of oppositely directed ribs the sides of which increase in depth from the tube wall towards the tube center.

7. Apparatus for flanging and ribbing one end of a thin metal tube comprising a frame, a plurality of rod members extending between the ends of said frame and along an axis of said frame, an outer carriage slidable on said rod members, a plurality of radially extending circumferentially spaced outer forming tools pivotally mounted on said outer carriage so as to be substantially radially pivotal through substantially 90°, an intermediate carriage slidable on said rod members, clamping means on said intermediate carriage to clamp a tube to be flanged thereon with the tube axis oriented parallel to said axis of said frame, a plurality of radially extending circumferen-



tially spaced inner forming tools pivotally mounted on said intermediate carriage for substantially radially pivotal movement through substantially 90°, means to cause said outer forming tools to pivot through said substantially 90°, and force supplying means operatively connected to said inner and outer forming tools to move said inner and outer forming tools with respect to said frame and each other in a manner such that a radially inwardly directed flange on one end of said tube disposed between said forming tools is formed, said flange having a width less than the radius of the tube and a cross-sectional shape in the form of a series of two sets of oppositely directed ribs the sides of which increase in depth from the tube wall towards the tube center, said force supplying means including means to displace the pivotal axes of said tools with respect to each other in a direction parallel to the frame axis during formation of the flange.

4,392,373

FORMING MEANS

Richard J. Clark, Auckland, New Zealand, assignor to Fisher & Paykel Limited, Auckland, New Zealand

Filed Jul. 23, 1980, Ser. No. 171,421

Claims priority, application New Zealand, Jul. 27, 1979, 191145

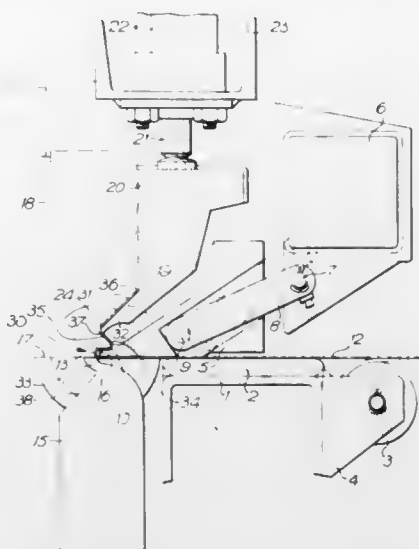
Int. Cl.³ B21D 11/04

U.S. Cl. 72—321

2 Claims

1. A sheet bending apparatus for forming a substantially S shaped formation in a piece of sheet metal comprising clamping means for holding the piece of sheet metal; a single surface shaped to provide a first bend in the piece of sheet metal; a first forming means rotatable about an axis between a first position and a second position for bending the sheet metal to conform to a portion of said single anvil surface to form a first, 180° bend in the piece of sheet metal; and a second forming means linearly displaceable towards said

single anvil surface from a third position to a fourth position for forming a second bend in the piece of sheet metal



to complete the S shaped formation in the piece of sheet metal.

4,392,374

TRANSDUCER COUPLING APPARATUS FOR INHOMOGENEITY DETECTOR

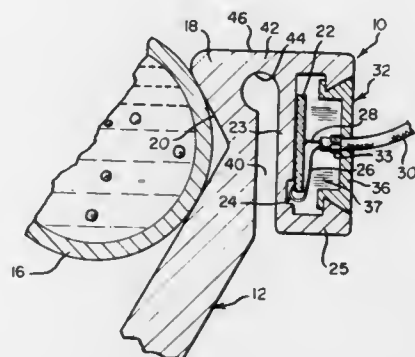
Leonard N. Liebermann, La Jolla, Calif., assignor to Tif Instruments, Inc., Miami, Fla.

Filed Jun. 8, 1981, Ser. No. 271,257

Int. Cl.³ G01N 29/02

U.S. Cl. 73—19

6 Claims



1. In a detector for detecting inhomogeneities in fluid flowing through a conduit including electro-mechanical transducer assemblies disposed on the wall of such conduit in an acoustically coupled relationship with substantially all acoustic coupling occurring through such conduit and means for sensing variations in a driving signal supplied to a transducer on one of said transducer assemblies caused by such inhomogeneities, the improvement comprising:

an acoustically conductive coupling member for coupling a transducer to such conduit; said coupling member including;

a first portion configured with a surface for contacting such conduit wall over an area sufficient to transmit mechanical energy between the member and such conduit wall; and a second portion spaced apart from such conduit wall upon which a transducer is mounted;

said first and second portions being partially acoustically coupled together to form a mechanical filter means for mechanically filtering out undesirable oscillations resulting from vibrational modes of the conduit and coupling member system in which acoustic energy travels primarily in the conduit, rather than in the fluid.

4,392,375

ROTATIONAL ANGLE DETECTING APPARATUS
Osamu Eguchi, Anjo; Mitsutoshi Hattori, Okazaki, and Takatsugu Hanaoka, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

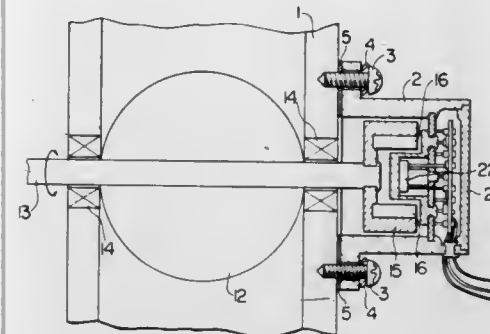
Filed Jan. 26, 1981, Ser. No. 228,551

Claims priority, application Japan, Jan. 30, 1980, 55-9779

Int. Cl.³ G01M 19/00; G08C 19/04

U.S. Cl. 73—118

2 Claims



1. A rotational angle detecting apparatus comprising: a throttle valve rotatably mounted in a throttle body; a yoke made of a magnetical material and fixed to a shaft of said throttle valve; a pair of permanent magnets so fixed to said yoke with a space, to generate a parallel magnetic field in said space; and magnetic sensing means adjustably mounted in a support in said space to generate an electrical output in response to an angular displacement of said permanent magnets with respect to said magnetic sensing means, said magnetic sensing means including a ferromagnetic metal magneto-resistance element whose electric resistance varies in dependence on changes of an angle formed by a direction of the magnetic field and a direction of a current flowing therethrough.

4,392,376

METHOD AND APPARATUS FOR MONITORING BOREHOLE CONDITIONS

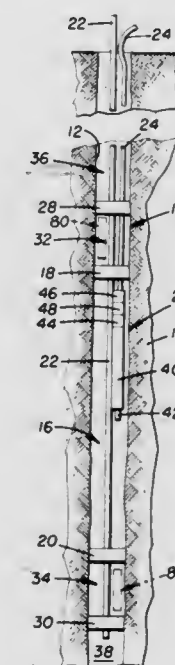
Peter L. Lagus, Olivenhain; Edward W. Peterson, Del Mar, and William O. Hicks, San Diego, all of Calif., assignors to S-Cubed, San Diego, Calif.

Filed Mar. 31, 1981, Ser. No. 249,622

Int. Cl.³ E21B 47/10

U.S. Cl. 73—155

35 Claims



1. In a method for monitoring flow conditions within a test

interval of a borehole, the borehole being filled with a substantially incompressible fluid capable of flow between the test interval and the surrounding formation, the steps comprising developing a pressure differential between the test interval and the surrounding formation for inducing flow therebetween,

arranging a variable volume device in communication with the test interval, and

varying the effective volume of the variable volume device in order to limit pressure variation in the test interval and minimize system compliance effects while simultaneously monitoring selected flow conditions within the test interval, operation of the variable volume device being regulated in order to maintain substantially constant pressure within the test interval.

4,392,377

EARLY GAS DETECTION SYSTEM FOR A DRILL STEM TEST

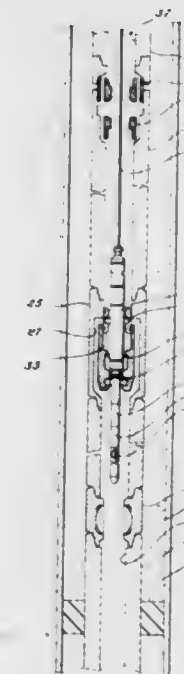
E. Edward Rankin, Fort Worth, Tex., assignor to Gearhart Industries, Inc., Fort Worth, Tex.

Filed Sep. 28, 1981, Ser. No. 305,947

Int. Cl.³ E21B 47/00

U.S. Cl. 73—155

9 Claims



1. In a method for providing concurrent surface indication of earth formation characteristics during drill stem testing, the method including the steps of running in on a drill string a releasable packer and a bypass sub having a bore for sealingly receiving a wireline tool and a bypass passage means permitting formation fluid flow around the wireline tool, then selectively opening and closing the bypass passage means with the wireline tool sealed in the bore and the packer set to selectively shut in and allow formation fluid flow to the surface while concurrently providing to the surface through the wireline formation flowing and shut in characteristics sensed by the wireline tool, the improvement comprising:

providing for the wireline tool, sensing means for sensing the gas content of the formation fluid and providing a concurrent indication to the surface;

providing a reversing valve means for communicating a well annulus with the interior of the drill string while the wireline instrument is located downhole;

stopping the flow of formation fluid should the sensing means indicate the possibility of a gas flow rate above a selected safe minimum; then

reversing circulating annulus fluid from the annulus down through the reversing valve means and up the drill string to remove formation fluid from the drill string; then

removing the wireline tool.

4,392,378

CAPACITANCE MEASURING APPARATUS

Brian E. Pitches, Lothian; Robert M. S. Murray, Edinburgh, and Douglas J. Rogers, Midlothian, all of Scotland, assignors to 501 Ferranti Limited, Hellenwood, England

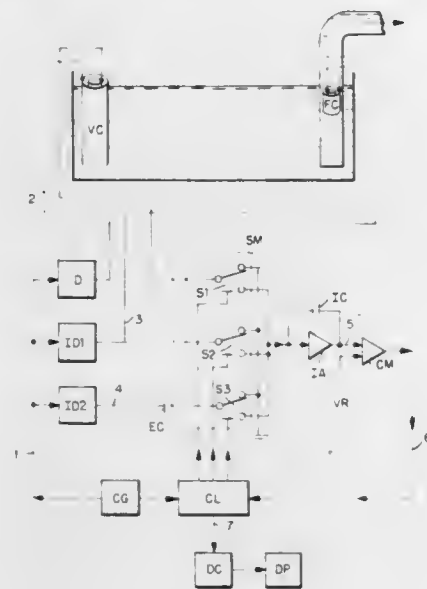
Filed Aug. 25, 1980, Ser. No. 180,885

Claims priority, application United Kingdom, Sep. 1, 1979, 7930387

Int. Cl.³ G01F 23/26; G01R 27/26

U.S. Cl. 73—304 C

8 Claims



1. Capacitance measuring apparatus which includes a variable capacitor and a first reference capacitor, means for generating a periodic voltage waveform for application directly to the variable capacitor and means for generating the periodic waveform in inverted form to the reference capacitor, an integrator, switching means for connecting the variable capacitor and the reference capacitor sequentially to the input of the integrator, comparison means for comparing the output of the integrator with a reference level, control means responsive to the output of the comparison means to control a sequence of operation of the switching means and to deliver an output pulse train, and output means responsive to the output pulse train to determine the capacitance of the variable capacitor relative to that of the reference capacitor.

4,392,379

ULTRASONIC DIAGNOSTIC EQUIPMENT

Keiki Yamaguchi, Musashino, Japan, assignor to Yokogawa Electric Works, Tokyo, Japan

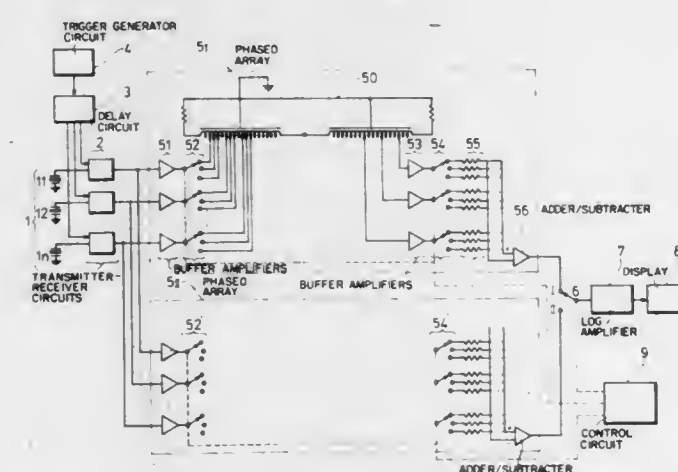
Filed Feb. 5, 1981, Ser. No. 231,849

Claims priority, application Japan, Feb. 12, 1980, 55-15887

Int. Cl.³ G01N 29/00

U.S. Cl. 73—626

4 Claims



1. In an ultrasonic diagnostic equipment having an ultrasonic transducer which emits ultrasonic pulses to an acoustic field to

be examined and receives reflected ultrasonic waves therefrom for obtaining a tomogram of said acoustic field, said ultrasonic diagnostic equipment including:

first and second channels having phased arrays of different adjustable focal sections
means for alternatively operating said first and second channels during the reception of said reflected ultrasonic waves, and
switch means for adjusting the focal sections of the phased array of each of said first and second channels when the other of said first and second channels is in operation receiving said reflected waves from said acoustic field whereby tomograms of high resolution are obtained without being influenced by spike noise due to adjustments in the focal sections of the phased arrays.

4,392,380

HIGH TEMPERATURE PRESSURE COUPLED ULTRASONIC WAVEGUIDE

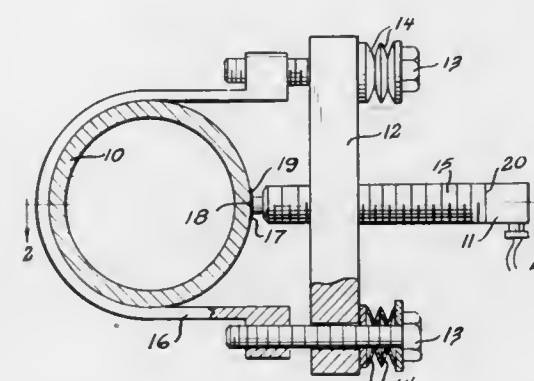
Michael J. Caines, Forest Park, Ill., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 11, 1981, Ser. No. 233,354

Int. Cl.³ G01N 29/00

U.S. Cl. 73—644

7 Claims



1. A device for ultrasonically monitoring the characteristics of a material comprising:
a threaded waveguide;
a transducer coupled to one end of the waveguide;
a treated copper foil positioned between the material and the other end of the waveguide, wherein the treatment of said treated foil comprises annealing and polishing to render the foil soft and smooth;
an adjustable holding fixture for positioning the waveguide against the foil and against the material; and
force compensating means for maintaining substantially constant pressure against the waveguide and against the material during creep of said fixture wherein said force compensating means is positioned far enough away from the material so as not to be exposed to temperatures of such a high level as to cause relaxation of said force compensating means.

4,392,381

DRIVER BAR ASSEMBLY

Robert W. Martin, West Covina, Calif., assignor to Kimball Industries, Inc., Monrovia, Calif.

Filed Aug. 10, 1981, Ser. No. 291,333

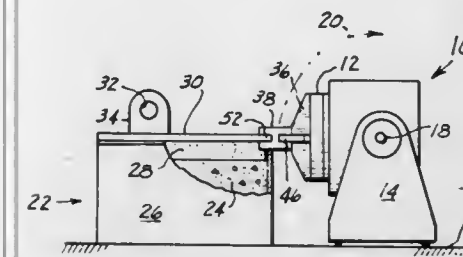
Int. Cl.³ B06B 1/00, 3/00

U.S. Cl. 73—663

21 Claims

1. Driver bar assembly comprising a bar element and a retainer element separably connected thereto; said bar element having a normally vertically disposed base attachable to a pivotally mounted shaker head and a normally horizontally disposed flange adapted to lie in a common plane with and spaced from a slip plate to be driven by said shaker head; said retainer element having first bracket means in which said bar

element flange is bracketable, and second bracket means in which said slip plate is bracketable opposite said bar element flange, whereby said flange and slip plate spacing is bridged in vibration transmitting relation between said shaker head and said slip plate; said retainer element being separable from said



slip plate and said bar element flange without relative movement of said slip plate and shaker head, said bar element and shaker head being freely angularly movable relative to said slip plate in the separated condition of said retainer element and said bar element.

4,392,382

LINEARIZED ELECTRONIC CAPACITIVE PRESSURE TRANSDUCER

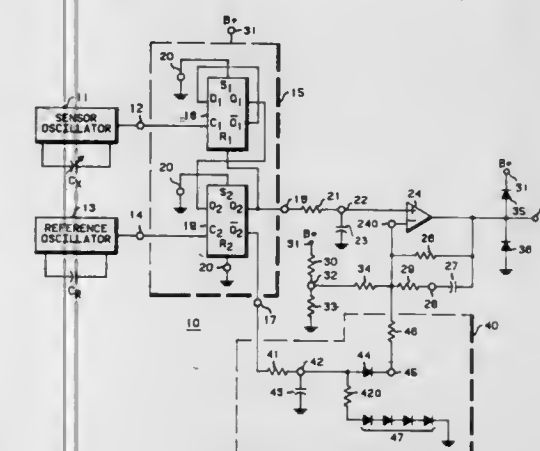
Donald O. Myers, Carpentersville, Ill., assignor to Motorola Inc., Schaumburg, Ill.

Filed Mar. 9, 1981, Ser. No. 241,888

Int. Cl.³ G01L 19/04, 19/12

U.S. Cl. 73—708

12 Claims



1. A linearized electronic pressure transducer operative over a range of temperature comprising:
first means for providing a first analog signal having a magnitude varying as a predetermined function of sensed pressure;
non-linear circuit means coupled to said first means for receiving a signal therefrom and in response thereto effectively providing an analog control signal having a magnitude varying as a predetermined non-linear function of said first analog signal magnitude;
output circuit means coupled to both said first means and said non-linear circuit means for receiving both said analog control signal and said first analog signal and providing an output signal having a magnitude varying as a substantially linear function of sensed pressure, said output circuit means utilizing said control signal magnitude to modify the magnitude variation provided by said first analog signal to produce said linearly varying output signal; and
temperature compensation means operatively coupled to said output circuit means for providing temperature compensation for said output signal and thereby providing a substantially linear variation of said output signal as a function of pressure over a range of temperature.

4,392,383

DISTANCE-FREQUENCY TRANSDUCER

Hans Bauerlen; Thomas Pfendler, both of Gerlingen, and Berthold Wocher, Leonberg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

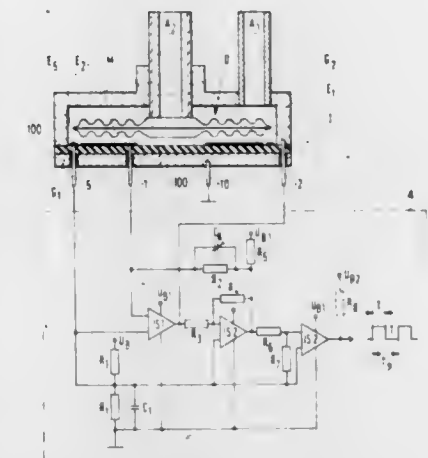
Filed Mar. 17, 1981, Ser. No. 244,783

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011594; Oct. 7, 1980, 3037802

Int. Cl.³ G01L 9/12; H01G 7/00

U.S. Cl. 73—724

10 Claims



1. Pressure transducer comprising an RC oscillator circuit including a measuring capacitor having a capacitance (C) varying in dependence on pressure, and determining the frequency of the RC oscillator circuit, said capacitor having a fixed electrode (E1) and a movable electrode (E2); wherein the fixed electrode comprises a layer of electrically conductive material surrounding a central area which comprises non-conductive material (100), and wherein the movable electrode comprises a metallic, corrugated membrane (M) having a surface facing said fixed electrode, said membrane (M) forming a pressure pick-up (D) and being movable relative to said fixed electrode (E1) as a function of pressure applied thereon.

4,392,384

MEASURING INSTRUMENT WITH AUTOMATIC LOADING AND AN AUTOMATIC CYCLE, FOR STUDYING THE TENSILE CHARACTERISTICS OF FIBRES

Jean-Pierre Yquel, Colombes, France, assignor to L'Oreal, Paris, France

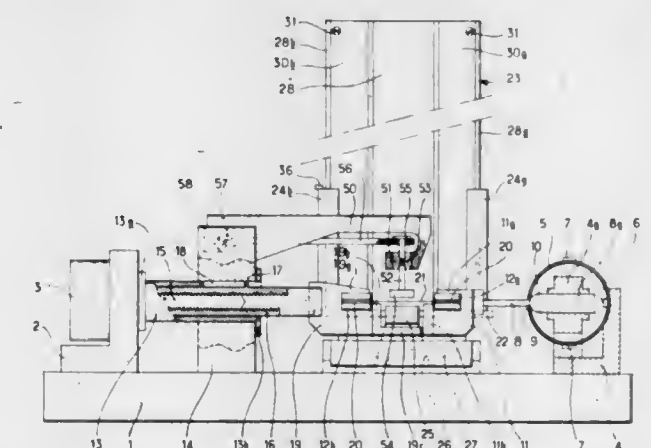
Filed Sep. 14, 1981, Ser. No. 301,833

Claims priority, application France, Sep. 22, 1980, 80 20331

Int. Cl.³ G01N 3/08

U.S. Cl. 73—830

19 Claims



1. In a measuring instrument for measuring the deformations of and tensile forces in a sample fibre or analogous material when subjecting the sample to a longitudinal tensile stress and

which comprises a frame, a tensioning means carried on the frame and including a movable element to be associated with one, movable, end of the sample and a force detector also carried on the frame and including means to be associated with the other, fixed, end of the sample, the improvement in that the said instrument comprises a feed plate; a plurality of pairs of sample blocks with the sample blocks of each pair being provided with means firmly to hold opposite ends of a sample to be tested; a sample loader provided with means to receive a plurality of said pairs of sample blocks stacked with the samples carried thereby parallel one with the other, said sample loader having a discharge axis perpendicular to the direction of extent of said samples and being held fixed relative to the frame with the extent of the stack perpendicular to said feed plate; a feed device capable of pushing a pair of sample blocks perpendicularly to a plane formed by the samples in the loader while said pair of sample blocks is carried by the feed plate from an initial position located in line with the loader, with simultaneous translational movement of the two sample blocks to a loaded position; two clamps one of which is fixed and cooperates with the force detector while the other cooperates with the movable element of the tensioning means, said sample blocks in their loaded position being received in said clamps, the said feed device being retractable to its initial position to engage a new pair of sample blocks carried by the feed plate; control means for triggering the operation of the tensioning means when the sample blocks are in position in the said clamps; one measuring means, associated with the force detector, providing the value of the tensile force applied to the sample; other measuring means, associated with the movable element of the tensioning means, providing the value of the elongation of the sample; and means for returning the tensioning means to an initial position after its movable element has been subjected to sufficient translational movement for the measurement, said feed device being operable, when bringing a new pair of sample blocks into the clamps, to cause the previous two sample blocks to be driven out from the said clamps.

4,392,385

FLOW METER UTILIZING KARMAN VORTEX STREET
Kuniteru Okuda; Teruki Fukami, both of Tokyo; Yoshiaki Asayama, Himeji; Shunichi Wada, Himeji, and Masami Kabuto, Himeji, all of Japan, assignors to Oval Engineering Co., Ltd. and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan

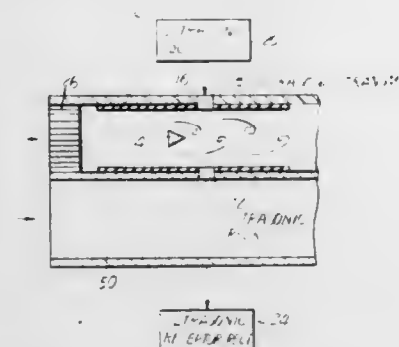
Division of Ser. No. 956,599, Oct. 30, 1978, abandoned. This application Sep. 8, 1980, Ser. No. 185,387

Claims priority, application Japan, Nov. 4, 1977, 52-148024[U]; Jun. 12, 1978, 53-80067[U]; Sep. 7, 1978, 53-123314[U]; Sep. 20, 1978, 53-129325[U]

Int. Cl.³ G01F 1/32

U.S. Cl. 73—861.23

1 Claim



1. A flow meter utilizing a Karman vortex street and comprising a conduit with a rectangular cross-sectional profile and divided into at least two parallel conduit portions through which a fluid to be measured flows, said at least two parallel conduit portions being substantially identical in transverse cross-sectional shape to each other, a laminar flow producing means in the upstream end of one of said conduit portions, a

vortex generating member disposed in said one conduit portion perpendicularly to the direction of flow of the fluid to generate the Karman vortex street downstream thereof, a vortex detector disposed on said one conduit portion and directing an ultrasonic wave perpendicularly across the Karman vortex street and receiving the ultrasonic wave to detect the number of vortices of the Karman vortex street generated in a unit time, said vortex detecting generating an ultrasonic wave of the type which, unless preventive measures are taken, tends to generate a standing wave at the receiving side of said one conduit portion, and a sound absorbing material only on the inner wall of said one conduit portion at least along the portion where the ultrasonic waves exist for preventing the generation of a standing wave due to reflection of the said ultrasonic waves, whereby the flow rate of said fluid flowing through said plurality of conduit portions can be determined from measuring the flow rate of the portion of said fluid flowing through said one of said conduit portions.

4,392,386

FLOW RATE METER

Manfred Knetsch, and Peter Romann, both of Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

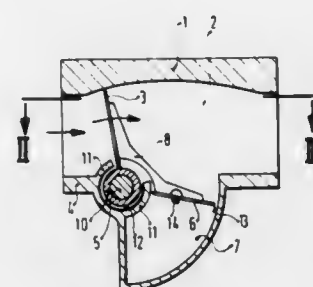
Filed Sep. 29, 1981, Ser. No. 306,811

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1980, 3042448

Int. Cl.³ G01F 1/28

U.S. Cl. 73—861.76

9 Claims



1. A flow rate meter having a housing, said housing having a flow conduit in which a measuring body is disposed, said measuring body pivotable about a bearing shaft mounted in said housing counter to a restoring force, said measuring body being arranged to pivot in accordance with a quantity of medium flowing therethrough, said flow rate meter further having a damping body pivotable about said bearing shaft so as to define a damping chamber with respect to said flow conduit, said flow rate meter being intended in particular for measuring a quantity of air aspirated via an air intake tube by an internal combustion engine, characterized in that said measuring body and said damping body are rigidly coupled to one another by means of at least one crosspiece, said measuring body and said damping body comprising flow rate elements, one of said flow rate elements being directly connected with a hub provided on said bearing shaft in a rotationally fixed manner, said housing further being provided with a wall extending arcuately about said hub, and said wall and said hub provide therebetween a leakage gap terminating at one end outside said damping chamber downstream of said measuring body.

4,392,387

SAMPLING DEVICE FOR ANALYZING GAS WITH HIGH DUST CONTENT

Naoto Izumi, Mie, Japan, assignor to NGK Insulators, Ltd., Nagoya, Japan

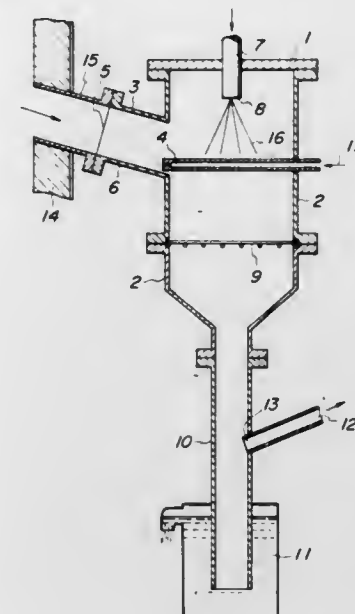
Filed Apr. 14, 1981, Ser. No. 253,918

Claims priority, application Japan, Apr. 28, 1980, 55-58448[U]

Int. Cl.³ G01N 1/24

U.S. Cl. 73—863.21

5 Claims



1. A sampling device for analyzing gas with a high dust content, comprising a generally closed housing (2), a gas suction tube (3) of a large diameter connected to an upper portion of the housing so as to lead the gas with the high dust content into the inside of the housing, an air-jet nozzle (4) disposed in said gas suction tube (3) in the proximity of joint between said tube (3) and said housing (2), said nozzle (4) facing tube wall (6) of said gas suction tube (3) and being directed toward inlet opening (5) thereof, a water supply conduit (7) connected to a top portion of said housing (2) so as to supply water for washing the gas with the high dust content led into the housing (2), a screen (9) disposed at a lower portion of said housing (2), a water sump (11) connected to a bottom portion of said housing (2) through a pipe (10), and a washed-gas passage (12) having one end thereof connected to said pipe (10) and an opposite end thereof communicated with outside of the sampling device.

4,392,388

GAS SAMPLER FOR AEROSOL ATMOSPHERE

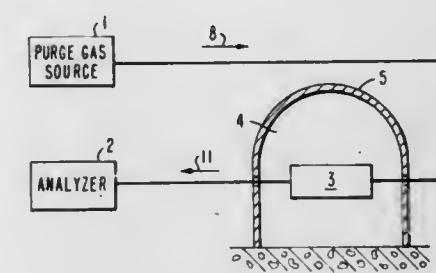
James E. Bauerle, Plum Borough, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 17, 1981, Ser. No. 235,208

Int. Cl.³ G01N 1/26

U.S. Cl. 73—863.23

3 Claims



1. A sampler for gathering a sample of a gas from an environment containing an aerosol of tramp material in said gas which comprises:

- (a) a purge gas source;
- (b) a barrier having ports between two surfaces thereof, said ports adapted to permit back-diffusion of said sample of a

gas therethrough, by virtue of said ports being of a size which is larger in diameter than one mean free path of molecules of said sample gas;

- (c) a sampler probe supporting said barrier such that a first surface of said surfaces of said barrier is presented to said environment and said sampler probe further defining a chamber with said barrier adapted to receive and channel flow of purge gas from said purge gas source over a second surface of said surfaces of said barrier such that a portion of the said purge gas flow passes through said ports in said barrier thereby inhibiting clogging of said ports by said aerosol of tramp material in said gas and the remaining portion of the purge gas flow gathers such amount of sample gas in said chamber as has back-diffused through said ports across said barrier; and
- (d) an analyzer adapted to receive the purge gas flow from said sampler probe, the purge gas flow containing additionally such amount of the sample of said gas as has back-diffused across said barrier.

4,392,389

SAMPLING TUBE HAVING CLOSING CAPS

Wolfgang Eckstein, Sereetz; Horst Rabenecker, Klein Parin, and Jürgen Behnke, Lubeck, all of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

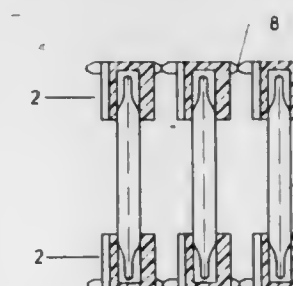
Filed Sep. 3, 1981, Ser. No. 299,078

Claims priority, application Fed. Rep. of Germany, Oct. 7, 1980, 3037826

Int. Cl.³ G01N 1/00; B65D 21/02, 85/20; B01L 3/12

U.S. Cl. 73—864.91

3 Claims



1. An improved sampling tube arrangement of the type having an elongated sampling tube with closing caps made of an elastic plastic adapted to be received upon and close the ends of the sampling tube, comprising a plurality of the closing caps, webs connecting adjacent closing caps to form a string of closing caps, each of said webs being severable between adjacent closing caps, reconnecting means for reconnecting two adjacent closing caps to each other, said reconnecting means including a plug-in connection comprising a male part provided on one side of the closing cap and a fitting female part adapted to fittingly receive the male part of an adjacent connecting cap provided on the other side of the closing cap, and each cap having an area intermediate said sides for labeling.

4,392,390

SHIELDING APPARATUS FOR LINEAR ACTUATOR
James C. Johnson, Charlotte, N.C., assignor to Duff-Norton Company, Charlotte, N.C.

Filed Mar. 2, 1981, Ser. No. 239,183

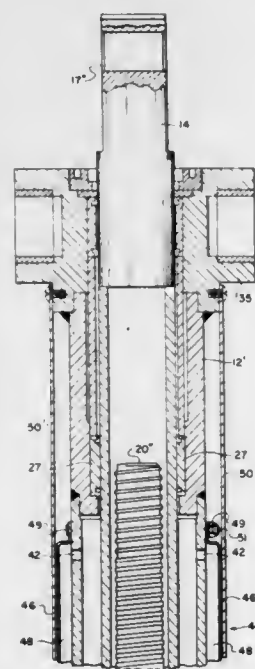
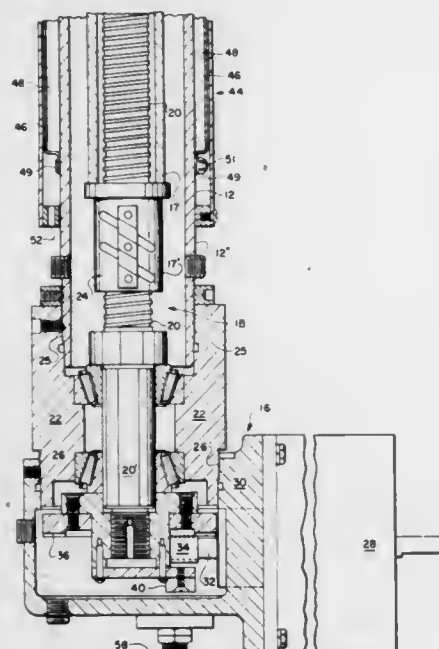
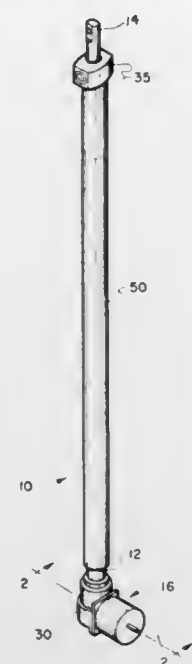
Int. Cl.³ F16H 27/02

U.S. Cl. 74—89.15

7 Claims

1. In a linear actuator of the type having a housing and a reciprocable member disposed in and projecting from said housing for reciprocating linear movement relative thereto, said housing having vent means for admitting to and exhausting from said housing ambient air responsive to fluctuations in the volumetric capacity of said housing resulting from the relative reciprocal movement of said reciprocable member respectively out of and into said housing, the improvement

comprising means for shielding said vent means to prevent entrance of airborne debris and excess moisture into said housing while permitting unrestricted operational airflow through



said vent means, said shielding means including bladder means sealably affixed externally to said housing surrounding said vent means for expansionally receiving and containing air

exhausted through said vent means from said housing upon decreases in the volumetric capacity of said housing resulting from reciprocal movement of said reciprocable member into said housing and for contractionally expelling contained air through said vent means into said housing upon increases in the volumetric capacity of said housing resulting from reciprocal movement of said reciprocable member out of said housing, whereby a controlled predetermined volume of air may be constantly contained within and maintained in equilibrium between said housing and said bladder means to facilitate unrestricted operation of said linear actuator while preventing entrance thereto of external airborne debris and excess moisture.

4,392,391 MULTISPEED REVERSIBLE POWER SHIFT TRANSMISSION

James J. Jameson, and John M. Beeson, both of Coffeyville, Kans., assignors to Cooper Industries, Inc., Houston, Tex.
Filed Nov. 7, 1980, Ser. No. 204,817
Int. Cl.³ F16H 3/08

U.S. Cl. 74—333

1 Claim

1. A multispeed constant mesh gear transmission including an input shaft and an output shaft, said transmission being operable to provide six speed ratios between said input shaft and said output shaft in one direction of rotation of said output shaft and three speed ratios between said input shaft and said output shaft in the opposite direction of rotation of said output shaft, said transmission comprising:

- an input gear drivenly connected to said input shaft and rotatable about an input axis;
- a first clutch set including a first directional clutch and a first speed change clutch drivenly engageable with each other and disposed about a first axis spaced from said input axis;
- a second clutch set including a second directional clutch and a second speed change clutch drivenly engageable with each other and disposed about a second axis spaced from said first axis and said input axis;
- a third clutch set including a third directional clutch and a third speed change clutch drivenly engageable with each other and disposed about a third axis spaced from said input, first, and second axes;
- first, second and third gears disposed for rotation about said about said first, second, and third axes, respectively, and respectively engageable through said respective first, second and third clutch sets with fourth, fifth and sixth gears disposed for rotation about first, second and third axes, respectively;
- a seventh gear fixed to said fifth gear for rotation about said second axis;
- said first gear being meshed with said third gear, said fourth gear being meshed with said fifth gear, said seventh gear being meshed with said sixth gear, and said second gear being meshed with said first gear.

eighth and ninth gears meshed with each other and respectively associated with said first and second clutch sets for drivenly interconnecting said first gear with said fifth and seventh gears through said first directional clutch and said second speed change clutch;

a tenth gear associated with said third clutch set and meshed with said ninth gear for drivenly interconnecting said first gear with said sixth gear through said first directional clutch and said third speed change clutch;

an output gear drivenly connected to said output shaft and mounted for rotation about an output axis spaced from said third axis, said output gear being meshed with said sixth gear,

said input axis, said third axis and said output axis lying in a common plane, and said second and third axes lying in a common plane intersecting the plane of said input, third and output axes.

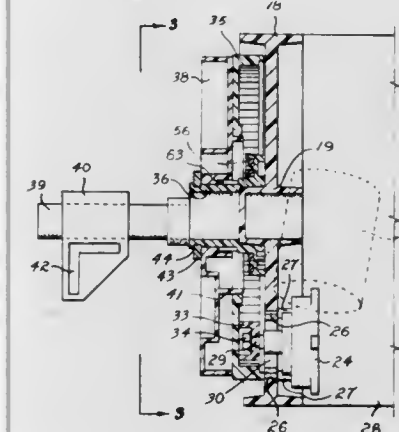
4,392,392 ELECTRICALLY-OPERATED ROLLER DOOR OPERATING MECHANISM

Milan Perisic, Woodford; Warwick J. Lumbers, and John A. Bone, both of Holden Hill, all of Australia, assignors to Automatic Rollers Doors Australia Pty., Ltd., Adelaide, Australia
Filed Nov. 4, 1980, Ser. No. 203,902

Claims priority, application Australia, Nov. 8, 1979, PE1255
Int. Cl.³ F16H 35/00; E06B 9/08

U.S. Cl. 74—626

14 Claims



1. A driving mechanism for coiling a flexible curtain thereabout comprising:

- (a) a transverse shaft;
- (b) first and second drum wheels mounted for rotation about the axis of said shaft at axially spaced apart locations;
- (c) a reversible electric motor fixedly mounted on the side of said first drum wheel facing said second drum wheel between the center and the rim of said drum wheel to bodily rotate about the axis of said shaft with rotation of said first drum wheel;
- (d) a reduction gear mechanism affixed to and operatively associated with said motor with a drive shaft projecting through said first drum wheel at a location between the axis of said drum wheel and the rim of said drum wheel and terminating in a drive pinion positioned on the opposite side of said first drum wheel;
- (e) a ring gear in meshing engagement with said pinion mounted adjacent said opposite side of said first drum wheel, said ring gear having its axis concentric with the axis of said shaft; and
- (f) locking means to prevent rotation of said ring gear.

4,392,393 DUAL ENGINE DRIVE

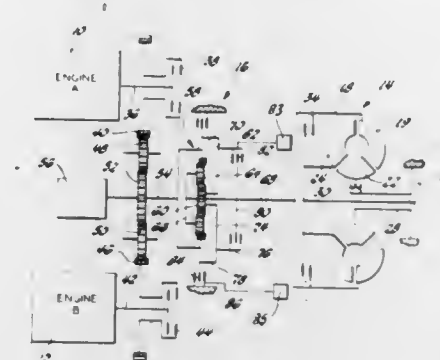
Loren N. Montgomery, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 1, 1980, Ser. No. 211,634

Int. Cl.³ F16H 37/06, 47/00

U.S. Cl. 74—661

4 Claims



1. In a vehicle including a pair of synchronously operated engines each producing individual peak torque at substantially identical individual peak torque engine speeds, combining gear means between said pair of engines operative to combine the torque output of said pair of engines, said pair of engines producing combined engine peak torque at combined engine peak torque speed substantially equal to said individual peak torque engine speeds, and a torque converter the input torque absorption capacity of which at zero speed ratio and input speed substantially equal to said combined engine peak torque speed equals said combined engine peak torque, the combination comprising, selectively engageable direct drive means between said combining gear means and said torque converter operative to deliver to said torque converter combined engine torque at combined engine speed, selectively engageable reduction gear means between one engine of said pair of engines and said torque converter having a preselected gear ratio operative at a speed input equal to said individual peak torque engine speed and a torque input equal to said individual peak torque to reduce speed to a lower speed output whereat the corresponding higher torque output substantially equals the torque capacity of said torque converter at zero speed ratio when the torque converter input speed equals said lower output speed, and means operative to effect selective engagement of one said reduction gear means and said direct drive means.

4,392,394 ENGINE-GEAR ARRANGEMENT FOR VEHICLES, IN PARTICULAR PASSENGER CARS

Peter Hofbauer; Romanus Scholz; Paulus Heidemeyer, all of Wolfsburg, and Frank Zimmermann, Braunschweig, all of Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Filed Nov. 3, 1980, Ser. No. 203,803

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944928

Int. Cl.³ F16H 37/08

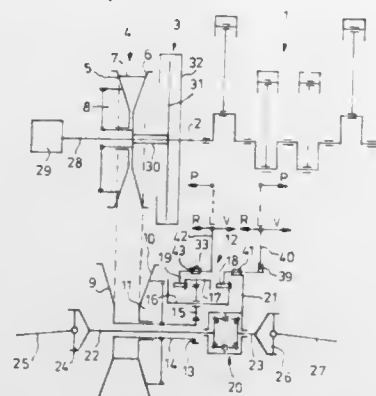
U.S. Cl. 74—689

8 Claims

1. A system for driving a motor vehicle with an infinitely variable belt gear comprising:

- an engine transversely positioned to the longitudinal direction of said vehicle;
- first and second drive cone pulleys for transmitting the rotational force of said engine;
- clutch means for coupling said engine to said drive cone pulleys;
- first and second output cone pulleys drivenly connected to said first and second drive cone pulleys;
- a planetary gear drive with a sun gear, a ring gear, and a planetary gear carrier carrying planet gears, said sun gear being driven by said first and second output cone pulleys;
- a differential gear coaxially positioned to said planetary gear

drive for driving the axles of said vehicle with a drive gear coupling said differential gear with said planetary gear drive;
a hollow shaft concentric with an output shaft of said differential gear drivingly disposed between said sun gear and said output cone pulleys;



first controllable clutch means for selectively engaging said drive gear and said ring gear or said drive gear and said planetary gear carrier;
a stationary housing; and
second controllable clutch means for selectively coupling said housing to said ring gear or said housing to said planetary gear carrier.

4,392,395

INFINITELY VARIABLE TRANSMISSION

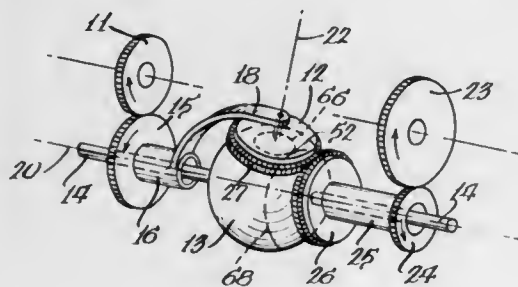
John M. Clarke, Dunlap, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 19, 1981, Ser. No. 226,273

Int. Cl.³ F16H 37/06

U.S. Cl. 74—690

18 Claims



1. A device for transmitting power from a prime mover comprising:
first (16), second (25) and third (14) rotary power shafts;
a first fixed ratio gear pair (15,B) connecting said first rotary power shaft (16) to the prime mover;
a second fixed ratio gear pair (24,A) connecting said second rotary power shaft (25) to the prime mover;
means (12) for transmitting power to said third rotary power shaft (14) from said first (16) and second (25) rotary power shafts including means (18,54) for selectively transmitting power at either the speed of said first rotary power shaft (16) or the speed of said second rotary power shaft (25) and for infinitely varying the speed of said third rotary power shaft (14) to vary within a range bounded by the speeds of said first (16) and second (25) rotary power shafts; and
means for changing one of said engaged gear pairs (15,24) with a different ratio gear pair during zero torque conditions while said other engaged gear pair (24, 15) transmits power to said third power shaft (14).

4,392,396

FINAL DRIVE ASSEMBLY FOR VEHICLES

Yoshito Sato, Hirakata, and Tomoyuki Takahashi, Yawata, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

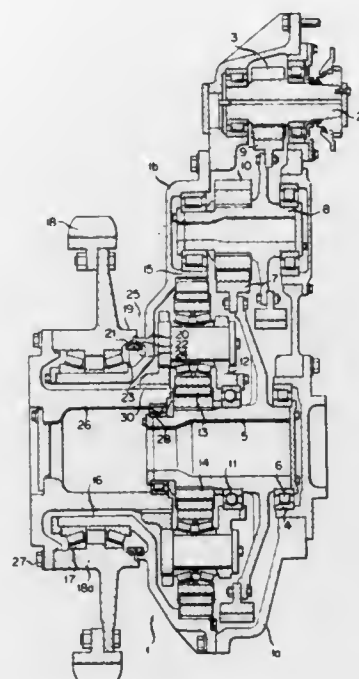
Filed Sep. 8, 1980, Ser. No. 185,137

Claims priority, application Japan, Sep. 11, 1979, 54-124623[U]

Int. Cl.³ F16H 3/44, 1/28

U.S. Cl. 74—785

2 Claims



1. A final drive assembly for a vehicle, comprising:
a housing;
an input pinion gear rotatably supported by said housing;
a hollow sun gear shaft rotatably supported by said housing, said hollow sun gear shaft having an open center portion;
a final drive gear fixedly mounted on said sun gear shaft;
an intermediate gear shaft having first and second intermediate gears mounted thereon, said first intermediate gear being in mesh with said input pinion gear and said second intermediate gear being in mesh with said final drive gear;
a planetary reduction gear group having a sun gear, a plurality of planet gears, a carrier and a ring gear, said sun gear being fixedly mounted on said sun gear shaft, said ring gear being radially and axially fixed to said housing, said planet gears being rotatably mounted on said carrier, said carrier being rotatably mounted on only said sun gear shaft, a bearing means mounted between said carrier and said hollow sun gear shaft restricting axial play and preventing radial play;
a sprocket rotatably mounted on said housing;
hollow torque tube means fixedly secured to said sprocket and rotatably mounted only on said sun gear shaft, said hollow torque tube means having a center portion open to said open center portion of said sun gear shaft; and
means for coupling said hollow torque tube means with said carrier in such a manner as to allow slight play in axial and circumferential direction therebetween.

4,392,397

METHOD OF PRODUCING A DRAWING DIE

Adrianus R. C. Engelfriet; Adriaan J. G. Op Het Veld, and Theodorus J. P. Van Vucht, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 19, 1980, Ser. No. 161,197

Claims priority, application Netherlands, Jun. 25, 1979, 7904922

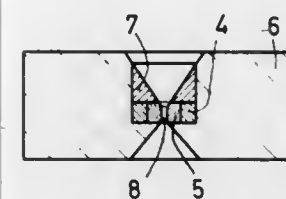
Int. Cl.³ B23P 15/24; B21C 3/02

U.S. Cl. 76—107 A

4 Claims

1. A method of producing a wire-drawing die comprising the steps of:

providing a metal annulus having a bore; and
clamping a core directly in the bore of the annulus, said core consisting of a hard, wear-resistant material; characterized in that:



the annulus consists of a metal alloy which can be strengthened by a heat treatment; and
the method further comprises the step of increasing the ultimate strength of the annulus by a heat treatment, while clamping the core therein.

4,392,398

WIRE TRIMMER

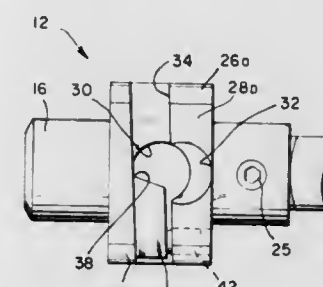
Jerzy Hoffman, 204 Washington Blvd., Santa Monica, Calif. 90406

Filed May 29, 1981, Ser. No. 268,401

Int. Cl.³ H02G 1/12

U.S. Cl. 81—9.51

4 Claims



1. In a wire trimming machine having a motor and a rotatable shaft rotated by said motor, a trimmer comprising:
a cylindrical trunk with a first cylindrical bore in one end thereof coaxial with the longitudinal axis thereof, a second cylindrical bore in the other end thereof coaxial with said longitudinal axis and just large enough to receive said shaft, a transverse third cylindrical bore on one side of said trunk ending at said longitudinal axis, and a transverse fourth cylindrical bore on the opposite side of said trunk parallel to and eccentric of said third bore and ending at said longitudinal axis, said longitudinal axis being coplanar with the longitudinal axes of said transverse bores;
a pair of arcuate flange portions disposed centrally and circumferentially about said trunk and opposite each other, the ends of said flange portions terminating in parallel planes which are tangent to and which define opposite parallel sides of said trunk;
a slot in said one side of said trunk extending through both said arcuate flanges and from the circumference to the center of said trunk, said slot forming an acute angle with said longitudinal axis of said trunk; and
a cutting member disposed in one end of said slot and having a beveled cutting edge located at the inner termination of said first bore.

4,392,399

DRUM-TYPE WIRE SHEAR

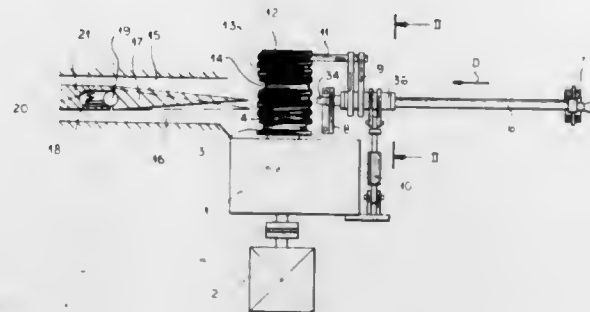
Ewald Wyzgol; Hans-Jürgen Rasehorn, and Gerhard Pechau, all of Magdeburg, German Democratic Rep., assignors to VEB Schwermaschinen-Kombinat "ERNST THALMANN" Magdeburg, Magdeburg, German Democratic Rep.

Filed May 21, 1981, Ser. No. 266,097

Int. Cl.³ B23D 25/12

U.S. Cl. 83—106

10 Claims



1. An apparatus for cutting through a continuously longitudinally moving wire, said apparatus comprising:
a pair of cutter drums centered on and rotatable about respective generally parallel axes and having respective radially outwardly open generally helical wire grooves of substantially the same pitch but opposite hand, said drums being radially relatively closely spaced and defining a nip;
a guide element fixed rotationally on one of said drums and formed with a helical guide groove of the same hand and pitch and centered on the same axis as the respective wire groove but axially offset therefrom;
a cutter blade in at least one of said wire grooves adjacent one axial end thereof;
drive means for jointly and synchronously rotating said drums at substantially the same peripheral speed;
a swingable guide tube directed generally tangentially at said nip and having a downstream end closely juxtaposed with said drums at said nip, said wire passing through said tube;
a follower fixed to and at a fixed axial spacing from said downstream end and displaceable between an entrainment position engaging in said guide groove and an unengaged position out of said guide groove; and
means for displacing said follower into said entrainment position and simultaneously urging said guide tube attached thereto axially along said nip.

4,392,400

TRIMMING AND PIERCING APPARATUS

Masaru Sasagawa, Sayama; Tatsuo Umeda, Tokorozawa, and Mamoru Kushima, Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 16, 1981, Ser. No. 284,110

Claims priority, application Japan, Feb. 25, 1980, 55-23236

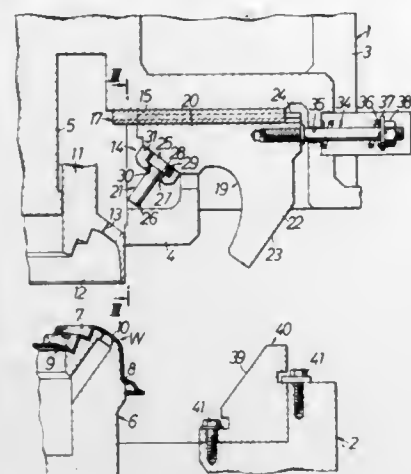
Int. Cl.³ B26F 1/40

U.S. Cl. 83—185

7 Claims

1. A trimming and piercing apparatus comprising a fixed die provided with a work mounting surface and a piercing bore opened in said work mounting surface, a movable die displaceable toward and away from said fixed die, a pair of movable blades and a pair of fixed blades mounted in a spaced opposite relation on said movable die and said fixed die, respectively, so that said movable blades are engageable with said fixed blades when said movable die is moved toward said fixed die, a cam slide slidably mounted on said movable die, a piercing punch fixed to said cam slide, and a cam driver mounted on said fixed

die for driving said cam slide to move along said movable die toward said fixed die to place said piercing punch into fitting



engagement with said piercing bore in said fixed die as said movable die is displaced toward said fixed die.

4,392,401

APPARATUS FOR STAGGERED CUTTING OF PLANAR WORKPIECES

Wilfried Ess, Schwarzach, Austria, assignor to Schelling & Co., Schwarzach, Austria

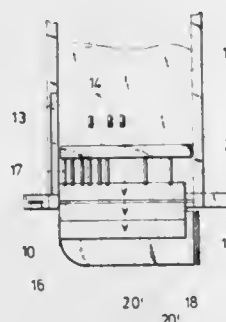
Filed May 20, 1981, Ser. No. 265,368

Claims priority, application Austria, May 21, 1980, 2725/80

Int. Cl.³ B27B 5/06

U.S. Cl. 83—119

4 Claims



1. Apparatus for cutting planar workpieces comprising: saw means movable through a cutting stroke in a substantially horizontal direction; first table means on one side of said saw means; second table means on the opposite side of said saw means; adjustable alignment means for aligning on said first table means planar workpieces to be cut by said saw means; first feeding means including a plurality of individual clamping devices which are selectively operable to selectively individually engage planar workpieces on said first table means to feed said workpieces through a cutting operation relative to said means, with cut parts of said planar workpieces being thereby deposited on said second table means; pivot means on said second table means for turning said cut parts of said planar workpieces relative to said saw means; second feeding means for feeding said cut parts of said planar workpieces through said saw means with parts thereof being deposited back on said first table means; and roller means on said first table means including first roller devices operable to allow planar workpieces deposited thereon to move in one direction and second roller devices operable to allow planar workpieces deposited thereon to move in another direction transverse to said first direction; said first and said second roller devices being vertically displaceable relative to each other.

4,392,402 APPARATUS FOR SEVERING RUNNING PAPER WEBS OR THE LIKE

Harald Rann, Norderstedt, Fed. Rep. of Germany, assignor to E.C.H. Will (GmbH & Co.), Hamburg, Fed. Rep. of Germany
Continuation of Ser. No. 144,029, Apr. 28, 1980, abandoned.

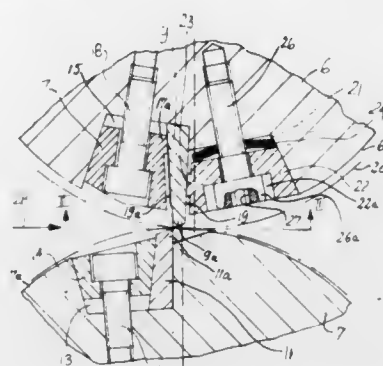
This application Dec. 21, 1981, Ser. No. 333,104

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922164

Int. Cl.³ B26D 1/62

U.S. Cl. 83—345

12 Claims



1. In an apparatus for subdividing at least one running paper web or the like into discrete sheets by severing the web during lengthwise transport along a predetermined path, the combination of a rotary holder disposed at one side of said path; a flexible knife having an inner portion and an elongated cutting edge remote from said inner portion, extending transversely of said path and arranged to sever the web once during each revolution of said holder; and means for adjustably securing said knife to said holder, including first retainer means recessed into said holder at one side of said knife and arranged to urge said inner portion of the knife against said holder, and second retainer means comprising a row of discrete retainers disposed at the other side of said knife, said row extending in substantial parallelism with the axis of said holder and each of said retainers being at least in linear contact with said other side of said knife, as considered in the axial direction of said holder, the neighboring retainers of said row being closely adjacent to each other and engaging said other side of the knife intermediate said inner portion and said cutting edge, said securing means further including means for moving said retainers relative to said knife and substantially radially of said holder to thereby move the loci of engagement between said retainers and said other side of the knife substantially radially of said holder with attendant flexing of the knife and resulting change in the position of said cutting edge with respect to said holder.

4,392,403

PORTABLE PALLET APPARATUS

Troy E. Martindale, Jr., Reynoldsburg, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Jun. 1, 1981, Ser. No. 268,615

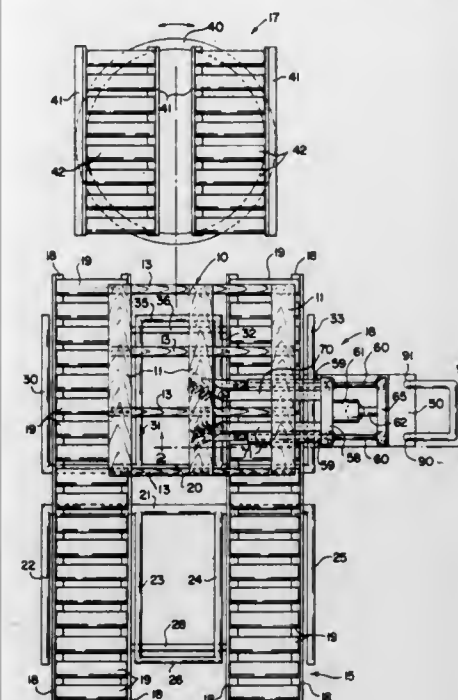
Int. Cl.³ B23D 31/00

U.S. Cl. 83—418

6 Claims

1. A portable pallet nail shearing apparatus having a support frame with wheels thereon for movement to a work area, a platform mounted above said support frame, power means interconnecting said platform to said support frame and operative to selectively raise or lower said platform relative to said support frame a predetermined distance, guide means mounted between said platform and said support frame to maintain vertical alignment therebetween, support means mounted on said platform for movement therewith, said support means has a cross brace with a pair of guide sleeves mounted thereon, each of said sleeves having a guide rod slidably received therein, a pair of laterally spaced tool holders mounted on said support means for pivotal movement toward and away from each other along a horizontal plane, power operated means mounted on said support means and opera-

tively connected to said guide rods, said guide rods pivotably connected to said tool holders for pivoting said spaced tool holders upon actuation of said power actuating means, and



each tool holder having a plurality of cutting tools that are moveable into and out of intermeshing engagement for shearing operation.

4,392,404

CUTTING HEAD FOR GLASS CUTTING MACHINE

Norbert Schwarzenberg; Heinz Ueberwolf, both of Herzogenrath, and Jakob Kaesmacher, Stolberg-Buesbach, all of Fed. Rep. of Germany, assignors to Saint-Gobain Vitrage, France

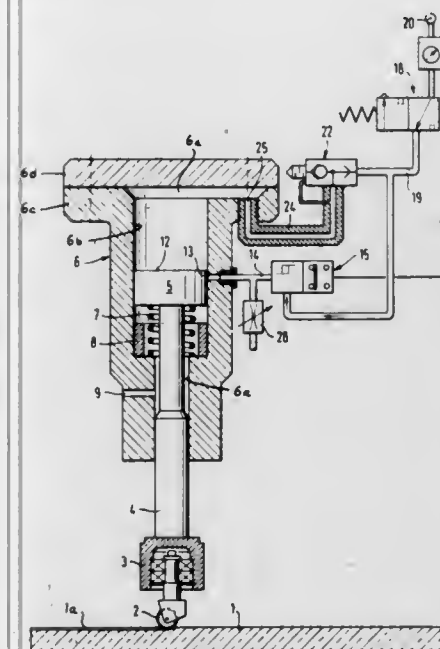
Filed Jan. 16, 1981, Ser. No. 225,783

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1980, 3002071

Int. Cl.³ C03B 33/02, 33/10; B26D 3/08

U.S. Cl. 83—886

8 Claims



1. A cutting head for use in a glass cutting machine comprising a cylinder, a piston adapted for movement in the cylinder in one direction in response to pressure from a source acting on an upper face, the movement of the piston being in opposition to means exerting a continuous force on the piston lower face tending to move the piston in the opposite direction, a rod connected at one end to the piston lower face, a cutting tool mounted on the rod at the other end to provide a cut in a glass blank along a prescribed path, means communicating the source of pressure to the cylinder for moving the piston in the

one direction thereby to locate the cutting tool in a working position at a cutting plane, and means suppressing the pressure from the source acting on the piston upper face and enabling rapid movement of the piston in the opposite direction under control of the force exerting means should the cutting tool move further in the one direction from the working position.

4,392,405

METHOD AND APPARATUS FOR PROCESSING TONE SIGNALS IN ELECTRONIC MUSICAL INSTRUMENTS

Reinhard Franz, Tulpenstrasse 15, D-5401 Emmelshausen, Fed. Rep. of Germany, and Wilfried Dittmar, Halsenbach, Fed. Rep. of Germany, assignors to Reinhard Franz, Emmelshausen, Fed. Rep. of Germany

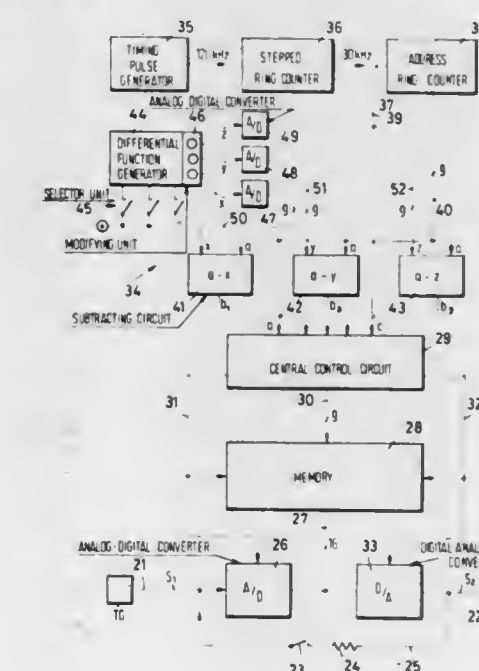
Filed Feb. 19, 1981, Ser. No. 235,960

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 3006495

Int. Cl.³ G10H 1/02

U.S. Cl. 84—1.24

16 Claims



1. Apparatus for processing tone signals which are to be transmitted with a variable delay in an electronic musical instrument, especially in an electronic organ, comprising:

- (a) means for supplying tone signals;
- (b) a memory having input and output means and n storage locations;
- (c) first transducer means for converting the amplitude of each supplied tone signal into digital values and for transmitting such values to said memory, said first transducer means being connected with said input means;
- (d) addressing means including means for repeatedly counting to n, and means for effecting cyclical memorization of the digital values at locations which are selected in accordance with a first function, said effecting means comprising means for generating said first function, and said addressing means further including means for recovering digital values from said locations in accordance with at least one second function which differs from said first function in dependence on time, said recovering means comprising means for generating said second function, and said second function generating means including means for deriving said second function from said first function, said second function generating means also including means for generating an analog function, and transducer means for converting said analog function into a digital function; and
- (e) additional transducer means for converting the digital values recovered by said recovering means into analog values and for consolidating such analog values into processed tone signals, said additional transducer means being connected with said output means.

4,392,412

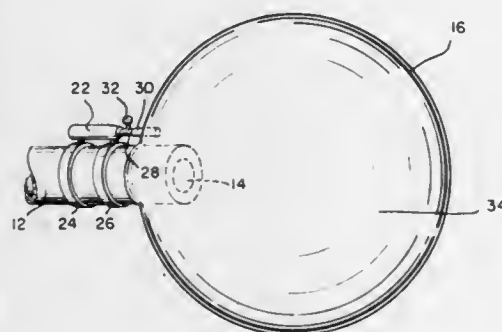
GASEOUS BLAST REDUCER

Edward M. Schmidt, Forest Hill, and George D. Kahl, Aberdeen, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 30, 1980, Ser. No. 202,220
Int. Cl.³ F41F 17/12

U.S. Cl. 89—14 D

5 Claims



1. Apparatus for reducing blast from an explosive source which includes:

- a gun barrel having a muzzle;
- means for supplying a gas, which includes a pressurized container containing said gas;
- means for containing said gas in the vicinity of said source whereby the blast is forced to propagate through said gas before reaching ambient air which includes:
- an inflatable membrane; and
- means for securing said inflatable membrane over said muzzle; and
- means for releasing said gas into said means for containing.

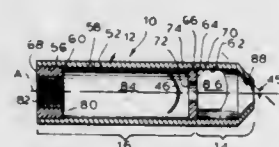
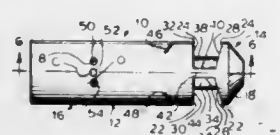
4,392,413

MUZZLE ATTACHMENT FOR A FIREARM BARREL
Mack W. Gwinn, Jr., Levant, Me., assignor to Firepower, Inc., Hancock, Me.

Filed Jan. 2, 1981, Ser. No. 222,148
Int. Cl.³ F41C 21/18

U.S. Cl. 89—14 C

1 Claim



1. A muzzle attachment for a firearm having a barrel with a muzzle end portion, comprising:

- a tubular member;
- baffle means disposed within said tubular member for defining a first large rearwardly disposed chamber and a second smaller forwardly disposed chamber;
- aperture means defined within the upper wall portion of said

first large chamber within a rearward region thereof and within the vicinity of the vertical axial plane of said tubular member for venting the gases of said firearm from said first large chamber in a vertically upwardly and outwardly mode as a result of each bore of each aperture intersecting the longitudinal axis of said tubular member whereby a downwardly directed reaction is impressed upon said muzzle attachment and said firearm so as to arrest the natural climb of said firearm and muzzle attachment when said firearm is fired;

the forwardmost end of said tubular member having a substantially truncated conical configuration;

aperture means defined within the central axial and peripheral portions of said baffle means for providing fluidic communication between said first large chamber and said second smaller chamber, the annular portion of said baffle means defined between said central and peripheral aperture means serving as means for interfering with the flow of gases from said first large chamber to said second smaller chamber and thereby provide a reaction surface for said gases whereby a forward force for counteracting the natural recoil of said firearm is impressed upon said firearm and muzzle attachment, said peripheral gas flow from said first chamber to said second chamber impinging upon said truncated surfaces of said forwardmost end of said tubular muzzle attachment whereby said truncated surfaces also serve as reaction means for said gases whereby an additional forward force for counteracting said natural recoil of said firearm is impressed upon said muzzle attachment and said firearm;

rib means defined within the upper and lower wall surfaces of said tubular member defining said second forwardly disposed chamber for defining slot means within the side walls of said tubular member attachment such that the net venting effect of said gases from said forward chamber is upwardly and outwardly whereby a net downwardly directed reaction force is impressed upon said muzzle attachment and said firearm so as to arrest the natural climb of said firearm and said muzzle attachment when said firearm is fired; and

forwardly and outwardly directed slot means defined within the downstream end of said first larger chamber sidewall portions for venting said gases from said first larger chamber so as to intercept said gases vented from said second smaller chamber through said sidewall slot means and causing all of said gases to flow forwardly away from the muzzle end portion of said firearm barrel and thereby substantially reduce the noise level perceived by the person firing said firearm.

4,392,414

AMMUNITION BELT

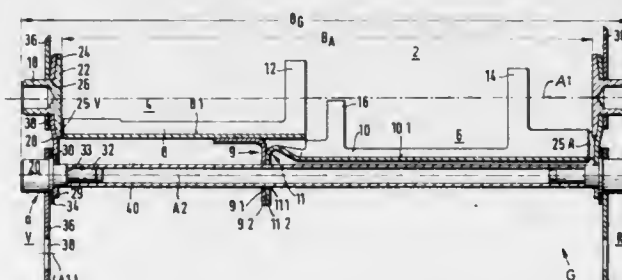
Richard Koine, Ratingen, Fed. Rep. of Germany, assignor to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany
Filed Feb. 4, 1981, Ser. No. 231,410

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1980, 3005256

Int. Cl.³ F42B 39/08

U.S. Cl. 89—35 R

2 Claims



1. An improved ammunition belt for automatic barrel weapons, in particular machine cannons, wherein the belt comprises

a plurality of belt members each of which is adapted to accommodate an ammunition unit therein and which includes flexible retention means mounted on the belt for maintaining the ammunition units in operative position thereon and which includes means for interaction with the ammunition belt feed means of the automatic barrel weapon, the improvement comprising

- (a) each belt member comprises ammunition holding means for detachably holding an ammunition unit in operative position in said belt member; and at least one strap pivotally connected to the ammunition holding means by means of a first pivotal connection;
- (b) each of said straps having an opening passing therethrough which is spaced from the first pivotal connection between said strap and said holding means;
- (c) the means for interaction with the ammunition belt feed means being disposed on said ammunition holding means and at the first pivotal connection connecting the holding means and the strap;
- (d) the opening in said strap is adapted to form part of a second pivotal connection connecting said strap and the ammunition holding means of the next following belt member, said second pivotal connection also forming part of said means for interaction with the ammunition belt feed means;
- (e) a pair of straps is pivotally connected to opposite ends of said ammunition holding means to form said first pivotal connection; said means for interaction with the ammunition belt feed means being formed by pin-like projections at said second pivotal connection on said holding means and said first pivotal connection; and
- (f) said opening has an arcuate configuration the center of curvature of which coincides with the axis of the first pivotal connection.

4,392,415

CONTROL FOR DEAD ENGINE LOWER

Kurt B. Melocik, Mazon, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

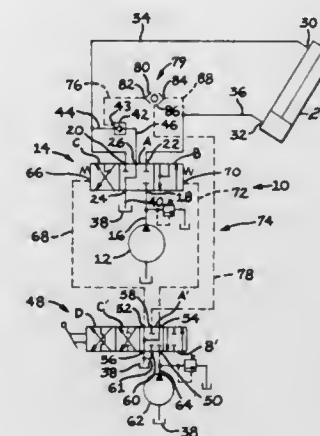
PCT No. PCT/US80/01704, § 371 Date Dec. 19, 1980, § 102(e)
Date Dec. 19, 1980, PCT Pub. No. WO82/02230, PCT Pub.
Date Jul. 8, 1982

PCT Filed Dec. 19, 1980, Ser. No. 273,889

Int. Cl.³ F16K 31/122

U.S. Cl. 91—461

2 Claims



1. In a fluid system (10) having a fluid source (12), a tank (38), an actuator (28) having a first end (30) and a second load supporting end (32); a pilot operated control valve (14) having first and second ends (66,70) and being connected to said source (12) and said actuator (28); a source of pilot fluid (62); a pilot control valve (48) connected to said source of pilot fluid (62) and said first and second ends (66,70) of the pilot operated control valve (14) and movable between at least one operating position and a float position; a make-up valve (42) connected between the first end (30) of the actuator (28) and the main control valve (14), a vent line (74) connected to the make-up valve (42) and the pilot control valve (48) and being in commu-

nication with the tank (38) at the float position (D) of the pilot control valve (62); the improvement comprising:

means (79) for communicating the second load supporting end (32) of the actuator (28) to the tank (38) only through said vent line (74) and said pilot control valve (48) in response to loss of said source of pilot fluid (62) and said pilot control valve (48) being moved to said float position (D) so that the second load supporting end (32) can be vented to the tank (38) at a controlled rate regardless of the pressure of the fluid in the second load supporting end.

4,392,416

SWASH-PLATE TYPE COMPRESSOR HAVING LOW NOISE THRUST BEARINGS

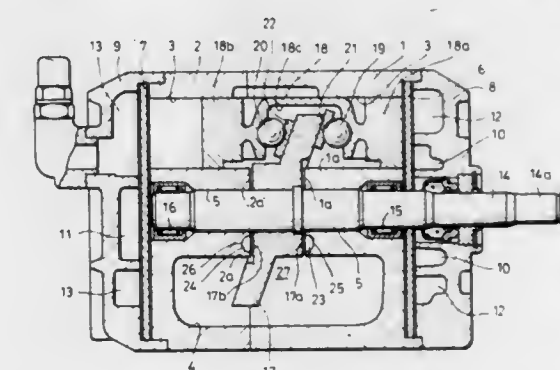
Yutaka Ishizuka, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1981, Ser. No. 258,008

Claims priority, application Japan, May 10, 1980, 55-61935
Int. Cl.³ F04B 1/16, 1/18

U.S. Cl. 92—71

10 Claims



1. In a swash-plate type compressor including: a pair of cylinder blocks combined together in axial alignment, said combined cylinder blocks each having an axial hole extending along an axis thereof and a plurality of cylinder bores axially extending therethrough in circumferentially spaced relation; a drive shaft inserted in said axial holes of said cylinder blocks; a plurality of pistons slidably received within respective ones of said cylinder bores; and a swash plate engaging with said pistons and rigidly fitted at a boss thereof on said drive shaft, said boss having opposite end faces, each of said opposite end faces being substantially flat and extending substantially straight and substantially radially of said drive shaft over a substantially whole area thereof, said combined cylinder blocks having a pair of central seating portions facing opposite said end faces of said boss of said swash plate, said central seating portions having end faces facing said end faces of said boss, each of said end faces of said central seating portions being substantially flat and extending substantially straight and substantially radially of said drive shaft over a substantially whole area thereof, said axial holes of said cylinder blocks opening in end faces of respective ones of said central seating portions facing said swash plate;

the improvement comprising a pair of thrust bearings arranged at opposite ends of said swash plate for supporting thrust loads caused by said swash plate, said pair of thrust bearings each comprising:

- a plurality of seats, each seat being in the form of a blind hole, said seats being formed in the substantially flat end face of a corresponding one of said central seating portions and arranged around a corresponding one of said axial holes and in circumferentially spaced relation; and
- a plurality of bearing members corresponding in number to said seats, said bearing members each having no fluid passage formed therein and each having one end portion thereof slidably fitted in a corresponding one of said seats; said seats each having a hole shape corresponding to the shape of said one end portion of a corresponding one of said bearing members for receiving a corresponding one of said bearing members therein;

said bearing members each having another formed with an end face being substantially planar over a substantially whole area thereof such that said substantially planar end faces of said another ends of said bearing members have no recess formed therein, said bearing members each having said substantially planar end face thereof disposed in slidable contact with an associated end face of said boss of said swash plate along a substantially whole area thereof; and

said end faces of said boss of said swash plate being slightly spaced by said bearing members from said opposite end faces of said central seating portions of said combined cylinder blocks.

4,392,417

VARIABLE DEAD BAND PRESSURE CONTROL SYSTEM

James R. Johannsen, Minnetonka, Minn., assignor to McQuay-Perfex Inc., Minneapolis, Minn.

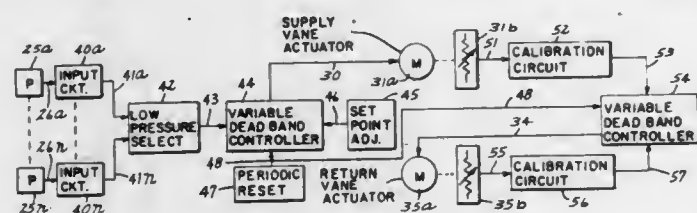
Division of Ser. No. 34,869, Apr. 30, 1979, Pat. No. 4,257,318.

This application Aug. 18, 1980, Ser. No. 179,016

Int. Cl.³ B64D 13/00

U.S. Cl. 98—1.5

3 Claims



1. A control system for controlling the return air blower of an air distribution system including a supply blower which may operate at varying air flow rates, for maintaining proper relative airflow of the return blower in response to the airflow of the supply blower, comprising:

- means responsive to the supply air flow for producing a signal indicative thereof;
- means responsive to the return air flow for producing a signal indicative thereof;
- actuator means operatively connected for controlling the air flow of said return blower;
- comparison means operatively connected to provide control signals to said actuator in response to received supply and return air flow signals, to control return air flow to follow supply air flow;
- calibration means connecting said supply air flow signal and said return air flow signal to said comparison means, said calibration means including adjustable means for independent adjustment of high and low air flow rate settings of said actuator corresponding to high and low air flow settings of said supply blower; and
- said comparison means including a variable dead band controller for providing said control signals to said actuator when the calibrated supply and return air flow signals applied thereto differ by more than a predetermined dead band, and including means for narrowing the dead band to rebalance the system according to the supply air flow and for widening the dead band to prevent excessive system hunting or oscillation.

4,392,418

COOKING APPARATUS

James A. Jimenez, Temple City, Calif., assignor to Electra Food Machinery, Inc., El Monte, Calif.

Continuation-in-part of Ser. No. 619,837, Oct. 6, 1975,

abandoned. This application Nov. 7, 1977, Ser. No. 849,400

Int. Cl.³ A47J 27/04

U.S. Cl. 99—330

14 Claims

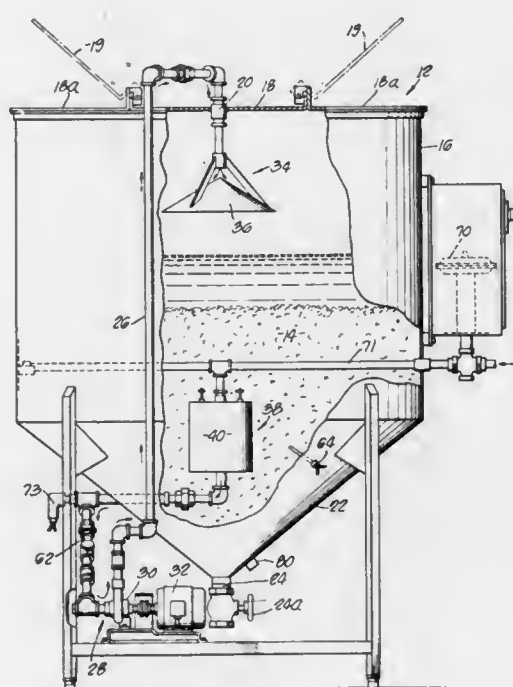
1. An apparatus for cooking food products comprising:
- (a) a vessel for containing a homogeneous mass comprising the product to be cooked immersed in a liquid;
 - (b) pump means for circulating the liquid throughout said

vessel, in a manner so as to gently agitate said homogeneous mass without the need for mechanical agitation means;

(c) steam injector means disposed within said vessel for injecting steam interiorly thereof to uniformly raise the temperature of the homogeneous mass, said means being fixedly disposed intermediate the homogeneous mass and comprising:

- (1) a steam chamber having a steam inlet and side walls provided with a plurality of steam outlet passages arranged to eject steam outwardly in a direction toward the homogeneous mass; and
- (2) steam deflection means disposed within said steam chamber proximate said steam inlet for deflecting steam toward the outlet passages provided in said side walls; and
- (d) sensor means cooperatively associated with said steam injector means for sensing the temperature of the homogeneous mass and stopping the flow of steam into said vessel when a predetermined temperature is reached.

9. An apparatus for cooking food products comprising:
- (a) a vessel for containing a homogeneous mass comprising the product to be cooked immersed in a liquid;



- (b) pump means for circulating the liquid throughout said vessel to gently agitate said homogeneous mass without the necessity for mechanical agitation means;
- (c) a hollow housing disposed within said vessel;
- (d) a steam chamber fixedly mounted within said hollow housing centrally of said homogeneous mass, said steam chamber having a steam inlet and side walls provided with a plurality of steam outlet passageways;
- (e) means disposed within said steam chamber for deflecting steam through said steam outlet passageways to uniformly heat the liquid comprising a part of said homogeneous mass; and
- (f) means for sensing the temperature of the homogeneous mass and stopping the flow of steam to said steam inlet of said steam chamber when a predetermined temperature is reached.

12. The apparatus as defined in claim 9 including means disposed with said hollow housing for removably covering a portion of the outlet passageways formed in said steam chamber.

4,392,419

COOKING AND SMOKING APPARATUS

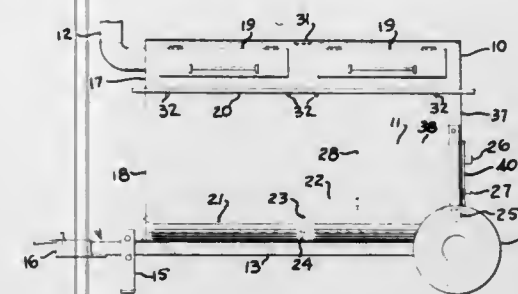
Weldon D. Bonny, R.D. 1, Dalton, Pa. 18414

Filed Mar. 25, 1980, Ser. No. 133,795

Int. Cl.³ A47J 37/04

U.S. Cl. 99—339

14 Claims



1. A cooking and smoking apparatus comprising a housing enclosing a cooking and smoking space and having an upper portion and a lower portion, a perforated shelf inside said housing in said upper portion for supporting goods to be cooked or smoked, a first opening in said upper portion of said housing for the egress of smoke therefrom, a second opening in said lower portion of said housing, a fire box including an enclosed drawer selectively slideable in and out of said second opening and having a transverse cross section substantially complementary to said second opening, said drawer having a flat horizontal uninterrupted top surface defining an uninterrupted planar cover completely covering said drawer for closing the top of said drawer and providing a cooking surface, an openable and closeable front access door for said drawer, a damper means in communication with the interior of said firebox for controlling the size and intensity of the fire therein, and an exit passageway through said drawer remote from said front access door and said top surface to conduct heat and smoke from the interior of said firebox into the interior of said housing even while said drawer is partially moved outwardly of said second opening of said lower portion of said housing, said planar cover serving as a second cooking means when said drawer is moved to any of its outward positions.

4,392,420

RECIRCULATING HOT OIL COOKING APPARATUS

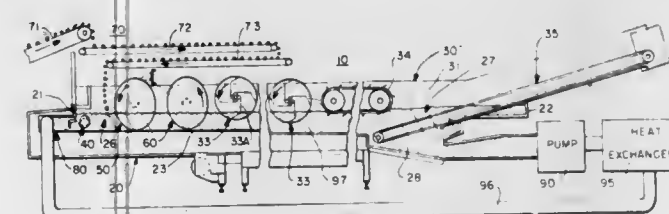
Andrew A. Caridis, Foster City, and Clark K. Benson, Millbrae, both of Calif., assignors to Heat & Control, Inc., So. San Francisco, Calif.

Continuation of Ser. No. 222,744, Jan. 5, 1981, abandoned. This application Mar. 1, 1982, Ser. No. 353,337

Int. Cl.³ A47J 37/12

U.S. Cl. 99—406

19 Claims



1. In a recirculating hot oil cooking assembly for animal and vegetable product pieces,
- an elongated pan assembly having front, rear, bottom, and side walls for containing a volume of hot oil flowing between a product entry zone located near said front wall and a product exit zone located near said rear wall and adapted to discharge said product pieces after cooking;
 - a sump formed in the bottom of said pan near said product exit zone for withdrawing oil from said pan assembly;
 - an inlet header assembly for supplying hot oil to said pan assembly at said product entry zone including an inlet feed jet extending substantially across said front wall of said

pan assembly underneath the surface of said volume of oil to supply a substantially uniform stream of oil at a substantial velocity across a surface region of said product entry zone;

a pump and heat exchanger assembly coupled between said sump and said inlet header for recirculating reheated oil therebetween to establish said flowing volume of hot oil in said pan assembly; and

flow directing means mounted adjacent said product entry zone of said pan assembly for repetitively altering the localized flow direction of said volume of hot oil to reduce recirculating eddy currents in said oil in said product entry zone, said flow directing means comprising a plurality of fin means positioned at spaced preselected non-normal orientations behind the product entry zone and movable so as to achieve said repetitively alternating localized flow of said hot oil while reducing eddy currents in said oil, said flow directing means additionally including means to repetitively move said fins for such purpose, whereby improved movement of said product pieces away from said product entry zone towards said product exit zone is produced to reduce clumping of raw product pieces in said product entry zone.

4,392,421

RICE HULLING AND SORTING DEVICE

Noriyuki Yano, Kochi; Satoru Yahashi, Nangoku; Kanzo Shimazaki, Nangoku; Mitsuaki Nakazawa, Nangoku, and Takashi Yamamoto, Nangoku, all of Japan, assignors to Seirei Industry Company Limited, Okayama and Yanma Agricultural Equipment Company Limited, Osaka, both of Japan

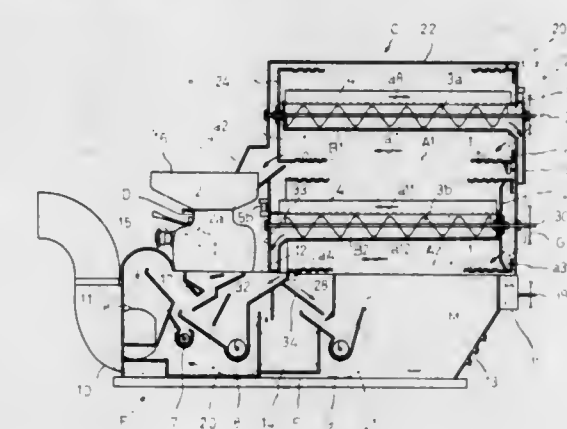
Filed Mar. 27, 1981, Ser. No. 248,453

Claims priority, application Japan, Mar. 27, 1980, 55-121472; Mar. 27, 1980, 55-39975; Mar. 27, 1980, 55-39976; Mar. 27, 1980, 55-41023; Mar. 27, 1980, 55-41025; Mar. 27, 1980, 55-41026; Mar. 27, 1980, 55-41032

Int. Cl.³ B02B 3/04, 7/02

U.S. Cl. 99—524

8 Claims



7. In a rice hulling and sorting machine, the combination including:

horizontally disposed sorting cylinder means arranged for rotation about its longitudinal axis;

fixed trough means extending generally horizontally along the length of the interior of said sorting cylinder means;

the interior surface of said sorting cylinder means being provided with a multitude of generally radially inwardly facing recesses, each of said recesses being of a size to temporarily trap therein a single grain of unpolished rice when disposed in a lower portion of its circumferential path of movement and to discharge said trapped grain of rice into said trough means when disposed in an upper portion of said movement;

said trough means including an adjusting plate extending in the longitudinal direction of the trough means and upwardly from one side thereof, the lower margin of said

plate being pivotally mounted for adjusting the angle of inclination of the plate.

4,392,422 APPARATUS FOR REMOVING LIQUID FROM A SUSPENSION

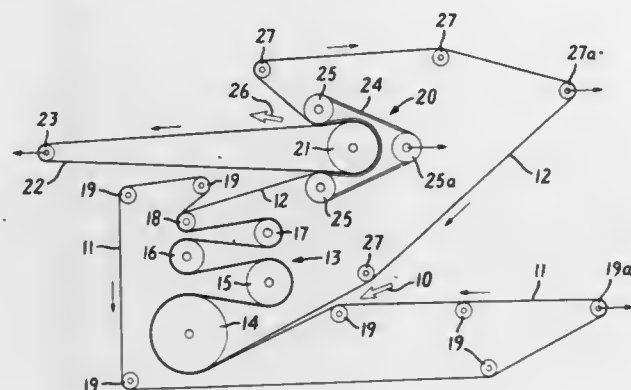
Sven Hakansson, Västerhaninge, Sweden, assignor to Axel Johnson Engineering AB, Nynäshamn, Sweden

Filed Jun. 22, 1981, Ser. No. 275,994

Claims priority, application Sweden, Jun. 25, 1980, 8004701
Int. Cl.³ B30B 9/24

U.S. Cl. 100—118

5 Claims



1. Apparatus for removing liquid from a suspension comprising a pair of continuous webs movable over a portion of their length along a common path having an upstream end for introducing the suspension between the webs, a first pressing section including at least a first press drum about a portion of which the pair of webs pass, a second pressing section located downstream from the first pressing section and comprising a second press drum and pressure means for applying pressure to the outer web relative to the second press drum, outlet means located downstream from the second pressing section for removing a relative dried suspension material, and means for separating one of the pair of webs from the other web of the pair downstream of the first pressure section and prior to the second pressure section, the other web of the pair passing as the outer web to carry the suspension material around a portion of the second press drum to the outlet means.

4,392,423

PRINTING HAMMER DRIVING APPARATUS

Isao Nakajima, Iwamamachi; Koji Tagusari; Kenji Okuna, both of Shimoinayoshi; Toru Hayama, Kashiwa; Kazue Takahashi, Shimoinayoshi; Michihiro Watanabe, Shimoinayoshi, and Sumihisa Kotani, Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd. and Hitachi Koki Co., Ltd., both of Tokyo, Japan

Continuation-in-part of Ser. No. 7,982, Jan. 1, 1979, abandoned.

This application May 27, 1980, Ser. No. 153,318

Claims priority, application Japan, Feb. 8, 1978, 53-12398; Mar. 29, 1978, 53-35481

Int. Cl.³ B41J 9/02

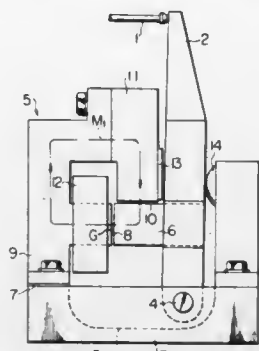
U.S. Cl. 101—93.48

2 Claims

1. A printing hammer driving apparatus capable of high speed printing, comprising:

- a lever member made of a light-weight non-magnetic material, said lever member having a base end used as a rotational supporting point and another end thereof used as a push rod operating part to drive a printing hammer,
- an armature mounted to project from an intermediate part of said lever member in a direction of rotation of said lever member about said supporting point, and
- an electromagnet including at least a core and an exciting coil wound on said core, said core of said electromagnet having at least two magnetic pole faces which are opposed to said armature with gaps therebetween, wherein for a given ratio of a distance (L) from the rotational supporting point of said lever member to said armature to a distance

(r₂) from said rotational supporting point to a contact point at which said lever member acts as the push rod operating part, said armature is mounted on said lever



4,392,424 BELT PRINTING MECHANISM HAVING IMPROVED CATCH MECHANISM FOR DETENTING POSITIONING WHEEL

Kurt Schrotz, Hirschhorn, and Richard Schwöbel, Rothenberg, both of Fed. Rep. of Germany, assignors to Esselte Pendaflex Corporation, Garden City, N.Y.

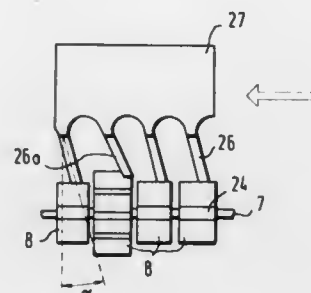
Filed Aug. 12, 1981, Ser. No. 292,222

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1980, 3034923

Int. Cl.³ B41J 1/60

U.S. Cl. 101—111

5 Claims



1. In a belt printing mechanism having a plurality of parallel continuous type belts which on their exterior surface carry print types and which extend around an adjusting wheel and a plurality of respective star wheels where the star wheels are rotatable about a shaft and where each star wheel has four corners, and spring tongues for preventing free rotation of the star wheels which are held under tension against the star wheels to hold the latter in predetermined detent positions where the spring tongues touch at least two separated points of the perimeter located between two adjacent corners of the star wheels, the improvement wherein for each star wheel only one spring-tongue is provided whose plane with respect to the plane in which its associated star wheel rotates about the shaft is an acute angle.

4,392,425 RETRACTABLE INK STAMP

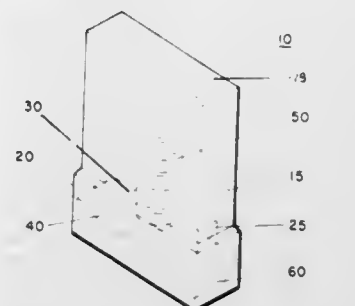
John P. Capezzuto, Cambridge, and Lewis H. Johnson, Mansfield, both of Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Filed Apr. 13, 1981, Ser. No. 253,992

Int. Cl.³ B41K 1/50, 1/56

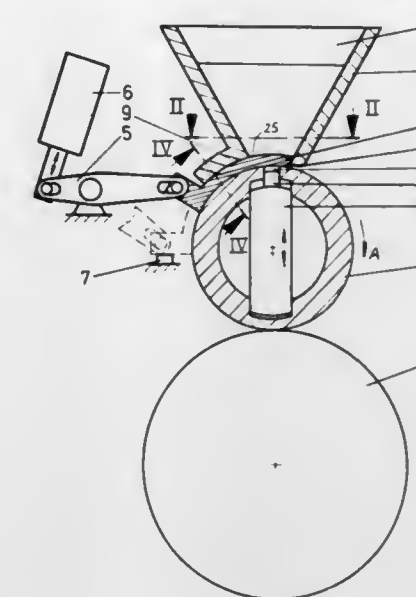
U.S. Cl. 101—327

9 Claims



1. A retractable ink stamp comprising:
a handle,
an ink stamp housing slideably mounted to one end of the handle, and
a retractable ink stamp assembly located substantially within the ink stamp housing, said ink stamp assembly comprising an ink stamp matrix having a thickness in a range between about 1/8 inch to 1 inch and a total volume of at least 0.06 cubic inches, said stamp matrix constructed of a nonelastomeric polymer foam having an open cell structure, an average pore diameter of between about 36 to 44 microns and a pore volume of about 25 to 45 percent of the total matrix volume, the polymer foam selected from the group consisting of polyethylene, polypropylene, polyvinylchloride and polyvinylfluoride, and means for self-retracting the ink stamp matrix, said means comprised of a member having at least one fold circumferentially within its surface to produce a bellows effect within the member as the handle is depressed, said means interconnecting the stamp matrix and said handle so that as the handle is depressed, the housing and handle slide towards each other causing a minor portion of the matrix to extend beyond the open end of said ink stamp housing, and as said handle is released, said self-retracting means causes the ink matrix to withdraw into the interior of the stamp housing.

towards and from said doctor blade to close or open communication between said at least one opening and at least some of



said chambers to provide a required dosing of ink received by said roller.

4,392,427

INK FOUNTAIN FOR PRINTING MACHINES

Erich G. Wieland, Würzburg, Fed. Rep. of Germany, assignor to Koenig & Bauer AG, Würzburg, Fed. Rep. of Germany

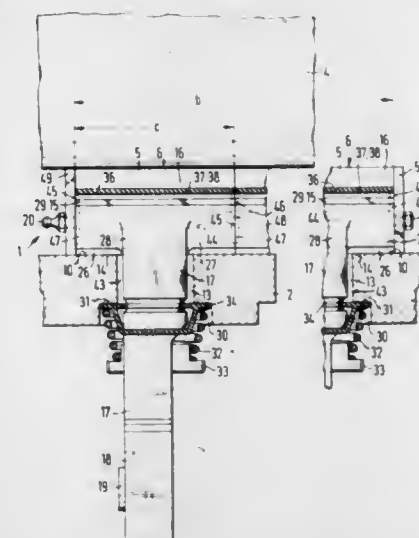
Filed Sep. 10, 1981, Ser. No. 300,849

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1980, 3033996

Int. Cl.³ B41F 31/04; B41L 27/06

U.S. Cl. 101—365

1 Claim



1. An ink fountain for use in printing machines, said ink fountain comprising:

- an ink fountain roller plunging into said ink fountain;
- a plurality of individually operable ink metering elements pivotably positioned laterally side by side in a longitudinal gap in an ink fountain bottom portion of said ink fountain, each of said ink metering elements being provided with a pivotable arm which passes through a vertical opening in said longitudinal gap;
- a flat, elastic sealing strip rigidly secured to, and leakproofly connected with, rear parts of all of said ink metering elements and a tail surface of said ink fountain;
- an elastic sealing cord extending along the length of all said ink metering elements and being disposed between a left guiding surface of said longitudinal gap and vertical surfaces of said ink metering elements immediately facing said left guiding surface; and
- elastic sealing membranes sealingly engaging each of said pivotable arms and said bottom about each of said vertical

4,392,426

INK-APPLYING ARRANGEMENT

Regina Wege, Leipzig, German Democratic Rep., assignor to Veb Kombinat Polygraph "Werner Lamberz" Leipzig, Leipzig, German Democratic Rep.

Filed Mar. 30, 1981, Ser. No. 249,176

Claims priority, application German Democratic Rep., Apr. 15, 1980, 220444

Int. Cl.³ B41F 31/04, 31/06, 31/08

U.S. Cl. 101—363

13 Claims

1. An ink-applying device, particularly for a printing machine, comprising a funnel-shaped ink reservoir having at least one opening through which ink is discharged and including a wall formed with a doctor blade in the region of said opening, a rotary pick-up roller positioned in the proximity of said opening to receive ink therefrom, said pick-up roller including at least one longitudinally extending row of ink dosing chambers formed in a circumferential surface thereof; and movable means, said movable means including a plurality of sliding members adapted to slide along said circumferential surface

lifting lip mounted at said second end of said inserting arm generally perpendicular thereto, said inserting arm fixed relative to said removing arm and spaced angularly therefrom for movement generally about its said first end; and

(b) means for imparting rotational movement to said working member with said arms moving generally about their said first ends.

4,392,434

TURBULENT WATERWAY

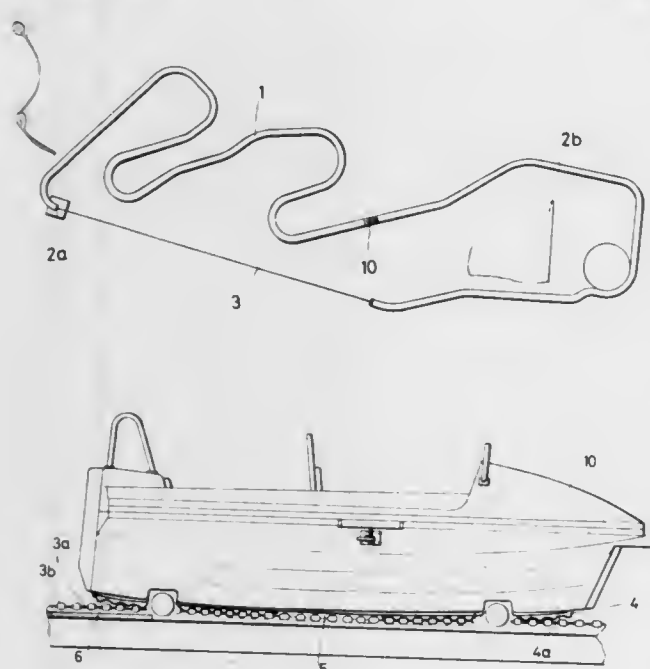
Dierk Dürwald, and Karl-Ernst Kaufmann, both of Wetter, Fed. Rep. of Germany, assignors to Mannesmann Demag AG, Dusseldorf, Fed. Rep. of Germany

Filed Feb. 10, 1981, Ser. No. 233,192

Int. Cl.³ A63G 21/18; B65G 17/06

U.S. Cl. 104—70

5 Claims



1. In a turbulent waterway having boats guided in a water trough extending between an uphill starting point and a downhill terminus water basin,

(a) a chain conveyor means having a series of links extending on a slope between said starting point and said terminus water basin and adapted to travel upwardly therebetween, said chain conveyor means being substantially comprised of alternating vertically and horizontally oriented chain links, each of which has rounded edges;

(b) the underside of said boats being provided along their length with at least one lengthwise extending locking bar means with transverse grooves adapted to mesh with the horizontally oriented chain links of said chain conveyor;

(c) said chain conveyor means, when moving at a selected speed, serving to initially, upon contact between said chain conveyor means and said locking bar means, pull said boat at a speed less than said selected speed until said boat accelerates to said selected speed whereupon said chain conveyor means meshes with said locking bar means; and

(d) sliding support means for supporting said chain links for sliding therealong, said sliding support means having a vertically oriented groove for guiding said vertically oriented chain links such that said horizontally oriented chain links mesh with said transverse grooves of said locking bar means.

4,392,435

TRANSPORT APPARATUS

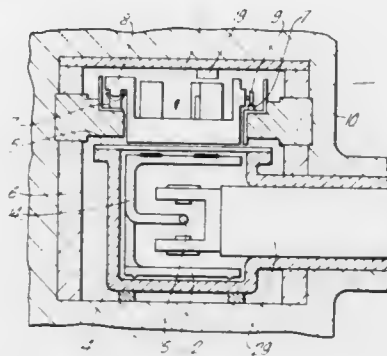
Brian R. Moody, Darwen; Duncan B. Lowe, Moberley, and Derek W. Lowe, Southport, all of England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Jul. 24, 1980, Ser. No. 171,723

Claims priority, application United Kingdom, Aug. 3, 1979, 7927231

Int. Cl.³ B61B 13/08, 13/10

U.S. Cl. 104—284

5 Claims



1. An apparatus for transporting toxic or radioactive articles comprising an enclosed passageway defining a path of travel for the articles, at least one work station positioned along and communicating with said passageway intermediate its ends, a movable drive unit located outside the passageway, a juxtaposed slave unit within the passageway forming a carrier for an article movable in unison with the drive unit, electromagnet means on the drive unit to couple the drive unit to the slave unit for movement, control means for maintaining the slave unit magnetically suspended within the passageway and at a desired position relative to the drive unit upon energization of the electromagnet means, a barrier of magnetically transparent material extending along the passageway and positioned between the drive unit and the slave unit to physically isolate the drive unit from the slave unit and to protect the drive unit from contamination within the passageway arising from the toxic or radioactive articles whereby to permit ready access to the drive unit for maintenance and the like operations.

4,392,436

KNOCKDOWN METAL TABLE

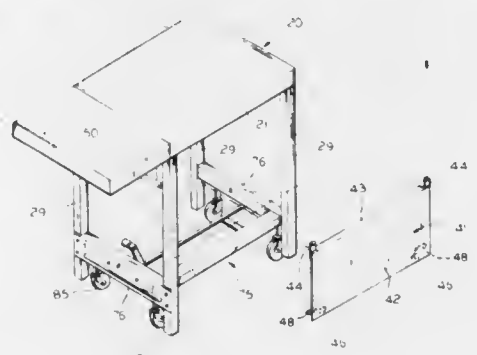
Raywood C. Weiler, Fontana, Calif., assignor to BMC Products, Chicago, Ill.

Filed Nov. 17, 1980, Ser. No. 207,295

Int. Cl.³ A47B 1/04, 13/18, 91/00

U.S. Cl. 108—81

8 Claims



1. In combination a generally rectangular table and an auxiliary component removably attached thereto, said table including a horizontal member having depending flanges forming a plurality of corners, and a plurality of legs each being defined by four sides with adjacent sides being perpendicular so that said legs are generally square shaped in cross section, a diagonal connecting member at each of said corners, each of said diagonal connecting members having threaded means, a screw

member received in each of said threaded means, said screw members being adjustable relative to said legs, a U-shaped member diagonally positioned and engaged by each of said screw members with spaced sides of each of said U-shaped members engaging the innermost right angle corner of one of said legs and adapted to apply pressure against said leg to hold said leg in one of said corners formed by said depending flanges, said screw members when retracted permitting removal of said legs, said auxiliary component including a pair of spaced attaching means each having a flat portion with each such portion being adapted to be received between a corresponding one of said legs and flanges before the screw member is adjusted to secure said leg to one of said corners formed by said depending flanges.

4,392,437

FOLDABLE TABLE WITH FOLDABLE SUPPORT FRAME

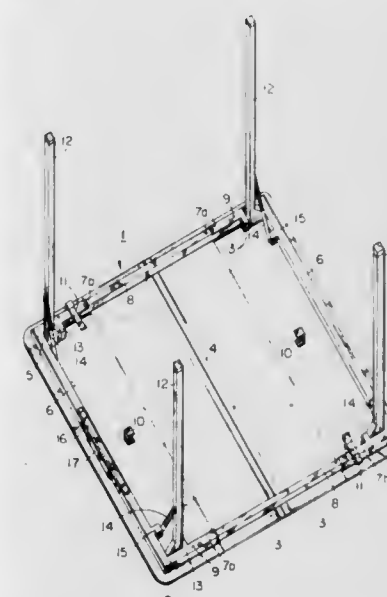
John D. Wallace, 18 Cranbury Neck Rd., Cranbury, N.J. 08512

Filed Jan. 21, 1981, Ser. No. 226,880

Int. Cl.³ A47B 3/00

U.S. Cl. 108—112

8 Claims



1. A foldable assembly comprising: first and second substantially planar and rectangular panels each having respective first and second short sides and respective first and second long sides; means for foldably joining said first and second panels so that said panels may be selectively placed in a folded configuration or in an unfolded configuration in which their planes are substantially coplanar; said means for foldably joining said first and second panels joining said panels so that said second long side of said first panel is joined to said first long side of said second panel, said first short sides are in substantial alignment and said second short sides are in substantial alignment; a first subassembly attached to said first panel proximate said first long side hereof; a second subassembly attached to said second panel proximate said second long side hereof; said first subassembly having first and second channel portions each with a generally C-shaped cross-section proximate said first and second short sides, respectively, of said first panel; said second subassembly having first and second channel portions each with a generally C-shaped cross-section proximate said first and second short sides, respectively, of said second panel; first and second bar members each having first and second ends; means for pivotably attaching said first end of said first bar member within said first C-shaped channel portion of said first subassembly so that said first bar member may be rotated in a plane substantially parallel to said plane of said first panel from a storage position when said

panels are in said folded configuration to a support position in which said second end of said first bar member is received within said first C-shaped channel portion of said second assembly so that said first bar member spans between said first and second subassemblies when said panels are in said unfolded configuration; and means for pivotably attaching said first end of said second bar member within said second C-shaped channel portion of one of said first and second subassemblies so that said second bar member may be rotated in a plane substantially parallel to said plane of the respective one of said first and second panels from a storage position when said panels are in said folded configuration to a support position in which said second end of said second bar member is received within said second C-shaped channel portion of the other one of said first and second subassemblies so that said second bar member spans between said first and second subassemblies when said panels are in said unfolded configuration.

4,392,438

COAL TRANSPORT SYSTEM

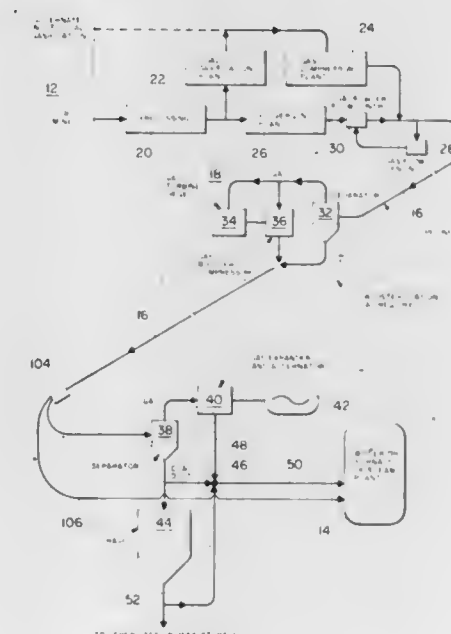
James L. Dooley, Santa Monica, Calif., assignor to R & D Associates, Marina del Rey, Calif.

Filed Jun. 22, 1981, Ser. No. 275,911

Int. Cl.³ F23K 3/02

U.S. Cl. 110—106 R

13 Claims



1. An economical system for transporting coal from a first location where coal is abundant and inexpensive to a utilization point, as a non-explosive particulate suspension in gas comprising: means for forming coal gas from coal at said first location; means for pulverizing coal into very fine particles at said first location; an extended length conduit more than one mile in length extending from said first location to said utilization point; means for compressing said coal gas at said first location; means for supplying said coal particles and the pressurized coal gas to said conduit with the coal particles suspended in said coal gas to form a non-explosive two phase system; means for collecting and utilizing both said coal particles and said coal gas at the other end of said extended conduit; and means for maintaining said coal particles in suspension in said coal gas as the suspension passes through the conduit, said means for maintaining said coal particles in suspension including means for rotating the suspension as it passes along the length of said conduit comprising vanes mounted within said conduit and oriented at an angle with respect to the longitudinal axis of said conduit.

rotated at an increase speed in unison upon negative hydraulic pressure being applied to said first (62) and second (90) pistons, and for being rotated at a decreased speed in unison upon positive hydraulic pressure being applied to said first (62) and second (90) pistons.

4,392,444

HIGH STABILITY TRIMARAN

Lars G. Andersson, Lufttrycksgatan 3 BV, S-417 40 Goteborg, Sweden

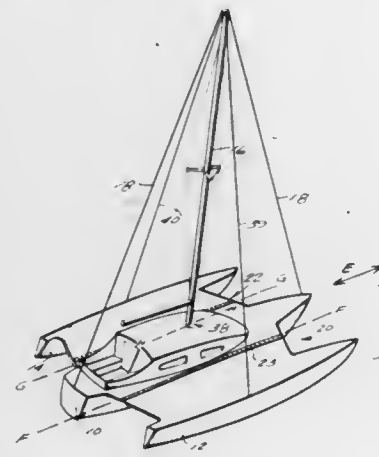
Filed Jan. 6, 1981, Ser. No. 222,877

Claims priority, application Sweden, Jan. 10, 1980, 7906031

Int. Cl.³ B63H 35/00

U.S. Cl. 114—39

10 Claims



1. A trimaran comprising: an elongated main hull, a starboard hull, and a port hull, the starboard and port hulls disposed on opposite sides of said main hull and parallel thereto; a mast; stays extending between said mast and said main hull for stabilizing the position of said mast with respect to said main hull; and means for operatively attaching said starboard and port hull to said main hull, for operatively attaching said mast to said main hull, and for operatively attaching said mast to said starboard and port hulls, so that the angle of inclination of said main hull is minimized and so that the trimaran is self-righting; said means for operatively attaching said starboard and port hulls to said main hull comprising means for pivotally mounting each of said starboard and port hulls to said main hull along a side of said main hull so that said starboard and port hulls are pivotal about an axis generally parallel to the direction of elongation of said main hull; said means for operatively attaching said mast to said main hull comprising means for pivotally mounting said mast to said main hull so that it is pivotal about an axis substantially parallel to the axes about which said starboard and port hulls are pivotal; and said means for operatively attaching said mast to said starboard and port hulls comprising shroud means.

4,392,445

FLEXIBLE BOW AIR RIDE BOAT HULL

Donald E. Burg, Miami, Fla., assignor to Paulette Renee Burg; Sheri Renee Burg; Daniel Earl Burg and Nicole Renee Burg, all of Miami, Fla., part interest to each

Continuation-in-part of Ser. No. 207,789, Nov. 17, 1980, abandoned, Ser. No. 69,771, Aug. 27, 1979, abandoned, Ser. No. 818,303, Jul. 25, 1977, Pat. No. 4,165,703, and Ser. No. 737,403, Nov. 1, 1976, abandoned. This application Jun. 3, 1981, Ser. No. 269,908

Int. Cl.³ B63B 1/38

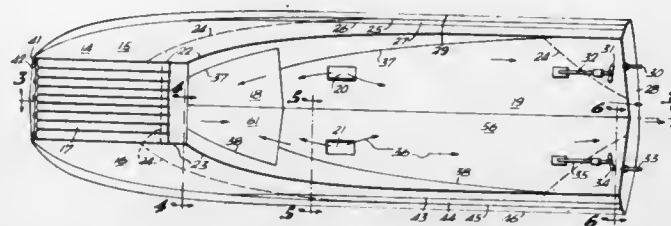
U.S. Cl. 114—67 A

20 Claims

1. In an improved boat hull that is partially supported by a pressurized gas lifting surface including a recess in an underside of the hull, which recess is supplied with pressurized gas from at least one powered gas supply source through at least one gas inlet connected to said recess, and having a gas sealing

forward flexible member which is supplied with gas from at least one gas inlet, the improvement comprising:

stabilizing, load-carrying catamaran-like sidehulls beginning at a forward portion of and extending downward from the hull and having keels extending substantially parallel to each other rearwardly from said forward portion of said hull to a point at which they begin to diverge, said gas



sealing forward flexible member extending between and substantially to said point of divergence of said substantially parallel portions of said side hull keels; and at least one fixed substantially rigid aft gas sealing bow member extending over a major portion of recess width, said bow member including at least one surface in part curvilinear and at least partially comprising at least one inverted V structure.

4,392,446

PEDESTAL MOUNT AUTOPILOT

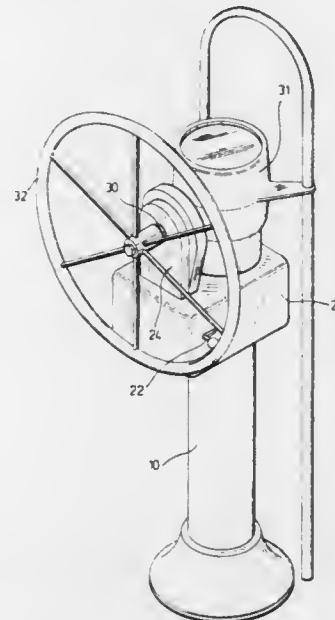
Gerardus H. Vander Eyken, Longbranch, and James J. Thoman, Mississauga, both of Canada, assignors to Cinkel Industries, Ltd., Mississauga, Canada

Filed Apr. 6, 1981, Ser. No. 251,464

Int. Cl.³ B63H 25/04

U.S. Cl. 114—144 R

17 Claims



1. An electromechanical arrangement for use in an autopilot for yachts comprising a directional indicator, positionable sensing means associated with said directional indicator for determining movement thereof relative to said sensing means, electrical drive means controlled by said sensing means including an electrical motor and a transmission, said electrical drive means providing the input for said transmission with the output of said transmission connected to a mechanical drive means for engaging the steering system of such yacht and means associated with said sensing means and said mechanical drive means for moving said sensing means relative to said directional indicator in response to movement of said mechanical drive means, and clutch means to allow selective engagement and disengagement of said electrical motor from such steering system, wherein said means associated with said sensing means is in constant communication with such steering system.

4,392,447

OFFSHORE MOORING SYSTEM

Hermann Kaps, Bremen, Fed. Rep. of Germany, assignor to Howaldtwerke - Deutsche Werft Aktiengesellschaft Hamburg und Kiel, Kiel and LGA Gastechnik GmbH, Remagen, both of, Fed. Rep. of Germany

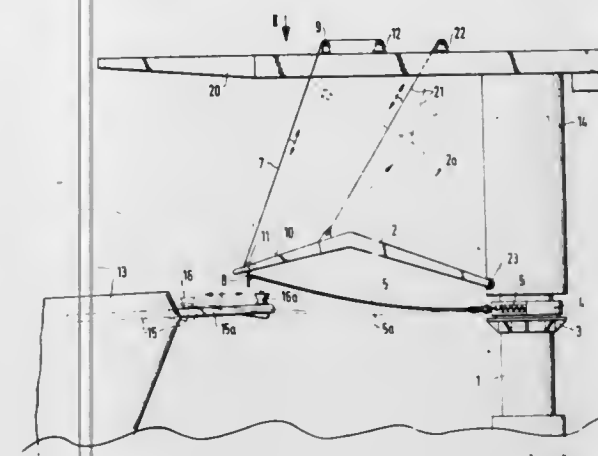
Filed Aug. 19, 1981, Ser. No. 294,333

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1980, 3031717

Int. Cl.³ B63B 21/20

U.S. Cl. 114—230

10 Claims



1. An offshore mooring system for seagoing vessels comprising in combination:

- (a) an offshore tower comprising a turnable tower head at its upper end above the waterline and a jib on the tower head,
- (b) a mooring hawser of predetermined length both ends of said mooring hawser being fastened to a collar means capable of rotary movement around the upper end of the offshore tower, said mooring hawser being suspended beneath the jib,
- (c) a mooring bitt on the forecandle of a vessel which is to be moored,
- (d) mechanical means for automatically spreading open and holding said mooring hawser open to form a wide loop above the height of the bitt of the vessel when the vessel has approached the tower, and for lowering the spread open loop of said mooring hawser over the bitt thereby capturing the bitt by the loop, wherein said mechanical means for spreading open and holding the mooring hawser comprises spreader blocks for retaining the mooring hawser and for spreading it open to a loop, said spreader blocks being movable by spreader lines connected to the spreader blocks, said system including means to wind and unwind said spreader lines.

4,392,448

SKI BOAT

Robert L. Shirley, Maryville, Tenn., assignor to Master Craft Boat Company, Maryville, Tenn.

Continuation-in-part of Ser. No. 13,618, Feb. 21, 1979, Pat. No. 4,263,866, which is a continuation of Ser. No. 824,968, Aug. 15, 1977, abandoned. This application Jul. 25, 1980, Ser. No. 172,159

The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.

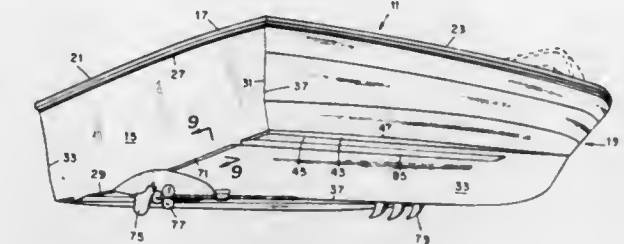
Int. Cl.³ B63B 1/18

U.S. Cl. 114—271

10 Claims

1. A ski boat for producing a relatively small, well-defined wake and a relatively smooth working table, comprising an elongated hull having a keel section generally V-shaped in cross section, the angle of the "V" increasing towards the stern of the hull, a chine panel at each of the outboard edges of said keel section, said chine panels extending from a forward portion of the hull to the stern, each of said chine panels defining an acute angle with the horizontal towards the forward end of the boat which angle decreases to provide a chine panel which

is generally horizontal at the stern, a transom at the stern of the hull, said transom being bowed outwardly, an orienting panel of narrow width following the line of said transom, said orienting panel inclining downwardly from said V-shaped keel sec-



tion and chine panels to said transom, and a pair of secondary chines mounted upon said keel section, each of said secondary chines being located on opposing sides of said V-shaped keel section and being parallel to the centerline of said V-shaped keel section and following the contour of said keel section.

4,392,449

BELOW DECK ENCLOSURE FOR PRESSURIZED, HEAVIER THAN AIR GAS

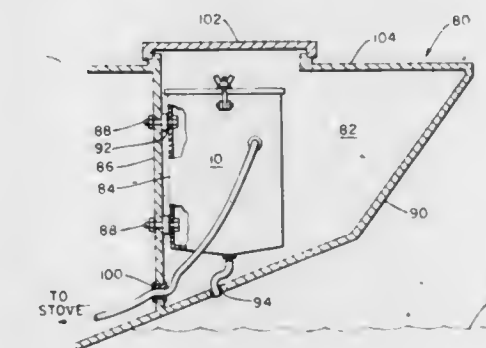
Bruce F. Dining, R.F.D. #1, Exeter, N.H. 03833

Filed May 1, 1981, Ser. No. 259,564

Int. Cl.³ B63B 11/00

U.S. Cl. 114—343

4 Claims



1. An enclosure for volatile or flammable heavier than air gases stored as fluids under pressure in canisters on a marine vessel comprising:

- a sealable housing having an opening on one side thereof;
- a removable lid covering the opening of said housing;
- means cooperating with said lid and housing for sealing the lid and housing together thereby to define a sealed interior of said housing;
- support means within said housing for maintaining said canisters in a predetermined orientation within the sealed interior of said housing;
- means adapted to mount said housing to a substantially vertical bulkhead of a vessel thereby to maintain said canisters in an upright condition;
- sump means disposed on the bottom of said housing in a depressed portion thereof whereby said sump means is at the vertically lowest point of said housing when bulkhead mounted; and
- free flow conduit means for venting said sump vertically downward to a point external of said vessel above the water line and below said sump means whereby the sealed interior of said housing, external of the canisters therein, is vented downward to the exterior of said housing for free flow exhaust of heavier than air gases from said housing to the exterior of said vessel.

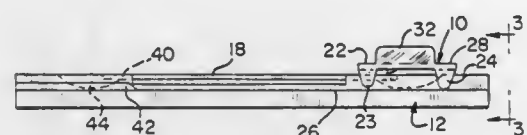
4,392,450

DEVICE FOR SPREADING MONOLAYERED FILMS
 Donald L. Prevo, 907 Linden Ave., Winnetka, Ill. 60093
 Continuation-in-part of Ser. No. 234,011, Feb. 12, 1981,
 abandoned, which is a continuation-in-part of Ser. No. 185,020,
 Sep. 8, 1980, Pat. No. 4,359,013. This application Feb. 12, 1982,
 Ser. No. 348,209

Int. Cl.³ B05C 17/10

U.S. Cl. 118—120

18 Claims



1. A spreader for forming a monolayered film on a slide or the like from a fluid placed on the slide, the spreader being movable in a longitudinal direction along the length of the slide, said slide being held by a supporting surface comprising:

(a) a support having an upper surface and a lower surface;
 (b) a bar extending in a transverse direction and downwardly along said lower surface of said support, said bar including:

(i) first and second sloped surfaces extending upwardly and in the longitudinal direction from the bottom of the bar toward said support, the first sloped surface comprising the forward end of the bar and the second sloped surface comprising the rear end of the bar;

(ii) a flat section formed at an angle to the lower end of said first sloped surface such that said flat section engages said slide or the like; and

(iii) a cutaway section adjacent to said flat section and formed at an angle to the lower end of said second sloped surface such that the top of said cutaway section is in close proximity with and is parallel to the slide on which the film is to be formed; and

(c) means extending downwardly from either side of said cutaway section for maintaining the flat section in contact with a slide and the top of the cutaway section in close proximity with and parallel to the slide whereby as the spreader is placed over a droplet of fluid on the slide, the fluid can diffuse between the cutaway section and the slide so that the monolayered film can be formed as the spreader is moved in the forward direction over the slide.

4,392,451

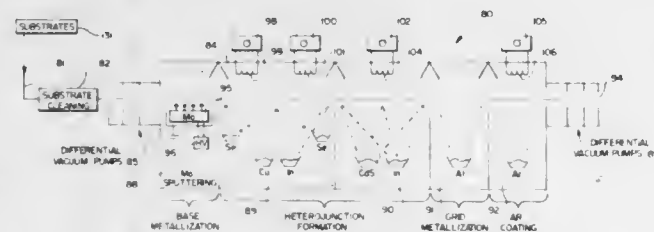
**APPARATUS FOR FORMING THIN-FILM
 HETEROJUNCTION SOLAR CELLS EMPLOYING
 MATERIALS SELECTED FROM THE CLASS OF I-III-VI₂
 CHALCOPYRITE COMPOUNDS**

Reid A. Mickelsen, Bellevue, and Wen S. Chen, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.
 Division of Ser. No. 221,761, Dec. 31, 1980, Pat. No. 4,335,266.
 This application Jul. 2, 1981, Ser. No. 278,343

Int. Cl.³ C23C 13/10

U.S. Cl. 118—690

7 Claims



1. Apparatus for forming a photovoltaic light-to-electrical energy transducer of the type comprising a thin-film, A-B-type heterojunction formed on a substrate from a first ternary semiconductor material and a second semiconductor material, comprising, in combination:

(a) first means for forming a low-resistivity base metal contact on the substrate;

(b) second means for forming a transient A-B-type, thin-film homojunction on the base metal contact by simultaneous elemental evaporation of the constituent elements of the ternary semiconductor material, said second means including:

(i) means for monitoring the ratio of two of the constituent metallic elements of the ternary semiconductor material being evaporatively formed on the base metal contact;

(ii) means for establishing an initial ratio of the two constituent metallic elements being monitored so that the evaporation stream of elements being deposited on the base metal contact is slightly enriched by a slight excess of one metallic elemental constituent as compared to the stoichiometric condition of the ternary semiconductor material so as to permit formation of a first region of low resistivity semiconductor material on the base metal contact; and

(iii) means for adjusting the ratio of the two constituent elements being monitored during simultaneous elemental evaporation thereof so that the evaporative stream of elements being deposited on the first region of low resistivity semiconductor material contains a slight deficiency of the one metallic elemental constituent as compared to the stoichiometric condition of the ternary semiconductor material so as to permit formation of a second region of relatively high-resistivity transient semiconductor material on the first region of low resistivity semiconductor material, thereby forming a transient A-B-type homojunction; and

(c) third means for forming a low resistivity, thin-film layer of said second semiconductor material on the transient A-B-type homojunction with such layer in face-to-face contact with the second region of the transient homojunction and having a p-type or n-type state corresponding to the transient state of the high resistivity region; so that upon elemental interdiffusion of the elemental constituents formed on the substrate by said second and third means, the second region of relatively high resistivity transient semiconductor material is permitted to evolve into a relatively high resistivity region of semiconductor material having a p-type or n-type state corresponding to the state of the first region of low resistivity semiconductor material to thereby form a thin-film, A-B-type, heterojunction.

4,392,452

EVAPORATION DEVICE

Kazuhisa Taketoshi, Sagamiyara, and Chihaya Ogusu, Tokyo, both of Japan, assignors to Nippon Hosokawa Kogyo, Tokyo, Japan

Division of Ser. No. 213,016, Dec. 4, 1980, Pat. No. 4,352,834.
 This application Apr. 27, 1982, Ser. No. 372,389

Claims priority, application Japan, Dec. 26, 1979, 54-168076
 Int. Cl.³ C23C 13/12

U.S. Cl. 118—723

10 Claims

1. An apparatus wherein a film consisting of a compound presenting a semiconductor characteristics or a solid solution thereof is deposited on a substrate in an atmosphere of an atomic state gas selected from a group consisting of hydrogen gas, oxygen gas and nitrogen gas with a partial pressure of 1×10^{-3} Torr or less said apparatus comprising:

a vacuum container having a gas introduction path for introducing a gas selected from a group consisting of hydrogen gas, oxygen gas and nitrogen gas to said vacuum container and a gas exhaust path connected to a gas exhausting equipment for controlling a gas pressure and a vacuum condition in said vacuum container;

a discharging means disposed in said vacuum container and having a cathode with a heating power source and an anode to which a voltage is applied with respect to said cathode for producing said atomic state gas by activating

said gas by a discharge between said cathode and said anode;
 an evaporation source disposed in said vacuum container for accommodating evaporation material and having an evaporation heater for heating said evaporation material;
 a hot wall disposed in said vacuum container and having a hollow cylindrical body having a lower end opening for receiving a vapor evaporated from said evaporation source, an upper end opening being opposite to said lower

end opening being configured and positioned to direct said converted molecular beam generally toward said substrate.

4,392,454

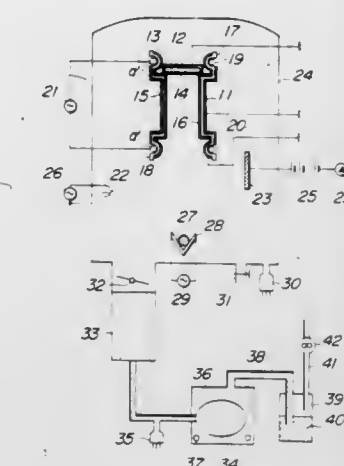
APPARATUS AND METHOD FOR REARING SHRIMP
 Charles Dugan, Goulds, and Timothy Dugan, Homestead, both, Fla., assignors to Farm Fresh Shrimp Corporation, Fort Lauderdale, Fla.

Division of Ser. No. 925,793, Jul. 18, 1978, Pat. No. 4,249,480.
 This application Oct. 21, 1980, Ser. No. 199,209

Int. Cl.³ A01K 61/00

U.S. Cl. 119—2

1 Claim



end opening in a direction apart from said evaporation source, and an inner surface at least on which a resistive film is deposited so that the resistive film is heated by an electric power supplied across both ends of said resistive film, and

a substrate mounting member for mounting said substrate on said upper end opening of said hot wall on which said vapor evaporated from said evaporation source is deposited.

4,392,453

**MOLECULAR BEAM CONVERTERS FOR VACUUM
 COATING SYSTEMS**

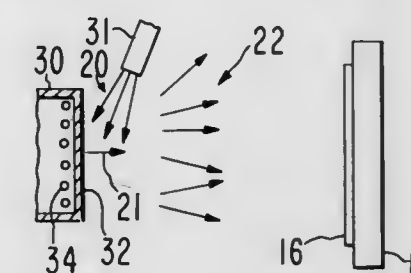
Paul E. Luscher, Sunnyvale, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Aug. 26, 1981, Ser. No. 296,288

Int. Cl.³ C23C 13/08

U.S. Cl. 118—726

32 Claims



1. A molecular beam converter for use in a vacuum system for coating a substrate, said molecular beam converter comprising:

a body having an impingement surface generally facing said substrate;

a heating means to enable said impingement surface to be maintained at a designated temperature;

a molecular source for forming and directing an incident molecular beam onto said impingement surface;

impingement of said incident molecular beam on said impingement surface maintained at said designated temperature causing a converted molecular beam to flow from said surface;

said impingement surface and said molecular source in combination being configured to largely avoid impingement on said surface by molecular species in said converted molecular beam;

said impingement surface and said molecular source in com-

1. An Artemia collector for collecting Artemia contained in a flowing medium, said collector comprising:

an upper portion for receiving said flowing medium, said upper portion having aperture means therein for permitting passage of said flowing medium into said upper portion and having an inner wall for guiding said flowing medium;

intake means coupled to said aperture means for directing said flowing medium through said aperture means and along said inner wall;

frame means including first leg means attached at one end to said upper portion and slanting inwardly toward one another, and second leg means attached at one end to said upper portion and extending downwardly therefrom for supporting said collector;

mesh means for permitting passage of said flowing medium while retaining said Artemia, said mesh means being disposed within said first leg means and extending from said upper portion to the lower ends of said first leg means; and sleeve means attached to said lower ends of said first leg means and to said mesh means.

4,392,455

HEAT-SINK WATER HEATER

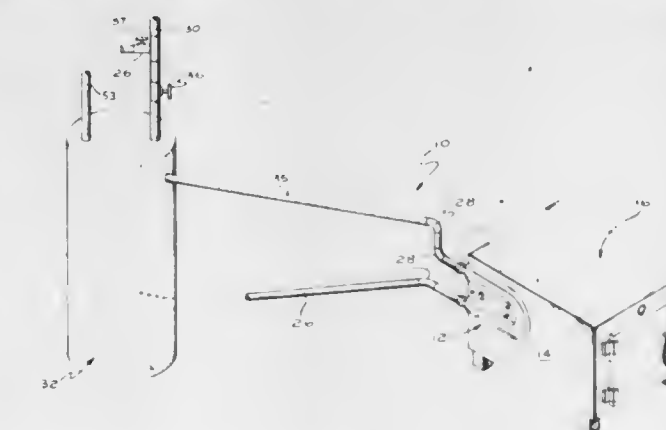
Raymond C. Jarvis, Millers Falls Rd., Turners Falls, Mass. 01376

Filed Jun. 29, 1981, Ser. No. 278,044

Int. Cl.³ F22B 33/00

U.S. Cl. 122—20 A

6 Claims



1. A water heater comprising:

- (a) a heat sink module having a relatively flat surface and a passage for fluid flow;
- (b) said passage having an inlet connectable to a water source and a discharge connectable to a hot water line;
- (c) means for attaching said module to an external wall of a stove to transfer heat from the stove to water flowing through the passage wherein said flat surface of said module is disposed substantially parallel to said external stove wall, and,
- (d) adjustment means for selectively moving said module away from or closer to said external stove wall to regulate the amount of heat transferred from the stove to the module and thereby control the water temperature produced by the heater.

4,392,456

PREVENTION OF FOULING IN INTERNAL COMBUSTION ENGINES AND THEIR EXHAUST SYSTEMS AND IMPROVED GASOLINE COMPOSITIONS

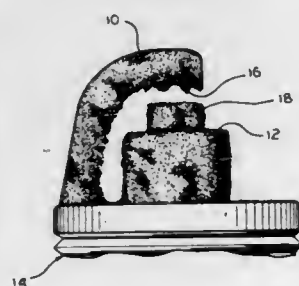
Robert E. Davis, Hinsdale, Ill., assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 27, 1980, Ser. No. 153,012

Int. Cl.³ F02B 77/04

U.S. Cl. 123-1 A

18 Claims



1. A process for operating gasoline engines with spark plug ignition which use a gasoline fuel containing methylcyclopentadienyl manganese tricarbonyl which comprises:
- using as the gasoline fuel for said engines a gasoline containing methylcyclopentadienyl manganese tricarbonyl as an octane improver but containing no additives which include sodium or barium compounds; whereby fouling of the spark plugs with glass-like deposits formed from the oxidation reaction products of sodium and/or barium and manganese is avoided.

4,392,457

COMBUSTION AND ELECTRIC ENGINE

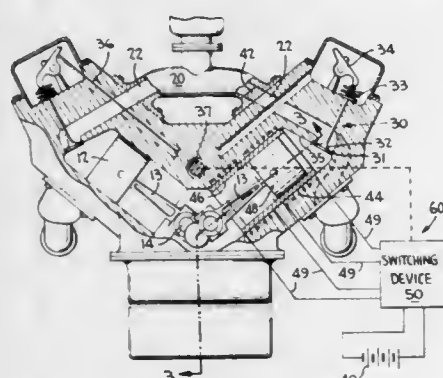
Jesse J. Martin, 4871 Milville-Reilly Rd., Hamilton, Ohio 45013

Filed Dec. 31, 1980, Ser. No. 221,718

Int. Cl.³ F02B 75/00

U.S. Cl. 123-1 R

13 Claims



1. A combination internal combustion and electric engine comprising:
- (a) a predetermined plurality of cylinders;
- (b) a number of said cylinders less than said predetermined

- plurality comprising conventional fuel powered cylinders and a conventional fuel powered piston located in each of said conventional cylinders; and
- (c) an electrically powered piston located in each of the remaining cylinders.

4,392,458

INTERNAL COMBUSTION ENGINE WITH DOUBLE OSCILLATING PISTONS

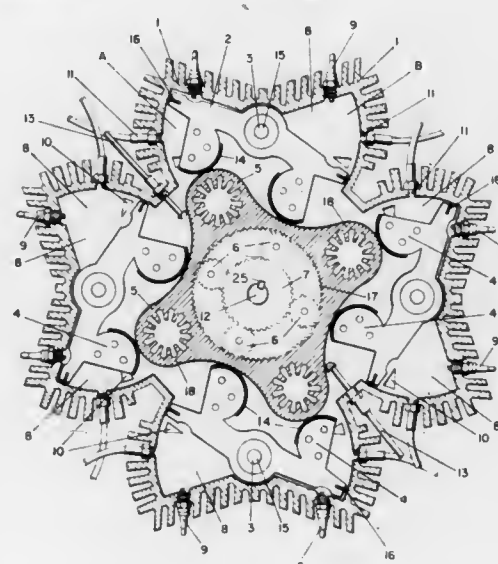
Henry E. Gummeringer, 13107 Marble, NE., Albuquerque, N. Mex. 87112

Filed Sep. 11, 1980, Ser. No. 186,120

Int. Cl.³ F02B 53/00

U.S. Cl. 123-18 R

3 Claims



1. An oscillating piston internal combustion engine comprising:
- a. a housing forming within a plurality of working chambers, and pivotally supporting between adjacent working chambers an oscillating piston, so that each side of each oscillating piston operates in one of the working chambers, and each said working chamber having therein a standard spark plug, and a fuel injection port, and an air input port and an exhaust port; and
- each side of each oscillating piston having a cam arm having an irregular nearly circular shaped cam surface, and a cam gear having an irregular exterior cam surface with a plurality of lobes, and said cam gear having means for engaging a drive shaft, and
- whereby when a combustible mixture is exploded in one working chamber on one side of an oscillating piston, the expanding gases from said explosion drive that side of the oscillating piston toward the cam gear, and the other side of the oscillating piston, having been exhausted and recharged with fresh air compresses the air therein and receives fuel by injection, and
- wherein each side of the oscillating piston as it travels toward the cam gear near the limits of its travel exposes air input ports and exhaust ports, and
- an air input blower which blows fresh air into the working chamber through the air input port and an exhaust blower which removes exhaust gases from the working chamber through the exhaust port, and
- wherein the housing between the working chambers and between the pistons has mounted therein a spring loaded oiler wick, and
- wherein the exhaust blower and the air input blower are driven from the driveshaft, and
- wherein the injection of fuel and the ignition spark for each working chamber are timed.

4,392,459

FOUR STROKE THERMAL ENGINE CAPABLE OF TEMPORARY BOOST

Jean-Louis Chaire, Levallois, France, assignor to Societe Nationale Industrielle Aerospatiale, Paris, France

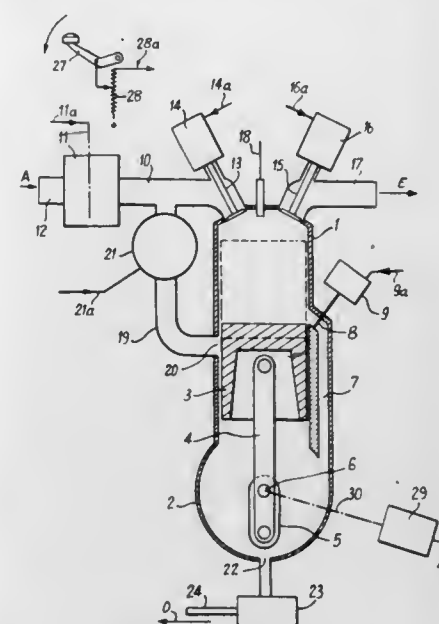
Filed Feb. 16, 1982, Ser. No. 348,868

Claims priority, application France, Feb. 18, 1981, 81 03201

Int. Cl.³ F02B 69/06, 41/00; F01L 9/02, 1/34

U.S. Cl. 123-21

7 Claims



1. In a thermal engine assembly provided with inlet and exhaust valves and with a system for controlling said engine comprising a computer which regulates opening and closure of said valves and which imposes on the engine an operation close to the one corresponding to minimum specific fuel consumption, said engine is essentially of the four-stroke cycle type, said system comprises means adapted to detect overloads of the engine and means adapted to cause the engine to operate exceptionally, in two-stroke mode, these latter means being actuated by said detection means when the detected overload exceeds a predetermined threshold so that the engine in that case passes to two-stroke operation, four-stroke operation being resumed as soon as the overload has disappeared.

4,392,460

PARALLEL INHERENTLY BALANCED ROTARY VALVE INTERNAL COMBUSTION ENGINE

Thomas V. Williams, 415 Dreshertown Rd., Fort Washington, Pa. 19034

Filed Mar. 21, 1980, Ser. No. 132,606

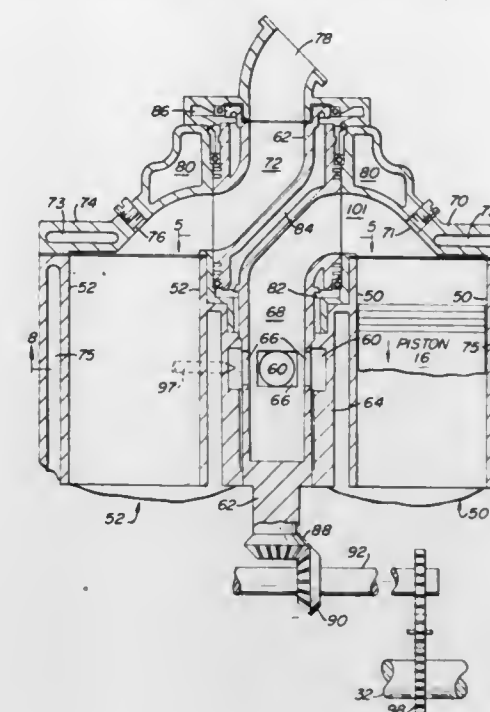
Int. Cl.³ F01L 7/00

U.S. Cl. 123-80 BB

13 Claims

1. An internal combustion engine comprising
- a first plurality of cylinders, each cylinder comprising a head, a piston, an inlet port and an exhaust port;
- a second plurality of cylinders, each cylinder comprising a head, a piston, an inlet port and an exhaust port;
- a first rotary fuel valve adjacent to said first plurality of cylinders and a second rotary valve adjacent to the said second plurality of cylinders,
- each valve having a valve member mounted for rotation about an axis parallel to its adjacent cylinders for feeding a fuel-air mixture to each said cylinder,
- each valve member having a fuel-air passage terminating in an outlet port for rotating alignment with a cylinder head of one of its adjacent cylinders for feeding a fuel-air mixture into each said cylinder inlet port,
- each valve member having an exhaust passage terminating in an exhaust inlet port for rotating alignment with a cylinder head of another adjacent cylinder for exhausting gases from the said cylinder exhaust port;
- crankshaft means coupled to said pistons for rotation relative to the cylinders, the crankshaft means comprising first and second crankshafts, at least one piston from

- each of the said first and second pluralities of cylinders being connected to each crankshaft;
- a fuel injector means communicating with each fuel-air passage in all rotary positions of each valve member to feed a fuel-air mixture into each fuel-air passage;



- drive means for rotating the valve members continuously about their respective longitudinal axes; and
- gear means connected to rotate simultaneously the first and second rotary valves,
- the said gear means being adapted to rotate the first and second rotary valves in opposite directions.

4,392,461

ROCKER ARM ADAPTER FOR ALTERING CAM PROFILE OF EXHAUST VALVE

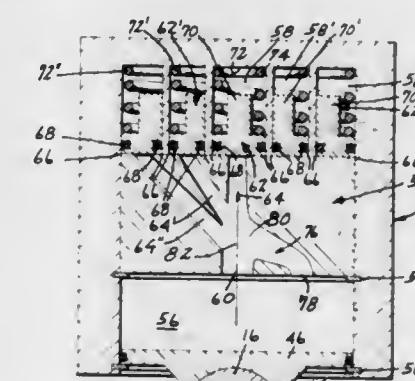
Richard Rotondo, 3804 Highcrest Rd., St. Anthony Village, Minn. 55421

Filed Nov. 10, 1980, Ser. No. 205,728

Int. Cl.³ F01L 1/34, 1/24

U.S. Cl. 123-90.16

16 Claims



1. In combination with a rocker arm having first and second ends and mounted for pivoting movement between first and second positions and about a pivot intermediate the ends, wherein the second end engages a valve stem of a valve of an automobile engine and the rocker arm overcomes a bias urging the valve to a closed position and opens the valve as it moves from its first position to its second position, and a push rod engaging the first end to pivot the rocker arm from its first to its second position as the push rod moves longitudinally; a fluidic delay device, comprising means formed in the rocker arm at one end thereof, said means including a piston disposed for movement into and out of a cavity formed in said one end and engaged by one of the valve stem and push rod, and means

for precluding movement of said piston into said cavity beyond various positions, wherein said piston moves into said cavity to different of said positions, depending upon the speed of longitudinal movement of the push rod, as the rocker arm is urged from its first position to its second position, said means for precluding movement of said piston comprising a manifold member mounted in said cavity to define an exterior chamber in which said piston moves, and a plurality of interior chambers having different volumes, said member having formed therethrough an inflow passageway communicating with said exterior chamber and dividing into a plurality of outflow channels, each of said channels entering into a different of said interior chambers; a fluid filling said exterior chamber, said inflow passageway, said outflow channels, and said interior chambers; and means responsive to said speed of longitudinal movement of the push rod for channeling the bulk of fluid flow in said inflow passageway induced by movement of said piston into said exterior chamber, into a different of said outflow channels.

4,392,462

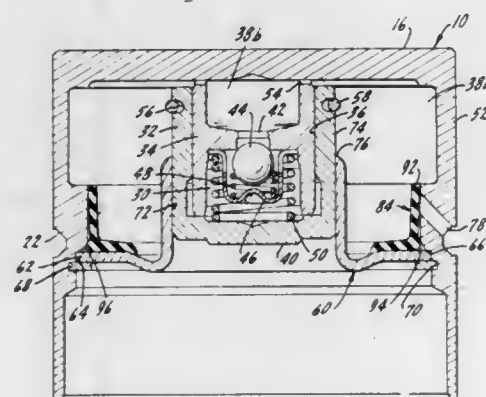
INVERTED BUCKET TAPPET WITH SEAL

Kenneth W. Leshner, Wheaton, Ill., assignor to Stanadyne, Inc., Windsor, Conn.

Filed Dec. 22, 1980, Ser. No. 219,266

Int. Cl.³ F01L 1/24

U.S. Cl. 123—90.55



1. In a self-compensating hydraulic lash adjuster, a cup-shaped follower, a body supported thereon, a spacer attached to said follower and supporting said body, said spacer, body and follower defining a fluid reservoir, a piston assembly positioned within said body and defining a compression chamber therewith, check valve controlled passage means between said reservoir and compression chamber,

a fluid passage in said follower opening into said reservoir, and a somewhat L-shaped elastomeric seal seated upon said spacer and masking said fluid passage, the upright portion of said L-shaped elastomeric seal functioning to admit hydraulic engine fluid through said passage to said fluid reservoir, to block the reverse flow through said passage from said reservoir, and to seal against the leakage of fluid from said reservoir between said spacer and follower, the base of said L-shaped elastomeric seal being seated upon and supported by said spacer.

4,392,463

DIESEL ENGINE HAVING A DUAL LUBRICATION SYSTEM

Seishi Yasuhara, Yokosuka, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Aug. 7, 1980, Ser. No. 176,216

Int. Cl.³ F01M 1/00

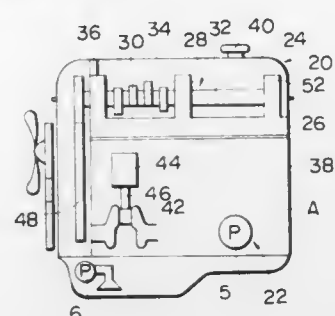
U.S. Cl. 123—196 M

2 Claims

1. A method of lubricating the working parts of a diesel engine equipped with an exhaust gas recirculation system, said working parts including a valve train whose lubricant is substantially prevented from being exposed to exhaust gases and

other working parts whose lubricant may be exposed to exhaust gases, said method comprising:

lubricating the engine working parts except for the valve train with diesel fuel;



using the diesel fuel after the same has served as a lubricant for fuel for the engine; and lubricating the valve train with a separate lubrication system.

4,392,464

CYLINDER HEAD OIL DISTRIBUTION SYSTEM FOR CERTAIN HARLEY-DAVIDSON MOTORCYCLE ENGINES

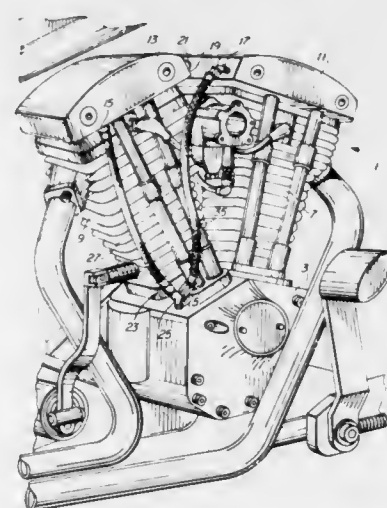
Kenneth E. Woodward, 3911 E. Weldon Ave., Phoenix, Ariz. 85018, and Terry L. Zeiger, 1517 E. Dolphin, Mesa, Ariz. 85204

Filed May 26, 1981, Ser. No. 266,802

Int. Cl.³ F01M 1/00

U.S. Cl. 123—196 R

4 Claims



1. An improved oil distribution apparatus for distributing oil through the front and rear cylinder heads of a HARLEY-DAVIDSON twin cylinder V-type motorcycle engine having said front cylinder inclined at a 45° angle relative to said rear cylinder and having only a single threaded oil outlet from the crankcase thereof, said rear cylinder head having a threaded oil inlet disposed in a lower portion of said rear cylinder head, said rear cylinder head also having a threaded oil outlet disposed in a front side of said rear cylinder head, said front cylinder head having a threaded oil inlet disposed on a rear side of said front cylinder head, said apparatus comprising in combination:

- a tubular Y fitting means having a first tubular extension with a threaded portion for threaded sealing engagement with said crankcase oil outlet;
- a first oil tube external to said front and rear cylinders having an upper fitting sealably attached to an upper end thereof for threaded, sealing engagement with said oil inlet of said rear cylinder head;
- a first fitting for removable, sealable, connecting of the lower end of said first oil tube to a second tubular extension of said Y fitting means;

- a second oil tube external to said front and rear cylinders;
- a second fitting for removable, sealable, connecting of the lower end of said second oil tube to a third tubular extension of said Y fitting means;
- a third fitting for removable, sealable, connecting of the upper end of said second tube to said oil inlet of said front cylinder head; and
- a threaded plug for sealing closed said oil outlet for said rear cylinder head.

4,392,465

SELF-IGNITING INTERNAL COMBUSTION ENGINE WITH A ROTATIONALLY SYMMETRICAL PISTON TROUGH

Gerhard Wolters, Gaggenau, and Wilhelm Wagner, Stuttgart, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

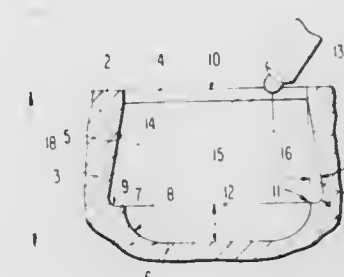
Filed Jul. 7, 1981, Ser. No. 281,028

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1980, 3025943; Apr. 22, 1981, 3115933

Int. Cl.³ F02B 19/08

U.S. Cl. 123—263

4 Claims



1. Self-igniting internal combustion engine with a rotationally symmetrical piston trough exhibiting in cross section a flat bottom well rounded at the rim and conical sidewalls, and wherein the inlet opening is smaller than the largest diameter of the piston trough, and with an injection nozzle injecting into the piston trough so that the walls are wetted, characterized by the combination of the following features:

- the diameter of the inlet opening is about 0.35–0.43 times the piston diameter, and the total depth of the piston trough is about 0.6–0.8 times the diameter of the inlet opening;
- the angle of conicity of the sidewalls is about 7–15°;
- a continuously extending, projecting annular bead formed, in cross section, by two bead flanks converging approximately at a right angle is provided in the transition zone between the sidewall and the bottom, the annular bead flank of this annular bead facing the inlet opening lying, in cross section, approximately in parallel to the piston crown, and the continuously extending rim of this annular bead extending in parallel to the piston crown;
- the axial spacing of the plane of the annular bead flank from the bottom of the piston trough corresponds approximately to 12–33% of the total depth of the piston trough;
- the diameter of at least one annular bead flank corresponds approximately to 0.9–1.1 times the diameter of the inlet opening;
- the annular bead flank facing the bottom of the piston trough passes over, in cross section, with a radius of about 22–35% of the total depth into the bottom and the annular bead flank facing the inlet opening passes over, in cross section, with a radius of about 2–5 mm into the sidewall;
- the injection nozzle, arranged eccentrically to the piston trough but still within the inlet opening thereof, directs its jets onto the sidewall of the piston trough in such a way that the point of impingement of the injection jets lies axially approximately in the center between the annular bead rim and the piston crown.

4,392,466

FUEL SYSTEM FOR ENGINES

Dorian F. Mowbray, Burnham, and Boaz A. Jarrett, London, both of England, assignors to Lucas Industries Limited, Birmingham, England

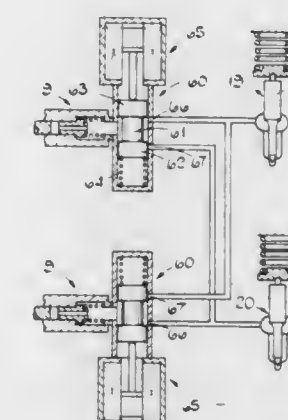
Continuation of Ser. No. 111,469, Jan. 11, 1980, abandoned. This application Jun. 8, 1982, Ser. No. 386,273

Claims priority, application United Kingdom, Oct. 5, 1979, 7934620

Int. Cl.³ F02B 3/00; F02M 41/00

U.S. Cl. 123—299

3 Claims



1. A direct injection type fuel system for supplying fuel to a compression ignition engine comprising inwardly opening type nozzles which are mounted on the associated engine to direct fuel into the combustion chambers of the engine respectively, electromagnetically operable pumps for supplying fuel under pressure to the nozzles respectively, and change over valves associated with the pumps respectively, each valve having a connection to the associated pump and a pair of outlets, first conduit means connecting a first one of said outlets to the associated nozzle and second conduit means connecting said first conduit means to the second one of the pair of outlets of another of said change over valves, said valves being operable so that when fuel is supplied to a particular nozzle the fuel which is supplied to that nozzle is derived from the pump associated with that nozzle when the fuel required is equal to or less than one-half the maximum amount required by that nozzle and can be supplemented by fuel supplied to that nozzle simultaneously with the fuel supplied thereto by the pump associated with that nozzle by a pump associated with another of said nozzles when the fuel required is greater than one-half the maximum amount required by that nozzle.

4,392,467

METHOD FOR OPERATING FUEL INJECTOR IN A COMPUTER CONTROLLED FUEL INJECTION TYPE INTERNAL COMBUSTION ENGINE

Hideo Miyagi, Okazaki; Toshio Suematsu, Toyota; Jiro Nakano, Okazaki, and Hironobu Ono, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jul. 22, 1981, Ser. No. 285,313

Claims priority, application Japan, Sep. 16, 1980, 55-127090

Int. Cl.³ F02D 5/00

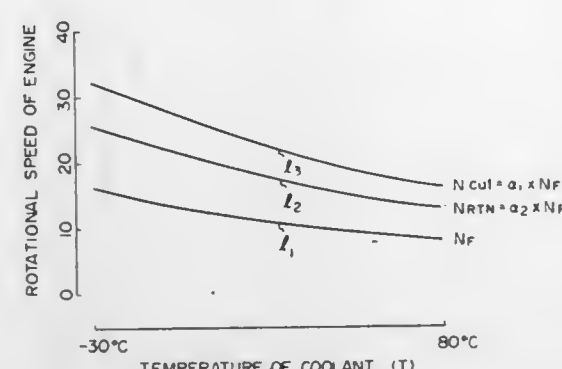
U.S. Cl. 123—325

2 Claims

1. Method for controlling the operation of a fuel injector in a computer controlled fuel injection internal combustion engine, which engine is provided with a system for maintaining a predetermined idling rotational speed N_F in accordance with the temperature of the engine and with a system for controlling the operation of the fuel injector during the deceleration condition of the engine so that the injector is de-energized when the rotational speed is higher than N_{cut} and injector is energized when the rotational speed is lower than N_{RTN} , said method comprising the steps of:

storing in the computer values of N_F in accordance with the temperature of the engine;

detecting the temperature of the engine;
reading out the value of N_F corresponding to the detected temperature;
calculating, as the value of N_{cut} , the product of a constant



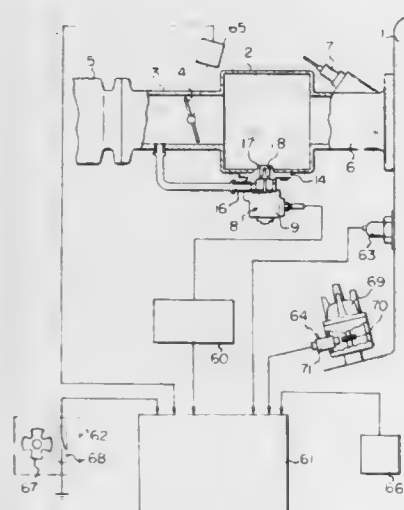
positive value α_1 larger than 1.0 and the read out value of N_F ; and;
calculating, as the value of N_{RTN} , a product of constant positive value α_2 larger than 1.0 but less than α_1 and the read out value of N_F .

4,392,468 METHOD AND APPARATUS FOR CONTROLLING THE IDLING SPEED OF AN ENGINE

Mamoru Kobashi, Aichi, and Hiroshi Itoh, Nagoya, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jul. 9, 1981, Ser. No. 281,854
Claims priority, application Japan, Jan. 23, 1981, 56-8140;
Jan. 23, 1981, 56-8146; Jan. 23, 1981, 56-8148

Int. Cl.³ F02D 11/10
U.S. Cl. 123—339 10 Claims



1. A method of controlling the idling speed of an engine comprising a main intake passage, a throttle valve arranged in the main intake passage, a bypass passage branched off from the main intake passage upstream of the throttle valve and connected to the main intake passage downstream of the throttle valve, a control valve arranged in the bypass passage, and a stepper motor actuating the control valve for controlling the amount of air flowing within the bypass passage, said method comprising the steps of:

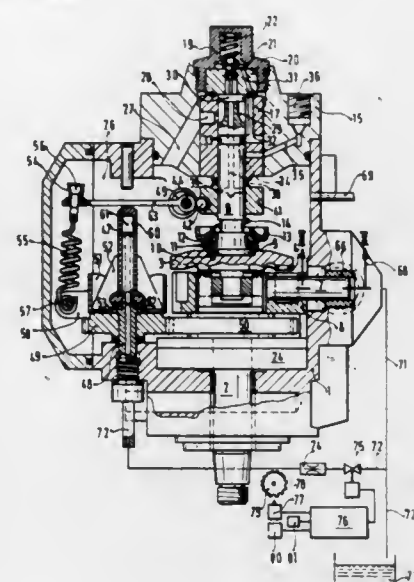
detecting a step position of the stepper motor;
obtaining the mean value of the step position over a predetermined time;
calculating the lower limit of the step position, said lower limit being obtained by subtracting a predetermined step number from said mean value of the step position; and
stopping the stepper motor from rotating in a direction wherein the control valve closes when the step position of the stepper motor reaches said lower limit.

4,392,469 RPM REGULATING DEVICE FOR THE FUEL INJECTION SYSTEM OF AN INTERNAL COMBUSTION ENGINE

Wolf Wessel, Oberriexingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Fed. Rep. of Germany

Filed Aug. 19, 1981, Ser. No. 294,079
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1980, 3038293

Int. Cl.³ F02M 39/00
U.S. Cl. 123—387 7 Claims



1. In a fuel injection apparatus for internal combustion engines, including: a fuel supply pump; a housing defining an inner chamber into which fuel is delivered by the fuel supply pump; a fuel injection pump delivering fuel from the inner chamber to the engine; an rpm regulator having an adjustable governor member; adjustable lever means associated with said governor member for initial setting thereof; a work chamber disposed in said governor member communicating via a throttle with said inner chamber; bore means provided within said governor member in communication with said work chamber; and an hydraulic setting mechanism which varies the moment of fuel delivery by the fuel injection pump as a function of pressure in the inner chamber, the improvement comprising:

a control line connects said bore means with a fuel supply tank; said control line is further provided with a magnetic valve to control fuel flow; said magnetic valve is further connected to an electronic control device; and said electronic control device includes at least one sensor for measuring at least one operational characteristic of the internal combustion engine.

4,392,470 TEMPERATURE RESPONSIVE OPEN/CLOSED LOOP SWITCHING FOR LAMBDA CONTROL

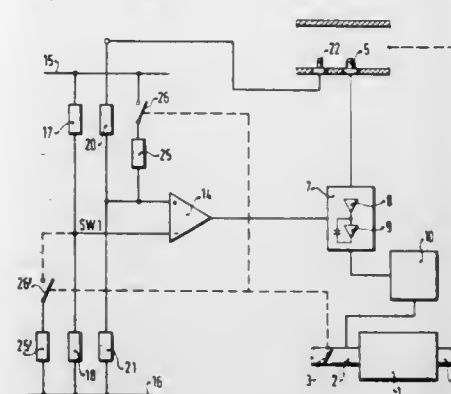
Dieter Günther, Murr; Richard Bertsch, Asperg; Siegfried Böttcher, Remseck; Herbert Arnold, Eberdingen; Hans Schnürle, Walheim, and Michael Horbelt, Schwieberdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 24, 1981, Ser. No. 276,757
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1980, 3024606

Int. Cl.³ F02B 33/00
U.S. Cl. 123—440 3 Claims

1. A lambda regulating device for the composition of the operating mixture being combusted in an internal combustion engine comprising, an exhaust gas probe producing an output signal and being applied to said lambda regulating device for correcting the operating mixture composition, a means supplying a temperature signal a means for deactivating and activating said lambda regulating device in accordance with the evaluation of said temperature signal, a threshold switch hav-

ing two inputs connected to said lambda regulating device, one of said inputs being responsive to said temperature signal, a threshold value generating means responsive to said threshold switch, and a switchover means controllable in accordance



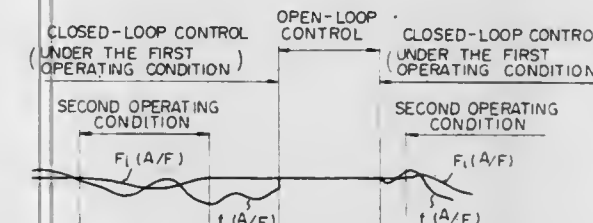
with a position of a throttle valve of said engine for switching said threshold switch between a low and a high value with respect to said temperature signal, said switchover means being reversible up to the point where the higher value has been attained.

4,392,471 METHOD AND APPARATUS FOR CONTROLLING THE AIR-FUEL RATIO IN AN INTERNAL COMBUSTION ENGINE

Hideo Miyagi, and Jiro Nakano, both of Okazaki, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Aug. 24, 1981, Ser. No. 296,241
Claims priority, application Japan, Sep. 1, 1980, 55-119830

Int. Cl.³ F02B 3/00
U.S. Cl. 123—489 22 Claims



1. An air-fuel ratio control method of an internal combustion engine, comprising the steps of:

detecting the concentration of a predetermined component in the exhaust gas in the engine;
detecting the operating condition of the engine to discriminate whether or not the engine is in a predetermined first operating condition;
calculating an air-fuel ratio correction coefficient depending upon said detected concentration, when the engine is in the first operating condition;
holding an air-fuel ratio correction coefficient to a value, when the engine is not in the first operating condition;
detecting the operating condition of the engine to discriminate whether or not the engine is in a predetermined second operating condition which is included within said first operating condition;
calculating an average value of said calculated air-fuel ratio correction coefficient only when the engine is in the second operating condition; and
correcting the amount of fuel supplied to the engine in accordance with said air-fuel ratio correction coefficient, said correcting being performed by a closed-loop control when the engine is in the first operating condition and performed by an open-loop control when the engine is not in the first operating condition, an initial value of the air-fuel ratio correction coefficient when said fuel correction changes from open-loop control to closed-loop con-

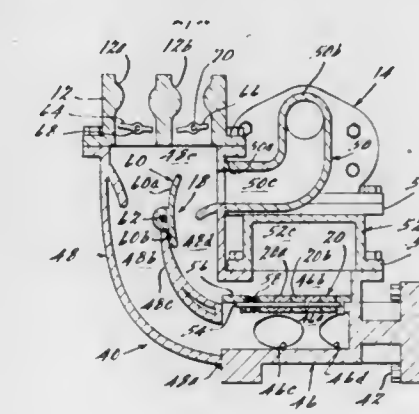
trol being determined according to said calculated average value.

12. Apparatus for controlling the air-fuel ratio in an internal combustion engine, comprising:
means for detecting the concentration of a predetermined component in the exhaust gas in said engine;
means for detecting the operating condition of said engine to discriminate whether or not the engine is in a predetermined first operating condition;
means for detecting the operating condition of said engine to discriminate whether or not said engine is in a predetermined second operating condition which is included within said first operating condition;
processing means, responsive to said concentration detecting means, said first operating condition correcting means and said second operating condition correcting means, said processing means for (1) determining an air-fuel ratio correction coefficient depending upon said detected concentration, when the engine is in the first operating condition; (2) holding an air-fuel ratio correction coefficient to a value, when the engine is not in the first operating condition; and (3) determining an average value of said calculated air-fuel ratio correction coefficient only when the engine is in said second operating condition, said average value being employed to control said air-fuel ratio when said fuel correction changes from open-loop control to closed-loop control; and
means for correcting the amount of fuel supplied to the engine in accordance with said air-fuel ratio correction coefficient.

4,392,472 INDUCTION SYSTEM FOR SUPERCHARGED ENGINE

Robert C. Merritt, Corning, N.Y., and Gerald L. Terwilliger, Wixom, Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 8, 1980, Ser. No. 214,304
Int. Cl.³ F02D 23/00; F02B 33/44
U.S. Cl. 123—564 39 Claims



1. In an induction system adapted to supply combustion air to an expansible chamber of an engine including a supercharger having an inlet and an outlet; the system including first and second air flow paths connected in parallel, the first path adapted to deliver unsupercharged air to the chamber, and the second path adapted to deliver air to the supercharger inlet and from the supercharger outlet to the chamber, the improvement comprising:

a recirculation path adapted to deliver air from the supercharger outlet back to the supercharger inlet; and
valve means movable between first and second positions for controlling the air flow in said paths, said valve means operative in said first position to allow air flow to the chamber via the first path and to allow air flow in said recirculation path from the supercharger outlet back to the supercharger inlet, and said valve means operative in said second position to allow supercharged air flow to the chamber via the second path and to block air flow in the first and recirculation paths.

4,392,473

IGNITION COIL FOR AN INTERNAL COMBUSTION ENGINE

Mitsukuni Tsutsui, Naka, and Takashi Yoshinari, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

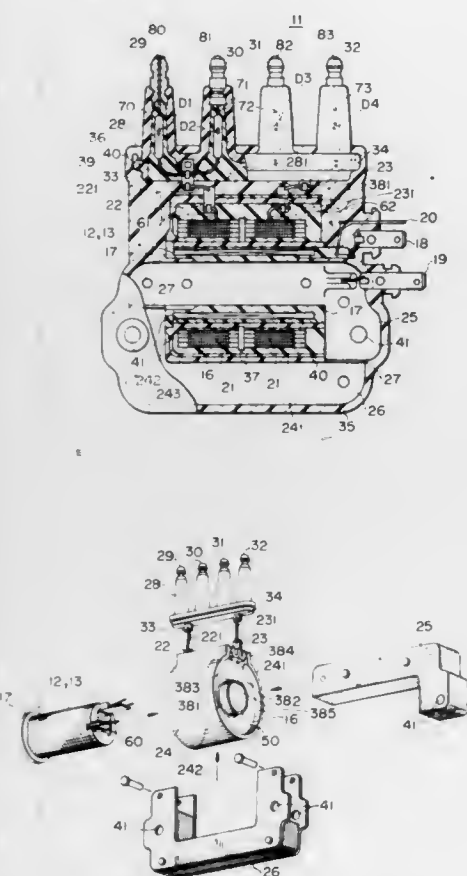
Filed Nov. 24, 1980, Ser. No. 209,661

Claims priority, application Japan, Nov. 22, 1979, 54-151670

Int. Cl.³ F02P 3/06

U.S. Cl. 123—635

12 Claims



1. An ignition coil for an internal combustion engine for producing high voltage signals to spark plugs of the internal combustion engine, the ignition coil comprising at least one primary coil to which primary current signals are supplied in synchronism with a rotational speed of the internal combustion engine, a secondary coil electromagnetically coupled to said at least one primary coil for producing high voltage signals in response to the primary current signals, high voltage terminals for enabling a connection of the secondary coil with the spark plugs, high voltage diodes disposed between the secondary coil and the high voltage terminals, means for electrically connecting the secondary coil to the high voltage diodes, a case means formed at least in part from an insulating material having the high voltage terminals mounted thereon and accommodating the high voltage diodes therein in a manner so as to be insulated with respect to each other, and a synthetic resin for enveloping the primary and secondary coils and integrally joining the case to said primary and secondary coils.

11. An ignition coil for an internal combustion engine for producing high voltage signals synchronized with a rotational speed of the engine to spark plugs of the engine, the ignition coil comprising at least one primary coil, at least one secondary coil coupled to said primary coil, high voltage terminals for enabling connection of the secondary coil with the spark plus, high voltage diodes disposed between the secondary coil and the high voltage terminals, a case made of a synthetic resin having concentric inner and outer walls and a bottom wall bridging said inner and outer walls at one end portion thereof so as to form a first center hollow cylinder extending inside said inner wall and a space for accommodating the secondary coil between said inner and outer walls, terminal means attached to said outer wall of said case having one end connected electrically with a coil end of the secondary coil and a second end electrically connected with said high voltage diodes, a bobbin adapted to be inserted in said first center hollow cylinder

der and formed with a second center hollow cylinder extending in an axial direction thereof, the primary coil being wound on said bobbin, a resin composite impregnating around said bobbin and said case, and a magnetic core disposed in said second center hollow cylinder, said synthetic resin case being integrally molded with said high voltage diodes and said high voltage terminals.

4,392,474

ELECTRONIC IGNITION SYSTEM

Willy Minner, Schwaigern, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

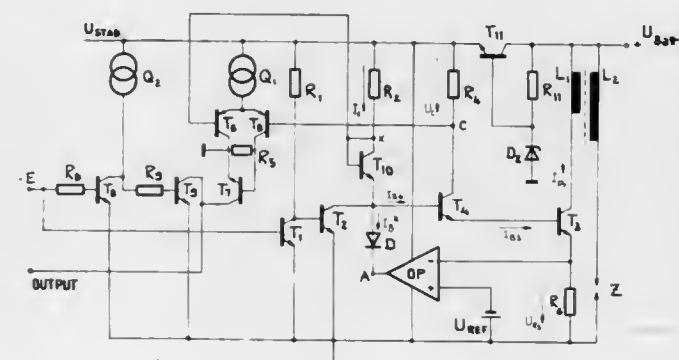
Filed Apr. 15, 1981, Ser. No. 254,395

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1980, 3015939

Int. Cl.³ F02P 3/00, 3/04, 5/04

U.S. Cl. 123—644

7 Claims



1. An electronic ignition system comprising: an ignition coil having a primary winding and a secondary winding; means defining a spark gap in series with said secondary winding; a primary transistor and a current limiting circuit in the circuit of said primary winding; a further transistor connected to be controlled by a control signal and connected in front of said primary transistor for controlling said primary transistor, said further transistor presenting a current path; a resistor network in the current path of said further transistor; and means connected to said further transistor and said resistor network for deriving pulses whose width represents the residence time of maximum current through said primary winding from the voltage curve at said resistor network and wherein said further transistor and said resistor network constitute means for causing said further transistor to operate in its saturation region when there is a rise in current in said primary winding and for producing a jump in voltage to a constant maximum value at said resistor network when the current in said primary winding is limited to its maximum value by said current limiting circuit.

4,392,475

BOWSTRING RELEASE DEVICE

James D. Fletcher, P.O. Box 218, Bodfish, Calif. 93205

Filed Jan. 30, 1981, Ser. No. 229,890

Int. Cl.³ F41C 19/00, 5/00

U.S. Cl. 124—35 A

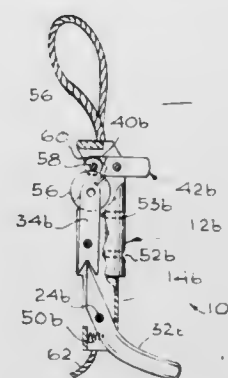
2 Claims

1. An improved mechanical bowstring release device comprising, in combination:

- a hollow housing having a space therein;
- a link positioned in said space;
- a bowstring retainer pivotably secured in said space in said housing and including a retaining end extending through an opening in said housing when said retainer is in a locked bowstring-drawing first position, said retaining end being movable to an unlocked bowstring-releasing second position, said retainer also including a coupling end; and,
- trigger means for locking said retainer in said first position and for urging said retainer into said unlocked second

position to release said bowstring, said trigger means including:

- coupling means comprising a slot in said retainer coupling end with a bearing point in said slot and a wheel rotatably secured to the front end of said link and releasably engageable with said bearing point,
- said link being pivotably secured to and extending longitudinally of said housing in said space, the front portion of said link being engaged with said coupling means, the rear portion of said link defining a rearwardly facing receptacle,
- a trigger arm extending outwardly of said housing



through an opening therein and pivotably secured in said space behind said link, the front portion of said trigger arm extending into said receptacle, and,

iv. an automatic locking spring disposed in said space generally laterally against the portion of said trigger arm which is forward of the pivot point of said arm, said spring urging said front portion of said trigger arm against said link to move said coupling means to a position to cause said retainer to move into said first locked position, whereby movement of said trigger arm against said spring is necessary to urge said link and coupling means to move said retainer to said second unlocked position to effect instant release of said bowstring.

4,392,476

METHOD AND APPARATUS FOR PLACING IDENTIFYING INDICIA ON THE SURFACE OF PRECIOUS STONES INCLUDING DIAMONDS

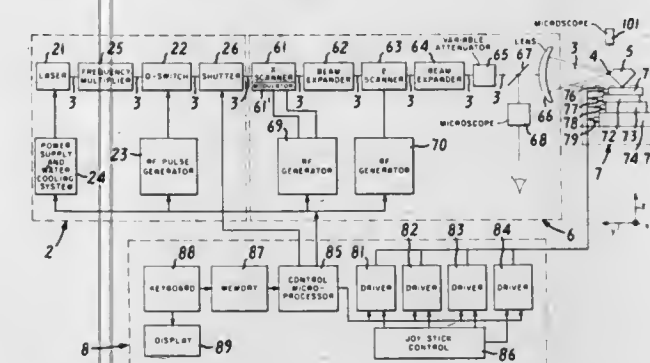
Herbert D. Gresser, Plainview; George Kaplan, Port Chester, and Joseph Nussenbaum, New York, all of N.Y., assignors to Lazare Kaplan & Sons, Inc., New York, N.Y.

Filed Dec. 23, 1980, Ser. No. 220,195

Int. Cl.³ B28D 5/00

U.S. Cl. 125—30 R

52 Claims



1. A method for providing an identifying indicium to a diamond comprising: applying a laser beam to a surface of said diamond; and controlling said laser beam to enable said laser beam to inscribe into said diamond surface an indicium including: intermittently moving said laser beam to successive positions on said diamond surface along a path corresponding to said indicium, said beam at each position covering a

diamond surface area overlapping the diamond surface area covered by the beam at the immediately preceding position on said indicium; and adjusting the laser beam power to graphitize and inscribe said diamond surface at each of said positions.

4,392,477

SOLID FUEL BURNING STOVE

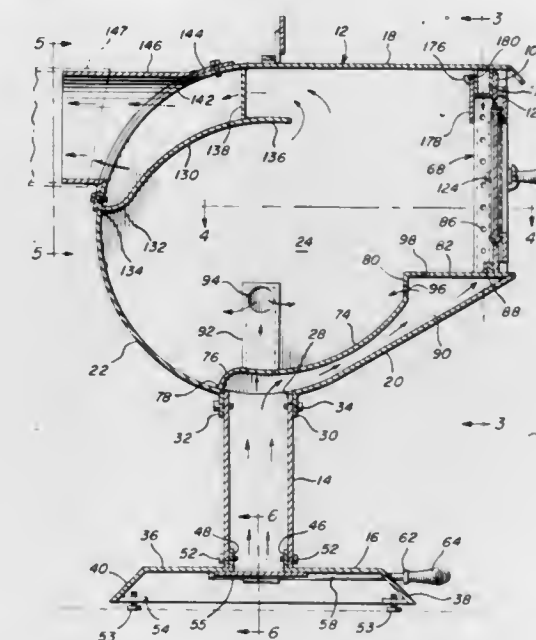
Orley J. Milligan, 2319 Crater Lake Ave., Medford, Oreg. 97501

Filed Apr. 29, 1981, Ser. No. 258,633

Int. Cl.³ F24C 1/14

U.S. Cl. 126—77

6 Claims



1. A heater including a firebox for receiving and burning solid fuel therein, said firebox including a lower wall, a pair of spaced upstanding opposite side walls, a top wall extending between said side walls, a forwardly opening semi-cylindrical rear wall extending between said top and lower walls and between said opposite side walls and combustion air inlet manifold means into which a combustion air inlet means opens, said firebox including a forward portion in which a hollow peripheral frame is mounted, said frame extending peripherally about at least a majority of the inside periphery of the forward portion of said firebox, said combustion air manifold means including a portion thereof opening into the interior of said frame, said frame including air curtain forming air outlet openings formed therein and spaced peripherally thereabout opening inwardly of the corresponding peripheral portion of said frame, a door assembly removably closing the forward portion of said firebox, said door having a heat resistant transparent window therein, said air curtain forming outlets openings being disposed closely rearward of said window and being operative to discharge a curtain of combustion air across the inner surface of said window.

4,392,478

PORTABLE HEAT CIRCULATION MEANS

Hugh J. Black, 39 Iowana Ave., Trenton, N.J. 08638

Filed Jul. 13, 1981, Ser. No. 282,692

Int. Cl.³ F24C 15/20; F24H 3/02

U.S. Cl. 126—84

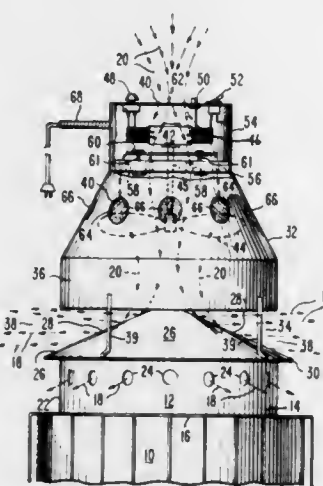
12 Claims

1. A portable heat circulation means, particularly adapted to be placed upon heaters such as kerosene heaters, comprising: (a) a plenum housing means defining a plenum chamber therein and adapted to be positionable upon a heater, said plenum housing means defining a plenum intake means therein to receive warm air to be gathered within said plenum chamber, said plenum housing further comprising: 1. a plenum wall means extending about said plenum chamber and defining a plurality of hot air apertures

therethrough establishing fluid flow communication between said plenum chamber and the external environment; and

2. a plenum top means extending over said plenum wall means to define said plenum chamber therebelow, said plenum top means being generally convex in an upwardly facing direction to provide:

- a. a convex convection surface thereabove;
- b. a main housing means fixedly secured above said plenum housing means and defining a cool air inlet adjacent said convex convection surface, said main



housing means defining a cool air chamber therein, said main housing means and said plenum housing means defining a main outlet means therebetween, said main housing means defining a cool air inlet means therein; and

- c. a blower means located within said main housing means and being operative to draw air inwardly through said cool air inlet means into said cool air chamber and outwardly through said cool air outlet means along said convex convection surface for heating thereof and out through said main outlet means into the surrounding environment.

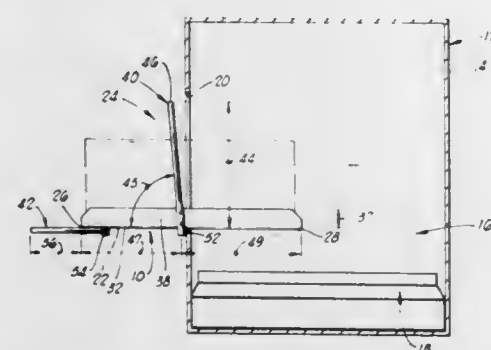
4,392,479

FUEL LOADER

Eugene V. Stair, Rte. 1, Caddo, Okla. 74729
Filed May 21, 1981, Ser. No. 266,123
Int. Cl.³ F23J 1/00

U.S. Cl. 126—242

5 Claims



1. A fuel loader adapted for loading fuel into a stove having a frame with a firebox disposed in the frame, a grate being supported in the firebox adapted to support fuel within the firebox and a firebox opening being provided through the frame providing access to the firebox and the grate disposed therein, the fuel loader comprising:

- a base having a first end, a second end, a first side and a second side, the base having a supporting surface sized and adapted for supporting the fuel to be loaded into the

stove firebox and a portion of the base being disposable through the firebox opening and into the firebox; and a handle assembly connected to the base, the handle assembly being grippable by an individual for manually maneuvering a portion of the base near the second end of the base through the firebox opening and into the firebox for loading the fuel supported thereon into the firebox; comprising:

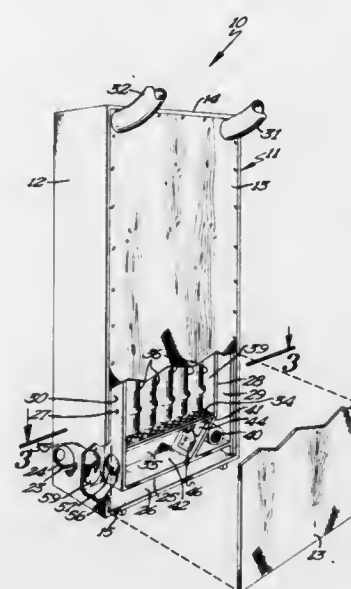
an end handle connected to the base, one end of the end handle being connected to the base generally near the first side of the base and the opposite end of the end handle being connected to the base generally near the second side of the base, the end handle extending a distance generally from the first end of the base; and an upper handle, one end of the upper handle being connected to the base generally near the first side of the base and the opposite end of the upper handle being connected to the base generally near the second side of the base, the upper handle extending a distance generally above the supporting surface of the base and a portion of the upper handle extending generally over the supporting surface of the base generally between the first and the second sides of the base, the upper handle being connected to the base at a position spaced a distance from the first end of the base and spaced a distance from the second end of the base to facilitate the balancing of the fuel loader with the fuel supported generally on the supporting surface of the base; and stop means connected to the base and extending a distance therefrom, the stop means being positioned for engaging a portion of the frame of the stove to position the fuel loader in a loading position wherein a portion of the base with the fuel supported thereon extends into the firebox and generally above the grate.

4,392,480

HEAT STORAGE AND DELIVERY APPARATUS

Wayne Vautrin, Rte. #2, Park Rapids, Minn. 56470
Continuation of Ser. No. 242,895, Mar. 12, 1981, abandoned.
This application Jun. 28, 1982, Ser. No. 393,066
Int. Cl.³ F24H 7/00; F24J 3/02
U.S. Cl. 126—400

10 Claims



1. A heat storage apparatus, comprising: a rectangular shaped cabinet, delivery and return passages in said cabinet, said passages being adapted to be connected in communicating relation with a heat generator to permit heated air to be circulated between the heat generator and cabinet, an inlet and an outlet in said cabinet intercommunicating the interior of the cabinet with the exterior, said inlet being connected in communicating relation with said return passage, heat collecting chamber means in said cabinet, a plurality of

vertically disposed elongate heat storage rods positioned in said heat collecting chamber means and arranged in side by side relation with respect to each other, a charging blower in said cabinet being operable when energized to cause heated air to be drawn from the heat generator into the delivery passage of the cabinet, first valve means between the delivery passage and said heat collecting chamber and being operable when said charging blower is energized to cause heated air drawn from the heat generator into the delivery passage into said heat collecting chamber over said rods and thereafter into the return passage for return to the heat generator whereby heat exchange action occurs between the heated air and heat storage rods so that heat is stored in the latter, a diffuser member in said heat collecting chamber being operable to cause the air directed into the heat collecting chamber from the charging blower to be uniformly distributed over the heat storage rods, a delivery blower in said cabinet spaced from said charging blower, and when energized causing external unheated air to be drawn into the cabinet through the inlet into said return passage, air control means between the delivery blower and the heat collecting chamber being operable when the delivery blower is energized to direct the unheated air through the heat collecting chamber and over the heat storage rods whereby the air will be heated and then directed by the delivery blower through the outlet into the exterior, and control means including the circuitry arranged in controlling relation with respect to said charging and delivery blowers, first temperature responsive means in said circuitry being operable in response to the temperature within the heat generator reaching a predetermined magnitude to energize the charging blower to direct heated air from the heat generator into the heat collecting chamber, additional heat responsive means in said circuitry being operable to energize the delivery blower when the temperature within the collecting chamber reaches a predetermined temperature and when the external temperature outside the cabinet reaches a predetermined temperature to cause outside unheated air to be directed into the inlet over the heat storage rods to heat the air, and thereafter, discharge the heated air to the exterior.

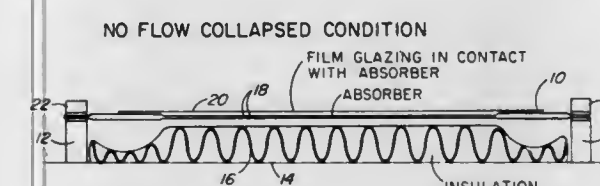
4,392,481

SOLAR COLLECTOR APPARATUS HAVING INCREASED ENERGY REJECTION DURING STAGNATION

Stanley W. Moore, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Jan. 16, 1981, Ser. No. 225,493
Int. Cl.³ F24J 3/02

U.S. Cl. 126—418

1 Claim



1. An apparatus for temperature limiting a solar collector comprising: an absorber; a layer of insulation disposed beneath said absorber; glazing disposed over said absorber, said absorber and said glazing being constructable from materials incapable of withstanding temperatures above about 180° F. for an extended period of time, said glazing comprising the top-most layer of said apparatus and said glazing being heat mirror coated to give it a low ϵ inner surface to eliminate

radiation and convection resistance during stagnation periods; and means for spacing said glazing away from said absorber during operation of said collector and for bringing said glazing substantially in contact with said absorber during stagnation to substantially increase energy convected and re-emitted from said collector, thereby maintaining a temperature below about 180° within the said apparatus during stagnation.

4,392,482

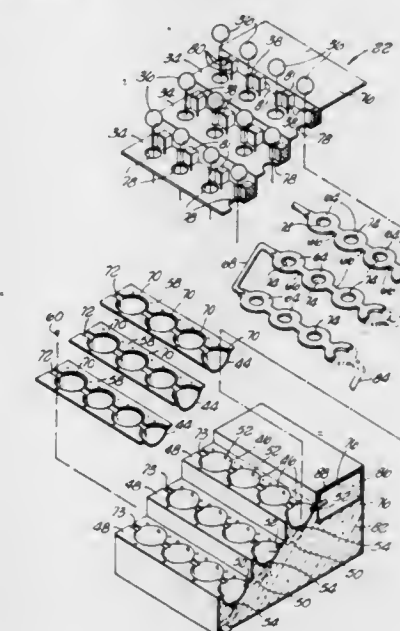
SOLAR HEATING PANEL ARRANGEMENT

Moo K. Chang, 11979 Iowa St., Los Angeles, Calif. 90025
Continuation-in-part of Ser. No. 73,644, Sep. 10, 1979, abandoned. This application May 26, 1981, Ser. No. 267,346
Claims priority, application Rep. of Korea, Aug. 2, 1979, 372/1979

Int. Cl.³ F24J 3/02

U.S. Cl. 126—440

24 Claims



1. A solar heating panel arrangement comprising: a plurality of spherical lenses for transmitting and focusing incident solar radiation; fluid passage means having upper and lower boundary portions defining a series of relatively thin hemispherical fluid passages concentric with said lenses, respectively, said upper boundary portions being in heat transfer proximity to fluid flowing through the passages and having upper surfaces which include the focal points of the lenses for incident solar radiation of various directions; and means for reflecting solar radiation onto the lenses for transmission to the upper boundary portions, said reflecting means including a plurality of multifaceted reflective structures each comprising three planar reflective portions arranged vertically about a portion of one of the lenses; such that solar radiation is focused at a plurality of locations on each of said upper boundary portions to heat said fluid, one of said locations representing radiation directly incident on the corresponding lens and the other location or locations representing radiation reflected onto the lens by said reflecting means.

4,392,483

SOLAR COLLECTOR MEANS

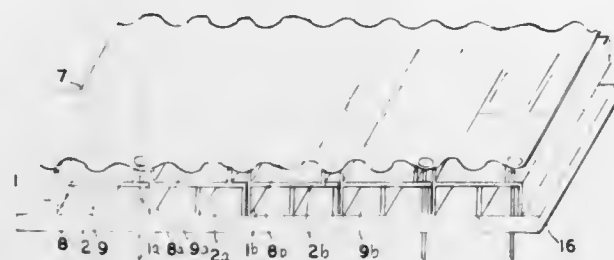
Robert H. Koenig, 21 Barrington Pl., Huntington Hills, N.Y. 11746

Filed Apr. 13, 1981, Ser. No. 253,303

Int. Cl.³ F24J 3/02

U.S. Cl. 126—450

7 Claims



1. Solar collector means comprising: a modular rigid structure having a web portion, lower support means connected to the web portion, upper support means connected to the web portion, a clear-corrugated member mounted on the upper support members, the web portion, the upper support members and the clear member forming a trap, said structure being a unitary molded piece with said upper support means being chosen to nest with said clear corrugated fiberglass, whereby when the structure is mounted on an inclined roof it forms an air passage between the web and the roof and with the clear member facing the sun, the air in the air passage below the web will be heated and flow up through the air passage.

4,392,484

BUILT-IN SOLAR PANEL

Michael J. Aloï, 1743 S. Tuxedo, and Kevin J. Hancock, II, 8713 Los Olivas Ct., both of Stockton, Calif. 95204

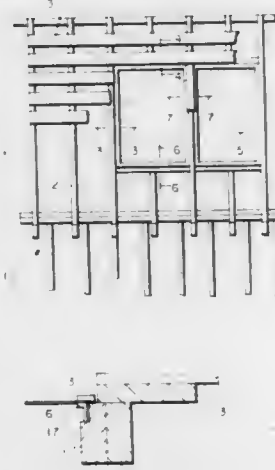
Division of Ser. No. 102,616, Dec. 11, 1979, Pat. No. 4,273,108.

This application Jun. 15, 1981, Ser. No. 273,287

Int. Cl.³ F24J 3/02

U.S. Cl. 126—450

4 Claims



1. A method of installing a solar panel comprising cutting rafters and sheeting to provide an opening substantially the dimensions of the panel, affixing a panel frame to the rafters, providing a step portion on an upper inner periphery of the panel frame, providing upper and lower conduits within the frame and interconnecting the conduits with tubes, deploying a frame lower portion on the step portion, placing a transparent panel thereover and affixing an upper frame portion thereto.

4,392,485

ENDOSCOPE

Siegfried Hildebrandt, Knittlingen, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

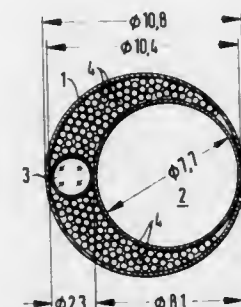
Filed Apr. 21, 1981, Ser. No. 256,029

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1981, 8104329[U]

Int. Cl.³ A61B 1/06

U.S. Cl. 128—6

2 Claims



1. Endoscope having an external shaft through which passes a guide channel for receiving instruments, a fibre light conductor and an optic, the proximal part of said optic being turned away from one side of the proximal part of the shaft, and in which the inner diameter of the shaft is at least 9.7 mm but maximal 10.4 mm, wherein the guide channel for receiving instruments of one kind for the treatment of the abdomen and also separate instruments of another kind for fixing clips or elastic rings onto an internal organ is characterized with a diameter of 70–75% of the shaft diameter for receiving both kinds of instruments, and a second channel for receiving an optic having a diameter of 20–25% of the shaft diameter so that together the instrument channel and optic channel occupy about 95% of the internal diameter of said shaft.

4,392,486

COMBINATION VANITY SCREEN AND PATIENT SUPPORT COUCH EXTENSION

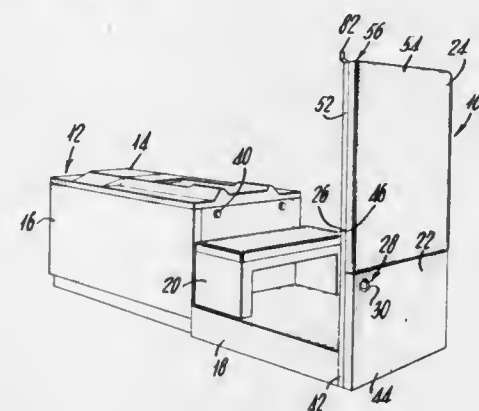
Bayard G. Gardineer, Skillman, and James A. Heringes, Dayton, both of N.J., assignors to Technicare Corporation, Solon, Ohio

Filed Aug. 26, 1981, Ser. No. 296,092

Int. Cl.³ A61F 5/00

U.S. Cl. 128—68

10 Claims



1. A combination vanity screen and patient support couch extension for use in combination with a primary patient support couch comprising:

a support panel having an upper transverse edge;

an extension panel having:

- (i) a base section including a first transverse edge and a second transverse edge removed from said transverse edge and disposed in confronting relationship to said upper transverse edge of said support panel; and,
- (ii) having a body section attached to said base section and

projecting beyond said second transverse edge and overlapping said support panel;

a hinge connecting said support panel upper transverse edge to said extension panel base section second transverse edge, said hinge permitting said extension panel to be rotated from a first position, in generally coplanar alignment with said support panel to act as a vanity screen, to an extension position generally transverse to said support panel in generally coplanar alignment with said primary patient support couch, to act as an extension therefor;

selectably engageable locking means cooperatively disposed on said support panel and said extension panel for locking said support and extension panels together in a generally coplanar alignment; and,

support means cooperatively disposed on said primary patient support couch and the first transverse edge of said extension panel for supporting said second panel in generally coplanar alignment with the patient support surface of said primary patient support couch.

4,392,487

METHOD AND APPARATUS FOR FOOT STABILIZATION

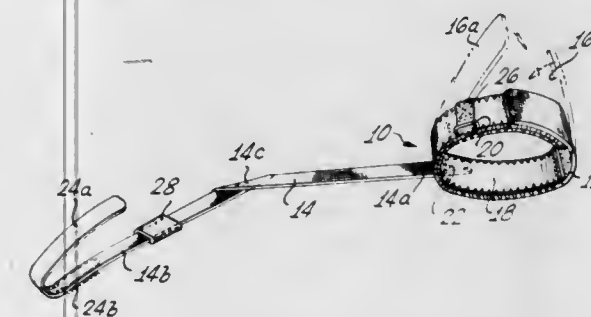
Allen J. Selner, and Marc D. Selner, both of 13320 Riverside Dr. #216, both of Sherman Oaks, Calif. 91423

Filed Aug. 25, 1980, Ser. No. 180,811

Int. Cl.³ A61F 3/00

U.S. Cl. 128—80 H

11 Claims



1. Apparatus for stabilizing the foot to control gait, comprising:

a sleeve formed from an elongated sheet of material having opposite ends that can be releasably fastened together, the opposite ends of said sheet being adjustable relative to one another upon fastening for adjusting the circumference of said sleeve, said sleeve having at least limited elasticity in the circumferential direction;

gripping means included on the inside surface of said sleeve for gripping the foot and anchoring said sleeve thereto; an elongated strap connected at a first end to said sleeve; and means for adjustably and releasably connecting a second end of said strap to said sleeve,

said sleeve being sufficiently inelastic in the lateral direction, and said strap being sufficiently inelastic in the longitudinal direction, to exert resistive forces to restrain the motions of the foot to prevent excessive pronation when said sleeve is fastened around and anchored to the foot at the mid part of the arch and when said strap is wrapped around the foot and tightened to said sleeve in a prescribed manner.

4,392,488

JOINT SPLINT

Peter Will, Wiener Strasse 78, 6100 Darmstadt, Fed. Rep. of Germany

Filed May 26, 1981, Ser. No. 267,388

Claims priority, application Fed. Rep. of Germany, May 27, 1980, 3020083

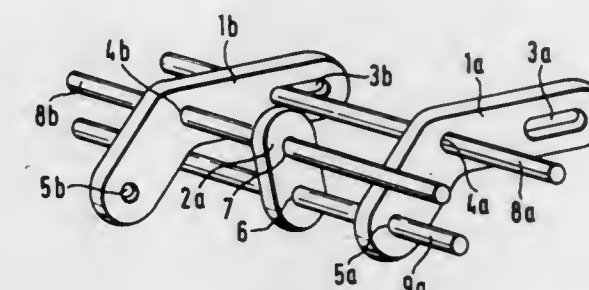
Int. Cl.³ A61F 3/00, 5/00

U.S. Cl. 128—80 R

5 Claims

1. A splint for the support of joints for orthopedic and surgical purposes, comprising: a chain of first, at least one interme-

mediate, and last, obtusely angled bell cranks which are substantially identical replications, said bell cranks each having a fulcrum approximately at the intersection of first and second limbs, which limbs are oriented in like fashion along the length of said chain, with said first limbs of adjacent bell cranks overlapping and having, each separately, a slot therethrough adjacent the end distal from said fulcrum; each fulcrum, with the exception of that of said first bell crank, having an axle which is constrained to be guided within said slot of the overlapping



adjacent first limb; each said second limb, excepting that of said first bell crank, having one end of a crosslink pivotally connected adjacent the end distal from said fulcrum; the other end of said crosslink being pivotally connected to said axle of the preceding adjacent bell crank in said chain, such that when said first limbs are aligned said chain has a first length and when said first limbs are misaligned by flexing said chain, said chain changes to a second length; and attachment means connected to said first and last bell cranks for securing said splint on both sides of a joint in an extremity of a patient.

4,392,489

ABDUCTION PILLOW

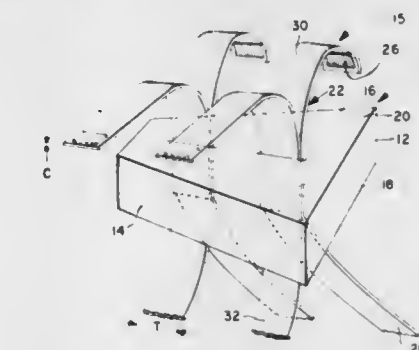
Bill L. Wagner, Sr., Fullerton, Calif., assignor to Bio Clinic Company, San Bernardino, Calif.

Filed Jul. 15, 1981, Ser. No. 283,381

Int. Cl.³ A61F 5/37; A47G 9/00

U.S. Cl. 128—80 A

17 Claims



1. In abduction apparatus including a resilient deformable pillow having a pair of generally oppositely facing elongated exterior surfaces skew to one another and means for retaining a leg of a human patient respectively against one of said outwardly facing surfaces so that the patient's leg is substantially laterally immovable independently of said pillow, the improvement comprising:

- a. a passageway extending through said pillow in a direction generally parallel with said elongated exterior surfaces and perpendicular to the direction of elongation thereof;
- b. elongated flexible binding means extending from respective ends of the passageway and having length in excess of length of said passageway by an amount sufficient for overlapping respective ends thereof around one leg of a patient contacting one of said elongated surfaces of said pillow, and having a central portion residing slidably within and frictionally engaged by said passageway, said binding means being slidably removeable from said pas-

sageway upon application to one end of said binding means of tensile force sufficient to overcome said frictional engagement of said binding means by said passageway;

c. pressure-sensitive fastening means at one end of said binding means;

d. receptor means at an end of said binder means remote said fastening means for holding said fastening means upon hand application of said fastening means against said receptor means;

wherein said binding means is resident within said passageway with binding means extremities extending from either end thereof.

4,392,490

MULTIPLE OUTLET CONNECTING MEANS FOR SELF-CONTAINED POSITIVE PRESSURE OR DEMAND REGULATED BREATHING APPARATUS

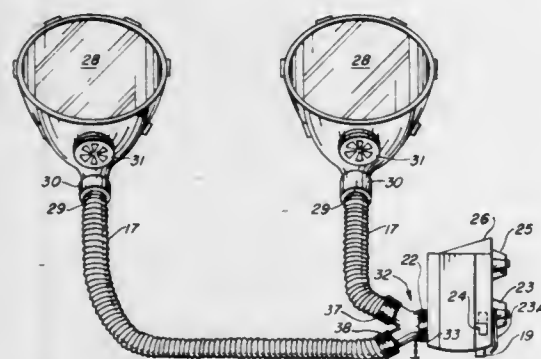
Glen R. Mattingly, 950 E. Lockwood St., and Joseph A. Quintanares, 650 W. 1st Pl., both of Mesa, Ariz. 85201

Filed Feb. 23, 1981, Ser. No. 236,750

Int. Cl.³ A62B 7/04

U.S. Cl. 128—202,27

2 Claims



1. A control means for a self-contained breathing apparatus comprising:

means for receiving air under pressure from a pressure regulator,

said means comprising an inlet port and at least two outlet ports,

said inlet port comprising means for direct connection with an outlet port of said regulator,

each of said outlet ports of said control means comprising a connector means for connection with the end of a hose provided for transmitting air under pressure to a face mask of the breathing apparatus,

a detachably mounted plug removably connected to said connector means of one of said outlet ports of said control means for selectively closing the associated outlet port,

said outlet ports each comprising a cylinder extending outwardly thereof,

a plurality of holes extending around and through the periphery of each of the cylinders, and

said connector means being mounted on said control means at a point spaced from the end of the associated cylinder.

4,392,491
INJECTOR

Mitsuo Takasugi, Yokohama, and Ajoshio Okuyama, Tokyo, both of Japan, assignors to Colpo Company Limited, Tokyo, Japan

Filed Jul. 29, 1981, Ser. No. 288,198

Claims priority, application Japan, Aug. 5, 1980, 55-106806

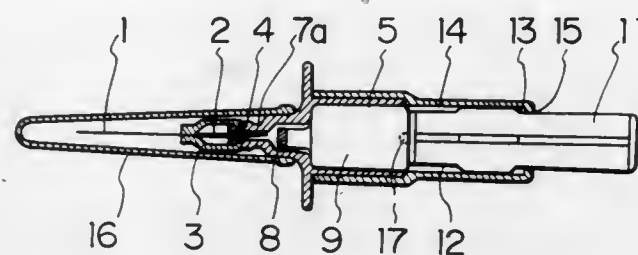
Int. Cl.³ A61M 5/00

U.S. Cl. 604—202

5 Claims

1. An injector comprising an injection needle means, an injector tube comprising a neck portion and a hollow body portion open at the end thereof opposite said neck portion, said needle means being detachably secured to said neck portion of said injector tube, said hollow body portion of said injector

tube being adapted to receive a cartridge on the interior of said body portion, a cylinder having a cylinder body portion coaxially positioned about said hollow body portion of said injector tube, the opposite end of said cylinder having a reduced diameter opening defining a stop, a piston having a piston head



engageable with the bottom of the cartridge, said piston being insertable in said cylinder at an end of said cylinder spaced from said opposite end of said cylinder, said piston having a stepped diameter which is restrained by said stop whereby to limit the movement of said piston when said stepped diameter of said piston engages said stop.

4,392,492

APPARATUS FOR STORING AND DISPENSING LIQUID DOUCHE

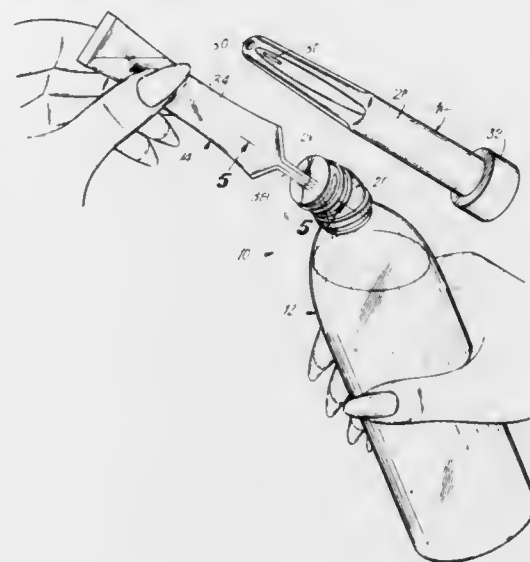
Ernest Pick, Cos Cob, Conn., assignor to The Purdue Frederick Company, Norwalk, Conn.

Filed Jul. 10, 1981, Ser. No. 282,254

Int. Cl.³ A61M 7/02

U.S. Cl. 604—82

12 Claims



1. Disposable apparatus for storing and dispensing the constituents of a medicated douche solution, comprising:

a sealed bottle containing a predetermined amount of diluent, said bottle including a main axially extending portion and an integral substantially cylindrical connecting portion angularly extending from said main portion, said connecting portion being formed with a closure wall having means associated therewith for defining an opening therein having a diameter which is substantially equal to or less than a certain maximum value and which is substantially equal to or greater than a certain minimum value;

a sealed unitary packette formed of a vinylidene chloride copolymer material containing a unit dose of liquid douche concentrate, said packette including a container portion defining an interior volume in which said unit dose of liquid douche concentrate is contained and a dispenser portion integral with said container portion and being constituted by an elongated substantially tubular stem having a substantially constant transverse cross-section throughout its length whose major dimension equals said minimum value of said bottle opening diameter, said

tubular stem communicating at one end thereof with the interior of said container portion and having a separable integral terminal tip portion, said packette being openable through separation of said terminal tip portion from said dispenser portion, said tubular stem having a length greater than a certain value and an inner diameter smaller than a certain value such that upon opening said packette and inverting the same so that its open end faces downwardly, said tubular stem constitutes means for preventing the douche concentrate from freely flowing out of said packette under the effect of surface tension forces created between said stem and douche concentrate, said dispenser portion being insertable through said bottle opening so as to extend to a significant extent into the interior thereof so that the concentrate can be dispensed without spillage into the diluent by squeezing said container portion; and

an elongate nozzle having a connecting portion adapted to be connected to said connecting portion of said bottle after said concentrate has been dispensed into the diluent.

4,392,493

TATTOOING APPARATUS

Halbe J. Niemeijer, Assen, Netherlands, assignor to Dawsonville Corp., N.V., Curacao, Netherlands Antilles

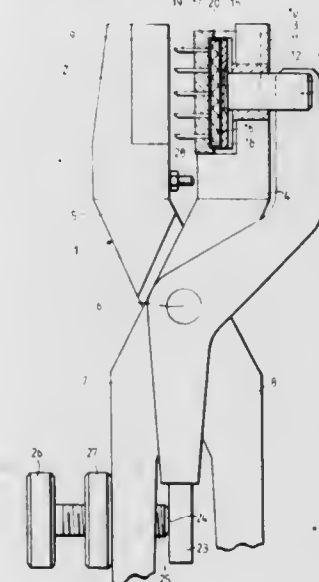
Filed Sep. 5, 1980, Ser. No. 184,462

Claims priority, application Netherlands, Sep. 6, 1979, 7906689

Int. Cl.³ A61D 7/00

U.S. Cl. 128—316

35 Claims



21. An exchangeable, marking symbol program carrier for animal tattooing apparatus having a plurality of hollow needles arranged in a matrix capable of forming marking symbols from combinations of selected ones of said needles and having an operating means for inserting needles in the tissue of the animal to be marked and injecting contrasting fluid therein, said program carrier comprising:

a member exchangeably mountable in the apparatus and having a plurality of fluid channels arranged in a marking symbol pattern and forming an animal marking symbol, each of said fluid channels being separately alignable with one of said selected ones of the needles when the program carrier is mounted in the apparatus for providing a fluid path for the contrasting fluid to the selected ones of the needles; and

a reservoir for the contrasting fluid formed as an integral unit with said member for providing contrasting fluid to said fluid channels of said member.

4,392,494

LIGATURE TYING INSTRUMENT

Richard L. Ashby, 290 Crestmont Dr., Oakland, Calif. 94619

Continuation-in-part of Ser. No. 12,004, Feb. 14, 1979, abandoned. This application Apr. 2, 1981, Ser. No. 250,104

Int. Cl.³ A61B 17/12

U.S. Cl. 128—326

5 Claims



1. An improvement in ligature tying instrument comprising a hemostat-like plier in which grasping jaw members are flexibly pivoted together intermediate their ends; means for releasably securing said jaws in grasping position on a ligature wire; wherein the improvement comprises a balanced and substantially symmetrical instrument having one handle member extended as a polygonal rod rigidly fixed in the long axis of the instrument for purposes of spinning the instrument about a longitudinal centerline, when said instrument is locked in the grasping position;

wherein the grasping face of the jaw members is concave except right at the tip, such that closure of the jaws tends to force the grasped wires toward the long axis of the instrument for purposes of centering the wires and maintaining their central position during the twisting, tucking and breaking process.

4,392,495

APPARATUS FOR AND METHOD OF SUTURING TISSUE

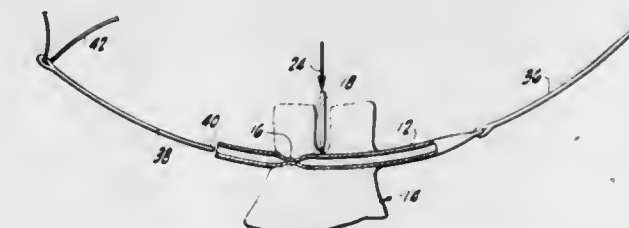
Jon. H. Bayers, 2935 Bechelli Ln., Suite C, Redding Calif. 96001

Filed Aug. 31, 1981, Ser. No. 298,030

Int. Cl.³ A61B 17/04

U.S. Cl. 128—334 R

7 Claims



1. A method of suturing severed tissue comprising:

a. passing a first flexible, tubular suture through the tissue;

b. collapsing at least a portion of said flexible, tubular suture;

c. simultaneously opening said collapsed portion of said first, flexible, tubular suture and introducing a second suture through said first, flexible, tubular suture; and

d. fastening said second suture in relation to the tissue.

4,392,496

NEUROMUSCULAR STIMULATOR

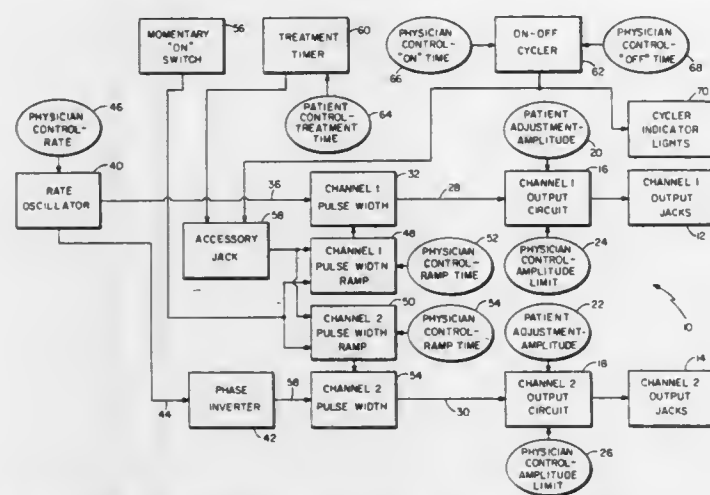
David J. Stanton, Anoka, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Mar. 13, 1981, Ser. No. 243,558

Int. Cl.³ A61N 1/36

U.S. Cl. 128—423 W

12 Claims



1. A muscle stimulator comprising, in combination: oscillator means for producing a periodic output signal at a predetermined repetition rate; rate control means coupled to said oscillator means for altering the repetition rate of said oscillator means; inverter means, coupled to receive the output of said oscillator means, for producing a periodic output signal having a polarity opposite to that of the periodic output signal produced by said oscillator means; treatment timer means for generating a first logic signal after a predetermined treatment time interval; treatment timer control means coupled to said treatment timer means for establishing the predetermined treatment time of said treatment timer means; cycler means for repetitively producing a second logic signal which remains at a first logic level for a predetermined "on" time interval and a second logic level for a predetermined "off" time interval; first cycler control means coupled to said cycler means for setting the predetermined "on" time interval of said cycler means; second cycler control means coupled to said cycler means for setting the predetermined "off" time interval of said cycler means; external switch means; plug means operatively connected to said external switch means; accessory jack means constructed and arranged for receiving said plug means and for providing a third logic signal when said plug means is inserted in said jack means and said external switch means is in a particular condition or when said plug is not inserted in said jack; momentary contact switch means for producing a fourth logic signal when said momentary on switch means is actuated; first and second ramp generator circuit means connected to receive said first, second, third and fourth logic signals and for producing first and second output ramp signals changing from a first to a second level at first and second predetermined rates, subsequent to receipt of either of said first, second, third or fourth logic signals; first and second ramp generator control means coupled respectively to said first and second ramp generator circuit means for independently altering the rate of change of the output ramp signals of said first and second ramp generator circuit means; first pulse width circuit means coupled to receive the ramp signal from said first ramp generator circuit means and to receive the periodic output signal from said oscillator means and for producing a fixed amplitude pulse signal having a pulse width increasing at the rate of change of said ramp from said second ramp generator circuit means reaches the second level and the pulse width of the pulse signal reaches a predetermined pulse width; second pulse width circuit means coupled to receive the ramp signal from said second ramp generator circuit means and to receive the inverted periodic output signal of said inverter means and for producing a fixed amplitude pulse signal having a pulse width increasing at the rate of change of said ramp from said second ramp generator circuit means at the predetermined repetition rate of said oscillator means until the output signal of said second ramp generator circuit means reaches the second level and the pulse width of the pulse signal reaches a predetermined pulse width; first and second output circuit means connected to receive the pulse outputs of said first and second pulse width circuit means respectively and for producing a balanced biphasic constant current output signal; and first and second output circuit control means for adjusting the current amplitude of the output pulses of said first and second output circuits respectively.

having a pulse width increasing at a rate proportional to the rate of change of the ramp signal from said first ramp generator circuit means at the predetermined repetition rate of said oscillator means until the output signal of said second ramp generator circuit means reaches the second level and the pulse width of the pulse signal reaches a predetermined pulse width;

second pulse width circuit means coupled to receive the ramp signal from said second ramp generator circuit means and to receive the inverted periodic output signal of said inverter means and for producing a fixed amplitude pulse signal having a pulse width increasing at the rate of change of said ramp from said second ramp generator circuit means at the predetermined repetition rate of said oscillator means until the output signal of said second ramp generator circuit means reaches the second level and the pulse width of the pulse signal reaches a predetermined pulse width;

first and second output circuit means connected to receive the pulse outputs of said first and second pulse width circuit means respectively and for producing a balanced biphasic constant current output signal; and

first and second output circuit control means for adjusting the current amplitude of the output pulses of said first and second output circuits respectively.

4,392,497

ERYTHROCYTE SEDIMENTATION RATE APPARATUS AND METHOD

Rahmat U. Ghaussy, 15300 W. Nine Mile Rd., Southfield, Mich. 48075

Filed Dec. 2, 1980, Ser. No. 212,134

Int. Cl.³ G01N 33/48

U.S. Cl. 128—637

7 Claims



1. Erythrocyte sedimentation rate apparatus for use with a direct flow needle assembly having a hollow tubular body including a smooth cylindrical first bore opening through one end of the body, and an elongated hollow tubular needle mounted in fixed position at the other end of the body and extending through said other end and coaxially into said first bore, the needle having one sharp end exposed within said bore and another sharp end exposed externally of said body, said erythrocyte sedimentation rate apparatus comprising an axially elongated transparent generally cylindrical ESR specimen tube having a main body portion and a diametrically enlarged portion at one end, said tube having a generally cylindrical blind second bore opening through said one end, said main body portion having a uniform interior cross section throughout its length, a penetrable elastomeric stopper received within said one end and sealing said tube, said cylindrical stopper

having an integral diametrically enlarged and generally cylindrical flange exposed externally of said tube and projecting beyond the periphery of said tube, said flange having a diameter substantially equal to the diameter of said first bore, the space within said tube being substantially evacuated, and rack means for supporting said ESR specimen tube in axially vertical position and having a horizontally disposed base and a panel supported on and extending vertically upwardly from said base, a clip mounted on said panel for engaging and releasably retaining said main body portion, and an upwardly opening generally cylindrical aperture in said base in axially vertical alignment with said clip, said aperture having a diameter substantially equal to the diameter of said cylindrical flange.

4,392,498

APPARATUS INTENDED FOR CLASSIFYING THE QUANTITY OF A FATTY PRODUCT FOUND ON THE SKIN SURFACE

Jean-Luc M. Leveque, Montfermeil, and Gilbert J. Gras, Aulnay-sous-Bois, both of France, assignors to L'Oreal, Paris, France

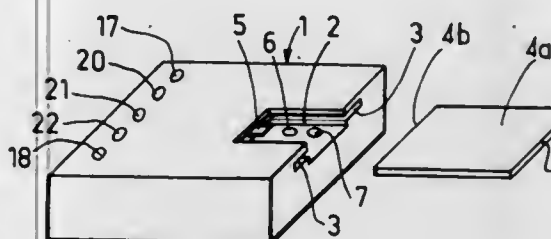
Filed Apr. 8, 1981, Ser. No. 252,489

Claims priority, application France, Apr. 9, 1980, 80 07961

Int. Cl.³ A61B 5/00

U.S. Cl. 128—665

14 Claims



1. Apparatus for the classification of the skin of a living subject into n predetermined classes where n is an integer greater than one, the said classification being effected according to the quantity of fatty product carried by the said skin, such apparatus comprising:

- (a) a translucent element having two surfaces of which one surface is to be applied under predetermined conditions on skin to be examined;
- (b) frame means to hold said translucent element in a predetermined position;
- (c) a luminous flux emitter arranged to irradiate said translucent element in said predetermined position;
- (d) a luminous flux receiver positioned to receive luminous flux from said irradiated translucent element in said predetermined position;
- (e) means for supplying (n-1) predetermined threshold voltage values;
- (f) means for comparing the output of the flux receiver with said (n-1) predetermined voltage values; and
- (g) display means responsive to said comparing means to produce display of at least one of n possible luminous indications representing the said n classes.

4,392,499

ADAPTOR FOR FACILITATING BLOOD SAMPLING PROCEDURES

Eric R. Towse, 647 74 St., Brooklyn, N.Y. 11209

Continuation of Ser. No. 50,601, Jun. 21, 1979, abandoned. This application Jun. 1, 1981, Ser. No. 269,261

Int. Cl.³ A61B 5/14

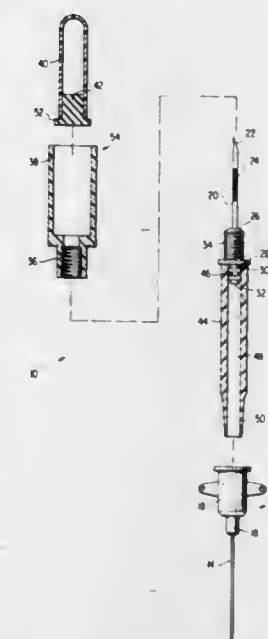
U.S. Cl. 128—764

6 Claims

1. Apparatus for facilitating both intravenous and blood-sampling procedures, comprising: evacuated tube means for collecting a blood sample; needle means operatively connected with said tube means for supplying said blood sample thereto; an adaptor releasably connected with said needle means for

transferring said blood sample from a catheter to said needle means; and

a flexible intravenous catheter having a socket means integrally bound therewith, said socket means constructed to separately receive said adaptor to form a temporary connection with said catheter so as to be able to withdraw blood from a mammalian blood vessel and said socket



means being readily connectable to a source of intravenous fluid when said adaptor is not connected to said catheter;

whereby said catheter may be utilized to perform both said blood-sampling and intravenous-feeding procedures without removing said catheter from a blood vessel such that intravenous feeding takes place at the blood-sampling site.

4,392,500

GRAIN COMBINE WITH IMPROVED STRAW WALKER

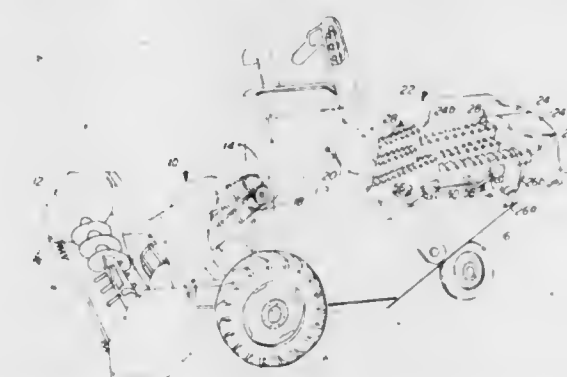
Howard E. Houle, 720 Adams St., Anoka, Minn. 55303

Filed Jul. 6, 1981, Ser. No. 280,443

Int. Cl.³ A01F 12/30

U.S. Cl. 130—26

5 Claims



1. A straw walker for a grain combine comprising in combination a housing having a top and side walls, a plurality of parallel generally horizontally disposed straw walkers each having parallel side walls and upwardly directed teeth facing the same direction for carrying straw longitudinally through the housing, a plurality of parallel substantially identical crank shafts mounted for rotation upon the grain combine below the straw walker and generally at right angles thereto each crank shaft having the same number of throws, bearings on the lower aspect of each of the straw walkers and each of the bearings being mounted upon one throw of the crank shaft adjacent thereto, each of the crank shafts is built up from separate pieces comprising a plurality of parallel crank arms bored at each end to receive a crank throw pin or crank shaft pin, the latter being journaled for rotation upon said grain combine and said crank shaft.

throw pins being journaled within the bearings on the straw walkers, fasteners securing the pins rigidly within the bores in the crank arms, said fasteners comprise fastener means establishing the angular orientation between the pins and the crank arms to precisely position the throws at uniformly spaced locations and retaining means secured between the arms and the pins locking the pins in position, synchronizing drive means connected between the crank shafts for rotating the crank shafts in the same direction and at the same speed and motive power means operatively connected to the crank shafts for imparting rotation thereto.

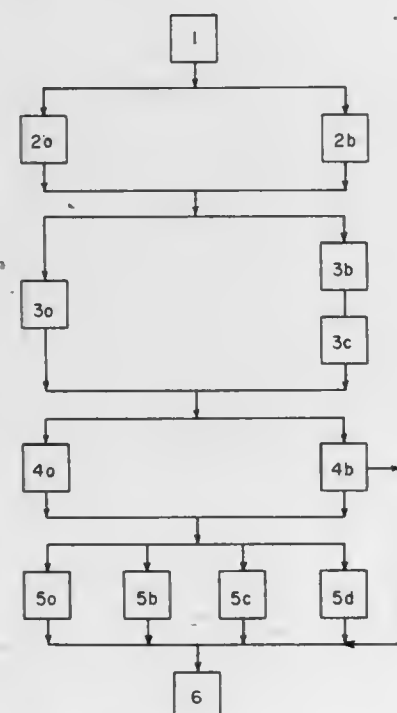
4,392,501

METHOD OF PROCESSING FRESH TOBACCO LEAVES
Richard P. Newton, Prospect; Patrick H. Harper, Louisville, both of Ky.; Vernon L. Geiss, Georgetown, Ind., and John N. Jewell, Louisville, Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Jul. 6, 1981, Ser. No. 280,189
Int. Cl.³ A24B 3/00, 3/18, 3/10, 7/00

U.S. Cl. 131—300

11 Claims



1. A method for processing freshly harvested tobacco having from 65% to 90% moisture comprising the steps of:
(a) reducing the particle size of the harvested tobacco into a preselected size; and
(b) drying the tobacco, said steps being completed without the natural curing of the tobacco.

4,392,502

INTERNAL COMBUSTION ENGINE THROTTLE CONTROL

Paul Weston, Solihull, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jan. 28, 1981, Ser. No. 229,384

Claims priority, application United Kingdom, Jan. 30, 1980, 8003183

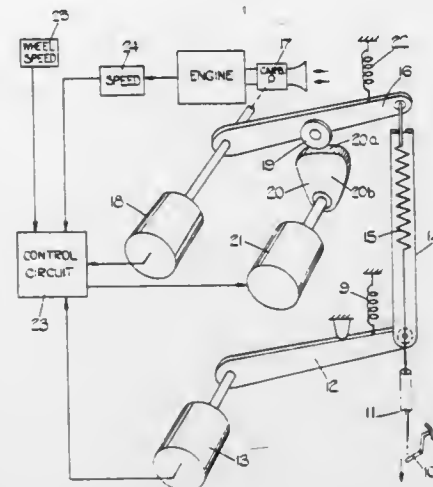
Int. Cl.³ F02D 9/00; B60K 31/00

U.S. Cl. 123—342

12 Claims

1. An internal combustion engine throttle control comprising an accelerator pedal, a butterfly valve and linkage means connecting the accelerator pedal to the butterfly valve and including a first movable member coupled to the accelerator pedal, a second movable member coupled to the butterfly valve, first spring means connecting the first movable member to the second movable member whereby depression of the accelerator stresses said first spring means to tend to open the butterfly valve, mechanical limit means restricting relative motion of the ends of said first spring means as said first spring means is relaxed, second spring means acting to urge the but-

terfly valve towards a closed position, whereby lifting of the drivers foot from the accelerator pedal causes relaxing of said first spring means to the limit permitted by said limit means and movement of the butterfly valve to its closed position by said second spring means, a cam, cam follower mean mounted on said second movable member and urged into engagement with said cam by the action of said first spring means so as to limit



opening of the butterfly valve in accordance with the position of said cam, a servo-motor drivingly connected to said cam, and said cam being shaped to provide a desired non-linear relationship between butterfly valve opening and displacement of the cam by the servo-motor, and control means for the servo-motor operating to displace the cam to a position dependent on at least one vehicle operating parameter.

4,392,503

VANITY CASE

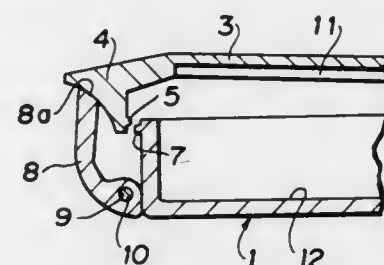
Nobuhisa Watanabe, Sekimachi, Japan, assignor to Yoshida Industry Co., Ltd., Tokyo, Japan

Filed May 6, 1982, Ser. No. 375,953

Int. Cl.³ A45D 33/00

U.S. Cl. 132—83 R

5 Claims



1. A synthetic resin-made vanity case comprising:
a receptacle member for containing a cosmetic material;
a cover member hinged with said receptacle member at the rear end thereof;
a first latching member integrally formed with said cover member;
a second latching member integrally formed with said receptacle member for engagement with said first latching member by snap action when said receptacle member is closed by said cover member; and
an unlatch member disposed in either one of said receptacle member and said cover member;
wherein said unlatch member is housed in a recess substantially of rectangle formed in a marginal portion of either one of said cover member and said receptacle member; said unlatch member has its one end formed as a free end extending upwardly and the other end retained in said recess; and the free end of said unlatch member is arranged to lie closely adjacent to a marginal portion of the other of said receptacle member and said cover member in the position of said receptacle member being closed and

also arranged to move inwardly about the other end of said unlatch member to apply force in a direction in which to separate said cover member from said receptacle member, thereby releasing the engagement of between said first and second latching member when said unlatch member is pushed inwardly.

4,392,504

STACKING CYLINDER FOR USE IN A COIN HANDLING MACHINE

Hideshi Sentoku, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

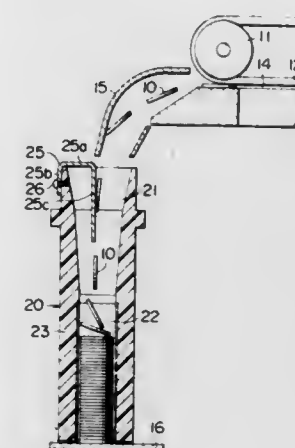
Filed Jul. 3, 1980, Ser. No. 165,718

Claims priority, application Japan, Jul. 6, 1979, 54-93801[U]; Jul. 6, 1979, 54-93802[U]

Int. Cl.³ G07D 9/06

U.S. Cl. 133—1 A

4 Claims



1. A stacking cylinder for use in a coin handling machine wherein coins are introduced into the stacking cylinder and stacked therein, said stacking cylinder comprising:

a cylinder body having a cylindrical recess formed therein; and
a resilient metal sheet rolled into generally cylindrical form and inserted into the cylindrical recess formed inside the cylinder body, the rolled sheet being rigidly retained within the recess due to resiliency of the metal sheet so that coins are movable into and out of said stacking cylinder past said rolled sheet, said resilient metal sheet having a chevron shaped edge positioned inside the rolled sheet.

4,392,505

COIN PAYOUT ASSEMBLY

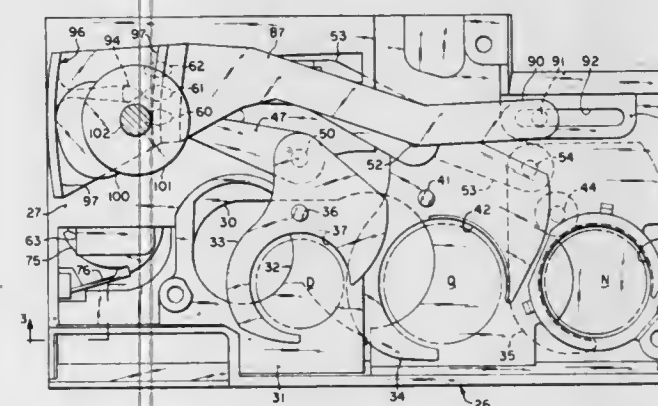
Robert T. Maloney, Creve Coeur, and Carl L. Vogt, St. Louis, both of Mo., assignors to Coin Acceptors, Inc., St. Louis, Mo.

Filed Dec. 3, 1980, Ser. No. 212,273

Int. Cl.³ G07D 9/04

U.S. Cl. 133—4 A

11 Claims



1. A coin payout assembly, comprising:
(a) a plurality of coin-handling means, each coin-handling

means being movable to a first position for receiving a coin and to a second position for discharging the coin,
(b) coin-selecting means operatively connected to each coin-handling means,
(c) coin-selecting means operatively and selectively connected to the coin-actuating means and to each of the coin-handling means,
(d) drive means operatively connected to the coin selecting means and selectively connected to the coin-actuating means for moving each coin-handling means to the first and second position,
(e) the coin-actuating means including:
1. a plurality of actuating arms, each actuating arm being operatively connected to one of the coin-handling means, and
2. guide means engaging and guiding each of the actuating arms,
(f) the drive means selectively engages each of the actuating arms for moving the arm and its associated coin-handling means,
(g) each of the actuating arms including a guide pin,
(h) the guide means including a plurality of guide slots, each guide slot receiving the guide pin of one of the actuating arms, and
(i) the drive means including a drive link selectively connectible with any one of the actuating arms by the coin-selecting means, the drive means moving the drive link and the selectively connectible actuating arm for moving the associated coin-handling means.

4,392,506

APPARATUS FOR CONVEYING TUBULAR MATERIALS IN PICKLING FACILITIES OF THE SAME

Yoshiro Tanaka; Hayato Moroi; Yukihiko Komatsu; Kazuo Akagi; Ryujiro Shitamatsu, all of Shimonoseki, and Tadashi Nishimura, Yokohama, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

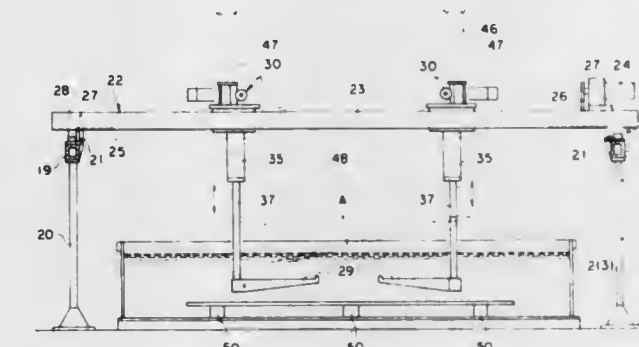
Filed Oct. 1, 1981, Ser. No. 307,670

Claims priority, application Japan, Aug. 12, 1981, 56-120155[U]

Int. Cl.³ B08B 3/04

U.S. Cl. 134—46

11 Claims



1. An apparatus for conveying tubular members in pickling facilities for the same, said pickling facilities including a plurality of treatment liquid tanks disposed in series; said apparatus comprising:

a pair of guide rails arranged respectively in the direction of the arrangement of the tanks and along corresponding sides of the tanks;
a travelling car reciprocally disposed on the guide rails;
at least one pair of tube-supporting hooks mounted on the travelling car and spaced in the widthwise direction relative to the guide rails;
elevating means operatively connected with the travelling car for moving each of the tube-supporting hooks upwardly and downwardly;
swivel drive means operatively connected with the travelling car for turning each of the tube-supporting hooks between a position parallel to the lengthwise direction of

the rails and a position perpendicular to the lengthwise direction of the rails;
 a horizontal position detector for stopping and starting the travelling car at a position corresponding to each of the treatment liquid tanks;
 a vertical position detector for sensing the position of each of the tube-supporting hooks at locations both below and above the liquid level in each of the treatment liquid tanks; and
 means for interlockingly connecting the vertical position detector and said elevating means.

4,392,507

TWO-STAGE PRESSURE RELIEF VALVE

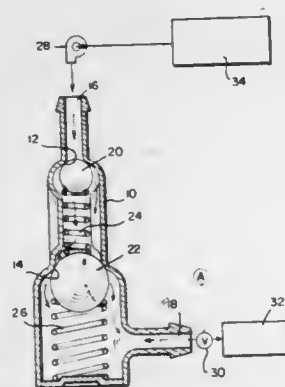
Robert S. Harris, Connerville, Ind., assignor to Stant Inc., Connerville, Ind.

Filed May 15, 1981, Ser. No. 263,918

Int. Cl.³ F16K 17/36

U.S. Cl. 137—38

3 Claims



1. A two-stage valve adapted for use in a vehicle fuel line to provide protection against discharge of fuel during and after roll-over, comprising a housing with inlet and outlet openings in the upper and lower portions of the housing as disposed for normal operation, two axially disposed ball check valves within the housing having their seats facing in the direction of the outlet opening, the lower ball being loaded upward toward its seat with an expansion-biased spring, the upper ball being loaded upward toward its seat by an expansion-biased spring resting upon the lower ball, the lower ball being larger than the upper ball and the upper spring having a lower spring force than the lower spring.

4,392,508

PROPORTIONAL MIXING SYSTEM WITH WATER MOTOR DRIVE

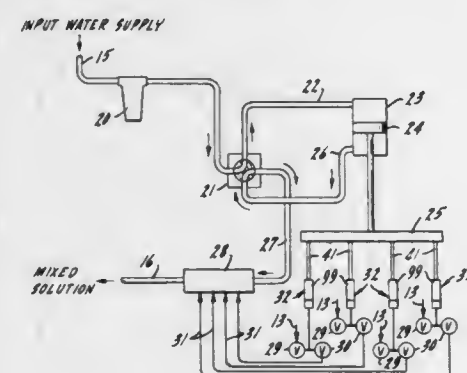
Thomas G. Swital, Wheeling, Ill., assignor to Ryco Graphic Manufacturing, Inc., Wheeling, Ill.

Filed Apr. 15, 1981, Ser. No. 254,446

Int. Cl.³ F16K 19/00

U.S. Cl. 137—99

7 Claims



1. A proportional mixing system with liquid motor drive comprising
 a reversing switch and valve assembly having a reversing switch means alternately movable from a first position to

a second position, said reversing switch means including a reciprocating reversing member, shift means associated with said reversing member and movable thereby, and valve means including a reversing vane operatively connected to said reversing switch means capable of moving from a first position to a second position, said reversing vane linked to said shift means and being rotatable through a limited arc, said valve means including opposite port means, said valve means reversing vane being movable in response to said reversing switch means to alternately open and close said opposite port means, said valve means further including a liquid inlet and outlet opening to said reversing vane,

said shift means comprising a hollow, spring retainer structure and opposite keeper means, said reversing switch means including latching and releasing means adapted to alternately catch and release opposite keeper means, said reversing member movable back and forth through said shift means and capable of driving said shift means in a reciprocating path, opposite trip means carried on said reversing member and positioned to contact and alternately move opposite latching and releasing means, and spring shifter means retained within said spring retainer structure and positioned for compression contact by opposite trip means, said spring shifter capable of alternately compressing and releasing at contact a trip means with a latching and releasing means to drive said shift means to an opposite position for latch engagement by an opposite keeper means,

a liquid motor associated with said reversing switch and valve assembly and having a piston cylinder opening at opposite sides to said valve port means, a main piston movable within said cylinder, and a main piston shaft secured to said main piston movable therewith, actuating arm means linking said main piston shaft and said reversing member whereby said reversing member moves in response to main piston shaft motion, at least one metering pump actuated by movement of said main piston shaft and being linked thereto by pump ram arm means, said metering pump having a piston rod, whereby volumes of first liquid will be siphoned and pumped therethrough in predetermined quantities and said system will be automatically driven by the first liquid entering the said inlet of said valve means and introduced to alternate sides of said liquid motor piston with said liquid being alternately expunged at the opposite port means to subsequently exit the valve means at said outlet opening, and said expunged first liquid and a second liquid pumped by said metering pump in predetermined proportions can be directed to be subsequently mixed.

4,392,509

FURNACE VALVE

Michael Siddall, Pooraka, Australia, assignor to Sidchrome (S.E. Asia) Limited, Hong Kong

Filed May 19, 1980, Ser. No. 151,473

Claims priority, application Australia, May 23, 1979, PD8920

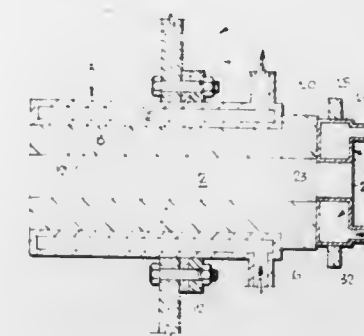
Int. Cl.³ F16K 49/00

U.S. Cl. 137—340

8 Claims

1. A valve for controlling the rate of discharge of a melt from a furnace, comprising:
 a water cooled sleeve having an inner tubular wall and an outer wall, a water cooling space between the inner and outer walls, and conduit connection means forming inlet and outlet ports to said water cooling space,
 a carbon member carried by the sleeve and having a flow passage extending therethrough, said carbon member being a liner having a stem portion which is contained within the sleeve and an enlarged head which abuts the

outer end of the sleeve and forms substantially the terminal end of the flow passage, and



a shutter, and guide means controlling the shutter for movement across the outer face of said enlarged head to control the effective discharge area of said flow passage.

4,392,510

CONTROL VALVE FOR VISCOUS MATERIAL PUMPS

Horst Heckmann, Sprockhövel, and Werner Nawroth, Waltrop, both of Fed. Rep. of Germany, assignors to Friedrich W. Schwing, GmbH, Herne, Fed. Rep. of Germany

Continuation of Ser. No. 236,568, Feb. 20, 1981, abandoned.

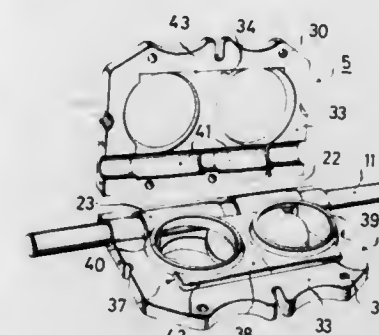
This application Sep. 30, 1982, Ser. No. 429,020

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 3006542

Int. Cl.³ F16K 27/04, 3/00

U.S. Cl. 137—454.2

5 Claims



1. A control valve for viscous material pumps comprising:
 a flat housing (2) having a pair of generally parallel exterior surfaces, said housing having a pair of laterally spaced viscous material channels (3, 4) extending therethrough normal to said exterior surfaces, said housing being formed of two parts (5, 6) abutting along a joint plane lying parallel to said exterior surfaces;
 a valve slide in said housing having a valve plate (10) fastened to valve rod (11) for reciprocal movement within said housing across one or the other of said channels for controlling the movement of material through said channels; and
 a wear shell (9) mounted in said valve housing and containing said valve plate with said valve rod extending therefrom, said wear shell being formed of a pair of generally similar halves (7, 8) divided along a central plane (46) lying normal to the movement of said valve slide, said wear shell halves being assemblable to form said wear shell by threading them on opposite ends of said valve rod (11), said wear shell being formed for permitting the reciprocal movement of said valve slide and having a pair of openings aligned with said channels, said wear shell being retained in said housing by locking engagement with the interior of said housing and having annular projections (39, 40) around said openings extending into said channels (3, 4) for lining same.

4,392,511

PRESSURE REGULATOR

Bernd Schopper, Frankfurt, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Continuation of Ser. No. 121,548, Feb. 14, 1980, abandoned.

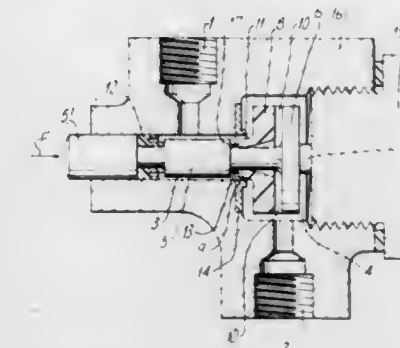
This application Jul. 10, 1981, Ser. No. 282,292

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1979, 2911886

Int. Cl.³ F16K 17/26

U.S. Cl. 137—493.2

23 Claims



1. A pressure regulator comprising:
 a housing;
 an inlet chamber disposed in said housing;
 an outlet chamber disposed in said housing;
 a plunger valve disposed in said housing; between said inlet chamber and said outlet chamber, said plunger valve being opened when input pressure is lower than a predetermined switching pressure and being closed against an opening force when the pressure in said outlet chamber exceeds said switching pressure;
 a non-return valve disposed in said housing which opens against a closing force when a pressure reduction in said inlet chamber relative to the pressure in said outlet chamber occurs, said non-return valve being in the form of a sealing lip disposed on a movable part of said plunger valve in a manner such that when said plunger valve is closed said sealing lip is situated in said inlet chamber and closes a channel which leads through a valve plunger and a valve body of said plunger valve to said outlet chamber; and
 a sealing plate fastened to said valve body annularly enclosing said valve plunger, said sealing plate cooperating with an annular valve seat disposed between said inlet and outlet chambers in a recess of said housing, said annular valve seat being an interchangeable insert disposed in said recess.

4,392,512

RELIEF VALVE

Bruce K. Kreeley, Bristol, Pa., assignor to The Singer Company, Stamford, Conn.

Filed Jun. 3, 1981, Ser. No. 270,167

Int. Cl.³ F16K 17/06

U.S. Cl. 137—496

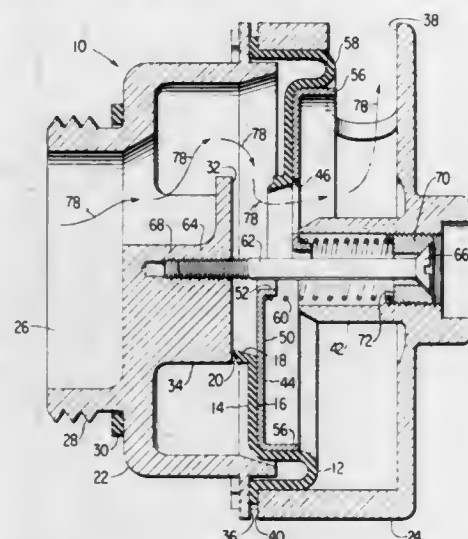
5 Claims

1. A gas pressure relief valve comprising:
 a resilient diaphragm having a first side, a second side, and a central opening, said diaphragm being formed with an annular sealing lip about the central opening on the first side thereof;
 a body member including a central seat, an inlet to a source of gas to be pressure relieved, and a continuous shoulder adapted to contact the periphery of the first side of said diaphragm;
 a top member including an outlet for relieved gas and a continuous shoulder adapted to contact the periphery of the second side of said diaphragm opposite the shoulder of said body member;
 means for connecting said body member to said top member so that the periphery of said diaphragm is maintained

sealingly engaged between the shoulders of said body and top members;

a plate having a central opening, said plate being disposed adjacent the second side of said diaphragm with the central opening of the plate being aligned with the central opening of the diaphragm; and

a compression spring positioned intermediate said plate and said top member to provide a biasing force to said diaphragm through said plate to force said sealing lip in sealing engagement with said seat, said biasing force being sufficient so that said sealing lip remains sealingly engaged



with said seat when the gas pressure at the inlet is below a predetermined value;

said compression spring being helically wound, said plate being formed with an island region in its central opening connected to the plate by relatively slender spokes which do not substantially block said central opening, said island region having an upstanding wall on the side of the plate opposite the side disposed adjacent said diaphragm, a first end of said spring being fitted around said wall, said top member being formed with an internal hollow cylindrical projection, and the second end of said spring being fitted inside said projection.

4,392,513

QUICK DISCONNECT SAFETY COUPLING

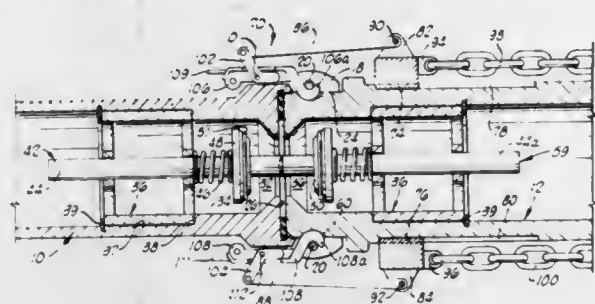
Reuel C. Parrish, P.O. Box 1846, Enid, Okla. 73701

Filed Feb. 9, 1981, Ser. No. 232,837

Int. Cl.³ F16L 37/28

U.S. Cl. 137—614.01

13 Claims



1. A quick disconnect safety coupling comprising: an open-ended female tubular section having radial openings through the wall thereof adjacent its open end; cam lever pins on the female section adjacent the openings; a tubular male section sealingly engageable with the female section and having a cam groove in the outer periphery thereof positioned for alignment with said openings when the male and female sections are engaged; valve means in said sections for closing each of said sections when the sections are disengaged from each other, and opening the sections to fluid flow through both sections when the sections are engaged; and a quick disconnect latching subassembly on the male section

and releasably engaging the cam lever pins and cam grooves, said latching subassembly including:

axially slidable means mounted on said male section for axial movement on said male section toward and away from said female section; and

link means extending from said axially slidable means to a location adjacent said cam lever pins, said link means comprising:

a pull link pivotally connected to said ring;

a crank link pivotally connected to said pull link; and

a cam lever having a first end pivotally connected to the crank link and a second end releasably connected to one of said cam lever pins and engaging said cam groove.

4,392,514

APPARATUS AND METHOD FOR PRECISION GAS MIXING

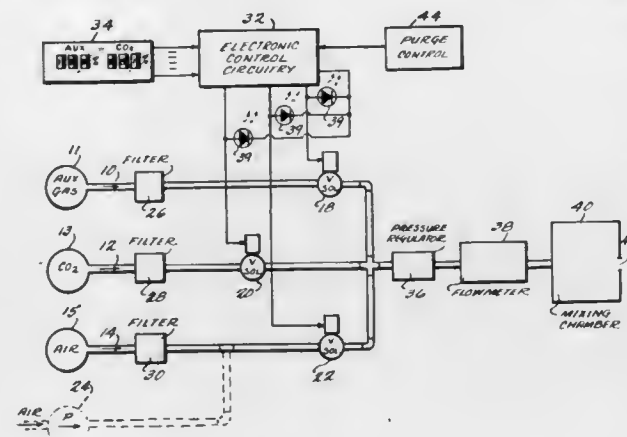
Max F. Farley, Marietta, and Laughton T. Fine, Cincinnati, both of Ohio, assignors to Queue Systems, Inc., Parkersburg, W. Va.

Filed Jan. 26, 1981, Ser. No. 228,199

Int. Cl.³ G05D 11/13

U.S. Cl. 137—624.2

22 Claims



1. A precision gas mixing apparatus of the type which mixes plural gases in desired proportions by sequentially permitting each gas to flow for selected time durations, which time durations are related to such desired proportions, said system comprising:

plural nonpressure-regulated input gas flow lines, each having an electrically controllable on/off flow control device connected in series therewith; and

a gas flow rate control means including a serially connected gas pressure regulator and gas flowmeter fluid connected in common to each of said on/off flow control devices for supplying any one of said plural gases at a desired preset gas flow rate whenever the respectively corresponding on/off flow control device is turned on.

4,392,515

WEAVING LOOM WITH A WAVING SHED HAVING AN IMPROVED FRAME

Albert Moessinger, Vaud, Switzerland

Filed Feb. 20, 1981, Ser. No. 236,237

Claims priority, application France, Feb. 21, 1980, 80 04125

Int. Cl.³ D03C 13/00; D03D 47/26

U.S. Cl. 139—55.1

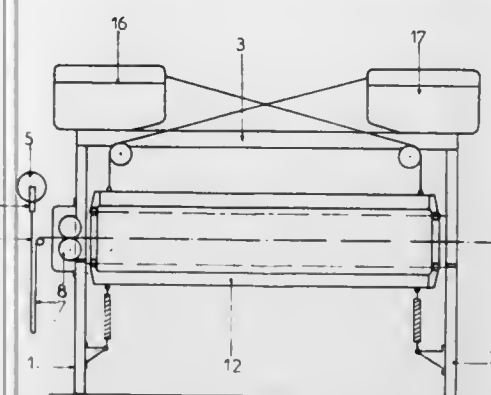
13 Claims

1. A weaving loom having a waving shed comprising: propelling means for introducing and propelling a weft thread into the shed wherein the weft thread is inserted by unwinding a specific length of thread from one side of the loom;

a plurality of frame means wherein each frame means includes:

a width to extend throughout the width of a cloth to be woven,

heddle holder rods, bars, and supports wherein the opposite ends of said bars are moveably connected to opposite ends of said supports at points aligned with the axes of said heddle holder rods; stationary guides adapted to direct said supports in their



reciprocating cycle to restrict lateral motion of each frame;

controls adapted to permit each end of each frame to proceed through its reciprocating cycle independently of the opposite end; and

a reed for pushing each pick of inserted weft thread.

4,392,516

DRIVE FOR LOOM EASER BAR

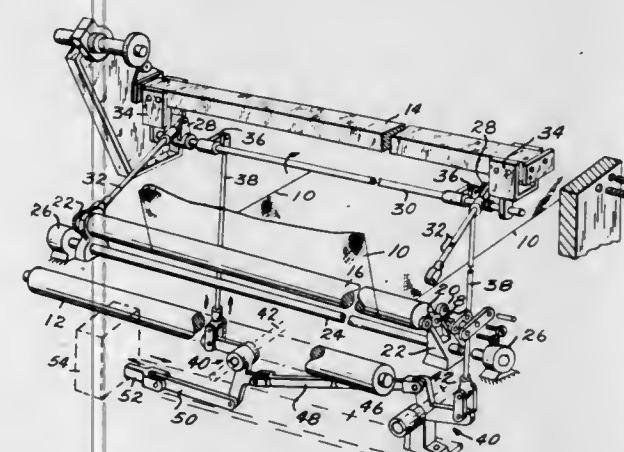
Douglas D. Goodnough, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Jun. 4, 1981, Ser. No. 270,552

Int. Cl.³ D03D 49/00; D03C 7/00

U.S. Cl. 139—115

5 Claims



1. In a weaving machine having a frame, a top leno warp beam and a bottom ground warp beam, and a positive-motion dobby, the combination comprising:

easer-beam means overlying the top beam warp threads at the juncture of their vertical and their horizontal run;

crank arm means mounting said easer-bar means to the frame for rocking movement toward and away from the top beam warp threads to respectively increase and decrease the tension in the top beam warp threads; and

mechanical means devoid of spring means mounted to the frame and connecting said easer-bar mounting means to the dobby for positively rocking said easer bar toward and away from the top beam warp threads in response to predetermined movements of the dobby.

4,392,517

WEFT PICKING METHOD AND DEVICE FOR CARRYING OUT SAME

Takao Takahashi, Hachioji, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

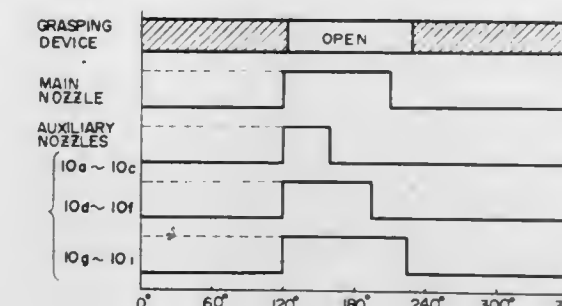
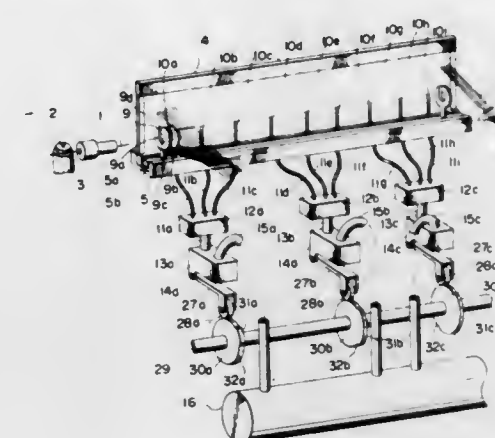
Filed Dec. 19, 1980, Ser. No. 218,325

Claims priority, application Japan, Dec. 26, 1979, 54-168171

Int. Cl.³ D03D 47/30

U.S. Cl. 139—435

12 Claims



1. A method of weft picking in an air jet loom of the type wherein a weft yarn projected by an air jet from a weft inserting nozzle is carried through a weft guide channel to pick the weft yarn into the shed of warp yarns by air jets from a plurality of auxiliary nozzles, said method comprising the steps of:

controlling the ejection of air jets from said auxiliary nozzles in a manner to simultaneously commence the air jet ejections from all said auxiliary nozzles prior to the time the weft yarn from said weft inserting nozzle reaches the auxiliary nozzle closest to said weft inserting nozzle, maintaining the air jet ejections from all said auxiliary nozzles for a selected time interval, and thereafter successively stopping the air jet ejections from the respective auxiliary nozzles in the order of the weft yarn passing by said auxiliary nozzles.

4,392,518

FENCE WIRE WINDER

Ivan H. Stant, 2003 Indiana Ave., Connersville, Ind. 47331

Filed May 15, 1981, Ser. No. 264,120

Int. Cl.³ B21F 7/00

U.S. Cl. 140—119

4 Claims

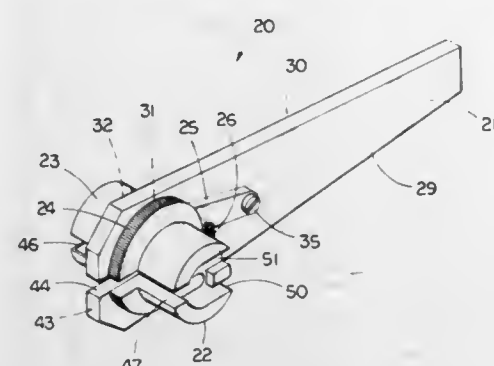
1. A fence wire winder for twisting together two strands of wire comprises:

a single-piece handle member having two opposing surfaces and defining a clearance aperture therethrough;

a wire-receiving spindle member extending through said clearance aperture such that a different portion of said spindle member outwardly extends from each of said two opposing surfaces of the handle member, said spindle member defining a circumferential groove and including a longitudinal wire-receiving channel and a transverse wire-receiving channel;

first means for retaining said spindle member within said

clearance aperture while permitting rotation of said handle member relative to said spindle member said first means including a flat washer of a "C" configuration having its interior edges cooperatively disposed about said circumferential groove in said spindle and a retaining thimble placed over and secured to the end of said spindle member and extending over said flat washer; and



second means disposed on one side of said handle member for locking said handle member to said spindle member when said handle member is turned in a first direction of rotation and for permitting free turning of said handle member relative to said spindle member when said handle member is turned in a second direction of rotation which is opposite to said first direction of rotation.

4,392,519

KNIFE PITCH CONTROL FOR VENEER LATHE

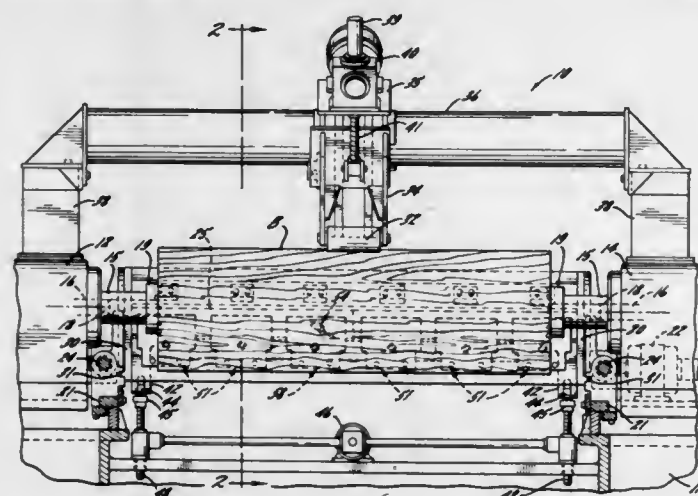
Harry B. Calvert, Longwood, Fla., assignor to Calvert Manufacturing, Inc., Longwood, Fla.

Filed Feb. 5, 1981, Ser. No. 231,872

Int. Cl.³ B27L 5/02

U.S. Cl. 144—212

12 Claims



1. In a veneer lathe having power spindle means for rotating a wood block on the spindle axis, a knife carriage disposed for movement transversely of said spindle axis, and a backup roll positioned in timed relation with the knife carriage, the combination comprising:

- (a) a knife support rockably mounted on said carriage;
- (b) a knife carried by said support for movement laterally of the spindle axis;
- (c) means for clamping said knife in said support;
- (d) means defining a laterally unsupported portion of said knife intermediate the ends thereof;
- (e) sensor means disposed in engagement with the unsupported portion of the knife for sensing the lateral deflection thereof; and
- (f) said sensor means being adapted to generate a signal corresponding to said lateral deflection in amplitude and direction.

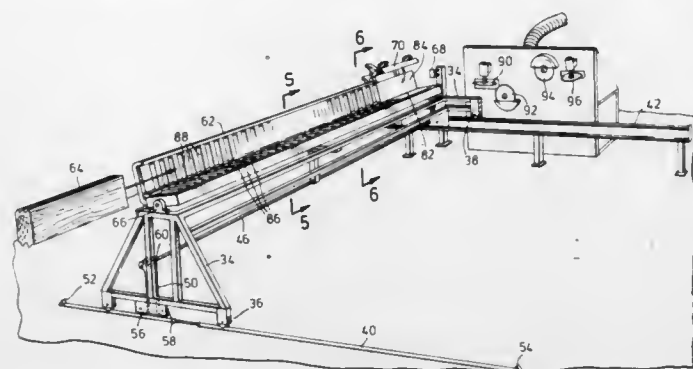
4,392,520
LOG BUILDING CONSTRUCTION
Ronald A. Wrightman, P.O. Box 268, Minden, Ontario, Canada K0M 2K0

Filed Mar. 13, 1981, Ser. No. 243,516

Int. Cl.³ B27B 1/02

U.S. Cl. 144—363

5 Claims



4. A method of notching the end of a log at an upper edge and at a lower edge to make a dove-tail formation for a log building by the steps of:

- projecting the log longitudinally of itself onto a cradle, and arresting the projection of the log to cause a free end of the log to project a predetermined amount beyond the cradle;
- clamping the log so positioned in the cradle;
- moving the cradle in a direction transversely of the direction of the longitudinal axis of the log for operative engagement by four saw blades which are mounted in predetermined relation to the path of the cradle to notch the upper edge of the log and the lower edge of the log whereby to form a dove-tail configuration;
- each of the notches being defined by a side formed by a transverse cut and by a side formed by a longitudinal cut that intersects the transverse cut at a corner;
- the corner of one notch being inclined a predetermined angle to the corner of the other notch and said log being rotated about its longitudinal axis through said predetermined angle between making the transverse cut of one notch and making the transverse cut of the other notch to incline the corners of said notches at said predetermined angle as aforesaid.

4,392,521

SIMPLIFIED ADJUSTABLE TIRE CHAIN

Victor S. Giannone, 7 Fox Hill Rd., Peekskill, N.Y. 10566
Continuation-in-part of Ser. No. 315,960, Oct. 28, 1981. This application Aug. 23, 1982, Ser. No. 410,416

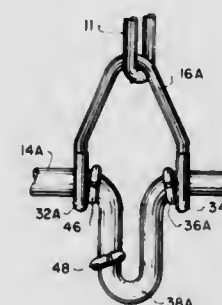
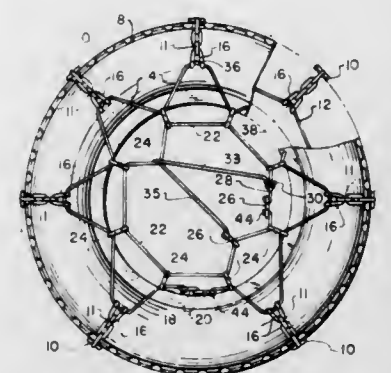
Int. Cl.³ B60C 27/00, 27/06, 27/10

U.S. Cl. 152—218

16 Claims

- 1. An adjustable size tire chain structure comprising a plurality of metal cross chains each having an end link at each end,
- an inboard rope connector for interconnection with the inboard ends of said cross chains,
- an outboard rope connector for interconnection with the outboard ends of said cross chains,
- a combined rope to cross chain connecting link and rope clamping ring and rope connector adjustment device provided at each end of each cross chain for connection to said inboard and outboard rope connectors,
- each of said connecting links comprising a substantially V-shaped wire body with a loop formed at each end of the V,
- said wire body being connected to the associated cross chain end by linking through the end link at the bottom of the V,
- said loops each being engaged with the associated one of said rope connectors by at least partially surrounding the rope connector,

both of said loops being dimensioned and arranged to partially surround and slidably engage said rope, each of said slidably engaged loops being open sufficiently to permit the rope to be slipped out of and into said loop, a set of at least three collars clamped to said rope at spaced positions upon said rope in the vicinity of each of said connecting links with at least two of the three collars positioned between the loops of the associated connecting link, each of said collars being sufficiently large to prevent the portion of the rope to which the collar is clamped from



sliding through either of said slidably engaged loops, one of the outer ones of said collars and the middle one of said collars being spaced apart to respectively fit between said loops and to fit in closely spaced relationship to the inner sides of said two loops to prevent longitudinal movement of said rope with respect to said link when the section of rope between said loops is straight, the other outer one of said collars being operable when positioned inside the adjacent loop of said link in conjunction with the positioning of the first outer collar inside the other loop to shorten the rope by forming a loop of rope between said loops of said link.

4,392,522

TIRE WITH OPEN CELL FOAM INSERT FOR REDUCING NOISE

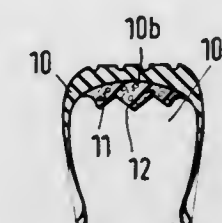
Oskar Bschorr, Munich, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany
Filed Nov. 3, 1980, Ser. No. 202,883

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1979, 2946273

Int. Cl.³ B60C 18/00

U.S. Cl. 152—341

5 Claims



1. A wheel tire not having a run-flat ability, comprising a tire

body having an inner surface defining an inner tire volume, noise absorbing means in the form of an open cell foam material inside only a portion of said inner tire volume, means securing said noise absorbing open cell foam material to portions of said inner surface of said tire body, said noise absorbing material having a given size and a large surface area relative to its given size, said large surface area with the open cells being sufficient to substantially avoid noise level amplification or space resonance amplification in said tire volume, and wherein said securing means for said noise absorbing means comprise at least one, preferably a plurality of noise absorbing relatively flat connecting members, both surfaces of which are covered with said open cell foam material to hold said large surface area of open cells substantially out of contact with said inner tire surface, said flat members having at least one edge connected to said inner tire surface for securing the open cell foam material inside the tire while leaving both sides of said flat connecting member substantially exposed to the air inside the tire.

4,392,523

PROCESS AND APPARATUS FOR CONTROLLING THE LEVEL OF A MOLTEN METAL SURFACE IN CONTINUOUS CASTING MOULDS

Manfred Beller, Illerrieden, and Hans Wiedenmann, Vöhringen, both of Fed. Rep. of Germany, assignors to Wieland-Werke A.G., Metallwerke, Ulm, Fed. Rep. of Germany

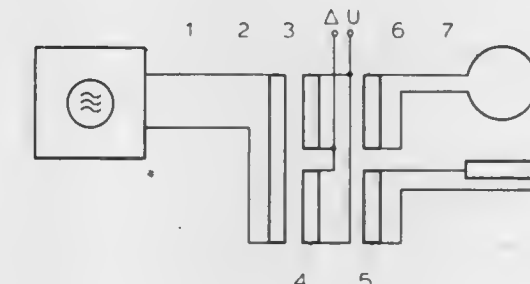
Filed Dec. 12, 1980, Ser. No. 215,883

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1979, 2951097

Int. Cl.³ B22D 11/16; G01N 27/72

U.S. Cl. 164—453

20 Claims



1. A process for controlling the level of a molten metal level in a continuous casting mold comprising the steps: (a) providing a continuous casting mold, (b) providing a probe in the vicinity of the mold for sensing the metal level, said probe being associated with a compensating coil, said probe and compensating coil being in coupling relation with two secondary receiver coils, all said coils being spatially separated from the mold, said secondary receiver coils being arranged to provide a voltage difference therebetween, (c) generating a high frequency alternating magnetic field to induce voltages in said secondary receiver coils, (d) filling the mold with molten metal until reaching a required level in said mold, thereby creating a voltage difference in said secondary receiver coils, (e) balancing the voltage in said secondary receiver coils to reduce the voltage difference to zero, and (f) controlling the pouring of the metal into the mold to maintain the voltage difference at zero.

4,392,524

APPARATUS FOR REMOVING A TUBE CORE FROM AND INSERTING SAME INTO A HEAT EXCHANGER

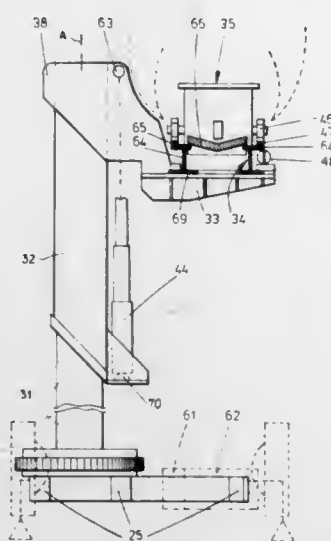
Ludwig Bauch, Kirchweg 7, 8079 Egweil, Fed. Rep. of Germany
Filed Dec. 9, 1981, Ser. No. 329,061

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1980, 3046467

Int. Cl.³ F28F 9/00

U.S. Cl. 165—76

14 Claims



1. In combination with a heat exchanger having a horizontally elongated and longitudinally removable tube bundle, an apparatus comprising:

- an elongated vehicular base provided with wheels and capable of rolling on the ground in a predetermined direction longitudinal of said base;
- an upright vertically telescoping column supported on said base and defining an upright axis;
- an elongated support to one side of the upper end of said column and defining a horizontal axis;
- means for rotating said support about said upright axis, whereby said horizontal axis can be parallel or transverse to said elongated base;
- a carriage displaceable axially along said support and adapted to engage the end of said bundle; and
- means for displacing said carriage axially along said support when engaged with said bundle to displace said bundle along said support.

4,392,525

APPARATUS FOR SECURING A WIRE TO A GRILLE

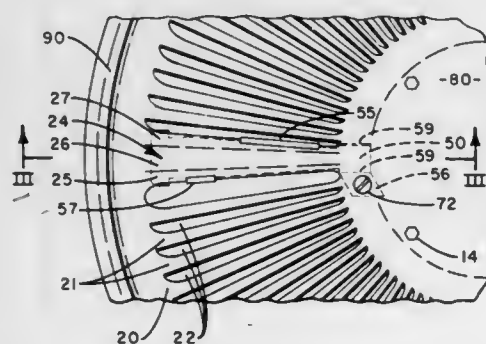
Raymond D. O'Mara, Mallory; Michael E. Smorol, Syracuse, and Curtis L. Tobin, Chittenango, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 3, 1980, Ser. No. 202,983

Int. Cl.³ F28F 13/12, 9/24

U.S. Cl. 165—125

5 Claims



1. A heat exchange unit including a heat exchanger which comprises:
a fan orifice,
a fan powered by an electric motor for coacting with the fan

orifice for circulating a heat transfer medium through the heat exchanger of the heat exchange unit,
a grille covering the fan orifice to allow heat transfer medium to flow therethrough while preventing foreign objects from being inserted therein, said grille including a portion extending from the fan motor to the fan orifice, an electrical power source entering the heat exchange unit a distance from the electric motor,
at least one electricity carrying conductor connecting the electric motor to the power source, and
a wire guide extending between the fan orifice and the electric motor, said wire guide coacting with the portion of the grille extending from the fan motor to the fan orifice to define a cavity wherein the conductor connected to the electric motor is secured.

4,392,526

CONCENTRIC TUBE HEAT EXCHANGER WITH SPACER

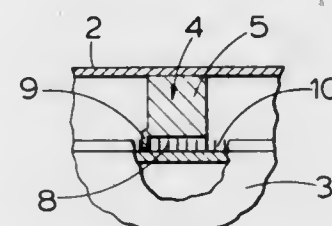
Manfred Hage, Ulm-Wiblingen; Hans Demuth, Vöhringen, and Otto Junker, Gerlenhofen, all of Fed. Rep. of Germany, assignors to Wieland Werke AG, Ulm, Fed. Rep. of Germany
Filed Apr. 24, 1981, Ser. No. 257,085

Claims priority, application Fed. Rep. of Germany, May 8, 1980, 3017574

Int. Cl.³ F28D 7/10

U.S. Cl. 165—154

10 Claims



1. A heat exchanger comprising an outer tube, at least one substantially concentric inner tube having an outer surface, a fin radially extending from the outer surface of the inner tube and having a height less than the distance between the inner and outer tubes, said fin being formed around the inner tube and extending therealong in turns, spacers being provided between each of the tubes, each spacer having a tubular sleeve which bears against the outer surface fin of the inner tube and at least three circumferentially, substantially equi-spaced, radial supporting elements supporting the outer tube inner wall, said tubular sleeve having at least one retaining member engaging in the groove between adjacent fin turns.

4,392,527

WATER WELL DEVELOPING SYSTEM

Ernest D. Hauk, and William C. Addison, both of Yucca Valley, Calif., assignors to Hawk Industries, Inc., Signal Hill, Calif.

Filed Mar. 3, 1981, Ser. No. 239,895

Int. Cl.³ E21B 43/112

U.S. Cl. 166—55.2

5 Claims

1. Well forming and clean-out apparatus comprising
a string of drill pipe adapted to be lowered into a well casing, a fluid operated tool carried by said drill pipe string and adapted to be operated within the well casing by fluid transmitted through the drill pipe string, and
well clean-out means connected to and between said tool and drill pipe string and including
a clean-out body,
a plurality of clean-out ports in said body for transmitting pressurized fluid from said drill pipe string to the interior of a casing in which said well clean-out means is positioned,
passage means in said body for transmitting pressurized fluid

4,392,528

SWABBING CUP CONSTRUCTION FOR SWABBING AN OIL WELL PIPE

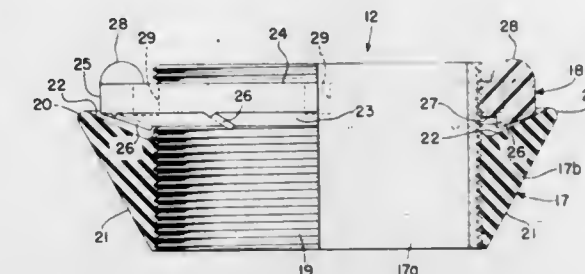
Robert C. Paulson, 2110 E. Shawnee Ave., Muskogee, Okla. 74401

Filed Dec. 7, 1981, Ser. No. 328,011

Int. Cl.³ E21B 37/10, 43/18

U.S. Cl. 166—153

9 Claims



1. In an oil well swabbing tool for raising a mixture of liquids and particulate matter such as sand from an oil well pipe in which said tool comprises a cylindrical mandrel, a swabbing cup construction for mounting on said mandrel, said cup construction comprising first and second elements adjustably secured together, said first element comprising a rigid cylindrical member having an internal diameter substantially equal to the outer diameter of said mandrel for slidably mounting said cylindrical member on said mandrel, said first element further comprising an elastomeric material annular member molded circumferentially about one end portion of said cylindrical member, at least the other end portion of said cylindrical member being externally threaded, said annular member having leading and trailing surfaces extending radially outwardly and axially toward said other end portion of said cylindrical member, said trailing surface of said annular member further having the shape of the surface of a frustum, the maximum diameter of said annular member being substantially equal to the inner diameter of said oil well pipe, said second element comprising a substantially rigid ring member internally threaded with threads complimentary to the threads on said other end portion of said cylindrical member, said ring member having radially extending leading and trailing surfaces, said leading surface of said ring member further extending in an axial direction toward said trailing surface thereof and being generally shaped as the surface of a frustum, the maximum diameter of said ring member being substantially less than the maximum diameter of said annular member, said ring member being threaded on said other end portion of said cylindrical member with said leading surface of said ring member directed toward surface engagement with said trailing surface of said annular member, and the surface of a frustum shape of said leading surface of said ring member relative to the surface of a frustum shape of said trailing surface of said annular member providing increasing radial expansion of said annular member upon progressively greater threading movement of said ring member on said cylindrical member toward and against said annular member.

4,392,529

METHOD OF CLEANING A WELL AND APPARATUS THEREOF

Maurel R. Burwell, 4877 Arbor St., SW., Canton, Ohio 44710
Filed Nov. 3, 1981, Ser. No. 317,750

Int. Cl.³ E21B 37/00

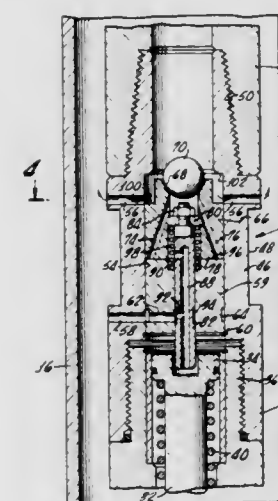
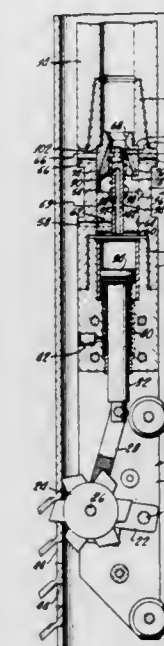
U.S. Cl. 166—255

18 Claims

1. An improved method of cleaning a well including the steps of:

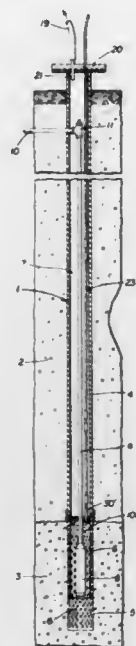
- (a) sealing the well casing to form a generally air-tight enclosure therein;
- (b) forming a vacuum within the well casing enclosure by pumping the air therefrom to raise a column of water within the well casing enclosure to a predetermined height;
- (c) destroying the vacuum formed in the well casing enclosure

to said tool, said passage means including closure means for blocking said clean-out ports,
means for shifting said closure means to unblock said ports, means responsive to said closure means for simultaneously releasing fluid from said tool,
said closure means comprising a valve spool assembly slidably mounted in said body, said passage means including a valve spool passage formed in said valve spool assembly, said means for shifting said closure means comprising means for blocking an end of said valve spool passage,
said valve spool assembly comprising a valve spool piston slidably mounted in said body between a first



position in which it blocks said clean-out ports and a second position in which the clean-out ports are unblocked, said valve spool passage having an upper end open to an upper end of said body, said means for blocking an end of said passage comprising a ball adapted to seat upon said open upper end of said valve spool passage,
said means for releasing fluid from said tool comprising a body relief port in said clean-out body and a valve spool stem having a passage connected to said piston and communicating with said tool, said stem having a relief port positioned to communicate with said stem passage and said body relief port.

sure causing the raised water column to drop downwardly forcing the water out through inlet openings adjacent the bottom of the well casing and into the surrounding strata to remove encrustations and obstructions blocking the inlet openings; and



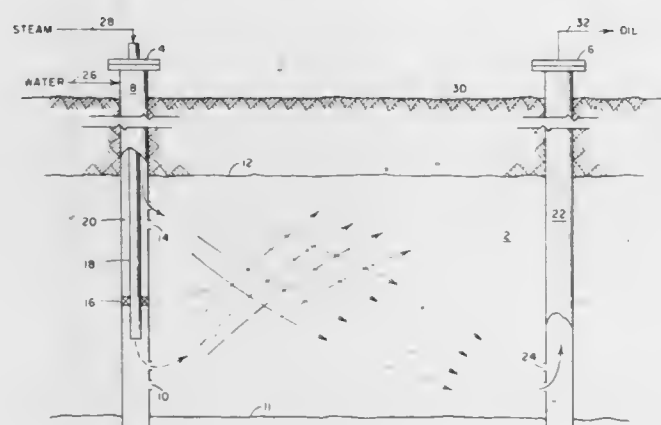
(d) repeating the raising and lowering of the column of water in the well casing enclosure by creating a vacuum therein and destroying the same to clean the well casing openings and surrounding strata.

4,392,530

METHOD OF IMPROVED OIL RECOVERY BY SIMULTANEOUS INJECTION OF STEAM AND WATER
Aziz S. Odeh, Dallas, and Billy J. Dotson, Grand Prairie, both of Tex., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Apr. 30, 1981, Ser. No. 259,329
Int. Cl.³ E21B 43/24

U.S. Cl. 166—269

1 Claim



1. A method for recovering heavy oil from a subterranean permeable, heavy oil-containing formation penetrated by at least one injection well and at least one spaced apart production well, said injection well containing at least two separate flow paths, the first path in fluid communication with the upper portion of the formation and the second path in fluid communication with the lower portion of the formation, and said production well in fluid communication with the lower portion of the formation, comprising:

- injecting steam into the lower portion of the formation via the second flow path of the injection well, said steam passing through the formation, displacing oil and reducing the oil's viscosity;
- injecting unheated water into the upper portion of the formation via the first flow path of the injection well subsequent to the period of steam injection into the lower portion of the formation and prior to steam breakthrough

to impede the upward flow of steam and divert it to previously unswept paths resulting in a higher vertical sweep efficiency to scavenge heat from the steam and become a hot water drive displacing oil reduced in viscosity from lower regions in the formation; and
c. recovering oil from the lower portion of the formation via said production well.

4,392,531

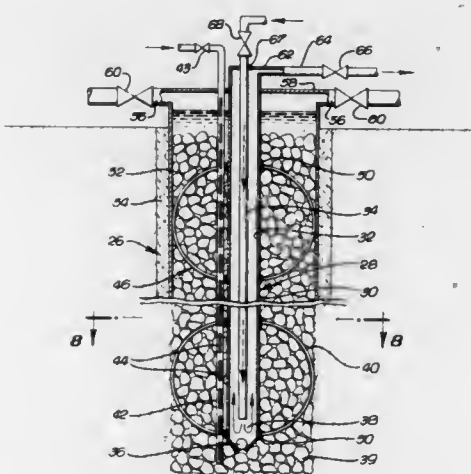
EARTH STORAGE STRUCTURAL ENERGY SYSTEM AND PROCESS FOR CONSTRUCTING A THERMAL STORAGE WELL

Joe J. Ippolito, 13110 Lamplight Village Ave., Austin, Tex. 78758

Filed Oct. 9, 1981, Ser. No. 309,910

Int. Cl.³ E21B 33/138, 41/00; F28D 15/00; F28F 21/00
U.S. Cl. 166—278

40 Claims



1. An earth coupled structural energy system comprising: an energy distribution system for selectively applying thermal energy within a building structure; earth storage means for communicating thermal energy with the earth, the earth storage means having a substantially moisture impervious integrated earth interface, thereby maintaining substantial thermal conductive moisture within the earth storage means, yet providing conduction to the earth at the integrated earth interface, the integrated earth interface generally defining an earth interface surface area; fluid transport means disposed within the earth storage means for circulating a thermal transfer fluid through the earth storage means; the fluid transport means having an interface with the earth storage means, the fluid transport means interface defining a surface surrounded in spaced-apart relationship to the earth interface surface area; means for maintaining a high thermal conductivity at the fluid transport means interface; and means for thermally communicating with the thermal transfer fluid to effect thermal changes in the energy distribution system;

the earth storage means having a high thermal permeability, whereby thermal energy is readily conducted between the earth and the fluid transport means with minimal thermal radiation.

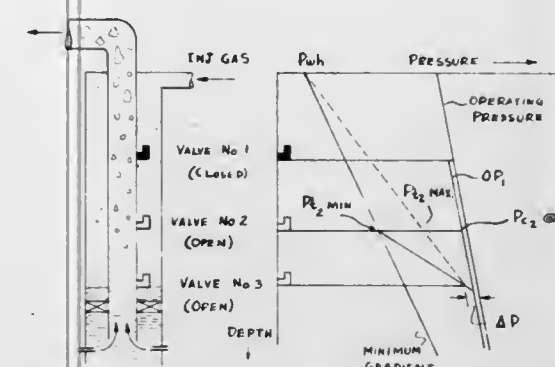
35. The process for constructing a thermal storage well comprising the steps of:
drilling a well;
circulating mud through the hole to establish a filter cake;
running a thermal transfer conduit in the hole;
running a drill string within the hole while circulating mud;
measuring moisture loss from the well; and
reverse circulating a sand/gravel slurry through the thermal transfer conduit to establish an intermediate particulate mass extending adjacent to the filter cake.

4,392,532

MINIMUM TEMPERATURE CORRECTION METHOD FOR LOCATING AND SETTING GAS-LIFT VALVES
Ivan J. Raggio, 2412 Yorktown, #297, Houston, Tex. 77056
Continuation of Ser. No. 17,441, Mar. 5, 1979, abandoned. This application Mar. 16, 1981, Ser. No. 244,085
Int. Cl.³ E21B 43/00, 43/12

U.S. Cl. 166—372

5 Claims



1. A method of spacing and pressure setting gas-lift valves of a gas-lift production system according to the production characteristics of liquid producing wells, said method comprising: establishing the spacing of the various gas-lift valves relative to the surface;
establishing the reopening pressure settings of said gas-lift valves; and
correcting the spacing and reopening pressures of said gas-lift valves to accommodate the lowest temperature that could be encountered at any one of the valves while lifting from a lower valve.

4,392,533

ROOT CROP HARVESTER

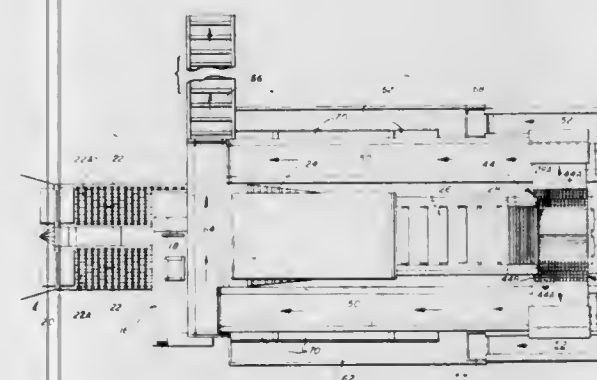
Carl E. Bittle, Turlock, Calif., assignor to Universal Foods Corporation, Milwaukee, Wis.

Filed Jun. 5, 1981, Ser. No. 270,810

Int. Cl.³ A01D 17/00, 33/08, 91/02

U.S. Cl. 171—14

11 Claims



1. An apparatus for mechanically harvesting from a field a tuberous root crop subsequent to the latter having been uprooted, said apparatus comprising a frame movable in a forward direction across the field and having a front end provided with means for simultaneously collecting a mixture of roots, dirt clods and other debris as the frame moves in a forward direction; a first conveyor means mounted on said frame for receiving in a random arrangement the collected mixture and moving same rearwardly and upwardly from the frame front end and simultaneously therewith causing portions of the conveyed mixture other than roots to be initially separated from the remainder of the mixture and returned to the field; a second conveyor means mounted on said frame and adjacent the rear end of said first conveyor means for receiving in a random arrangement the remaining mixture discharged from the first conveyor means, said second conveyor means moving the discharged remaining mixture away from the rear end of the first conveyor means and simultaneously therewith causing

4,392,534

COMPOSITE NOZZLE FOR EARTH BORING AND BORE ENLARGING BITS

Eishiro Miida, Ichikawa, Japan, assignor to Tsukamoto Seiki Co., Ltd., Tokyo, Japan

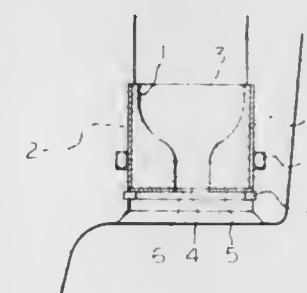
Filed Aug. 12, 1981, Ser. No. 292,183

Claims priority, application Japan, Aug. 23, 1980, 55/119692[U]; Dec. 25, 1980, 55/182902

Int. Cl.³ E21B 10/18

U.S. Cl. 175—340

1 Claim



1. A complex nozzle for a drill bit and bore enlarging bit of the type having a plurality of rotary cutters provided at the lower end of the bit body, which composite nozzle comprises: a ceramic member in the shape of a water discharge nozzle provided above the rotary cutters; said ceramic member having a mouth, a circumferential wall surrounding said mouth and a bottom surface, said mouth opening through said bottom surface;
a reinforcing metal ring fitted around the circumferential wall of said ceramic member to prevent damage thereto; and
a reinforcing metal plate having a central aperture overlying said mouth, bonded to said bottom surface so as to completely overlay said bottom surface to provide said ceramic member with impact resistance.

4,392,535

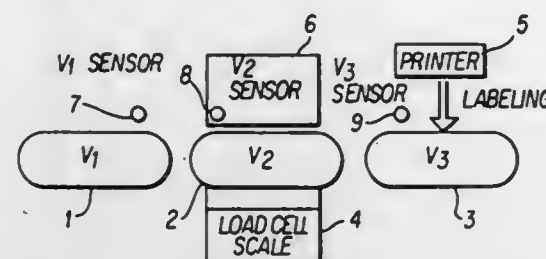
ZERO-POINT ADJUSTING METHOD FOR AUTOMATIC WEIGHING APPARATUS

Kunihiko Fujii; Yukihiro Hirotsaki, both of Mishima; Yoshihisa Nishiyama, Shimizu Suntoh, and Koichiro Sato, Mishima, all of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 117,786, Feb. 1, 1980, abandoned. This application Mar. 8, 1982, Ser. No. 355,340

Claims priority, application Japan, Feb. 6, 1979, 54-13110
Int. Cl.³ G01G 11/04

U.S. Cl. 177-1

6 Claims



1. An automatic weighing method, comprising the steps of: moving the object to be weighed on three consecutive conveyers; sensing the presence or absence of the object on each of the three conveyers; controlling the first conveyer in accordance with the presence of the object on the second conveyer to prevent the passage of additional objects onto the second conveyer when the object is present on the second conveyer; weighing the second conveyer while said object is absent from the second conveyer and producing a first weight signal by means of a load cell; weighing the second conveyer and said object while said object is present on the second conveyer and producing a second weight signal by means of a load cell; storing a zero point weight on the basis of the first weight signal as an indication of the tare weight of the second conveyer; setting the weight of the object into a register on the basis of the second weight signal and the zero point weight; and, labeling said object with the weight label while present on the third conveyer.

4,392,536
VEHICLE

Kazubiro Iwai, Iruma; Hiroshi Enomoto, Oimachi; Akito Enokimoto, Asaka, and Yoshitaka Kato, Wako, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

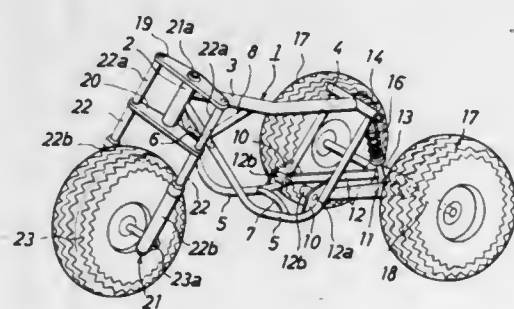
Filed Feb. 9, 1981, Ser. No. 232,434

Claims priority, application Japan, Feb. 14, 1980, 55-17130; Feb. 19, 1980, 55-20159[U]

Int. Cl.³ B62K 11/02, 25/04

U.S. Cl. 180-217

10 Claims



1. A vehicle with at least one front wheel and two rear wheels, comprising: a frame structure; a swing arm having two members extending rearwardly from said frame structure and a rear axle bearing member

connected between rear ends of said two members, said rear axle bearing member supporting a rear axle for said rear wheels;
at least one rear cushion unit;
said rear cushion unit being interposed between said frame structure and said swing arm; and
said rear axle bearing member being disposed substantially centrally between said rear wheels and having the length dimension thereof extending substantially in the transverse direction of said vehicle.

4,392,537

WEIGHBRIDGE AND METHOD OF PRODUCING IT

Olle G. Lundborg, Malmö, Sweden, assignor to AB Bofors Elektronik, Bofors, Sweden

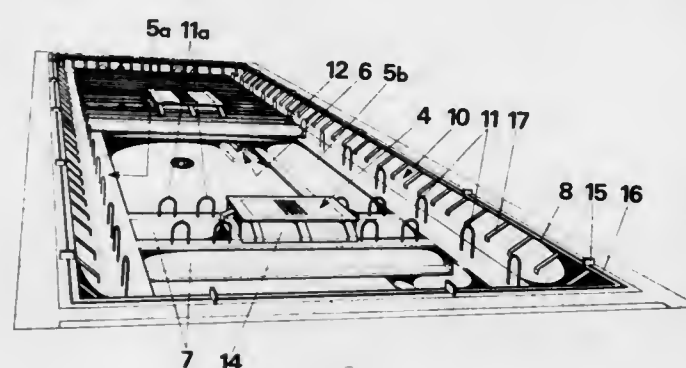
PCT No. PCT/SE80/00149, § 371 Date Jun. 15, 1981, § 102(e)
Date Jun. 15, 1981, PCT Pub. No. WO81/01197, PCT Pub. Date Apr. 30, 1981

PCT Filed Oct. 15, 1980, Ser. No. 274,203

Int. Cl.³ G01G 19/02

U.S. Cl. 177-134

8 Claims



1. A weighbridge, comprising a cast concrete slab (1) and having supporting beams (5) resting upon transmitter members (6) wherein said supporting beams (5) being disposed as longitudinal beams of a metal frame consisting of said longitudinal beams interconnected by transverse beams, said metal frame supporting a preferably corrugated bottom metal sheet (12) of said concrete slab (1), that said concrete slab being in cast connection with said frame (5, 7) on the upper side of the metal bottom sheet and surrounded by a metal edge lining connected to the frame, and that the edge lining (3) is bounded at the top by a T-beam (8, 9), secured to the web (9) of which a metal sheet (10) is disposed at the tops of the beams.

4,392,538

ADJUSTABLE HANDLE ASSEMBLY FOR WALK-BEHIND GARDEN IMPLEMENT

Gerold G. Goertzen, St. Anne, Ill., assignor to Roper Corporation, Kankakee, Ill.

Filed Jan. 29, 1981, Ser. No. 229,521

Int. Cl.³ B62D 51/04

U.S. Cl. 180-19 R

12 Claims

1. In a walk-behind garden implement, the combination comprising a horizontally extending frame including a base member, ground engaging wheels for supporting the frame, a unitary handle extending upwardly and rearwardly from said base member and having a lower end and an upper guiding end for manual guidance of the implement, a yoke of hollow construction interposed between the lower end of the handle and the base member and connected to them by respective handle and base pivot connections, the handle pivot connection having a horizontal axis for angular elevation of the handle with respect to the frame and said base pivot connection having a vertical axis for azimuthal swing of the handle with respect to the frame, a first latching means defining an arcuately arranged set of spaced recesses at the lower end of the handle for holding the handle rigidly at a selected elevation, a second latching

4,392,540

POWER STEERING DEVICE FOR A VEHICLE

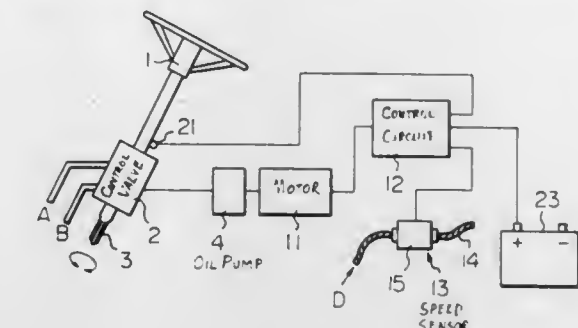
Abe Michio, Kasugai, and Maeda Naoyuki, Inuyama, both of Japan, assignors to Tokai TRW & Co., Ltd., Japan

Filed Dec. 31, 1980, Ser. No. 221,612

Claims priority, application Japan, Jul. 16, 1980, 55-96967
Int. Cl.³ B62D 5/06

U.S. Cl. 180-142

12 Claims



means defining an arcuately arranged set of spaced recesses in the base member for holding the handle rigidly at a selected azimuth, the latching means including separate latching members arranged alongside one another within the yoke and movable into simultaneous register with respective sets of recesses, means interposed between the latching members for biasing the

latching members in opposite directions into latching position, and means including a manually operated releasing member coupled to the said latch members for overcoming the force of bias and for temporarily disengaging the latching members thereby permitting the handle to be manually adjusted with respect to the frame to a more convenient elevation and azimuth.

4,392,539

INSTRUMENT PANEL WITH A YIELDABLE METER CASING

Takayuki Fujii, Saitama, and Hitoshi Suda, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

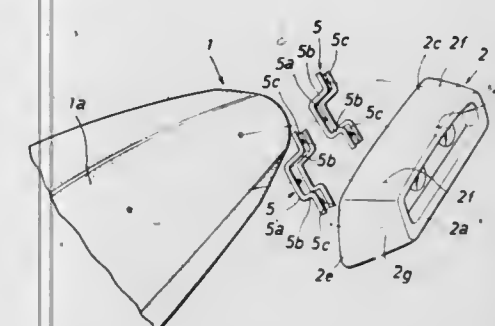
Filed Dec. 16, 1980, Ser. No. 216,941

Claims priority, application Japan, Dec. 17, 1979, 54-174450[U]

Int. Cl.³ B60R 21/04

U.S. Cl. 180-90

8 Claims



1. An instrument panel for vehicles, comprising: an instrument panel base mounted on a vehicle body; a substantially trough-shaped meter casing mounted on said instrument panel base; at least one stay disposed in said trough-shaped meter casing; said meter casing being provided with bosses extending inwardly within said trough-shaped meter casing toward said instrument panel base; said stay including a pair of leg portions substantially angularly inclined relative to a principal direction of impacts against said meter casing; said meter casing being fastened to said instrument panel base by said at least one stay at fastening portions of said meter casing defined by said bosses; and said angularly inclined leg portions of said stay being adapted to buckle when said meter casing is subjected to impacting forces.

4,392,541

VEHICLE CONVERTIBLE FROM A TRICYCLE TWO WHEEL DRIVE TO A FOUR WHEEL FOUR WHEEL DRIVE

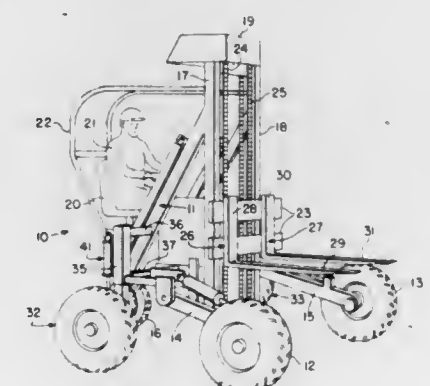
John Barchard, Crystal Lake, Ill., assignor to Spyder Sales & Service, Inc., Needville, Tex.

Filed May 1, 1981, Ser. No. 259,513

Int. Cl.³ B62D 61/012

U.S. Cl. 180-209

2 Claims



1. A vehicle of the tricycle wheel type in which transversely spaced apart wheels are located in the front of the vehicle and are rotatably driven to effect propulsion and steering of the vehicle, a caster wheel located generally centrally of the vehicle at the rear thereof, auxiliary wheels mounted on the rear of said vehicle and one spaced transversely outwardly on each side of said caster wheel, means moving said auxiliary wheels generally vertically relative to said vehicle so that they may be either spaced above the caster wheel or below the caster wheel, and means rotatably driving said auxiliary wheels there-

upon optionally having a two wheel drive tricycle vehicle or a four wheel drive vehicle, said means moving said auxiliary wheels generally vertically including a cylinder and piston means for extending and/or retracting said auxiliary wheels, and means for generally vertically guiding said wheels comprising a generally vertically fixed square tube and a square piston-like member telescoped within the bottom of said square tube.

4,392,542

DEVICE FOR PREVENTING DISPLACEMENT OF AN ENGINE IN A MOTORCYCLE

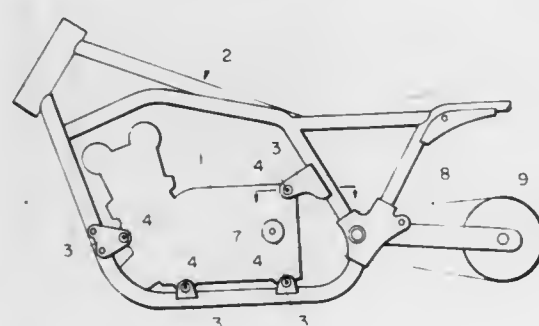
Yasuaki Aiba, Sakado, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 6, 1982, Ser. No. 337,554

Claims priority, application Japan, Jan. 9, 1981, 56/1488[U] Int. Cl.³ B60K 11/04, 5/12

U.S. Cl. 180—228

8 Claims



1. A device for preventing displacement of an engine in a motorcycle which includes an engine, a body frame, a driving chain transmitting an output of said engine to a rear wheel, and a plurality of brackets fixed to said body frame for mounting said engine thereon by a plurality of mounting bolts, said mounting bolts being supported by said brackets and extending along a transverse direction of said motorcycle, and said engine being formed with holes to allow extension of said mounting bolts, comprising:

- (a) a pair of rigid tubular members fitted about each of said mounting bolts, a member of said pair positioned adjacent to each end of said bolts, said tubular members having one end provided with a flange which defines a pair of stops abutable on an inner peripheral surface of said holes, and
- (b) a generally cylindrical anti-vibratory rubber member encircling each of said tubular members and secured thereto.

4,392,543

HYDROSTATIC TRANSMISSION CONTROL

Norman O. Buckhouse, Kansasville, Wis.; Aaron A. Stevens, Spring Hill, and Randall K. Lawrence, Fairview, both of Tenn., assignors to The Murray Ohio Manufacturing Co., Brentwood, Tenn.

Filed Feb. 26, 1981, Ser. No. 238,624

Int. Cl.³ B60K 20/00

U.S. Cl. 180—272

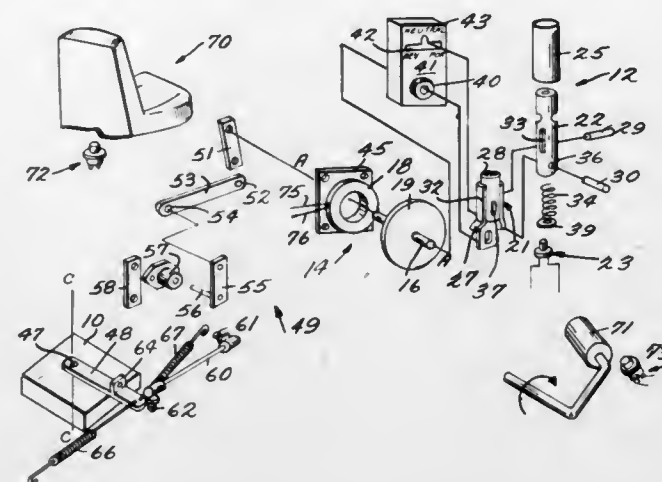
11 Claims

1. A speed control assembly for a motor or engine comprising:

- a speed control lever;
- a shaft for mounting said speed control lever for movement about a given axis;
- means operatively connected to said shaft for effecting speed control of a motor or engine in response to rotation of said shaft;
- means for latching said speed control lever in an infinite number of positions to which it is moved by pivotal movement thereof about said axis, said latching means comprising an annular electromagnet disposed in a plane perpendicular to said shaft axis of rotation, and a disc mounted on said shaft for rotation therewith and disposed in a plane perpendicular to said shaft axis of rotation and adjacent

said electromagnet, so that said electromagnet when energized exerts a latching force on said disc to hold it in place;

means for mounting said speed control lever for movement in a mode different from said pivotal movement thereof about said axis; and



electrical switch means connected in series with said electromagnet and responsive to movement of said speed control lever in said different mode for effecting de-energization of said electromagnet, and therefore unlatching of said control lever for pivotal movement about said axis, when said control lever is moved in said different mode.

4,392,544

CONTROLLER FOR ELECTRIC TRACTION MOTOR

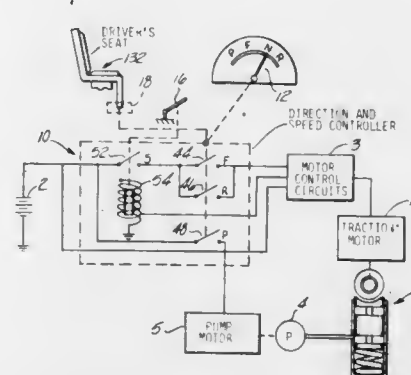
Guy L. Dilno, Plainwell, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Mar. 2, 1981, Ser. No. 239,284

Int. Cl.³ B60L 3/02

U.S. Cl. 180—273

8 Claims



1. A controller for use in a vehicle having an electric traction motor with forward and reverse drive means, a controller housing, control means adapted to be actuated for selecting forward and reverse drive, an actuator spool mounted in said housing and adapted for axial movement to neutral, forward and reverse positions, cam means on said spool for selectively actuating said control means, a manually actuatable selector member movable to neutral, forward or reverse positions and being operatively coupled with said actuator spool for axial movement thereof to corresponding positions for selective actuation of the control means by said cam means, detent means coacting between said spool and said housing for holding said spool in said forward or reverse position, bias means continuously urging said spool toward said neutral position, release means for releasing said detent means whereby said spool and said selector member are returned to said neutral position by said bias means,

and condition responsive means for actuating said release means.

4,392,545

ENGINE MOUNTING STRUCTURE FOR AN AUTOMOBILE BODY

Hayathugu Harasaki, and Wataru Tsutagawa, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

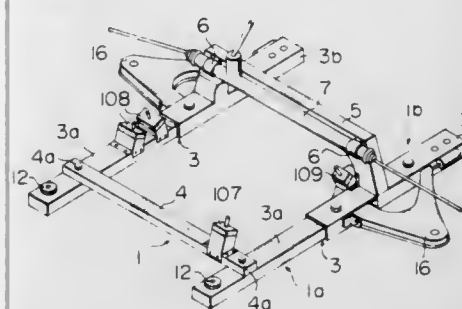
Filed Apr. 9, 1981, Ser. No. 252,594

Claims priority, application Japan, Apr. 12, 1980, 55-49733[U]

Int. Cl.³ B62P 21/12

U.S. Cl. 180—294

9 Claims



1. An automobile body including a front body section formed with an engine compartment, frame means provided in a lower portion of the engine compartment for mounting an engine, said frame means including a rear section secured to the body and extending forwardly into the engine compartment, and a front section having a front end portion removably attached through resilient means to the body and a rear end portion removably attached through second resilient means to the rear section, said engine being mounted on the front section of the frame means, suspension arms being swingably attached to the rear section, whereby said engine can be removed from the body together with the front section of the frame means.

4,392,546

SUSPENDED OPERATOR STATION

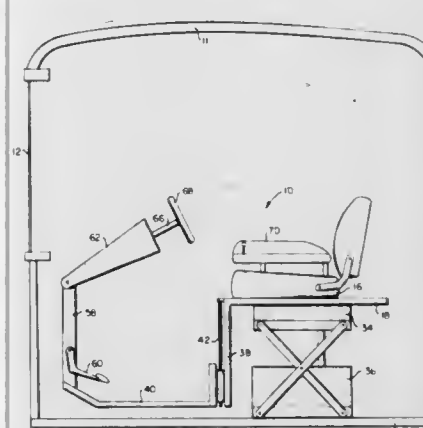
Ross K. Brown, Cedar Falls; Raymond D. Thompson, Waterloo; Terrill W. Woods; Darrell L. Wright, both of Cedar Falls, all of Iowa; James M. Conner, Old Greenwich, Conn.; William E. Crookes, Waldwick, N.J., and William F. Purcell, New York, both of N.Y., assignors to Deere & Company, Moline, Ill.

Filed Dec. 24, 1980, Ser. No. 219,986

Int. Cl.³ B62D 33/06

U.S. Cl. 180—326

22 Claims



22. A suspended operator station comprising the combination of:

- a cab having a windshield and a floor at fixed locations;
- a height adjustable support mounted on the cab floor;
- a platform mounted on the height adjustable support;
- at least one control coupled to the platform;
- a seat mounted on the platform;
- means coupled between the seat and the platform for permit-

ting adjustable fore-aft movement of the seat relative to the at least one control;

the height adjustable support positioning the platform and thereby the seat to dispose an operator at a desired location relative to the cab windshield and the means for permitting adjustable fore-aft movement of the seat positioning the seat at a desired location relative to the at least one control; and

an attenuator assembly disposed between the platform and the cab floor and operative to permit limited, attenuated movement of the platform and the included seat and at least one control relative to the height adjustable support substantially exclusively in a generally horizontal plane.

4,392,547

HEARING AID EARMOLDS

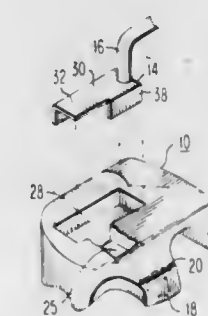
Lawrence K. Baker, Kane St., Box 818, Gate City, Va. 24251

Filed Jun. 11, 1981, Ser. No. 272,502

Int. Cl.³ H04R 25/00

U.S. Cl. 181—135

6 Claims



1. A hearing aid earmold for amplifying selected sound frequencies including a resonant chamber characterized as comprising at least two interconnected chamber sections, a first (25) of which is adapted to extend into the ear canal of the user, and a second (24) of which is disposed generally transversely of the first section and along an axis discontinuous therewith, the cross-sectional area of the interface between said two sections being not significantly less than that of said second section along a portion thereof adjacent to said interface, the resonant frequency of said chamber being a function of the combined lengths of said two sections.

4,392,548

SPEAKER ENCLOSURE AND METHOD OF PRODUCING SAME

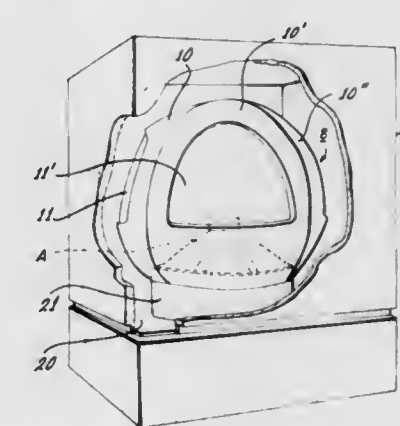
Gary C. Bailey, Burbank, Calif., assignor to Engineering Development Company, Burbank, Calif.

Filed Nov. 13, 1980, Ser. No. 206,471

Int. Cl.³ H04R 1/20

U.S. Cl. 181—156

9 Claims



1. An improved speaker enclosure for re-radiating biphasic sound radiating from a speaker supported and enclosed therein, comprising speaker mounting and enclosing means for combin-

ing and re-radiating back and front of speaker sound in a predetermined radiation pattern, back of speaker sound re-radiating means comprised of compliant material, said sound re-radiating means comprising a plurality of substantially airtight panels, connectable to a speaker so as to extend about and enclose the speaker in substantially airtight relationship, each panel including a high audio frequency wavefront transmitting portion, and means for elastically sealing and securing the plurality of panels to each other.

4,392,549

BOILER NOISE SUPPRESSOR

Stanislaw Wrobel, and Ryszard Wegrzyn, both of Gliwice, Poland, assignors to Instytut Chemii Nieorganicznej, Gliwice, Poland

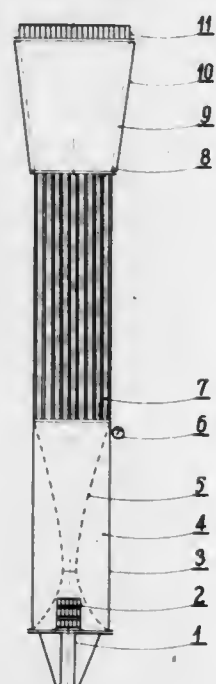
Filed Mar. 3, 1982, Ser. No. 354,446

Claims priority, application Poland, Mar. 10, 1981, 230087

Int. Cl.³ F01N 7/00

U.S. Cl. 181—239

5 Claims



1. A noise suppressor for exhaust steam from high-pressure industrial-power boilers comprising a cylinder with sound deadener packing and with a truss attached to the cover of an inlet flange by means of brackets spaced from the cover and with a clearance, a perforated expansion nozzle, a pipe system of several hundreds of pipes, a perforated outlet nozzle of an included angle of the cone, at least one truss with a clearance mounted on a collar of an inlet nozzle and preferably inside the nozzle and wherein the ratio of the diameter of an outer cylinder to the diameter of the inlet flange in the cover is from 3 to 5, the ratio of the length of a perforated outlet nozzle to the diameter or said outer cylinder is at least 1, with the ratio of the length of the perforated expansion nozzle to the diameter of the inlet flange being at least 12.

4,392,550

SCAFFOLDING ARRANGEMENT

Gaetan G. Bergeron, P.O. Box 1324, Assiniboia, Saskatchewan, Canada

Filed Apr. 24, 1981, Ser. No. 257,328

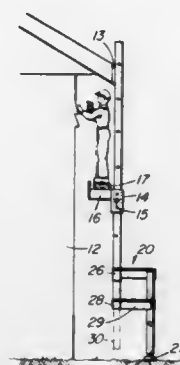
Int. Cl.³ E04G 1/18, 3/04

U.S. Cl. 182—82

7 Claims

1. A scaffold structure comprising:
(a) a pair of vertical posts;
(b) a pair of brackets, said brackets being slidably mounted on respective ones of said posts and each having a strut projecting therefrom to support a platform;
(c) means to lock the brackets on the respective posts at various selected vertical positions; and
(d) support secured to each post adjacent the lower end

thereof such that the bottom end of the post is out of contact with the ground, each said support comprising a pair of legs offset from one another in a first plane wherein said plane is offset from the post and means rigidly connecting each of said legs to the post associated therewith, said connecting means comprising an upper and lower pair of rigid members connected at one end to an open ended box section in which the post is securely fastened and at the other end rigidly secured to said legs.



4,392,551

DOSING DEVICE FOR FEEDING LUBRICANT TO FRICTION COUPLES

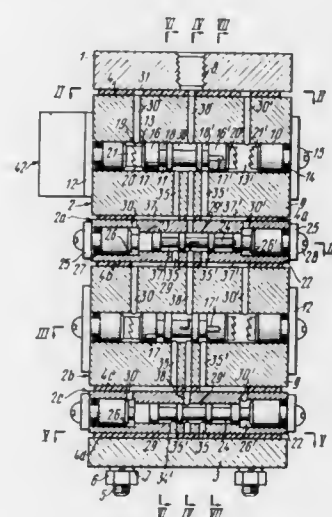
Viktor P. Buryakov, ulitsa generala Karpenko, 6, kv. 24, Nikolaev; Gennady M. Ivanov, ulitsa 26 Bakinskikh komissarov, 8, korpus 4, kv. 40, Moscow; Mikhail I. Kislik, ulitsa Kosmonavtov, 82, kv. 8, Nikolaev; Pavel M. Kurgansky, ulitsa Kosmonavtov, 73, kv. 13, Nikolaev; Mark B. Shmotkin, ulitsa B. Morskaya, 17, kv. 2, Nikolaev, and Eduard V. Eikhenvald, ulitsa Pljuschikha, 42, kv. 122, Moscow, all of U.S.S.R.

Filed Jul. 24, 1981, Ser. No. 286,685

Int. Cl.³ F16N 25/02

U.S. Cl. 184—7 D

16 Claims



1. A dosing device for feeding a lubricant to friction couples, comprising:

- a valveless head section;
- a plurality of distributing sections;
- a valveless end section, said sections being successively interconnected in the direction of the lubricant flow;
- a central supply duct provided in said valveless head section;
- each said distributing section having its respective housing;
- a through-going cylindrical chamber made in said housing of each said distributing section;
- a distributing slide valve with reduced-diameter relieved areas, accommodated for reciprocation in said through cylindrical chamber made in said housing of each said distributing section;
- two closures closing from the ends each said through cylindrical chamber, limiting the reciprocation of said respective

tive distributing slide valve and defining therewith two respective metering-out end chambers, each one of said two metering-out end chambers communicating with one of the relieved areas of said distributing slide valve of the preceding upstream one of said distributing sections in the direction of the lubricant flow;

a central through-going duct made in said housing of each said distributing section, extending normally to the axis of said cylindrical through chamber and intersecting it;

outlet ducts made in said housing of each said distributing section;

the inlets of said outlet ducts connected to said through cylindrical chamber made in said housing of each respective one of said distributing sections;

the outlets of said outlet ducts adapted to supply the lubricant to the friction couples, opening onto the external lateral surface of said housing of each respective one of said distributing sections;

means for rotating one of said distributing slide valves about the axis thereof through a predetermined angle and for retaining it in the thus rotated position, mounted on one of said distributing slide valves and provided in at least one of said distributing sections;

other outlet ducts made in said housing of said at least one section accommodating said distributing slide valve provided with said means for rotating it through a predetermined angle and retaining it in the thus rotated position; the inlets of said other outlet ducts belonging to a single plane and being uniformly angularly spaced about the perimeter of the cross-section of the wall of said through cylindrical chamber, with the geometric axes of said inlets dividing the circumference of the cross-section of said cylindrical chamber into predetermined angles; the outlets of said other outlet ducts belonging to a single plane normal to the axis of said through cylindrical chamber and opening onto the lateral surfaces of said distributing section;

two distributing passages made each in the shoulder portion of at least one of said distributing slide valves provided with said means for rotating it through a predetermined angle and for retaining it in the thus rotated position, facing the respective one of said two metering-out end chambers, the inlet of each one of said distributing passages communicating with the relieved area of said respective slide valve, and the outlet of each one of said two distributing passages opening onto the external surface of the shoulder portion of said respective distributing slide valve; said outlet of one of said distributing passages communicating with one of said inlets of said outlet ducts in the extreme position of reciprocation of said respective slide valve, while said outlet of the other one of said distributing passages is accommodated intermediate said inlets of said outlet ducts in the same aforementioned position of said respective distributing slide valve; means for monitoring the axial and angular positions of said distributing slide valve, mounted on one of said distributing sections and operatively connected with said distributing slide valve.

4,392,552

DRAIN PAN FOR RADIATORS AND COOLING SYSTEMS

Joshua Partridge, 4020 Harlan St., Emeryville, Calif. 94608
Continuation-in-part of Ser. No. 104,009, Dec. 17, 1979, Pat. No. 4,315,561. This application Mar. 3, 1981, Ser. No. 240,091

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

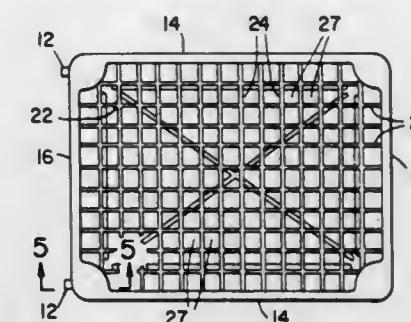
Int. Cl.³ F16N 31/00; B65D 1/24

U.S. Cl. 184—106

10 Claims

1. A drain receptacle for receiving effluent from a vehicle, comprising a pan having a base panel, a plurality of sidewalls extending upwardly from the perimeter of said base panel and formed integrally therewith, said side walls extending continuously about said base panel and defining therewith an up-

wardly opening coffer, said base panel including shoulder portions extending upwardly into said coffer and disposed in longitudinal fashion along said side wall, lattice means disposed in said coffer for attenuating and arresting wave motion in and spattering from liquid contained in said coffer, said



4,392,553

TWO HAND SCANNING CHECK-OUT COUNTER

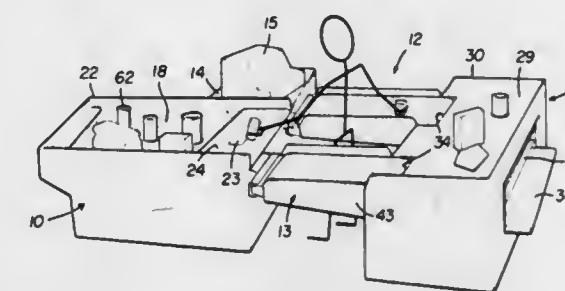
Stephen W. Foster, North Java, N.Y., assignor to Almor Corporation, Ferndale, Mich.

Filed Jan. 30, 1981, Ser. No. 229,958

Int. Cl.³ A47F 9/04

U.S. Cl. 186—61

1 Claim



1. A supermarket-type check-out counter comprising:

- a relatively narrow, elongated, forward unloading module having an endless conveyor belt forming an upper, merchandise conveying surface for automatically moving goods from the forward end towards the rear end of the forward module;
- a flat plate-like surface located rearwardly of the conveyor belt at the rear end of the forward module for forming a continuation of the module conveying surface;
- an indicia scanning means located at the flat plate-like surface for sensing indicia imprinted upon goods which are slid over the flat surface, said scanning means arranged below said flat plate-like surface for scanning through a window-like area in said flat surface;
- a relatively wide, rear bagging module, spaced a considerable distance rearwardly of the forward module, with the central longitudinal axes of the modules being in alignment, so that both opposite sides of the rear module extend transversely a greater distance than the corresponding sides of the forward module;
- the upper surface of the rear module forming a merchandise receiving surface for use in placing goods located thereon into bags;
- a pair of transversely spaced apart, elongated, side conveyor surfaces bridging the space between the forward and rear modules and with the opposite ends of said conveyor surfaces opening into their adjacent module ends, said side conveyors each being formed of an endless conveyor belt mounted upon a support frame means for providing con-

tinuously moving upper belt surfaces for automatically conveying goods to the bagging module merchandise receiving surface;

at least one of said side conveyor surfaces being hingedly connected to one module and releasably secured to the opposite module so that it may be manually movable out of normal position for providing ingress and egress for a check-out operator who is normally positioned in the space between the modules and side conveyor surfaces; and the longitudinal axis of each of said side belts being transversely offset relative to the longitudinal axis of the unloading module belt, so that only a portion of the forward areas of each side belt transversely overlaps the adjacent side portion of the flat plate-like surface; whereby goods unloaded by the customer upon the forward module conveyor belt are moved rearwardly to the operator who, using both hands, slides the goods across the flat surface for scanning the indicia, and then rearwardly and sidewardly upon either of the two side conveyor surfaces, along which surfaces the goods are moved to the rear module merchandise receiving surface for subsequent placement into bags.

4,392,554

LIFT MAST ASSEMBLY

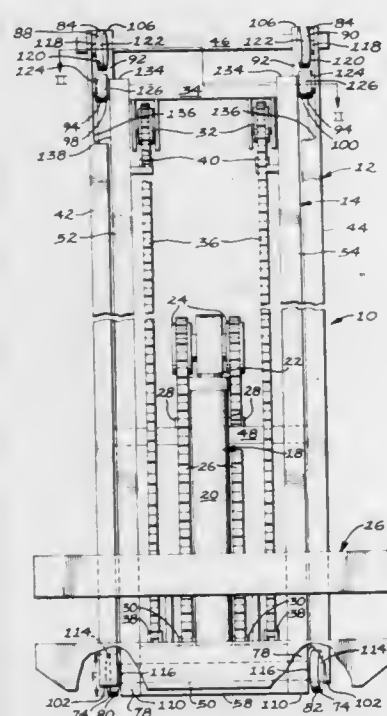
James W. Russey, Chardon, Ohio, assignor to Towmotor Corporation, Mentor, Ohio
PCT No. PCT/US81/01422, § 371 Date Oct. 23, 1981, § 102(e)
Date Oct. 23, 1981, PCT Pub. No. WO83/01434, PCT Pub.
Date Apr. 28, 1983

PCT Filed Oct. 23, 1981, Ser. No. 322,301

Int. Cl.³ B66B 9/20

U.S. Cl. 187—9 E

21 Claims



1. In a lift mast assembly (10) having a fixed upright (42) and a movable upright (52) mounted on said fixed upright (42) and elevationally movable relative thereto, said fixed upright (42) having first (60) and second (62) spaced apart elongate flanges and an upper (92) end portion, said movable upright (52) having first (66) and second (68) spaced apart elongate flanges and a lower (78) end portion, said movable upright (52) having a lower guide bearing (80) mounted on the lower end portion (78) thereof and contactably engaged with one of the first and second spaced apart flanges (60,62) of said fixed upright (42), and said fixed upright (42) having an upper guide bearing (88) mounted on the upper end portion (92) thereof; the improvement comprising:

an intermediate guide bearing (98) mounted on said fixed upright (42) at the upper end portion (92) thereof at a preselected elevationally spaced distance ("D") from said

upper guide bearing (88) and between said upper (88) and lower (80) guide bearings;

said movable upright (52) being elevationally movable a first preselected distance, between a lowered position and an intermediate position, at which one of said first and second spaced apart elongate flanges (66,68) of the movable upright (52) is contactably engaged with the intermediate guide bearing (98) and said first and second spaced apart elongate flanges (66,68) of the movable upright (52) are free from contact with said upper guide bearing (88); and said movable upright (52) being elevationally movable a second preselected distance, between said intermediate position and a fully raised position, at which one of said first and second spaced apart elongate flanges (66,68) of said movable upright (52) is contactably engaged with the upper guide bearing (88) and both of the first and second spaced apart elongate flanges (66,68) of the movable upright (52) are free from contact with the intermediate guide bearing (98).

4,392,555

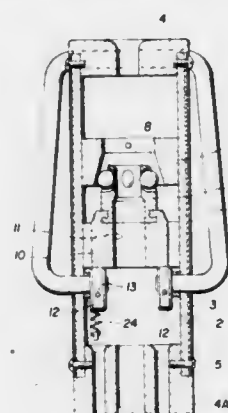
FALL PROTECTION DEVICE

J. Nigel Ellis, 306 Country Club Dr., Wilmington, Del. 19803
Filed May 4, 1981, Ser. No. 260,205

Int. Cl.³ B65H 59/14

U.S. Cl. 188—65.1

2 Claims



1. In a fall protection safety device comprising:

(1) an elongated tubular housing having an upper open end, a lower open end, and an elongate volume therebetween;

(2) an upper end guide block having a centrally located opening therein, said upper end guide block being secured to said upper open end of the housing;

(3) a lower end guide block having a centrally located opening therein, said lower end guide block being secured to said lower end of the housing, said upper and lower end guide block openings defining a central passageway through which a safety line may be threaded;

(4) a wedging ring having a centrally located conical bore, said wedging ring being secured within the elongate volume;

(5) an axially movable line-gripping means for gripping a safety line upon movement upwardly within the conical bore of the wedging ring, said axially movable line-gripping means being associated with an axially movable piston having a centrally located opening and an outer surface adjacent to and circumscribed by the inner surface of said elongate tubular housing; and,

(6) moving means for moving the axially movable piston and the associated line-gripping means upwardly within the conical bore of the wedging ring;

the improvement which comprises:

(7) a serrated outer piston surface on said axially movable piston; and,

(8) a plurality of openings spaced apart from and around the centrally located opening of said lower end guide.

4,392,556

ACTUATOR LOCKING DEVICE

Edward J. Deutsch, Bellmore, N.Y., assignor to Arkwin Industries, Inc., Westbury, N.Y.

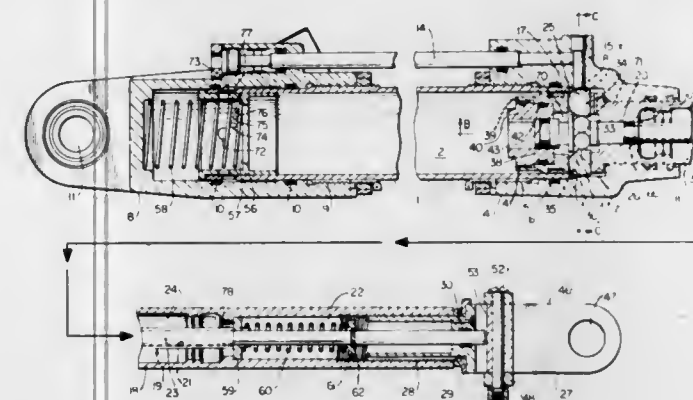
Division of Ser. No. 936,788, Aug. 25, 1978, Pat. No. 4,240,332.

This application Aug. 5, 1980, Ser. No. 175,419

Int. Cl.³ F01B 25/26

U.S. Cl. 188—67

5 Claims



1. A device for locking a fluid pressure actuator in the extend position and unlocking it from such position by actuating detents, comprising cage means, a pair of rollers retained within said cage means, said rollers including elongated cylindrical members parallel and contiguous one another, said rollers retained by said cage means in alignment normal to the axial center line of the actuator, an unlocking rod extending from one end of said cage means along said actuator center line, a rod extension extending from the opposite end of said cage means along said actuator center line, sealing means on said unlocking rod and said rod extension, means on said unlocking rod retaining one end of an axially positioned spring, said spring normally urging said unlocking rod, cage means, rollers and rod extension in an extended direction along said actuator center line with said actuator in an extend position whereby said rollers urge said detents into a locked condition, and said rod extension having a diameter at its sealing means greater than that of said unlocking rod at its sealing means.

4,392,557

MECHANICAL ACTUATING DEVICE FOR A SPOT-TYPE DISC BRAKE

Helmut Franke, Wehrheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

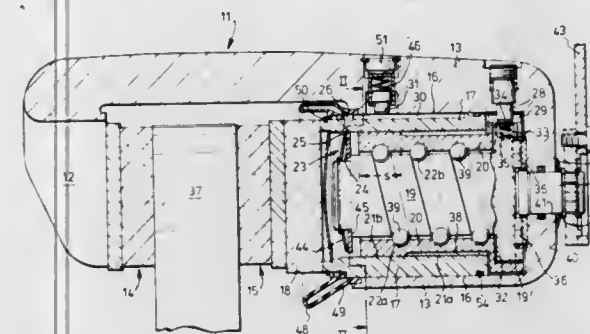
Filed Oct. 23, 1980, Ser. No. 199,907

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1979, 2946853

Int. Cl.³ F16D 65/52, 65/16

U.S. Cl. 188—71.9

48 Claims



1. A mechanical actuating device for a spot-type disc brake comprising:

a brake caliper embracing the outer periphery of a brake disc; said caliper including at least one axial cylindrical bore;

a hollow substantially cylindrical brake piston disposed in said axial bore acting on one brake shoe of said disc brake; an actuating spindle disposed coaxially in said brake piston

and adapted to be turned around its axis by an actuating means coupled thereto;

an actuating nut disposed coaxially in said brake piston between said brake piston and said actuating spindle and in a cooperating relationship with said actuating spindle, said actuating nut having on a portion of the outer surface thereof a first thread engaging a second thread associated with said brake piston, said actuating nut being secured to prevent rotation thereof by a rotation-preventing means; and

an automatic brake clearance adjusting device for said brake piston including said first and second threads and a clutch device coupled to said spindle to accomplish an axial adjustment of said brake piston when a predetermined nominal brake clearance has been exceeded upon actuation of said disc brake.

4,392,558

ACTUATOR MECHANISMS FOR VEHICLE BRAKES

Helmut Heibel, Moschheim, Fed. Rep. of Germany, assignor to Lucas Industries Limited, Birmingham, England

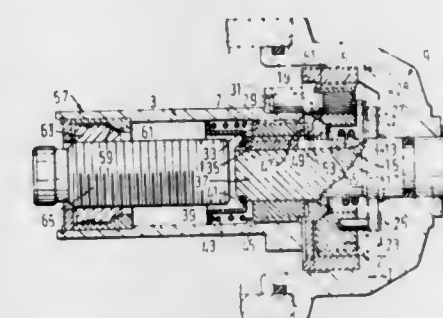
Filed Apr. 6, 1981, Ser. No. 251,706

Claims priority, application United Kingdom, Apr. 22, 1980, 8013192

Int. Cl.³ F16D 65/30

U.S. Cl. 188—72.7

10 Claims



1. An actuator mechanism for a vehicle brake, comprising an axially rotatable actuator shaft and an actuator member which, in use, can be moved to actuate a brake, the actuator shaft and actuator member being interconnected by an assembly which comprises a first fast thread and a second fast thread, said first thread having a greater pitch angle than said second thread and having an operative connection with said actuator member to, in use, move the actuator member to take up any slack until friction surfaces of a brake interengage, said second thread having an operative connection with said actuator member to, in use, subsequently move the actuator member to apply the brake, a spring being coiled around the actuator shaft, one end of the spring being keyed to the shaft and the other end of the spring abutting a projection from an annular member, the annular member being mounted coaxially with the actuator shaft, a toothed disc mounted coaxially and non-rotatably on said actuator shaft being connected by a pin abutment to the annular member, the outer periphery of said annular member engaging with a fixed outer annular member by said first fast thread.

4,392,559

DISC BRAKE HAVING SLIDABLY MOUNTED CALIPER WITH FRICTION PAD SUPPORTING MEMBER PROVIDED THEREON

Harumi Oshima, Kawasaki, Japan, assignor to Tokico Ltd., Kawasaki, Japan

Filed Feb. 10, 1981, Ser. No. 233,208

Claims priority, application Japan, Feb. 16, 1980, 55-19013[U]; Feb. 16, 1980, 55-19014

Int. Cl.³ F16D 55/224, 65/04

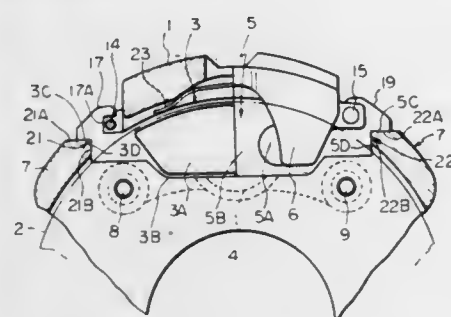
U.S. Cl. 188—73.32

5 Claims

1. A disc brake mountable on a stationary member integral with a non-rotatable part of a vehicle and having spaced apart

arm portions, each arm portion having a horizontally extending guide and support surface and a vertically extending support and torque receiving surface, said disc brake being used for braking rotation of a rotatable disc and comprising:

- a caliper having limb portions and being adapted to be slidably mounted on the stationary member which is integral with a non-rotatable part of a vehicle;
- a pair of friction pads, each friction pad having downwardly facing guide surfaces positionable in contact with the horizontally extending guide and support surfaces of said arm portions of said stationary member and a torque transmitting surface for transmitting braking torque to the vertically extending support and torque receiving surfaces of said arm portions of said stationary member;
- a brake actuator provided in one limb portion of the caliper for pressing one friction pad against one surface of the rotatable disc; and



a pad supporting member provided on the caliper for supporting said friction pads on the caliper when the caliper and friction pads are not mounted on the stationary member, and, when the disc brake is mounted on the stationary member, the relationship between the friction pads and said pad supporting member being such that:

the friction pads are slidably guided and supported on the horizontally-extending guide and support surfaces of the stationary member so that braking torque on the friction pads is directly transmitted to the vertically extending support and torque receiving surfaces of the stationary member; and

said pad supporting member is free from contact with the friction pads so that any braking force applied to the pads is transmitted only between the friction pads and stationary member.

4,392,560

DISC BRAKE WITH A CALIPER SUPPORTED BY SLIDE PINS

Kei Nakasu; Shigeru Ichikawa; Toshihiko Tanaka, all of Toyota, and Mitsuo Ikeda, Chiryu, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha, both of Aichi, Japan

Filed Jun. 15, 1981, Ser. No. 273,321

Claims priority, application Japan, Jul. 2, 1980, 55-92954[U]
Int. Cl.³ F16D 65/09

U.S. Cl. 188—73.34

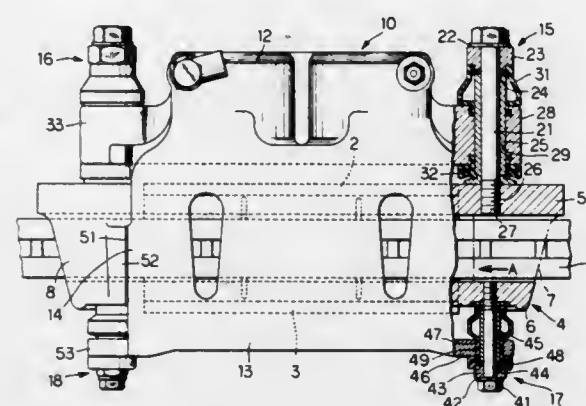
16 Claims

1. A disc brake comprising:

- a disc rotor;
- a pair of pad assemblies disposed on opposite first and second sides of said disc rotor;
- a stationary torque receiving member including first and second plate portions disposed on said first and second sides of the disc rotor respectively and supporting said pair of pad assemblies slidably in a direction parallel to the axis of rotation of said disc rotor, said torque receiving member further including a pair of connecting portions connecting said plate portions across the outer periphery of said disc rotor;
- a caliper including a fluid pressure cylinder portion facing one of said pad assemblies disposed on said first side of the disc rotor, a reaction portion facing the other of said pad assemblies disposed on said second side of the disc rotor, and a bridge portion connecting said cylinder portion and

said reaction portion, said caliper straddling said pair of pad assemblies, said plate portions of the torque receiving member and said disc rotor for urging said pad assemblies onto opposite surfaces of said disc rotor on said first and second sides; and

first, second, third and fourth slide pins supporting said caliper slidably along said axis of rotation and partly fitted in first, second, third and fourth fit-bores respectively, said first and second slide pins extending from said first plate portion axially outwardly of said disc rotor and said third and fourth slide pins extending from said second plate portion axially outwardly of said disc rotor, said first and third slide pins being disposed co-axially with each other and constituting a first pair, said second and fourth slide



pins being disposed co-axially with each other and constituting a second pair, each one of at least said first pair of slide pins including a sleeve and a bolt, said bolt being fixed at one end thereof to the respective one of said first and second plate portions and having at the other end thereof an easily accessible head engageable with a wrench tool to remove said bolt to pivot said caliper about said second pair of slide pins for replacement of said pad assemblies, at least one of said first and second slide pins acting as a main slide pin which chiefly controls orientation of said caliper relative to said torque receiving member and the remaining slide pins each acting as an auxiliary slide pin which has less caliper orientation capability than said main pin.

4,392,561

DISC BRAKE

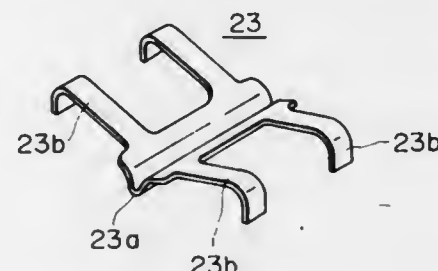
Mamoru Watanabe, Tokyo, Japan, assignor to Watanabe Engineering Co., Ltd., Tokyo, Japan

Filed Jun. 17, 1980, Ser. No. 160,235

Claims priority, application Japan, Jun. 28, 1979, 54-88653[U]
Int. Cl.³ F16D 65/00

U.S. Cl. 188—73.36

4 Claims



1. A disc brake having a structure for supporting first and second friction pads mounted on backing plates, comprising a caliper body including a bridge section extending over a disc and first and second arm sections depending on either side of said pads, each arm section having a torque receiving portion with a horizontal shoulder, and a pad spring for resiliently holding the upper portions of the friction pads to come in pressure contact with the sliding plane of the disc, said friction pad backing plates comprising supports resting on said shoulder

ders and means for contacting said spring, each said contacting means comprising at least one upwardly extending projection defining a non-centered side wall, said pad spring comprising a generally H-shaped, in plan view, unitary leaf spring having a longitudinal central body portion spanning said disc and said first and second pads, said central body portion being downwardly bent to form a depending longitudinal rib, and a pair of oppositely outwardly extending arms at each end of said central body portion, each arm terminating in a depending finger, said fingers being resiliently caused to engage fixedly with the inner side walls of said bridge section, and said rib being kept in contact with at least said side wall of said projection positioned on the side out of which the disc rotates, whereby said friction pads are held under pressure against the torque-receiving portions of a bracket, located out of which the disc rotates, and are forced in the direction of the rotating shaft of the disc.

4,392,562

LIMITED BEND MALLEABLE PENILE PROSTHESIS

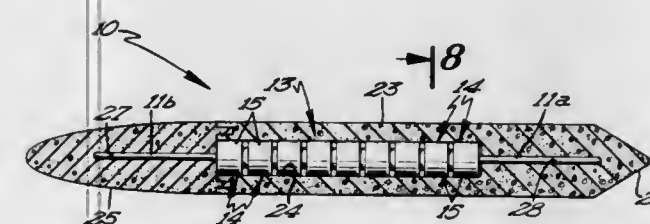
John H. Burton, Minnetonka, and Michael A. Mikulich, St. Paul, both of Minn., assignors to American Medical Systems, Inc., St. Louis Park, Minn.

Filed Jun. 19, 1981, Ser. No. 275,288

Int. Cl.³ A61F 5/00

U.S. Cl. 128—79

11 Claims



1. A prosthesis adapted to be implanted in a penis, comprising:

- at least one elongate, malleable element adapted to be selectively conformed to a desired shape,
- an elongate, bend-limiting means positioned in cooperative juxtaposition with said malleable element, along at least a portion of its length said bend-limiting means having a plurality of adjacent elements which engage each other when a predetermined bending radius is reached as the prosthesis is bent, to limit the bending thereof; and,
- an elongate, physiologically inert envelope covering said bend-limiting member and said malleable element.

4,392,563

BRAKE MECHANISM FOR MATERIAL HANDLING SYSTEM

Lee Holman, 505 Cuesta Dr., Aptos, Calif. 95003

Continuation of Ser. No. 136,178, Mar. 31, 1980, abandoned.

This application Nov. 16, 1981, Ser. No. 321,182

Int. Cl.³ B65G 11/00

U.S. Cl. 193—10

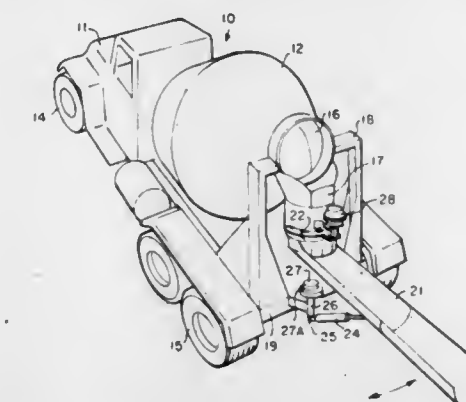
1 Claim

1. An unloading system for a cement carrying truck wherein cement is carried in a drum and emptied therefrom through a rear opening, said unloading system comprising:

- a dispensing funnel supported on said truck and comprising a vertically extending cylindrical section positioned to receive and transport cement from said drum rear opening;
- an elongated chute for carrying cement from said funnel; means supporting one end of said chute in a position to receive cement from said funnel with the chute being rotatable in a generally horizontal plane about the cylindrical section of said funnel and to the rear of said truck; and
- energizable brake means for locking said chute in any of

said positions about said funnel cylindrical section comprising:

- a flange fixed to said chute and extending partially around and normal to said funnel cylindrical section to move around said funnel with said chute as it is rotated; and



brake mechanism fixed to said funnel and including clamping means to squeeze said flange when said brake mechanism is energized thereby stopping and holding said chute in any selected horizontal position to which it is rotated.

4,392,564

TOTAL SALES SUMMING DEVICE FOR A VENDING MACHINE

Yukichi Hayashi, Sakado, Japan, assignor to Kabushiki Kaisha Nippon Coinco, Tokyo, Japan

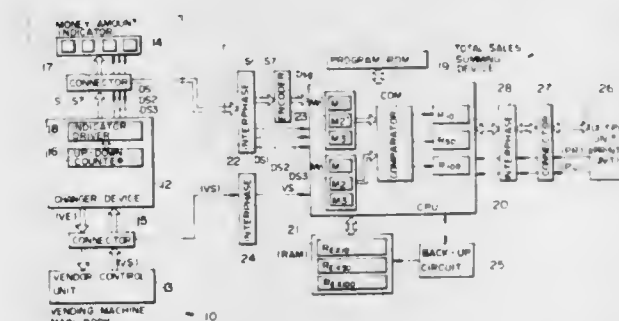
Filed Feb. 11, 1981, Ser. No. 233,462

Claims priority, application Japan, Feb. 14, 1980, 55-16965; Mar. 18, 1980, 55-33506[U]

Int. Cl.³ G07F 5/22

U.S. Cl. 194—1 N

11 Claims



1. A total sales summing device for a vending machine, which vending machine includes counter means for cumulatively adding amounts of deposited coins and subtracting a vend price of a vended article and an amount of a paid out coin to obtain a balance of the amount of the deposited coins, characterized in that said summing device comprises:

- first means for detecting increment and decrement in the balance of the deposited coins obtained by said counter means;
- second means for conducting count-up or count-down in accordance with the increment or decrement in the balance of the deposited coins upon the detection by said first means; and

third means for substantially prohibiting counting by said second means of decrement of the balance if the decrement has been caused by subtraction for collecting a vend price; a sales amount being obtained by said second means by counting up and down only increment and decrement in the balance caused by deposition and paying out of a coin.

4,392,565

HOLDING DEVICE FOR A HOLLOW BODY WITH AN OPEN END AND A PIVOTAL HANDLE FOR PRINTING THEREON IN A PRINTING MACHINE

Karl Strauch, Kirchleugern, Fed. Rep. of Germany, assignor to Werner Kammann Maschinenfabrik GmbH, Bunde, Fed. Rep. of Germany

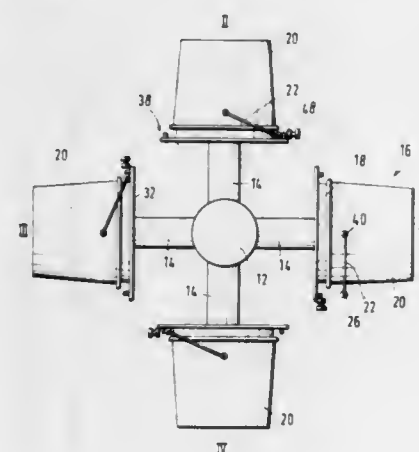
Filed Aug. 26, 1981, Ser. No. 296,503

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1980, 3033736

Int. Cl.³ B65G 17/32

U.S. Cl. 198—378

22 Claims



1. A holding device for a hollow body which is open at a first end and which is provided with a handle mounted pivotally thereon, to be printed upon in a rotary printing machine, the handle having an apex region which in the course of pivotal movement about its mounting on the hollow body experiences a change in its distance from the axis of the hollow body, the holding device comprising at least one shaft and a rotatable mounting member carried by the shaft, for holding a said hollow body, wherein at an end which is towards the shaft, the mounting member is provided with at least one locking member which is movable with respect to said hollow body carried by the mounting member and which is adapted to be brought into engagement with said apex region of the handle, thereby defining an operative locking position, and wherein the locking member is adapted to be moved from its locking position into another position in which it lies out of the arcuate path of movement described by the said apex region in the course of pivotal movement of the handle, and wherein a support member is arranged to rotate with the mounting member and carries the locking member and in the operative position of the locking member serves as an abutment for said apex region and aligns same relative to the locking member.

4,392,566

BULK MATERIAL HANDLING AND RECLAIMING EQUIPMENT

William H. Tschantz, Canton, Ohio, assignor to Quadracast, Inc., Canton, Ohio

Filed Jul. 29, 1981, Ser. No. 288,029

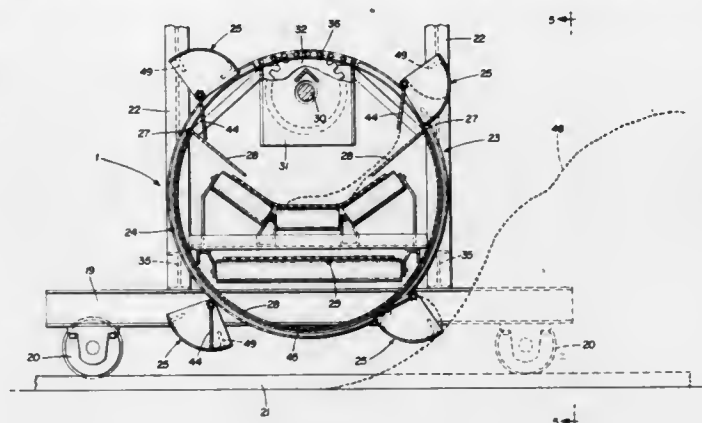
Int. Cl.³ B65G 17/36

U.S. Cl. 198—509

10 Claims

1. Reclaimer construction for reclaiming bulk material from mounds thereof in storage areas of the type in which the mounds extend in rectilinearly or arcuately formed mounds of stacked bulk material; including frame means having spaced upright end support members; a cage extending longitudinally between and supported on said end support members; means for moving the frame means and cage in either direction laterally of the cage toward a mound of stacked bulk material; the cage including channel track means having members extending at spaced intervals endlessly around the cage and defining the periphery of the cage; said spaced track members being formed by channel ribs opening outwardly and extending semicircularly around at least the lower portion of the cage; curved wall

members connected between adjacent pairs of channel ribs terminating in edges at each side of the cage extending longitudinally of the cage; baffle walls extending downwardly inwardly longitudinally of the cage from said upper curved wall edges; an endless belt conveyor extending longitudinally below the baffle walls from one cage end to a conveyor discharge end at the other end of the cage; a chain extending along each track member for movement in an endless orbit of



travel along said track means; means for moving said chains in either direction in said orbit of travel; a series of buckets pivotally mounted on said chains at spaced intervals extending between each adjacent pair of chains; the buckets in one series being mounted in staggered locations with respect to the buckets in the next adjacent series of buckets; and means for releasing material scooped by the buckets from each bucket as it moves upward along one side of the cage past an upper cage curved wall edge.

4,392,567

FEEDER OF BULK MATERIALS

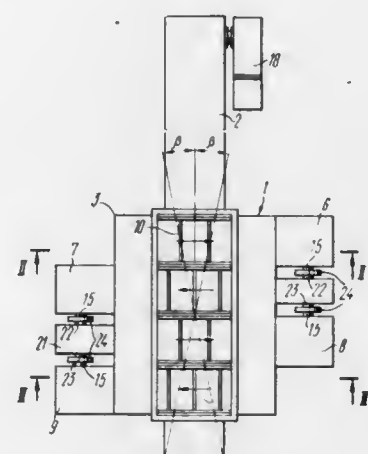
Vladimir P. Glebov, ulitsa adm. Makarova 43, korpus 1, kv. 76; Georgy V. Krivtsov, Bakuninskaya ulitsa, 77, kv. 28; Jury V. Danchenkov, ulitsa Lesteva, 15, Kkorpus 2, kv. 57, all of Moscow; Sergei A. Khukhry, ulitsa Studencheskaya, 11, kv. 34, and Sergei G. Schepotin, ulitsa Gogolya, 17, kv. 37, both of Syzran, all of U.S.S.R.

Filed Nov. 12, 1980, Ser. No. 206,013

Int. Cl.³ B65G 47/04

U.S. Cl. 198—544

13 Claims



1. A feeder of bulk materials comprising: a conveyor; a batcher having a case separated into at least three sections positioned above the conveyor; a band encompassed within each said section serving to transfer bulk material; shafts positioned in said sections for driving said bands; drive means for driving a shaft of one of said bands in one of said sections in a first direction and for driving shafts of bands in others of said sections in a direction opposite said first direction, with said section using said band moving in said first direction being arranged between said sections using said bands moving in the

opposite direction of movement, said drive means including a common drive for all shafts of bands moving in the same direction of movement, said common drives having output shafts coupled with shafts of said sections through clutches serving for coupling and uncoupling of said drives and said shafts; receiver tube means adapted for receiving bulk material disposed in a top part of said case of said batcher and for supplying the received bulk material to said sections; and outlet tube means located in a bottom part of said case of said batcher above said conveyor so that bulk material is supplied from said batcher through said outlet tube means to said conveyor.

4,392,568

LIVE ROLLER CONVEYOR

Harold L. Turnbough, St. Louis, and Charles W. Wernitz, Ferguson, both of Mo., assignors to Alvey Inc., St. Louis, Mo.

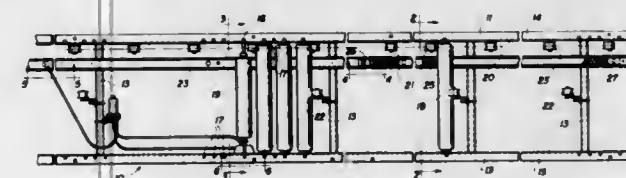
Continuation of Ser. No. 917,788, Jun. 22, 1978, abandoned.

This application Dec. 10, 1979, Ser. No. 102,270

Int. Cl.³ B65G 13/06

U.S. Cl. 198—781

5 Claims



1. A roller conveyor comprising: a plurality of spaced apart and generally parallel article supporting rollers forming an article conveying path; drive means in said conveyor beneath said plurality of rollers and normally engaged therewith to drive said rollers collectively and thereby move articles along the conveying path; expansible chamber brake means in said conveyor spaced from a predetermined group of said rollers, said predetermined group of rollers occupying a length of the conveying path sufficient to support articles spanning a distance substantially equal in length to said expansible chamber brake means; a source of fluid pressure; article sensing means in said conveying path in position for sensing article movement along said conveying path down stream from the location of said expansible chamber brake means; and timing means operated by said article sensing means and connected to said source of fluid pressure and to said expansible chamber brake means, said timing means being operable following the passage of a predetermined time period in the determination by said sensing means of an interruption in the article movement therebeyond for applying fluid pressure to said expansible chamber brake means to raise said predetermined group of rollers away from said drive means and thereby interrupt the article conveying drive imparted to said predetermined group of rollers after said predetermined time period has passed for stopping article movement beyond said predetermined group of rollers, said fluid pressure applying means being inoperable to supply the fluid pressure to said expansible chamber brake means to raise said rollers away from engagement with said drive means upon article movement out of position in which the presence thereof is determined by said sensing means prior to the expiration of said predetermined time period.

4,392,569

SOFT CONTACT LENS ASEPTICIZING CASE

Leo E. Shoup, 125 N. Mt. Vernon St., Prescott, Ariz. 86301

Continuation of Ser. No. 30,188, Jun. 6, 1979, abandoned. This application Jan. 15, 1982, Ser. No. 339,598

Int. Cl.³ B65D 85/00; B08B 3/10; B65D 85/38; A45C 11/04; A61F 9/00

U.S. Cl. 206—5.1

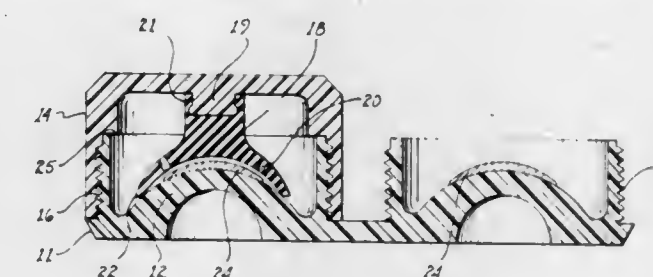
5 Claims

1. A soft contact lens aseptizing case comprising:
(a) a base member having a surface containing two spaced central raised portions for receiving a contact lens thereon

and an upstanding wall member surrounding each said central portion, said wall member having a height greater than the height of said central portion whereby the addition of fluid to said base member enables the central portion to be covered with fluid;

(b) sealing cap means for engaging each wall member and establishing a fluid-tight contact therewith;

(c) means contained on each sealing cap means for permitting the attachment of an internal guide thereto; and



(d) flexible internal guide means for attachment to each of said cap means, said guide means extending downwardly from said cap means to each central raised portion of said base member for maintaining a soft contact lens thereon, said guide means being spaced from said lens and containing at least one fluid passage therein to permit fluid to contact said lens.

4,392,570

AQUARIUM NET ASSEMBLY AND PACKAGING THEREFORE

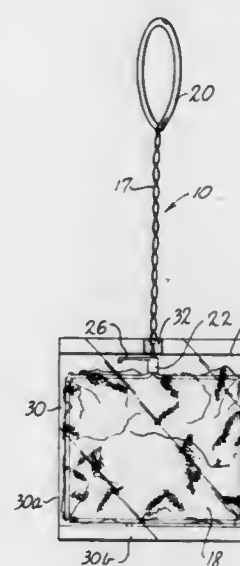
Allan H. Willinger, Englewood, N.J., assignor to Willinger Bros. Inc., Englewood, N.J.

Filed Oct. 19, 1981, Ser. No. 312,221

Int. Cl.³ B65D 69/00

U.S. Cl. 206—231

1 Claim



1. An aquarium net assembly comprising an aquarium net including a frame mounted netting sack and an elongated wand extending from said frame, a suspension bracket mounted on said wand for movement along the longitudinal axis of said wand for rotation about the axis said suspension bracket, comprising a sleeve frictionally engaged about said wand and an arm extending from said sleeve, said arm terminating in a downwardly extending lip in combination with a flat bag-like enclosure for said assembly within which said frame mounted net and said bracket is received, said bracket being disposed adjacent to the frame and having its arm in alignment with the plane of the frame thus constituting a flat packaged fish net assembly.

4,392,571

DEVICE FOR DISPLAYING AND MARKING FOODS OR THE LIKETrude-Helga Heidt-Cizerle, Bertholdstrasse 17, D7518 Bretten
1, Fed. Rep. of Germany

Continuation of Ser. No. 129,891, Mar. 13, 1980, abandoned.

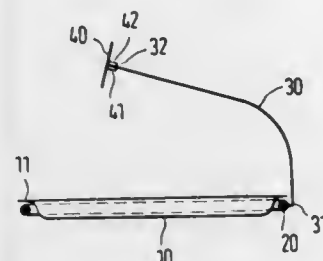
This application Nov. 10, 1981, Ser. No. 319,965

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1979, 2910649

Int. Cl.³ B65D 1/34

U.S. Cl. 206—557

16 Claims



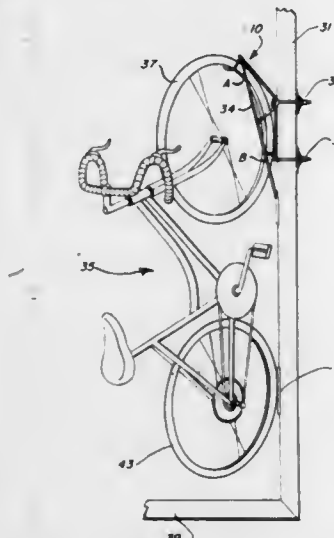
1. Device for displaying and marking articles such as foods or the like comprising a flat rectangular tray (10) having a horizontally extending edge (11), and provided with a holder for receiving said tray, said holder having a carrying handle, characterized in that said holder (20, 22) is constructed in the shape of a flat rectangular frame which forms a receptacle for depositing said tray (10) with said edge resting on said rectangular frame; that said frame has the same cross-sectional shape on all sides; that a handle member (30) is attached to one side of said frame and projects toward the opposite side of said frame over said tray (10), the distance of said handle member above said frame and tray increasing toward said opposite side, and that to the free end portion of said handle (30) a marking plate (40) is connected or connectable to said handle, said marking plate (40) positioned in a manner such that it can be viewed from the side of the frame opposite the side of said frame that has said handle (30) attached thereto.

4,392,572

BICYCLE STORAGE RACKWalter Bernard, 4800 South Lake Park Ave., Chicago, Ill. 60615
Filed Oct. 23, 1980, Ser. No. 200,256Int. Cl.³ A47F 7/04

U.S. Cl. 211—19

8 Claims



1. A storage rack for storing a small-wheeled bicycle on a vertical surface comprising:
means defining a channel for receiving a bicycle tire;
means integrally formed with said channel means for supporting a front wheel of a bicycle;
means for providing lateral stability to the front wheel of the bicycle, said providing means connected to said channel

means and cooperating with said integrally formed means; and
means attachable to said channel means cooperating with said integrally formed means and engaging said providing means for supporting the front wheel of a small-wheeled bicycle;

said attachable means comprising a rod member having a straight portion abutting said channel means, a hook portion spaced inwardly toward said channel means, and an elevated portion extending out of a plane containing the straight portion and the hook portion, and including an inclined portion and a U-shaped hook portion engaging said providing means whereby when the rack is mounted on a vertical surface the small-wheeled bicycle is totally suspended by its front wheel.

4,392,573

TIE ROPE COMPENSATION ARRANGEMENT

Karl M. Gyomrey, Belmont, England, assignor to Coles Cranes Limited

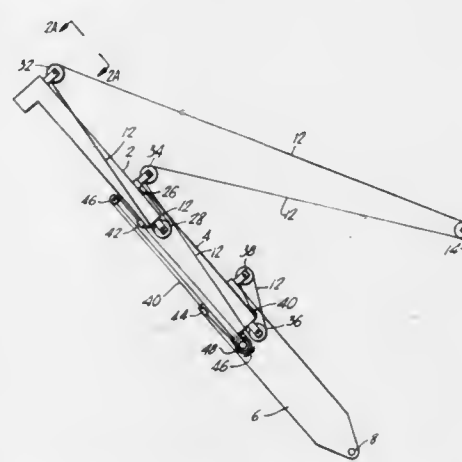
Filed Aug. 18, 1980, Ser. No. 179,307

Claims priority, application United Kingdom, Aug. 17, 1879, 7928798

Int. Cl.³ B66C 23/04

U.S. Cl. 212—230

7 Claims



1. A telescopic strut jib crane comprising:
a crane base,
a turntable pivotally mounted to said base,
a jib mounted to said turntable so as to be able to elevate or lower about a pivot at the base of the jib,
said jib comprising at least three telescopic sections, each section telescoping one within the next adjacent telescopic section said sections comprising an outer section, at least one intermediate section and a base section, telescope means for extending telescopically jib sections from said base section,
support pulley means mounted to said turntable to the rear of said jib, tie rope means of fixed length,
said rope means passing from an anchorage at the head of said intermediate section to and around first extension pulley means at the base of said outer section to and around second extension pulley means at the head of said outer section to and around said support pulley means to and around third extension pulley means at the head of said intermediate section down said intermediate section and around fourth extension pulley means at the base of said intermediate section and to the head of the adjacent lower section,
whereby each said section is supported by said rope means from said support pulley means.

4,392,574

TOWER CRANE

Karel H. A. Theyskens, Burgemeester Geyskensstraat 4, B - 3950 Beringen, Belgium

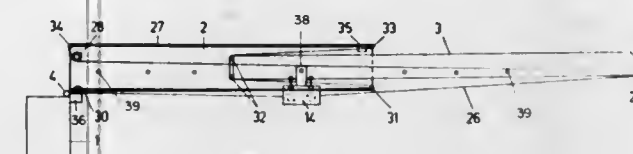
Filed Apr. 2, 1981, Ser. No. 250,125

Claims priority, application Belgium, Apr. 18, 1980, 58514

Int. Cl.³ B66C 23/64

U.S. Cl. 212—225

3 Claims



1. Tower crane comprising:

a pylon,
a telescopic jib which comprises at least two jib parts slidable relative to each other, namely a foot part fastened to said pylon and a slidable point part, which parts each have a runway extending along the lengthwise direction thereof,
a crab mounted on the jib and movable on each runway, means to lock both said jib parts relative to one another,
a winch mounted adjacent to the foot part of the jib,
a cable pulley mounted on the end removed from the pylon of the jib point part,
at least one cable pulley mounted on the end lying on the pylon side of the jib point part,
two cable pulleys mounted on the end removed from the pylon of the jib foot part,
a cable pulley mounted on the end lying on the pylon side of the jib foot part,
a stop mounted on the foot part for stopping the movement of the travelling crab in the direction of the pylon,
a stop mounted on the point part for stopping the movement of the travelling crab in the direction of the jib end removed from the pylon, and,
a cable for sliding said jib in and out as well as for traversing said travelling crab over the jib,
said cable comprising two cable portions so connected to the winch that when one cable portion is wound up the other is unwound, both portions being connected to the travelling crab, one cable portion running from the crab over the cable pulley at that end removed from the pylon, of the jib point part to the winch, while the other cable portion runs from the crab over the cable pulley at that end lying on the pylon side, of the jib foot part, but thereafter runs back away from said pylon to one of the cable pulleys which are mounted on that end removed from the pylon, of said jib foot part, round said pulley back toward the pylon, over said cable pulley on that end facing the pylon of the jib point part, thereafter again away from the pylon, and finally over the second cable pulley which is mounted at that end removed from the pylon, of the jib foot part, back towards the pylon and to the winch.

4,392,575

SWIVEL ASSEMBLY FOR END COCK

Thomas B. Baker, and Richard J. Mandrell, both of St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed May 1, 1981, Ser. No. 259,626

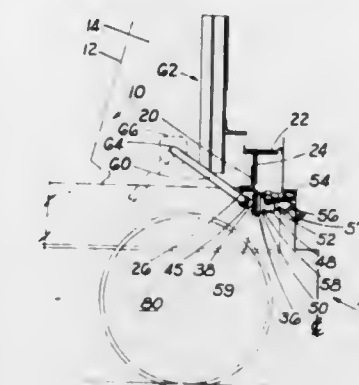
Int. Cl.³ B61G 5/08; F16L 3/16

U.S. Cl. 213—76

5 Claims

1. A trainline connection assembly comprising: a support plate adapted to be rigidly attached to an end portion of the car; said plate including a slot; a swivel having a swivel flange portion engaging said plate and a swivel extension portion extending through said slot; said extension being freely rotatable about said swivel flange portion; said swivel having a hollow center portion; said swivel extension portion extending

generally horizontally and having means including an extension elbow having an angle of less than 90° to receive a rigid pipe section extending inboard of the car; an end cock located outboard of said swivel and having an end cock flange portion abutting said swivel flange portion; means holding said swivel and said end cock in assembly and supported by said support



plate; said end cock including a handle extending outboard of said end cock; said end cock including glad hand connecting means including a glad hand elbow of less than 90° for receiving a flexible portion of the train line; said handle and said glad hand connecting means located within AAR clearance requirements for railway cars.

4,392,576

MULTILAYERED CONTAINER INCLUDING A LAYER OF MICROCRIMPED METALLIC FOIL

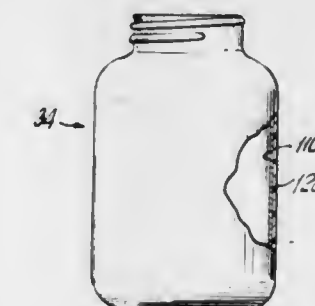
Richard F. Berger, Huntington; Greg Pardes, New York, and Bernard R. Gerber, Jamaica, all of N.Y., assignors to The Reseal Container Corporation of America, New York, N.Y.

Filed Jun. 4, 1981, Ser. No. 270,244

Int. Cl.³ B65D 23/02

U.S. Cl. 215—1 C

10 Claims



1. A container blow molded from a multilayered wall preform comprising a wall structure forming a closed end, an oppositely disposed open end, and side walls extending between the closed end and the open end, said wall structure comprising a continuous multilayered wall forming said closed end and said side walls to at least adjacent the open end, said multilayered wall having an inner surface defining the inner surface of the container and an outer surface defining the outer surface of the container, said multilayered wall comprising at least one layer of an expanded plastics material and at least one layer of an expanded at least two-directionally microcrimped metallic foil with the metallic foil in surface contact with said plastics material layer wherein during blow molding of the preform said multilayered wall is expanded from the preform state into the desired container configuration.

4,392,577

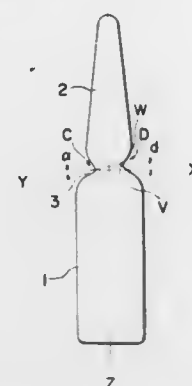
GLASS VIAL WITH DIAGONAL CUT LINE

Hideyuki Maekawa, Osaka; Shinji Hiramoto, Kobe; Kozo Itaya, Sakai; Kokichi Sato, Habikino, and Hirotsuka Nishida, Ibaraki, all of Japan, assignors to Shionogi & Co., Ltd. and Taisei Kako Co., Ltd., both of Osaka, Japan

Filed Apr. 10, 1981, Ser. No. 253,018

Int. Cl.³ A61J 1/00

U.S. Cl. 215—32



1. A glass vial having a main body, a branch pipe portion and an intermediate neck portion disposed therebetween, said neck portion containing indentation portions which are off-set relative to each other and a cut line provided at the intermediate neck portion for cutting the branch pipe portion of the vial from said main body thereof, said cut line being diagonally oriented with respect to a horizontal reference line which is normal to the central axis of the main body of the vial, said diagonal orientation of the cut line being positioned by connecting the innermost portions of said off-set indentations with said cut line.

4,392,578

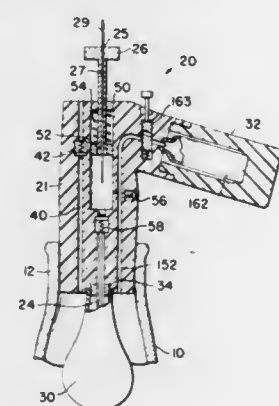
STOPPER APPARATUS FOR CONTENT CONTAMINATION PREVENTION

Beverly A. Fipp; Bernard E. Fipp, both of 7728 Hidden Valley Ct., and John L. Haller, 7249 Carrizo Dr., all of La Jolla, Calif. 92037

Continuation-in-part of Ser. No. 190,569, Sep. 25, 1980, abandoned, which is a continuation of Ser. No. 893,876, Apr. 6, 1978, abandoned. This application Oct. 22, 1981, Ser. No. 313,833

Int. Cl.³ B65D 39/12

U.S. Cl. 215—231



1. An improved stopper apparatus for content contamination prevention for a container having an opening, said container being partially filled with a gaseous contaminant and partially filled with a liquid substance which is to be protected from contamination by said contaminant, said stopper apparatus comprising:

- (a) stopper plug;
- (b) a means for securing such stopper plug to said container opening;
- (c) a bladder removably fixed to the bottom of said stopper

6 Claims

plug whereby said bladder is positioned within said container when said stopper plug is secured within said container opening;

- (d) said stopper plug includes a means for inflating said bladder, a means for venting said gaseous contaminants when said stopper plug is secured in said container opening, said inflating means including a means for deflating said bladder, in combination with;
- (e) a means for depositing a protective gas into said container when said stopper plug is secured in said container opening;
- (f) said means for venting including a one-way check valve permitting the expulsion of the gaseous contaminant, said means for inflating said bladder including a tube member extending into said bladder connected to a one-way check valve permitting said bladder to be filled and preventing the filled bladder from exhausting its contents.

4,392,579

CLOSURE WITH DOMED PORTION

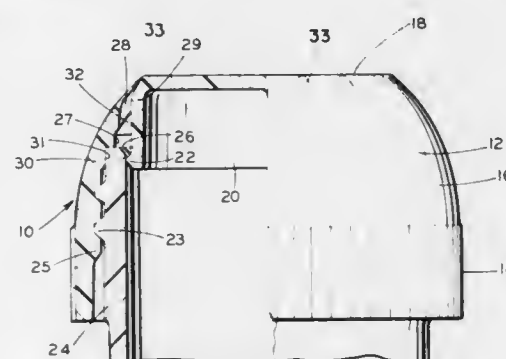
Albert R. Uhlig, Toledo, and Long F. Chang, Sylvania, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 21, 1981, Ser. No. 313,394

Int. Cl.³ B65D 51/16

U.S. Cl. 215—253

6 Claims



1. A thermoplastic closure for a container, said container having a threaded finish terminating in an annular rim, said rim defining an opening into said container and having an upper rim portion, a lower rim portion and a top rim portion, said closure comprising:

- an annular internally threaded skirt portion operative to engage said container threads;
- a unitary top portion extending upwardly from said annular skirt portion and closing the top of the closure;
- a first and second sealing means depending from said top portion, said first sealing means including an annular sealing member depending downwardly from said top portion and operative to engage the upper rim portion on the inside surface of said finish and said second sealing means including an annular sealing member depending downwardly from said top portion and operative to engage the lower rim portion on the outside surface of said finish; and
- at least one vent port disposed on said top portion radially between said first and second sealing means.

4,392,580

CLOSURE CAP

Charles S. Ochs, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio

Filed Jul. 21, 1981, Ser. No. 285,610

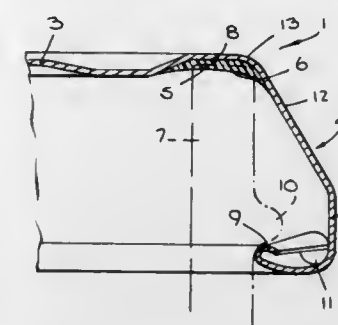
Int. Cl.³ B65D 41/04

U.S. Cl. 215—332

14 Claims

1. In a closure cap having a metal shell with a cover and a depending skirt and having a flowed-in plastisol sealing gasket and inwardly projecting lugs formed on the bottom of the skirt for engaging lugs on a container the improvement comprising said cap skirt having a tapered upper portion extending downwardly and outwardly to the top of a generally cylindrical

lower skirt portion, said sealing gasket being positioned in a downwardly facing channel extending radially outwardly to the top of said tapered skirt portion and said tapered upper



portion having a radial dimension approximately equal to the radial width of the cap lugs and a vertical dimension greater than half the skirt height.

4,392,581

CONTAINER CLOSURE HAVING A LINER AND METHOD FOR ITS PRODUCTION

Junichi Itsubo, Hiratsuka; Fumio Mori, Yokohama, and Hideki Sato, Hiratsuka, all of Japan, assignors to Japan Crown Cork Co. Ltd., Tokyo, Japan

Filed Jul. 7, 1982, Ser. No. 395,910

Claims priority, application Japan, Jul. 9, 1981, 56/106252

Int. Cl.³ B65D 53/00, 53/04

U.S. Cl. 215—348

8 Claims

1. A container closure having a sealing liner comprising a vinyl chloride-type resin, said liner being composed of a composition comprising 100 parts by weight of the vinyl chloride-type resin and 35 to 200 parts by weight of a mixed fatty acid ester of glycerin derived from glycerin, at least one saturated or unsaturated fatty acid component having an even number of carbon atoms between 6 and 24 and at least one acetic and/or butyric acid component.

4,392,582

RETORTABLE BONDED CAN

Yoichi Kitamura, and Hisashi Hotta, both of Yokohama, Japan, assignors to Toyo Seikan Kaisha Limited, Japan

Filed Apr. 7, 1981, Ser. No. 251,945

Claims priority, application Japan, May 26, 1980, 55-69012

Int. Cl.³ B65D 25/14, 25/34; B32B 15/08, 27/38

U.S. Cl. 220—75

1 Claim

1. A retortable bonded can made of an electrolytic chromic acid treated steel sheet wherein at least a part of the can body is composed of a steel sheet having on at least one surface thereof a metallic chromium layer, a chromium oxide layer and an organic lacquer film layer arranged in this order from the steel sheet surface and at least a part of the seaming portion of the can body is bonded with an organic adhesive, characterized in that

- (1) the amounts of the metallic chromium layer and the chromium oxide layer deposited are 70–130 mg/m² and 5–30 mg/m², respectively, as metallic chromium; the amount of alkali-soluble chromium in these layers after heating at 210° C. for 10 minutes is not more than 12 mg/m² and not more than 70% by weight of the amount of the deposited chromium oxide before heating; the area of thickness unevenness of the chromium oxide is not more than 10%; and the amount of metal exposed, expressed as the amount of copper deposited, is not more than 30 mg/dm²,
- (2) the organic lacquer film layer is a baked and cured film of a mixed lacquer composed of 70 to 85 parts by weight of an epoxy resin having a number average molecular weight of 2900 to 3750 and derived from epichlorohydrin and bisphenol A and 30 to 15 parts by weight of a resol-type phenolic resin, the total amount of these resins being 100 parts by weight; the phenolic resin is obtained by reacting

a mixed phenol composed of 5 to 20% by weight of a monohydric phenol and 95 to 80% by weight of bisphenol A with an aldehyde in the presence of ammonia and has such a molecular weight distribution that the proportion of a high-molecular-weight portion having 3 or more rings is 60 to 70% by weight and the proportion of a low-molecular-weight portion having 2 or less rings is 40 to 30% by weight; and the baked and cured film contains 83 to 87 parts by weight of the epoxy resin and 17 to 13 parts by weight of the phenolic resin based on 100 parts by weight of the epoxy resin and the phenolic resin combined, and

(3) the adhesive is a linear polyamide adhesive.

4,392,583

CAP AND VALVE ASSEMBLY

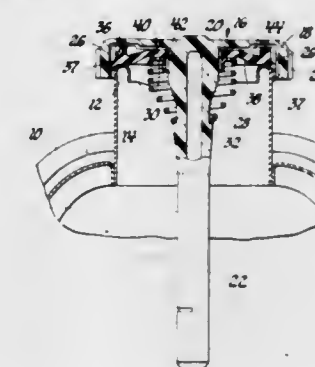
Tom C. Wong, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 8, 1981, Ser. No. 271,682

Int. Cl.³ B65D 51/16

U.S. Cl. 220—202

1 Claim



1. A cap assembly for a liquid reservoir subjected to mechanical vibrations of random frequencies and amplitudes; said cap assembly comprising a substantially cup-shaped cover member, latching means for securing the cover member to the reservoir, and a central stem portion integral with said cover extending into the reservoir when said cap assembly is placed on the reservoir; a flexible valve member adjacent the interior surface of the cover member and including an annular sealing portion contacting the reservoir and cover member, and a diaphragm portion disposed between the annular seal portion and said central stem and cooperating with the cover to form an air chamber means which expands and contracts in response to the mechanical vibrations of random frequencies and amplitudes; inlet air passage means in said cover member for communicating air from atmosphere to said air chamber means during expansion thereof; outlet air passage means between said stem portion and said valve member for communicating air from said air chamber means to the interior of said reservoir; said inlet passage means having greater resistance to air flow than said outlet passage during contraction of said air chamber means such that pulsating air flow into said reservoir minimizes liquid leakage therefrom; and spring means compressed between said latching means and said central stem for transmitting a force through said cover to aid the sealing at the annular sealing portion and to establish the at rest volume of the air chamber means.

4,392,584

VENT CAP FOR A CONTAINER ACCOMMODATING HYDRAULIC FLUIDS

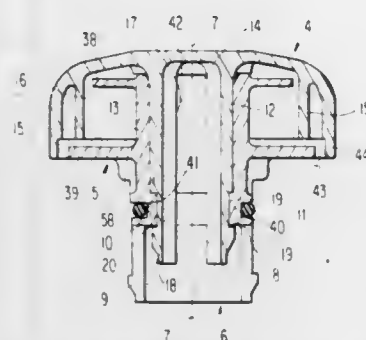
Ludwig Bauer, Stuttgart, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany
Filed Oct. 30, 1980, Ser. No. 202,413

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943747

Int. Cl.³ B65D 51/16

U.S. Cl. 220—374

36 Claims



1. A vent cap for closing and venting an opening of a container for hydraulic operating means located on the ambient-air side,

said opening comprising an aperture with edges for connecting the interior of the container with the ambient air, having a lid-shaped part with a peripheral wall and a base-shaped part of the cap, where the base-shaped part of the cap is inserted within the peripheral wall of the lid-shaped part of the cap and has ring-shaped sealing means for the sealing of the opening disposed centrally with respect to a central axis, and

where one of the parts of the cap is provided with fastening means for the detachable securing of the fitting position of the vent cap at the opening of the container and both parts of the cap have corresponding central mounting supports for the mutual mounting,

with said mounting supports fastening the parts of the cap essentially immovably with respect to one another in the direction of the central axis, characterized in that

the lid-shaped part of the cap has a journal located radially on the inside with respect to the central axis, and the base-shaped part of the cap has a hub resting on the journal,

with the hub being provided with a central ring-shaped receiving groove contacting said edges which is separated from the fastening means, for said sealing ring means engaging said edges, and

both parts of the cap in fitting direction, by means of their journal-hub-mounting, being mounted so that they can be rotated freely with respect to one another.

4,392,585

STAR TRIP LABEL STRIPPER

Charles F. Reed, Madison, and Charles M. Morrow, Painesville, both of Ohio, assignors to Avery International Corporation, Pasadena, Calif.

Filed Jul. 27, 1981, Ser. No. 287,111

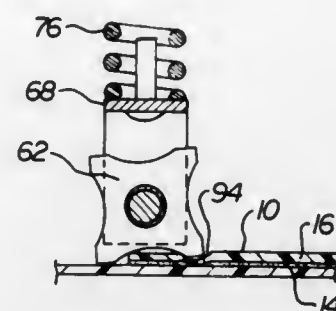
Int. Cl.³ B65H 5/28

U.S. Cl. 221—1

10 Claims

1. In a method of dispensing a succession of adhesive labels from a web of liner material to which the labels are temporarily adhered by feeding the liner with the labels thereon along a liner infeed path which leads along a first direction to a peel-back edge at a dispensing station, with the liner contacting the peel-back edge and the succession of labels each spaced from the peel-back edge by the thickness of the liner, and drawing the liner under tension over the peel-back edge and away therefrom along a liner outfeed path which leads from said peel-back edge in a second direction that is divergent from said first direction to thereby impose on the labels a tendency to

continue to move in said first direction beyond said peel-back edge and thus to separate from said liner, the improvement which comprises striking a blow against the non-adhesive face of each successive label in the vicinity of the leading edge



thereof, such blow being sufficiently sharp to enhance such tendency to the point where there is accomplished the separation of labels which would otherwise resist such tendency and fail to separate.

4,392,586

APPARATUS FOR SECURING CARTONS ON THE TOP OF ARTICLES CARRIED IN A CASE

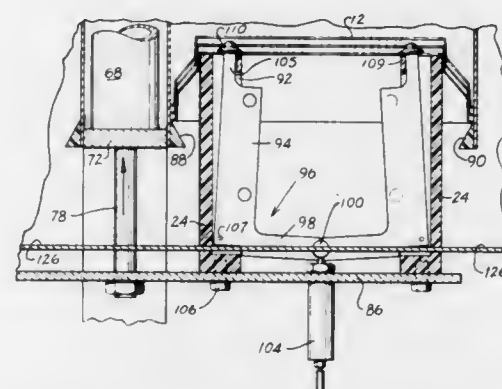
Thomas S. Hartness, and Thomas P. Hartness, both of Greenville, S.C., assignors to Hartness International, Inc., Greenville, S.C.

Filed Nov. 10, 1980, Ser. No. 205,194

Int. Cl.³ B65G 59/06; B65B 17/02

U.S. Cl. 221—210

7 Claims



1. An apparatus for feeding cartons in succession from a stack of cartons, spaced openings provided in a main body portion of said carton for receiving articles, and a space provided between said main body portions of said cartons when carried in said stack, said apparatus comprising:

a support plate;

a plurality of picker fingers carried on said support plate; outwardly extending projections carried adjacent a top portion of said picker fingers;

means for selectively moving said support plate to and from said stack of cartons for inserting said plurality of picker fingers adjacent said openings in at least the last carton of said stack of cartons allowing said outwardly extending projections to be inserted in the space between said last carton and the next to the last carton and for separating said last carton from the remainder of said stack of cartons;

a pivotal means supporting each of said outwardly extending projections; and

means for shifting said pivotal means moving said projections laterally of said fingers for inserting said projections between said last carton and said next to said last carton prior to removing said last carton from said stack, whereby said cartons are successively removed from said stack when said support plate is moved from said stack of cartons.

4,392,587

APPLICATOR FOR GRANULAR MATERIAL

W. John Bourne, P.O. Box 1333, Kindersley, Saskatchewan, Canada (SOL-ISO)

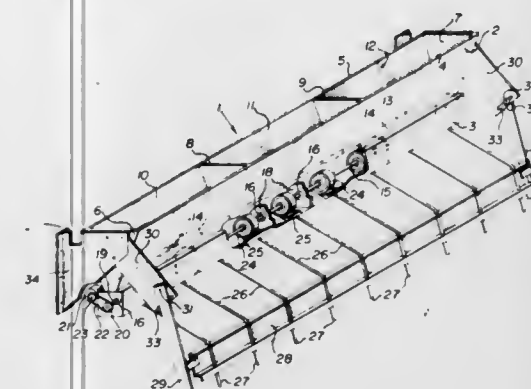
Continuation of Ser. No. 876,252, Feb. 9, 1978, abandoned. This application Oct. 2, 1980, Ser. No. 193,074

Claims priority, application Canada, Jan. 9, 1978, 294541

Int. Cl.³ G01F 13/00

U.S. Cl. 222—63

1 Claim



1. An applicator to be used on a vehicle for metering and discharging granular agricultural material, comprising:

a hopper for holding the granular material, said hopper having a base containing a plurality of orifices therein whereby the granular material may fall through each of said orifices by the action of gravity, said plurality of orifices being disposed in a line;

a rotatable shaft positioned below said orifices parallel to the line of said orifices in the vertical plane defined by said orifices;

a plurality of metering wheels mounted on said shaft for rotation with said shaft in planes perpendicular to the axis of rotation of said shaft, each said wheel being vertically aligned with one of said orifices with the center of said wheel coinciding with the axis of rotation of said shaft whereby the uppermost point on the periphery of each said wheel is vertically aligned with one of said orifices; the uppermost point on the periphery of each said wheel forming a predetermined clearance with its orifice so that, given the dimensions and surface roughness of said wheels, the size of each said orifice, and the characteristics of the granular material, the granular material is discharged from between said hopper base and the periphery of each said wheel only when each said wheel is rotating and the rate of discharge depends only on the speed of rotation of said shaft and said wheels whereby the output of granular material is a linear function of the speed of rotation of said shaft and said wheels;

a downwardly disposed collector tube positioned below each said wheel for receiving the granular material discharged from between said hopper base and said wheel and for conducting the granular material to a spreader means, each said collector tube having a funnel forming the top end of said tube into which the granular material spills and a discharge end;

a motor for rotating said shaft and said wheels;

means for setting the speed of said motor and thereby the speed of rotation of said shaft and said wheels;

electric control means for automatically regulating said motor to maintain said shaft and said wheels at the set speed, said control means including means for constantly monitoring the speed of said motor and adjustment means for varying the electric input to said motor in accordance with the signals received from said monitoring means; and,

means for forward and rearward positioning of said discharge ends of said collector tubes, said collector tube positioning means comprising a horizontally disposed cross bar connected to said collector tubes adjacent said discharge ends and means cooperating with said cross bar

for pivoting said cross bar and thereby said discharge ends of said collector tubes with respect to said hopper.

4,392,588

NOZZLE ASSEMBLY FOR COLD DRINK MERCHANDISER

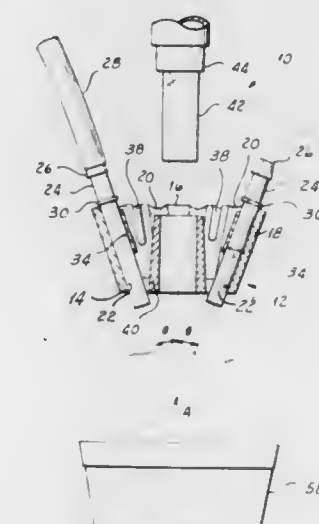
Frank T. Scalera, Maplewood, N.J., assignor to Rowe International, Inc., Whippany, N.J.

Filed Jan. 22, 1981, Ser. No. 227,482

Int. Cl.³ G07F 13/06

U.S. Cl. 222—129.4

11 Claims



1. In a drink machine for selectively delivering one of a plurality of beverages each having a principal constituent and a selected flavoring constituent to a cup positioned at a delivery location at which the cup is accessible to a customer, apparatus including a unitary body formed with a base and a centrally located guide extending upwardly from said base, said guide formed with a bore having a longitudinal axis extending generally perpendicular to said base, said base having a plurality of holes therethrough outside said guide and circumferentially spaced around said axis, said body being formed with a wall extending upwardly from said base in the region of said holes to an upper rim, the inner surface of said wall inclined outwardly from said base toward said rim, a plurality of grooves in said inner surface extending from said rim respectively into said holes, a plurality of elongated syrup nozzles, each of said nozzles having a central passage with a longitudinal axis, an external surface with a generally circular cross-sectional shape and a positioning shoulder formed along the length thereof, each of said grooves having a generally semi-circular cross-sectional shape whereby each of said grooves is adapted to receive one of said nozzles with the shoulder thereof in engagement with said rim to position said nozzle along the length of said groove, a plurality of retainers, means for releasably securing said retainers to said body with the retainers in engagement with parts of said nozzles outside said grooves to retain said nozzles in said grooves, a beverage principal constituent supply fitting having a passage with a longitudinal axis and a shoulder and adapted to be received in said guide with the guide axis generally coincidental with the fitting axis and with said shoulder in engagement with the upper end of said guide, said body being formed with an ice chute support and means mounting said body in said machine at a position adjacent to said delivery location with said nozzle axes intersecting said fitting axis at a predetermined point above a cup at said delivery location.

4,392,589

MULTIPLE-TUBE DISPENSER

Wolf-Dietrich Herold, Hechendorf, Fed. Rep. of Germany, assignor to ESPE Fabrik Pharmazeutischer Präparate GmbH, Seefeld, Fed. Rep. of Germany

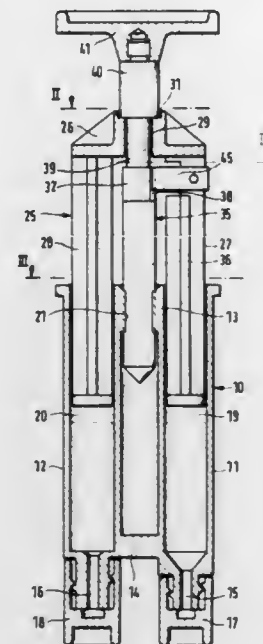
Filed Feb. 4, 1981, Ser. No. 231,447

Claims priority, application Fed. Rep. of Germany, Feb. 11, 1980, 3005008

Int. Cl.³ B67D 5/42

U.S. Cl. 222—137

9 Claims



1. A multiple-tube dispenser comprising
 - (a) a body including at least two parallel cylinders, each having a discharge opening at a front end thereof, a piston slidably disposed in each cylinder, and a web portion of flexible material interconnecting said cylinders and having a first bore;
 - (b) pressing means including a head portion with a second bore, and a number of plungers equal to the number of said cylinders, said plungers being interconnected by said head portion, and each having a front end for engaging an associated one of said pistons; and
 - (c) a threaded spindle extending through said second bore and engaging said first bore for causing simultaneous movement of said pistons relative to said cylinders;
 - (d) said first and second bores having first and second slots, respectively, extending in a direction transverse to the axis of said spindle for permitting said spindle to be inserted into, and removed from, said first and second bores along said transverse direction, the width of said first slot being smaller than the outer diameter of said spindle.

4,392,590

EYE DROP DISPENSING BOTTLE

Ernest Hofmann-Igl, Kampen, Fed. Rep. of Germany, assignor to Basotherm GmbH, Biberach an der Riss, Fed. Rep. of Germany

Filed Nov. 10, 1980, Ser. No. 205,606

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1979, 2946366

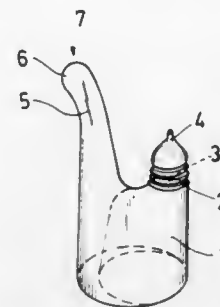
Int. Cl.³ A61M 1/00

U.S. Cl. 222—174

1 Claim

1. In an eye drop dispensing bottle made of elastically deformable plastic comprising a hollow body defining a cavity for containment of the product to be dispensed, a bottle neck extending upwardly from said hollow body and terminating in a dropping spout, said dropping spout and said bottle neck being in fluid communication with said hollow body, and a supporting finger extending upwardly from said hollow body and spaced from said bottle neck, the improvement which resides in that the supporting finger is made of soft-elastically yielding material, the upper end of said supporting finger is

bent away from said bottle neck to form a soft, yielding supporting area, and the overall height of the supporting finger is



less than the overall height of the bottle neck and dropping spout.

4,392,591

APPARATUS FOR METERING SEMI-FLOWABLE MATERIAL

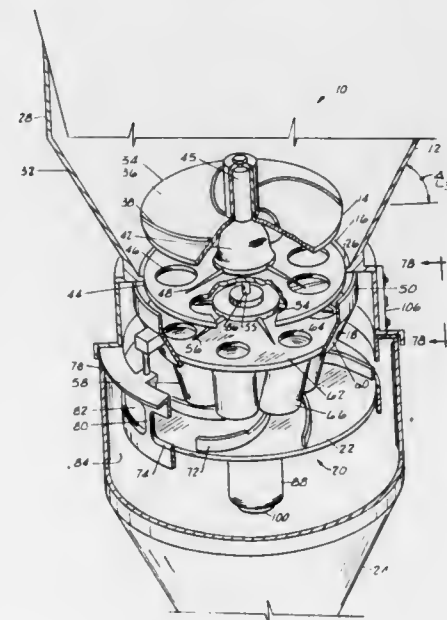
Arthur L. Fassauer, Canyon, Tex., assignor to Geosource Inc., Houston, Tex.

Filed Nov. 13, 1980, Ser. No. 206,645

Int. Cl.³ B01F 7/24

U.S. Cl. 222—227

60 Claims



1. An apparatus for metering semi-flowable material, comprising:
 - a hopper for receiving a mass of semi-flowable material, said hopper having a bottom opening therein;
 - means for bottom unloading the semi-flowable material from the hopper and delivering said material in loosened condition and at a substantially reduced and controlled head pressure and density into an aeration and conditioning zone;
 - means for aerating and conditioning the loosened semi-flowable material to prevent the material from compacting and bridging and to place the semi-flowable material in a state of substantially constant density, said aerating and conditioning means including
 - a stationary pressure plate supported in the bottom opening of the hopper and having a plurality of holes therethrough,
 - an upper hub rotatably mounted above the stationary pressure plate and having at least one arm extending outward therefrom,
 - a lower hub rotatably mounted below the stationary pressure plate and having at least one arm extending outward therefrom, and
 - a plurality of substantially vertical probes extending downward from the bottom surface of the stationary pressure plate;

means for bottom unloading the semi-flowable material from the aeration and conditioning means and maintaining the material in a substantially constant density state for volumetric delivery into a distributing zone; and means for distributing the semi-flowable material without inducing packing and bridging of the material for delivery by gravitational action into a collection hopper.

4,392,592

FOOD DISPENSING GUN

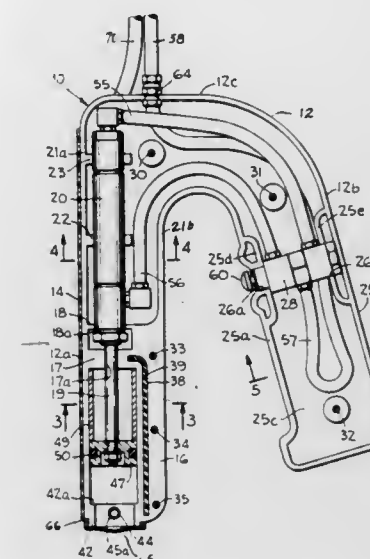
Norman D. Sullivan, 251 Donald Dr., Hollister, Calif. 95023

Filed Aug. 27, 1980, Ser. No. 181,773

Int. Cl.³ G01F 11/02

U.S. Cl. 222—288

7 Claims



1. A dispensing device for dispensing condiment in partially liquid form comprising:
 - a housing including a handle section and an elongated dispensing section;
 - means in said housing defining a chamber having a discharge opening, said chamber being disposed in said dispensing section near one end thereof, and said discharge opening being located at said one end, said chamber defining means including an abutment member at the end of the chamber opposite said discharge opening;
 - a plunger mounted for reciprocation in said chamber;
 - spacer means disposed in said chamber between said abutment member and said plunger to limit the movement of said plunger toward said abutment member and thereby determine the condiment receiving volume of said chamber;
 - means for delivering a charge of condiment into that portion of the chamber located between said plunger and the discharge opening; and
 - means for actuating said plunger to discharge substantially all of the condiment contained within said chamber.

4,392,593

COFFEE POWDER METERING DEVICE FOR COFFEE VENDING MACHINES

Carlo D. Majer, Caronno Pertusella, Italy, assignor to Rhea Vendors S.r.l., Caronno Pertusella, Italy

Filed Mar. 17, 1981, Ser. No. 244,680

Claims priority, application Italy, Mar. 27, 1980, 20957 A/80

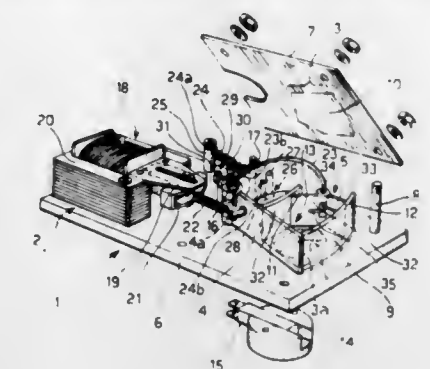
Int. Cl.³ B65D 88/54

U.S. Cl. 222—305

7 Claims

1. Coffee powder metering device for coffee vending machines comprising in a structure:
 - a tubular main part, formed by two opposite side panels and two walls, perpendicular to said side panels;
 - an end wall for closing off one end of the tubular main part, opened by power means;
 - a thrust wall inside said tubular main part, opposite the end wall and set at an adjustable distance from said end of the

tubular main part, said thrust wall is moved by control means; said tubular main part, end wall and thrust wall form a compartment for receiving a given quantity of coffee powder, through an inlet in one of the side panels, and



forcing it out through said end by means of the thrust wall, wherein on the two walls facing the compartment, the thrust wall is fitted with two lips facing the compartment, hinged to each other so as to form a V and each held firmly, by elastic means, against the respective walls of the two walls of the tubular main part so as to scrape it clean.

4,392,594

WATERING CAN

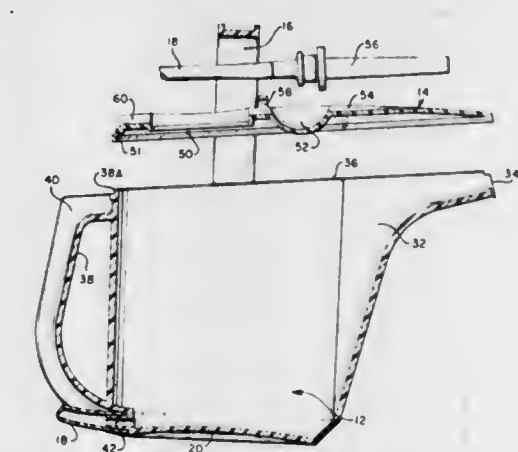
James B. Swett, Altamonte Springs, Fla., and Ann A. Arnold, Atlanta, Ga., assignors to Dart Industries Inc., Northbrook, Ill.

Filed Aug. 27, 1980, Ser. No. 181,605

Int. Cl.³ B67D 3/00

U.S. Cl. 222—530

4 Claims



1. A receptacle for retaining and selectively dispensing liquid, said receptacle including a bottom and surrounding side wall terminating in an upper edge defining a fluid receiving interior with an open top, said side wall including one vertical segment having a projecting and laterally outwardly directed and upwardly opening discharge spout adjacent the upper open top of the fluid receiving interior, said side wall having a second vertical segment remote from said one segment and having a handle member projecting therefrom, said second segment incorporating a discharge opening from the receptacle interior below and in alignment with said handle member, said handle member extending vertically from said discharge opening to approximately the upper edge of the side wall, a flexible conduit in communication with and extending from said discharge opening, said handle member having a slot defined therein and extending along the vertical height of the handle member for removable engagement of the conduit in a recessed position therein from the discharge opening to the upper edge of the side wall, a cover member overlying and removably engagable with the upper edge of the side wall, said cover member including recess means therein for accommodating said flexible conduit, said cover member further includ-

ing holding means positioned thereon for selectively receiving a portion of said conduit and holding said conduit within said cover member recess means and said handle member slot.

4,392,595

APPARATUS FOR DISPENSING PARTICULATE MATERIAL

Eric Staniforth, Macclesfield, England, assignor to Sisis Equipment (Macclesfield) Limited, Macclesfield, England

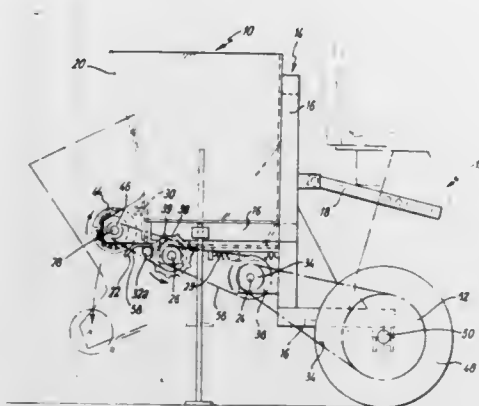
Filed Oct. 3, 1980, Ser. No. 193,446

Claims priority, application United Kingdom, Oct. 3, 1980, 7934272

Int. Cl.³ B65G 27/12

U.S. Cl. 222—619

7 Claims



1. Apparatus for spreading particulate material comprising a frame; a hopper supported by the frame, the hopper having a wall in which is provided a lower gravity feed outlet aperture; an adjustable gate forming part of said hopper wall for controlling the size of said feed outlet aperture; a feed platform forming a base of said hopper and extending away from the feed outlet aperture to define a material discharge edge that receives material from said hopper through said outlet aperture; means for reciprocating the feed platform with respect to said aperture while maintaining constant the distance between said feed platform and said adjustable gate, said means for reciprocating including means for moving the material discharge edge of said feed platform relatively slow in one direction away from the outlet aperture and means for moving the feed platform relatively fast in the opposite direction; the particulate material being dispensed from said hopper through said outlet aperture onto said feed platform, the feed platform carrying the material therewith as it moves in said one direction and being movable with respect to the material as it moves in the opposite direction.

4,392,596

HOSIERY TRIMMING APPARATUS

James D. Painter, 2140 Lois St., SE., Cleveland, Tenn. 37311

Filed Feb. 24, 1981, Ser. No. 237,594

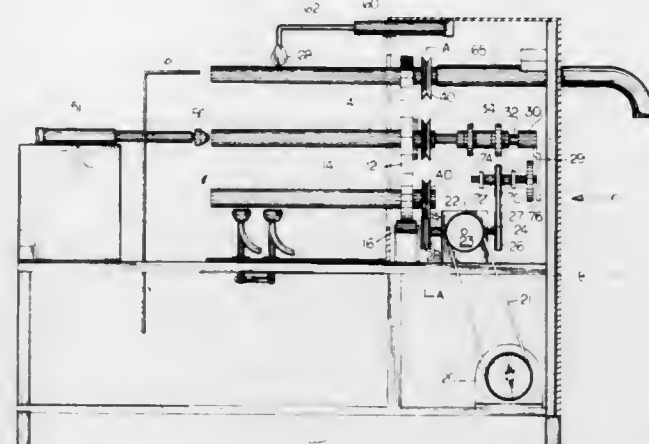
Int. Cl.³ A41H 43/02

U.S. Cl. 223—43

6 Claims

1. An apparatus for trimming unfinished threads and flattening a toe seam in a hosiery article comprising: a plurality of elongated tubular members, each said tubular member being hollow and having first and second open ends, each said tubular member being adapted to receive on its exterior a hosiery article with a toe portion of said hosiery article covering said first open end of said tubular member, a turret, each said tubular member being movably mounted adjacent said second open end to said turret, said turret being rotatably driven so that each said tubular member arrives at a plurality of work stations; shear means, said shear means being adjustably placed adjacent one of said work stations so that said hosiery article on said tubular member will expose unfinished threads to said shear means, rotation means, said rotation means being adapted to rotate each said tubular member when each said tubular member arrives at said one of said work stations adjacent said shear means; stretching means, said stretching means being

aligned axially with respect to each said tubular member at another of said work stations, said stretching means being adapted to clamp said hosiery article between said stretching means and said first open end of each said tubular member and to stretch said toe seam in a direction parallel to the length of said hosiery article; removal means, said removal means being adjacent to a third one of said work stations and comprising means to urge said hosiery article along each said tubular member towards said first open end of each said tubular member, and compressed air means to supply compressed air to urge said hosiery article through the interior of said tubular member and through said second open end of said tubular



4,392,597

BICYCLE RACK

Hubert L. Traugh, 307 E. Exchange, Owosso, Mich. 48867

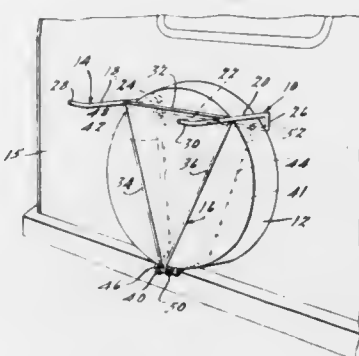
Continuation-in-part of Ser. No. 279,717, Jul. 2, 1981,

abandoned. This application Feb. 2, 1980, Ser. No. 345,199

Int. Cl.³ B60R 19/02

U.S. Cl. 224—42.13

22 Claims



1. A bicycle rack particularly adapted for use with an exteriorly mounted spare tire on an automotive vehicle, said rack comprising, in combination, a horizontally disposed support section and a vertically disposed base section, means connecting said support section and said base section together, said support section being of generally U-shaped configuration and including a pair of laterally spaced, horizontally extending arms and a transverse portion extending between said arms in

vertically spaced relationship with respect thereto, said base section including a horizontally extending member disposed in horizontally spaced relationship with respect to said transverse portion of said support section whereby a portion of a tire may be received therebetween, said base section also including a pair of oppositely angularly disposed members each having one end portion thereof connected to said support section.

4,392,598

CONVERTIBLE BACKPACK CHAIR

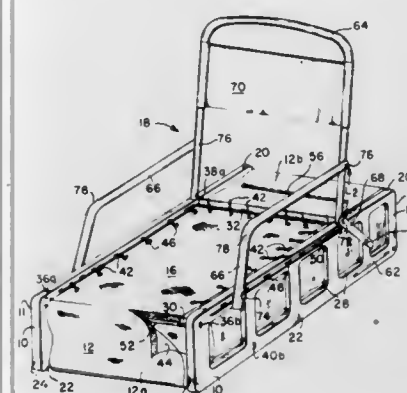
John F. Dixon, 425 California St., Suite 2600, San Francisco, Calif. 94104

Filed Jan. 19, 1982, Ser. No. 340,750

Int. Cl.³ A45F 3/10

U.S. Cl. 224—155

10 Claims



1. A convertible backpack chair comprising:

- (a) two parallel rigid panels spaced apart, defining side, top, bottom and end surfaces of a generally rectangular storage volume contained therebetween;
- (b) a pack bag comprising at least one compartment located within said storage volume and supported between said rigid side panels by support means;
- (c) a pair of shoulder straps for supporting the pack on the shoulders of the user, the straps being provided on the bottom surface of said storage volume;
- (d) lumbar support means, provided on the same surface as said shoulder straps; and
- (e) a collapsible chair portion and seat portion provided on the opposite surface, said collapsible chair portion comprising:
 - (i) a generally U-shaped chair back frame,
 - (ii) a pair of arm rests, one end of each arm rest being pivotally attached to said chair back frame and the other end of each being pivotally attached to said rigid side panels,
 - (iii) a pair of hinge straps, one end of each being pivotally attached near the ends of said chair back frame and the other end of each being pivotally attached to said rigid side panels, and
 - (iv) a back support panel attached to said chair back frame.

4,392,599

DRAWER BUILDING SYSTEM HAVING FASTENING GUNS

B. Carson Russell, 8137 Chateau Dr., Cherry Bluffs Estate, Egg Harbor, Wis. 54209

Filed Aug. 20, 1980, Ser. No. 179,728

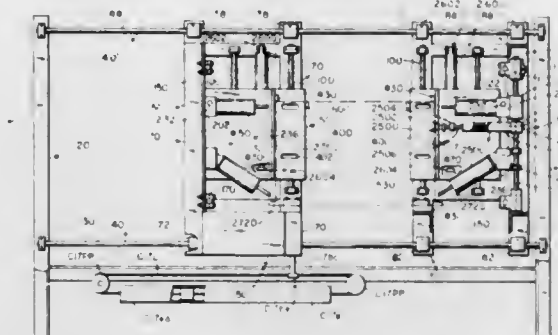
Int. Cl.³ B27M 3/34; B31B 13/60

U.S. Cl. 227—40

1 Claim

1. A building machine in combination with a vertically oriented drawer, said drawer comprising a drawer front, two vertical drawer side pieces, a drawer bottom and a drawer back, said machine comprising first and second carriages mounted on a frame in a manner for relative movement with respect to each other so as to be closer or farther from each other, said relative movement being along a first axis, primary and secondary sub-carriages movably mounted respectively on

said first and said second carriages and moveable in parallelism with a second axis at a right angle to said first axis, there being a drawer space between said carriages during building, fastening guns, first and second sets of shiftable gun holders carrying said guns and disposed on right and left sides of the drawer space, there being a third axis disposed at a right angle to said first axis and also at a right angle to said second axis, the gun holders each being spaced apart with respect to other gun holders of the same set substantially along lines parallel to said third axis, the gun holders being moveably mounted on the carriages for movement in directions parallel to said third axis whereby three dimensional adjustment of the position of each of the guns is possible, means for supporting said drawer front in a horizontal position, said machine having means for pressing said vertical drawer side pieces downwardly against said



drawer front when said drawer front is in said horizontal position, said vertical drawer side pieces being upstanding from said drawer front when pressed by said means for pressing, said fastening guns comprising right and left fastening guns having their noses closely adjacent right and left outer sides respectively of the drawer side pieces when said drawer side pieces are upstanding from the drawer front, said guns each fastening in at least a partially horizontal direction, said drawer bottom being inserted between the means for pressing, between said fastening guns and between said drawer side pieces whereby the drawer bottom is insertable vertically downwardly when said means for pressing presses the vertical side pieces downwardly against the drawer front and the noses of the fastening guns are closely adjacent the outer sides of the drawer side pieces.

4,392,600

APPARATUS FOR MAKING PALLETES

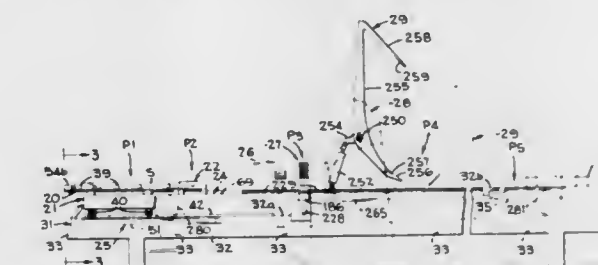
Ronald J. Billett, Sunnyvale, and Veikko K. Viitanen, San Jose, both of Calif., assignors to FMC Corporation, Chicago, Ill.

Filed Feb. 20, 1981, Ser. No. 236,426

Int. Cl.³ B27F 7/02; B42D 3/00

U.S. Cl. 227—50

12 Claims



1. An apparatus for making pallets comprised of spaced parallel stringers and several deckboards nailed to opposite sides of the stringers in spaced parallel relation and at right angles with the stringers, said apparatus comprising: means located at a nailing station for consecutively nailing deckboards to a plurality of spaced parallel stringers; means for intermittently conveying said plurality of spaced parallel stringers from a loading station forwardly toward the nailing station and thereafter in stepped relation

through the nailing station to permit deckboards to be consecutively nailed to the stringers to form a half-pallet; and means for inverting the half-pallet assembly so that deckboards may be nailed to the other sides of the stringers of the half-pallet assembly, said inverting means including means for releasably and firmly grasping one end of the half-pallet assembly, means for rotatably mounting said grasping means to said means for conveying the stringers to permit the grasping means to rotate the half-pallet assembly about an axis that is transverse to its direction of travel as the half-pallet assembly, and means that engage the free opposite end of the half-pallet assembly for pivoting the half-pallet assembly 180° about said transverse axis of rotation as said grasping means is moved by said conveying means.

4,392,601

TWO-SHIFT AUTOMATIC ASSEMBLING APPARATUS

Tsuneo Fujikawa, Ebina, and Haruyoshi Takagishi, Yamato, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

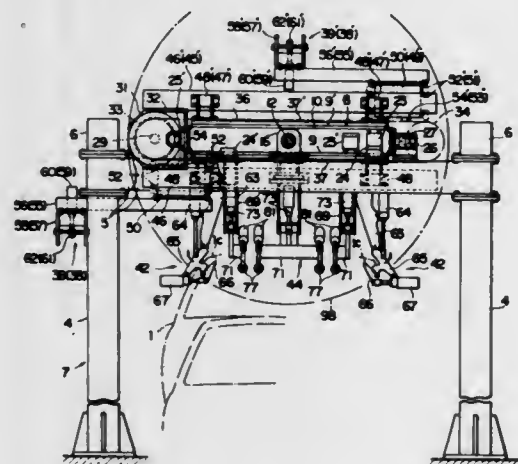
Filed Sep. 12, 1980, Ser. No. 186,543

Claims priority, application Japan, Sep. 25, 1979, 54-122831; Oct. 24, 1979, 54-136438

Int. Cl.³ B23K 37/04

U.S. Cl. 228—4.1

8 Claims



1. A two-shift automatic assembling apparatus for selectively assembling at least one component member to an incomplete work of a first model or at least one component member to an incomplete work of a second model during each cycle of operation of the apparatus, comprising:

a frame structure for accommodating at least a portion of one of said incomplete works of the first and second models therein and for permitting each of the incomplete works to be conveyed in a longitudinal direction therethrough, and a base structure supported on said frame structure and having two parallel opposite faces, said base structure being rotatable between two diametrically opposite angular positions about an axis fixed with respect to said frame structure and substantially parallel with said two faces of the base structure and with said longitudinal direction, and two sets of assembling fixtures detachably mounted on said two faces, respectively, of the base structure, each set of said assembling fixtures including work gauge means adapted to hold each of said incomplete works in a predetermined position with respect to said frame structure, carrier means adapted to carry each of said component members from the outside of said frame structure into a predetermined position within the frame structure, and parts gauge means adapted to transfer the component member from said predetermined position thereof into a predetermined ready-for-assembly position with respect to the work held in position by said work gauge means.

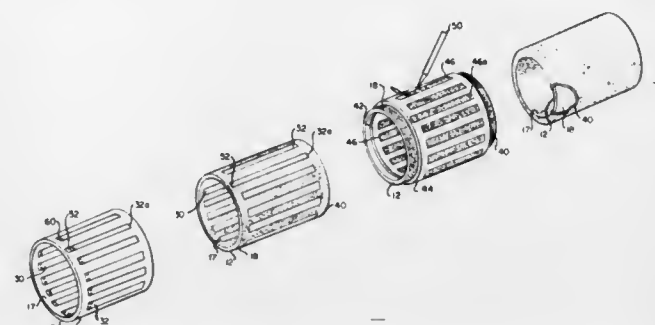
4,392,602
METHOD OF MAKING SANDWICH STRUCTURES BY SUPERPLASTIC FORMING AND DIFFUSION BONDING
Vene L. Darby, Redondo Beach, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 24, 1980, Ser. No. 209,570

Int. Cl.³ B23K 20/18

U.S. Cl. 228—118

4 Claims



1. A method of forming a sandwich structure from a plurality of workpieces comprising:

- (a) stacking said plurality of workpieces, each of said workpieces having two opposed principal surfaces;
- (b) coating at least one of said principal surfaces with a maskant;
- (c) removing said maskant from portions of said at least one coated principal surface that is not to be diffusion bonded;
- (d) etching said portions of said at least one coated surface where the maskant has been removed to a depth equal to the thickness of said stopoff material to be applied;
- (e) applying a stopoff material to said portions where said maskant has been removed;
- (f) removing said remaining maskant from at least one coated principal surface;
- (g) placing said workpieces in a die assembly under coordinated temperature-pressure-time conditions;
- (h) maintaining said conditions for sufficient time to product diffusion bonding of selected portions of said workpieces; and,
- (i) superplastic forming at least a portion of at least one of said workpieces.

4,392,603

PREPARATION OF PIPE ENDS FOR SOLID PHASE WELDING

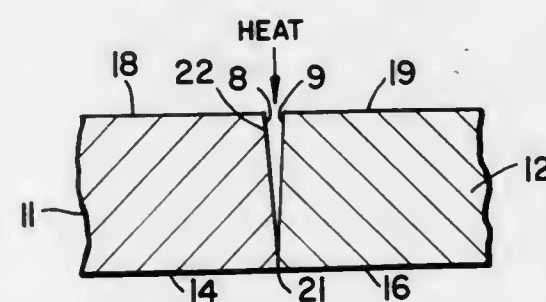
Jean La Force, P.O. Box C, Inverness, Calif. 94937, assignor to Carl Stringer, Pearland; Stringer Oil & Gas Co., San Angelo, both of, Tex.; Jean La Force, Inverness, Calif. and Carl Thomas Stringer, Pearland, Tex., a part interest to each

Filed Aug. 4, 1980, Ser. No. 175,279

Int. Cl.³ B23K 5/08, 20/14

U.S. Cl. 228—196

2 Claims



1. The method of solid phase welding adjacent ends of axially aligned large diameter metal pipes in which the confronting faces of the respective pipe sections are brought into contiguous confronting relationship with ambient atmospheric

conditions prevailing within the pipe bores, and in which heat by means of external flame burner is applied substantially uniformly around the entire outer periphery of the abutting pipe ends while axial pressure is applied to said sections urging said faces towards each other, the improvement comprising sealing the ambient atmosphere within the pipe bores from the general area of the confronting faces by forming of at least one of said faces whereby the confronting faces are in continuous contact only along and adjacent the entire circumferential extent of the inner bore surfaces of the respective pipes and the confronting faces are spaced from each other other than at the bore surfaces to provide a circumferential gap in adjacent confronting relation to said heating flames, whereby the ambient air oxygen is excluded from said gap and no significant oxidation of the metal will take place thereat.

4,392,604

PANEL WELDING SYSTEM

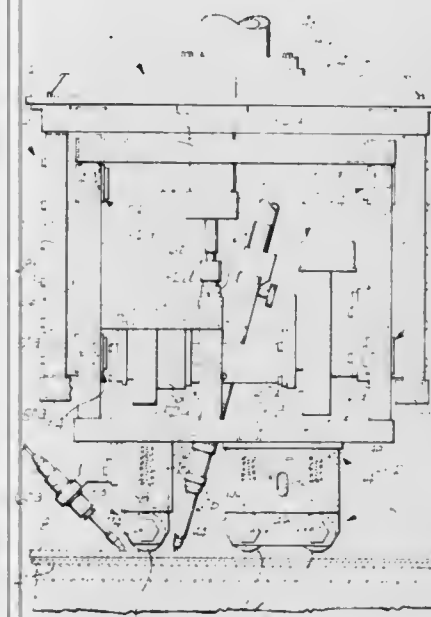
Stanley L. Sears, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Aug. 27, 1980, Ser. No. 181,863

Int. Cl.³ B23K 37/02, 37/04

U.S. Cl. 228—212

20 Claims



1. A welding apparatus for automatically or semi-automatically welding butt seams to join abutting edges of flat workpieces, comprising in combination:

- a workpiece supporting bed including vacuum means for releasably holding down the workpieces flat against the bed;
- carriage supporting means overlying said bed;
- traveling carriage means cooperating with said carriage support means for controlled travel in a plane overlying said bed;
- a welding torch and workpiece positioning roller head assembly mounted on said carriage means for traveling therewith relative to said bed, said head assembly comprising:
- truck support means fixedly mounted on said carriage means;
- truck means coupled to and cooperating with said truck support means for movement of said truck means toward and away from said workpiece supporting bed;
- means for controllably moving said truck means relative to said truck support means between a retracted position spaced from said bed and an operative position proximate said bed;
- welding torch means mounted on said truck means so as to be disposed for traveling therewith relative to said bed and so that said torch means can be guided along a seam between abutting edges of workpieces held by said bed to form a butt weld therealong;
- and a plurality of down pressure roller means mounted on

said truck means for rolling contact with workpieces supported on said bed when said torch means is guided along a seam, said down pressure roller means including a leading set of down pressure rollers disposed at a predetermined distance in advance of said torch means, and further including a trailing set of down pressure rollers disposed at a predetermined distance behind said torch means with respect to the direction of travel, said leading and trailing sets of down pressure rollers being sized and said predetermined distances selected so as to contact and apply down pressure to the workpieces at locations distributed over a predetermined, localized traveling zone of welding heat induced distortion on the workpieces, said traveling zone extending ahead and behind and laterally of said welding torch means; and

wherein said plurality of down pressure roller means comprise a plurality of roller support means for mounting said leading and trailing sets of rollers so as to be independently movable toward and away from said truck means, and a plurality of biasing means for reacting against said truck means so as to independently urge said leading set and trailing set of rollers downwardly toward said bed and workpieces thereon when said truck means is moved from said retracted position to said operative position.

15. A method of automatically or semi-automatically welding an elongate stiffener to a substantially flat workpiece, comprising the steps of:

- holding such workpiece down against a supporting bed by developing a suction force on the underside of the workpiece;
- controllably guiding a welding torch, down pressure and steering roller supporting head assembly along a predetermined stiffener attachment line on an upwardly facing surface of the workpiece so as to form a fillet weld along a lengthwise edge portion of a stiffener that is in contact with said workpiece surface;
- exerting an initial down pressure on the stiffener in advance of the forming of said fillet weld by a leading down pressure roller mounted on said head assembly;
- laterally steering the stiffener, also in advance of the forming of said fillet weld by exerting inwardly opposing side pressure on the stiffener with laterally movable steering rollers disposed downstream of the leading down pressure roller; and,
- exerting a final down pressure on the stiffener at a location adjacent to the point of formation of the fillet weld by a trailing down pressure roller mounted on said head assembly.

4,392,605
PACKAGE

Erik Backman, Gothenburg, Sweden, assignor to AB Volvo, Gothenburg, Sweden

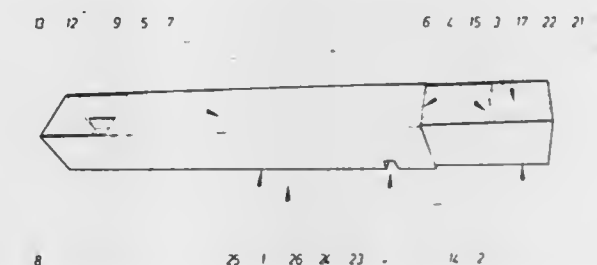
Filed Jul. 15, 1981, Ser. No. 283,457

Claims priority, application Sweden, Jul. 22, 1980, 8005301

Int. Cl.³ B65D 5/38, 13/06

U.S. Cl. 229—19

10 Claims



1. An adjustable, relockable package, comprising: first and second package parts displaceable axially from one another for opening and closing the package and for adjusting the size of the package to an article to be packaged therein; the first package part having at least a first wall and the

second package part having at least a second wall, the first and second walls being slidably disposed adjacent one another;

the first and second walls having a plurality of cuts, the cuts defining a plurality of locking elements and forming abutment edges, transverse to the displacement directions, when any of the locking elements of the first and second parts are together pressed into a locking position, in which the pressed-in locking elements in the first package part engage abutment edges of the second package part resulting from locking elements of the second package part being pressed in; and,

one of the first and second walls having an extended series of the cuts, uniformly spaced from one another, and the other of the first and second walls having at least four of the cuts, spaced from one another by whole number multiples, including one, of the uniform spacing of the extended series of cuts, whereby said first and second package parts can be locked together in the same axial position by the displacement inwardly of any one of three adjacent locking elements.

4,392,606

PRE-BANDED BULK PACK CONTAINER

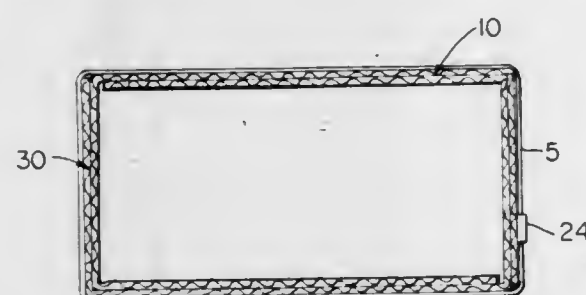
Edwin A. Fremion, Cleveland, Tenn., assignor to Westvaco Corporation, New York, N.Y.

Filed Dec. 17, 1981, Ser. No. 331,555

Int. Cl.³ B65D 19/06, 19/20

U.S. Cl. 229—23 R

6 Claims



1. A bulk pack container adapted to be supported by a pallet or the like comprising, in combination, a body portion and a pair of first and second end caps, said body portion comprising side walls formed from a pair of rectangular wall forming blanks of material that are unsecured with respect to one another, said blanks having coterminous upper and lower edges and unsecured ends and being scored to provide at least four panels, said blanks being nested and interleaved with like panels overlapping one another so that the ends of each respective blank are separated from one another by a corner of the other respective blank to form a reinforced structure, and at least two bands of strapping material arranged around the outer periphery of said body portion in the knocked down condition, said bands being adapted to restrain the side walls and keep the side walls from bulging outwardly when the container is filled.

4,392,607

CARTON WITH INTEGRAL CLOSURES

David Perkins, Jr., Des Moines, Iowa, assignor to Corrugated Drum Systems, Inc., Cedar Rapids, Iowa

Continuation-in-part of Ser. No. 220,764, Dec. 29, 1980,

abandoned. This application Mar. 19, 1982, Ser. No. 359,869

Int. Cl.³ B65D 5/10

U.S. Cl. 229—39 R

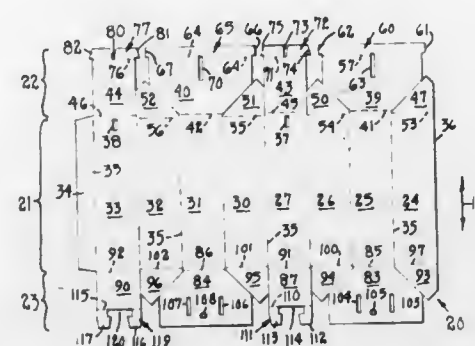
4 Claims

1. A carton having an integral self-locking end closure, comprising, in combination:

a carton body having pairs of opposite panels integral along longitudinal fold lines;

outer flaps integral along first transverse fold lines with the panels of a first pair and along second transverse fold lines with first tab strips having central slots and first outward

lock tabs, the panels of said first pair having medial lock slots near said first fold line; and inner flaps integral along third transverse fold lines with the panels of a second pair and along fourth transverse fold lines with second tab strips having second outward lock tabs, said inner flaps having center slots terminating near said fourth transverse fold lines,



so that when said inner flaps are folded in the same direction on said third and fourth transverse fold lines said second lock tabs are received in said lock slots of said first pair of panels to pass outward therethrough, and when said outer flaps are then folded in the same direction on said first and second transverse fold lines, said central slots of said first tab strips receive said second tab strips, and said first lock tabs are received in said center slots of said inner flaps to pass inwardly therethrough.

4,392,608

THERMALLY RESPONSIVE FLUID AND ELECTRICAL SWITCH AND CONTROL SYSTEM

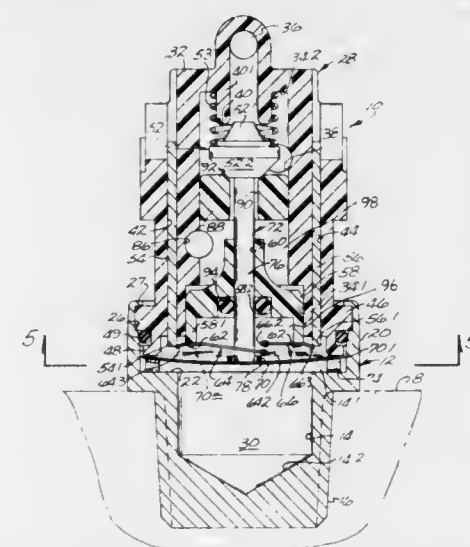
Brian J. Blades, Norton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 3, 1979, Ser. No. 99,295

Int. Cl.³ G05D 23/10

U.S. Cl. 236—48 R

7 Claims



1. A thermally responsive fluid and electrical switch comprising

a first thermally conductive metal housing means having an open-ended well therein,

a second housing means having an open-ended well and having port means opening into the well, the second housing means being secured to the first housing means so that the wells cooperate to form a switch chamber therebetween,

electrical terminal means extending into the switch chamber, thermally responsive means also disposed in the switch chamber in close heat-transfer relation to the first housing means for movement in response to selected changes in temperature,

valve means also disposed in the switch chamber actuable by movement of the thermally responsive means for regulating fluid flow in the port means in accordance with said changes in temperature, and electrical contact means also disposed in the switch chamber actuable with the valve means for regulating electrical current flow in the terminal means in accordance with said selected changes in temperature.

4,392,609

PORTABLE PREHEATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

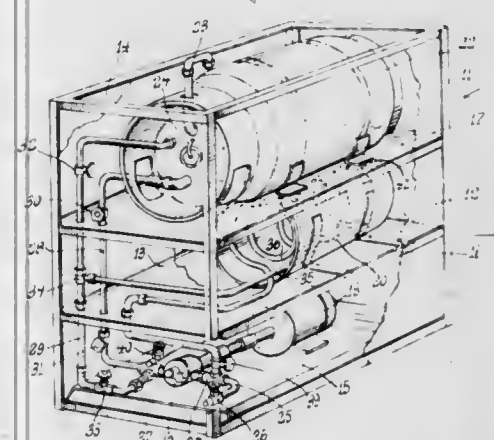
Eugene E. Conterio, 445 Hillcrest Dr., Wilmette, Ill. 60091

Filed Jan. 21, 1981, Ser. No. 226,558

Int. Cl.³ B60H 1/02

U.S. Cl. 237—12.3 C

1 Claim



1. A portable preheating apparatus for internal combustion engines comprising:

(a) a portable cabinet-like housing internally compartmentalized by a plurality of horizontally disposed parallel shelves,

(b) a liquid reservoir in one of said compartments,

(c) a heating chamber housing heating coils for heating liquid in said reservoir as well as liquid in the engine to be preheated, in another of said compartments,

(d) a pump common to said reservoir and said heating coils in yet another of said compartments,

(e) said pump having an inlet and an outlet each in communication with said liquid reservoir and said heating coils as well as the engine to be preheated,

(f) a series of pipe conduits within said housing connecting said inlet and said outlet of said pump to said heating coils, said liquid reservoir, and the engine to be preheated,

(g) a series of valves interposed in said pipe conduits connecting said inlet and said outlet of said pump to said heating coils completing a course for recycling of the fluid by said reservoir between said liquid reservoir and said heating coils,

(h) a second series of valves interposed in said pipe conduits connecting said inlet and said outlet of said pump to said heating coils and said liquid reservoir and the engine to be heated completing a course of circulation of the liquid by said pump between said heating coils and said reservoir and the engine to be heated, and

(i) a third series of valves interposed in said pipe conduits connecting said inlet and said outlet of said pump to said heating coils and the engine to be heated completing a course of recycling of the liquid by said pump between said heating coils and the engine to be heated.

4,392,610

HEAT SCAVENGER

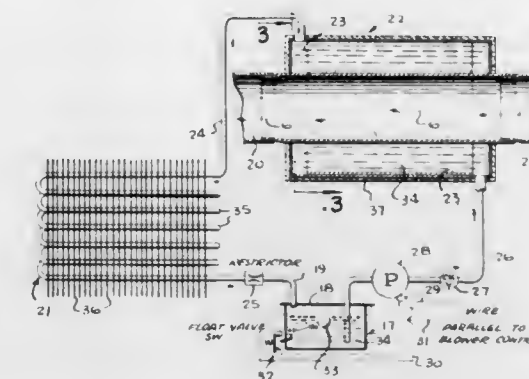
John F. Moskal, Box 266, Nanjemoy, Md. 20662

Filed Apr. 2, 1980, Ser. No. 136,673

Int. Cl.³ F24B 7/00

U.S. Cl. 237—5 S

5 Claims



1. For use with an existing heating system including a furnace having an air intake for admitting cold air into the furnace, air outlet means for distributing air exiting from said furnace, and a flue pipe defining an exhaust path to the ambient of undesired combustion gases, a portable readily detachable heat scavenger comprising:

means for absorbing heat from said flue pipe;

heat exchange coil means for radiating heat located in said cold air downstream of said air intake;

a reservoir tank mounted externally of said furnace;

means for interconnecting said absorbing means, said coil means and said reservoir tank;

said reservoir tank, said absorbing means, said coil means and all of said interconnecting means containing heat exchange fluid;

pump means for moving said fluid through said interconnecting means;

said interconnecting means including restrictor means, positioned downstream of said coil means, for maintaining flow of said fluid therefrom at a constant rate, said restrictor means being chosen so that the time of travel of said fluid through said coil means is maximized, said restrictor means further being positioned upstream of said reservoir tank and discharging directly thereinto;

said absorbing means including inner and outer concentric shell members, said inner member being in direct contact with said combustion gases, as well as in line with, and concentrically secured to said flue pipe, said inner and outer members defining therebetween a chamber through which said heat exchange fluid flows.

4,392,611

SPRAYER CONTROL SYSTEM

Wesley J. Bachman, and Robert C. Funk, both of Auburn, Ill., assignors to Dickey-John Corporation, Auburn, Ill.

Filed May 15, 1981, Ser. No. 264,147

Int. Cl.³ A01M 7/00; B05B 9/06

U.S. Cl. 239—74

21 Claims

1. An automatic control system for a vehicular liquid sprayer which pumps liquid at a desired pressure to a plurality of nozzles which dispense liquid at a desired volume per unit area application rate, said application rate being a function of predetermined properties of said vehicular liquid sprayer and of the liquid, said control system comprising: pressure sensing means for sensing the instantaneous pressure of the liquid supplied to said nozzles and for producing a corresponding pressure electrical signal, means for measuring the ground speed of said vehicular liquid sprayer and for producing a corresponding ground speed electrical signal, control circuit means for receiving said pressure signal and said ground speed signal, operator accessible control means for delivering to said control circuit means input electrical signals corresponding to a de-

end face forming a well defined peripheral edge, the length of said cylindrical end portion and its said peripheral edge serving to sever the wall of a said conduit to remove a portion of conduit material and thereby form a circular opening therein when the emitter with said inlet fitting is attached to the conduit by being pressed against it.

4,392,617

SPRAY HEAD APPARATUS

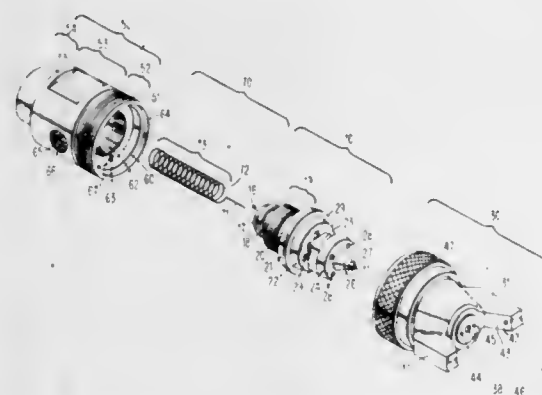
Peter Bakos; Russell E. Darrow, both of Endicott; Joseph Funari, Vestal, and Diane L. Redpath, Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1981, Ser. No. 278,025

Int. Cl.³ B05B 1/26

U.S. Cl. 239—290

5 Claims



1. Non-electrostatic spray head apparatus for spraying a layer of photoresist material on the surface of a predetermined circuitizable workpiece, said layer being subsequently finalized as a photoresist mask for coating with said surface to circuitize said workpiece, said apparatus comprising:

nozzle means having at least one discharge orifice for discharging a predetermined fluid of said material,

a non-electrically connected springlike member having plural coils compressively housed within said nozzle means, said coils having a longitudinal first axis, said member having a longitudinal elongated vibratile extension integral with an end coil of said springlike member, said extension having a longitudinal center second axis and being disposed in said hollow tip and protruding outwardly from said orifice to discharge said photoresist fluid from said orifice as a hollow-shaped stream, said first and second axes being colinear, said fluid being discharged from said orifice along said extension, and a source of pressurized propellant for providing said pressurized propellant external to said orifice to intercept the discharged said fluid, said hollow-shaped stream of said discharged fluid coating with said intercepting propellant to vibrate said extension transverse to said longitudinal center axis, the vibrations of said extension in combination with said intercepting propellant and said hollow-shaped stream coating to atomize said fluid into a spray having a uniform distribution characteristic to apply said layer with a substantially uniform thickness on said surface.

4,392,618

LIQUID-PROJECTING MONITOR

John L. Evans, Camberley, and Kuldip Bains, Slough, both of England, assignors to Chubb Fire Security Limited, Middlesex, England

Filed Mar. 13, 1981, Ser. No. 243,305

Claims priority, application United Kingdom, Mar. 13, 1980, 8008524

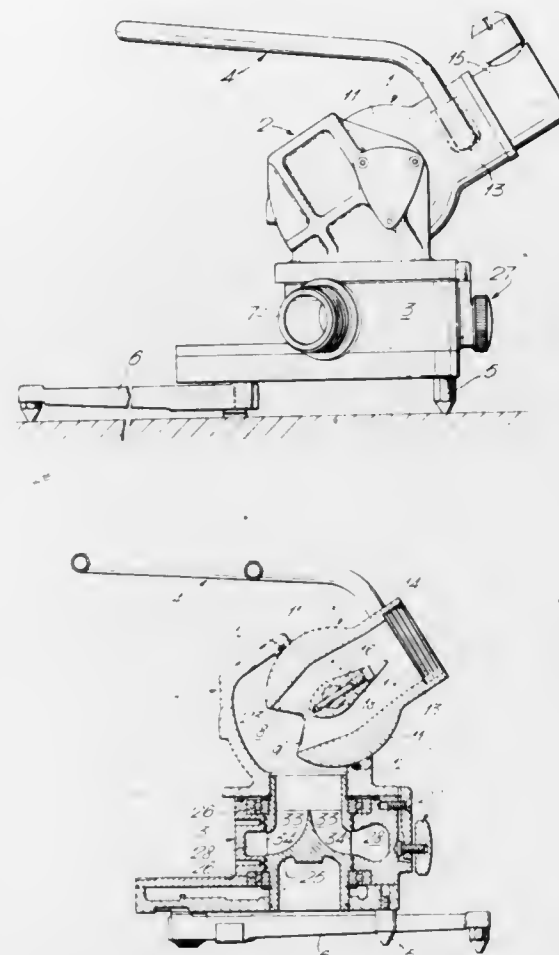
Int. Cl.³ B05B 1/26

U.S. Cl. 239—461

8 Claims

1. A liquid-projecting monitor comprising a housing, and a head for carrying a nozzle; the head having a frusto-spherical external surface and having a passage within the head for liquid

flow to the nozzle; the housing defining together with the head a chamber from which liquid is led into said passage within the head and thence to the nozzle; an axle passing transversely through the width of the head to support the head for pivotal movement relative to the housing about a generally horizontal axis so as to provide adjustment of the angular elevation or depression of the head; the frusto-spherical surface of the head



4,392,619

AUTOMATIC ROLL-UP DEVICE FOR A SAFETY BELT

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to REPA Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Filed Mar. 10, 1981, Ser. No. 242,179

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009701

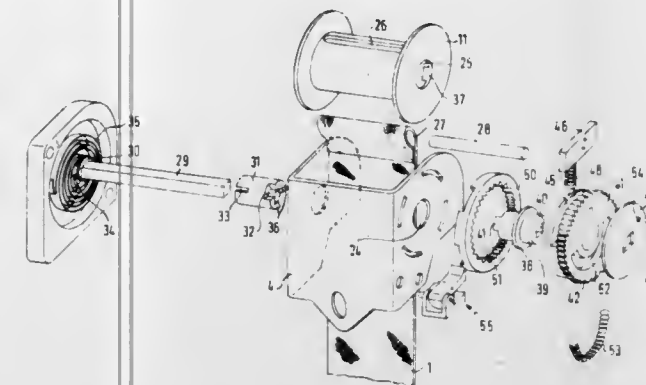
Int. Cl.³ A62B 35/02; B65H 75/48

U.S. Cl. 242—107.2

11 Claims

1. Automatic roll-up device and belt arresting device for retarding movement of a safety belt of a vehicle and for arresting movement of the safety belt, which comprises a housing for the roll-up device, a rotatable belt roller shaft mounted in the housing, a belt roller on which the belt is wound mounted on the belt roller shaft, a retarding mechanism for retarding unwinding of the belt comprising a control disc with control teeth at its periphery freely rotatable relative to the belt roller shaft, a vehicle sensitive actuating sensor which is actuated when the vehicle exceeds a permissible acceleration or deceleration for impeding rotation of the control disc by contact with said control teeth, a spring supported by the control disc, driver means rotatable with the belt roller shaft which, after rotation of said control disc is impeded, rotates against the

force of said spring around a predetermined angular path to retard movement of the belt while permitting withdrawal of the belt, outer teeth affixed to the housing around the control disc, and a belt sensitive actuating sensor in the form of an inertial mass carried by the control disc for impeding rotation



of the control disc by contact with said outer teeth, a belt arresting device through which the belt from said roll-up device passes, and arresting means in said belt arresting device to arrest the belt upon change in movement of the belt there-through due to retarding the belt by the retarding mechanism.

4,392,620

EMERGENCY LOCKING RETRACTOR FOR A VEHICLE OCCUPANT RESTRAINT BELT

Juichiro Takada, 3-12-1 Shinmachi, Setagayaku, Tokyo, Japan

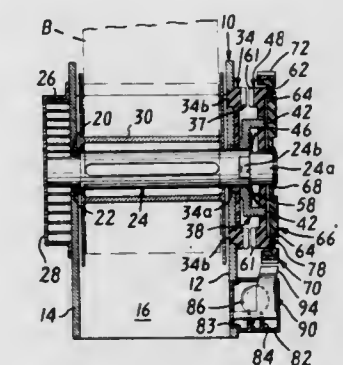
Filed May 28, 1981, Ser. No. 267,890

Claims priority, application Japan, Jun. 2, 1980, 55-72737; Jun. 2, 1980, 55-72738

Int. Cl.³ A62B 35/02; B65H 75/48

U.S. Cl. 242—107.4 A

5 Claims



1. An emergency locking retractor for a vehicle occupant restraint belt including a frame, a belt reel having a shaft mounted for rotation in the frame, a rewinding spring urging the reel shaft to rotate in a direction to wind the belt onto the reel and a reel locking mechanism located adjacent a side portion of the frame characterized in that the locking mechanism comprises a circular row of equally spaced apart first locking ratchet teeth on the outer face of said side portion of the frame and disposed concentrically to the axis of rotation of the reel shaft, a flange affixed on a reel shaft portion located outwardly of said frame side portion, an inner disc received on said shaft portion outwardly of the flange for limited axial movement toward and away from the flange and having a row of second locking ratchet teeth engageable with the first locking ratchet teeth upon movement of the inner disc toward the frame, an inertia spring engaging the inner disc and urging it in a direction away from the flange, an outer disc received on said shaft portion outwardly of the inner disc and retained thereon against movement in a direction axially of the shaft away from the frame, coaxing cam elements on the inner and outer discs adapted to cam the inner disc toward the frame upon rotation of one of the discs relative to the other, one of the discs being coupled to the shaft for rotation conjointly therewith and the other disc being rotatably carried on said shaft portion and

having an inertia that causes it to lag the rotation of the disc that rotates with the shaft so that the inner disc is thereupon shifted toward the frame by the cam elements, and the flange having lugs received in corresponding slots in the inner disc and adapted to lock the reel shaft to the inner disc when the inner disc is locked to the frame by the locking ratchet teeth.

4,392,621

DIRECTIONAL CONTROL OF ENGINE EXHAUST THRUST VECTOR IN A STOL-TYPE AIRCRAFT

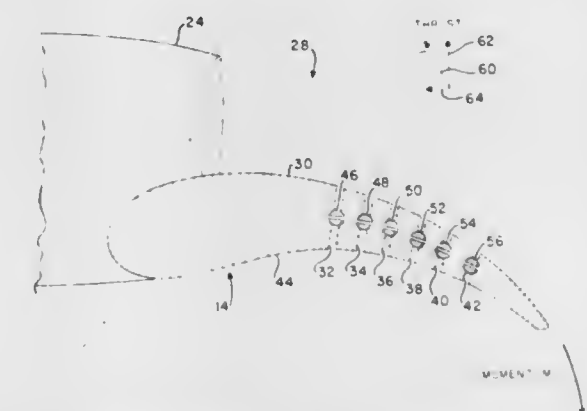
Hermann Viets, 144 Scenery Dr., Morgantown, W. Va. 26505

Filed Apr. 7, 1981, Ser. No. 251,695

Int. Cl.³ B64C 21/08

U.S. Cl. 244—12.5

9 Claims



1. In a short takeoff and landing aircraft having at least one wing and a jet engine mounted above and forward of the wing so as to blow its exhaust stream over an upper surface of the wing, a method of controlling the direction of the thrust vector of the engine exhaust stream, comprising the steps of:

(a) deflecting the exhaust stream of said engine over said upper surface of the wing and toward the ground by Coanda effect attachment of said exhaust stream to said upper surface, said deflecting of the exhaust stream increasing the vertical component and decreasing the horizontal component of the thrust vector of said engine exhaust stream and thereby increasing lift of said aircraft; and

(b) controllably detaching said exhaust stream from said upper surface by introducing a flow of air between said exhaust stream and said upper surface at selected ones of a plurality of successive locations, spaced apart along said upper surface of said wing directly behind said engine and aligned in a series between the same and a rear edge of said wing, for varying the position, starting from a region of said upper surface near said rear edge of said wing and remote from said engine and progressing forwardly along said upper surface toward said engine, at which said exhaust stream becomes detached from said upper surface, said detaching of said exhaust stream increasing the horizontal component and decreasing the vertical component of the thrust vector of said engine exhaust stream and thereby increasing forward acceleration of said aircraft.

4,392,622

COMBINED BEAM SUPPORT FOR LANDING GEAR

John R. McClaffin, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 22, 1980, Ser. No. 218,772

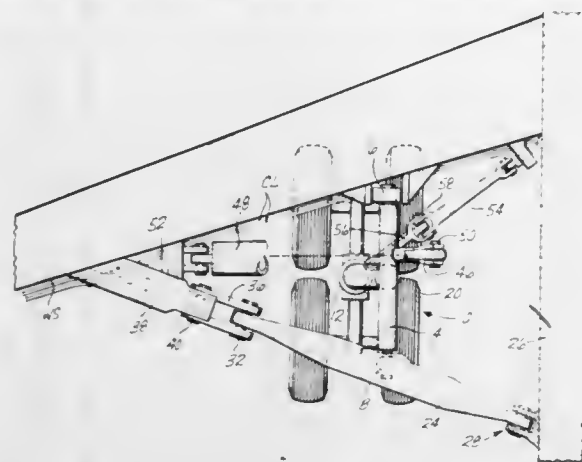
Int. Cl.³ B64C 25/10

U.S. Cl. 244—102 A

14 Claims

1. In an aircraft, an improved landing gear mount comprising: an aircraft body frame; a wing spar extending laterally outwardly from said body frame; a cantilever beam projecting rearwardly from the wing spar and extending inwardly towards the body frame;

a landing gear support beam positioned rearwardly of the wing spar and extending between the cantilever beam and the body frame;
means connecting the inboard end of said landing gear support beam to the body frame including a first pin connection;
a second pin connection between the outboard end of the landing gear support beam and the cantilever beam, said



second pin connection being spaced both rearwardly and towards the body frame from said wing spar;
a landing gear including a main strut, wheel means at the lower end of the main strut, and a trunnion at the upper end of the main strut;
a forward bearing for the trunnion mounted on the wing spar; and
an aft bearing for the trunnion mounted on the landing gear support beam.

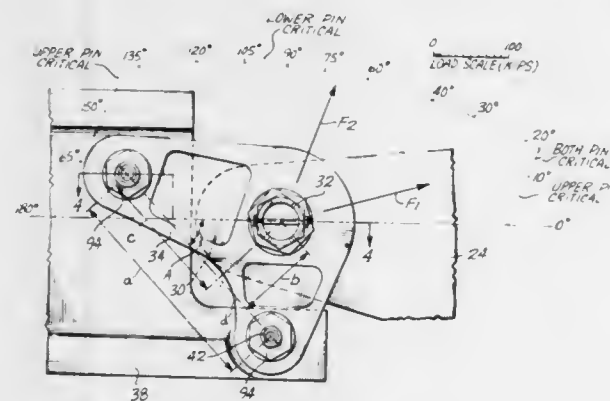
4,392,623

FUSED CONNECTION ADAPTED TO FAIL UNDER DIFFERENT OVERLOADS ACTING IN DIFFERENT DIRECTIONS

Victor A. Munsen, Seattle, and John R. McClaffin, Kent, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 22, 1980, Ser. No. 218,957
Int. Cl.³ B64C 25/10

U.S. Cl. 244-102 R

21 Claims



1. A fused single pin connection between two structural members, comprising:
connector plate means separate from said structural members;
a main attach pin connecting said connector plate means to one of said structural members; and
a pair of shear pins connecting said connector plate means to the other structural member, with the shear pins being positioned such that differences in the direction of applied load on the connector plate means changes the load distribution to the two shear pins.

15. In an aircraft, a generally horizontally extending landing gear beam for supporting the rear end of a landing gear trunnion, said beam including pivot pin means connecting its inboard end to a body frame portion of an aircraft and its outer

end to a wing frame means, and the improvement comprising a fused single pin connection between the outboard end of said beam and the wing frame means, comprising:

connector plate means;
a main attach pin connecting said connector plate means to the outboard end of said beam; and
a pair of shear pins connecting said connector plate means to the wing frame means with the shear pins being sized and positioned relating to each other and the main attach pin such that before failing the connection can withstand a substantially larger load in a generally horizontal direction than in a generally vertical direction.

4,392,624

IMPLANTED BOUNDARY LAYER TRIP

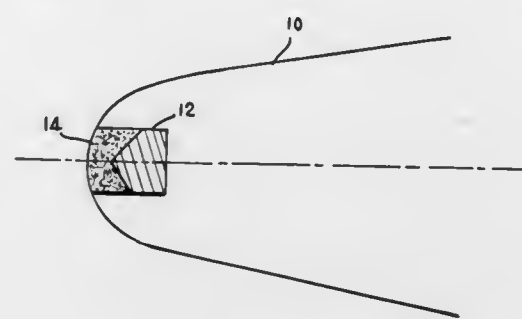
Robert J. Myer, Rancho Palos Verdes, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 6, 1981, Ser. No. 232,094

Int. Cl.³ B64G 1/58

U.S. Cl. 244-158 A

6 Claims



1. A re-entry nose cone comprising a first and a second element; said first element being composed of a first carbon-carbon composite ablative material having a recess in the forwardmost portion; and said second element including a pair of components, one of the components of said pair of components being in the form of an implant positioned in said recess and being composed of a second carbon-carbon composite ablative material characterized by having a different density than that characterized by said first ablative material, and a surface roughness greater than that of said first ablative material, the other component of said pair of components forming a forward cap section for said implant and being composed of a third carbon-carbon composite ablative material characterized by having a density and surface roughness similar to that characterized by said first ablative material; whereby said nose cone exhibits a symmetrical erosion profile during its re-entry regime.

4,392,625

CIRCUIT ARRANGEMENT FOR A TRACK CIRCUIT WITH MULTIPLE SIGNAL SOURCES

Oldrich Poupě, Žilina, Czechoslovakia, assignor to Vysoká škola dopravy a spojov, Žilina, Czechoslovakia

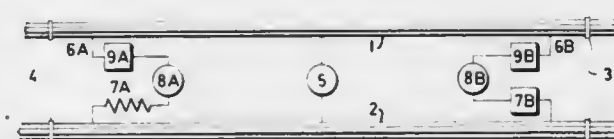
Filed Apr. 3, 1981, Ser. No. 250,594

Claims priority, application Czechoslovakia, Apr. 4, 1980, 2339-80

Int. Cl.³ B61L 21/06

U.S. Cl. 246-34 CT

4 Claims



1. A circuit arrangement for determining the presence of a rail vehicle on a section of track having at least two rails, said circuit arrangement comprising a main signal transmitter coupled to said rails for introducing a main signal thereon, a cross impedance shunting said rails, an additional transmitter for supplying an auxiliary signal and a main receiver for receiving

the signals from said main and additional transmitters, said additional transmitter and said main receiver being connected in series with respect to the track of the main signal and being positioned along said track section, with said cross impedance, at a first information point located at a predetermined distance from said main transmitter, whereby the presence of a rail vehicle on said track section additionally shunts said rails thereby reducing the level of said main signal which is then indicated by said receiver.

4,392,626

VITAL PROTECTION ARRANGEMENT FOR RAILROAD TRACK CIRCUITS

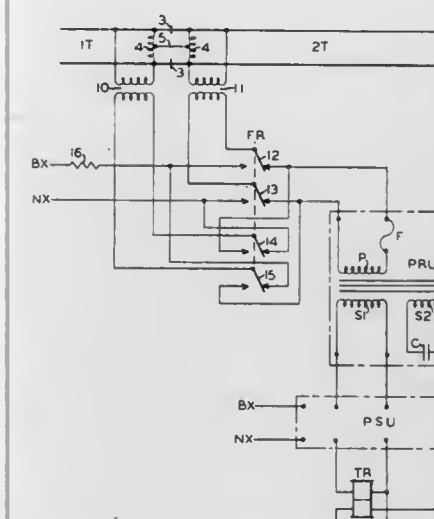
Robert D. Pascoe, Upper St. Clair Township, Allegheny County, Pa., assignor to American Standard Inc., Swissvale, Pa.

Filed Sep. 14, 1981, Ser. No. 301,619

Int. Cl.³ B61L 21/06, 25/00

U.S. Cl. 246-34 R

6 Claims



1. A vital protection arrangement for alternating current track circuits in an electrified railroad with propulsion current return through the rails, each track circuit including a receiver at one end for registering the occupancy condition of the corresponding track section in accordance with the presence or absence of track current of selected characteristics, comprising,

- a transformer having a primary, secondary, and third winding with said secondary winding coupled to said track circuit receiver,
- a fuse having a preselected capacity coupled in series with said primary winding to the track section rails for receiving the current flowing in said rails, and
- a capacitor connected across said third winding and having a selected value to resonate with said primary winding at the track circuit frequency,
- said primary-capacitor resonant circuit network presenting a high parallel impedance at track circuit frequency, for passing track circuit current through said secondary winding to said receiver without exceeding the capacity of said fuse, and a low impedance at other frequencies, and
- said fuse interrupting the circuit network to said receiver when propulsion current flowing in said primary winding exceeds the preselected capacity of said fuse.

4,392,627

DISMANTLEABLE BOAT CRADLE

Frederik H. van den Broek, 48 Willem Klooslaan, Hillegom, Netherlands

Filed Oct. 24, 1980, Ser. No. 200,588

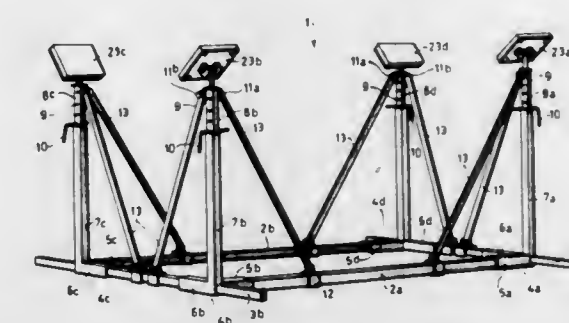
Int. Cl.³ F16M 11/00

U.S. Cl. 248-176

15 Claims

1. A boat cradle, comprising:
a frame having the form of a closed rectangle and being constructed from profile sections which define the four sides of the rectangle, the four sides of the rectangle meeting at four corners of the frame;

at least two of the corners of the frame, a respective coupling being provided; each coupling comprising a first tube section for receiving the profile section located at a first side of the frame, a second tube section for receiving the profile section located at a second side of the frame which side is perpendicular to the first side of the frame, and a third tube section extending upright from the frame; at least one of the first and the second tube sections being open at its both opposite ends for enabling the respective profile section received in that tube section to be passed completely through that tube section as the position of



that tube section is adjusted along that profile section, and the first tube section being adjustable along the respective profile section received therein;
an upright supported by the third tube section and having a support head thereon for supporting thereon a keel of a boat.

4,392,628

CONCEALED ACCESS FURNITURE

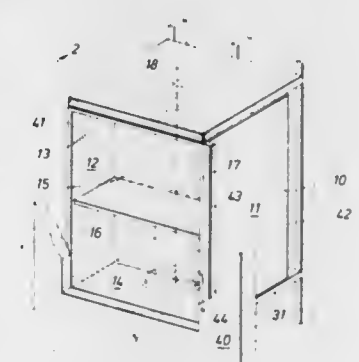
Frederick C. Hadfield, 5225 Hollister, Houston, Tex. 77040, and Marvin R. McElroy, 25240 F.M. 2978, Houston, Tex. 77375

Filed Jul. 21, 1981, Ser. No. 285,490

Int. Cl.³ A47B 96/06

U.S. Cl. 248-202.1

4 Claims



1: A system for mounting a rotatable frame member with respect to a vertical wall member comprising:
an elongated, rectangularly shaped frame member having vertical side walls and horizontal top and bottom walls where the side edges of said walls define at least one forward edge surface lying in a vertical plane, a vertical axis extending through said top and bottom walls and being parallel to the vertical plane defined by said forward edge surface, a forward vertical wall member, upper and lower horizontal support members attached to said forward vertical wall member, first plate members respectively attached to said upper support member and said top wall of said frame member, and second plate members respectively attached to said lower support member and said bottom wall of said frame members, rotational means on each of said plate members aligned with respect to said vertical axis for permitting rotation of said

frame member for at least 180° about said vertical axis while providing vertical stability for said frame member, said rotational means having means for locking said plate members relative to one another at 180° positions, said locking means being operative upon horizontal movement of said plate members on said frame member relative to the plate members on said support members.

4,392,629

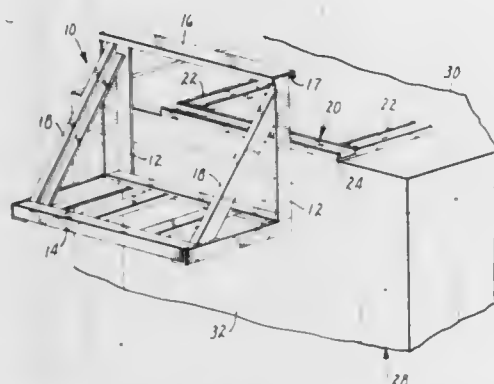
MOUNTING SYSTEM

Brian L. Dallman, P.O. Box 248, Second & Elm, Hudson, Wis. 54016

Filed Jul. 27, 1981, Ser. No. 287,290
Int. Cl.³ A47B 96/06

U.S. Cl. 248—205 R

5 Claims



1. A mounting system comprising:

- (a) a support rack having upright members and a horizontal shelf supported thereby, wherein a hook member is attached to the upper portion of said upright members, and
- (b) a rack fastener which is adapted to be fastened to a support surface, wherein said rack fastener includes a horizontally disposed member which is adapted to engage and support said hook member of said support rack, wherein said horizontally disposed member spans substantially the full width of said support rack.

4,392,630

SOAP HOLDERS

Hussain A. Moontasir, 2 High Park Rd., Kew Gardens, Surrey, England

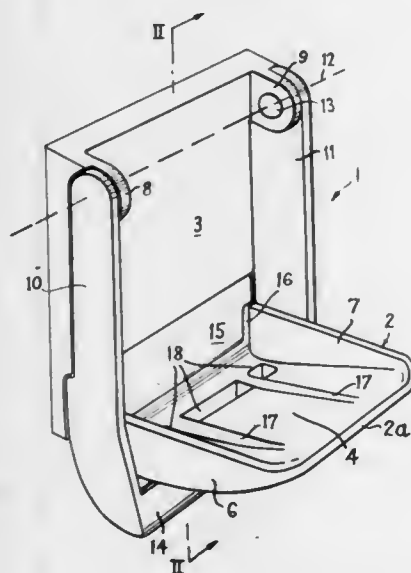
Filed Oct. 14, 1980, Ser. No. 196,326

Claims priority, application United Kingdom, Oct. 12, 1979; 7935597

Int. Cl.³ A47K 5/08

U.S. Cl. 248—309 R

6 Claims



1. A soap holder comprising, in combination:

- (a) a tray-like member having a base part for holding a bar of soap on one surface thereof,

- (b) means for mounting said tray-like member in a generally horizontal position projecting from back to front of said soap holder and with said base part surface facing upwardly,
- (c) push means located closely above said base part surface of said tray-like member,
- (d) means mounting said push means for reciprocating movement between a rest position at the back of said tray-like member and the front thereof, and
- (e) actuating means located below said tray-like member and adapted to move said push means,
- (f) said actuating means being operable to advance said push means towards said front of said tray to dispense said bar of soap from said front thereof, whereby said bar can be delivered into the palm of a user's hand operating said actuating means.

4,392,631

SUB-SURFACE SAFETY GATE VALVE

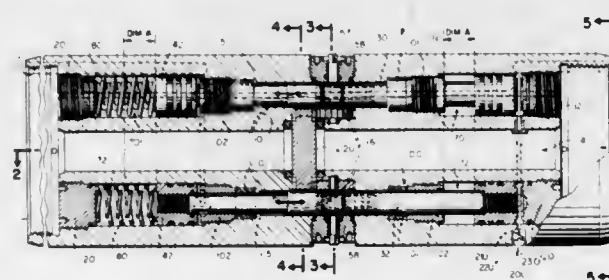
Jack J. DeWald, 7323 W. Roadway, New Orleans, La. 70124

Filed Jul. 26, 1979, Ser. No. 61,076

Int. Cl.³ F16K 31/16

U.S. Cl. 251—58

15 Claims



1. A high pressure gate valve apparatus comprising:

- a. an elongated valve body having a longitudinal axis providing a flow conveying cylindrical longitudinal bore having an axis parallel to the axis of said body;
- b. a gate valving member movable within the confines of said valve body at generally right angles to and intersecting said flow conveying bore and having a flow opening corresponding in size to said bore, said gate valving member being movable within said valve body between open flow and closed flow positions, with said valve body bore and said flow opening substantially aligning in said open flow position;
- c. a pair of spaced generally parallel cylindrical drive chambers in said valve body, said flow conveying bore being generally between and parallel to said pair of spaced drive chambers;
- d. a pair of powered cylindrical operator shafts, each movably mounted respectively within one of said pair of drive chambers, each of said shafts being smaller in diameter than said chambers;
- e. drive piston means mounted on each end portion of said operator shafts for sealably engaging said chambers at the end portions of said shafts;
- f. a pair of gear structures associated respectively with and engagedly driven respectively by said pair of operator shafts, each of said driven gear structures operating said gate valving member between said open flow and said closed flow positions responsive to their own powered movement within said drive chambers; and
- g. attachment means for attachment of a hydraulic power source to at least one end portion of each of said pair of drive chambers, said attachment means hydraulically communicating with said drive chambers to move said piston means and said attached operator shafts.

4,392,632

ELECTROMAGNETIC VALVE WITH A PLUG MEMBER COMPRISING A PERMANENT MAGNET

Theodor Gast, Berlin, and Kurt Binder, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Fed. Rep. of Germany

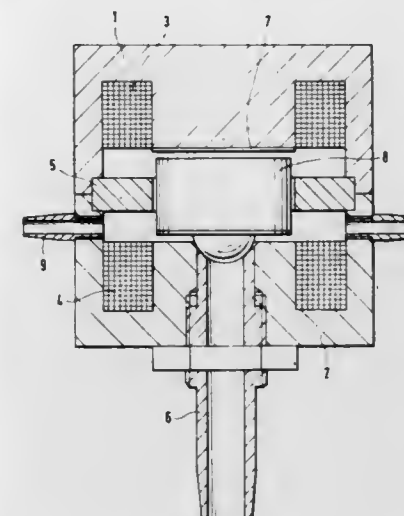
Filed Jul. 2, 1981, Ser. No. 279,822

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1980, 3026133

Int. Cl.³ F16K 31/08

U.S. Cl. 251—65

9 Claims



1. An electromagnetic valve capable of being put into either of two positions by a pulse of current and requiring no flow of current to maintain it in either of said positions, comprising:

- first and second cup cores (1,2) each having a reentrant axial pole portion, said cores being mounted facing each other co-axially with their rims joining each other to enclose a cavity, said re-entrant pole portions respectively having inner end faces facing each other across said cavity, said second cup core (2) having an axial bore passing through the re-entrant pole portion of said second cup core and extending to the exterior and having a valve seat provided with a seat surface in the shape of a surface of revolution coaxial with said cores and located in the internal orifice of said bore adjacent to said cavity; said cavity having at least one duct connection (9,10) to the exterior in addition to said bore;

- a valve plug constituted by a body comprising a permanent magnet and having a closure surface facing said valve seat permitting engagement therewith and disengagement therefrom by axial movement of said plug, said plug being contained in said cavity in a manner permitting movement over a limited path in the axial direction of said cavity, at one end of which path said plug abuts said valve seat and closes said orifice of said bore, said magnet being magnetized in said axial direction;

- first and second windings (3,4) respectively located in said first and second cup cores (1,2), surrounding the respective re-entrant pole portions of said cores and electrically connected together in circuit so that energization of said circuit with current flow in either direction will produce like magnetic poles at said end faces of the respective re-entrant pole portions of said cores;

- means for applying a pulse of current, selectively in either direction, by said circuit, to said windings (3,4), and a ferromagnetic ring (5) having its periphery in contact with the rim portion of at least one of said cup cores (1,2) and extending inwards across said cavity, at a location axially intermediate of said end faces of said re-entrant pole portions of said cores, to such an extent as to provide an inner aperture of said ring, of which the inner surface is closely adjacent to the periphery of said plug, for completing a magnetic circuit path for said permanent magnet of said plug when said plug is at either end of its axial path of

movement in said cavity and for at least assisting in constraining said plug to move only axially in said cavity.

4,392,633

VALVE STRUCTURE HAVING MOVABLE SEAT MEANS

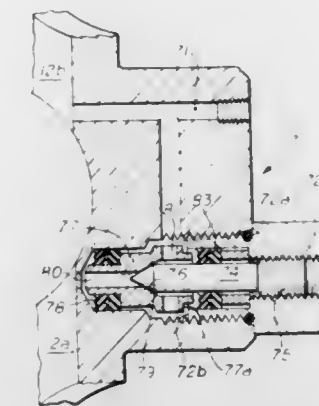
Denzal W. Van Winkle, 411 Yorkchester, Houston, Tex. 77079

Filed Oct. 29, 1979, Ser. No. 89,180

Int. Cl.³ F16K 25/00, 31/12

U.S. Cl. 251—122

13 Claims



1. In a needle valve having a body with fluid passage means therein, the invention comprising:

- a. a valve stem rotatably and sealably carried by the body and having a tapered, annular closure surface thereon;
- b. longitudinally movable seat means in the body passage means for receiving said closure surface to close off the passage means, said seat means rotatable by said valve stem when said closure surface engages said seat means during opening and closing of the valve to reduce wear and galling between the seat means and the closure surface;
- c. seal means sealing between said seat means and passage means; and
- d. said seal means responsive to fluid pressure in the body passage means to urge said seat means longitudinally in the passage means toward said closure surface to form a tighter seal in response to pressure in the passage means in the body.

4,392,634

ELECTROMAGNETIC VALVE

Toshio Kita, Osaka, Japan, assignor to Fujikin International, Inc., Osaka, Japan

Filed Feb. 4, 1981, Ser. No. 231,320

Claims priority, application Japan, Feb. 4, 1980, 55-12829

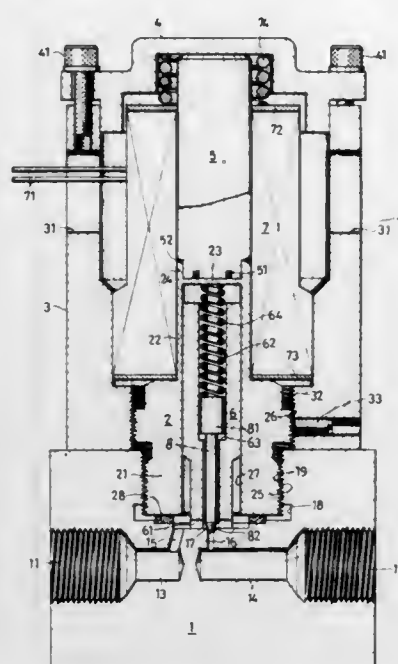
Int. Cl.³ F16K 31/06; H01F 7/12

U.S. Cl. 251—129

3 Claims

1. An electromagnetic valve comprising:
 - a valve case having a fluid inlet, a fluid outlet and a channel holding the inlet in communication with the outlet, the channel being provided with a valve seat,
 - a valve stem having a closing member for blocking the channel by contact with the valve seat,
 - a movable core supporting the valve stem movably to bring the closing member into or out of contact with the valve seat,
 - a spring biasing the valve stem in a direction to bring the closing member into contact with the valve seat,
 - a support comprising a hollow cylindrical portion and an attaching portion fixed to the valve case for supporting the movable core movably,
 - a stationary core aligned with the movable core,
 - an exciting coil surrounding the movable core and the stationary core, and
 - a shading coil provided on an end surface of the stationary core which surface is opposed to the movable core, the stationary core having a small diameter at the end thereof provided with the shading coil,

the cylindrical portion of the support extending toward the stationary core, the cylindrical portion being integrally formed with a disk portion in contact with the end surface of the stationary



core and a projecting edge covering the periphery of the small-diameter end of the stationary core, the small-diameter end fitting in the projecting edge with the forward end of the projecting edge welded to the stationary core.

4,392,635

ROTARY POWER COUPLING AND PLANETARY GEAR WINCH

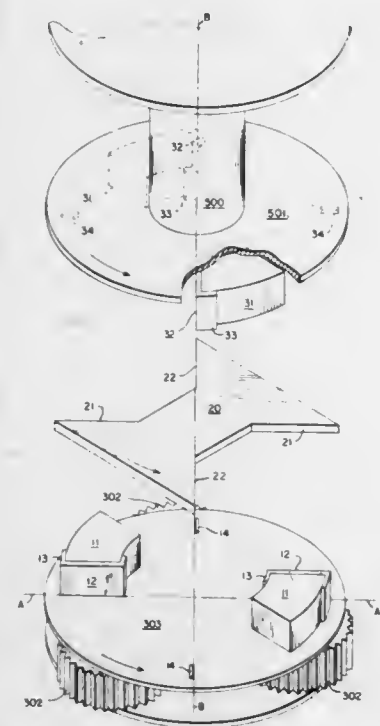
Dan C. Muessel, Danvers, and Nubar Hagopian, Boston, both of Mass., assignors to Rule Industries, Inc., Gloucester, Mass.

Filed Oct. 16, 1980, Ser. No. 197,654

Int. Cl.³ B66D 1/22; F16D 3/04

U.S. Cl. 254—344

20 Claims



1. A rotary mechanical coupling comprising:

- a rotatable driving member adapted for connection to a sources of rotary mechanical power, said member being rotatable on a plane substantially normal to the axis of rotation of said source and comprising a pair of flat, radial driving surfaces lying on a diameter of said axis of rotation;
- a rotatable driven member adapted for connection to a rotary power user, said driven member being spaced substantially

coaxially from and substantially parallel to said driving member and comprising a pair of flat radial driven surfaces lying on a diameter of the axis of rotation thereof, said diameter being displaced by about 90° from the diameter defined by said driving surfaces of said driving member;

a coupling plate interposed between said driving and driven members, said coupling plate comprising a pair each of flat driven and driving surfaces corresponding to and in torque-transmitting, flush bearing contact with each of said pairs of flat radial driving and driven surfaces, respectively of said rotatable driving and driven members;

one or the other of the pair of flat radial driving surfaces of the driving member or the corresponding pair of flat driven surfaces of said coupling plate and one or the other of the pair of flat radial driven surfaces of said driven member or the corresponding pair of flat driving surfaces of said coupling plate each extending centrally at least somewhat beyond the bearing surface in flush contact therewith, thereby to allow sliding eccentric displacement of the coupling plate relative to the axes of rotation of said driving and driven members.

11. A planetary gear winch comprising

a prime mover,

a planetary gear train having at least one planetary gear speed reduction stage, said prime mover being coaxially connected to the rotary power input of said gear train,

a winch drum, and

a rotary mechanical coupling between said gear train and said winch drum, said coupling comprising:

a rotatable driving member connected to the rotary power output of said gear train, said member being rotatable on a plane substantially normal to the axis of rotation of said output and comprising a pair of flat, radial driving surfaces lying on a diameter of said axis of rotation;

a rotatable driven member connected to said winch drum, said driven member being spaced substantially coaxially from and substantially parallel to said driving member and comprising a pair of flat radial driven surfaces lying on a diameter of the axis of rotation thereof, said diameter being displaced by about 90° from the diameter defined by said driving surfaces of said driving member;

a coupling plate interposed between said driving and driven members, said coupling plate comprising a pair each of flat driven and driving surfaces corresponding to and in torque-transmitting, flush bearing contact with each of said pairs of flat radial driving and driven surfaces, respectively, of said rotatable driving and driven members;

one or the other of the pair of flat radial driving surfaces of the driving member or the corresponding pair of flat driven surfaces of said coupling plate and one or the other of the pair of flat radial driven surfaces of said driven member or the corresponding pair of flat driving surfaces of said coupling plate each extending centrally at least somewhat beyond the bearing surface in flush contact therewith, thereby to allow sliding eccentric displacement of the coupling plate relative to the axis of rotation of said driving and driven members and to thereby accommodate eccentric displacement of the axis of rotation of said winch drum relative to that of said rotary power output.

4,392,636

APPARATUS FOR DEGASSING MOLTEN METAL

Joseph A. Clumpner, St. Louis, Mo., assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Jul. 22, 1981, Ser. No. 285,759

Int. Cl.³ C21C 5/48

U.S. Cl. 266—218

11 Claims

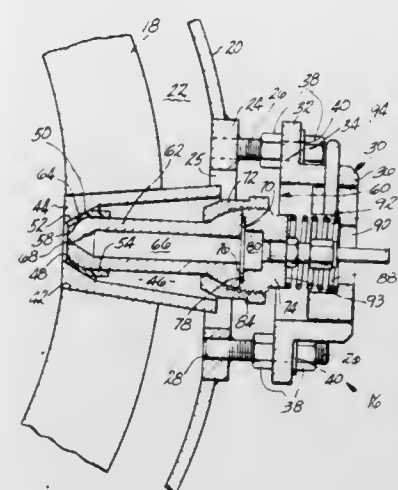
1. An apparatus for use in the degassing of molten metal which comprises:

- a chamber having an inner elongated sidewall portion, an outer elongated sidewall portion and a central axis;
- metal inlet means positioned at a first height and tangentially located with respect to said chamber for tangentially

introducing molten metal into said chamber such that said molten metal swirlingly flows from said molten metal inlet down through said chamber;

metal outlet means positioned at a second height below said first height for removing molten metal from said chamber;

and



at least two fluxing gas inlet means mounted in said first inner elongated sidewall portion below said first height at different radial distances from said central axis of said chamber for introducing fluxing gas into said chamber.

4,392,637

METALLURGICAL MELTING APPARATUS WITH A BLOW-NOZZLE OR BURNER CAPABLE OF SWIVELLING IN DIFFERENT DIRECTIONS

Ralph Weber, Sao Paulo, Brazil; Bernt Rollinger; Michael Nagl, both of Baden-Baden, Fed. Rep. of Germany, and Bernhard Rinner, Kehl am Rhein, Fed. Rep. of Germany, assignors to Korf-Stahl AG, Fed. Rep. of Germany and Voest-Alpine AG, Austria

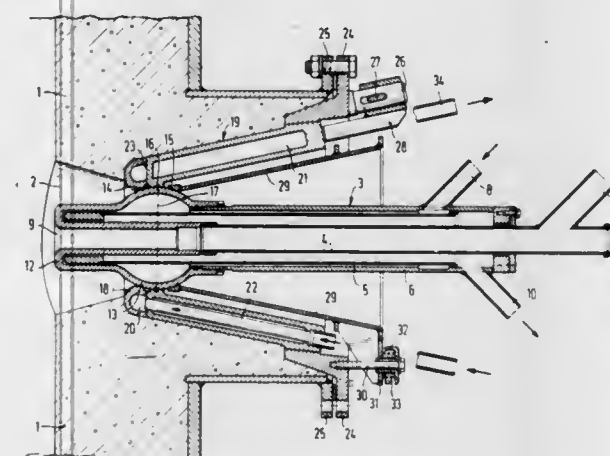
Filed Sep. 10, 1981, Ser. No. 300,903

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1980, 3034520

Int. Cl.³ C21B 7/16

U.S. Cl. 266—265

12 Claims



1. A metallurgical melting apparatus, in which sponge iron is melted to form liquid pig iron and reduction gas is produced from feed coal and oxygen-bearing gas, comprising a blow-nozzle mounted in the side-wall of said apparatus above the level of the melt capable of swivelling in different directions and having at least one tube, a nozzle-head (12) attached to said tube (6), having a spherical surfaced calotte (13) a forward ring-seat (14) anchored to the side-wall (1) of the melting apparatus sealingly contacting a forward surface of the calotte (13), and a rear ring-seat (15) contacting a rear surface of the calotte (13) which thrusts the calotte forward towards the forward ring-seat (14).

4,392,638

VEHICLE SUSPENSION DEVICE

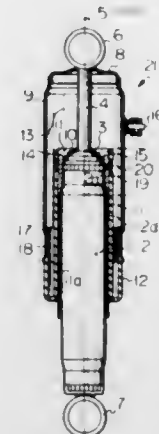
Tetsuo Kato, Yokohama, Japan, and Naoki Makita, Southfield, Mich., assignors to Tokico Ltd., Kanagawa, Japan

Filed Apr. 9, 1981, Ser. No. 252,601

Int. Cl.³ F16F 9/08

U.S. Cl. 267—64.24

7 Claims



1. A vehicle suspension device comprising:
 - a hydraulic damper including a cylinder and a piston rod extending outwardly of one end of said cylinder;
 - a cylindrical housing mounted on said one end of said cylinder and surrounding a part of the outer circumference of said cylinder;
 - a cylindrical support member having a closed end attached to the extending end of said piston rod;
 - a flexible tubular wall member having a first end connected to said support member and a second end connected to said housing, said wall member, said housing and said support member defining an air chamber; and
 - means for enabling said housing to rotate relative to said cylinder about a longitudinal axis of said damper, and thereby for preventing twisting of said wall member, said means comprising a bearing supporting said housing on said cylinder.

4,392,639

DAMPER SUPPORT FOR ENGINE MOUNTS

Keizo Konishi, Inuyama, Japan, assignor to Tokai Rubber Industries Ltd., Komaki, Japan

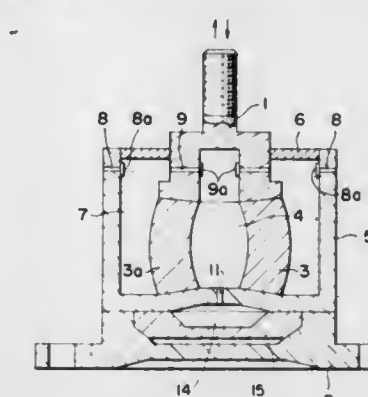
Filed Apr. 3, 1981, Ser. No. 250,902

Claims priority, application Japan, Apr. 11, 1980, 55-47553

Int. Cl.³ F16F 9/04

U.S. Cl. 267—140.1

10 Claims



1. A damper support comprising: at least one confined chamber and a pump chamber defined by two mounting fixtures and by an elastic member hermetically connecting said two mounting fixtures, said pump chamber being operative to effect a pumping action in response to the vibrations of at least one of said mounting fixtures; means for providing communications between said pump chamber and the atmosphere and between said pump chamber and said confined chamber, respectively;

and check valve means mounted in said communication means, respectively.

4,392,640

VIBRATION ABSORBER FOR AN AUTOMOTIVE VEHICLE

Toshihiko Kakimoto, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

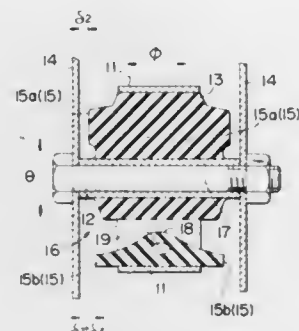
Filed Apr. 13, 1981, Ser. No. 253,570

Claims priority, application Japan, Apr. 21, 1980, 55-52664

Int. Cl.³ F16F 1/38

U.S. Cl. 267—141.2

4 Claims



1. A vibration absorber adapted to be disposed between the body and the power unit of an automotive vehicle, comprising:

- a spool-shaped body having an inner cylinder with a pair of axially spaced plate members fixedly joined thereto;
- an outer cylinder having a diameter larger than that of said inner cylinder and being disposed concentrically with said inner cylinder; and
- a rubber member, having: (i) a tubular portion which is fixed to the interior of said outer cylinder, (ii) an arm which is fixed to said inner cylinder and which extends radially therefrom in opposite directions to said tubular portion, said arm having radially intermediate portions with axial dimensions greater than that of the remainder of the arm but less than the axial spacing between said plate members, said arm being further provided with a pair of radially outer portions having axial dimensions less than that of the remaining portions of the arm; and (iii) a pair of diametrically opposed projections extending inwardly from the tubular portion in a direction substantially perpendicular to the radial disposition of said arm with the inner ends of said projections being spaced from said arm, said rubber member being adapted to deform in a way such that when said spool-shaped body vibrates radially in directions transverse to that of said arm, said arm is deformed in a shear mode prior to contacting said projections and said projections are deformed in a compression mode when contacted by said arm, and when said spool-shaped body vibrates in the axial direction, said arm is deformed in a shear mode prior to contacting said plate members, and in a compression mode when said radially intermediate portions contact said plate members; whereby multistep elasticity characteristics can be obtained in both the radial and axial vibration directions of said spool-shaped body.

4,392,641

ALIGNMENT TOOL

Timothy C. Dearman, P.O. Box 937, Pearland, Tex. 77581

Filed Sep. 17, 1981, Ser. No. 302,970

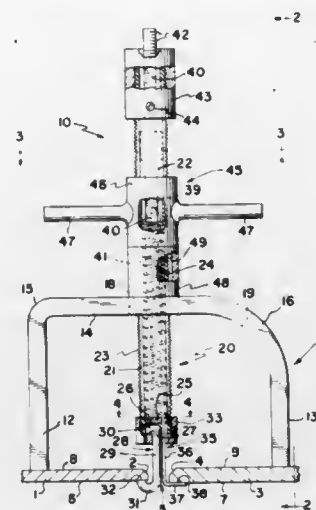
Int. Cl.³ B25B 5/14

U.S. Cl. 269—49

7 Claims

1. A welding tool for use in positioning in predetermined locations spaced apart, confronting edges of two members to be welded together, said tool comprising a body having two legs adapted to straddle the space between said edges and a bridge joining said legs, said bridge having an opening therein extending from adjacent the middle of said bridge toward one of said legs and said opening terminating closer to said one leg than to the other of said legs; a drawbar slidably extending

through said opening, said drawbar terminating at one end in a laterally extending foot of such width as to pass through the space between said edges and of such length as to engage a surface of a single one of said members adjacent such space, said opening in said bridge having a length greater than the



4,392,642

WORKPIECE POSITIONING TABLE WITH AIR BEARING PADS

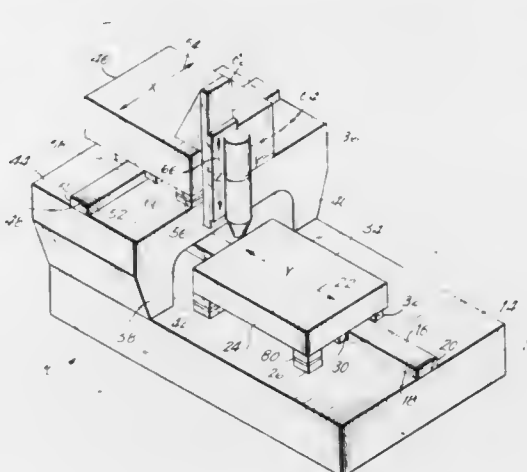
Anwar Chitayat, Plainview, N.Y., assignor to Anorad Corporation, Hauppauge, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,930

Int. Cl.³ B23Q 1/02

U.S. Cl. 269—73

4 Claims



1. A workpiece positioning table of the type having at least one table and at least one plurality of spaced apart air bearing pads for supporting said at least one table above a horizontal surface, comprising:

- a source of pressurized air;
- an air pressure regulator operative to receive said pressurized air and to regulate its output air pressure to a substantially constant air pressure;
- a plurality of flow control valves each of which receives said substantially constant air pressure and feeds air pressure to one of said at least one plurality of air bearing pads; and
- means for independently adjusting a constant flow of air through each of said flow control valves in said plurality of flow control valves to independently control a height of a lift above said horizontal surface developed by each of said air bearing pads.

4,392,643

MAGNETIC HOLD DOWN TOOL

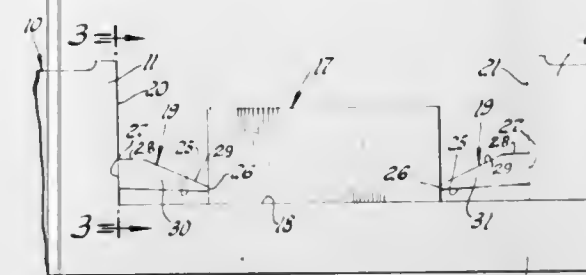
Gary P. Campeau, Southfield Township, Oakland County, Mich., assignor to Suburban Tool, Inc., Birmingham, Mich.

Filed Mar. 27, 1980, Ser. No. 134,541

Int. Cl.³ B23Q 3/02

U.S. Cl. 269—136

5 Claims



1. The combination with a vise having a pair of jaws, of a pair of workpiece hold down tools, characterized in that:

- each of said hold down tools includes an elongated body having a front end surface for engagement with a workpiece, a flat bottom surface perpendicular to the front end surface, and a rear end surface for mounting against the clamping face of a vise jaw;
- the rear end surface of each body is formed on a plane that is non-parallel with the body front end surface by an inwardly directed acute angle; and
- magnet means is fixedly mounted on the rear end surface of each body for releasably retaining each hold down tool on the clamping face of one of the pair of vise jaws in a self retaining manner at a selective level relative to a workpiece to be held between the pair of vise jaws, whereby when the vise jaws are moved to a position to clamp said workpiece the front ends of the hold down tools engage said workpiece with a line contact and exert a downward holding pressure on said workpiece.

4,392,644

TUBE CUTTING APPARATUS

John J. Borzym, 4820 Schoolbell La., Birmingham, Mich. 48010

Continuation of Ser. No. 119,241, Feb. 7, 1980, Pat. No.

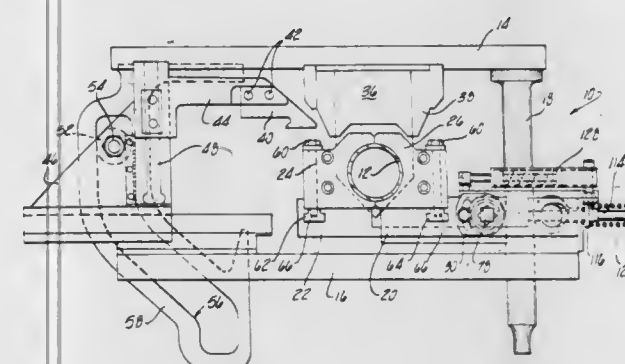
4,294,147. This application Jun. 4, 1981, Ser. No. 270,298

The portion of the term of this patent subsequent to Oct. 13, 1998, has been disclaimed.

Int. Cl.³ B23D 21/00, 25/04

U.S. Cl. 269—157

8 Claims



1. Apparatus for clamping a workpiece comprising: a pair of opposed jaws for engaging the workpiece; first and second means for mounting said jaws for reciprocating movement toward and away from each other between an open release position and a closed clamping position; first and second spaced apart cam follower means respectively coupled with said first and second mounting means; cam means for displacing said cam follower means; means for selectively adjusting the distance between said

jaws when the latter are in said closed clamping position thereof, including means for mounting one of said first and second cam follower means for movement toward and away from the other of said first and second cam follower means, and

means for limiting the magnitude of force transferred from said cam means through at least one of said first and second cam follower means to said jaws to a predetermined level thereof, regardless of the distance between said jaws.

4,392,645

HEAD SUPPORT AND HALO JIG

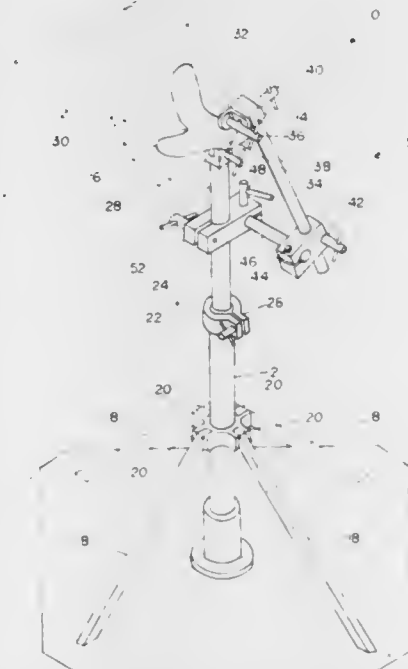
Thomas R. Westphal, 143B E. Frederick St., Lancaster, Pa. 17602

Filed May 28, 1981, Ser. No. 268,007

Int. Cl.³ A61G 13/00

U.S. Cl. 269—328

2 Claims



1. A head support and halo locating jig for use in attaching a halo band to the head of a patient positioned with neck and head extending off the end of a patient support means, comprising:

- a base means resting on the floor below the patient's neck and head;
- a pillar means movably attached and clamped to the base means and extending vertically upward to the region just below the patient's head;
- a head support cradle pivotably attached to permit movement in only a single vertical plane and clamped to the top of the pillar means; and
- a halo locating system adjustably clamped to the pillar independent of the head support cradle attachment means, including at least two clamped swivel adjustments independent of the head support cradle adjustment, and holding the halo band in a stable, predetermined position relative to the head support means.

4,392,646

SPREADING MACHINE CUTTER BOX AND CLAMP ASSEMBLY

Conrad A. Costigan, Richmond Hill, N.Y., assignor to Spreading Machine Exchange, Inc., New York, N.Y.

Filed Jul. 20, 1981, Ser. No. 284,822

Int. Cl.³ B65H 29/46

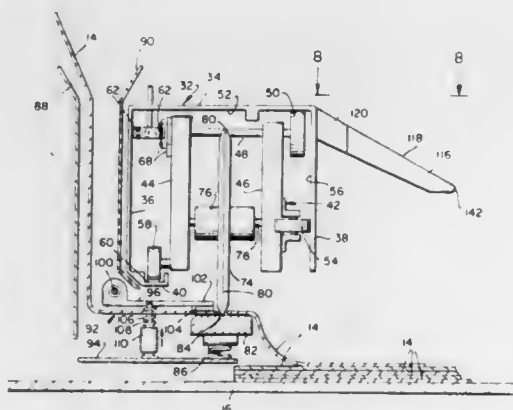
U.S. Cl. 270—30

10 Claims

1. A sheet material spreading machine comprising a carriage mounted for movement along a table surface and carrying a supply of sheet material to be deposited in superimposed layers on said table surface, with each layer of sheet material depos-

ited in an operative run of said carriage in opposite directions along said table surface,

a cutter box and clamp assembly carried by said carriage and adapted to cut off the layer of sheet material deposited on the table surface at one end of each operative run of said carriage, said cutter box and clamp assembly comprising: an elongated support member mounted on said machine carriage and extending transversely thereof, a cutter frame movably mounted on said support member, guide means on said support member for guiding movement of said cutter frame in opposite directions along said support member, drive means on said support member for moving said cutter frame along said guide means, a circular cutter member rotatably mounted for free rotation on said cutter frame in a vertical position and having an edge portion,



a pressure bar mounted on said support member in a horizontally-disposed position and having a solid impermeable planar surface underlying said cutter member wherein the sheet material passes between said cutter member and said planar surface and is pressed into engagement with said planar surface by said edge portion along a cutting line, biasing means mounted on said support member and adapted to urge said pressure bar into firm engagement with said cutter member, said cutter member rotating at a speed such that said edge portion moves in a substantially non-slipping relationship with the sheet material to thereby cause said cutter member to score the sheet material fed between said cutter member and said pressure bar under rolling action of said cutter member against said pressure bar as said cutter member is carried by said cutter frame along said support member, and clamp means disposed to clamp said sheet material to said pressure bar, adjacent to the path of travel of said cutter member.

4,392,647

FLOOR HOCKEY CAROM CORNER

William J. Golebjeski, 300 Stoneybrooke Dr., Cheswick, Pa. 15024

Filed Jan. 20, 1982, Ser. No. 340,867

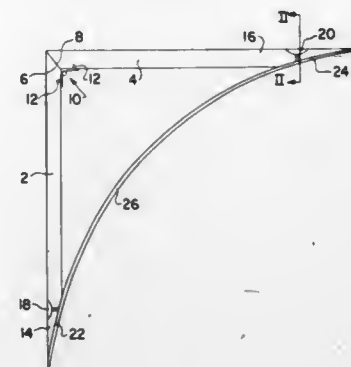
Int. Cl.³ A63B 71/02

U.S. Cl. 272—3

6 Claims

1. A carom corner for an indoor floor game, said corner comprising, in combination first and second frame members, each of said frame members having a chamfered end whereby said frame members may be joined to form a right angle, hinge means joining said frame members, said frame members further having in the vicinity of their

ends remote from said hinge arcuately shaped recessed portions, a panel member of flexible material and arcuate shape, and



means securing the ends of said panel to said remote ends of said frame members.

4,392,648

THEATRICAL TRANSPORTATION APPARATUS

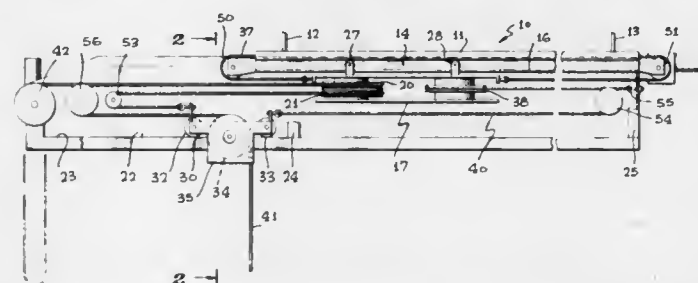
Peter S. Foy, 4345 Topaz St., Las Vegas, Nev. 89121

Filed May 26, 1981, Ser. No. 266,925

Int. Cl.³ A63J 5/12

U.S. Cl. 272—24

6 Claims



1. A theatrical personnel transportation apparatus for positioning a performer in a vertical viewing plane having a portion thereof exposed to a viewing audience comprising: an elongated stationary monorail lying in the vertical viewing plane out of view of the audience; said monorail having an upper track and a lower track extending between the opposite ends of said monorail; a first movable carriage carried on said upper track and a second movable carriage carried on said lower track whereby both of said carriages being adapted to move between the opposite ends of said tracks respectively; a first pulley system having a plurality of pulley wheels and a line trained over said wheels wherein the opposite ends of said line are connected to the respective opposite ends of said carriage so that said carriage may be selectively moved along said upper track; a second pulley system having a first pair of pulley wheels carried on said first carriage and a line trained over said pair of pulley wheels having its opposite ends fixly secured to said monorail whereby said second carriage moves in a direction opposite to the direction of movement of said first carriage and at twice the speed; and a third pulley system having a second pair of pulley wheels disposed so that one pulley wheel is mounted on said first carriage and the other pulley wheel of the pair is mounted on said second carriage and a line trained over said second pair of pulley wheels wherein the opposite ends of said line are connected to a wind-up drum and to the performer respectively whereby the performer is supported in mid-air from said monorail so that the performer may be maneuvered vertically and laterally within the vertical viewing plane exposed to the audience in response to movement of said first and second carriages respectively.

4,392,649

HAND, WRIST AND FOREARM EXERCISING DEVICE

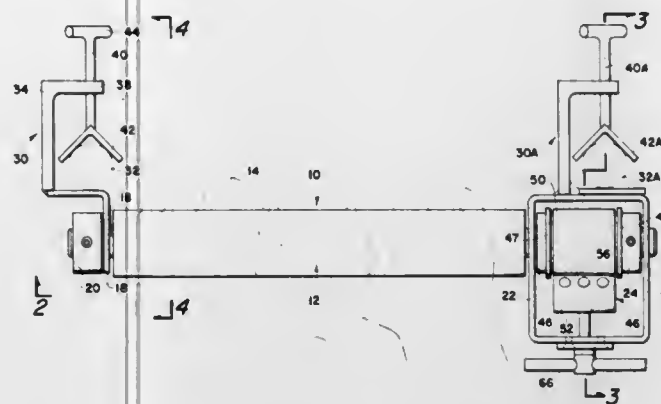
Dan Chapman, 1107 E. Teresa, Sapulpa, Okla. 74066

Filed Jun. 22, 1981, Ser. No. 276,030

Int. Cl.³ A63B 21/00

U.S. Cl. 272—67

3 Claims



1. A hand, wrist and forearm exercising apparatus adapted to be removably mounted on a support structure and comprising elongated continuous roller means to be grasped about the outer periphery by the hands of the user for twisting thereof about its own longitudinal axis, clamping means secured to the opposite ends of the roller means for suspending the roller means therebetween and securing said roller means to said support structure, and tensioning means operably connected with the roller means and disposed in the proximity of one end thereof, said tensioning means comprising a sleeve means secured in the proximity of one end of the roller means, friction belt means disposed around at least a portion of the outer periphery of the sleeve means, and means operably connected directly to the friction belt means for adjusting the tension of the belt for providing substantially any desired resistance to the twisting motion for an effective exercising of the hands, and wrist and forearm of the user.

4,392,650

TENNIS TRAINING AID

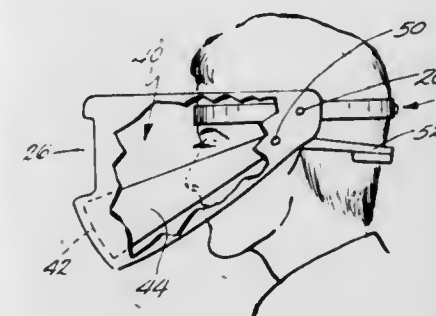
Carl W. Hilton, Muskegon, Mich., assignor to Return on Investment Corporation, Muskegon, Mich.

Filed Mar. 3, 1981, Ser. No. 240,168

Int. Cl.³ A63B 61/00

U.S. Cl. 273—29 A

14 Claims



1. A training aid primarily adapted for use in training a tennis player to properly orientate the head and to concentrate on the tennis ball, said aid comprising: a hood having a pair of spaced side panels defining an aperture through which the user must view; a band secured to said hood, said band adapted to support the hood on the head of the user and in a position so that the user must look through said aperture, said hood dimensioned to limit the peripheral vision of the user; and indicator means secured to said hood adjacent said aperture for visually indicating when the user moves his head and eyes from a normal horizontal position relative to a play-

ing surface by moving into and at least partially blocking said aperture of said hood.

4,392,651

ELECTRONIC LOGIC GAME

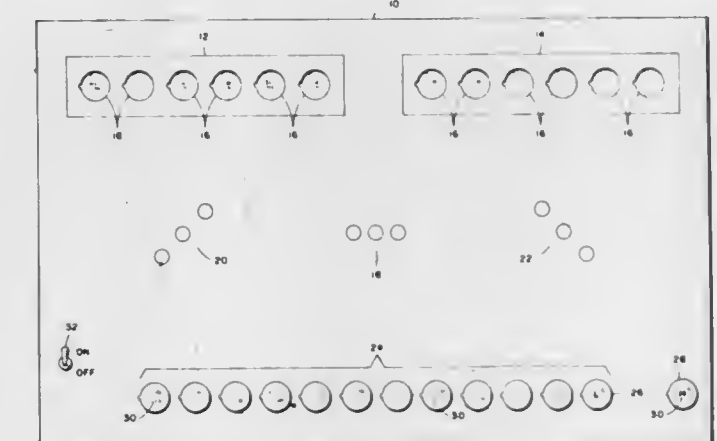
Alfred E. Hall, Dallas, Tex., assignor to Sigalos & Levine, P.C., Dallas, Tex.

Division of Ser. No. 190,612, Sep. 25, 1980, Pat. No. 4,350,340. This application Jul. 6, 1982, Ser. No. 395,133

Int. Cl.³ A63F 9/06

U.S. Cl. 273—153 R

8 Claims



1. An electronic logic game comprising: a. a simulated electronic balance scale, b. a plurality of units to be symbolically weighed, one of which units differs from the others electronically by including a first magnet to represent said unit being lighter than the other units or first and second magnets to represent said unit being heavier than the other units and selected ones of which units may be symbolically positioned on said simulated balance scale, c. means associated with said simulated balance scale for detecting said different unit when symbolically positioned on said simulated balance scale, and d. circuit means coupled to said detecting means for representing said scale to be balanced or unbalanced in a predetermined direction according to said state of said different unit whereby said different unit may be logically discovered in a predetermined number of said electronic scale balance or unbalance representations.

4,392,652

TARGET COMPRISING A RESILIENT MATERIAL COATED WITH THERMOLUMINESCENT MATERIAL

Lindsay C. Knight, Albury, Australia, and Robert A. Cottis, Stockport, England, assignors to Australasian Training Aids Pty. Ltd., Albury, Australia

Continuation of Ser. No. 43,486, May 29, 1979, abandoned. This application Sep. 16, 1980, Ser. No. 187,819

Claims priority, application United Kingdom, May 26, 1978, 23483/78

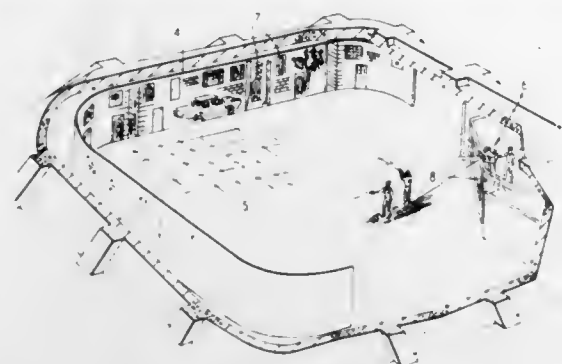
Int. Cl.³ F41J 5/00, 9/14

U.S. Cl. 273—358

4 Claims

1. A target comprising a support member adapted to be penetrated by projectiles, said support member being formed from a resilient material which is not destroyed when a projectile passes therethrough and which locally increases in temper-

ature as it is penetrated by said projectile, a coating of thermoluminescent material on said support member which is opera-



ble to luminesce in the area adjacent the position at which the projectile passes through the target.

4,392,653

GAME APPARATUS

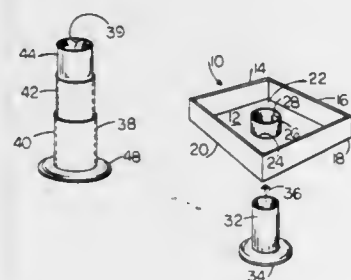
James W. Blume, Sr., 1851 Glatt, Arnold, Mo. 63010

Filed Oct. 30, 1981, Ser. No. 316,752

Int. Cl.³ A63B 63/04, 63/08

U.S. Cl. 273—400

13 Claims



10. A method of playing a game comprising providing a base member having side walls extending upwardly therefrom around the perimeter thereof, an opening positioned near the center of said base member spaced from said side walls, providing a tubular member extending upwardly from said base member and having a central cavity that registers with said opening forming a target, providing a receiving member insertable through said tubular member for increasing the height of the target, said receiving member having a central cavity for receiving playing pieces tossed therein, providing a plurality of playing pieces of a size to be thrown into the central cavity of said receiving member, tossing a predetermined number of said playing pieces from a predetermined distance from the base member toward the target with the intention of having them enter the center cavity of said receiving member, and scoring the value of selected ones of playing pieces tossed based upon the position of said playing pieces when they come to rest relative to said target.

12. A game apparatus for playing a toss type skill game, said apparatus forming a target area for the game and comprising an open topped container defined by a bottom wall and a peripheral wall extending upwardly from around the bottom wall, a hole through the bottom wall at a location spaced from the peripheral wall, a first tubular member positioned extending upwardly from the bottom wall through said hole, said first tubular member having an open upper side forming a target for receiving objects thrown at the apparatus, said first tubular member having an outer cross sectional size and shape to match the shape of the hole through the bottom wall whereby said tubular member can be moved through the hole in the bottom wall of said container, means on said first tubular member adjacent one end thereof movable into engagement with the bottom wall of said container to limit movement thereof through said hole, and a second tubular member positioned for movement through said first tubular member and along the

entire length thereof, the length of said second tubular member being greater than the length of said first tubular member.

4,392,654

ARROW FLETCHING

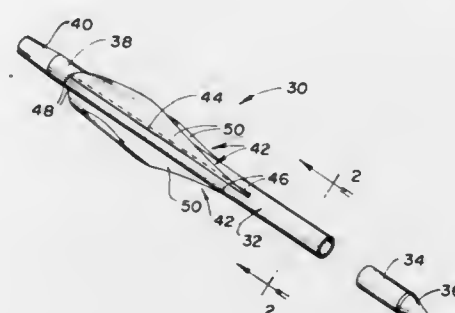
Richard F. Carella, 35572 Strathcona, Mount Clemens, Mich. 48043

Filed Jun. 19, 1981, Ser. No. 275,167

Int. Cl.³ F41B 5/02

U.S. Cl. 273—423

15 Claims



11. An arrow including a shaft having front and rear ends and a plurality of fletchings mounted on the rear end spaced circumferentially about the shaft from each other, each fletching being of a unitary plastic construction comprising: a foot mounted on the rear end of the arrow shaft and having front and rear ends; a flexible vane that projects radially from the foot; the vane having a front end that projects radially throughout the extent thereof; and the vane having a rear end including an inner portion that projects radially from the foot and an outer portion having a continuously curved shape over a major portion of the radially projecting height thereof from the foot, said curved shape of the vane being inclined inwardly toward the foot in a rearward direction to define a pocket for restricting air flow such that the vane flexes to moderate drag in response to wind changes.

4,392,655

HIGH-PRESSURE SEAL WITH CONTROLLED DEFLECTION UNDER PRESSURE

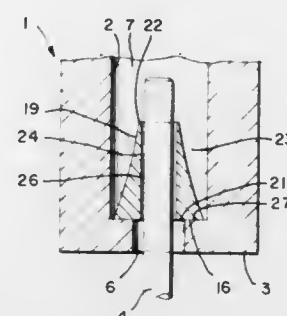
John H. Olsen, Vashon, and Robert S. Pritchard, Seattle, both of Wash., assignors to Flow Industries, Inc., So. Kent, Wash.

Filed Sep. 19, 1980, Ser. No. 188,980

Int. Cl.³ F16J 15/48, 15/40

U.S. Cl. 277—1

21 Claims



1. A seal for a shaft extending between high pressure and low pressure regions, comprising: a seal body for surrounding said shaft with a gap of predetermined configuration between said seal body and said shaft under non-pressurized conditions and extending from said high pressure region to said low pressure region, the exterior of said seal body being subjected to the fluid pressure within said high pressure region acting radially thereon; and means for controlling the radial compressive deformation of said seal body along the length thereof to provide a predetermined clearance between said seal body and said shaft under pressurized conditions to control leakage of said high-pressure fluid.

4,392,656

AIR-COOLED SEALING RINGS FOR THE WHEELS OF GAS TURBINES

Jacques P. H. Tirole, Sevres; Claude M. Mons, Savigny Le Temple, and Roland R. Spinat, Bretigny sur Orge, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.", Paris, France

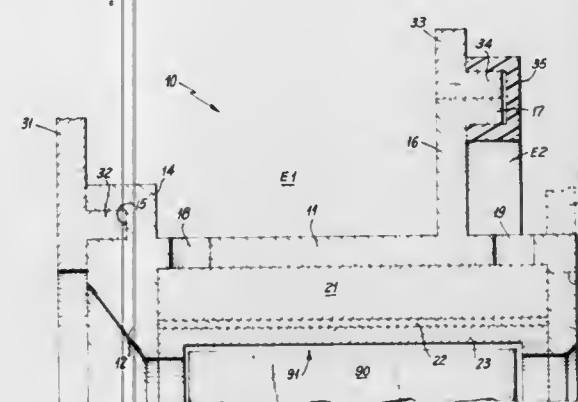
Filed Oct. 23, 1980, Ser. No. 200,036

Claims priority, application France, Oct. 26, 1979, 79 26666

Int. Cl.³ F01D 11/08; F02F 11/00

U.S. Cl. 277—53

7 Claims



1. An assembly including a cooled sealing ring for the bladed wheel of a gas turbine of the type comprising successively from the periphery toward the axis:

- an annular support surrounding the wheel,
- a first annular layer designated the "cooling layer" attached to the inner surface of said annular support and made of a material permeable to air,
- cooling air inlet means at the upstream region of said cooling layer, downstream exhaust means and deflectors in said cooling layer, said cooling layer being of a material whereby it serves as a reserve wear layer;
- a thin, separating layer radially inwardly of said cooling layer, said separating layer being permeable to air with its permeability decreasing from upstream to downstream; and
- a wear layer adjacent the ends of the wheel blades and made of a material capable of being abraded by said blades and being traversed radially by the air from the cooling layer passing through the separating layer.

4,392,657

BELLEVILLE SPRING LOADED SEAL

Robert D. Roley, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

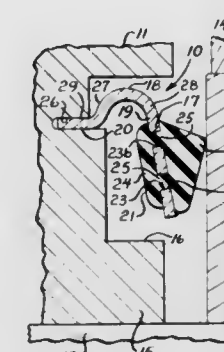
PCT No. PCT/US80/00164, § 371 Date Feb. 19, 1980, § 102(e) Date Feb. 19, 1980, PCT Pub. No. WO81/02455, PCT Pub. Date Sep. 3, 1981

PCT Filed Feb. 19, 1980, Ser. No. 151,841

Int. Cl.³ F16J 15/32, 15/34

U.S. Cl. 277—95

16 Claims



1. In a joint having a first member (11,111) and a second member (12) variably spaced adjacent said first member, an improved sealing structure (10,110) for sealing said first mem-

ber to said second member across the movable space therebetween, said sealing structure comprising:

- a frustoconical Belleville spring (17,117);
- an annular support spring (18,118) defining an arcuate cross section having an end (19,119) connected to an outer portion of the Belleville spring and an opposite end (20,120) sealingly mounted to said first member (11,111), the spring constants of said Belleville (17,117) and support springs (18,118) being preselected to cumulatively cause a biasing sealing force developed thereby to continuously increase with an increase in deflection of said springs over the range of variable spacing between said members (11,111,12) notwithstanding a decrease in the sealing force developed by the Belleville spring alone over a portion of the range of increasing deflection; and
- a seal element (21,121) fixed to said Belleville spring and having a lip portion (22,122) urged into dynamic sealing engagement with said second member (12) by said cumulative continuously increasing biasing action of said spring.

4,392,658

SKATE BLADE

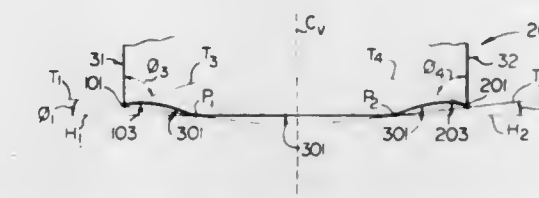
Harry W. Redmond, and Raymond V. Jeannotte, both of Langley, Canada, assignors to Norjay Services, Ltd., Langley, Canada

Filed Dec. 5, 1980, Ser. No. 213,228

Int. Cl.³ A63C 1/30

U.S. Cl. 280—11.18

34 Claims



1. An elongated skate blade for an ice skate, said blade comprising:

- (a) a first acute-angled cutting edge formed longitudinally on one side of said blade for providing cutting engagement with an ice surface;
- (b) a second acute-angled cutting edge formed longitudinally on the opposite side of said blade for providing cutting engagement with the ice surface; and,
- (c) a generally downwardly facing longitudinally extending bottom surface extending transversely from said first cutting edge to said second cutting edge, said bottom surface including:
 - (i) a first longitudinally extending edge face rising upwardly and inwardly from said first cutting edge;
 - (ii) a second longitudinally extending edge face rising upwardly and inwardly from said second cutting edge; and,
 - (iii) a longitudinally extending middle face centrally disposed between said first and second edge faces and merging substantially smoothly therewith, said middle face having a substantially flat profile in transverse cross-section for at least one-third of the distance from the transverse centre of the blade to each side of the blade.

4,392,659

TWO-WHEELED ROLLER SKATE

Koichi Yoshimoto, Kobe, Japan, assignor to Hanshin Sogyo Co., Ltd., Osaka, Japan

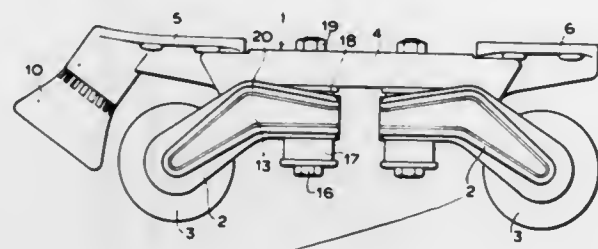
Filed Feb. 17, 1981, Ser. No. 234,895

Claims priority, application Japan, Nov. 25, 1980, 55-168513[U]

Int. Cl.³ A63C 17/06

U.S. Cl. 280—11.23

1 Claim



1. A two-wheeled roller skate comprising:
- (a) a base plate having first and second vertical openings extending therethrough;
 - (b) a pair of suspension arms extending longitudinally of said base plate and generally parallel thereto;
 - (c) each of said suspension arms having a first end swingably connected to said base plate, a downwardly bent intermediate portion, and a second end, and having a skate roller connected to said second end;
 - (d) first bolt means extending through said first and second openings for swingably supporting said suspension arms;
 - (e) second bolt means extending horizontally through said bent portion of each suspension arm for pivotably supporting the suspension arms on said base plate;
 - (f) each of said first and second vertical openings in said base plate being larger at the bottom end thereof than at the top end thereof to accommodate pivoting movement of said suspension arms about said second bolt means; and
 - (g) a toe base portion at one end of said base plate and a heel base portion at the other end of said base plate, said toe base portion being connected to said base plate by said second bolt means, and said heel base portion being connected to said base plate by said second bolt means.

4,392,660

SAFETY BAR

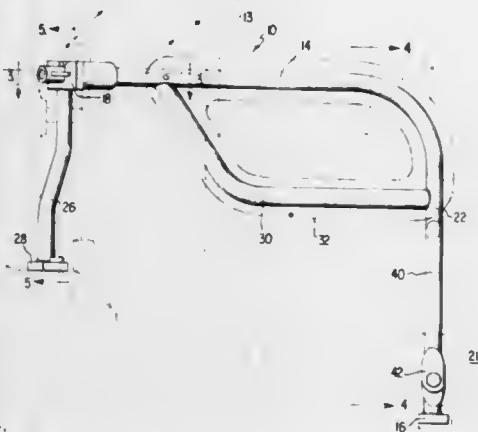
James V. Mason, Rte. 1 Box 370, and Mancil C. Fisher, Rte. 1, both of Lake Toxaway, N.C. 28747

Filed Aug. 29, 1980, Ser. No. 182,505

Int. Cl.³ B60N 5/00; B60R 21/10

U.S. Cl. 280—751

8 Claims



1. A safety device for preventing inadvertent passage through the entryway of a vehicle comprising:
- a generally inverted L-shaped safety bar consisting of a horizontal means adapted to extend across said entryway,

and a vertical means, said horizontal means being fixedly attached at one end thereof to an upper portion of said vertical means to provide an open area below said horizontal means;

means for mounting a lower end of said vertical means to said vehicle for pivotal movement of said safety bar transverse to said entryway;

said mounting means comprising vertically extending members having holes for cooperating with holes in said vertical means;

wherein said vertical means comprises two spaced vertical elements, each of said vertical elements being mounted to one of said vertically extending members for pivotal movement; and

means for latching said bar to retain it in a position across said entryway.

4,392,661

SUPPLY APPARATUS TO PROVIDE ELECTRICITY TO MOTOR-DRIVEN APPLIANCES, ESPECIALLY LAWN EDGE TRIMMERS, DRIVEN WITH ELECTRIC MOTORS

Max Langenstein, Mühlweg 1, 7928 Illertissen, Fed. Rep. of Germany

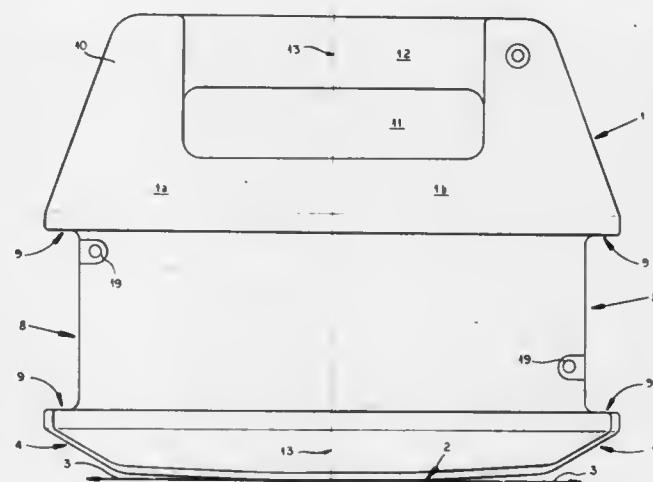
Filed Sep. 19, 1980, Ser. No. 188,732

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1979, 7926920[U]

Int. Cl.³ B62B 15/00; H01M 2/10

U.S. Cl. 280—12 M

4 Claims



1. An electrical supply apparatus for hand-tools or the like, comprising:
- an upright housing having a downwardly convex bottom elongated in one direction to form a runner extending in said direction, said housing being formed with a handle at its upper end, said housing having an outwardly open annular recess above said runner, said bottom having a greater curvature in a vertical median plane in said direction than transversely to said plane, said housing being formed with an opening in said plane and in said recess at a level not substantially above the center of gravity of the apparatus;
 - a battery in said housing;
 - a cable running to said battery extending out of said housing through said opening for connecting the apparatus to a hand-tool or the like, said cable being adapted to be coiled in said recess; and
 - cable-tension relief means connecting said cable to said housing.

4,392,662

DEVICE FOR FACILITATING PARTICULARLY THE LOADING AND UNLOADING OF CONTAINERS ETC. FROM VEHICLES ETC.

Norbert Höglinger, Via Stazione, 34, I-Caldaro (Bozen), Italy

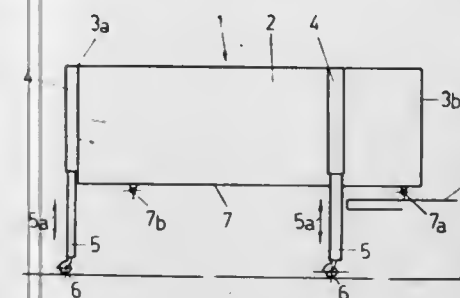
Filed Jun. 25, 1981, Ser. No. 277,259

Claims priority, application Italy, Jul. 10, 1980, 4829 A/80

Int. Cl.³ B60P 1/64

U.S. Cl. 280—43.23

1 Claim



1. A container structure comprising, in combination: a bottom wall; an upstanding front wall; an upstanding rear wall; an opposed pair of upstanding side walls; a first pair of like telescopic leg assemblies vertically mounted upon the exterior surface of said rear wall in spaced parallel relationship with one another, each leg assembly being inwardly displaced from a corner-defining junction of a respective side wall and said rear wall by an amount substantially less than its spacing from the other leg assembly; a second pair of like telescopic leg assemblies, each of which is vertically mounted upon the exterior surface of a respective side wall and is rearwardly equidistant from said front wall by an amount leaving said container structure with a substantial cantilever portion terminating in said front wall; a first set of swivel casters mounted directly on said bottom wall forwardly of said first pair of telescopic leg assemblies and proximate thereto; a second set of swivel casters mounted directly on said bottom wall within the cantilever portion of said container structure; and a respective swivel caster mounted on the lower end of the leg of each telescopic leg assembly; the arrangement being such that, with the legs of the telescopic leg assemblies initially extended, one can roll said container structure along a horizontal base surface to position said cantilever portion over a stationary parallel elevated surface, then retract the legs of said second pair of telescopic leg assemblies to lower said cantilever portion and obtain rolling support thereof on said elevated surface by said second set of swivel casters, thereafter forwardly roll said container structure until said first set of swivel casters is positioned over said elevated surface, and finally retract the legs of said first pair of telescopic leg assemblies to obtain rolling support of the rear end of the container structure on said elevated surface by said first set of swivel casters, thereby to facilitate completion of the loading of the container structure onto said elevated surface.

4,392,663

TRAINING CART

Gösta Forshlund, S-780 45 Björbo, Sweden

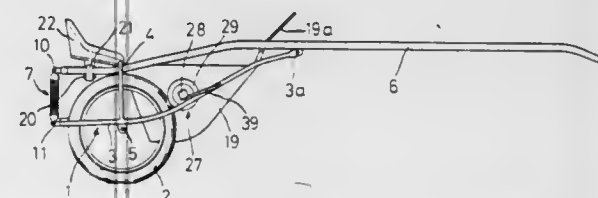
Filed Jun. 17, 1981, Ser. No. 274,671

Claims priority, application Sweden, Jun. 19, 1980, 8004594

Int. Cl.³ B62C 1/08

U.S. Cl. 280—68

10 Claims



1. A two-wheeled cart for training trotters, wherein the cart frame comprises two longitudinal rigid thill members, which at

a central part thereof are pivotally connected through a cross connecting member to be vertically rotatable in relation to each other, wherein each wheel is individually resiliently suspended at a rear part of the respective thill member, and wherein a seat supporting cart member is separately resiliently supported by the cart frame.

4,392,664

FRONT FORK OF MOTORCYCLE

Takayoshi Tsuchiya, and Masami Matsuo, both of Iwata, Japan, assignors to Showa Manufacturing Co., Ltd., Tokyo, Japan

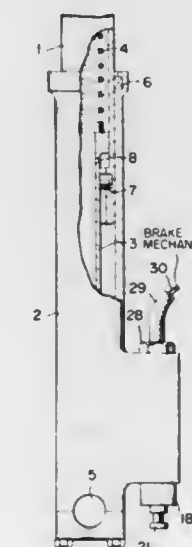
Filed Mar. 2, 1981, Ser. No. 239,398

Claims priority, application Japan, Nov. 4, 1980, 55-153810

Int. Cl.³ B62K 25/08

U.S. Cl. 280—276

8 Claims



1. A front fork assembly for use on a motorcycle, comprising: a fork pipe; a bottom casing slidably fitting the lower portion of said fork pipe and having means for connection to the axle of the front motorcycle wheel, said bottom casing having its inside filled with oil; a seat pipe anchored at the bottom portion of said bottom casing and having its upper end slidably fitted in said fork pipe; a valve seat slidably fitted in an oil passage for providing communication between the inside and outside of said seat pipe and supported by a spring; a plunger having a valve disposed to face said valve seat for opening and closing said oil passage; and coaction means for effecting coaction between said plunger and a braking mechanism.

4,392,665

BOAT DOLLY

Toby D. Miller, 616 S. Lee St., Garrett, Ind. 46738, and James A. Miller, 204 E. Diamond, Kendallville, Ind. 46755

Filed Apr. 15, 1981, Ser. No. 254,434

Int. Cl.³ B60P 3/10

U.S. Cl. 280—414.2

10 Claims



1. A boat dolly having first and second ends comprising: cradle frame means for receiving and supporting the stern portion of a boat, a pair of transversely spaced-apart wheels operatively mounted to said cradle frame means; flexible supporting and propelling means, comprising two

transversely spaced apart ropes secured at one end to said cradle frame means and extending longitudinally forwardly of the underside of the hull of a boat on said frame means for both supporting the bow portion of said boat and propelling said boat and said boat dolly as a unit in response to a pulling force exerted on the other end thereof,

said frame means having front and rear portions and including two spaced longitudinal frame members and two spaced cross frame members secured thereto, transversely spaced eyelets depending from said frame means and receiving said ropes therethrough thereby spacing said ropes apart,

an upright strut device hingedly mounted on the rear portion of said frame means for pivotal movement about a transverse axis between first and second positions, in said first position said strut device being upright and in said second position said strut device being folded onto said frame means,

said strut device including two elongated substantially parallel and spaced apart struts each being provided with a laterally extending elongated stub, a hinge bar hingedly mounted on the rear portion of said frame means for swinging movement about a transverse axis parallel to the axis of said hinge bar, said hinge bar being hollow and telescopically receiving said stubs within the opposite end portions thereof,

means for releasably locking said stubs and hinge bar together in adjusted telescoped position; and said wheels being carried on the lower ends of said struts, respectively.

4,392,666

INTEGRAL SKI BINDING

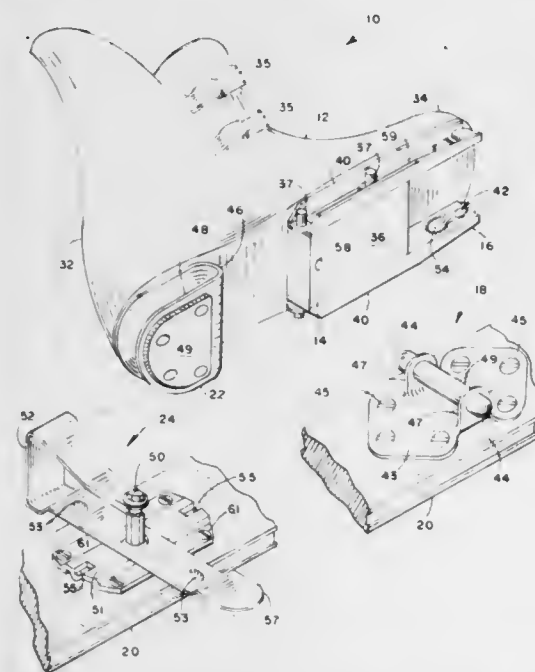
Paul C. Ramer, Golden, Colo., assignor to Alpine Research, Inc., Golden, Colo.

Filed Mar. 13, 1981, Ser. No. 243,424

Int. Cl.³ A63C 9/02

U.S. Cl. 280-614

9 Claims



1. A boot-plate binding for releasably connecting a foot of a skier to a ski comprising in combination:
 - a toe piece mounted on said ski including retention means extending laterally of said ski;
 - a boot plate having a block portion and semirigid elongated member means extending longitudinally of said ski, said elongated member means having connection means on forward ends thereof for releasable and pivotable connection to said retention means;
 - a boot being conformable to and adapted to retain the foot of said skier, said boot being fixedly connectable to said boot plate at selected locations for movement therewith whereby

the boot and boot plate can pivot about a lateral axis of said ski.

4,392,667

VEHICLE SUSPENSION SYSTEM

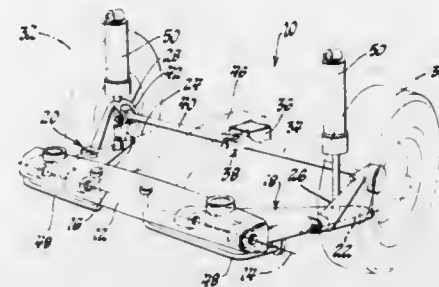
Horacio Shakespear, West Bloomfield, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 1, 1980, Ser. No. 192,729

Int. Cl.³ B60G 3/00

U.S. Cl. 280-690

3 Claims



1. In an independent suspension system for a vehicle having a body member, a pair of laterally spaced road wheels, a pair of laterally spaced control arms disposed on said body member for independent pivotal movement in jounce and rebound directions from a central position about respective ones of a pair of pivot axes disposed in a transverse vertical plane of said body member, a pair of spindle support members each adapted to rotatably support a respective one of said road wheels, and hinge means connecting a first portion of each of said spindle support members to respective ones of said control arms for pivotal movement about generally longitudinal axes defined by said respective ones of said control arms so that each of said spindle support member first portions moves in a plane perpendicular to a corresponding one of said pivot axes during jounce and rebound deflections of corresponding ones of said road wheels, the improvement comprising, a pair of laterally extending control means disposed between said body member and respective ones of said spindle support members operative to constrain a second portion of each of said spindle support members spaced vertically above corresponding ones of said first portions to move laterally along an arc of finite radius during jounce and rebound deflections of said road wheels.

4,392,668

SHOCK-ABSORBING WHEEL SUSPENSION ASSEMBLY

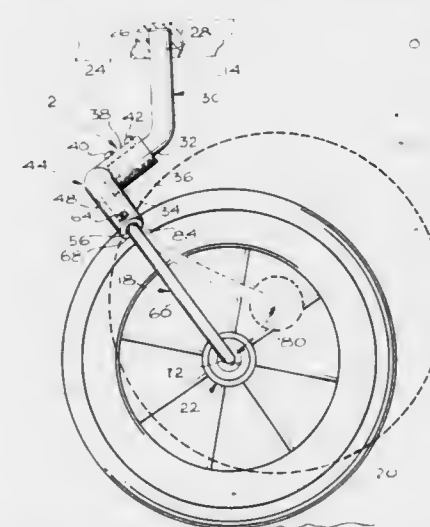
Lawrence K. Mulholland, 416 Mara St., Ventura, Calif. 93004

Filed Dec. 9, 1980, Ser. No. 214,485

Int. Cl.³ B60G 11/18

U.S. Cl. 280-721

11 Claims



1. An improved torsionally shock-absorbing wheel suspension assembly, said assembly comprising, in combination:

- a rigid yoke having a generally upwardly extending neck and a pair of downwardly diverging hollow tubular sleeves connected to the lower end of said neck, both of said sleeves being directed either rearwardly or forwardly relative to said neck;
- a pair of flexible torsion resilient lever support arms, the upper ends of which extend into said sleeves, the elongated middle portions of which are generally parallel to each other and extend downwardly and in the same rearward or forward direction as said sleeves relative to said neck and the lower ends of which arms are angled to approximate each other in an about horizontal plane; and
- a wheel disposed between said lower ends with a central hub which receives and holds said lower ends of said arms in a fixed position relative to said hub, whereby upward deflection of said wheel exerts flexing and torquing of said flexible torsionally resilient arms to effect effective shock absorption by said assembly.

4,392,669

CAB FOR LIFT TRUCK WITH SWING OUT WINDSHIELD

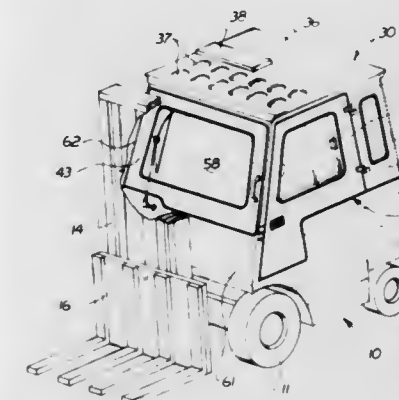
Robert P. Martin, Jr., 12576 Lake Ave., Lakewood, Ohio 44107

Filed Oct. 24, 1980, Ser. No. 200,333

Int. Cl.³ B62D 1/18

U.S. Cl. 280-775

9 Claims



1. In combination a lift truck having a mast at its front end and a steering wheel disposed rearwardly of the mast and movably mounted for displacement along a path from a rearward operational position to a temporary forward clearance position, a cab having a structure for protecting a driver seated rearwardly of the operational position of the steering wheel, said cab structure including a forward face having a windshield, the forward face extending in a plane generally upright and from side to side of the truck, said forward cab face including a movable panel carrying said windshield, generally vertical hinge means on said cab structure supporting said movable panel for pivotal movement about a generally vertical axis between a normal position and an extended position, said movable panel in said normal position having a portion proximate to said steering wheel extending across said path and in said extended position having said proximate portion disposed forwardly of said steering wheel clearance position, whereby said steering wheel is free of obstruction by said panel in its movement from said operational position to said clearance position, the hinge means being so constructed and disposed to cause said movable panel to swing between said normal position and extended position without interference with the mast when the mast is in a generally vertical position.

4,392,670

PIVOTED STEERING COLUMN FOR LIFT TRUCK

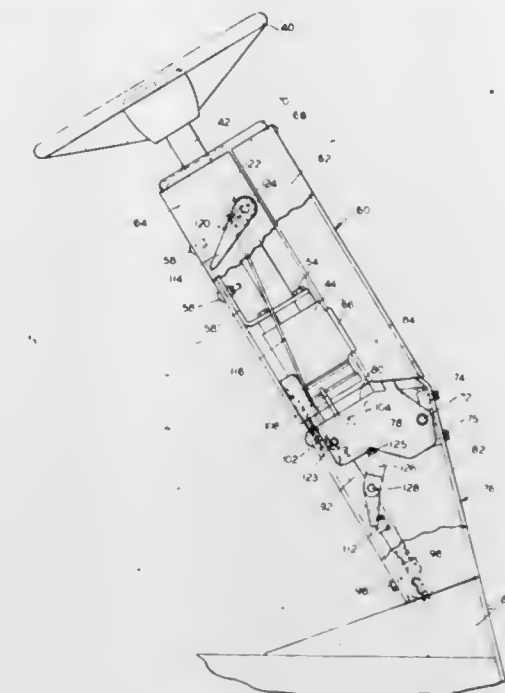
Donald L. Schultz, Georgetown, Ky., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Feb. 27, 1981, Ser. No. 238,889

Int. Cl.³ B62D 1/18

U.S. Cl. 280-775

2 Claims



1. A narrow profile adjustable steering column assembly for lift trucks and the like comprising,
 - a lower fixed mounting assembly including an upwardly opening first housing,
 - an upper steering column assembly pivoted about a transverse axis on said lower fixed mounting assembly and including a steering post and a power steering unit for energizing a remote power steer wheel to steer the lift truck,
 - a pre-pressurized gas cylinder actuator located in said first housing and pivotally connected between said upper and lower assemblies continuously urging said upper assembly to a forward tilted non-operative position,
 - a locking cylinder located in said first housing and pivotally connected between said upper and lower assemblies for holding said upper assembly in a locked operative position,
 - a second housing surrounding said upper steering column assembly,
 - said second housing being of approximately the same width as the said first housing and the two housings jointly providing a narrow profile minimizing the interference with the operator's view past the steering column assembly, and
 - an operator control member mounted on said second housing and connected internally of both said housings for unlocking said locking cylinder to allow said cylinder actuator to tilt said upper assembly to said non-operative position.

4,392,671

SECURING DEVICE FOR THE SAFETY BELT OF A RESTRAINING SYSTEM

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

Filed Jan. 8, 1981, Ser. No. 223,427

Claims priority, application Fed. Rep. of Germany, Jan. 14, 1980, 3001090

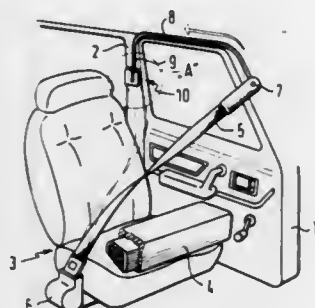
Int. Cl.³ B60R 21/00

U.S. Cl. 280-802

7 Claims

1. A restraining system for motor vehicles, especially a passive restraining system, with a safety belt and a securing

device for the safety belt, comprising a seat belt for restraining a person in a seat of the vehicle, a slider track disposed in the vehicle with one end of said seat belt slideable in the slider track, a movable securing element for locking said one end of the seat belt at the end of the track, spring means with a force sufficient to urge said movable securing element in the path of the belt end in the slider track but of insufficient force to



prevent the belt end from sliding into and away from the end of the track, an inertial mass sensor in which the inertial mass is activated at the occurrence of an acceleration or a tilting force which exceeds a predetermined value, said activation being movement of said inertial mass in the direct path of movement of said movable securing element without moving it to block movement of the securing element retaining it in locked position to lock said belt end.

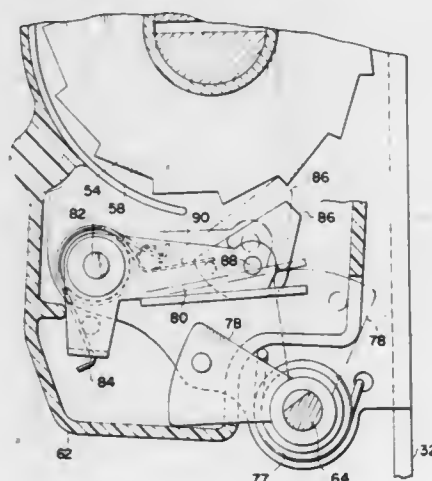
4,392,672 WEBBING RETRACTOR

Toshimasa Yamamoto; Mamoru Mori, both of Okazaki, and Eiichi Kinaga, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, both of Aichi, Japan

Filed Nov. 28, 1980, Ser. No. 211,454
Claims priority, application Japan, Nov. 29, 1979, 54-165206[U]

Int. Cl.³ B60R 21/02
U.S. Cl. 280—803

9 Claims



9. A webbing retractor for winding an occupant restraining webbing in a seat belt system for protecting an occupant in an emergency of a vehicle, comprising:

- a frame secured to a center pillar of the vehicle;
- a takeup shaft pivotally supported on said frame for winding one end of said occupant restraining webbing;
- a first spiral spring secured at one end thereof to said takeup shaft;
- a ratchet wheel pivotally supported on said frame and secured thereto with the other end of said first spiral spring;
- a second spiral spring being stronger in bias than said first spiral spring, secured at one end thereof to said ratchet wheel and secured at the other end thereof to said frame; and
- a locking device, part of which is disposed within a mov-

ing path of the vehicle door for preventing said ratchet wheel from rotating in the windup direction of the webbing when the vehicle door is closed.

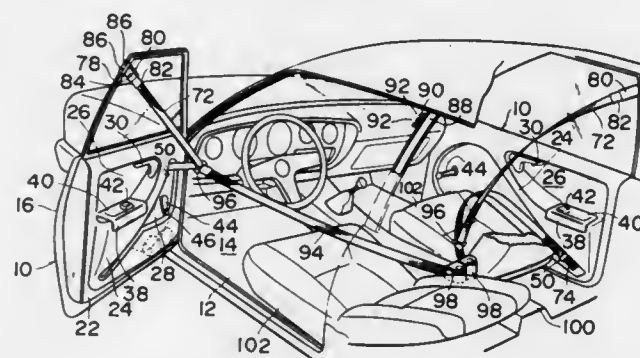
4,392,673 SEATBELT SYSTEM

Ichiro Suzuki, Nagoya; Jun Yasumatsu, Toyota; Yoshikazu Imai, Toyota, and Masanao Motonami, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 3, 1980, Ser. No. 193,831
Claims priority, application Japan, Oct. 5, 1979, 54-138763[U]

Int. Cl.³ B60R 21/02
U.S. Cl. 280—804

10 Claims



1. A seatbelt system for an automotive vehicle having a door and an occupant restraining webbing, said seatbelt system comprising:

- a raised door arm structure on the inside of the door, said arm structure protruding inwardly and extending approximately from one end of the door to the other end thereof;
- a longitudinally extending slit defined through the undersurface of said arm structure; and
- belt guide means in said arm structure, said belt guide means being movable longitudinally within said arm structure and guiding said webbing through said slit from within said arm structure, whereby at least a part of said webbing guided by said belt guide means is out of sight from above and under said arm structure.

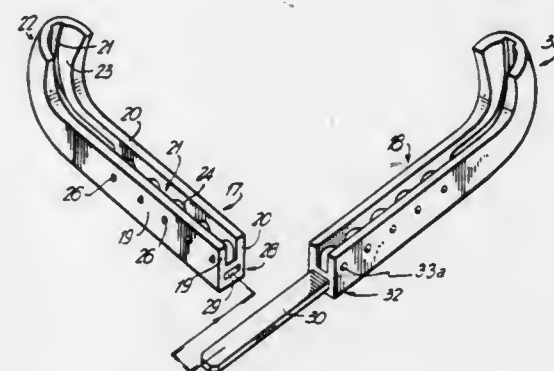
4,392,674 ICE SKATE SCABBARD

Marc A. Evon, 4070 Kennedy Dr. E., Windsor, Ontario, Canada (N9G 1X8)

Continuation-in-part of Ser. No. 89,542, Oct. 29, 1979, abandoned. This application Mar. 19, 1981, Ser. No. 245,398
Claims priority, application Canada, Apr. 2, 1979, 324614

Int. Cl.³ A63C 3/12
U.S. Cl. 280—825

8 Claims



1. An ice skate scabbard comprising, in combination:
(a) two generally identical halves arranged for engaging respective ends of an ice skate blade to provide protective

cover of both said ends and of a substantial portion of the runner part thereof;

- each of said halves comprising longitudinal, normally horizontal channel means for receiving said runner part, each respective channel means merging at a first end of the respective half with an upwardly turned first end portion, a second end portion of each half being generally straight, each second end portion having a step-on outer surface and two exterior side walls, and a face wall facing away from the respective first end and adapted to abut against the face wall of the other half, each side wall having an elongate groove-like depression extending generally parallel with said step-on surface;
- a pair of generally identical tension springs, each anchored, at a first anchor point, to one of said halves, and, at a second anchor point, to the other one of said halves;
- said anchor points being each generally coincident with the respective groove-like depression, and being spaced from the respective face wall;
- said springs being each coextensive with and received in the respective groove-like depressions of the two halves at the respective sides of the scabbard;
- said springs being under tension when said face walls abut against each other, whereby the face walls abutting against each other, the grooves, and the springs co-operate to maintain alignment of the two halves.

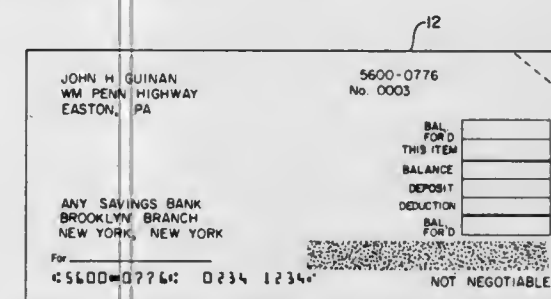
4,392,675 CHECKBOOK COMPRISING ALTERNATE CHECK BLANKS AND CHECK STUBS

Albert C. Winiarski, Nazareth, Pa., assignor to Christmas Club, Easton, Pa.

Filed Jan. 19, 1981, Ser. No. 226,346
Int. Cl.³ B41L 1/24

U.S. Cl. 282—23 R

1 Claim



1. A checkbook comprising a cover, alternate check blanks, and check stubs of equal width, said check blanks removably attached and said check stubs fixedly attached at their left-hand end to said cover and to a backing material which extends beyond the right-hand edge of said check blanks and check stubs a distance approximately equal to the width of said check blanks, said check blanks being provided with indicia to accommodate the date, payee, the amount of the check in numeric and language form and the payor's signature, as well as optional information, said check stubs being provided with a pressure sensitive coating thereon, optional information on each said check stub duplicating said optional information on said check blank positioned immediately above said check stub, a darkened area immediately below the indicia for said payor's signature on the check blank immediately above said check stub, whereby said payor's signature is rendered illegible on said check stub, and indicia identifying and providing space for, in descending order, balance forward, the numeric amount of the check immediately above said check stub, the balance, deposit, deduction and balance forward, and a blank area on said check stub immediately below the indicia on said check blank immediately above said check stub accommodating the date, payor, and amount of said check in language form, a plurality of check ordering forms of the same size as said check blanks for ordering individual truncated checks retained by the

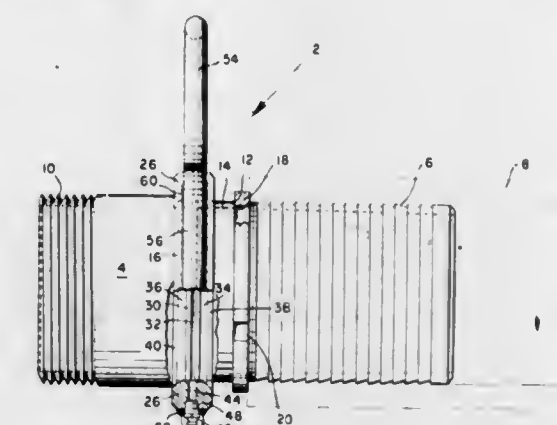
financial institution on which said checks are drawn, removably attached at their left-hand end to said cover, each said form having indicia to accommodate multiple truncated check orders, said upper side of said backing material being provided with indicia for a check register and said backing material being folded at the right-hand edge of said check blanks, whereby said backing material may be readily inserted between a check stub and the check blank thereunder so as to prevent writing from appearing on other check stubs thereunder while a check blank and check stub above said backing material is being filled in.

4,392,676 HOSE HANDLING DEVICE

Robert T. Jones, Morrisville, Pa., and Martin B. Harrison, Trenton, N.J., assignors to Goodall Rubber Company, Trenton, N.J.

Filed Feb. 22, 1982, Ser. No. 350,812
Int. Cl.³ F16L 3/00, 27/00, 11/00
U.S. Cl. 285—61

8 Claims



1. A hose handling device comprising:
a fitting adapted to be secured to one end of a hose having a peripheral groove in its exterior surface;
a ring mounted in said groove for relative rotational movement with respect to said fitting; and
an eye adapted to be engaged by a hook fixedly secured to said ring.

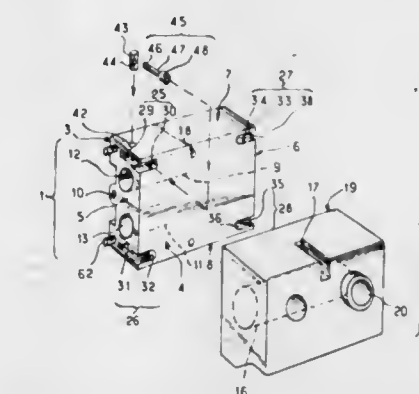
4,392,677 CONNECTING DEVICE FOR PNEUMATIC APPARATUS

Pierre Hardouin, Nanterre, France, assignor to La Telemecanique Electrique, France

Filed Dec. 1, 1980, Ser. No. 211,963
Claims priority, application France, Nov. 30, 1979, 79 29821
Int. Cl.³ F16L 39/00

U.S. Cl. 285—137 R

5 Claims



1. In a connecting device for pneumatic bases each having two opposed parallel coupling faces provided with orifices to be associated, and a support face perpendicular to the former and adapted to receive a removable pneumatic switching com-

ponent, two opposed coupling faces of two adjacent bases being applied one against the other by means of screws the axes of which are inclined with respect to these faces, and which each have a threaded end cooperating with a nut situated in a housing of one of the bases, a head opposite to this end bearing on a shoulder of an adjacent base, and an intermediate portion placed in two channel portions one in extension of the other, these portions being situated respectively between the common plane of two coupling faces at which they open, and respectively the nut and the shoulder, the improvement which comprises the nut is constituted by an element which pivots about an axis parallel to said coupling faces and which is placed in a base of a first portion of channel opening at the support face, the length of the screw being such that its head is disposed below said support face when its axis is perpendicular to the latter, and said head is pressed on a shoulder disposed in a second portion of channel opening at the support face of an adjacent base and in the vicinity of said support face, when the axis of the screw is inclined, two screws being respectively placed in two parallel planes between which open the orifices to be connected.

4,392,678

END FITTINGS FOR FLEXIBLE HOSES

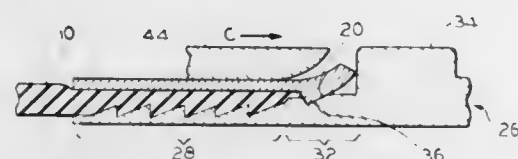
Rudolph A. Adamczyk, Ludlow, Mass., assignor to Titeflex Corporation, Springfield, Mass.

Continuation of Ser. No. 49,645, Jun. 18, 1979, abandoned. This application Oct. 3, 1980, Ser. No. 193,341

Int. Cl.³ F16L 33/20

U.S. Cl. 285—256

3 Claims



1. An end fitting for flexible polytetrafluoroethylene hoses, said end fitting being made of two integral metal piecepart means, a first of said piecepart means having an initial cylindrical form of a collar means having a first and substantially annular interlocking shoulder means of relatively small inside diameter formed around an internal surface near one end thereof, said collar having a smooth and unbroken inside diameter extending from said annular shoulder means throughout a middle region of said collar with a second inside diameter which is larger than said small inside diameter, said inside diameter of said middle region snugly receiving the outside diameter of said hose, a compression relief end region on an opposite end of said collar having an inside diameter which is larger than the second inside diameter, said end region having an inside diameter which is larger than the outside diameter of said hose, a tapered region joining said end region and said middle region, and said second piecepart means being in the form of an insert means having a second and substantially annular interlocking groove means formed around an external surface thereof, said second piecepart having an abutment wall on one side of said annular groove interlocking means, the second piecepart means having an end on the opposite side of said second annular groove interlocking means with an outside diameter which slips into the inside diameter of said hose, a series of annular serrations formed along the length of said one side, each annular serration having a vertical wall on a side nearest said second annular interlocking means, each serration having a sloping surface beginning at the top of said vertical wall and tapering downwardly with a progressively smaller outside diameter to the root of the vertical wall on the adjacent serration, the middle region of said collar means being reduced in diameter to capture said flexible hose between said collar and the serrated end of said second piecepart means which slips into said hose, said collar sliding over said hose until said one end comes into contact with said abutment wall, said two

pieceparts being joined by sliding a swaging die over the outside of said collar which die uniformly extrudes the metal of said collar and reduces the outside diameter and the collar wall thickness of the first piecepart as said die slides from said compression relief end toward said one end of said collar, said first and second interlocking means mating and meshing together in close and intimate metal-to-metal contact when said collar is reduced in diameter by the extruding metal of said collar, said annular interlocking means on said collar initially pivoting and canting into the annular interlocking member on said second piecepart means responsive to sliding of said swaging die and thereafter forming said intimate contact.

4,392,679

BEEHIVE CLAMPING AND TRANSFER DEVICE

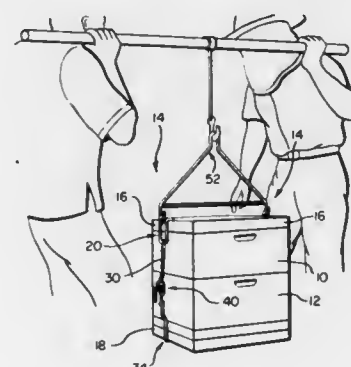
Walter P. Barnes, 671 Hemlock St., Macon, Ga. 31201, and Carlo Emilio, Jr., 4070 Atwood Dr., Macon, Ga. 31204

Filed May 14, 1981, Ser. No. 263,759

Int. Cl.³ A01K 51/00; B66C 1/16

U.S. Cl. 294—15

12 Claims



1. A device for securely maintaining beehive elements together during transit, including top and bottom elements with a hive body element therebetween, comprising:

- a clamp for each of at least two respective opposite sides of the beehive, each clamp including;
- a pair of hooks for respectively hooking onto the top and bottom beehive elements;
- a chain connected to one of the hooks; and
- a turnbuckle interconnecting the chain to the other hook, the turnbuckle of each clamp being adjustable to securely clamp the beehive elements together and prevent relative movement therebetween; and
- said hooks respectively hooking onto the top beehive element on each clamped side include a lift mounting portion engageable with lift means for lifting said beehive elements during transit thereof.

4,392,680

SPREADER SAFETY DEVICE

Hunter Wolfe, 121 Yardley Ave., Fallsington, Pa. 19054

Continuation-in-part of Ser. No. 110,815, Jan. 10, 1980,

abandoned. This application Mar. 2, 1982, Ser. No. 353,943

Int. Cl.³ B66C 1/34; F16G 11/00

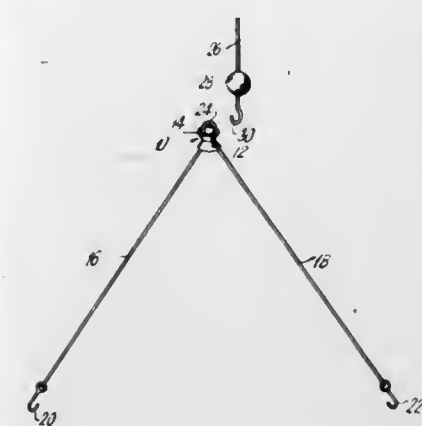
U.S. Cl. 294—78 R

5 Claims

1. A safety collar for use in combination with a plurality of spreader cables having object gripping members disposed on their terminal ends:

- said safety collar being formed as an annular member formed as generally truncated cones flaring outwardly towards both ends, said safety collar being freely slideable over said plurality of cables but sized sufficiently small so that it will not pass over said object gripping members;
- a jamb block centrally disposed in said safety collar, said jamb block having a plurality of openings corresponding in number to the number of said cables, each of said openings having a diameter of sufficient size to permit said cables to freely slide therethrough; and
- upon the separation of said plurality of cables, when said

gripping means are attached to an object, said safety collar being urged upwardly along said cables and when said gripping members are not attached to an object, said



collar being urged downwardly by the action of gravity to prevent said cables and said gripping members from swinging.

4,392,681

ROTATING BODY SYMPATHETIC VIBRATION ABSORBER

Erwin Raquet, Witten, Fed. Rep. of Germany, assignor to Fried, Krupp Huttenwerke AG, Bochum, Fed. Rep. of Germany

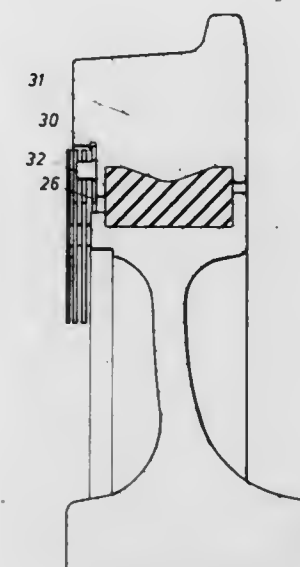
Filed May 30, 1980, Ser. No. 154,810

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1979, 2922585

Int. Cl.³ B60B 17/00; F16F 15/22; F16H 55/14

U.S. Cl. 295—7

4 Claims



1. A vibration absorber for damping the determining resonance vibrations of rotating bodies through creating sympathetic vibrations to sympathetically dampen the wheel vibrations, in particular rail wheels, comprising:

- several plates forming a unit which establish a mass;
- intermediate layers of compressible damping material separating said plates from each other so that said damping material is compressed during vibration of said plates;
- means connecting said plates with the rotating body at at least one point; so that the plates vibrate like the tines of a tuning fork and a vibration nodal point is established at said connecting means and
- an intermediate layer of damping material between said plates over a large remaining area thereof and coupled by connecting means to the rotating body;
- the geometric dimensions of said plates and said intermediate layers and the Shore hardness of said damping material of the intermediate layers are selected such that all plates oscillate at substantially the same natural frequency of the rotating body to be damped, and the amplitudes and pha-

ses of the vibrations of the individual plates differ, in such a manner, with respect to one another, that the damping material is distorted as strongly as possible within its elastic limit.

4,392,682

EXPANSIBLE AND RETRACTABLE VEHICLE BODY

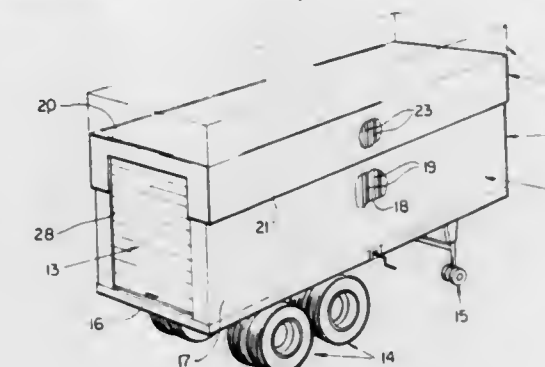
Kasper Norkus, Jr., 10930 S. Harlem Ave., Worth, Ill. 60482

Filed Aug. 4, 1981, Ser. No. 289,883

Int. Cl.³ B62D 33/08

U.S. Cl. 296—26

15 Claims



3. An expansible and contractable trailer body which comprises a lower main body with a bottom floor, upright side and front end walls, a rear doorway and an open top, a roof top body telescoped over the open top of the lower body, means raising and lowering said top body on said lower body, an overhead door closing said doorway, and telescoped door guiding tracks on said top and lower bodies whereby said door will close the entire doorway regardless of variations in the height thereof caused by the raising and lowering of said top body.

4,392,683

RETRACTABLE ASHTRAY, PARTICULARLY FOR MOTOR VEHICLES

Alberto Bassi, Turin, Italy, assignor to ITW Fastex Italia S.p.A., Turin, Italy

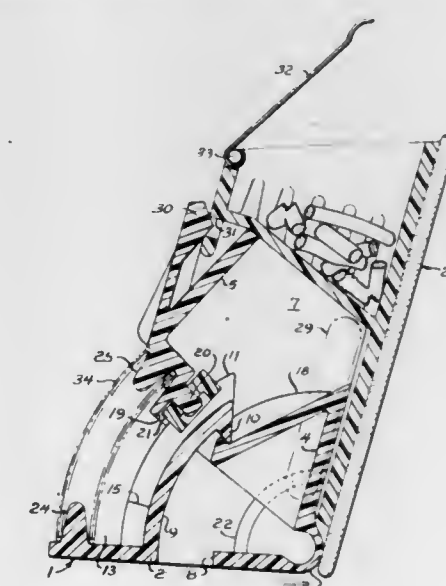
Filed Aug. 24, 1981, Ser. No. 295,275

Claims priority, application Italy, Sep. 8, 1980, 24538 A/80

Int. Cl.³ B60M 3/12

U.S. Cl. 296—37.9

5 Claims



1. A retractable ashtray, particularly for motor vehicles, characterized in that its release mechanism is integrally made of plastic material and comprises a first and a second wall hinged to each other along a common edge by a thinning of their thickness at said edge, and a third wall integral with said second wall and opposite thereto, said third wall bearing a pin

on which an idle pawl is mounted, said first wall having arcuate guide ribs thereon which are concentric to the hinge axis, and are intended to guide the pawl during relative movements of the two walls hinged to each other when the ashtray is moved from its retracted out-of-use position to its extracted in-use position and vice versa, and to provide a stop abutment for the pawl at said two ashtray positions as well as a hook, and said second wall also bearing a hook intended to engage said hook of said first wall, a spring being interposed between said first and said third wall which urges said two hooks toward engagement.

4,392,684

VEHICLE BODY STRUCTURE

Seikichi Yoshitsugu, Sayama, and Minoru Shimatsu, Koganei, both of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan

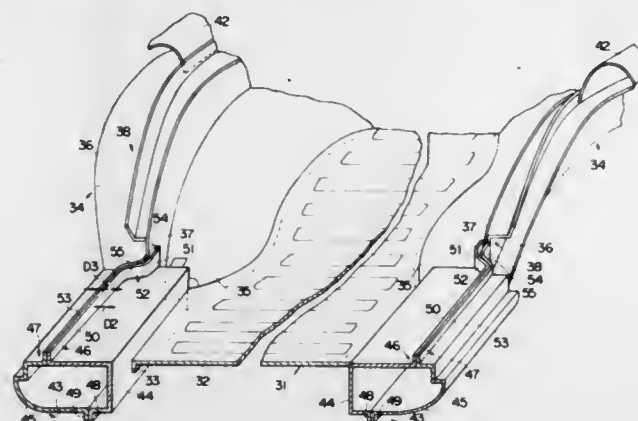
Filed Feb. 27, 1981, Ser. No. 239,031

Claims priority, application Japan, Feb. 29, 1980, 55-27020

Int. Cl.³ B62D 25/02

U.S. Cl. 296—185

3 Claims



1. A vehicle body structure, comprising:
 - a pair of rear wheel housing each having inner and outer housing half portions, and inner and outer flange portions respectively extending radially outwardly from the outer circumference of said housing half portions, said inner and outer flange portions being integral with said housing half portions and connected to each other for forming in combination said rear wheel housing; said outer flange portion being bent in a lateral direction of said rear wheel housing;
 - a pair of rear pillar inner panels each having a lower end portion connected to each of said outer flange portions; and
 - a pair of side sills extending in parallel with each other and projecting forwardly from said rear wheel housings, respectively, each of said side sills having inner and outer side sill half portions, and inner and outer flange portions respectively extending upwardly from the upper ends of said side sill half portions, said inner and outer flange portions being integral with said side sill half portions and connected to each other for forming in combination said side sill, said inner and outer flange portions of said side sill extending in longitudinal directions of said side sill to be bent in a lateral direction of said side sill in longitudinal alignment with said inner flange portion of said rear wheel housing for sandwiching said inner flange portion of said rear wheel housing therebetween.

4,392,685
COMBINED LAWN CHAIR AND TABLE RECLINER
Franz X. Leonhart, 8385 Harburg, near 8385 Pilsting, Fed. Rep. of Germany

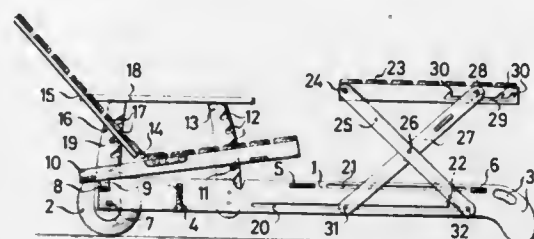
Filed Jan. 23, 1981, Ser. No. 228,160

Claims priority, application Fed. Rep. of Germany, Jan. 28, 1980, 3002926

Int. Cl.³ A47B 85/02; A47C 7/50

U.S. Cl. 297—119

3 Claims



1. An adjustable recliner chair with a footrest, comprising a pair of longitudinally extending spaced side members (1) having inwardly facing inner surfaces forming a base frame, an adjustable chair assembly (10,15) connected to one end of said side members, a footrest portion (23), vertically adjustable means (24-32) connected with said side members in front of said chair assembly and with said footrest portion, two longitudinal spaced grooves (20,21) on each inner surface extending from substantially in front of said chair assembly to adjacent the opposite end of said side members (1), a cross groove (22) connecting the two longitudinal spaced grooves in front of the ends thereof adjacent said opposite end of the side members, said vertically adjustable means (24-32) having lower ends, and pivot studs (31,32) protruding from the lower ends of said vertically adjustable means and engaged in said grooves on the inner surfaces, whereby said vertically adjustable means are longitudinally displaceable on said side members for vertically adjusting said footrest portion to form a raised table.

4,392,686

ADJUSTABLE OFFICE CHAIR

Herbert Beer, Wendelstein, Fed. Rep. of Germany, assignor to Steifensand Sitzmobel- und Tischfabrik, Inh., Fed. Rep. of Germany

PCT No. PCT/EP80/00042, § 371 Date Mar. 4, 1981, § 102(e) Date Mar. 4, 1981, PCT Pub. No. WO81/00044, PCT Pub. Date Jan. 22, 1981

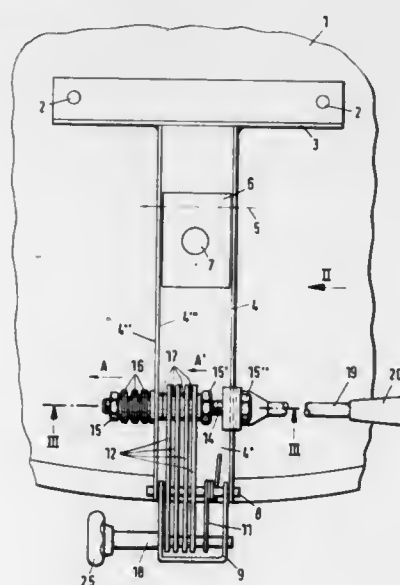
PCT Filed Jul. 4, 1980, Ser. No. 243,951

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927377

Int. Cl.³ A47C 1/027

U.S. Cl. 297—376

7 Claims



1. Seating furniture, in particular an adjustable office chair,

with a support structure fixedly attached to a foot stand, a seat carrier and a back rest, wherein at least the inclination of two of the aforementioned parts is variable with respect to each other and may be immobilized in the position desired by means of plates, separated by intermediate shims, and locked by friction, wherein the frictional lock is established with the aid of a clamp bolt and the plates are equipped each with an elongated hole surrounding the clamp bolt, wherein further a relative displacement occurs between the plates and the intermediate shims on the one hand and the clamp bolt on the other, during establishment and release of a clamping position, and wherein further an actuating lever capable of being moved by a spring assembly into a position corresponding to the clamped position, is provided, characterized in that the spring assembly consists of plate springs surrounding the clamp bolt, said spring assembly is supported between a thrust bearing of the clamp bolt on a first side and one of the parts to be adjusted with respect to each other and clamped against each other on a second side, thereby acting through said thrust bearing directly on the clamp bolt and displacing the latter into the clamping position, actuation of the lever moves the clamp bolt, by direct action through said thrust bearing, against the springs, from the clamping position into the release position.

4,392,687

LIFTING AND TILTING TRAILER

Denis O'Connell, Mallow, Ireland, assignor to Institute for Industrial Research & Standards, Dublin, Ireland

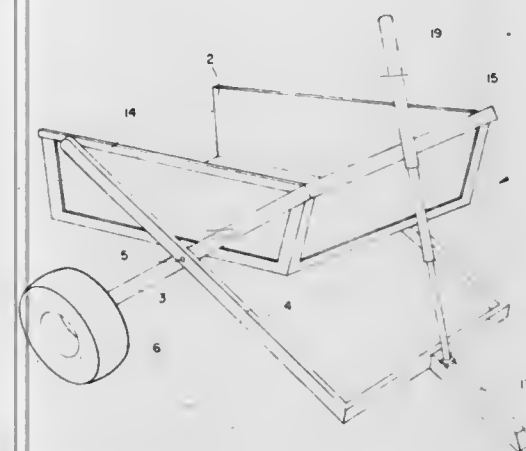
Filed May 20, 1981, Ser. No. 265,360

Claims priority, application Ireland, May 21, 1980, 1053/80; Apr. 8, 1981, 792/81

Int. Cl.³ B60P 1/34

U.S. Cl. 298—5

12 Claims



1. A trailer comprising:
 - a container;
 - a pair of co-operating scissors lifts laterally spaced apart for reception of the container therebetween, each scissors lift comprising a first and second support arm pivotally connected intermediate their ends to define a scissors pivot; means for moving the support arms relative to each other to operate the scissors lift;
 - a pair of wheel axles, the wheel axles being respectively connected to the first support arms at their rear ends;
 - a mounting means for pivotal connection of the front end of the first arms to the container, the mounting means defining longitudinally spaced apart tilt and lift pivot positions for the container relative to the scissors pivot; and
 - engagement means adjacent the rear end of the second arms to slidably engage the container, the engagement means being disengageable from the container when the first arms are in the tilt position.

4,392,688

CROP OR PRODUCT CARRIER

James A. E. S. McIntyre, Wythall Estate, Wythall, Walford, Ross-on-Wye, Herefordshire HR9 5SD, England

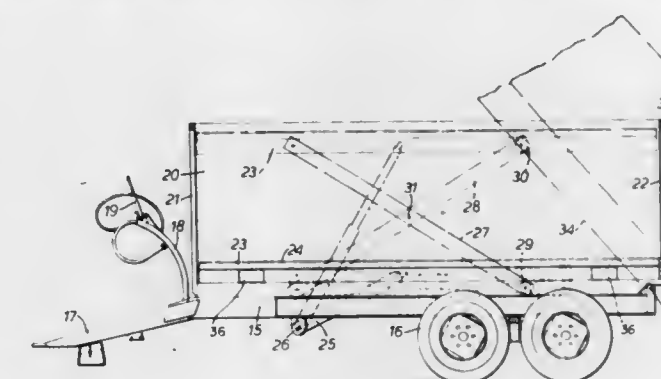
Filed Sep. 26, 1980, Ser. No. 191,812

Claims priority, application United Kingdom, Aug. 4, 1980, 8025368

Int. Cl.³ B60P 1/16

U.S. Cl. 298—22 R

6 Claims



1. A crop or product carrier comprising a container having side walls, end walls and a base, at least one fluid powered ram forming part of a lifting and lowering mechanism enabling the base to be raised and to be lowered progressively with respect to the side walls and end walls as the crop or product quantity increases within the container, a pivot at one end of the container enabling the base, side walls and end walls to pivot about said one end to tip the container for unloading, the end wall at said one end of the container being operable to provide an outlet opening for discharge of the crop or product during unloading, locking means for securing the base in the lowered position within the container, the means for raising and lowering the base also acting to tip the container about the pivot for unloading when the locking means secures the base in the lowered position.

4,392,689

PAVEMENT MILLING APPARATUS

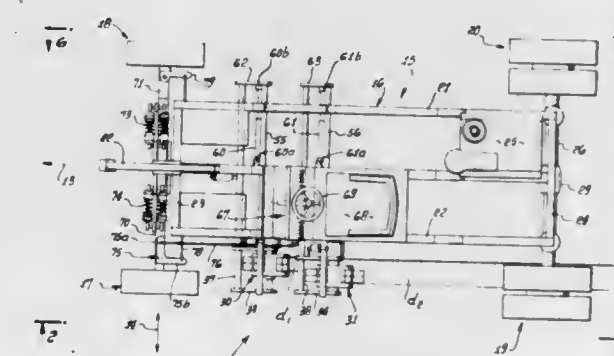
Robert H. Moore, 231 Hamlet St., Los Angeles, Calif. 90042, and Larry O. Engels, 90564 Link Dr., Eugene, Oreg. 97402

Filed Apr. 20, 1981, Ser. No. 255,710

Int. Cl.³ E21C 47/00

U.S. Cl. 299—39

14 Claims



1. In equipment for removing pavement, the combination comprising:
 - (a) a vehicle adapted to be driven over the pavement,
 - (b) milling rotor means and drive means therefor, the milling rotor means including cutters projecting at the periphery of the rotor means for cutting the pavement as the rotor means is driven in rotation, and
 - (c) structure on the vehicle carrying the milling rotor means for adjustable bodily displacement relative to the vehicle and to selected positions wherein vehicle weight is ex-

erted downwardly on the milling rotor means during cutting of pavement,

- (d) the vehicle being oriented for generally longitudinally forward or rearward travel, said rotor means including two rotors at the same side of the vehicle and generally in alignment with one another forwardly and rearwardly,
- (e) said structure including first actuator means operatively connected with the rotor means to displace the rotor means generally downwardly relative to the vehicle,
- (f) said structure including linkage means suspending the rotor means for downward and forward swinging in response to said operation of the first actuator means,
- (g) said structure including primary member means respectively suspending the rotor means for adjustable lateral displacement relative to the vehicle, and at the same side thereof,
- (h) and second actuator means operatively connected with said primary member means to effect said adjustable lateral displacement thereof relative to the vehicle.

4,392,690

QUICK RELEASE WHEEL MOUNT

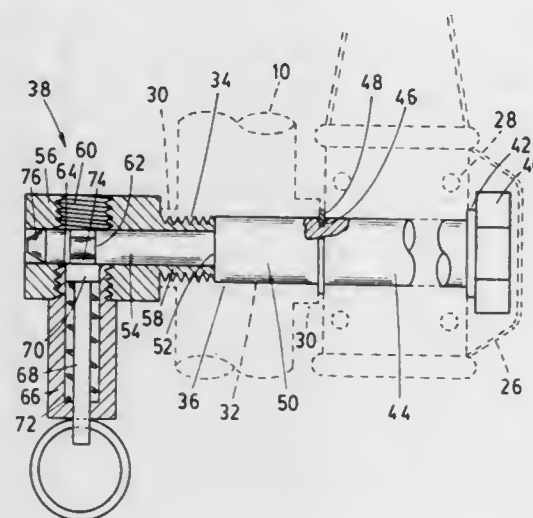
Raymond A. Anderson, 360 Capital Ave., Battle Creek, Mich. 49017

Filed Mar. 9, 1981, Ser. No. 242,015

Int. Cl.³ B60B 37/00

U.S. Cl. 301—121

6 Claims



1. A quick release attachment for the wheels of collapsible chairs comprising:
 - a body member attachable to the frame of a chair in place of a wheel axle,
 - an axle element having one end removably extendable through the existing axle hole of the frame and into said body member and having an annular groove adjacent said one end arranged to be located within said body member when the latter is attached to said frame,
 - a lock support member having an externally threaded end engagable in a tapped hole provided therefor in said body member in transversely intersecting relation to the groove in said axle element,
 - a lock pin slidably positioned in said support member and extending through the opposite end of said support member,
 - a spring in said support member biasing one end of said pin into said groove in said axle element,
 - a finger grip element connected to said lock pin externally of said support member,
 - said axle element having a head on the opposite end thereof from said body member engagable with one end of a wheel of the wheelchair,
 - said axle element further defining an external groove spaced from said head and adapted to receive a snap ring to retainingly engage the opposite end of a hub positioned against said head.

4,392,691

DUAL-CIRCUIT PRESSURE CONTROL VALVES

Bernd Schopper, Frankfurt am Main; Derek Lowe, Glashuetten; Hans-Dieter Reinartz, Frankfurt am Main, and Peter Tandler, Falkenstein, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

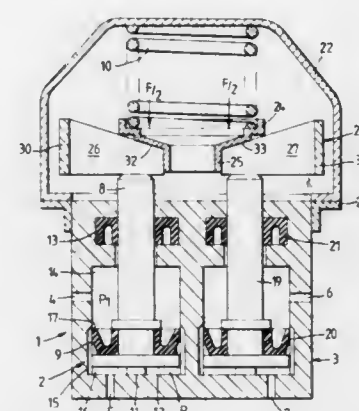
Filed Dec. 30, 1980, Ser. No. 221,250

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1980, 3002135

Int. Cl.³ B60T 11/34

U.S. Cl. 303—6 C

21 Claims



1. A dual-circuit pressure control valve comprising: two control pistons disposed in a housing in a parallel side-by-side relationship, each of said two pistons being associated with a different one of two brake circuits; and an arrangement associated with said housing to apply a preloading force to each of said two pistons such that, upon failure of one of said two circuits, said preloading force on that one of said two pistons associated with the other of said two circuits is increased, said arrangement including
 - a spring disposed adjacent at least one of said two pistons to generate said two preloading forces,
 - means disposed in an operative relationship with said spring and at least one of said two pistons to apply each of said two preloading force to a different one of said two pistons, and
 - a carrier bridge coupled to and in contact with each of said two pistons in a non-tilting manner to allow a slight relative movement between said two pistons when both of said circuits are operative to adjust the position of said means to enable synchronizing each point of application of said two preloading forces.

4,392,692

SEAT SUPPORT SLIDE TRACK STRUCTURE

Ignaz Vogel, Kleinsteinbacherstr.42, Karlsruhe, Fed. Rep. of Germany (7500)

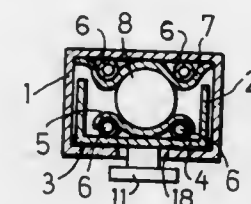
Filed Jul. 13, 1981, Ser. No. 282,515

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1980, 3029127

Int. Cl.³ F16C 29/10; F16B 7/10, 21/12

U.S. Cl. 308—6 R

9 Claims



1. A slide track structure especially for supporting passenger seats in different positions, said slide track structure comprising two tracks movable relative to each other in longitudinal direction and having opposed surfaces; guide strips disposed on the surfaces of said tracks facing each other; elastomer support means disposed between at least one of said guide strips and the

associated track for resiliently supporting said guide strip on said track, said guide strips being waved to define therebetween a passage of essentially circular cross-section, and at least two balls disposed in said passage for supporting one of said tracks on the other, said one track being a square tube and the other being a U-track received within said square tube so as to engage said guide strips, said elastomer support means, said balls and the other U-track enclosed within said square track to prevent rattling when no load is supported by said slide track structure, said square tube having at least one slot formed in its bottom side and said U-track having connected thereto a mounting base, which extends through said slot in said square tube to permit movement of said square tube relative to said U-track when said mounting base is mounted on a support structure.

4,392,693

REDUNDANT ACTIVE ELECTROMAGNETIC BEARING

Helmut Habermann, and Maurice Brunet, both of Vernon, France, assignors to Societe Europeenne de Propulsion, Vernon, France

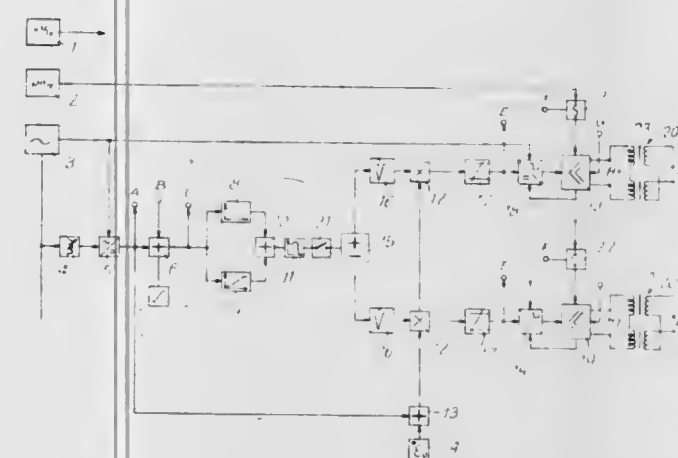
Filed Feb. 25, 1982, Ser. No. 352,265

Claims priority, application France, Mar. 9, 1981, 81 04646

Int. Cl.³ F16C 39/00

U.S. Cl. 308—10

6 Claims



1. A redundant active electromagnetic bearing for supporting a movable member, comprising:
 - a first set of electromagnet coils wound on an armature having double-pole parts and a second set of electromagnet coils wound on said armature, a first and a second detection device for sensing the position of the movable member, a first control circuit connected to said first set of coils for controlling the supply of said first set of coils in response to signals delivered by the first detection device in order to keep the movable member in a predetermined position, a second control circuit connected to said second detection device and capable of being connected to said second set of coils for controlling the supply of said second set of coils in response to signals delivered by the second detection device in order to keep the movable member in a predetermined position, and switch-over means being provided for connecting either the first set of coils with the first control circuit or the second set of coils with the second control circuit in response to a control signal, wherein the first and the second sets of coils are so placed on said armature that on each double-pole part of said armature are wound one coil of the first set and one coil of the second set and that the successive coils of the first set are all wound in the same direction whereas the coils of the second set which duplicate the coils of the first set are alternately wound in the same direction and in opposite directions with respect to the corresponding coils of the first set.

4,392,694

CENTER BEARING BRACKET

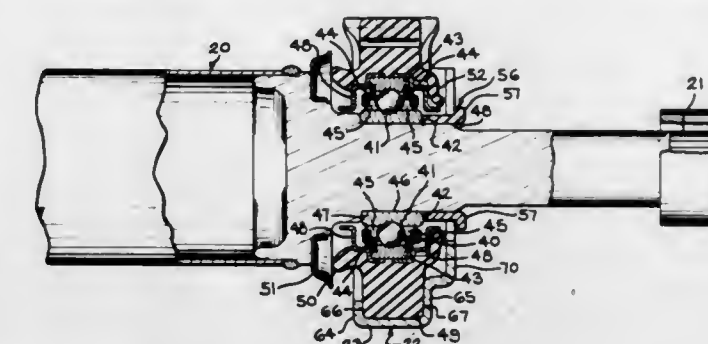
James T. Reynolds, Toledo, Ohio, assignor to Dana Corporation, Toledo, Ohio

Continuation of Ser. No. 17,402, Mar. 5, 1979, abandoned. This application Nov. 5, 1981, Ser. No. 318,358

Int. Cl.³ F16C 27/06

U.S. Cl. 308—184 R

7 Claims



1. A center bearing assembly for resiliently supporting from a rigid support a driven shaft which may be subjected to radial forces and to axial forces in at least one predetermined direction comprising a bearing having a rotatable inner race engaging said shaft, a non-rotatable outer race and a plurality of bearing elements between said inner and outer races, a resilient bushing mounting said outer race, said bushing having first and second sides and an outer edge, a bracket engaging at least a portion of said outer edge and having integral lips engaging said sides adjacent said outer edge, said integral lips retaining said bushing in said bracket, means for mounting said bracket on said rigid support, said bracket further having a flange positioned from said bushing side a predetermined small spacing, said bushing side being unrestrained adjacent said flange, whereby during normal operation said bushing side is spaced from said flange and drive train vibrations are not transmitted to said flange and whereby upon axial movement of such shaft, said bushing side is free to move through such spacing and against said flange to limit axial movement of such shaft.

4,392,695

BEARING

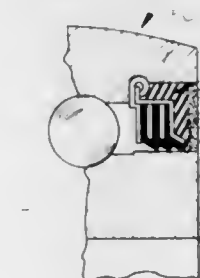
Maurice E. Miller, Stratton, Nebr., assignor to Miller Manufacturing Company, Grand Island, Nebr.

Filed Aug. 10, 1981, Ser. No. 291,240

Int. Cl.³ F16C 33/78

U.S. Cl. 308—187.2

8 Claims



1. A bearing, comprising,
 - an inner bearing ring having a central opening for receiving a shaft therein, said inner ring having inner and outer surfaces and opposite sides,
 - an outer bearing ring spaced from said inner ring and having inner and outer surfaces and opposite sides,
 - a plurality of spaced apart ball bearings between said inner and outer bearing rings,
 - a first ring-shaped seal between said inner and outer bearing rings at one side thereof,
 - a second ring-shaped seal between said inner and outer bearing rings at the other side thereof,

said first and second seals embracing and frictionally engaging the outer surface of said inner bearing ring, a first ring-shaped shroud cap secured to said outer bearing ring at one side thereof and embracing said first seal, said first shroud cap and said outer bearing ring defining a first annular groove, a second ring-shaped shroud cap secured to said outer bearing ring at the other side thereof and embracing said second seal, said second shroud cap and said outer bearing ring defining a second annular groove, and a compressible sealant material in said first and second grooves, said sealant material substantially filling said grooves and being compressible against said shroud cap to prevent dust from entering the interior of the bearing between said first and second seal means and said bearing rings.

4,392,696

DRAWERS

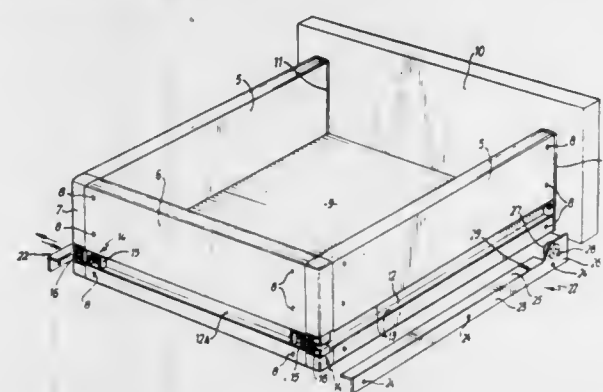
Leon G. Litchfield, and Terence Hardy, both of Belper, England, assignors to L.B. (Plastics) Limited, Belper, England
Filed Oct. 30, 1980, Ser. No. 202,090

Claims priority, application United Kingdom, Nov. 2, 1979, 7938123

Int. Cl.³ A47B 88/00

U.S. Cl. 312—330 R

13 Claims



1. A drawer having longitudinal tracks in the opposite side walls thereof, a pair of members mounted one at each of the rear corners of the drawer and moveable between extended and retracted positions, said members being arranged to extend across the rear ends of the respective tracks in their operative positions and being arranged to retract clear of the rear ends of the tracks in their inoperative positions, and rotary actuating means accessible from within the drawer and operable to effect movement of said members between said positions, said actuating means comprising a stud device having a head adapted to seat against the inner surface of the rear wall of the drawer and provided with a formation engageable by an actuating member or tool to enable rotation of the actuating device from within the drawer, a body portion rotatably received in an aperture in said rear wall, and an eccentric pin projecting from said body portion into engagement with the associated member to impart sliding movement thereto on rotation of said stud device, and said actuating means incorporating over-centre locking means operable to retain said members in their extended operative positions until released by rotation of the actuating means.

4,392,697

DRAWER STOP

William L. Kousens, 1736 Kadwell Way, El Cajon, Calif. 92021

Filed Feb. 17, 1981, Ser. No. 234,882

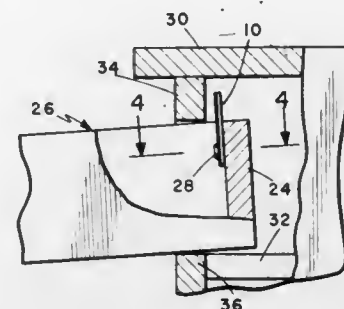
Int. Cl.³ A47B 88/00

U.S. Cl. 312—348

2 Claims

1. A one piece drawer stop for preventing accidental removal of a drawer from a drawer receptacle, comprising: a substantially flat body of relatively stiff material with some resiliency, including a pair of elongated curved bosses

extending longitudinally of said body near the outer edges thereof, and along the entire length of said body; an opening in said body between said bosses near one end thereof for receiving a fastener to secure the drawer stop to said drawer and provide a pivot axis for said drawer stop;



said drawer stop being rotatable about said axis with only the curved portions of said bosses engaging the drawer surface whereby said drawer stop can be snugly affixed to said drawer without loosening said drawer stop when it is rotated between the operative drawer stopping position and the inoperative drawer removal position.

4,392,698

INDUSTRIAL CRANE WITH ROTARY ELECTRICAL CONNECTOR

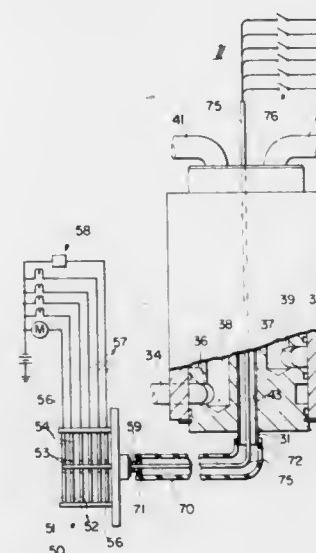
Lex A. Mellott, Warfordburg, Pa., assignor to JLG Industries Inc., McConnellsburg, Pa.

Filed Dec. 30, 1980, Ser. No. 221,389

Int. Cl.³ H01R 39/02

U.S. Cl. 339—10

12 Claims



1. A vehicle comprising:

- a chassis, an upper works, means mounting the upper works for rotation on the chassis about a vertical axis, and means for rotating said upper works,
- cylindrical electrical connector means for transferring electrical energy between a fixed element and a rotary element and including a fixed part, a rotary part, and axially spaced conductor bands and contacts on said parts,
- means mounting said connector means on said chassis remote from the axis of rotation of the upper works,
- means for rotating said rotary part of said connector means from said upper works,
- flexible electrical conductors extending through a hollow shaft and connected to said connector means and to electrical means on said upper works.

4,392,699

ELECTRICAL CONNECTOR

Bernhard Weingartner, Feldkirch, Austria, assignor to Neutrik Aktiengesellschaft, Liechtenstein

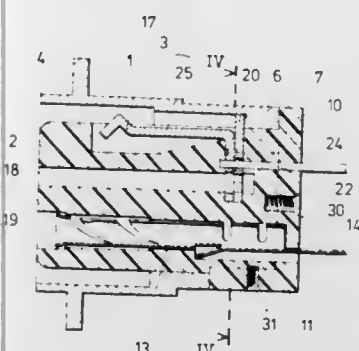
Filed Mar. 13, 1981, Ser. No. 243,660

Claims priority, application Austria, Mar. 19, 1980, 1496/80

Int. Cl.³ H01R 13/652

U.S. Cl. 339—14 P

11 Claims



1. An electrical connector assembly particularly adapted for attachment to the chassis of an appliance comprising: a housing defining a generally longitudinal axis; an insertion piece having therein electrical contact means for effecting desired electrical connection, said insertion piece being received within said housing from one end thereof; flange means on one end of said insertion piece adapted to engage said housing to act as a stop member when said insertion piece is placed within said housing; a slotted recess extending transversely to said longitudinal axis defined in said insertion piece a distance from said flange means; a locking lug pivotally mounted within said recess; a bore extending through said insertion piece into cooperative relationship with said locking lug to enable a tool to be inserted therein for engagement with said locking lug; engagement means on said locking lug adapted to enable said locking lug to be engaged by said tool to pivot said locking lug between a locking position to effect locking engagement between said insertion piece and said housing and a nonlocking position releasing said locking engagement; and shoulder means defined on the interior of said housing and spaced from said one end thereof an interval corresponding to the distance between said slotted recess and said flange means, said shoulder means being adapted to be engaged by said locking lug when said locking lug is in said locking position.

4,392,700

CAM ACTUATED ZERO INSERTION FORCE MOTHER/DAUGHTER BOARD CONNECTOR

Robert L. Showman, Hershey, and Robert N. Weber, Hummelstown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Sep. 8, 1981, Ser. No. 300,332

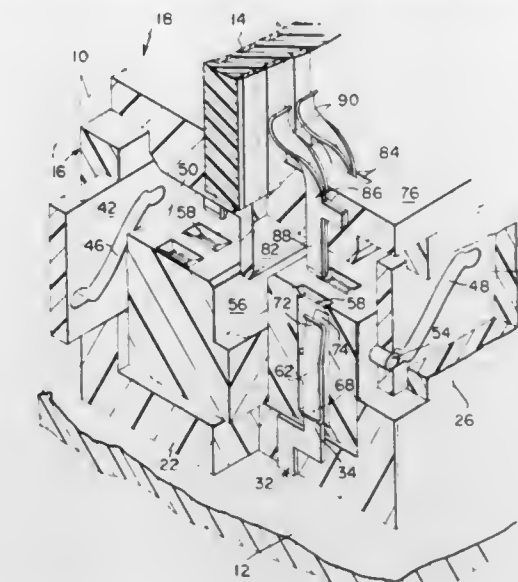
Int. Cl.³ H01R 13/629

U.S. Cl. 339—17 M

13 Claims

1. A zero insertion force connector assembly for mounting a daughter circuit board on a mother circuit board comprising: a receptacle having a housing defining an elongated daughter board receiving cavity with a closed bottom, a carrier block movably mounted in said cavity, cam means mounted in said housing and adapted to move said carrier block with respect to the bottom of said cavity, a plurality of first terminals fixedly mounted in the bottom of said cavity, each said first terminal having a pin portion extending through the bottom and a blade portion extending into said cavity, a like plurality of second terminals mounted in said carrier block each having one end in

constant wiping engagement with a respective blade portion of a respective first terminal, and an opposite second



end adapted to make wiping engagement with a contact of said daughter board.

4,392,701

TAP CONNECTOR ASSEMBLY

Charles H. Weidler, Lancaster, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

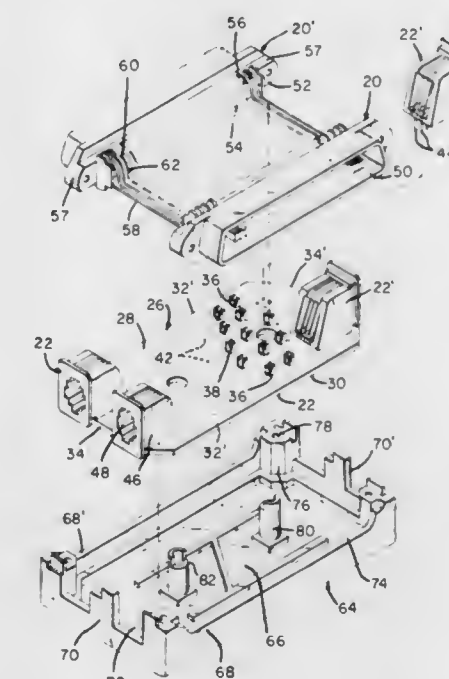
Continuation-in-part of Ser. No. 170,199, Jul. 16, 1980. This

application Nov. 9, 1981, Ser. No. 319,346

Int. Cl.³ H01R 11/32, 13/512

U.S. Cl. 339—17 R

8 Claims



1. A tap connector assembly for making tap connections to selected conductors in a multi-conductor cable, the tap connector assembly being of the type comprising first and second standard cable connectors, each cable connector comprising an insulating housing having a mating face and a rearward face, a plurality of cable connector terminals in the housing, the cable connector terminals being arranged in two parallel rows which extend between the endwalls of the housing, the cable connectors being in spaced-apart back-to-back relationship with their rearward faces in opposed relationship, the corresponding cable connector terminals in the first and second cable connectors being connected to each other by first conductors which extend between, and have their ends connected to, the corresponding cable connector terminals, at least one modular jack, a selected plurality of the first conductors being connected intermediate their ends to jack conductors in

the modular jack, the tap connector assembly being characterized in that:

the standard cable connectors are located along the opposite side edges of a circuit board, the first conductors being wires which extend across one surface of the circuit board,

a plurality of insulation displacement terminals are mounted in the circuit board, each insulation displacement terminal having at least one wire connecting portion having a wire-receiving slot therein and having a solder post extending from the wire connecting portion, the wire connecting portion extending normally from the one surface of the circuit board and the solder posts extending through holes in the circuit board and from the other surface of the circuit board,

the modular jack being mounted on the one surface of the circuit board adjacent to one of the end edges thereof, the jack conductors having solder post portions extending from the housing in the modular jack through holes in the circuit board and beyond the other surface of the circuit board, a plurality of circuit

board conductors which extend between the solder post portions of the jack conductors and the solder post portions of the insulation displacement terminals, the circuit board conductors being soldered to the post portions, and the selected first conductors having intermediate portions thereof inserted into the wire receiving slots of the insulation displacement terminals whereby,

upon coupling standard cable connectors on the ends of cable sections to the first and second standard cable connectors in the tap connector assembly and thereafter plugging a modular plug on the end of a tap cable into the modular jack, the conductors in the tap cable are connected to preselected cable conductors.

4,392,702

SHORTING JUMPER

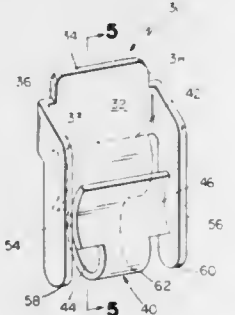
William B. Walkup, Southboro, Mass., assignor to Ark-les Corporation, Watertown, Mass.

Filed Apr. 2, 1981, Ser. No. 250,435

Int. Cl.³ H01R 31/08

U.S. Cl. 339—19

2 Claims



1. A jumper adapted to electrically connect adjacent ones of an array of uninsulated conductive substantially rigid vertical pins, said jumper being formed of resilient, electrically conductive sheet material and comprising

a generally vertical plate portion having a free upper lengthwise edge and two generally vertical side edges,

a pin-retaining spring portion integrally connected lengthwise to said plate portion and comprising

two cooperating pin-gripping portions each having a length adapted to span at least the greater part of two adjacent pins to be connected, a first said pin-gripping portion being integrally connected lengthwise with said plate portion remote from its said free upper edge, the second said pin-gripping portion being spaced widthwise from said first pin-gripping portion, a neck portion having a length adapted to pass between two adjacent pins to be connected, said neck portion being integrally connected lengthwise to each said pin-gripping portion,

said jumper further providing position stabilizing means comprising two arms,

each said arm being integrally connected to a said side edge of said plate portion and bent toward said second pin-gripping portion at an angle of about ninety degrees to said plate portion,

said arms being lengthwise spaced apart by a spacing adapted to clear the outer surfaces of two adjacent pins to be connected,

said arms extending widthwise from at least about the inner surface of said first pin-gripping portion to at least the junction of said second pin-gripping portion and said neck portion,

whereby said arms stabilize said jumper to resist tilting thereof and to prevent shorting other adjacent conductive pins.

4,392,703

ELECTRICAL CONDUCTOR HAVING AN INTEGRAL ELECTRICAL CONTACT

James R. Hall, Bainbridge, and William P. Whallon, Jr., Unadilla, both of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

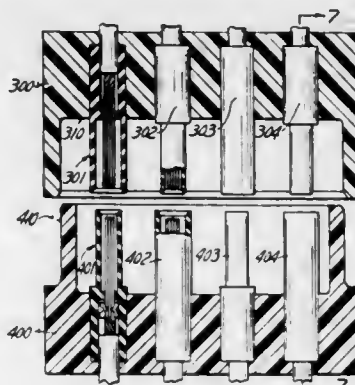
Division of Ser. No. 90,198, Nov. 1, 1979, abandoned, which is a division of Ser. No. 890,339, Mar. 27, 1978, Pat. No. 4,206,958.

This application Jun. 1, 1981, Ser. No. 269,134

Int. Cl.³ H01R 13/28, 11/11

U.S. Cl. 339—49 R

6 Claims



1. An electrical cable assembly of the type having wire strands formed into a bundle for releasable connection to another electrical contact formed of a bundle of wires having angled ends, comprising:

a plurality of elongated electrical conductors (500) of the type consisting of a strand (510) of conductive material surrounded by dielectric material (520), each strand having a conductive end portion (540) thereof exposed to extend from the dielectric material, the dielectric material otherwise electrically insulating each of the conductive strands (510) from one another;

protective means (572) medially disposed about the plurality of electrical conductors (500) for securing the electrical conductors into a multi-conductor cable, an insulated end portion (512) of each electrical conductor (500) containing its exposed conductive end portion (540) extending from said protective means;

a cable-like assembly (500A) comprising the insulated end portions (512) of the electrical conductors (500) being gathered together; and

a sleeve (550) secured about said cable-like assembly, the exposed conductive end portions (540) so assembled forming a mateable bundle extending forwardly from the sleeve in axially aligned, parallel relation, the end of each conductive strand being acutely angled for mating, said angled ends of said strands and said mateable bundles being so configured that said mateable bundle and said another contact can be aligned along their axes and moved into releasable intermingled connection with the angled ends of each bundle entering the other bundle.

4,392,704

LOW INSERTION FORCE PRINTED CIRCUIT CARD CONNECTOR

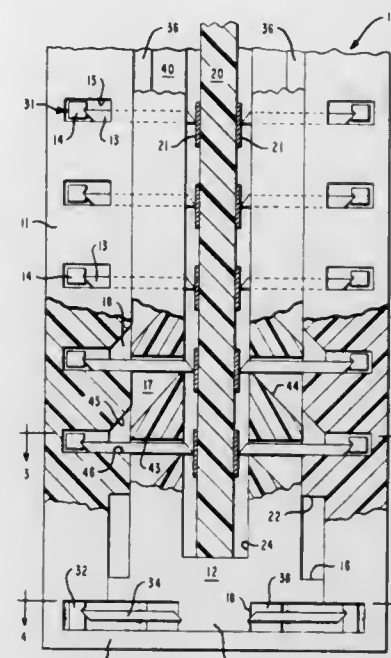
Warren W. Porter, Escondido, Calif., assignor to NCR Corporation, Dayton, Ohio

Filed Jun. 16, 1981, Ser. No. 274,100

Int. Cl.³ H01R 13/62

U.S. Cl. 339—75 MP

9 Claims



4. A printed circuit board connector of the end entry type comprising:

an insulated base defining an elongated opening;
a series of resilient pins mounted in said insulated base and deflectable at one end within said insulated base, said series of pins positioned along said elongated opening;
a carrier slidably mounted to said insulated base within said defined elongated opening, said carrier defining a slot for receiving the edge portion of a printed circuit board;
a series of individual passageways through said insulated base and said carrier, one end of each said passageway connecting to a corresponding one of said resilient pins, the other end of said passageways corresponding to an associated edge connector on a printed circuit board;
a series of floating conductors, one each positioned in a passageway with one end of each conductor connectable to an associated resilient pin and the other end connectable to a respective edge contact on a printed circuit board when the printed circuit board is inserted in said carrier and said carrier is slid into said insulated base; and
biasing means connected between said insulated base and said carrier for sliding said carrier to an unloaded position when the printed circuit board is removed, and for maintaining said carrier in a loaded position when the printed circuit board is inserted in said connector.

4,392,705

ZERO INSERTION FORCE CONNECTOR SYSTEM

Howard W. Andrews, Jr., Hershey; Timothy B. Billman, Carlisle, and Robert F. Coughlin, Elizabethtown, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Sep. 8, 1981, Ser. No. 300,333

Int. Cl.³ H01R 13/029

U.S. Cl. 339—75 MP

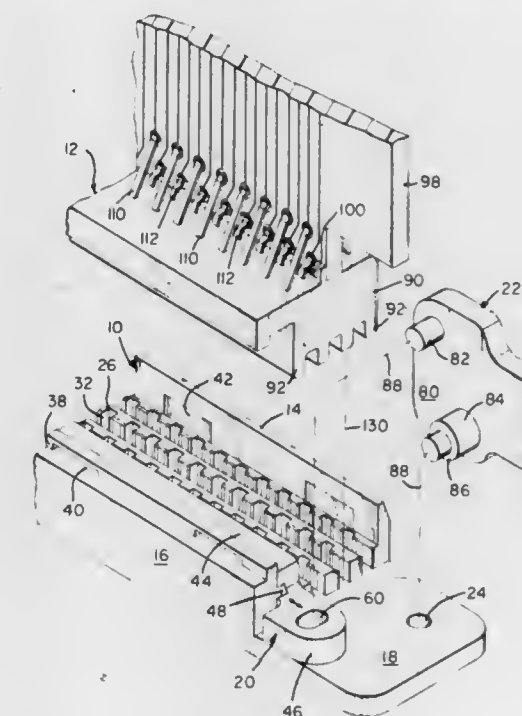
2 Claims

1. A connector system for electrically connecting a circuit card to a circuit board, comprising:

a. an elongated lower member made from insulating material and having a plurality of spaced apart passages extending vertically therethrough, said passages being arranged in a line running lengthwise of the lower member;
b. a plurality of conductive contact elements positioned in the passages with the elements having an upper contact surface extending above the top surface of the lower

member and a lower end extending below said member for insertion into a printed circuit board for making electrical contact with conductive traces thereon;

c. an elongated upper member made from insulating material and having an elongated rib depending from and extending lengthwise of the underside thereof with the rib having a plurality of spaced apart lateral openings along one side, further said member having a plurality of passages extending vertically therethrough and into the rib intersecting the lateral openings therein, said upper member further having means on the upper surface thereof for securing a circuit card thereto with the card being on an edge and parallel to the passages, said upper member being received onto the top surface of the lower member



with the lateral openings being in registration with the upper contact surfaces;

d. a plurality of conductive contact elements positioned in the passages in the upper member and having card engaging contact surfaces extending above the top surface thereof for engaging conductive traces on a card which may be positioned thereon and further having lower contact surfaces positioned in the lateral openings in the rib;

e. camming means mounted on the lower member for moving the upper member laterally on the top surface of the lower member whereupon the

upper contact surfaces are received in the lateral openings to engage and electrically contact the lower contact surfaces positioned therein.

4,392,706

ELECTRICAL CONNECTOR WITH LATCHING MEANS

Robert W. Baker, Kenton; Leonard J. Owen, Watford, and Reginald J. Simmons, South Harrow, all of England, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 23, 1981, Ser. No. 256,650

Claims priority, application United Kingdom, May 2, 1980, 8014610; Oct. 7, 1980, 8032282

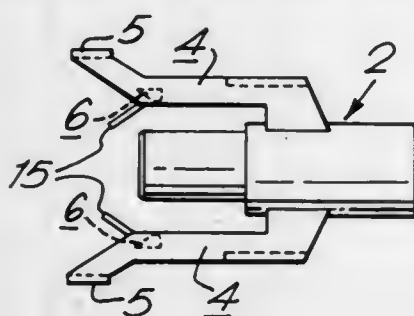
Int. Cl.³ H01R 13/629

U.S. Cl. 339—91 R

7 Claims

1. An electrical connector assembly comprising two housing parts each containing one or more terminals, the housing parts and terminals being such that the housing parts can be mated thereby to mate the terminals contained therein, the housing parts having interengaging latching members which provide a force which assists in mating of the two housing parts, and which serve to secure the housing parts together in their mated condition, the latching members comprising on one housing

part a ramp or ramps on each of two opposite sides of the housing part, and on the other housing part a resilient cantilever arm on each of two opposite sides of said other housing part, each arm carrying a projection adapted and arranged to ride over a ramp on the one housing part as the two housing parts are mated, the ramps on the one housing part and the projections on the arms of the other housing part having cooperating surfaces which engage when the housing parts are fully mated, to prevent unmating of the housing parts, in which the



ramps are supported on the one housing part such that deflection of the arms of the other housing part towards the one housing part when the housing parts are mated disengages the cooperating surfaces of the ramps and projections and enables the housing parts to be unmated without further deformation of the arms, with the projections on the arms of the other housing part passing under the ramps on the one housing part, whereby the projections offer no resistance to unmating of the housing parts.

4,392,707

TAKE-OFF CONNECTOR FOR SECURITY CIRCUIT

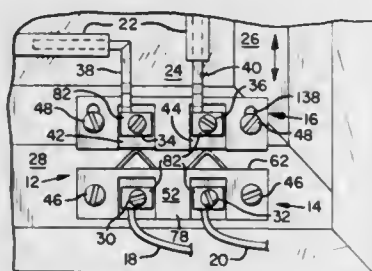
Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.

Filed May 18, 1981, Ser. No. 264,572

Int. Cl.³ H01R 13/54; G08B 13/08

U.S. Cl. 339—125 R

8 Claims



1. A take-off connector for use in a security system electrical circuit for connecting a stationary conductor of said security system circuit with a conductor of said circuit which is carried on a movable object such as a slidable window and the like, said take-off connector comprising:

- a contact carrying member having at least two mutually perpendicular sides and a third side and defining a plurality of recesses located in one of said mutually perpendicular sides for receiving the respective ones of a plurality of fixed contacts, said contact carrying member including a contact mounting element defining a contact attachment aperture;
- a plurality of fixed contacts located spaced apart from one another on said contact carrying member, each of said fixed contacts including a contact surface associated with and located substantially flush with at least two of said mutually perpendicular sides of said contact carrying member and each of said fixed contacts comprising an elongate strip of conductive material including a plurality of inwardly directed angles defining a plurality of interconnected segments including said contact surfaces, a pair of said segments being arranged to fit on opposite sides of said contact mounting element and each segment of said

pair including aperture means for receiving a terminal post screw;

- first terminal means located on each of said fixed contacts for electrically connecting a conductor of said security system electrical circuit directly thereto, said first terminal means being located on said third side of said contact carrying member;
- means for mounting said contact carrying member on a mounting surface, alternatively with said third side extending away from said mounting surface or with said third side spaced apart from said mounting surface;
- a contact housing including a first side thereof and defining a plurality of contact exposing apertures located on said first side thereof in spaced apart relationship;
- means for mounting said contact housing on a surface;
- a plurality of bifurcated spring contacts each including a pair of resiliently flexible convexly arcuate contact points, each contact point having a generally "U"-shaped portion and a free end, said free end being located within said contact housing;
- supporting means, included in said contact housing, for holding each said bifurcated spring contact with said "U"-shaped portion of each contact point protruding outwardly from said housing through a respective one of said contact exposing apertures to contact a respective one of said contact surfaces; and
- second terminal means located on each said bifurcated spring contact for electrically connecting a conductor of said security system electrical circuit directly thereto.

4,392,708

ELECTRICAL JACK

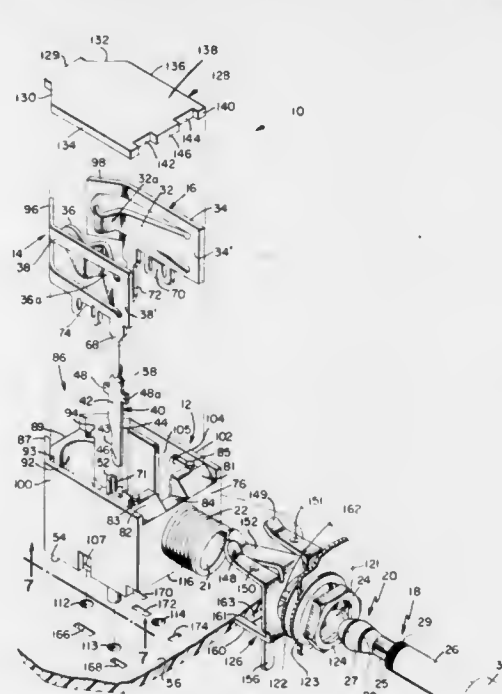
James R. Bailey, Chicago, and Kurt Lutzenberger, Arlington Heights, both of Ill., assignors to Switchcraft, Inc., Chicago, Ill.

Filed Aug. 4, 1980, Ser. No. 174,788

Int. Cl.³ H01R 13/50, 17/18

U.S. Cl. 339—182 R

6 Claims



1. An electrical jack, comprising:

- a housing of insulating material having integral walls, including a front wall, forming a cavity, said front wall having an axially extending dielectric collar member with a passageway for guiding a stem of a jack plug into said cavity;
- at least one spring contact electrode disposed within said housing cavity adapted to engage a portion of the jack plug stem when such stem is inserted into the cavity to

establish electrical contact between such electrode and such portion of the jack plug; and

- an electrical contactor electrode having an aperture formed in a mounting portion thereof disposed around the dielectric collar member outside the housing and having a finger electrode protruding across the front wall of the housing into the cavity to electrically contact a different portion of the jack plug.

4,392,709

METHOD OF MANUFACTURING HOLOGRAPHIC ELEMENTS FOR FIBER AND INTEGRATED OPTIC SYSTEMS

Joseph L. Horner, Cambridge, and Jacques E. Ludman, Westford, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 29, 1980, Ser. No. 201,860

Int. Cl.³ G03H 1/04

U.S. Cl. 350—3.83

1 Claim



4,392,712

LIGHT DISTRIBUTOR

Takeshi Ozeki, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan

Continuation of Ser. No. 888,358, Mar. 20, 1978, abandoned.

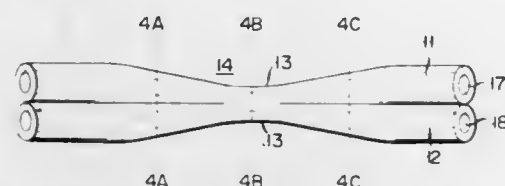
This application Oct. 29, 1980, Ser. No. 201,987

Claims priority, application Japan, Mar. 23, 1977, 52-31032; Apr. 8, 1977, 52-39552

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.16

7 Claims



1. A light distributor comprising a plurality of optical fibers with each of said optical fibers having a core located therein that is encapsulated by an individual cladding; said light distributor having a tapered light mixing section in which the cladding of adjacent optical fibers remain intact when said optical fibers, held firmly together in a juxtapositional relationship, are thermally fused together to form said tapered light mixing section, said optical fibers being subjected to tensile stresses during said thermal fusion; said optical fibers being thermally fused only in the region of said tapered light mixing section; whereby a light distributor is formed which distributes optical signals with a small loss of input optical energy.

4,392,713

ARRANGEMENT FOR ALIGNEDLY COUPLING TWO COATED LIGHT-CONDUCTIVE FIBERS

Hans Piter, Cologne, and Klaus Serapins, Berg, Gladbach-Refrath, both of Fed. Rep. of Germany, assignors to Felten & Guillaume Carlswerk AG, Cologne, Fed. Rep. of Germany

Division of Ser. No. 890,192, Mar. 27, 1978, Pat. No. 4,223,979. This application Oct. 29, 1979, Ser. No. 89,107

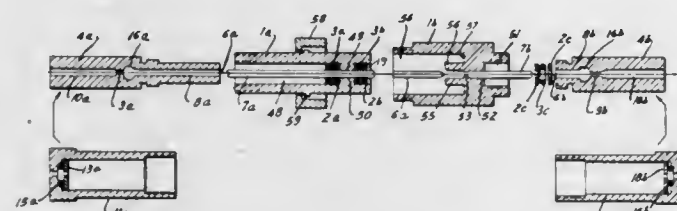
Claims priority, application Fed. Rep. of Germany, Mar. 31, 1977, 2714327; Apr. 13, 1977, 2716222

The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.

Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.21

14 Claims



1. An apparatus for aligning and coupling two coated light-conductive fibers, comprising a first guide member having a channel to support a first fiber to be coupled to a second fiber, a second guide member having a channel to support an end of the second fiber, said channel including a first section of a relatively large diameter, an intermediate section of a relatively small diameter to receive a stripped end portion of the second fiber and a third section coordinated to the diameter of the coated light-conductive second fiber; at least three clamping rods inserted into a space provided in said first guide member and partially extending into said first section of said second guide member, said clamping rods being arranged to engage the abutted stripped end portions of said fibers; a protective socket surrounding said second guide member and having an opening at one end thereof to receive said second coated light-conductive fiber, said protective socket having a recess communicating with said opening and a resilient O-ring inserted into said recess to yieldably engage said second coated light-

conductive fiber when it is inserted into said third section of the channel formed in the second guide member; and deflectable means encompassing said clamping rods to maintain said clamping rods in clamping contact with said stripped end portions, said deflectable means being positioned on said clamping rods substantially at the middle thereof, said second guide member being connected to the first guide member and arranged to connect the channel formed in the first guide member to the channel formed in the second guide member thereby providing radial forces for pressing said deflectable means inwardly into contact with said clamping rods to hold said stripped end portions in aligned and abutting position.

4,392,714

OVERHEAD POWER CABLE HAVING LIGHT CONDUCTING FIBERS ARRANGED IN ITS INTERIOR

Siegfried Brüggendieck, Radevormwald; Karl-Heinz Nolting, Cologne; Friedrich Krahn, and Gerhard Olejak, both of Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

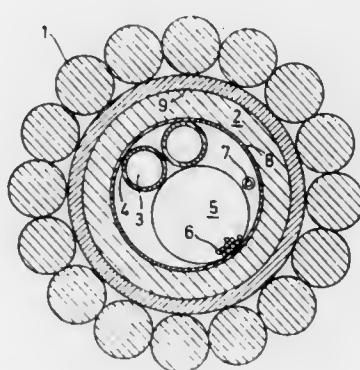
Filed Apr. 22, 1981, Ser. No. 256,347

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1980, 3015732

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.23

2 Claims



1. An overhead power cable for simultaneously transmitting electrical energy and data signals, said cable comprising: at least two light-conducting fibers, each fiber being provided with a mantle of synthetic resin; at least one strength member, said light-conducting fibers being stranded with or around the strength member to produce a core having a strand length and strand diameter, the strand length being from 5 to 15 times the strand diameter; a band of synthetic resin provided around the core; a sheath of synthetic resin provided around the band of synthetic resin; a seamless metal sheath provided around the sheath of synthetic resin; and at least one layer of electrically conductive wires provided around the seamless metal sheath.

4,392,715

OPTICAL FIBER

Hans-Ulrich Bonewitz, Hammersbach; Albert Muhlich, Frankfurt, and Karlheinz Rau, Hanau, all of Fed. Rep. of Germany, assignors to Heraeus Quarzschmelze GmbH, Hanau, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,088

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1979, 2907650

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.33

11 Claims

1. In an optical fiber having a core consisting essentially of vitreous silica, said core having jacket of plastic which is optically effective at least on a length of 10 m reckoned from the light input end of the fiber and which has a refractive index n_M which is smaller than that of the core, the improvement

4,392,717

LIQUID CRYSTAL DISPLAY DEVICE

Yoshimichi Shibuya, and Masami Takahashi, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

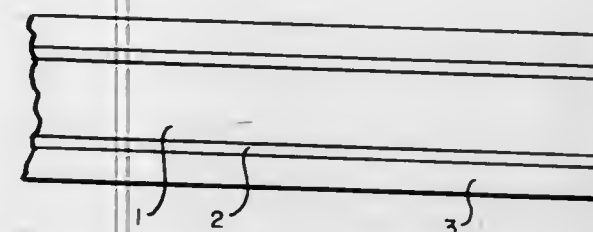
Filed Jan. 8, 1981, Ser. No. 223,289

Claims priority, application Japan, Jan. 23, 1980, 55-5673

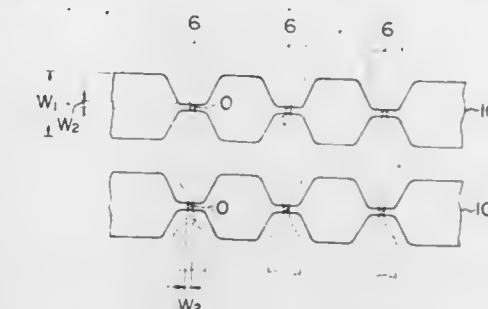
Int. Cl.³ G02F 1/13

U.S. Cl. 350—334

4 Claims



n_M of said jacket, said vitreous silica of said core consisting essentially of synthetic vitreous silica made from silicon halides, the OH-content of said synthetic vitreous silica amounting to less than 10 ppm, and wherein n_{ext} lies in the range from $n_K - (n_K - n_M) \cdot (0.25 \text{ to } 0.8)$, the thickness of said outer portion amounts between 0.8 μm to 8 μm and the thickness of said inner portion is greater than the thickness of said outer portion.



1. A liquid crystal display device comprising a pair of opposing upper and lower substrates having a liquid crystal filled therebetween and coupled to each other through an electrically insulative sealing material at the peripheral portions thereof, said upper and lower substrates being provided with upper and lower electrode patterns including wiring conductors on respective surfaces facing oppositely to each other, the wiring conductors of said upper and lower electrode patterns having cross-over portions which overlap each other between said upper and lower substrates, wherein at least a part of the cross-over portions of the wiring conductors of said upper and lower electrode patterns is disposed within an effective display region of said liquid crystal display device enclosed by said sealing material, and each of the cross-over portions of the wiring conductors of said upper and lower electrode patterns disposed within said effective display region has a width smaller than that of the remaining portion of the respective wiring conductors.

4,392,716

MECHANISM TO MAINTAIN CONSTANT BODY TUBE LENGTH OF BINOCULAR MICROSCOPE

Tsutomu Shimizu, Hanno, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

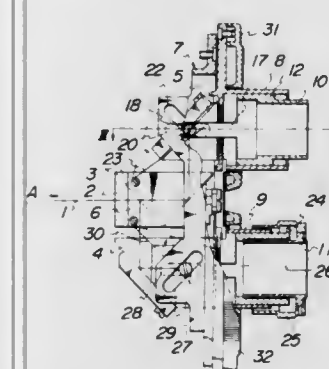
Filed Apr. 17, 1981, Ser. No. 255,219

Claims priority, application Japan, Apr. 22, 1980, 55-53894[U]

Int. Cl.³ G02B 21/20, 27/10

U.S. Cl. 350—145

5 Claims



1. A mechanism to maintain a constant body tube length of a binocular microscope having a casing with two outer frames mounted thereon in a slidable manner in a width direction of the microscope, two ocular sleeves carried by said outer frames in a manner slidable in an axial direction thereof, oppositely slanted linear cam grooves bored on said casing with angles of 45° relative to said axial direction, and pins connected to said ocular sleeves and fitted in said linear cam grooves respectively, said ocular sleeves being adapted to slide axially relative to the outer frames in response to symmetrical width-wise sliding of said outer frames relative to the casing so as to maintain said body tube length constant; said mechanism comprising slots bored through said outer frames so as to extend in the axial direction thereof and to slidably receive said pins connected to said ocular sleeves, and resilient means disposed between said casing and said ocular sleeves so as to apply axial forces to said two ocular sleeves in opposite directions.

4,392,718

RESISTIVE ELECTRODE LCD AND VOLTAGE SUPPLY MEANS

John M. Morrison, Edinburgh, Scotland, assignor to Ferranti Limited (now Ferranti plc), Cheadle, England

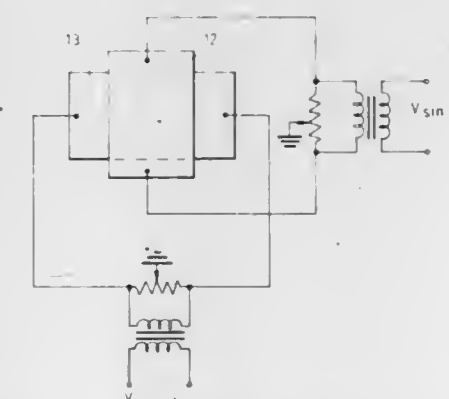
Filed Dec. 30, 1980, Ser. No. 221,499

Claims priority, application United Kingdom, Jan. 12, 1980, 8001093

Int. Cl.³ G02F 1/13

U.S. Cl. 350—336

6 Claims



1. A display device which includes a pair of spaced electrodes each having a resistance characteristic such that a potential gradient may be developed across the electrode, a pair of terminals on each electrode located such that the potential gradients developed across the two electrodes extend at an angle to one another, a liquid crystal material located between the two electrodes and being of a type which becomes opaque when an electric field is applied across it, voltage supply means

operable to apply an alternating potential across each pair of terminals, such that the two potentials are of the same frequency and are out of phase with one another by an angle which determines the form of the display and in which the voltage supply means are arranged to provide, across each electrode, a constant voltage and include means for varying the potential of each terminal with respect to a reference potential.

4,392,719

IMAGE FORMING METHOD AND APPARATUS

Sohichi Sekimoto, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

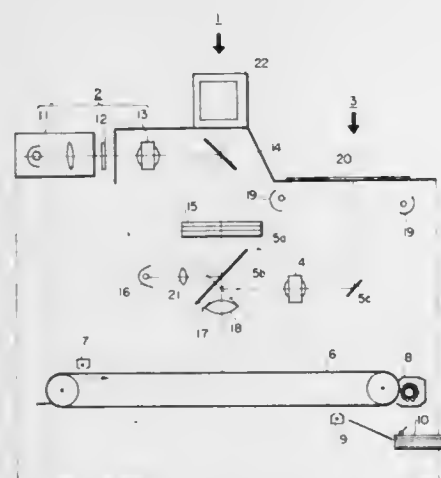
Filed Jul. 15, 1980, Ser. No. 169,079

Claims priority, application Japan, Jul. 19, 1979, 54-91005

Int. Cl.³ G02F 1/13

U.S. Cl. 350—342

2 Claims



1. A system for forming an image onto a photosensitive recording medium comprising:

a memory liquid crystal cell having a layer of nematic-cholesteric phase transition type memory liquid crystals, a photoconductive layer disposed adjacent said memory liquid crystal layer, and transparent electrodes sandwiching said memory liquid crystal layer and said photoconductive layer;

means for projecting an optical image onto said memory liquid crystal cell comprising first means to project a positive original optical image on said memory liquid crystal cell for recording as a latent image and second means for projecting a negative original optical image either onto said memory liquid crystal cell as a latent image or onto said photosensitive recording medium without forming a latent image;

means for applying a predetermined voltage to said memory liquid crystal cell to determine the polarity of an image recorded thereon; wherein said means for applying a predetermined voltage comprises, a voltage source and circuit means for applying a bias voltage from said source having a polarity determined by whether the original image is a positive or negative original optical image

means for projecting an optical image from said memory liquid crystal cell to said photosensitive recording medium comprising a light source, a first lens, a half-silvered mirror positioned to direct light from said light source focused through said first lens onto the surface of said memory liquid crystal cell, and a second lens receiving light transmitted through said half-silvered mirror and focusing it onto said photosensitive recording medium.

4,392,720

ELECTROCHROMIC DISPLAY CELL

Claude Ganguillet, Neuchatel; Yves Ruedin, Saint-Blaise, and Michel Sallin, Neuchatel, all of Switzerland, assignors to Ebauches, S.A., Canton of Neuchate, Switzerland

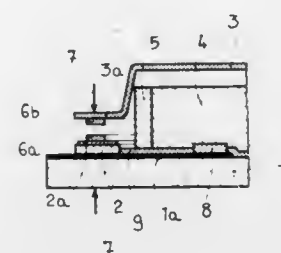
Filed Nov. 28, 1980, Ser. No. 211,203

Claims priority, application Switzerland, Dec. 17, 1979, 11182/79

Int. Cl.³ G02F 1/17

U.S. Cl. 350—357

2 Claims



1. An electrochromic display cell comprising a substantially flat substrate, an electrode disposed on said substrate, an electrochromic material disposed on a portion of said electrode, a cover having a substantially flat peripheral portion, an ionic conductor disposed between said substrate and said cover, annular soldering means for sealing said peripheral portion of said cover to said substrate, and a protective frame disposed in tight contact with said substrate and said cover and disposed tightly separating said soldering means and said ionic conductor in order to prevent chemical reaction therebetween.

4,392,721

ELECTROCHROMIC CELL HAVING A MIXED SOLID ION-CONDUCTING LAYER

Robert D. Giglia, Rye, N.Y., and Gottfried Haacke, New Canaan, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Feb. 19, 1981, Ser. No. 235,871

Int. Cl.³ G02F 1/17

U.S. Cl. 350—357

3 Claims

1. An electrochromic device comprising a layer of inorganic electrochromic material having one of its surfaces in ion-conductive contact with a surface of a single ion-conductive insulating layer which consists essentially of a codeposited mixture of SiO and Cr₂O₃, with those two layers disposed between two electrode surfaces with means for passing electric current in reversible directions through the two layers for alternate coloration and erasing of the electrochromic layer wherein the ratio of Cr₂O₃ to SiO in said codeposited mixture is the equivalent of a ratio in the range from 2.5 to 50 mμ film thickness of Cr₂O₃ to 160 mμ film thickness of SiO.

4,392,722

PRISM POLARIZER

Masataka Shirasaki, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed May 8, 1981, Ser. No. 261,877

Claims priority, application Japan, May 9, 1980, 55-63659[U]

Int. Cl.³ G02B 5/04; G02F 1/09, 1/29

U.S. Cl. 350—375

16 Claims

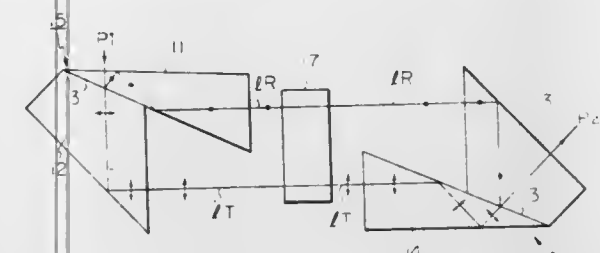
1. A prism polarizer for separating an incident light beam having P-polarization and S-polarization light rays, comprising:

a pair of anisotropic crystal prisms, wherein each prism has a boundary surface, the boundary surface of a first prism of said pair faced to the boundary surface of the second prism, thus defining a facing plane;

wherein each comprises a crystal which has an optical axis and an optical characteristic such that the difference between the square of the refractive index for light rays

having a polarization plane parallel to the optical axis, and the square of the refractive index for light rays having a polarization plane perpendicular to the optical axis, is larger than 1;

the angle of incidence of a beam, exiting one of said prisms, upon the boundary surface of said beam-exiting prism being equal to the Brewster angle for the refractive index for the P-polarization rays,



so that the P-polarization rays are transmitted through said boundary surface of said beam-exiting prism, while the S-polarization rays are totally reflected at said boundary surface of said beam-exiting prism, thereby said incident beam being separated into two polarized beams, and wherein each prism is formed so that each of said two separated polarized beams is totally reflected within each respective prism and the separated polarized beams exit said respective prisms parallel with each other.

4,392,723

AIMING DEVICE

Walter Gehmann, Karlstrasse 40, Karlsruhe, Fed. Rep. of Germany 7500

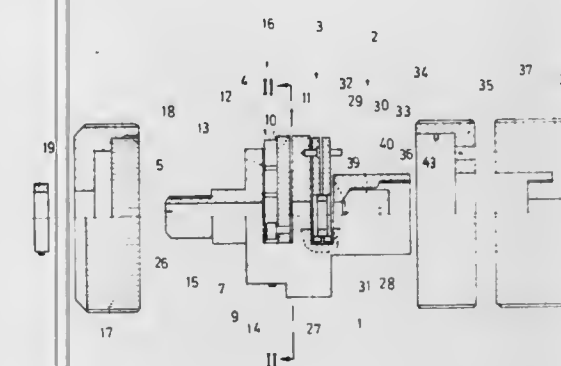
Filed Jan. 23, 1981, Ser. No. 227,606

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1980, 3004635

Int. Cl.³ F41G 1/14

U.S. Cl. 350—407

7 Claims



1. An aiming device comprising: a tubular support housing; an adjustable iris diaphragm arranged in said housing at one end thereof and forming an eyepiece, said diaphragm consisting of an axially slotted sleeve forming ribs which are bent inwardly at their free ends, said inwardly bent free ends overlapping each other scale-like and being received in a conical opening in said housing; a rotatable operating ring threaded onto said housing and engaging said slotted sleeve for axially forcing said sleeve with its free ends into said conical opening for causing inward deflection of said free ends for adjustment of the opening of said eyepiece; a polarizing filter structure also mounted in said housing and consisting of two adjacent polarizing discs rotatably mounted relative to each other by 90°, each being supported on an operating lever, the first one being linked to said housing, and a polarizing filter control ring rotatably supported on said housing and having the end of the second polarizing filter operating lever linked thereto for rotating said polarizing filters relative to each other, said filter control ring further having means for engaging the first operating lever for pivoting said lever to move the filters out of line

of sight of said aiming device and a color filter disc including a number of different color filters and provided with external gearing and an operating ring mounted rotatably around said housing and provided with internal gearing in engagement with the gearing of said filter disc, and said filter disc being rotatably supported by rollers disposed in an area opposite the area of engagement of said gears so as to permit operation thereof, all three rotatable operating rings, the color filter disc operating ring, the polarizing filter support lever operating ring and the iris diaphragm operating ring being disposed axially closely adjacent one another and rotatably around said housing.

4,392,724

LENS SYSTEM CAPABLE OF SHORT DISTANCE PHOTOGRAPHY

Yoshinari Hamanishi, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

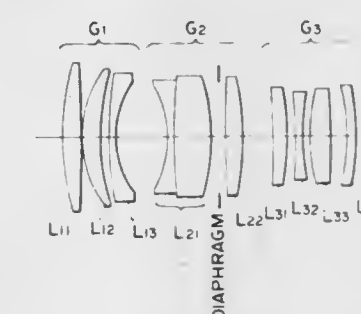
Filed Jan. 19, 1981, Ser. No. 226,011

Claims priority, application Japan, Jan. 31, 1980, 55/10704

Int. Cl.³ G02B 9/64, 15/14

U.S. Cl. 350—163

10 Claims



1. A lens system capable of continuously effecting infinity photography to high magnification proximity photography, comprising:

a convergent lens group which is a first group positioned most adjacent to the object side;

a convergent lens group which is a second group positioned rearwardly of said first group;

a divergent lens group which is a third group positioned rearwardly of said second group; and

a diaphragm provided between said first group and said third group;

said first group and said second group being movable toward the object side relative to said third group while enlarging the spacing between said first and second groups when focusing is effected from infinity to a short distance, and the diaphragm being movable with the second group.

4,392,725

DEVICE FOR BLIND SPOT DELINEATION

Larry A. Sheingorn, 3139 Tennyson St., NW., Washington, D.C. 20015

Continuation-in-part of Ser. No. 966,793, Dec. 5, 1978,

abandoned. This application Feb. 25, 1980, Ser. No. 124,101

Int. Cl.³ A61B 3/02

U.S. Cl. 351—224

4 Claims

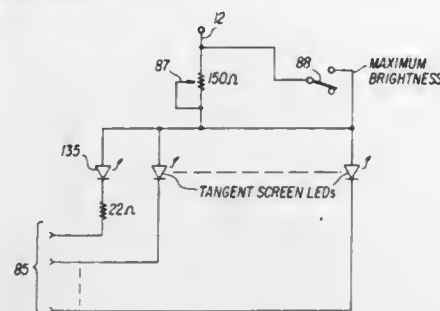
1. A self-contained, solid state device, with no moving parts, that determines visual field defects, comprising:

(a) a surface with lamps mounted therein connected to circuitry which automatically turns on the lamps during testing,

(b) a spring return push button switch that the patient depresses upon observing a lighted lamp on said surface connected to circuitry which determines when the patient responds to or does not respond to a lighted lamp and stores the information in memory,

(c) circuitry which reads and processes the stored information connected to circuitry which routes the output when

the memory is read to lamps corresponding to the lamps which were presented to the patient, and not responded to by the patient,



- (d) circuitry which determines when the test is complete and
(e) a power supply which supplies power to drive the circuitry of the device.

4,392,726

AUTOMATIC FOCUS CONTROL SYSTEM FOR VIDEO CAMERA WITH IMPROVED POSITION DETECTING APPARATUS

Kenji Kimura, Tachikawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

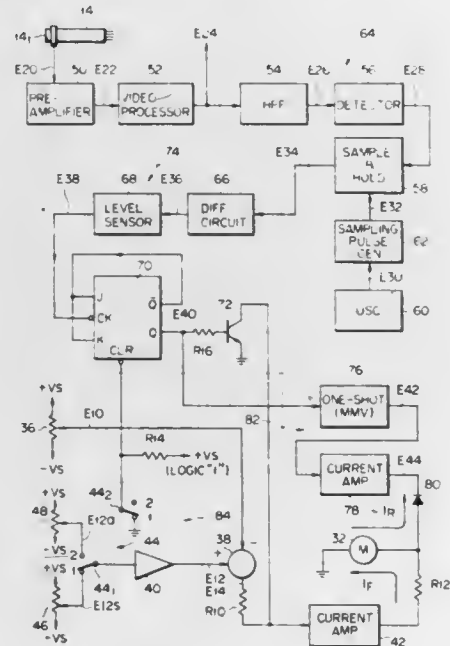
Filed May 12, 1981, Ser. No. 262,918

Claims priority, application Japan, Jun. 13, 1980, 55-79742

Int. Cl.³ G03B 7/08

U.S. Cl. 354—25

17 Claims



1. A focus control apparatus adapted to a camera including a lens system, image pickup means for providing a video signal disposed on the optical axis of the lens system, and moving means for varying a relative distance between a light receiving surface of the image pickup means and the lens system so that an object is focussed onto the light receiving surface, said relative distance being varied in a first direction or a second direction which is opposite to said first direction, comprising:
 - first means coupled to said image pickup means including means for providing a detection signal which includes higher frequency components of the video signal provided by said image pickup means; and means for varying the level of said detection signal according to said relative distance between said light receiving surface and said lens system;
 - second means coupled to said first means and to said moving means for fixing said relative distance when said detection signal substantially takes an extreme value; and
 - third means coupled to said second means and to said moving means for causing a predetermined amount of the relative distance variation in said second direction when the relative distance variation is effected in said first direction and when the relative distance variation in said first

direction exceeds by said predetermined amount a point at which said detection signal takes said extreme value; said third means including activating means coupled to said moving means for actuating said moving means during a given predetermined period of time which corresponds to said predetermined amount of said relative distance variation in said second direction.

4,392,727

CAMERA EXPOSURE CONTROL DEVICES WITH SMOOTHING CIRCUIT

Masayoshi Sahara, Sennan; Masaaki Nakai, Nara; Tokuji Ishida, Daito, and Hiroshi Hosomizu, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

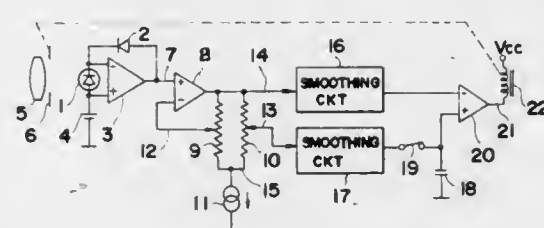
Filed Sep. 10, 1981, Ser. No. 301,096

Claims priority, application Japan, Sep. 20, 1980, 55-131099

Int. Cl.³ G03B 7/085, 7/089

U.S. Cl. 354—43

5 Claims



1. A camera exposure control circuit, comprising:
 - a photoelectric circuit including a photoelectric element to receive light from an object to be photographed through the camera diaphragm aperture for generating a voltage output as a function of a brightness of an object to be photographed;
 - a control circuit for controlling the camera exposure in accordance with said voltage output including a comparison circuit for comparing said voltage output, at the time when the diaphragm aperture is being stopped-down, with a given voltage level, and providing an inverted output when said voltage output attains a specified relationship with said given voltage level, and further including means for stopping the stopping-down operation of the diaphragm in response to said inverted output; and
 - a smoothing circuit connected between said photoelectric circuit and said control circuit and having a smaller charging time constant than the discharging time constant thereof.

4,392,728

CAMERA WITH FOCAL-PLANE SHUTTER HAVING CONTRAST CONTROL

Muneaki Yoshida, No. 2635, Kawaguchi Cho, Hachioji City, Tokyo, Japan

Continuation of Ser. No. 1,619, Jan. 8, 1979, abandoned. This application May 26, 1982, Ser. No. 381,944

Claims priority, application Japan, Jan. 11, 1978, 53-1653

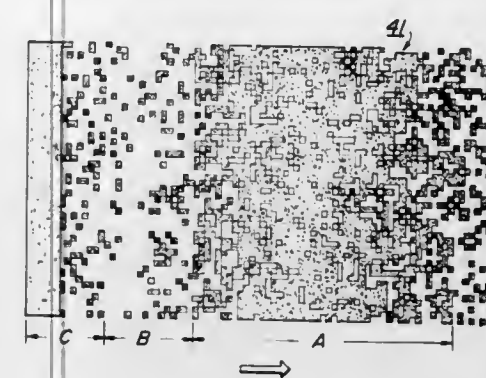
Int. Cl.³ G03B 7/08

U.S. Cl. 354—49

7 Claims

1. In a camera comprising a focal-plane shutter having a front curtain and a rear curtain for measuring reflected light from the front curtain surface to determine a proper exposure, the improvement wherein the front curtain has a center portion thereof formed into a low reflection portion for measuring reflected light with the start of the front curtain and a rear end portion being at least formed into a high reflection portion as

compared with the center portion in the running direction of the front curtain means for delaying, running of said rear



curtain until the measured light reaches a predetermined integral value to control contrast.

4,392,729

MOVABLE REFLECTING MIRROR FOR SINGLE LENS REFLEX CAMERA

Katsuhiko Tsunefuji, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Japan

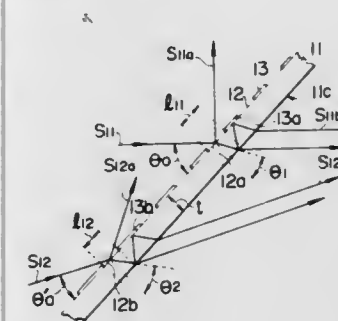
Filed Oct. 12, 1981, Ser. No. 312,826

Claims priority, application Japan, Nov. 18, 1980, 55-165833[U]

Int. Cl.³ G03B 19/12; G02B 27/14

U.S. Cl. 354—152

8 Claims



1. A camera comprising:
 - (A) picture-taking optics including a lens for transmitting picture-taking light along and around a first optical axis which is the lens axis and onto a film plane of said camera;
 - (B) viewfinder optics; and
 - (C) a mirror movable between a first position wherein said mirror is at an angle with respect to said first optical axis, intercepts picture-taking light transmitted by said picture-taking optics before it reaches said film plane and reflects said picture-taking light toward said viewfinder optics and a second position wherein said mirror is removed from said first optical axis and permits said picture-taking light to reach said film plane, said mirror including:
 - (1) an optically transmissive member having a front surface and a rear surface which are partially reflective;
 - (2) reflecting means disposed on said front surface of said member for reflecting substantially all of the picture-taking light incident thereon; and
 - (3) light transmitting openings formed in said reflecting means, the size and spacing of said light transmitting openings being selected such that picture-taking light, which is generally concentrated around the first optical axis by the picture-taking optics, but which also is dispersed around the first optical axis, is transmitted through said openings and some of the transmitted light is reflected by said rear surface of said member while none of that reflected light refracts through said front surface of said member toward said viewfinder optics and the size of the openings is also selected so that diffracting phenomena are avoided.

4,392,730

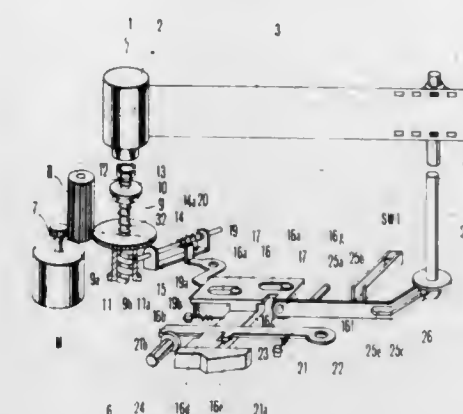
MOTOR DRIVEN REWIND DEVICE FOR CAMERA
Tomonori Iwashita, Fuchu, and Hidehiko Fukahori, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Japan
Filed Nov. 16, 1981, Ser. No. 321,526

Claims priority, application Japan, Nov. 22, 1980, 55-168020[U]; Nov. 25, 1980, 55-165541

Int. Cl.³ G03B 1/12

U.S. Cl. 354—173

8 Claims



1. A motor driven rewind device for a camera comprising:
 - an electric motor;
 - switching means, for controlling current supply to said electric motor;
 - rewind means, driven to move by said motor to rewind a film;
 - a rewind control member, for changing over said switching means;
 - a lock member, locking said rewind control member in an initial position and a rewind mode position; and
 - a lock release member, controlling said lock member.

4,392,731

PHOTOGRAPHIC FILM CARTRIDGE ASSEMBLIES WITH REMOVABLE FILTERS

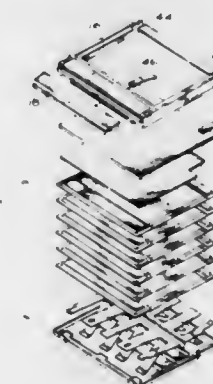
Roger S. Van Heyningen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 1, 1982, Ser. No. 344,575

Int. Cl.³ G03B 17/26

U.S. Cl. 354—180

6 Claims



1. A film cartridge assembly adapted to be received for exposure in cameras of two types, one of said types having a predetermined exposure characteristic and the other of said types having exposure characteristic other than the predetermined exposure characteristics, said cartridge assembly comprising:
 - a cartridge body;
 - photographic film in said cartridge body having a photographic characteristic matching the predetermined exposure characteristic of the one camera type;

a filter carried by said cartridge body so as to be in the exposure light path to the film, said filter being adapted to compensate for the non-matching exposure characteristic of the other type of cameras; and means cooperative only with cameras of said one type of assuring removal of said filter from the light path of such cameras before film in the assembly is exposed by the camera.

4,392,732

FOLDING CAMERA WITH VIEWFINDER HAVING INDEPENDENTLY MOUNTED OPTICAL ELEMENTS

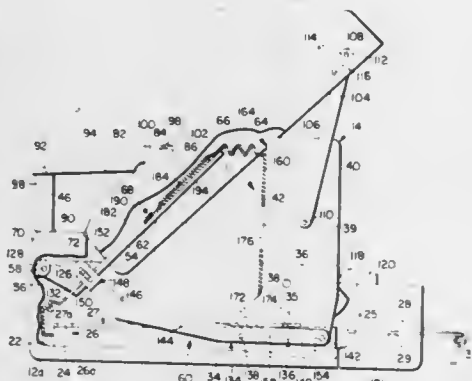
Donato F. Pizzuti, Lynnfield, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 28, 1981, Ser. No. 334,980

Int. Cl.³ G03B 17/04, 13/02

U.S. Cl. 354—187

7 Claims



1. A folding camera including a self-erecting and folding viewfinder, said camera comprising:

- a base housing section including means for supporting a film unit at a film plane within said base section;
- a lens housing section mounting an objective lens and a front viewfinder lens, said lens housing section being pivotally coupled to said base section adjacent one end thereof for movement between an upstanding operative erected position and a folded storage position wherein it is folded back over said base housing section in overlying relation to at least a portion of said film plane;
- a mirror assembly including a mirror pivotally coupled to said base section, adjacent an opposite end thereof, for movement between an operative erected position for reflecting image-forming light rays from said lens onto said film plane to expose a film unit thereat and a folded storage position overlying at least a portion of said film plane;
- a foldable bellows coupled to said base and lens housing sections and said mirror assembly for movement between an erected position for light shielding the exposure optical path extending between said objective lens, mirror and film plane, and a flat storage position wherein at least a portion of said bellows overlies said film plane;
- a cover housing section, having an aperture therein, pivotally coupled to said base section adjacent said opposite end thereof for movement between an erected position providing clearance for said lens housing, mirror assembly and bellows to assume their respective erected positions and a folded storage position overlying said base section and protectively covering said folded lens housing section, mirror assembly and bellows;
- first erecting means interconnecting said lens and cover housing sections for coordinated movement between their respective erected and storage positions;
- second erecting means interconnecting said lens housing section and said mirror assembly for coordinated movement between their respective erected and storage positions;
- a rear viewfinder lens pivotally mounted on said base housing section for movement between an upstanding operative erected position, wherein said rear lens is in optical

alignment with said erected front lens to form a viewfinder having a viewing path that extends through said aperture in said erected cover section for viewing and framing a scene in the field of view of said objective lens, and a folded storage position wherein said rear viewfinder lens is folded down in overlying relation to said base housing section; and

third erecting means responsive to movement of said cover housing section from its said storage position to its said erected position for effecting movement of said rear viewfinder lens from its said storage position to its said erected position and also responsive to movement of said cover section from its said erected position to its said storage position for effecting movement of said rear viewfinder lens from its said erected position to its said storage position.

4,392,733

INTERVALS TIMER FOR CAMERAS

Norio Beppu, Sennan, and Akira Fujii, Osaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

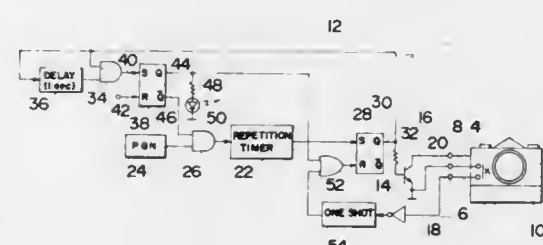
Filed Jul. 2, 1981, Ser. No. 279,950

Claims priority, application Japan, Aug. 7, 1980, 55-93752; Aug. 7, 1980, 55-93753

Int. Cl.³ G03B 17/38, 17/18; H03K 1/153

U.S. Cl. 354—266

7 Claims



1. Interval timer for periodically providing a camera with a release signal to control the photographing operation thereof by carrying out one exposure cycle and a successive automatic film winding operation in response to each release signal from the interval timer, comprising:

- means for periodically producing a release signal;
- means for setting the interval between the occurrence of the successive release signals;
- first and second terminals to be connected with the camera, the release signal being transmitted to the camera through said first terminal;
- means responsive to a first reply signal at said second terminal transmitted from the camera for examining the timing of the arrival of the first reply signal to said second terminal to determine whether or not the examined timing falls into a predetermined condition for controlling the operation of said means for producing, and including means for measuring a period from the transmission of the release signal to the arrival of the first reply signal; and
- means responsive to said examining means for interrupting said producing means from producing the release signal when the examined timing falls into the predetermined condition, said predetermined condition being that said measured period is longer than a predetermined time period.

4,392,734

ELECTROPHOTOGRAPHIC CAMERA

John D. Plumadore, Westfield, Mass., assignor to Photon Chroma, Inc., Westfield, Mass.

Filed Apr. 28, 1980, Ser. No. 144,782

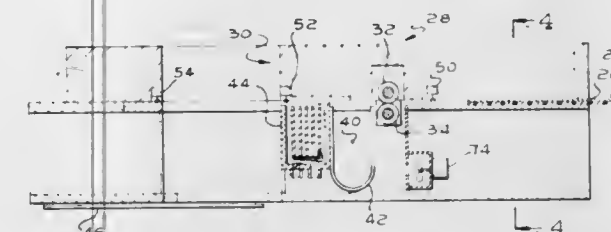
Int. Cl.³ G03G 15/10

U.S. Cl. 355—3 R

3 Claims

1. Camera for making frame-mounted slide transparencies

adapted for projection in a slide projector using electrophotographic film carried on a foldable, planar slide frame, said camera comprising reversible drive means for carrying the frame-mounted film into and out of said camera along a processing track for a single imaging cycle, including an imaging path and a development path, which are co-extensive, but in opposite directions, said imaging path including a corona unit for electrically charging said film while the film is moving thereby and including a corona wire disposed transversely to the path of movement of the film, and an exposure chamber spaced along said imaging path from the corona unit for the imaging of said film, said development path including a toner head disposed between the corona unit and exposure chamber, a means for controlling the operation of said drive means to



carry the frame-mounted film toward said exposure chamber into registry therewith and for reversing the direction of drive means to withdraw the imaged film along said development path, means for supplying liquid toner to the toner head for developing the imaged film and means for supplying positive air pressure being directed to impinge against the toned surface of the film, said control means including means for sensing positions of the frame during its movement along said track and for selectively energizing the corona unit before imaging and then the toner supply means and air supply means during development of the film after imaging, a bias electrode disposed adjacent said toner head and means for biasing said electrode to a first voltage during pre-exposure passage of said film thereby and to a second substantially lower voltage during passage of said film thereby after exposure within the camera.

4,392,735

MAGNETIC BRUSH DEVELOPING APPARATUS

Tateki Oka, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

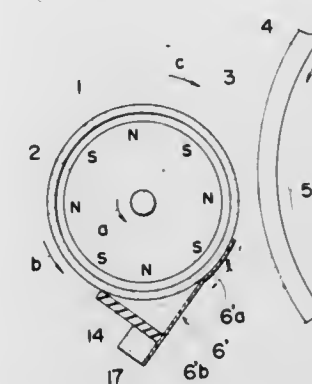
Filed May 20, 1981, Ser. No. 265,564

Claims priority, application Japan, Jun. 4, 1980, 55-78414[U]

Int. Cl.³ G03G 15/09

U.S. Cl. 355—3 DD

3 Claims



1. A magnetic brush developing apparatus comprising: a developing sleeve rotatably driven in a specified direction; a magnetic roller provided within the developing sleeve and rotatably driven at a high speed in the same direction as the direction of rotation of the developing sleeve for conveying a magnetic developer on the peripheral surface of the developing sleeve in a direction opposite to the direction of rotation of the developing sleeve; and a scraping member of non-magnetic material and having a forward end pressed in contact with the peripheral surface of the developing sleeve for scraping the developer off the peripheral surface of the developing sleeve and having a first guide surface and a second guide surface, the

first guide surface being at the forward end portion of the scraping member and having a length of at least 2.0 mm in the direction of transport of the developer and has a cross-sectional shape in the direction of transport of the developer which is in the form of a circular arc having approximately the same curvature as the peripheral surface of said sleeve for conveying the developer along the first guide surface immediately after the developer is scraped off the peripheral surface of the sleeve in a direction parallel to the peripheral surface of the sleeve by the magnetic action due to the rotation of the magnetic roller and at a speed higher than the speed of transport of the developer on the peripheral surface of the sleeve, the second guide surface extending from said first guide surface in a direction away from the peripheral surface of the sleeve for guiding the developer along the first guide surface away from the peripheral surface of the sleeve.

4,392,736

ELECTRONIC COPYING APPARATUS FOR FORMING MULTIPLE IMAGES ON A SINGLE SHEET

Chosin Nakamine, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

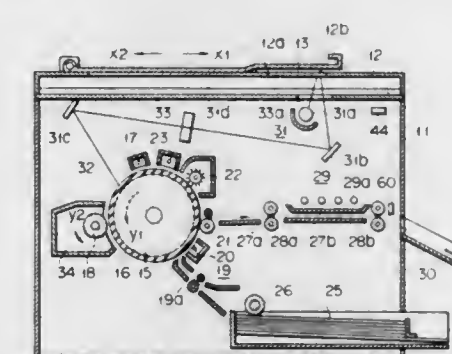
Filed Jul. 21, 1981, Ser. No. 285,522

Claims priority, application Japan, Jul. 22, 1980, 55/99370

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 R

4 Claims



1. An electronic copying apparatus comprising: document holding means for holding a document to be copied at a given position, light source means for exposing said document while being held, scanning means for optically scanning said document by relatively moving said document holding means and said light source means, latent image forming means which receives light reflected from said scanning means on a rotating photosensitive medium and forms a latent image of said document on said photosensitive medium, developing means for developing said latent image to form a toner image, transfer means for transferring said toner image onto a sheet of copy paper, and fixing means for fixing said toner image transferred onto said copy paper, wherein said scanning means includes means for scanning said document a plurality of times intermittently; said latent image forming means includes means for forming a plurality of latent images of said document on said photosensitive medium in a continuous manner so that every latent image is displaced on said photosensitive medium for every scanning; and said transferring means includes means for transferring a plurality of said toner images of said document formed on said photosensitive medium onto a single sheet of copy paper.

4,392,737

ELECTROPHOTOGRAPHIC COPYING APPARATUS
Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan

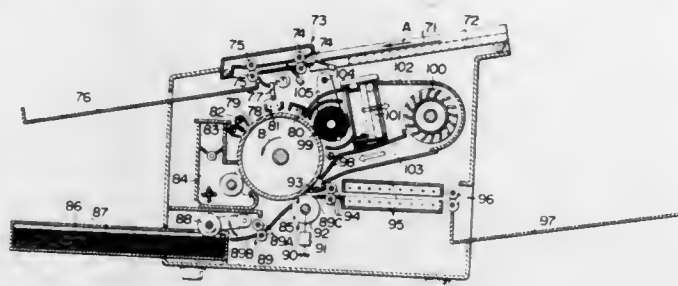
Filed Nov. 23, 1981, Ser. No. 324,098

Claims priority, application Japan, Dec. 2, 1980, 55-169826

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 R

7 Claims



1. An electrophotographic copying apparatus including a photosensitive member which includes a conductive layer carrying a sequential lamination of a first photoconductive layer which is sensitive to visible light and a second photosensitive layer which is sensitive to ultraviolet radiation and serves as an insulator to the visible light, said photosensitive member on which is formed an electrostatic latent image being repeatedly conveyed to a developing station and a transfer station in sequential fashion to produce a plurality of copies with said electrostatic latent image which has been formed thereon, the apparatus characterized by provision of neutralizing means for an irradiation of the conductive layer with visible light and ultraviolet rays to neutralize charge on an area beyond image scope of the photosensitive member, said neutralizing means being disposed upstream of the developing station and downstream of the transfer station, as viewed with regard to a direction of the conveyance of the photosensitive member.

4,392,738

IMAGE TRANSFER DEVICE

Hitoshi Fujino, Yokohama; Masanobu Kanoto, and Hiroo Ichihashi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

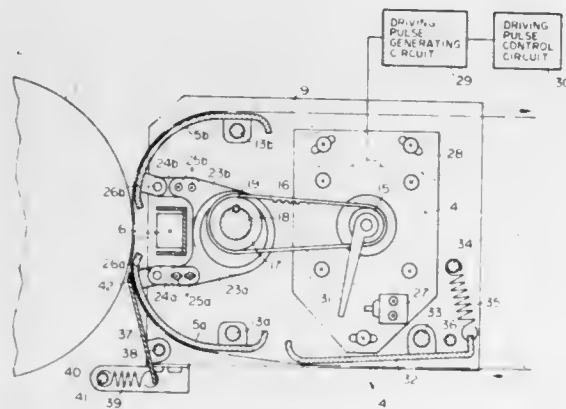
Continuation of Ser. No. 89,454, Oct. 30, 1979, abandoned. This application Jan. 25, 1982, Ser. No. 342,367

Claims priority, application Japan, Nov. 10, 1978, 53-138439; Dec. 26, 1978, 53-164148

Int. Cl.³ G03G 15/14

U.S. Cl. 355—3 TR

2 Claims



1. An image transfer device for transferring an image from an information recording element, said device comprising: means for transferring an image from the information recording element to a transfer material, at an image transfer station; means for feeding the transfer material to said transfer means; symmetrically arranged transfer material guiding members extending along a transfer material path, each having a first

end portion which is remote from said transfer means and a second end portion which is near said transfer means, said first end portion being pivotable to allow the setting, in accordance with the thickness of the transfer material, of the distance between the second end portion and the information recording element at the image transfer station; driving means, engaged with each of said guiding members adjacent the second end portion thereof, for moving only the second end portions away from the recording element, wherein each guiding member, when said feeding means is not in operation, is away from the information recording element; and biasing means for applying resilient tension to the transfer material to ensure that the transfer material is spaced apart from the information recording element when said driving means moves said guiding members away from the information recording element.

4,392,739

ELECTROMECHANICALLY OPERATED FUSER ROLL CLOSURE

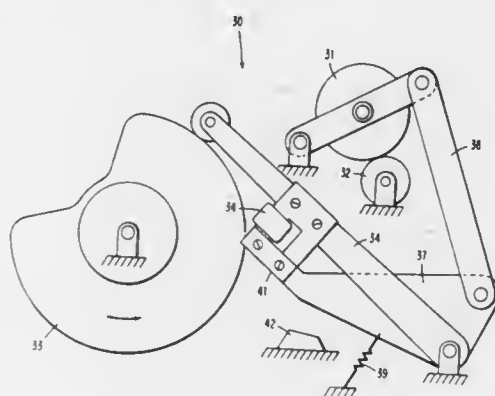
Leon C. Brown, Boulder County, Colo.; Jesse L. Campbell, Pima County, Ariz.; Uscoe J. Fitts, Fujisawa, Japan, and Willard L. Gudgel, Boulder County, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 145,084, Apr. 30, 1980, Pat. No. 4,363,549. This application Mar. 10, 1982, Ser. No. 356,682

Int. Cl.³ G03G 15/20

U.S. Cl. 355—3 FU

14 Claims



1. A xerographic toner fixing apparatus comprising: substantially parallel first and second cylindrical fuser rollers; biasing means for maintaining the peripheral surfaces of said fuser rollers in an open position; a rotatable cam; means for rotating said cam; means for serially feeding sheets between the peripheral surfaces of said fuser rollers in synchronization with the rotation of said cam, said cam having a contour for maintaining said fuser rollers in a closed position for sheets of a predetermined sheet length; a linkage mechanism coupling said cam to at least one of said fuser rollers, said linkage mechanism including: an electromechanically operated latch, an electrical control means for selectively energizing said electromechanically operated latch, and means for shifting the peripheral surfaces of said fuser rollers between open and closed positions when said electromechanically operated latch is energized and for retaining said fuser rollers in an open position when said electromechanically operated latch is deenergized.

4,392,740

PAPER TRANSPORT CONTROL DEVICE FOR USE IN MECHANICAL ARRANGEMENT INCLUDING MANUAL PAPER FEEDING MECHANISM

Masazumi Ito, Toyokawa, and Kenji Shibasaki, Aichi, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

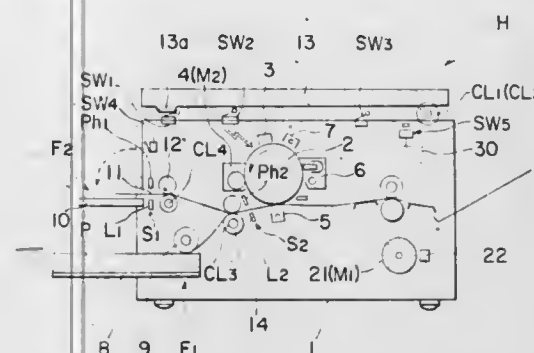
Filed Apr. 15, 1981, Ser. No. 254,275

Claims priority, application Japan, Apr. 15, 1980, 55/49829; Feb. 27, 1981, 56/29109

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 SH

8 Claims



1. A paper transport control device comprising: a paper transport device for transporting paper; a manual paper feeding mechanism for manually feeding paper into said paper transport device; a manual paper feed detecting device for detecting the manually fed paper in the vicinity of a manual paper feeding inlet; an operational start commanding means for starting operations of said manual paper feeding mechanism and said paper transport device in response to detection of a leading edge of said paper by said manual paper feed detecting device; a paper presence judging means for judging the presence or absence of said paper at a predetermined time at which said paper has been transported in response to operations of said manual paper feeding mechanism but has not yet passed through said manual paper feed detecting device; and a control means for causing at least one of said operations performed during transport of said paper in said paper transport device to be inoperative if a judgement has been made by said paper presence judging means that said paper is absent.

4,392,741

IMAGE FORMING APPARATUS

Tsuneki Inuzuka, Machida; Koichi Murakami, Tokyo; Kenji Kurita, Mitaka, and Hisashi Sakamaki, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 68,483, Aug. 21, 1979, Pat. No. 4,315,685.

This application Dec. 9, 1981, Ser. No. 329,017

Claims priority, application Japan, Aug. 24, 1978, 53-103044; Aug. 24, 1978, 53-103048; Aug. 24, 1978, 53-103050; Aug. 31, 1978, 53-106736; Sep. 1, 1978, 53-107094

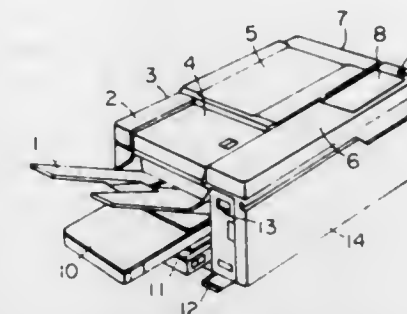
Int. Cl.³ G03G 15/28

U.S. Cl. 355—14 R

7 Claims

1. A copying apparatus comprising: means for forming an image on a copy medium including a movable component, first detecting means for detecting a first position of the movable component, first control means for returning the movable component to the first position corresponding to the first detecting means when the component is out of the first position before the copying operation starts, second detecting means for detecting a second position,

different from the first position, after the copying operation is started, and



second control means for stopping the copying operation in response to the second detecting means when the component fails to move to the second position.

4,392,742

LIQUID DEVELOPER COPIER CLEANING SYSTEM INCORPORATING RESILIENT CLOSED-CELL CLEANING ROLLER

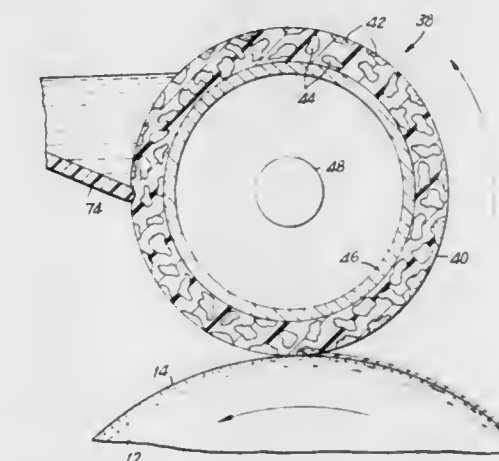
Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Nov. 9, 1978, Ser. No. 959,324

Int. Cl.³ G03G 21/00, 15/10

U.S. Cl. 355—15

2 Claims



1. Apparatus for removing liquid from a wet surface including in combination a roller comprising a body of resilient material formed with cells over the surface of said roller which are open to the external environment and isolated from the interior of said body, means mounting said roller with the surface of said body in engagement with said wet surface, means for rotating said roller to cause the action of said surface cells to remove liquid from said wet surface, and means remote from said wet surface for deforming said surface cells to force the liquid therefrom, said deforming means having an edge in contact with said roller, said edge having a radius of curvature comparable with the size of said surface cells.

4,392,743

DISC FILM ADVANCE ASSEMBLY

Richard D. Anderson, Maple Grove, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Feb. 18, 1982, Ser. No. 349,926

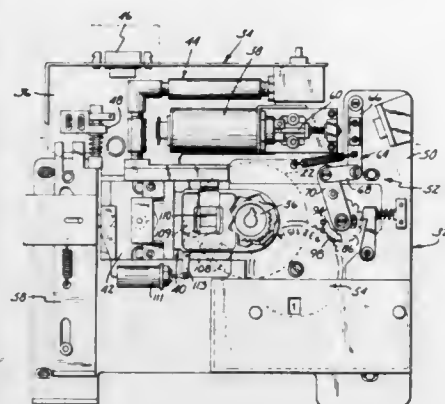
Int. Cl.³ G03B 27/62

U.S. Cl. 355—75

29 Claims

1. A film advance assembly for use in a photographic printer for advancing a selected film frame of a disc-like film unit on a disc film holder to a print position defined by an optical center at a print gate aperture, the film advance assembly comprising: a base;

a ratchet wheel rotatably attached to the base and having a plurality of ratchet teeth;
gear train means rotatably attached to the base for rotatably connecting the ratchet wheel with the disc film holder;



means for rotationally indexing the ratchet wheel in a first angular direction to bring the selected film frame to the print position at the print gate aperture; and
means for engaging the ratchet wheel forcing the ratchet wheel to move in a second angular direction when the film frame has been rotationally indexed past the print position.

4,392,744

METHOD OF AND APPARATUS FOR DETERMINING ANGULAR AND TRANSVERSAL DISPLACEMENTS OF SHIELD MACHINE AND SUCCEEDING PIPE

Tetsuro Tatsuhama, Takarazuka, and Masao Okabe, Sendai, both of Japan, assignors to Okumura Corporation, Osaka, Japan

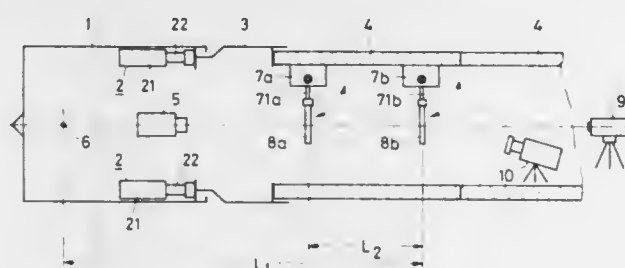
Filed Mar. 27, 1981, Ser. No. 248,337

Claims priority, application Japan, Oct. 9, 1979, 54/130349

Int. Cl.³ G01B 11/27; E21C 44/00

U.S. Cl. 356—153

4 Claims



1. A method of determining angular and transversal displacements of a shield machine and a succeeding pipe relative to a predetermined scheduled central axis of a tunnel to be constructed by pipe-jacking tunneling comprising,

- providing on the shield machine a first light emitter which emits rearwardly a light beam along the central longitudinal axis of the shield machine and a reference position on said axis of the shield machine,
- projecting said light beam to a pair of targets each having a scale and provided in a succeeding pipe and spaced from each other by a pre-determined distance along the central longitudinal axis of said succeeding pipe to form light spots on the targets,
- projecting to said pair of targets a light beam emitted from a second light emitter along said scheduled central axis of the tunnel to be constructed to form further light spots on the targets, said second light emitter being located at the rear portion of the tunnel, and
- reading said light spots and said further light spots on each targets on the respective scales and measuring a distance from said reference position to one of said targets to determine the angular and transversal displacements of

the shield machine and said succeeding pipe relative to said scheduled central axis of the tunnel to be constructed.

4,392,745

TILT HEAD CAMERA FOR INTERFEROMETRIC ANALYSIS OF TIRES

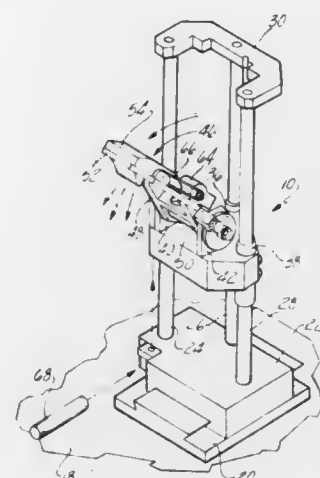
Forrest S. Wright, and Ted R. Zimmerman, both of Rochester, Mich., assignors to Industrial Holographics, Inc., Auburn Heights, Mich.

Filed Apr. 6, 1981, Ser. No. 251,403

Int. Cl.³ G01B 9/25

U.S. Cl. 356—348

8 Claims



1. An interferometric camera comprising, in combination:
a base;
a coherent light source fixedly supported relative to the base;
a housing pivotably supported relative to the base about a pivot axis;
a film support mechanism mounted on the housing; and
a series of optical elements positioned to receive a beam of light projected by said coherent light source and to direct the beam along the pivot axis of the housing and thence into said housing, at least certain of the optical elements being supported on the housing for pivotal motion therewith, said series of optical elements being operative to direct at least a portion of the light beam outwardly from said housing to illuminate an object to be analyzed, whereby the housing may be positionally adjusted relative to the base along said pivot axis to interferometrically analyze surfaces having a variety of inclinations relative to the housing.

4,392,746

PORTABLE PHOTOMETER

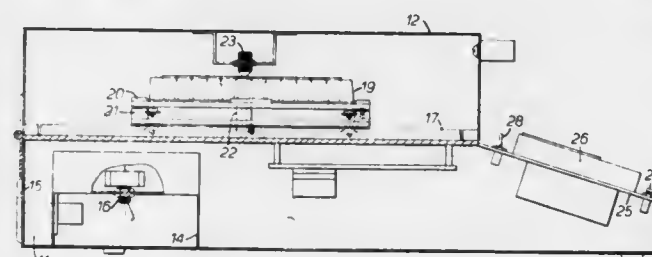
Graham A. W. Rook, London, and Colin H. Cameron, Chatham, both of England, assignors to Portalab Instruments Limited, London, England

Filed Dec. 8, 1980, Ser. No. 214,530

Int. Cl.³ G01N 21/27

U.S. Cl. 356—409

5 Claims



1. A photometer for measuring the transmission properties of a fluid contained in a container having a transparent bottom, said photometer comprising:
a monochromatic light source of a fixed wavelength;

a source of direct current connected to said monochromatic light source;
a collimator assembly for said light source to form a collimated, narrow beam of light;
a moveable tubular member having a base containing said light source and said collimator assembly;
a locating member arranged to contact the top of the container and to thereby locate the end of the tubular member at a predetermined position with respect to the transparent bottom of said container;
a photodetector device positioned beneath said container and arranged to receive said collimated, narrow beam of light.

4,392,747

DISPLAY DEVICE STRUCTURE

Akio Kumada, Kokubunji; Takahiko Itochi, Koganei; Makoto Homma, Hamuramachi, and Masashi Tanaka, Koganei, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

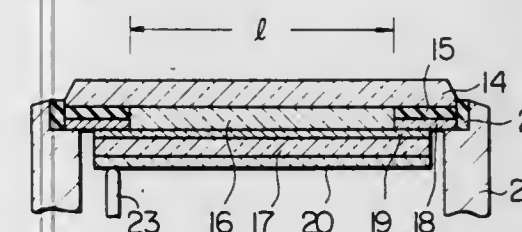
Filed Oct. 23, 1980, Ser. No. 199,976

Claims priority, application Japan, Oct. 24, 1979, 54-136404

Int. Cl.³ G04C 23/02, 21/16

U.S. Cl. 368—88

13 Claims



1. A display device structure comprising an electrically conductive casing; a display panel placed in the casing; a transparent covering and vibrating plate member having its peripheral portion carried on the casing and being on a front side of the display panel; a transparent piezoelectric plate and a pair of transparent electrodes sandwiching the piezoelectric plate, the piezoelectric plate and electrodes being secured to and integral with the covering and vibrating plate member so that mechanical force produced by the piezoelectric plate is effectively transmitted to the plate member, wherein an elastic and electrically conductive member is provided between the peripheral portion of the plate member and the casing; and a double layer including a frame-like blind layer and an electrically conductive frame-like layer, the frame-like blind layer being in contact with the peripheral portion of the plate member and the electrically conductive frame-like layer being in electrical contact with the casing.

4,392,748

QUARTZ CRYSTAL WATCH

Masahito Yoshino, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Nov. 6, 1980, Ser. No. 204,730

Claims priority, application Japan, Nov. 6, 1979, 54-143580

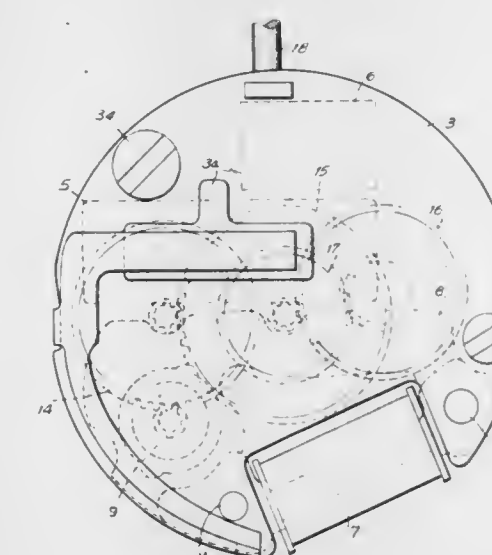
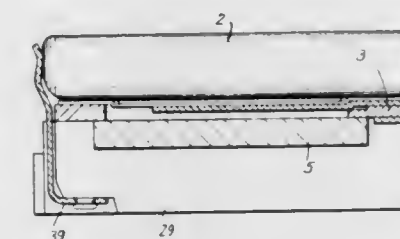
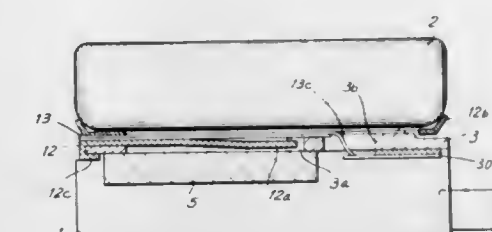
Int. Cl.³ G04C 23/02; G04B 37/00

U.S. Cl. 368—88

28 Claims

1. A quartz crystal watch comprising:
a movement, said movement including:
vibrator means providing a standard frequency signal;
a MOS integrated circuit having electronic circuit means for operating on said standard frequency signal and outputting signals for driving motor means;
motor means for converting said output signals from said electronic circuit means into mechanical motion, said motor means including a permanent magnet rotor, plate-type stator, and driving coil, said rotor, stator and coil not overlapping one another;

a gear train cooperating with said motor means to drive a display; and
a frame plate supporting said rotor and said gear train, said MOS integrated circuit and said driving coil being positioned in approximately opposite positions on said frameplate, and said gear train being positioned between said MOS integrated circuit and said driving coil;
a battery positioned on one side of said frame plate, the area of said movement being substantially equal to the area of said battery;



an insulating plate positioned between said battery and said one side of said frame plate, said vibrator means, circuit means, motor means and gear train being positioned on the other side of said frame plate, said battery being positioned to overlap said driving coil, said MOS integrated circuit and said gear train; and
a battery lead plate for connecting said battery with said MOS integrated circuit, at least a part of said lead plate being positioned in contacting opposition with an outer periphery portion of said battery, said battery lead plate supporting said battery relative to said movement and said frame plate.

4,392,749

INSTRUMENT FOR DETERMINING COINCIDENCE AND ELAPSE TIME BETWEEN INDEPENDENT SOURCES OF RANDOM SEQUENTIAL EVENTS

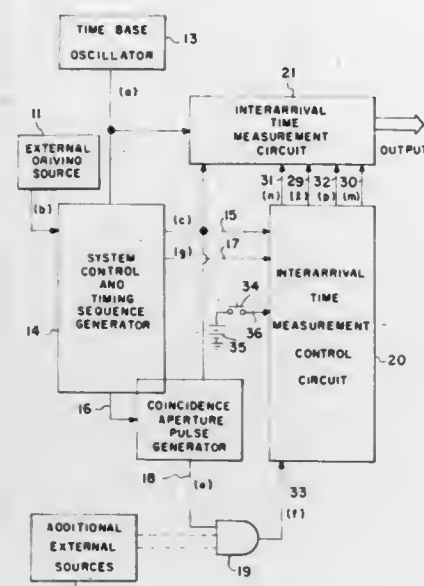
James I. Clemmons, Jr., Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jul. 10, 1981, Ser. No. 282,191

Int. Cl.³ G04F 8/00; G04B 47/00

U.S. Cl. 368—118

7 Claims



1. An instrument for determining coincidence between a primary external source of pulses and one or more other external sources of pulses comprising:

means receiving said primary external source of pulses for generating a start pulse, a reset pulse and a coincidence aperture pulse each time a primary external source pulse is received;

means receiving said coincidence aperture pulse and the pulses from said other external sources of pulses for producing a coincidence pulse each time a pulse from said other external sources of pulses coincides with said coincidence aperture pulse; and

means receiving said start pulses, said reset pulses and said coincidence pulses for measuring the time intervals between coincidences.

4,392,750

CLOCK WITH ROTATABLE RING

Eduard Mettler, Liestal, Switzerland, assignor to Revue Thommen AG, Switzerland

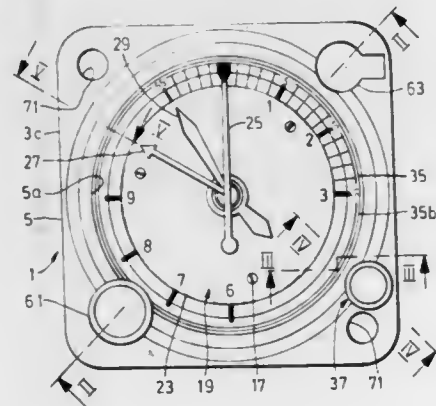
Filed Jan. 26, 1981, Ser. No. 228,390

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1980, 8011102[U]

Int. Cl.³ G01D 11/28

U.S. Cl. 368—228

18 Claims



1. A clock comprising, a case, a clockwork mounted in said

case having at least one rotatable pointer, a dial face in the case over which said at least one pointer sweeps about an axis, a glass connected to said case and covering said dial face and at least one pointer, at least one illuminator in the case for illuminating the dial face and at least one pointer, and a ring with a face carrying at least one marking rotatably mounted about the axis of said at least one pointer under said glass, said ring face facing said glass to be illuminated by said illuminator along with said dial face and at least one pointer, said ring face being conically inclined toward the axis and away from said glass.

4,392,751

DAMPED BEARING DEVICE

Michiaki Ida, Chiyodamura; Noriaki Hagiwara, Amimachi; Naoyoshi Yamago, Tamarimura; Masahiro Yoshioka, Sakuramura, and Katsuaki Kikuchi, Tsuchiura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

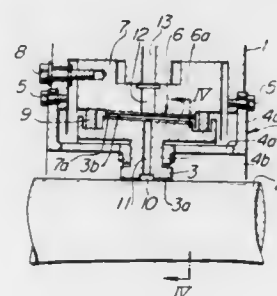
Filed Jun. 4, 1981, Ser. No. 270,658

Claims priority, application Japan, Jun. 4, 1980, 55/74264

Int. Cl.³ F16C 27/02, 32/06

U.S. Cl. 384—99

3 Claims



3. In a damped bearing device having a housing, a bearing which supports a rotary shaft, a resilient bearing support by which said bearing is supported on said housing, and a fluid film damper formed between said housing and the outer peripheral surface of said bearing, so that the vibration generated in the bearing and the shaft system is damped by said fluid film damper and by said resilient bearing support,

the improvement comprising means provided in said fluid film damper and adapted for adjusting the damping coefficient thereof, wherein said means for adjusting the damping coefficient of said fluid damper is adapted for variably adjusting both the fluid film gap in said fluid film damper and the area of action of the fluid film of said fluid film damper, and wherein said means for adjusting the damping coefficient of said fluid film damper includes

a bearing having a tapered outer peripheral surface on which the fluid film acts, said tapered outer peripheral surface having recesses formed therein; and

a bearing back-up member having a tapered inner peripheral surface opposing to said tapered outer surface of said bearing, said tapered inner peripheral surface having recesses formed therein, said bearing back-up member being supported in said housing in such a manner as to be able to move in the axial direction and to turn in the circumferential direction.

4,392,752

OIL SEAL FOR BEARINGS OF TURBOCHARGER

Masami Shimizu, Chiba, and Junji Yasunobe, Okuwa, both of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 6, 1981, Ser. No. 290,700

Claims priority, application Japan, Aug. 19, 1980, 55-117288[U]

Int. Cl.³ F16C 33/74

U.S. Cl. 384—135

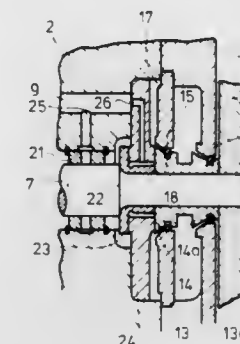
1 Claim

1. In a turbocharger comprising a casing, operating means such as a turbine and a blower within spaced casing parts respectively, a rotary shaft within the casing on the ends of

which the operating means are respectively mounted, spaced bearings for the shaft which are respectively inboard the two operating means, an oil chamber between the bearings, and an oil seal for preventing leakage of oil from the oil chamber to the casing part of an operating means, comprising

(a) an oil slinger mounted on the shaft between an operating means casing part and the adjacent bearing, and having two axially spaced frusto-conical oil slinger surfaces each of which diverges toward the adjacent bearing and the oil chamber, the diameter of the surface adjacent the bearing being greater than that of the surface adjacent the operating means,

(b) each oil slinger surface having an annular groove,



(c) two seal plates connected to the casing, each of which is aligned with one of the oil slinger surfaces and has an opening surrounding the surface, the surface defining each opening being parallel to and spaced outwardly from the adjacent frusto-conical surface of the oil slinger, thereby forming between each oil slinger surface and the surrounding seal plate a frusto-conical space which diverges toward the adjacent bearing and the oil chamber, and

(d) a seal ring mounted on the frusto-conical surrounding surface of each seal plate and positioned within the annular groove in the adjacent oil slinger surface.

4,392,753

CARTRIDGE BEARING ASSEMBLY

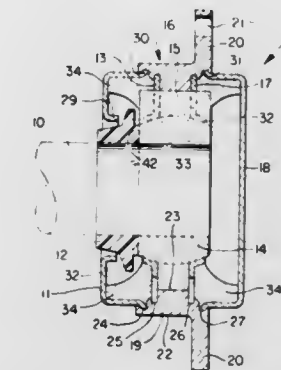
Martin L. Abel, Franklin, Mich., assignor to Permawick Bearing Corporation, Detroit, Mich.

Continuation of Ser. No. 81,614, Oct. 3, 1979, abandoned. This application Apr. 24, 1981, Ser. No. 257,098

Int. Cl.³ F16C 17/02

U.S. Cl. 384—136

12 Claims



1. A bearing assembly for supporting a rotatable shaft to be journaled in the bearing assembly, comprising:

(1) a separate nonporous bearing member made of die cast aluminum alloy having a central bore sized to receive the rotatable shaft in a bearing relationship, said bearing member having a spherical shape and having a radial aperture extending from its central bore to its outer surface;

(2) a mounting member wherein said mounting member has an outer surface which is at least partially cylindrical and an inner surface which is at least partially cylindrical and

wherein said mounting member is made of die cast aluminum alloy and has a radially-extending mounting flange;

(3) support means for supporting said bearing member inside said mounting member;

(4) a lubricant-impregnated wicking material, impregnated with aluminum bearing oil, located inside said bearing assembly and in said radial aperture of the bearing member, said portion located in said radial aperture being adapted to contact said rotatable shaft; and,

(5) cap means for retaining said lubricant-impregnated wicking material inside said bearing assembly.

4,392,754

MAGNETIC DOT MATRIX PRINTING METHOD AND APPARATUS

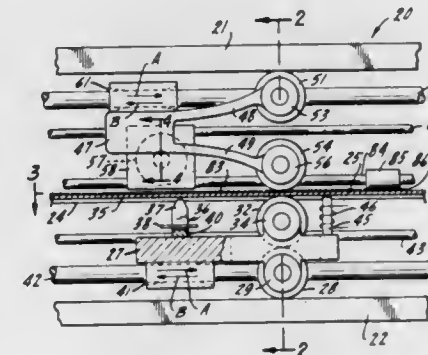
Robert Adler, Northfield, Ill., assignor to Extel Corporation, Northbrook, Ill.

Filed Feb. 10, 1982, Ser. No. 347,716

Int. Cl.³ B41J 3/12, 27/16, 3/16

U.S. Cl. 400—119

48 Claims



1. A method of magnetic dot matrix printing, for printing a character text, character-by-character, on a sheet of non-magnetic paper, comprising the following steps in sequence:

A. positioning a sheet of non-magnetic paper on a platen aligned with a portion of the paper comprising a location for a line of text;

B. moving a magnetic recording head, comprising a plurality of electromagnets having magnetizing poles corresponding to a group of character matrix dots, along a print path transversing the text line location, in closely spaced relation to one platen surface;

C. magnetizing dot-size portions of the platen in accordance with predetermined patterns constituting magnetic images of the characters for a line of text by selectively energizing the electromagnets for limited intervals during step B;

D. developing visible images of the data characters on the paper by applying limited quantities of a magnetic toner to the exposed surface of the paper overlying the platen generally concurrently with formation of the magnetic images in step C; and

E. fixing the visible toner images on the paper.

26. A magnetic dot matrix printer for printing a data character text, character-by-character, on a sheet of non-magnetic paper, comprising:

an elongated strip platen of erasable permanent magnet material;

means for positioning a sheet of non-magnetic paper on one surface of the platen with the platen extending across the paper in alignment with a portion of the paper comprising a location for a line of text;

carriage means reciprocally movable along a print path adjacent the platen, from one end of the text-line location to the other and back again;

magnetic recording head means, mounted on the carriage means and comprising a plurality of electromagnets having magnetizing poles corresponding to a group of character matrix dots disposed in closely spaced proximity to one platen surface, for magnetizing dot-size portions of the

platen in accordance with predetermined patterns constituting magnetic images of the characters for a line of text by selective energization of the electromagnets during movement of the carriage;

magnetic toner dispensing means, mounted on the carriage means, for applying limited quantities of a magnetic toner to the exposed surface of the paper overlying the platen generally concurrently with formation of the aforesaid magnetic images to develop visible images on the paper;

fixing means for fixing the visible toner images on the paper to complete printing of a line of text; and

magnetic erasing means, mounted on the carriage means, for erasing the magnetic images from the platen in preparation for printing a further line of text.

4,392,755

MAGNETIC DOT MATRIX PRINTING

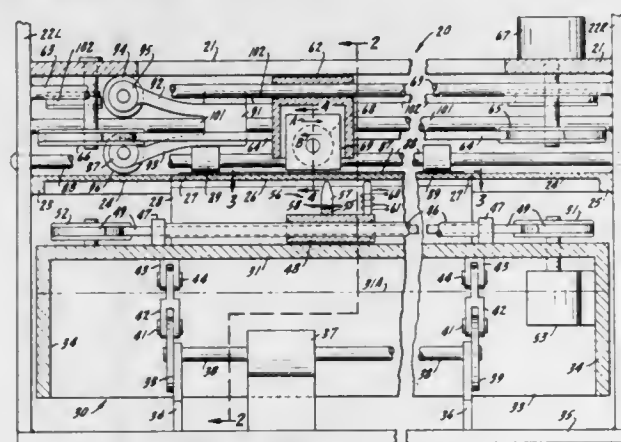
Patricio E. Donoso, Streamwood, Ill., assignor to Extel Corporation, Northbrook, Ill.

Filed Feb. 10, 1982, Ser. No. 347,649

Int. Cl.³ B41J 3/12, 27/16, 3/16

U.S. Cl. 400—119

22 Claims



1. In a method of magnetic dot matrix printing, for printing a character text on a sheet of non-magnetic paper, comprising the following steps in sequence:

- positioning a sheet of non-magnetic paper on a platen of permanent magnet material with the platen in a predetermined print position;
 - magnetizing dot size portions of the platen in accordance with predetermined patterns constituting magnetic images of the data characters for a line of text; and
 - developing visible images of the characters on the paper by applying limited quantities of a magnetic toner to the exposed surface of the paper overlying the platen;
- the improvement comprising the following additional steps:
- displacing the platen from its print position, away from the paper, in a direction generally transverse to the surface of the paper, through a distance sufficient to preclude substantial magnetic attraction between the magnetic images and the toner comprising the developed visible images;
 - advancing the paper, in a direction substantially parallel to the paper surface, by at least one line space, to move the visible toner images to a fixing position clear of the printing position of the platen after step D; and
 - fixing the visible toner images on the paper at the fixing position.

13. In a magnetic dot matrix printer for printing a character text on a sheet of non-magnetic paper, of the kind comprising: an elongated strip platen of permanent magnet material; means for positioning a sheet of non-magnetic paper on one surface of the platen with the platen extending across the paper in alignment with a portion of the paper comprising a location for a line of text;

magnetic recording means, comprising a plurality of electromagnets having magnetizing poles corresponding to a group of character matrix dots, for magnetizing dot size portions of the platen in accordance with predetermined patterns consti-

tuting magnetic images of the characters for a line of text by selective energization of the electromagnets;

magnetic toner dispensing means for applying limited quantities of a magnetic toner to the exposed surface of the paper overlying the platen to develop visible images, corresponding to the magnetic images, on the paper; and

magnetic erasing means for erasing the magnetic images from the platen in preparation for printing a further line of text; the improvement comprising:

- platen displacement means for displacing the platen, in a direction generally transverse to the paper surface, between a print position engaging the paper and an inactive position, the displacement between the two platen positions being sufficient to preclude substantial magnetic attraction between the magnetic images and the visible toner images when the platen is in its inactive position;
- line feed means for advancing the paper, in a direction substantially parallel to the paper surface, to move the visible toner images to a fixing position displaced from the platen print position; and
- fixing means for fixing the visible toner images on the paper, while at the fixing position, to complete printing of a line of text on the paper.

4,392,756

SERIAL PRINTING APPARATUS

Hyun C. Lee, Seoul, Rep. of Korea, assignor to Gold Star Company, Ltd., Seoul, Rep. of Korea

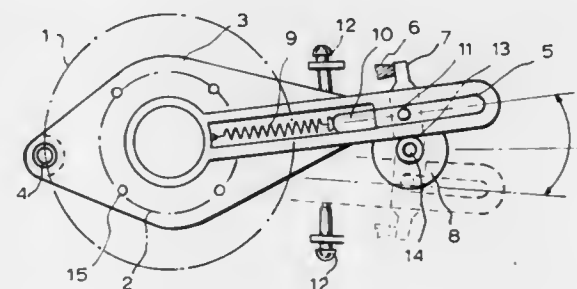
Filed Dec. 16, 1980, Ser. No. 216,898

Claims priority, application Rep. of Korea, Dec. 31, 1979, 79/7894[U]

Int. Cl.³ B41J 1/30

U.S. Cl. 400—144.2

3 Claims



1. A printing apparatus comprising:

- a printwheel with a hub and spokes extending therefrom, each of said spokes having at least two different types of character slugs thereon;
- first drive means attached to the printwheel for rotating said printwheel;
- shifting means attached to said first drive means for shifting said printwheel and said first drive means up or down with rotational motion to place a selected character slug at a desired printing position; said shifting means including:
- a latchbase having a first and a second end;
 - a hinge connected to said first end of said latchbase;
 - a slot positioned in said latchbase near said second end of said latchbase;
 - a spring having a first and a second end, positioned in said slot, said first end of said spring being attached to one end of said slot;
 - a movable springbar connected to said second end of said spring; and
 - a crank pin positioned in said slot, and attached to said springbar, said crank pin being for driving said latchbase by sliding along said slot; and
- second drive means for driving said shifting means.

4,392,757

BACKLASH AND RUNOUT COMPENSATOR FOR LEAD SCREW DRIVES

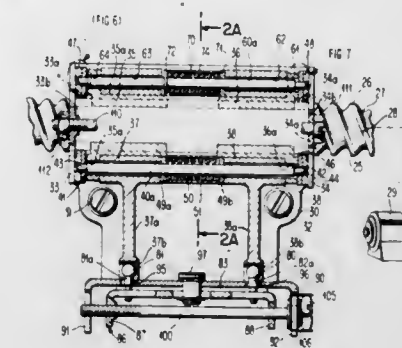
Clifford M. Denny, Lexington, Ky., and Charles W. Wampler, II, Harrisonburg, Va., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 22, 1980, Ser. No. 152,206

Int. Cl.³ B41J 19/20

U.S. Cl. 400—328

21 Claims



1. Drive apparatus for a work member, said apparatus comprising:

- a lead screw having threads thereon, and motor means for effecting bi-directional rotation of said lead screw;
- first and second laterally spaced apart threaded followers on said lead screw, first biasing means intermediate said threaded followers for biasing said threaded followers against opposite flanks of said threads of said lead screw to thereby inhibit backlash intermediate said followers; and
- second biasing means intermediate said work member and at least one of said followers for effecting coupling between said work member and said followers while controlling backlash therebetween.

4,392,758

UNDERScore ERASE

David J. Bowles, Winchester, Ky.; Douglas E. Clancy, Austin, Tex.; Carl F. Johnson, Lexington, Ky., and Danny M. Neal, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

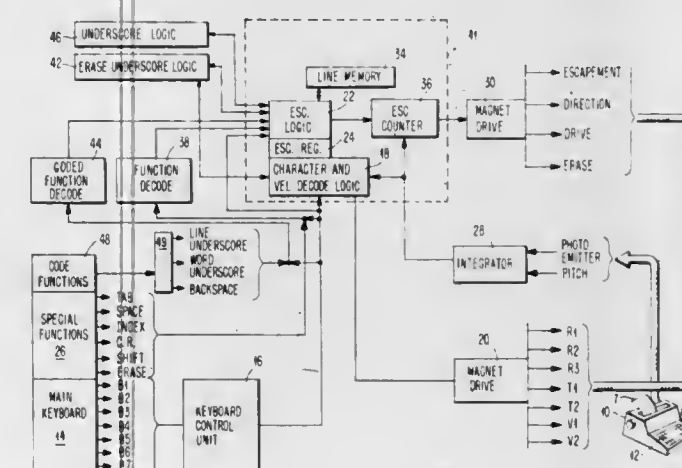
Continuation of Ser. No. 908,314, May 22, 1978, abandoned.

This application Jan. 23, 1981, Ser. No. 227,878

Int. Cl.³ B41J 29/16

U.S. Cl. 400—697.1

1 Claim



1. A method of erasing characters of a width greater than an underscore and said underscore on a typewriter having printing means for selecting and printing proportionally spaced characters of varying widths, said characters including an underscore;
- said printing means operable to print sequentially in response to commands from a keyboard and including means for erasing said characters and underscores;
- said typewriter having electronic controls and proportional

escapement capabilities and responsive to electronic commands;

- said method comprising the steps of:
- generating codes indicative of said keyboard commands and characters;
 - providing an alterable memory means including means for storing said codes indicative of said keyboard commands and said characters;
 - storing said codes in said memory means in response to said keyboard commands;
 - actuating said printing means to effect selection and printing of said characters and underscores in accordance with said generated codes;
 - moving said printing means in a forward direction, in response to said keyboard commands and in accordance with the amount of distance for selected ones of said keyboard commands in accordance with predetermined amounts of width of said characters associated with said keyboard commands;
 - altering said codes stored in said memory means upon the printing of an underscore, to indicate the existence of an underscore;

- generating an erase signal to initiate an erase sequence of operations comprising:
- reading said codes stored in said alterable memory means in reverse order of storage in response to said erase signal;
- determining whether a character represented by said code is underscored;
- commanding a reverse movement of said printing means;
- determining the width of movement associated with said codes stored individually in reverse order of storing in said memory means in response to said erase signal;
- determining the width of movement associated with said underscore where said altered codes represents an underscored character in response to said erase signal;
- determining the least width of movement associated with said underscore and said character which is represented by said altered code;
- moving said printing means in reverse direction in response to said commanding a reverse movement, a width of movement determining as said least width;
- obliterating said underscore;
- determining the excess of width of movement associated with the character represented by said code over the width of movement associated with said underscore, if any;
- moving said printing means in reverse direction a width equal to said excess of width;
- obliterating the remainder of said underscore;
- obliterating said character represented by said altered code, whereby characters having a proportionally spaced relation to other characters, wider than the width of an underscore may be erased along with the underscore without leaving residual portions of said underscore.

4,392,759

QUICK DISCONNECT MECHANISM FOR SHAFTS

Paul M. Cook, South Burlington, Vt., assignor to General Electric Company, Burlington, Vt.

Filed Feb. 9, 1981, Ser. No. 232,459

Int. Cl.³ B25G 3/00; F16D 1/00; F16G 11/00

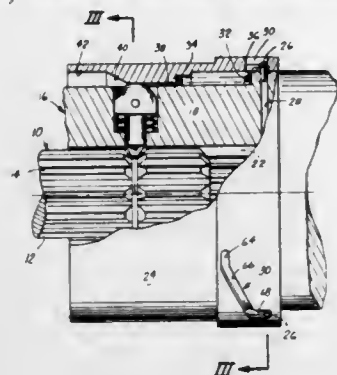
U.S. Cl. 403—11

3 Claims

1. A quick disconnect mechanism for the transmission of torsional power between two concentric shafts, comprising:
- a first shaft having a first longitudinal axis;
 - a second shaft in operable engagement with said first shaft and having a second longitudinal axis which is coaxial with said first longitudinal axis;
 - collar means interengaged with and carried by said second shaft and having relative longitudinal and torsional displacement with respect thereto;

first spring means interengaged with and carried by said collar means and said second shaft which biases said collar means to a first longitudinal disposition with respect to said second shaft;

said collar means and said second shaft having first cam and cam follower means in mutual engagement for converting



torsional movement of said collar means with respect to said second shaft to longitudinal movement of said collar means with respect to said second shaft against the bias of said first spring means and thus translate said collar means to a second longitudinal disposition with respect to said second shaft.

4,392,760

SURFACE FLOW AIR CONVEYOR WITH PLENUM MOUNTED FAN WHEEL

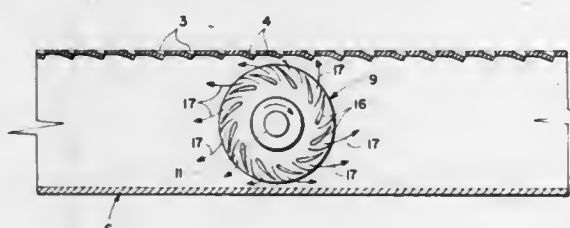
Rudolph E. Futer, Oakland, Calif., assignor to Futerized Systems, Inc., Hayward, Calif.

Continuation of Ser. No. 239,366, Mar. 2, 1981, abandoned, which is a continuation of Ser. No. 80,076, Sep. 28, 1979, abandoned. This application Jun. 9, 1982, Ser. No. 386,512

Int. Cl.³ B65G 51/02

U.S. Cl. 406—88

2 Claims



1. An air conveyor for elevating and moving objects longitudinally along said conveyor comprising:

- a. an elongated conveyor member formed with a plurality of directional slit orifices extending substantially evenly spaced there along and substantially the entire length of said elongated conveyor member;
- b. an elongated plenum having a bottom wall and sidewalls immediately adjacent to and co-extensive and communicating with said conveyor member and having upstream and downstream ends and formed with a circular supply-air inlet opening in one of said sidewalls having a diameter less than the width of said sidewall;
- c. a high performance wheel fan member for pressurizing said plenum totally enclosed within said plenum member and mounted in communication with said supply-air inlet opening.

4,392,761

ROTARY MACHINING TOOLS WITH SIDE COOLANT DELIVERY

Otto Eckle, Loechgau, Fed. Rep. of Germany, assignor to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH, Besigheim, Fed. Rep. of Germany

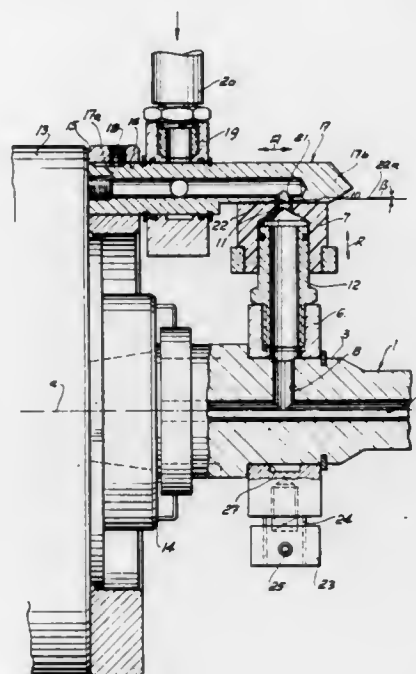
Filed Apr. 6, 1981, Ser. No. 251,039

Claims priority, application Fed. Rep. of Germany, May 13, 1980, 8012959[U]

Int. Cl.³ B23B 27/10, 51/06, 5/22, 5/34

U.S. Cl. 408—59

18 Claims



1. An arrangement for supplying a cooling medium to a rotating metal-machining cutting tool provided with cooling medium ducts which communicate with cooling medium bores provided in a cylindrical shank thereof, including a cooling medium supply ring which is supported on and sealed with respect to said cylindrical shank of said tool, can be connected radially outwardly by releasable coupling means with stationary cooling medium supply means and is connected radially inwardly by an annular duct with said cooling medium bores in said shank of said tool, said shank of said tool being receivable in a drive spindle rotatably supported in a housing, said releasable coupling means including a coupling head which is supported near said cooling medium supply ring, is in permanent communication with said supply means and has an outlet bore extending substantially radially with respect to the axis of rotation of said tool shank into a generally radially inwardly facing first sealing surface thereof, and wherein said cooling medium supply ring has a second sealing surface which cooperates with and is arranged to sealingly engage said first sealing surface and in which is provided a substantially radially extending inlet bore connected to said annular duct, the improvement comprising wherein said cooling medium supply ring is rotatably supported on said tool shank and has a radially projecting coupling piece which has thereon said second sealing surface; wherein both said first and second sealing surfaces are substantially flat; wherein said first sealing surface is inclined, in the circumferential direction of said cooling medium supply ring at an acute angle of from 2° to 10° with respect to a line tangent to a circle which is concentric with the axis of said tool shank, which tangent line extends through said outlet bore approximately perpendicular thereto, wherein the distance between said first sealing surface and the axis of said tool shank decreases progressively in the direction of rotation of said tool; wherein said first sealing surface, in the general direction of the axis of said tool shank, diverges in a direction toward a free end of said tool at an acute angle of from 0° to 10°, inclusive; and wherein said second sealing surface has substantially the same inclination as said first sealing surface.

4,392,762

LOCKING WEB FITTING WITH SWIVEL

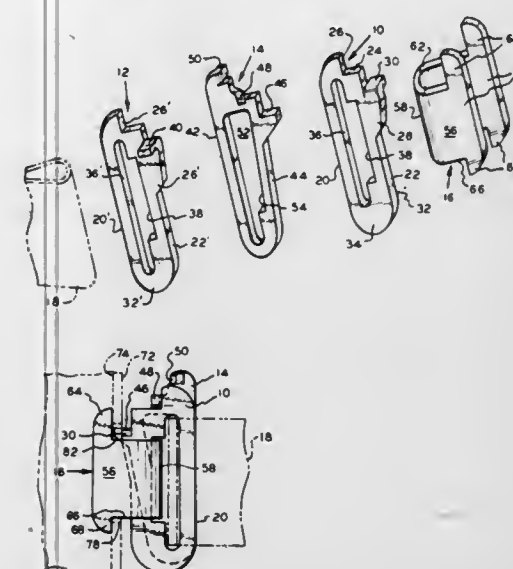
Charles F. Crissy, and Paul M. Holmes, both of Jackson, Mich., assignors to Aeroquip Corporation, Jackson, Mich.

Filed May 15, 1981, Ser. No. 264,028

Int. Cl.³ A44B 21/00; B60P 7/06; B61D 45/00

U.S. Cl. 410—116

8 Claims



1. A releasable fitting for web straps wherein the fitting is mounted within an opening defined in a support member having a locking dimension and a wall thickness comprising, in combination, a pair of substantially flat side plates each having a web receiving opening, an anchor receiving opening, an inner edge, an outer side and an inner side, a latch tab defined upon each side plate adjacent said inner edge thereof and transversely disposed to the plane of the associated side plate extending from said outer side thereof, a substantially flat keeper plate having a web receiving opening defined therein, an inner edge, and a third latch tab defined upon said keeper plate inner edge, said keeper plate having a wider web receiving opening than that of said side plates and being interposed between said side plates' inner sides, a web inserted through said web receiving openings of said side and keeper plates defining a loop, an abutment defined on said keeper plate extending from the plane thereof adapted to abut against a side plate inner edge when said side and keeper plates are in parallel engaged relationship, and a U shaped anchor having an arcuate base loosely extending through said side plates' anchor receiving openings whereby said side plates swivel thereon and are oriented to said anchor base in a predetermined manner, said arcuate base including leg portions each having first and second edges defined thereon extending transversely to the length of said base, a first projection defined upon each leg portion first edge extending therefrom and a second projection defined upon each leg portion second edge extending therefrom, said first and second projections defined upon a common leg portion being in substantial alignment and said first and second projections being of greater length than said second projections and the spacing between said first and second leg portion edges being less than the locking dimension of the support member opening whereby said first projections can be inserted into the opening by tilting the anchor, displacing the anchor in the direction of said first edges and then inserting said second projections into the opening, said side plates swiveling upon said anchor base and said latch tabs extending into the opening at all swivel positions of said plates preventing sufficient displacement of said anchor within the opening to remove said second projections therefrom, said wide keeper plate web receiving opening permitting displacement of said keeper plate to selectively remove said third latch tab from the opening permitting removal of said anchor therefrom.

5. A releasable fitting for web straps comprising, in combination, a pair of side plates each having a web receiving opening, an anchor receiving opening, an inner edge, an outer side and an inner side, a latch tab defined upon each side plate adjacent

said inner edge thereof extending from the associated outer side, a keeper plate having a web receiving opening defined therein, an inner edge, and a third latch tab defined upon said keeper plate inner edge, said keeper plate having a wider web receiving opening than that of said side plates and being disposed between said side plates' inner sides, a web inserted through said side and keeper plates web receiving openings defining a loop, an abutment defined upon said keeper plate extending from the plane thereof adapted to engage a side plate inner edge when said side and keeper plates are in parallel engaged relationship, and a U shaped anchor having leg portions interconnected by a convex base extending through said side plates' anchor receiving openings loosely supporting said side plates on said base in a predetermined manner whereby said plates swivel with respect to said anchor, said leg portions including aligned first and second sets of projections for affixing said anchor to a support member through an opening, said latch tabs being disposed adjacent each other and adjacent said first set of projections.

4,392,763

DEVICE FOR USE WITH A TOGGLE BOLT

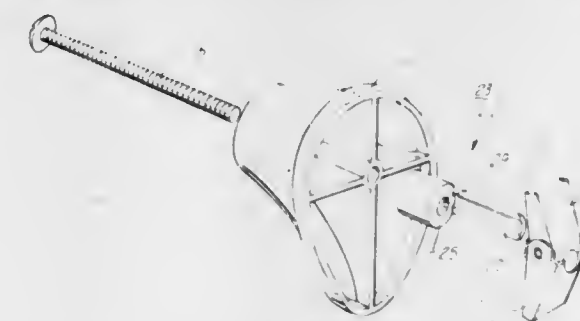
Russell L. Brown, 1620 Kingsbury La., Oklahoma City, Okla. 73116

Filed Aug. 18, 1980, Ser. No. 178,830

Int. Cl.³ F16B 21/00

U.S. Cl. 411—342

4 Claims



1. A securing device for fastening to a securing member of predetermined thickness through a hole of predetermined size in said securing member, comprising:

- a threaded bolt of predetermined diameter;
 - a toggle threadable to said bolt having a pair of spring opened wings for expanding and bridging said hole and thereby anchoring said bolt to said securing member as said toggle is threadably tightened by said bolt against said securing member;
 - a spool for extending about said bolt in said hole in said securing member having a supportive axial length approximately equal to said predetermined thickness of said securing member for supporting said toggle as it is threadably tightened against said securing member to prevent said toggle from crushing said securing member, said spool having an axial opening through which said bolt can closely extend and a radial periphery for closely fitting within said hole in said securing member such that said bolt is radially fixed in said hole when said spool extends about said bolt in said hole;
 - a cantilever guide leg for orienting and guiding said toggle with respect to said securing member as said toggle is threadably tightened against said securing member, said guide leg freely extending axially from the radial periphery of said spool such that said bolt extends parallel to said guide leg and such that said toggle is fixedly oriented between said guide leg and said bolt when said spool is positioned in said hole in said securing member and said bolt extends through said opening in said spool and said toggle is threadably tightened against said securing member by said bolt;
- means for fixedly orienting said spool in said hole of said securing member such that said toggle is oriented with

respect to said securing member as said toggle is threadably tightened against said securing member when said spool is fixedly oriented in said hole; and means for changing the radial size of said spool such that said spool can be adjusted to fit securing members having holes of differing sizes, including a bushing which can be connected about the periphery of said spool.

2. A support and orientation device for use with a conventional toggle bolt for fastening to a securing member such as a wall through a hole of predetermined size in said securing member, said toggle bolt being of the type having:

- a threaded bolt of predetermined diameter;
- a toggle threadable to said bolt having a pair of spring opened wings for expanding and bridging said hole and thereby anchoring said bolt to said securing member as said toggle is threadably tightened by said bolt against said securing member;

said support and orientation device comprising:

- a spool assembly means for radially supporting said bolt within said hole, axially supporting said toggle to prevent crushing of said support member as said toggle is tightened against said support member, and guiding said toggle to a predetermined orientation with respect to said support member as said toggle is tightened by said bolt, said spool assembly means being removable from and attachable to said toggle bolt so that said toggle bolt can be used conventionally without said spool assembly means, said spool assembly including:

- a molded plastic spool for extending about said bolt in said hole in said securing member having a supportive axial length approximately equal to said predetermined thickness of said securing member for supporting said toggle as it is threadably tightened against said securing member to prevent said toggle from crushing said securing member, said spool having a cylindrical axial opening through which said bolt can closely extend and a radial periphery for closely fitting within said hole in said securing member such that said bolt is radially fixed in said hole when said spool extends about said bolt in said hole;

- a single cantilever guide leg for orienting and guiding said toggle with respect to said securing member as said toggle is threadably tightened against said securing member, said guide leg freely extending axially from the radial periphery of said spool such that said bolt extends parallel to said guide leg and such that said toggle is fixedly oriented between said guide leg and said bolt when said spool is positioned in said hole in said securing member and said bolt extends through said opening in said spool and said toggle is threadably tightened against said securing member by said bolt;

means for fixedly orienting said spool in said hole of said securing member such that said toggle is oriented with respect to said securing member as said toggle is threadably tightened against said securing member when said spool is fixedly oriented in said hole; and

means for changing the supportive axial length of said spool such that the length of said spool can be adjusted to fit securing members of differing thicknesses, comprising at least one disc which connected to an axial end of said spool.

4,392,764

NECKED-IN CONTAINER BODY AND APPARATUS FOR AND METHOD OF FORMING SAME

Charles S. Kubis, Weston, Conn., and John Walter, Evergreen Park, Ill., assignors to Continental Can Company, Inc., Stamford, Conn.

Filed Sep. 18, 1981, Ser. No. 303,685

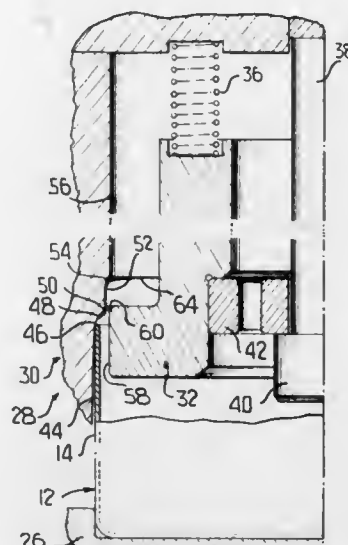
Int. Cl.³ B21D 51/26

U.S. Cl. 413—69

8 Claims

1. A method of necking-in a container body comprising the steps of providing a neck-in ring and a center ring; said neck-in ring having an inner generally cylindrical guide surface joined

to a frustoconical necking surface by a first in-turned radius, an inner cylindrical sizing surface joined to said frustoconical necking surface by an out-turned radius, said sizing surface terminating in a second in-turned radius; and said center ring having an outer cylindrical sizing surface terminating in a third in-turned radius; positioning said outer cylindrical sizing surface in telescoped radially opposing relation to said guide surface and said necking surface with said third in-turned radius generally radially opposing said out-turned radius; and with said neck-in ring and said center ring in said telescoped radially opposing relation effecting relative telescoping thereof with a free end of a container body with the container body



4,392,765

ANGLE STACKING AND INVERTING DEVICE

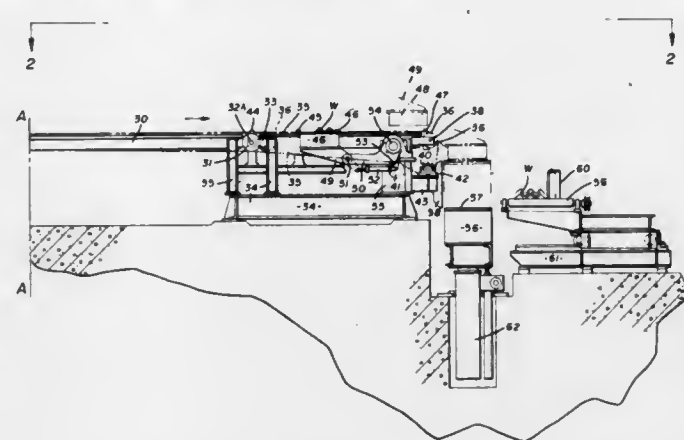
Dale S. Barton, Leetonia, and Richard M. Heck, Columbiana, both of Ohio, assignors to Riise Engineering Company, Inc., North Lima, Ohio

Filed Apr. 1, 1981, Ser. No. 250,082

Int. Cl.³ B65G 57/081, 57/18

U.S. Cl. 414—30

4 Claims



1. An improvement in a device that groups and stacks lengths of ferro-magnetic material, said device having a first conveyor with a plurality of spaced material engaging portions on which said lengths of material are positioned, stops at one

end thereof, groups of link chain conveyors arranged with their adjacent ends in overlapping side by side relation, one of said chain link conveyors being movable vertically between a first position below the material engaging portion of said first conveyor to a second position above the surface of the material engaging portion of said first conveyor, and one of said chain link conveyors positioned transversely of said first conveyor between said spaced material engaging portion thereof for moving said lengths of material sidewardly from said first conveyor to selected stations, the improvement comprising a handling mechanism adjacent said stations arranged to magnetically pick up said material at said stations and deposit it in a predetermined position, said handling mechanism comprising a device selectively engagable with the upper and lower surfaces of said material and movable in an arcuate path between said selected stations and said predetermined position and means for moving said device and energizing and de-energizing the same.

4,392,766

AUTOMATIC FEEDING APPARATUS

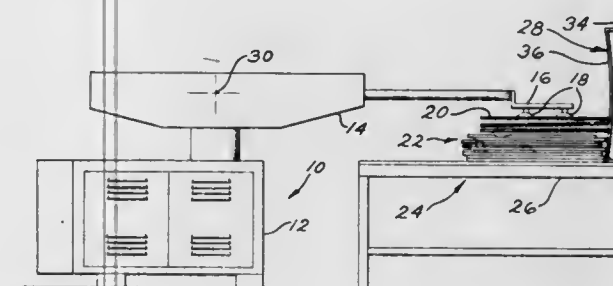
Thomas O. Blunt, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Sep. 21, 1981, Ser. No. 304,223

Int. Cl.³ B65G 59/04; B65H 3/16

U.S. Cl. 414—113

6 Claims



1. Automatic feeding apparatus for transferring magnetizable work pieces to a work station comprising:

- a robot having a work arm pivoted about a point and having a work piece pick-up end movable through a segment of a sphere with vertical movement of the work arm about the pivot point scribing an arc, said work arm having means to pick up, hold and release a work piece;
- a work piece stacking assembly including:

- a base for holding a vertical stack of magnetizable work pieces;
- a vertical butt plate above the base curved correspondingly to the arc scribed by the vertical movement of the work arm;
- magnet means operable to magnetize the work pieces through the vertical curved butt plate to set up a repelling force between the work pieces to vertically separate the work pieces in the upper portion of the stack and urge the separated work pieces against the vertical curved butt plate, and
- a work station for receiving the work piece located within the sphere segment through which the work piece pick-up arm end of the robot is movable.

4,392,767

STORAGE APPARATUS INCLUDING CONVEYOR MEANS

Klaus Ischebeck, Elisabethstrasse 20, 4503 Dissen, Fed. Rep. of Germany

Filed Feb. 20, 1981, Ser. No. 236,399

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1980, 3010884

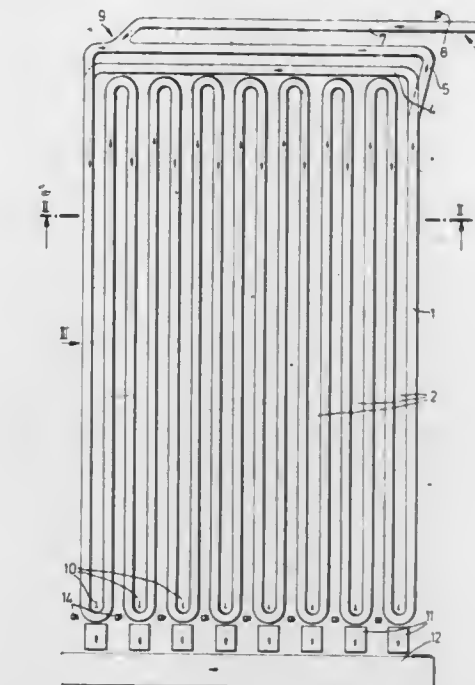
Int. Cl.³ B65G 1/06

U.S. Cl. 414—136

14 Claims

1. Storage apparatus for articles capable of being retrieved comprising at least one conveyor means disposed generally on

a plurality of planes located one above the other, said conveyor means being arranged in a generally sinuous manner in each plane with the conveyor means in each plane comprising a plurality of joined loops each having generally U-shaped portions and generally straight portions with said straight portions being disposed side-by-side in generally parallel array,



a receiving station means for receiving articles and transferring said articles to said conveyor means, and take-off means for taking off articles from said conveyor means, said take-off means being arranged within at least one of said U-shaped portions for taking off articles from said conveyor means as said article is disposed in said at least one U-shaped portion of said conveyor means.

4,392,768

INTERMEDIATE STORAGE BAKING TINS

Pieter Van Capelleveen, Zeist, Netherlands, assignor to Gebr. van Capelleveen B.V., Utrecht, Netherlands

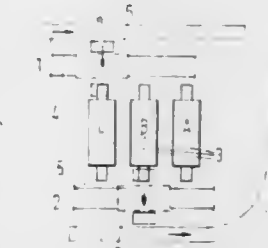
Filed Sep. 29, 1980, Ser. No. 192,040

Claims priority, application Netherlands, Sep. 28, 1979, 7907258

Int. Cl.³ B65G 1/06

U.S. Cl. 414—278

4 Claims



1. Apparatus for storing a plurality of different types of baking tins comprising: a baking tin supply conveyor; a baking tin discharge conveyor spaced from and having a portion generally parallel to a portion of said supply conveyor; a plurality of storage racks arranged side-by-side between said portions of said conveyors, each storage rack having a supply end facing said supply conveyor and a discharge end facing said discharge conveyor and each storage rack including a plurality of horizontal carriers extending from the supply end to the discharge end of the respective rack, the carriers of each rack having a length sufficient to receive a horizontal row of baking tins and being arranged one above another in vertically spaced-apart relationship; and transfer means for removing

baking tins from said supply conveyor, delivering the removed baking tins to the supply ends of said carriers in a manner to form horizontal rows of baking tins on said carriers, removing baking tins from the discharge ends of said carriers and delivering the so-removed baking tins to said discharge conveyor, said transfer means including a first endless conveyor located between said supply conveyor and the supply ends of said racks, said first conveyor having an upwardly movable run and a downwardly movable run, said runs having baking tin pickup and releasing means projecting therefrom and said upwardly movable run facing said supply conveyor, said transfer means further including a second endless conveyor located between said discharge conveyor and the discharge ends of said racks, said second conveyor having an upwardly movable run and a downwardly movable run, said runs having baking tin pickup and releasing means projecting therefrom and said downwardly movable run facing said discharge conveyor, said first and second conveyors being movable parallel to their respective racks so as to be positionable adjacent an end of any desired rack.

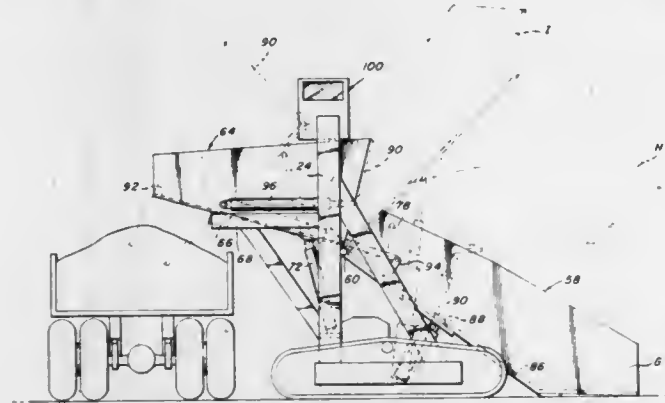
4,392,769

HEAVY DUTY MOBILE LOADING STRUCTURE AND SYSTEM

Sterling W. Lowery, 6013 Pollard Dr., Richmond, Va. 23226
Filed Feb. 20, 1981, Ser. No. 236,639
Int. Cl.³ B65G 67/04

U.S. Cl. 414—397

16 Claims



1. A heavy duty truck loading means carried on a mobile transporter for receiving material pushed by the blade of a bulldozer means onto the loading means for loading into a truck, comprising: a self-propelled carrier, a ramp means adapted to receive material bulldozed onto said ramp means, a support on said carrier upon which said ramp means is movably mounted, a dump means carried by a support on said carrier to hold said dump means above the truck to be loaded, said ramp and dump means being independent elements having powered means operative to raise and lower said ramp and dump means independently one with respect to the other for positioning the ramp means to receive material that is bulldozed thereonto and position said dump means to receive material from said ramp and empty the material into said truck positioned under said dump means.

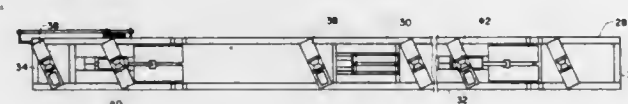
4,392,770

PIPE HANDLING APPARATUS

Dale J. Castille, P.O. Box 2697, Lafayette, La. 70502
Filed Oct. 23, 1980, Ser. No. 200,070
Int. Cl.³ B65G 39/02

U.S. Cl. 414—432

15 Claims



1. A pipe handling mechanism for selectively transporting

lengths of pipe from a horizontal pipe rack, transporting the pipe linearly from the pipe rack to apparatus doing work on the lengths of pipe and returning the worked pipe to the pipe rack, said pipe handling mechanism comprising:

a base structure;

a pipe elevation frame;

first elevator means being a plurality of elevator leg structures being pivotally interconnected at the lower extremities thereof to said base and pivotally interconnected at the upper extremities thereof to said pipe elevation frame;

first power means for selectively and controllably moving said elevator leg structures and causing selective raising and lowering of said pipe elevation frame relative to said base structure;

a plurality of angulated pipe transfer rollers being rotatably supported by said pipe elevation frame and adapted, when rotated, to impart spiral linear movement of pipe supported thereby;

means for imparting controlled rotation to at least one of said angulated pipe transfer rollers;

pipe alignment and support roller means;

second elevator means being pivotal support means pivotally interconnected at the lower extremities thereof to said pipe elevation frame and pivotally interconnected at the upper extremities thereof to said pipe alignment and support roller means;

second power means for controllably moving said pipe alignment and work support means;

control means selectively actuating said first and second power means to elevate pipe from a pipe rack to a selected elevation, transfer the pipe linearly to accomplish working thereof, elevate said pipe alignment and support roller means to provide rotatable support for said pipe and retract said pipe transfer rollers from contact with said pipe during working of said pipe.

4,392,771

LIFT SAFETY SWITCH SYSTEM

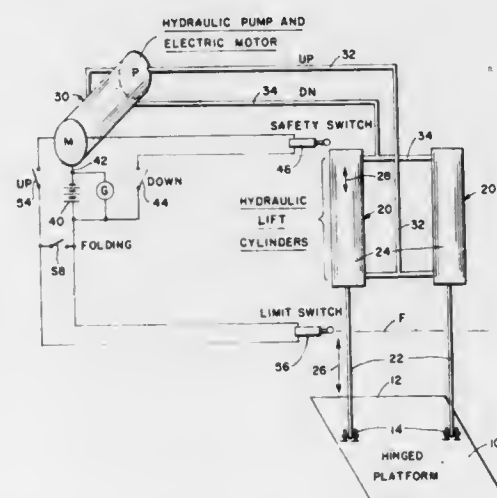
Raymond L. Smalley, Carey, Ohio, assignor to REB Manufacturing, Inc., Carey, Ohio

Filed Dec. 22, 1980, Ser. No. 218,613

Int. Cl.³ B60P 1/46

U.S. Cl. 414—545

3 Claims



1. In a fluid-operated lift comprising:

(A) a frame,

(B) a platform vertically foldable and vertically movable relative to said frame,

(C) a fluid-operated reciprocating motor comprising a cylinder and a piston in said cylinder, said motor being connected between said platform and said frame for moving said platform to and from a vertical folded to a horizontal position and to and from its highest horizontal position to its lowest horizontal position,

(D) a source of power comprising an electric motor for operating said reciprocating motor,

(E) an electric circuit and manually operated switch means for controlling said electric motor for controlling said reciprocating motor intermediate the limits of travel of said platform relative to said frame, and

(F) a limit switch means for stopping the operation of said reciprocating motor when said platform is in its highest horizontal position between its limits of travel in a horizontal position, and manual switch means for overriding said limit switch to fold said platform into its vertical position;

the improvement comprising:

(1) vertical slot means between said cylinder and said frame for supporting said reciprocating motor and said platform in said frame,

(2) microswitch means mounted on said frame adjacent said reciprocating motor,

(3) cam means on said cylinder for operating said microswitch means when said reciprocating motor is raised in said vertical slot means caused by an obstruction in the downward path of movement of said platform from its vertical folded position through its highest horizontal position to its lowest horizontal position, and

(4) means responsive to the operation of said microswitch means for controlling said reciprocating motor to discontinue further downward movement of said reciprocating motor.

4,392,772

LOAD LIFTING CARRIAGE HAVING SIDE SHIFT ADJUSTABLE FORKS

Jerry L. Reeves, Dallas, Texas, assignor to Towmotor Corporation, Mentor, Ohio

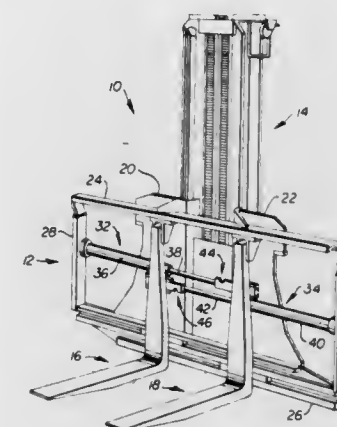
PCT No. PCT/US80/00380, § 371 Date Apr. 7, 1980, § 102(e)
Date Apr. 7, 1980, PCT Pub. No. WO81/02885, PCT Pub.
Date Oct. 15, 1981

PCT Filed Apr. 7, 1980, Ser. No. 245,239

Int. Cl.³ B66F 9/06

U.S. Cl. 414—667

13 Claims



3. In a load lifting carriage (12) having upper and lower spaced apart substantially horizontal rails (24, 26), a pair of opposite spaced apart sides (28, 30) and a vertical centerline, first and second forks (18, 16) each being mounted on said rails (24, 26) and movable along said rails (24, 26), and first and second extensibly movable independently operable cylinders (32, 34) each being connected to said carriage (12); the improvement comprising:

first means (44) for selectively coupling said first cylinder (32) to said first fork (18) at a first location longitudinally relative to said first cylinder (32), at which said first fork is movable in response to movement of said first cylinder along said rails (24, 26) between said centerline and a location closely adjacent one of said sides (28, 30), and for coupling said first cylinder (32) to said first fork (18) at a second location longitudinally relative to said first cylinder (32) and spaced from said first location, at which said

first fork is movable in response to movement of said first cylinder along said rails (24, 26) between a location spaced a greater distance from said one side (28, 30) to a location past said centerline; and

second means (46) for coupling said second cylinder (34) to said second fork (16) at a third location longitudinally relative to said second cylinder (34), at which said second fork (16) is movable in response to movement of said second cylinder (34) along said rails (24, 26) between said centerline and a location closely adjacent the other of said sides, and for coupling said second cylinder (34) to said second fork (16) at a fourth location longitudinally relative to said second cylinder (34) and spaced from said third location, at which said second fork (16) is movable in response to movement of said second cylinder (34) along said rails (24, 26) between a location spaced a greater distance from the other side (28) to a location past said centerline.

4,392,773

CARRIAGE ASSEMBLY WITH SHIFTABLE FORKS

Richard J. Johannson, Dallas, Texas, assignor to Towmotor Corporation, Mentor, Ohio

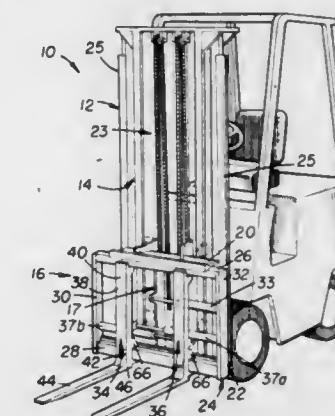
PCT No. PCT/US80/01265, § 371 Date Sep. 22, 1980, § 102(e)
Date Sep. 22, 1980, PCT Pub. No. WO82/00997, PCT Pub.
Date Apr. 1, 1982

PCT Filed Sep. 22, 1980, Ser. No. 261,105

Int. Cl.³ B66F 9/12

U.S. Cl. 414—667

9 Claims



1. In a load lifting apparatus (10) having a generally vertically oriented mast assembly (12) and a carriage assembly (16) having an upper generally horizontal member (20) and a lower generally horizontal member (22) and being mounted to and translatable along said mast assembly (12), a side shifter (24) having upper (26) and lower (28) generally horizontal bars connected together and being mounted to and laterally translatable along said members (20 and 22), and a generally "L" shaped tine (36) having a generally vertical leg (38) having a top end portion (40) and a bottom end portion (42) and a generally horizontal leg (44) being associated with said side shifter (24), the improvement comprising:

a roller bracket (17) connected to said generally horizontal members (20 and 22) and rollably mounted on said mast assembly (12);

means (52) for mounting said top end portion (40) of said vertical leg (38) for transferring substantially only horizontal forces from said tine (36) to said upper bar (26);

means (64) for mounting said bottom end portion (42) of said leg (38) for transferring vertical forces directly from said bottom end portion (42) of said vertical leg (38) of said tine (36) to said lower bar (28); and

means (71) for maintaining said lower bar (28) from moving laterally away from said lower member (22), said means (71) being free from interference with relative longitudinal movement between said lower bar (28) and said lower member (22), said maintaining means (71) having a bracket (74) and being connected to said roller bracket (17), said

bracket having a finger and said lower bar (28) having a channel (70), said channel (70) extending longitudinally along said lower bar (28) and said finger (76) extending into said channel (70).

4,392,774

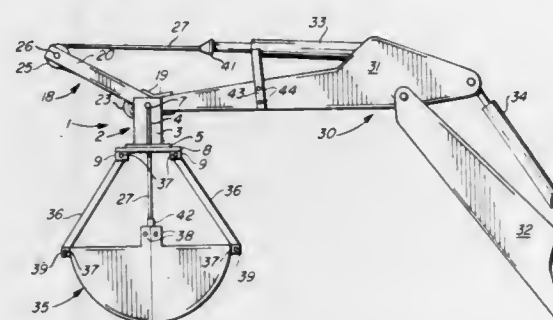
CLAM BUCKET ATTACHMENT

Dolphus W. Thomas, Jr., Rte. 1, Box 637, Bastrop, La. 71220
Filed Oct. 5, 1981, Ser. No. 308,400

Int. Cl.³ B66C 3/06; E02F 3/44

U.S. Cl. 414-726

8 Claims



1. A clam bucket attachment for mounting on the crowd of a backhoe, comprising:

- A cable boom having a flange means at one end for attachment to the crowd, said cable boom extending from the end of the crowd;
- a front sheave rotatably carried by the free end of said cable boom and a rear sheave spaced from said front sheave and rotatably carried by said cable boom forward of said flange means;
- a bucket support carried by said cable boom and further comprising a pair of pivot brackets in spaced, generally parallel relationship extending from said cable boom; a pivot bracket plate connecting said pivot brackets; a first collar upward standing from said pivot bracket plate between said pivot brackets; a bucket support plate beneath and adjacent said pivot bracket plate for carrying a clam bucket; a second collar attached to said bucket support plate and extending upwardly and concentrically through said first collar; and a support cap secured to the top of said second collar above said first collar, whereby said bucket support plate and said second collar are rotatable with respect to said pivot bracket plate and said first collar, and the clam bucket is rotatable with respect to said cable boom; and
- a cable having one end secured to the piston of a hydraulic cylinder attached to the crowd of the backhoe, said cable wound around said front sheave and said rear sheave and through said support cap, said first and second collar and said bucket support plate, and the opposite end of said cable secured to the clam bucket, whereby extension and retraction of the hydraulic cylinder opens and closes the clam bucket, respectively.

4,392,775

FLAT WORKPIECE PICKUP

Gerald E. Ennis, Grand Prairie, Tex., and Mario Colombo, Jr., St. Louis County, Mo., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 9, 1980, Ser. No. 195,693

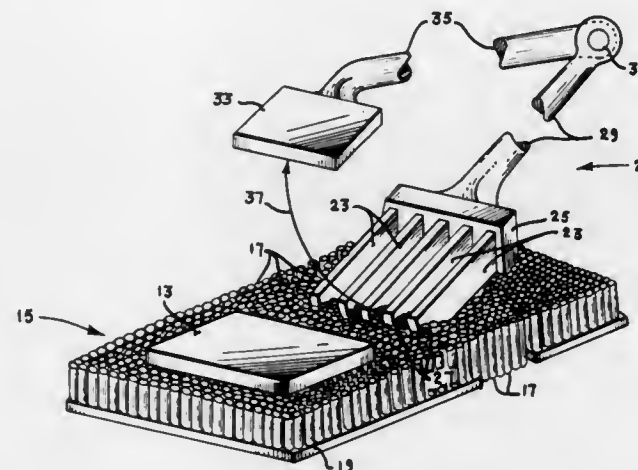
Int. Cl.³ B66F 19/00

U.S. Cl. 414-729

5 Claims

1. In combination, a compliant table surface for supporting a flat workpiece thereon, said compliant table surface comprising a rigid base member and a plurality of vertical upstanding closely spaced bristle-like elements affixed at the lower ends thereof to said rigid base member, the free upper ends of said bristle-like elements forming a level work surface; and an end-effector for firmly grasping said workpiece for transportation to a different location, said end-effector comprising a

lower member having a plurality of tines extending forwardly from a block, each of said tines being rectangular in cross-section over their entire length up to their forward ends, the forward ends of each of said tines being curved upwardly from the bottom surface of said tines to the top surface of said tines, a handle portion extending rearwardly from said block, and a single upper member having a flat planar grasper corresponding in size to the said plurality of tines positioned substantially parallel to said upper surface of each of said plurality of tines with a handle portion extending rearwardly therefrom, the



4,392,776

ROBOTIC MANIPULATOR STRUCTURE

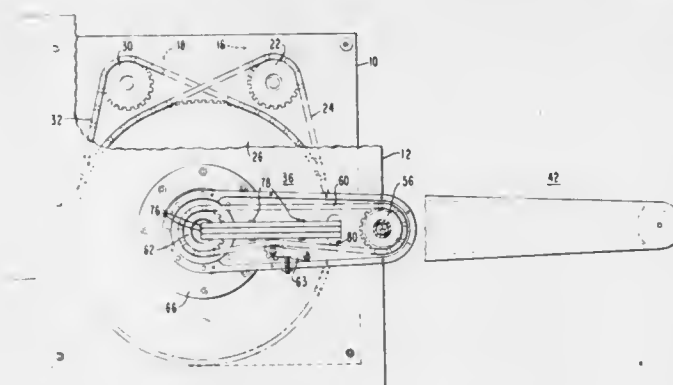
Lanson Y. Shum, Salem Township, Westmoreland County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 15, 1981, Ser. No. 264,153

Int. Cl.³ B25J 3/00

U.S. Cl. 414-744 R

7 Claims



1. A robotic manipulator structure comprising:
- a base supporting first and second independently operable motorized drive means;
 - a first generally hollow arm rotatably supported by said base and means for driving said first arm from said first drive means for rotation through one planar space;
 - a second arm having one end rotatably carried, by the end of said first arm opposite said base, for rotation through another planar space, parallel to and translationally displaced from said first planar space; and
 - means coupled said second drive means to drive said second arm independently of said first arm, said coupling means

extending from said base through said first arm to said one end of said second arm;

said driving means for said first arm includes a hollow shaft rotatably supported from said base and fixed at its one end to said first arm and having, at its other end, driven means coupled to said first drive means; and

said coupling means for said second arm includes a shaft concentrically and rotatably disposed within said first hollow shaft, said second shaft being hollow and defining an interiorly open space, and having at its one end toothed gearing coupled by toothed linking means through said first arm to drive said second arm, and at the other end of said second shaft driven means coupled to said second drive means.

4,392,777

PUMP OR BLOWER, IN PARTICULAR FOR HEATING AND AIR-CONDITIONING SYSTEMS

Herbert Hüttlin, Lörracher Strasse 14, D-7853 Steinen, Fed. Rep. of Germany

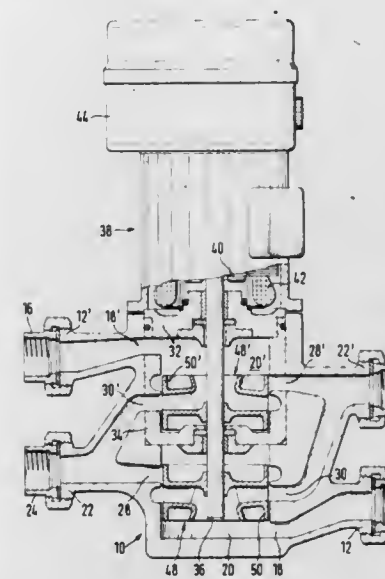
Filed Jan. 12, 1981, Ser. No. 223,989

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1980, 3002210

Int. Cl.³ B23B 47/00

U.S. Cl. 415-131

8 Claims



1. A pump or blower, in particular for heating and air-conditioning systems, comprising:
- a casing, said casing having
 - a primary impeller chamber;
 - a secondary impeller chamber;
 - a primary suction duct constantly connected to said primary impeller chamber;
 - first and second primary pressure ducts adapted for connection to said primary impeller chamber;
 - a secondary suction duct constantly connected to said secondary impeller chamber;
 - first and second secondary pressure ducts adapted for connection to said secondary impeller chamber;
 - said second primary pressure duct being constantly connected to said first primary pressure duct;
 - a pair of impellers mounted on a common shaft in said casing, said pair of impellers comprising:
 - a primary impeller in said primary impeller chamber; and
 - a secondary impeller in said secondary impeller chamber; and
 - shifting means for shifting said pair of impellers between
 - a first end position in which said primary impeller connects said primary impeller chamber only to said first primary pressure duct and wherein said secondary impeller connects said secondary impeller chamber only to said first secondary pressure duct and
 - a second end position in which said primary impeller connects said primary impeller chamber only to said

secondary primary pressure duct and wherein said secondary impeller connects said secondary impeller chamber only to said secondary pressure duct.

4,392,778

DOUBLE FLOW REHEAT DIAPHRAGM

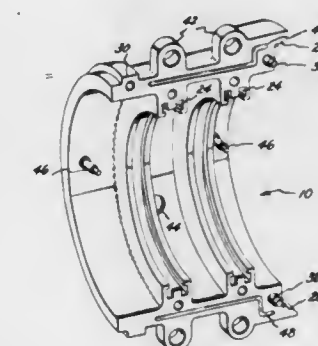
John M. Hess, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 1, 1981, Ser. No. 249,894

Int. Cl.³ F01D 9/04

U.S. Cl. 415-139

15 Claims



1. An inner web of a diaphragm for use in a double flow section of a steam turbine having a rotor shaft with a plurality of bucket wheels affixed thereto, said wheels rotate about the axis of said shaft between a plurality of stationary nozzle rings formed by curved partitions, said web comprising:

- a first cylindrical shell formed in two joinable halves for surrounding a portion of said rotor shaft, said first shell having at least two circular grooves along the inner periphery thereof for holding steam packing material in close proximity to said rotor shaft, said first shell also having a surface around the outer periphery of a first end thereof for attachment of curved partitions;
- a second cylindrical shell formed in two joinable halves for surrounding the second end of said first shell, said second end being displaced along said axis from said first end, and said second shell also having a surface around the outer periphery thereof for attachment of curved partitions; and
- means for holding said second shell in a relatively fixed position around said first shell but permitting limited axial movement between said first and said second shell.

4,392,779

MARINE DRIVE WATER PUMP

James L. Bloemers, Fond du Lac; James M. Schiek, Omro; Michael E. Frazzelli, Neenah, and Michael A. Karls, Hilbert, all of Wis., assignors to Brunswick Corporation, Skokie, Ill.

Continuation of Ser. No. 146,528, May 5, 1980, abandoned. This application Aug. 16, 1982, Ser. No. 408,508

Int. Cl.³ F04D 5/00, 29/42

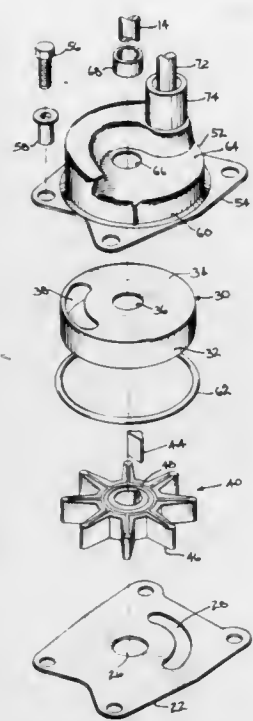
U.S. Cl. 415-141

5 Claims

1. In a marine drive having a water cooled engine rotating a drive shaft and having a cooling water intake, the improved water pump comprising:

- a base plate mounted in said marine drive, said base plate having an eccentrically positioned drive shaft opening and a water inlet opening into the cooling water intake;
- a cup-shaped impeller housing formed of deformed sheet metal having an end wall and a peripheral wall, said end wall having an eccentrically positioned drive shaft opening and a water outlet;
- an impeller positioned in said impeller housing for propelling water received at said water inlet out said water outlet, said impeller having a central hub coupled to the drive shaft and a plurality of flexible impeller vanes extending outwardly from said central hub into contact with the peripheral wall of said impeller housing; and
- a shroud formed of deformed sheet metal fitting over said

impeller housing to embrace the end wall and peripheral wall of said housing, said shroud being secured to said base plate, said shroud forming an arcuate collecting



chamber between the shroud and the impeller housing to connect said outlet with a water discharge opening for said pump angularly displaced from said water outlet about the axis of the drive shaft.

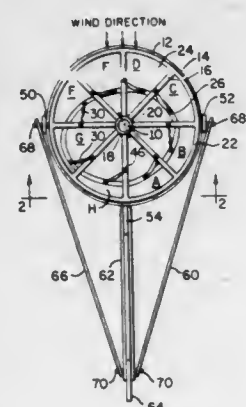
4,392,780

WIND POWERING OF TURBINE HAVING VARIABLE PITCH VANES

John R. Taft, 27 Mouton Rd., Duxbury, Mass. 02332
Filed Apr. 11, 1978, Ser. No. 895,355
Int. Cl.³ F03D 3/00

U.S. Cl. 416-17

8 Claims



1. A windmill apparatus comprising, a shaft rotatable about its axis, vanes connected to said shaft and rotatable therewith, each said vane being rotatable about a vane axis parallel to said shaft axis, each said vane including a flexible sheet adapted to form a curved surface under wind pressure, and camming means adapted to control the orientation of said vanes about said vane axes that is related only to the position of a respective vane about said shaft as said vanes rotate about said shaft axis, for orienting said vanes to go through reaching, running, beating, jibing and tacking modes, whereby said camming means receives impulses from the jibe mode of said vanes to help position said camming means for the apparent wind acting on said vanes.

4,392,781 HIGH PERFORMANCE BLADE FOR HELICOPTER ROTOR

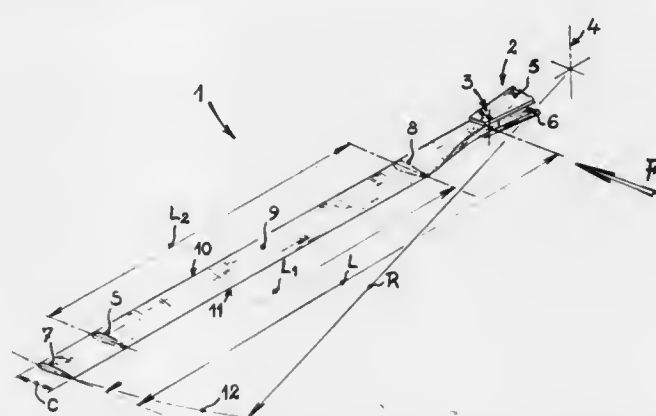
Rene' L. Mouille, Aix-en-Provence; Jacques R. Gallot, Sausset-les-Pins, and Jean-Marc E. Pouradier, Port-Saint-Louis-du-Rhone, all of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France

Filed Mar. 13, 1981, Ser. No. 243,348

Claims priority, application France, Mar. 25, 1980, 80 06577
Int. Cl.³ B64C 27/46

U.S. Cl. 416-223 R

5 Claims



1. A high performance blade for a helicopter rotor having a hub, comprising:
at one end of said blade, an end profile disposed perpendicularly to the leading edge of the blade;
at the other end of said blade, means for fastening said blade to said hub;
a root profile located between said end profile and said other end,
said end profile and said root profile defining along the major part of the span of the blade an aerodynamic surface produced by profiles of substantially constant chord, each profile having a radius of maximum curvature R_0 at the leading edge defined approximately by the expression $R_0 = 1.7 C e_{max}^2$, in which C represents the chord and e_{max} the maximum relative thickness of the profile, and a point of minimum curvature positioned on the lower surface at a distance from the leading edge approximately equal to 20% of the length of the chord of said profile, said aerodynamic surface having an aerodynamic twist which increases linearly from said end profile to a maximum at said root profile, said twist then being reversed to become zero at said opposite end of the blade, the angle of twist formed by a zero lift chord of the end profile of said aerodynamic surface and a plane of reference passing through the centre of the hub of the rotor being positive and not more than 0.3 degrees, the difference between the angles of twist of the root profile and of the end profile being $6^\circ-8^\circ$, and the distance separating said end profile from said root profile being at least equal to 70% of the length of the blade.

4,392,782

LIQUID LEVEL CONTROLLER

Andrew Kuehn, III, St. Paul, Minn., and Edwin G. Hoefs, Dallas, Tex., assignors to Comact Pump Corporation, Dallas, Tex.
Filed Nov. 13, 1980, Ser. No. 206,669

Int. Cl.³ F04B 49/06

U.S. Cl. 417-36

13 Claims

1. Apparatus for controlling the level of a contained liquid by initiating and discontinuing operation of a liquid transfer means mounted to withdraw liquid from the containment, said apparatus comprising:

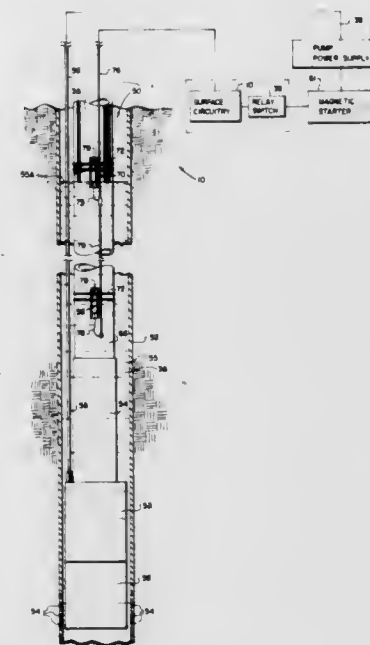
a high side thermistor operable in a self heating mode and positionable in said containment at a level substantially equal to the highest level of liquid desired to be permitted therein;
a low side thermistor operable in a self heating mode and

positionable in said containment at a level substantially equal to the lowest level of liquid desired to be permitted therein;

means for flowing a substantially constant current across said thermistors, whereby when a thermistor operating in a self-heating mode is immersed in liquid it dissipates heat more rapidly than when unimmersed, thus increasing in resistance, and proportionally increasing the voltage drop thereacross above that obtained when a thermistor is unimmersed;

means for comparing the voltage drops across said thermistors with at least one reference voltage intermediate in value between the voltage drop across unimmersed and immersed thermistors and generating output signals which are a function of said comparison; and

means responsive to said output signals for switching said liquid transfer means on when said voltage drops across both thermistors are high, indicating that said high side thermistor is immersed, for continuing liquid transfer when said voltage drop across said high side thermistor is low and said voltage drop across said low side comparator is high, indicative of a liquid level between the highest and lowest desired levels, and for switching the liquid transfer means off when said voltage drops are both low, indicating that said low side thermistor is unimmersed.



8. A method for controlling the level of a contained liquid by initiating and discontinuing operation of a liquid transfer means mounted to withdraw liquid from the containment, said apparatus comprising:

positioning a high side thermistor operable in a self heating mode in said containment at a level substantially equal to the highest level of liquid desired to be permitted therein; positioning a low side thermistor operable in a self heating mode in said containment at a level substantially equal to the lowest level of liquid desired to be permitted therein; flowing a substantially constant current across said thermistors, whereby when a thermistor operating in a self-heating mode is immersed in liquid it dissipates heat more rapidly than when unimmersed, thus increasing in resistance, and proportionally increasing the voltage drop thereacross above that obtained when a thermistor is unimmersed;

comparing the voltage drops across said thermistors with a reference voltage intermediate in value between the voltage drop across unimmersed and immersed thermistors and generating signals which are a function of said comparison; and

switching the said liquid transfer means on when said voltage drops across both thermistors are high, indicating that said high side thermistor is immersed, continuing liquid transfer when said voltage drop across said high side thermistor is low and said voltage drop across said low side comparator is high, indicative of a liquid level be-

tween the highest and lowest desired levels, and switching the liquid transfer means off when said voltage drops are both low, indicating that said low side thermistor is unimmersed.

4,392,783

LIQUID RING PUMP EMPLOYING DISCHARGED PUMPING LIQUID FOR DISCHARGE PORT CONTROL

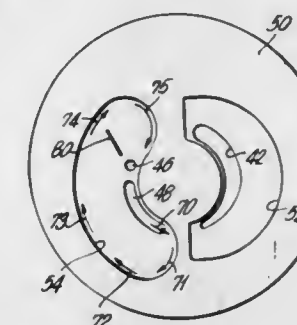
Charles M. Jozepaitis, Bridgeport, Conn., assignor to The Nash Engineering Company, Norwalk, Conn.

Filed Dec. 12, 1980, Ser. No. 215,577

Int. Cl.³ F04C 19/00

U.S. Cl. 417-68

1 Claim



1. In a liquid ring pump having a bladed rotor eccentrically mounted for rotation in an annular housing supplied with a quantity of pumping liquid, the rotor producing an annular ring of circulating pumping liquid in the housing when rotated and cooperating with the ring of pumping liquid to convey gas from an intake zone to a compression zone having a higher pressure than the intake zone, the improvement comprising:

a first discharge port portion in the housing communicating with a first relatively low pressure portion of the compression zone;

a second discharge port portion in the housing communicating with a second relatively high pressure portion of the compression zone;

a discharge chamber communicating with the first and second discharge port portions for directing a flow of pumping liquid discharged from the second discharge port portion transversely over the first discharge port portion to substantially prevent gas from entering the compression zone via the first discharge port portion when the pressure in the first portion of the compression zone is less than the gas pressure in the discharge chamber, the discharge chamber being shaped to make use of the kinetic energy of the pumping liquid discharged from the second discharge port portion to induce a substantially continuous recirculation of pumping liquid in the discharge chamber, the path of recirculation being (1) circumferentially away from the second discharge port portion in the direction of rotor rotation, (2) radially outward from the second discharge port portion and circumferentially in the direction opposite the direction of rotor rotation, (3) radially inward after passing both the second and first discharge port portions, and (4) circumferentially over the first discharge port portion in the direction of rotor rotation;

baffle means disposed in the discharge chamber for promoting recirculation of the pumping liquid in the discharge chamber; and

a gas discharge outlet communicating with a portion of the discharge chamber bounded by the recirculating pumping liquid for allowing gas to exit from the discharge chamber without interfering with the recirculation of pumping liquid in the discharge chamber.

4,392,784

VALVE ARRANGEMENT FOR VENTING CONDUITS AND PUMPING SYSTEM INCLUDING THE SAME

Nabil Hanafi, Urach, Fed. Rep. of Germany, assignor to Pumpfabrik Urach, Urach, Fed. Rep. of Germany

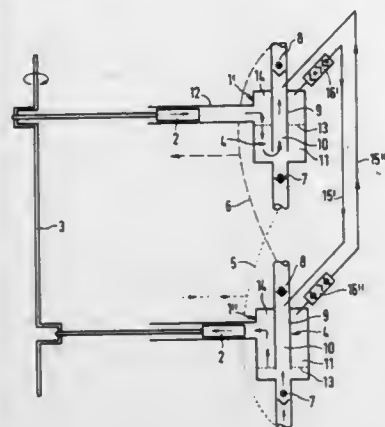
Filed Oct. 5, 1981, Ser. No. 309,123

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1980, 3040478

Int. Cl.³ F04B 9/10

U.S. Cl. 417—103

14 Claims



1. A pumping system for delivering a liquid developing gas or vapor, comprising a plurality of pump units each having a reciprocating pumping element operating at different phases, a working space formed with a gas or vapor collecting zone and a liquid discharging zone, a suction conduit with a suction valve, a pressure conduit with a delivery valve which is arranged in the liquid discharge zone, a venting conduit connected between the gas and vapor collecting zone of one pump unit and the liquid discharge zone of the subsequent pump unit, and a valve arrangement provided in each venting conduit for controlling the discharge of the gas or vapor from the collecting zone in response to the pressure difference between said working spaces.

4,392,785

PUMP CONTROL SYSTEM FOR WINDMILLS

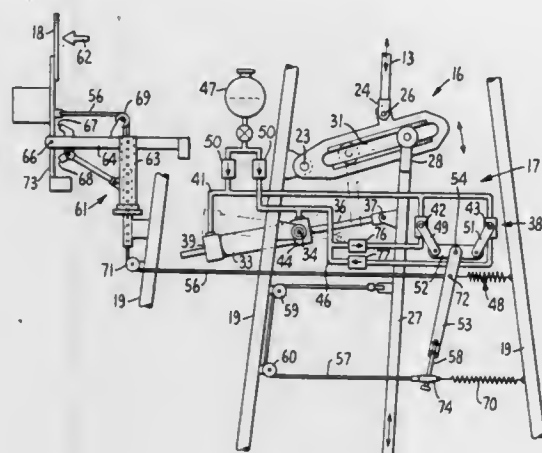
Don E. Avery, 45-437 Akimala St., Honolulu, Hi. 96744

Filed Nov. 24, 1980, Ser. No. 209,897

Int. Cl.³ F04B 49/00

U.S. Cl. 417—218

21 Claims



1. In a windmill having a wind driven reciprocating element operating a piston pump, a control system comprising lever means interposed between said reciprocating element and said pump for varying the length of stroke of the piston in said pump, and control means responsive to the velocity of the wind to operate said lever means to vary the length of stroke and hence the effective displacement of said pump in accordance with available wind energy, said control means having a sensing member separate from

the windmill formed to be disposed in the wind and displaceable thereby in accordance with wind velocity.

4,392,786

ELECTROMAGNETIC INDUCTION PUMP

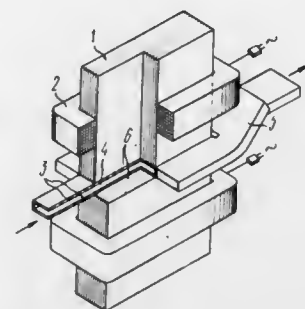
Jury F. Merenkov, ulitsa Starykh bolshevikov, 84, korpus 2, kv. 30; Vladimir D. Egorov, ulitsa Krasnoflottsev, 28, kv. 6; Valentin G. Stepanov, ulitsa Malysheva, 107, korpus 1, kv. 28, and Igor V. Popkov, ulitsa 8 Marta, 150, kv. 30, all of Sverdlovsk, U.S.S.R.

Filed Oct. 16, 1980, Ser. No. 197,668

Int. Cl.³ H02K 44/02

U.S. Cl. 417—50

12 Claims



1. An electromagnetic induction pump comprising: an open magnetic circuit; an excitation winding provided on said magnetic circuit; a source of alternating current connected to said excitation winding; a duct for the flow of an electrically conductive liquid being pumped and situated in the air gap of said magnetic circuit; a means for electric continuity positioned outside of said air gap and embracing portions of said magnetic circuit at an outlet end of said duct relative to the direction of flow, and providing a path for the electric current induced in said conductive liquid to flow outside said air gap of said magnetic circuit, which means is in electrical contact with said conductive liquid and partially embraces said magnetic circuit; at least portions of said magnetic circuit adjoining said duct having a length l , in the direction of the liquid flow, which is defined by the expression:

$$l \geq 2 \sqrt{2/\sigma \mu_0 \omega}$$

where

σ = the specific conductivity of the conductive liquid being pumped;
 μ_0 = the magnetic permeability of the conductive liquid being pumped; and
 ω = the angular frequency of the alternating current source feeding the excitation winding,
 and provides a nearly exponential decrease of the magnetic induction in said duct along the length l , in the direction of the liquid flow, to the value determined by the given length l .

4,392,787

DIAPHRAGM PUMP

Adolf Notta, Youngstown, N.Y., assignor to Wetrot Inc., Niagara Falls, N.Y.

Filed Jan. 21, 1981, Ser. No. 226,830

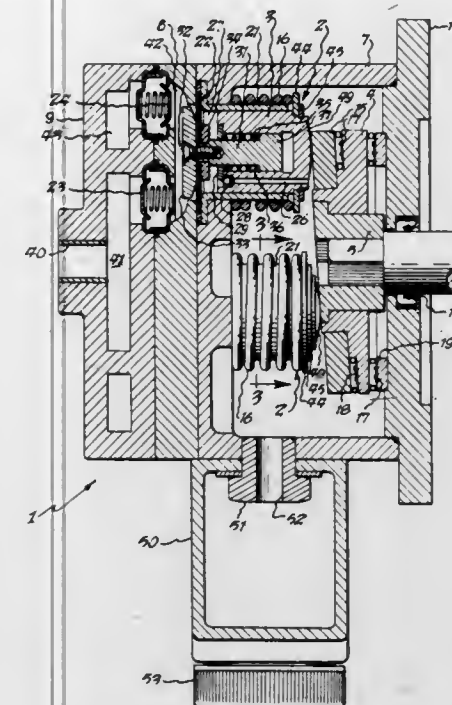
Int. Cl.³ F04B 1/18, 35/02

U.S. Cl. 417—269

4 Claims

1. In a diaphragm pump of the type having a pump housing, a piston reciprocal within said housing, cam means operatively engaging said piston for reciprocating the same, a diaphragm disposed between said piston and a pumping chamber within said housing, a plunger stem secured to said diaphragm by

screw means rotatable relative to said stem, said piston having a bore and said plunger stem having an end portion extending into said bore, said stem end portion defining a surface slidably engaging the wall of said bore, the improvement comprising: (a) said engaging surface of said plunger stem end portion and



the wall of said piston bore coacting to prevent relative rotation therebetween upon rotation of said screw means relative to said stem to disengage said stem from said diaphragm, and
 (b) means constraining said piston against rotation upon such rotation of said screw means.

4,392,788

SWASH-PLATE TYPE COMPRESSOR HAVING OIL SEPARATING FUNCTION

Teruo Nakamura, and Umetarou Iino, both of Konan, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

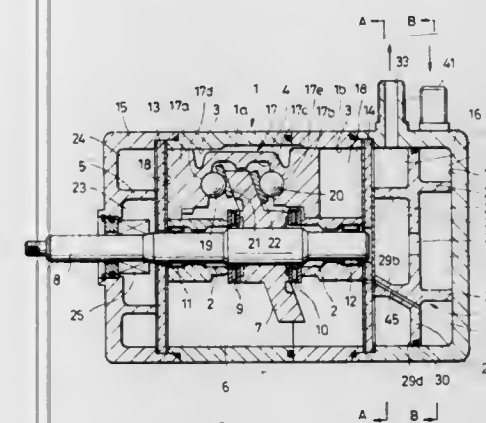
Filed Aug. 7, 1981, Ser. No. 290,874

Claims priority, application Japan, Aug. 15, 1980, 55-112327; Aug. 15, 1980, 55-112328

Int. Cl.³ F04B 1/18

U.S. Cl. 417—269

9 Claims



1. A swash-plate type compressor which comprises: a cylinder block horizontally disposed and having a through hole extending along an axis thereof and an oil sump formed at a bottom thereof; a cylinder head mounted at one end of said cylinder block and having a fluid suction port and a fluid discharge port located on top thereof; a valve plate interposed between said cylinder block and said cylinder head; a drive shaft rotatably fitted in said through hole of said cylinder block; a partition member arranged within said cylinder head and axially dividing the interior thereof, said partition member defining a first chamber and a second chamber concentrically

arranged on one side thereof facing said valve plate, said first chamber being located radially outwardly for temporarily storing high pressure fluid being discharged from said compressor, said second chamber being located radially inwardly for temporarily storing low pressure fluid being sucked into said compressor, said partition member further defining a third chamber on an opposite side thereof remote from said valve plate, said fluid suction port opening in said third chamber, said third chamber communicating with said second chamber through a hole formed substantially centrally through said partition member for allowing suction fluid to pass there-through before being fed to said second chamber; a pair of guide members circumferentially extending and arranged within said first chamber, said guide members defining, respectively, a first oil collecting chamber and a second oil collecting chamber located at peripheral portions of said first chamber and opening toward said fluid discharge port; first passage means communicating said first and second oil collecting chambers with said through hole of said cylinder block for guiding oil to said through hole; a guide wall arranged within said third chamber and defining a suction fluid passage spirally extending from said fluid suction port to said central hole of said partition member, said guide wall further defining a third oil collecting chamber at a peripheral portion of said third chamber, said guide wall having a hole formed therein through which oil is introduced into said third oil collecting chamber from said suction fluid passage; and second passage means communicating said third oil collecting chamber with said oil sump for guiding oil to said oil sump.

4,392,789

HERMETICALLY SEALED MOTOR-COMPRESSOR UNIT FOR REFRIGERATORS

Alfredo Bar, Pavia, Italy, assignor to Necchi Societa per Azioni, Pavia, Italy

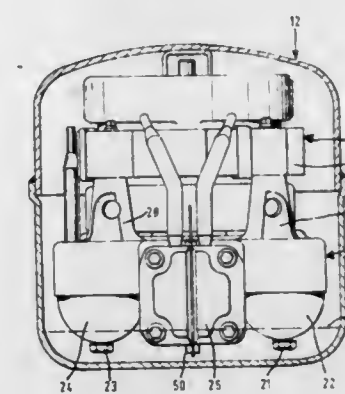
Filed Dec. 9, 1980, Ser. No. 214,766

Claims priority, application Italy, Feb. 20, 1980, 42904 A/80

Int. Cl.³ F04B 39/06

U.S. Cl. 417—312

3 Claims



1. A hermetically sealed motor-compressor unit for refrigerators, of vertical axis, comprising a container for said motor compressor unit defining a sump for the gravitational collection of oil therein and a motor compressor unit positioned within said container, said compressor unit comprising a casing defining a plate, a cylinder, silencer portions positioned at the end of said cylinder below said plate, upper support means extending upwardly from said plate, peripheral walls extending upwardly along a portion of the plate and lower support means extending downwardly from the plate supporting said motor compressor in said container; an electric motor supported on said upper support means; spherical caps fastened to said silencer portions to form silencers; a cylinder head defining a suction chamber and delivery chamber interconnected to said silencers; a vertical shaft and a lubricating member disposed on the lower end of said shaft and immersed in said sump.

4,392,790

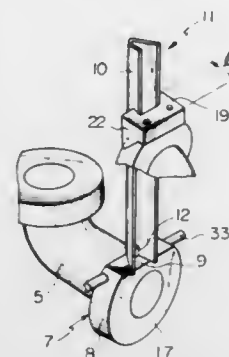
COUPLING SYSTEM FOR SUBMERGIBLE PUMP
Tomoyuki Shibata, Yokohama; Mituhito Nakayama, and Kiyoshi Ouchi, both of Fujisawa, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,646

Int. Cl.³ F04B 47/00; F16L 27/08

U.S. Cl. 417—360

3 Claims



1. A coupling system for detachably coupling a submergible pump to the lower end of a discharge conduit disposed in water, said system comprising:

- a first flange attached to the lower end of said conduit held stationary relative to the bottom of the water, the flange having a first mating surface and a pair of cylindrical rods provided on said first flange relative to said first mating surface and extending horizontally from said first flange in opposite directions, respectively;
- a second flange attached to the discharge end of said pump and having a second mating surface;
- a single guide rail formed of an angle bar extending vertically and secured at its lower end to said first flange, said rail being provided with two planar sliding portions meeting at an apex line at the outwardly facing surfaces along the length thereof, said apex line being on a side of said rail opposite said pump;
- an arm attached to said second flange and including a pair of hook members extending beyond and relative to said second mating surface from the pump side, and a guide means formed on said arm and matable with said two portions of said guide rail so as to be guided by said rail during descending and ascending of said pump, each of said pair of hook members having a downwardly extending tapered surface, wherein, during descending of said pump, each of said tapered surfaces engages one of said pair of rods with a line contact therebetween, said rods and tapered surfaces being constructed such that said rods remain in contact with said tapered surfaces upon the mating of said first and second mating surfaces, wherein said guide means do not extend to said apex line when said arm and rail are operatively engaged.

4,392,791

PRESSURE PUMPING AND PRIMING PUMP APPARATUS

Harold Mandroian, 2137 Los Amigos, La Canada, Calif. 91001

Filed Sep. 8, 1981, Ser. No. 300,412

Int. Cl.³ F04B 43/10

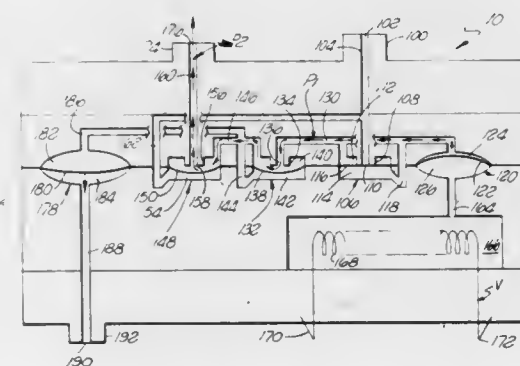
U.S. Cl. 417—379

10 Claims

1. A pumping apparatus for moving a pumped fluid from a reservoir to a destination in response to variations in the pressure of a first pumping fluid and for being selectively primed in response to externally impressed variations in the pressure of a second pumping fluid comprising:

- a pump member having
 - an input port for receiving pumped fluid from the reservoir,
 - an exit port for expelling pumped fluid to the destination,
 - a pumping chamber,
 - a priming-damping chamber,

- an input passageway,
- an exit passageway, and
- a passageway network between the input passageway and the exit passageway;
- a first diaphragm bifurcating the pumping chamber for defining a first pumping chamber section for receiving the pumped fluid and a second pumping chamber section for receiving the first pumping fluid,
- variable pressure means for intermittently varying the pressure of the first pumping fluid for alternately increasing the volume of the second pumping chamber section to increase the pressure applied against the pumped fluid and expel it from the first pumping chamber section and decreasing the volume of the second pumping chamber section to decrease the pressure applied against the pumped fluid and draw it into the first pumping chamber section;
- a first valve positioned between the input passageway and the passageway network and responsive to the pressure of the pumped fluid in the first pumping chamber section;



- a second valve positioned in the passageway network for being responsive to the pressure of the pumped fluid in the first pumping chamber section, the first valve being opened when the second valve closes and the first valve being closed when the second valve opens;
- a third valve coupled between the exit passageway and the second valve in the passageway network for preventing pumped fluid flow through the pump member in response to a pressure head at the input or exit ports, the third valve coupled for closing at least one of the first, second, or third valves in response to the head pressure at the input and exit ports;
- a second diaphragm bifurcating the priming-damping chamber to define a first priming chamber section for receiving the pumped fluid and a second priming chamber section for receiving the second pumping fluid, the first priming chamber section being interconnected to the passageway network between the second and third valves whereby the pressure of the pumped fluid in the exit passageway is altered in response to deflections of the second diaphragm.

4,392,792

LINEAL MULTI-CYLINDER HYDRAULIC PUMPING UNIT FOR WELLS

George L. Rogers, P.O. Box A-1, Norwood Farms Rd., York Harbor, Me. 03911

Filed Mar. 5, 1981, Ser. No. 240,859

Int. Cl.³ F04B 47/04, 47/14

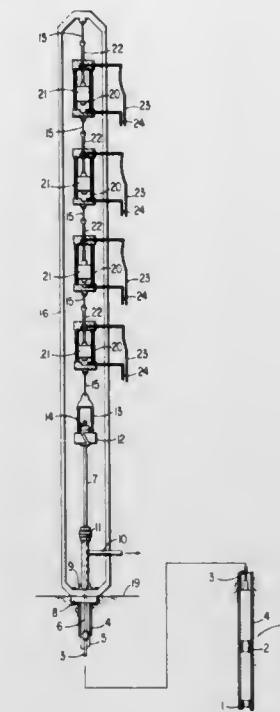
U.S. Cl. 417—400

41 Claims

1. A pumping unit for reciprocating the rod of a downhole pump for pumping fluid from a well, comprising:

- a frame;
- a plurality of pressure responsive expansion members coupled together in sequence, each of said expansion members being capable of expanding and contracting to produce a linear reciprocating movement,
- gravity centering means connected to said frame and to a first one of said sequence of expansion members for sus-

pending said sequence of expansion members to provide gravity centered alignment thereof over the well; and control means coupled to at least one of said expansion members for selectively providing pressurized fluid thereto in order to selectively expand or contract said expansion member;



a last one of said sequence of expansion members being connected to the rod of the downhole pump, whereby the total amount of reciprocating movement imparted to the pump rod is equal to the sum of the individual reciprocating linear movements of each of said reciprocating members being selectively expanded or contracted.

4,392,793

FUEL PUMPING APPARATUS

Dorian F. Mowbray, Burnham, England, assignor to Lucas Industries Limited, Birmingham, England

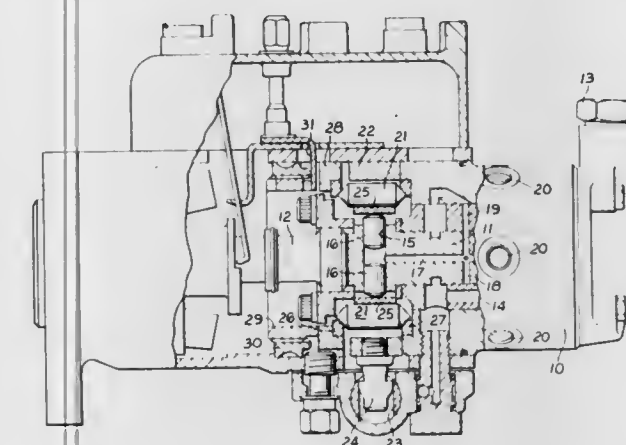
Filed Oct. 8, 1981, Ser. No. 309,791

Claims priority, application United Kingdom, Dec. 5, 1980, 8039035

Int. Cl.³ F04B 19/22, 29/00

U.S. Cl. 417—462

2 Claims



1. A liquid fuel injection pumping apparatus for supplying fuel to an internal combustion engine and comprising a rotary distributor member located in a housing, bores formed in the distributor member and plungers therein, cam followers located at the outer ends of the plungers respectively for engagement with cam lobes formed upon the internal peripheral surface of an annular cam ring surrounding the distributor member, means for feeding fuel to the bores to effect outward movement of the plungers and followers, passage means for conveying fuel from the bores to outlets in the housing, a pair of stop rings positioned in the housing so as to be contacted by

end surfaces defined on the cam followers, said end surfaces and the stop rings being shaped so that the axial setting of said stop rings will determine the extent of outward movement of the plungers during the time fuel is supplied to the bores thereby to determine the amount of fuel supplied at each delivery stroke of the apparatus, characterized in that the axial spacing between the end surfaces of at least one of said cam followers is arranged to be smaller than the axial spacing of the end of the other cam follower or followers whereby in use, at the end of the filling strokes of the plungers at least one plunger will be further from the axis of rotation of the distributor member than the other or others so that it will be moved inwardly to effect delivery of fuel before the other plunger or plungers.

4,392,794

PERISTALTIC PUMP

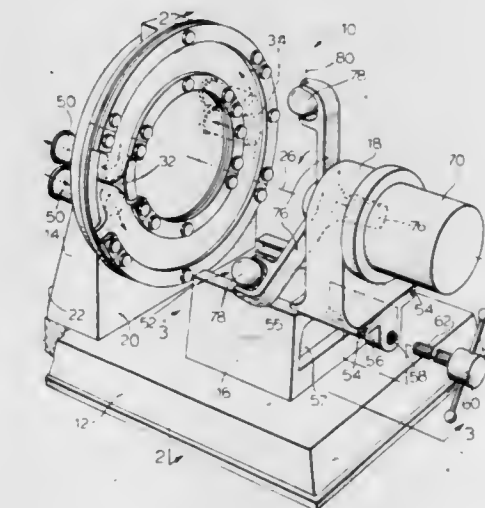
Arthur Foxcroft, P.O. Box 217, Trenton, Ontario, Canada

Filed Dec. 29, 1980, Ser. No. 220,271

Int. Cl.³ F04B 43/14

U.S. Cl. 417—475

1 Claim



1. A peristaltic pump comprising,
 - (a) a housing having a front end and a back end, an annular recess formed in the front end of the housing and extending circumferentially about a first axis, said annular recess having a uniform arcuate cross-sectional configuration along its length and a pair of radially spaced side edges at the front end of the housing, first and second passages opening through the housing from the recess to the back end of the housing at circumferentially spaced intervals about the housing,
 - (b) first and second conduits each having; a back wall shaped to conform to the cross-sectional configuration of the recess and a flexible front wall extending transversely across the back wall, an input end and an output end, said conduits being mounted in said annular recess at circumferentially spaced intervals with the input end and output end of the first conduit extending through said first and second passages respectively, and the input end and output end of the second conduit extending through said second and first passages, respectively, the back wall of each conduit being supported within the recess and the flexible front wall of each conduit extending in a first plane which is perpendicular to the first axis, said conduits each having side flanges which are secured to said housing holding said front wall taut
 - (c) a pumping member comprising;
 - (i) a rotor mounted for rotation about said first axis,
 - (ii) three rollers mounted on said rotor at uniformly spaced circumferential intervals about said first axis each for rotation about a radially directed axis, each roller having a profile adapted to mate with the arcuate cross-sectional configuration of the recess, said pumping member being mounted with said rollers extending into the recess to an

extent sufficient to stretch the front wall of the conduits into engagement with the back wall thereby to form transversely extending occlusions in each conduit,
(d) drive means engaging said rotor to rotatably drive it about said first axis to cause successively formed occlusions to move along each conduit from the input end to the output end to effect pumping in use.

4,392,795

WEAR RESISTANT ROTOR SLOTS FOR VANE-TYPE PUMPS OR MOTORS

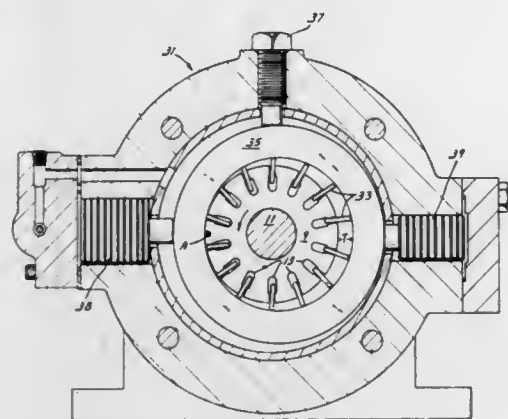
Larry C. Smith, New Berlin, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Jan. 30, 1981, Ser. No. 229,954

Int. Cl.³ F01C 21/00

U.S. Cl. 418—31

15 Claims



1. In a rotor for a vane-type fluid pump or motor, said rotor comprising a toroid having a plurality of planar slots transverse to the circumference thereof; each said slot extending across the entire width of said rotor and through said circumference to form a pair of upper edges at the intersection of said slot and said circumference, said slot being for the receipt of a vane complementary to said slot, said vane having side surfaces and a lower edge and a total depth V in said transverse direction, and being disposed for reciprocation in a direction slightly oblique to said transverse direction in said slot between a retracted position and an extended position, said vane in operation having a range of travel T between the maximum positions of retraction and extension in said transverse direction, and a maximum extension of X beyond said rotor circumference, and having a side in sliding contact with one of said upper edges; the improvement to said rotor which comprises:

- a side wall configuration in said slots including an upper portion having a width slightly greater than the width of said vane and opening into said circumference, and also including an undercut portion having a width greater than the width of said slot upper portion;
- a lower edge formed within each said slot on a side wall thereof at the junction of said undercut portion and said upper portion of said slot;
- said upper portion of said slot having a depth N in said transverse direction, and said undercut portion having a depth W in said transverse direction;
- wherein W is greater than T, and V is greater than X plus N; the width of said undercut portion relative to the width of said upper portion being such that sliding contact between each said slot and its respective obliquely reciprocating vane occurs substantially only on a said one upper edge and said lower edge of said slot and the side surfaces of said vane, while contact between said lower edge of said vane and the sides of said slot is substantially prevented.

4,392,796

VALVE CONTROLLED REVERSIBLE PUMP WITH ANTICAVITATION MEANS

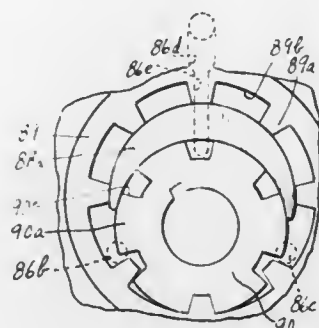
Herbert E. Lindveit, Centerport, N.Y., assignor to Sid Harvey, Inc., Valley Stream, N.Y.

Continuation-in-part of Ser. No. 952,308, Oct. 18, 1978, Pat. No. 4,247,267. This application Oct. 8, 1980, Ser. No. 194,973

Int. Cl.³ F04C 2/10, 15/02

U.S. Cl. 418—32

10 Claims



1. A rotary pump apparatus adapted to be driven in either direction of rotation and to deliver liquid from the same delivery port for either direction of rotation, comprising:
 - a. a drive shaft adapted to be rotated in either direction;
 - b. a pair of meshing gears;
 - c. a single inlet port communicating with the spaces between the teeth of both gears at their points of widest separation; and
 - d. two outlet ports respectively located adjacent each of the two possible points of initial engagement of the teeth and connected to said delivery port;

wherein the improvement comprises:

- e. means effectively blocking liquid flow from a filled space at said inlet port toward a following evacuated space, said means preventing withdrawal of liquid from the filled space and subsequent cavitation, said blocking means comprising said inlet port, which is narrower than each tooth of each gear, so that each filled space is sealed from the inlet port by the following tooth before the next space to be filled registers with the port.

4,392,797

DEVICE FOR LUBRICATING A ROTARY PISTON AIR PUMP

Max Ruf, Neckarsulm, Fed. Rep. of Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany

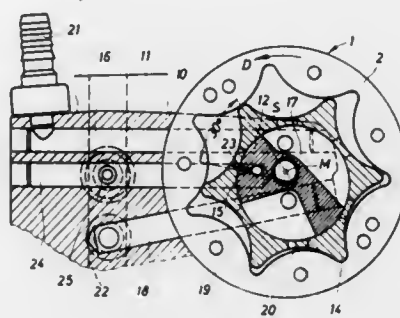
Filed Oct. 17, 1980, Ser. No. 197,815

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1979, 2942696

Int. Cl.³ F04C 18/10, 29/02

U.S. Cl. 418—91

4 Claims



1. A device for lubricating a rotary piston air pump supported and driven by an engine having a housing penetrated by at least one oil return conduit, said pump comprising: a station-

ary axel connected to said housing and having an eccentric with a peripheral surface, a rotary casing rotatably mounted on said axle and accommodating a rotor rotatably mounted on the peripheral surface of said eccentric, said casing and rotor together defining variable volume working chambers, suction and discharge recesses in the peripheral surface of the eccentric, said recesses communicating with suction and discharge conduits within said axle, said axle further comprising an oil supply conduit open to said peripheral surface in a laterally offset position with respect to said recesses, said oil supply conduit continuing in a pipe which has an oil scoop extending into said oil return conduit for catching returning oil and delivering it through the pipe and the oil supply conduit to said peripheral surface.

4,392,798

GEAR PUMP OR MOTOR WITH LOW PRESSURE BEARING LUBRICATION

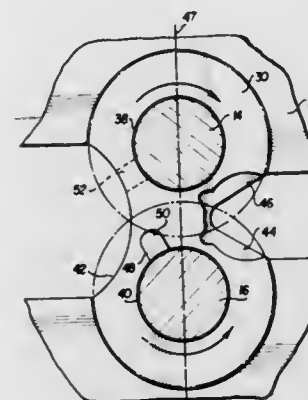
Charles J. Bowden, Battle Creek, Mich., assignor to General Signal Corporation, Stamford, Conn.

Filed Apr. 3, 1981, Ser. No. 251,003

Int. Cl.³ F04C 29/02, 2/18; F03C 2/08

U.S. Cl. 418—102

15 Claims



1. An improved rotary gear apparatus comprising:
 - a housing having low pressure and high pressure chamber;
 - a pair of shafts mounted for rotation in said housing on bearings supported by said housing;
 - a pair of gears, one mounted on each of said shafts, said gears having teeth intermeshing at a zone between said low pressure chamber and said high pressure chamber, said teeth sequentially defining initially contracting and then expanding volumes therebetween as said gears intermesh in said zone;
 - means mounted on each side of said gears for receiving fluid only from a first adjacent one of said bearings on one side of said gears, for passing said fluid directly into one of said expanding volumes and for passing fluid from said low pressure chamber only to a second adjacent one of said bearings on the same side of said gears; and
 - means for receiving fluid only from said second adjacent bearing and directing said fluid only into said first adjacent bearing.

4,392,799

INTERNAL GEAR PUMP MOTOR

Michio Shikano, and Shuzi Kitagawa, both of Toyama, Japan, assignors to Kabushiki Kaisha Fujikoshi, Toyama, Japan

Filed Dec. 4, 1980, Ser. No. 213,068

Claims priority, application Japan, Dec. 17, 1979, 54-162704

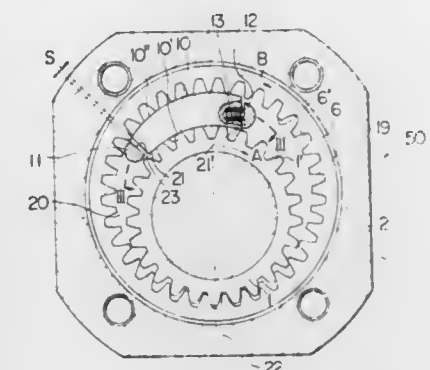
Int. Cl.³ F04C 15/04, 1/06

U.S. Cl. 418—169

10 Claims

1. An internal gear pump motor comprising: a housing; a pinion rotatably supported in said housing; an internal gear rotatably supported in said housing and meshing with said pinion in said housing; and filler piece means located in a space defined between said pinion and said internal gear for dividing

the space into two regions which provide a low pressure region and a high pressure region during operation; wherein: said filler piece means includes at least one filler piece floatingly mounted within said space and having portions capable of coming into sliding engagement with tooth crests of said pinion and tooth crests of said internal gear respectively in a portion of said space where the distance between the tooth crests of the pinion and the tooth crests



of the internal gear is reduced toward said low pressure region; and said internal gear pump motor further comprises a stopper pin secured to said housing operative to engage one end of said filler piece on the side of said low pressure region for restricting the circumferential movement of the filler piece toward the low pressure region, and spring means associated with said housing for urging said filler piece toward said low pressure region.

4,392,800

PRESS FOR PULVERULENT MATERIALS

Gennaro Apuzzo, Napoli, Italy, assignor to Merisinter S.p.A., Arzano, Italy

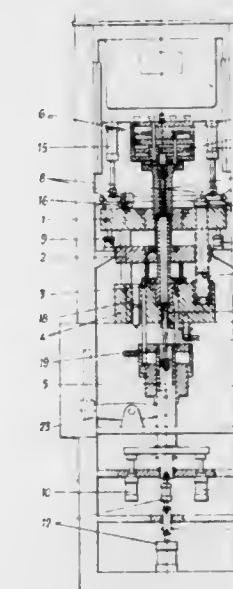
Continuation of Ser. No. 150,574, May 16, 1980, abandoned, which is a continuation of Ser. No. 35,470, Apr. 25, 1979, abandoned. This application Feb. 2, 1981, Ser. No. 230,586

Claims priority, application Italy, Jul. 24, 1978, 50446 A/78

Int. Cl.³ B30B 11/02

U.S. Cl. 425—78

4 Claims



1. In a press for compressing pulverulent materials into concave-shaped or convex-shaped articles including a press frame, a die carrying plate, a plurality of upper and lower punches, support means for carrying the upper and lower punches and control means for controlling the displacement of the upper and lower punches, a combination comprising: first piston-cylinder means for controlling the displacement of said die carrying plate; second piston-cylinder means fastened to said frame and supporting said die plate; lever means arranged above said die carrying plate and having one end portion

pivoted to said frame and an opposite other end portion; slider means slidable on said opposite end portion and abutting on said die carrying plate, said first piston-cylinder means acting on said other end portion of said lever means to exert thereon a pressure depending on the distance of said slider means from said other end portion of said lever means; first support means for each of said lower punches; third piston-cylinder means fastened to said frame for controlling said first support means; adjustable stop elements for limiting the displacement range of said die carrying plate and said first supporting means; second support means for supporting the upper punches control means provided within said second supports means and operative for controlling the displacement of the upper punches, said upper and lower punches being concentrically arranged relative to each other; a movable core arranged within said upper and lower punches; a core rod supporting said core; third support means for said core rod, fourth piston-cylinder means for controlling the displacement of said third support means and having a lower end connected to said core rod; and adjustable stop elements for limiting the displacement range of said core rod.

4,392,801

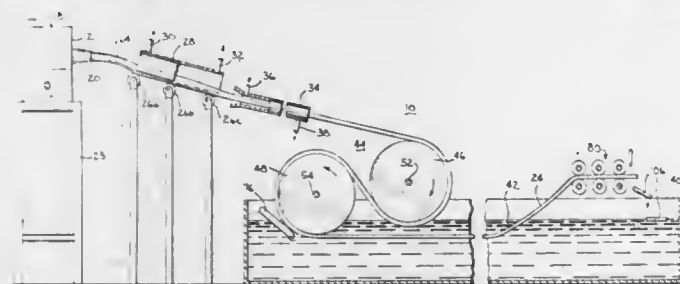
APPARATUS FOR MANUFACTURING CHEESE PRODUCT

Matthew Meyer, 1001 E. 17th St., Marshfield, Wis. 54449
Division of Ser. No. 48,525, Jun. 13, 1979, Pat. No. 4,288,465.
This application Mar. 19, 1981, Ser. No. 245,508

Int. Cl.³ B29F 3/02, 3/08

U.S. Cl. 425—71

10 Claims



1. Apparatus for manufacturing a cheese product having a longitudinal fibrous property comprising:
an extruder for extruding a continuous strand of cheese with a horizontal movement component along a path;
cooling means downstream of said extruder in said path for receiving the strand from said extruder for cooling the strand to establish structural integrity in the strand;
means for applying longitudinal tension to the strand after it leaves said cooling means to induce a longitudinal fibrous property into the strand, said tension applying means comprising a pair of rotating drums arranged in a horizontal plane in tandem in the direction of the cheese extrusion path to provide a forward drum and a rearward drum, said tension applying means further including drive means for rotating said drums in opposite rotary directions so that the upper portion of the rearward drum presents a surface moving in the same direction as the horizontal movement component of the strand and the upper portion of the forward drum presents a surface moving in the opposite direction, said drums forming a serpentine path for the strand in which the cheese strand proceeds initially around said rearward drum and thereafter around said forward drum;
a vat containing a cooling fluid for cooling the strand, said drums of said tension applying means being at least partially immersed in the cooling fluid for delivering the strand to the cooling fluid; and
tension maintaining means for said strand, said tension maintaining means being so positioned with respect to said tension applying means and said fluid containing vat as to maintain tension on the strand in the vat.

4,392,802

APPARATUS FOR BLOW MOLDING AND CONDITIONING SYNTHETIC RESIN CONTAINERS

Andrea Bortolotti, and Mauro Bettucchi, both of Bologna, Italy,
assignors to Automa S.p.A., Bologna, Italy

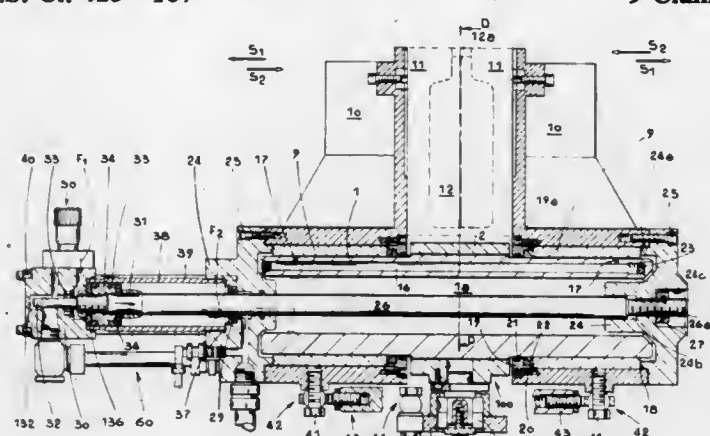
Filed Oct. 30, 1981, Ser. No. 316,776

Claims priority, application Italy, Nov. 14, 1980, 3569 A/80; Oct. 16, 1981, 3551 A/81

Int. Cl.³ B29C 17/07

U.S. Cl. 425—107

9 Claims



1. Improved apparatus for blow molding and conditioning synthetic resin containers, of the type comprising: at least one extruder, fed with granules of a predetermined synthetic resin, from the extrusion head of which, that points downwards and defines an extrusion station, issues in an unbroken fashion a tubular element made of the said synthetic resin; two end walls, able to slide supported and guided by first support means, to which are locked in a removable fashion and in opposite position, corresponding permanent molds which, when in the closed position, jointly define a vacuum forming mold whose upper part is provided with a mouth that communicates with the outside and whose inside part contains the profile of a corresponding container; means for operating the said end walls, the actuation and deactuation of which constitute, for the aforementioned permanent molds, the said position of closure and an open position, respectively; means for synchronizing, in opposite directions, the translation of the said end walls; a saddle that carries the aforementioned support means and slides on rectilinear guides perpendicular to the translation direction of the said end walls, the inclination of the said guides being such as to decrease the elevation of the said end walls, starting at the said extrusion station; means for driving the said saddle between the said extrusion station and a blow molding station; means for shearing the said tubular element, the lower part of which is stably held under restraint in the vacuum forming mold at the time the said permanent molds are in the position of closure, in consequence of the translation of the said end walls from the extrusion station to the blow molding station; at least one nozzle, connected to a source of compressed air, movable vertically, positioned at the said blow molding station and destined to be hermetically inserted into the mouth of the said vacuum forming mold; gripping means, integral with the said end walls, destined to hook onto the container hanging on the said nozzle, to release the said container from the said nozzle, and to deposit the said container on a suitable conveyor; means for controlling the said operating means, destined to actuate and deactivate them compatibly with the positioning of the said end walls at the extrusion station and at the blow molding station, respectively, in the latter case at a time subsequent to the insertion of compressed air into the said vacuum forming mold; a tubular shaft that at least partially houses in the inside thereof the aforementioned operating means; a coupling sleeve fixed to the center of said shaft, said coupling sleeve being positional above and integral with said saddle; at least two bushes coupled to said shaft in a way whereby they are able to slide, said two bushes being positioned bilaterally to said coupling sleeve and each of said bushes being locked to one of two end walls; fixing means for

locking said two bushes to said two end walls; means for locking one to the other, the coupling means and the said shaft, destined to prevent any rotation of the latter with respect to the axis thereof; and means for coupling one to the other in a sliding fashion and in the direction parallel to the axis of the said shaft, each end wall and the said saddle, destined to prevent any rotation of the said end wall with respect to the axis of the said shaft.

4,392,803

STICK CONFECTION EXTRACTION APPARATUS

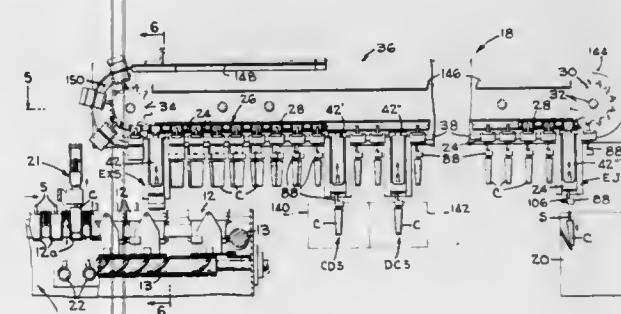
Stephen D. Cross; Elmer F. Frost, Jr., and David N. Anderson,
all of Lakeland, Fla., assignors to FMC Corporation, Chicago, Ill.

Continuation of Ser. No. 146,844, May 5, 1980, abandoned. This application Jun. 18, 1981, Ser. No. 274,987

Int. Cl.³ B28B 5/00

U.S. Cl. 425—126 S

17 Claims



1. An apparatus for simultaneously extracting several stick confections from a row of mold cups of an apparatus for producing the stick confections and for transferring the extracted confections to a receiving area, each confection including a body of confection material and a stick projecting upwardly therefrom and from the mold cup in which it is formed, said extracting and transferring apparatus comprising: a plurality of extractor bar assemblies, each extractor bar assembly including separate gripper units depending therefrom in a row extending longitudinally of the extractor bar assembly, each gripper unit including means for releasably engaging a stick of a confection, means for conveying the extractor bar assemblies from above the extraction area where the confections are to be extracted from mold cups in which they are formed to a receiving area, means at said extraction area for lowering an extractor bar assembly to cause the gripper units to engage the sticks of confections within the mold cups and for thereafter elevating the extractor bar assembly so that it may be conveyed by said conveying means, means at said receiving area for causing said gripper units to release the sticks, and means operatively engageable with said gripper units between said extraction area and said receiving area for rotating said gripper units each through a selected angle.

4,392,804

SOLID STATING

Joan C. Pushee, Amherst; Ieuan L. Harry, Nashua; Martin H. Beck, Brookline, and Suppayan M. Krishnakumar, Nashua,
all of N.H., assignors to The Continental Group, Inc., Stamford, Conn.

Filed Sep. 4, 1981, Ser. No. 299,283

Int. Cl.³ B29B 3/00

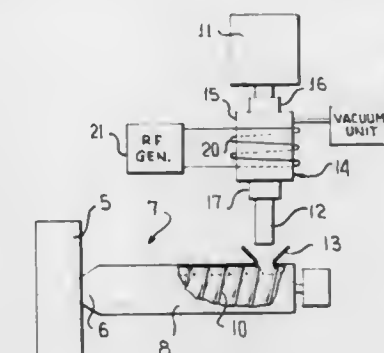
U.S. Cl. 425—174.8 E

15 Claims

1. An injection molding system comprising a particulate PET supply source, an extruder, and an injection mold, a supply line between said supply source and said extruder, a housing defining a chamber in which the particulate resin is temporarily stored in isolated condition along said supply line, and means associated with said chamber for effecting solid stating of particulate PET flowing in said housing to raise the

intrinsic viscosity of the particulate resin in advance of particulate resin flow from said chamber to said extruder.

12. Apparatus for increasing the intrinsic viscosity of PET, said apparatus comprising a particulate PET supply source, a receptacle for receiving particulate PET having an increased intrinsic viscosity, a supply line between said supply source and said receptacle, a housing defining a chamber for receiving



4,392,805

CENTRIFUGAL CASTING APPARATUS

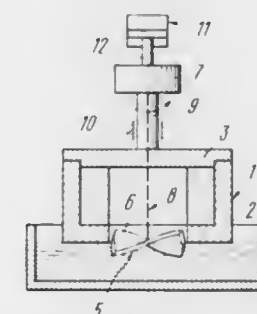
Oleg L. Golyak, Rusanovskaya naberezhnaya, 24/15, kv. 100; Leonty A. Golyak, Kolomievsky pereulok, 13/23, kv. 44, and Ivan R. Stepurenko, ulitsa Petra Zaporozhtsa, 13-B, kv. 18, all of Kiev, U.S.S.R.

Filed Oct. 31, 1980, Ser. No. 202,703

Int. Cl.³ B29C 5/04

U.S. Cl. 425—206

14 Claims



1. A centrifugal casting apparatus for casting from a melt comprising:

- a mold mounted for rotation about the vertical axis thereof and having a bottom provided with a through co-axial opening having vertical walls;
- a member having a helicoidally shaped surface, co-axially mounted within said mold for preventing shrink heads formation and having a lower portion extending through said opening outwardly and downwardly of said mold bottom, said member being adapted to be immersed into said melt for cleaning its surface from slag;
- a rotation drive connected with said mold and said member; and
- a vertical motion drive connected with said mold and said member.

4,392,806

EJECTING ICE-CREAM SCOOP

Laurent Houle, 371 - 2nd St., East, La Sarre, Quebec, Canada (J9Z 2H8)

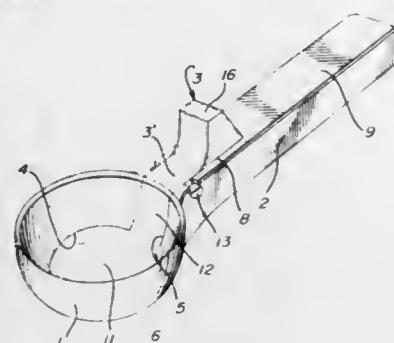
Filed Oct. 15, 1981, Ser. No. 311,358

Claims priority, application Canada, Oct. 20, 1980, 362684

Int. Cl.³ B29C 1/00; A23P 1/00

U.S. Cl. 425-286

5 Claims



1. An ice-cream scoop comprising a generally semi-spherical bowl, a handle having one end portion fastened to said bowl, said bowl having a top rim, a bottom opening and a slot communicating with said bottom opening and extending to said rim, said handle having a portion adjacent said bowl formed with a cavity opening at the top and at the bottom of said handle and communicating with said slot, said slot being in alignment with said handle, an ejector pivotally mounted on the handle about a pivotal axis transverse to said handle and adjacent the bowl and comprising an arcuate tongue conforming to the interior and exterior surfaces of the bowl and to the shape of said bottom opening and of said slot, so that, when said tongue is bottomed in the bowl, it fills said bottom opening and said slot and is substantially flush with both the interior and exterior surfaces of the bowl, said ejector further including a lever arm rigid with said tongue and extending into said cavity, said lever arm having a portion extending on the opposite side of said tongue relative to the pivotal axis of said ejector, said portion exposed and accessible through the top and through the bottom of said handle, whereby downward manual pressure exerted on said portion from the top of said handle, will cause lifting of said tongue away from the bowl bottom, and upward manual pressure exerted on said portion from the bottom of said handle, will pivot said tongue to bottomed position in said bowl.

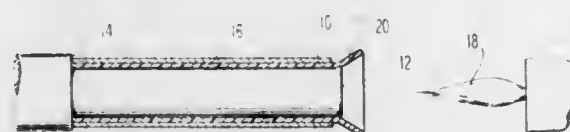
4,392,807

APPARATUS FOR CLOSING TUBES

Donald J. Greenspan, 235 Pavilion Ave., Riverside, N.J. 08075
Continuation of Ser. No. 96,339, Nov. 21, 1979, abandoned, which is a division of Ser. No. 965,511, Dec. 1, 1978, Pat. No. 4,219,525, which is a continuation of Ser. No. 770,786, Feb. 22, 1977, abandoned. This application May 11, 1981, Ser. No. 262,698Int. Cl.³ B29C 24/00

U.S. Cl. 425-393

51 Claims



1. Apparatus for manufacturing a plastic tube having a bottom from an open-ended tube without using additional material for forming the bottom comprising:

- a mandrel for extending longitudinally into said tube and supporting said tube thereon, said mandrel comprising a first portion and a second portion, said second portion extending inwardly of said first portion to form the end of said mandrel;
- a sleeve surrounding said mandrel with a space therebetween for receiving said tube, said sleeve adapted to move

relative to said mandrel to collapse the end of said tube to be closed;
a mold adapted to cooperate with said sleeve and said mandrel for closing the collapsed end of said tube to form said bottom;
means for heating said mandrel without heating said mold; and
means for controlling the relative position of said sleeve and said mandrel such that the end of said first portion of said mandrel is substantially aligned with the end of said sleeve during said heating prior to movement of said sleeve with respect to said mandrel.

4,392,808

SPINNERET ORIFICE CROSS-SECTIONS

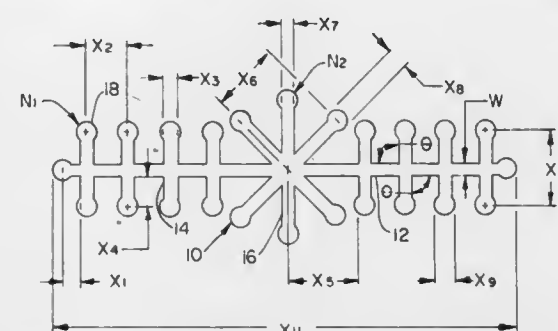
Bobby M. Phillips, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 21, 1982, Ser. No. 390,571

Int. Cl.³ B29H 7/18

U.S. Cl. 425-464

24 Claims



1. A spinneret defining at least one spinneret orifice the planar cross-section of which defines an elongated slot having a plurality of wing member bar slots intersecting with said elongated slot at spaced intervals along the axial length thereof; and
multiple intersecting body section bar slots intersecting with said elongated slot and intersecting with each of the other multiple intersecting body section bar slots at said elongated slot.

4,392,809

METHOD AND PLANT FOR RECOVERING HEAT FROM SMOKE GASES

Lars A. Tieberg, Sju Blommors gränd 3, Fagersta, Sweden S-773 00, and Stig G. Carlqvist, Sanekullavägen 43, Malmö, Sweden

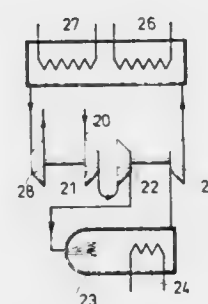
Filed Mar. 9, 1981, Ser. No. 241,618

Claims priority, application Sweden, Mar. 19, 1980, 8002144

Int. Cl.³ F23D 11/44

U.S. Cl. 431-11

9 Claims



1. A method of recovering heat from smoke gases in a combustion plant comprising the steps of compressing air for combustion to a first intermediate pressure in a first compressor, then compressing the air to a second higher pressure in a second compressor, passing the air at said second higher pressure to a combustion chamber, burning a combustible fuel containing water in the presence of said air at said second

higher pressure in the combustion chamber to produce smoke gases containing water vapor at substantially said second higher pressure, passing said smoke gases at said second higher pressure through a first turbine to drive the turbine and reduce the pressure of said smoke gases to a second intermediate pressure, said first turbine being connected to said second compressor for driving the same, thereafter condensing water vapor in said smoke gases at said second intermediate pressure to regain the heat of vaporization of the water vapor in the smoke gases, and then passing said smoke gases through a second turbine to drive the turbine and reduce the pressure of said smoke gases to atmospheric pressure, said second turbine being connected to said first compressor for driving the same.

4,392,810

OIL BURNER

John D. Bears, Belle River, and Kenneth R. D. Emery, Wood Islands, both of Canada, assignors to Ener-Tech Heating Systems Inc., Prince Edward Island, Canada

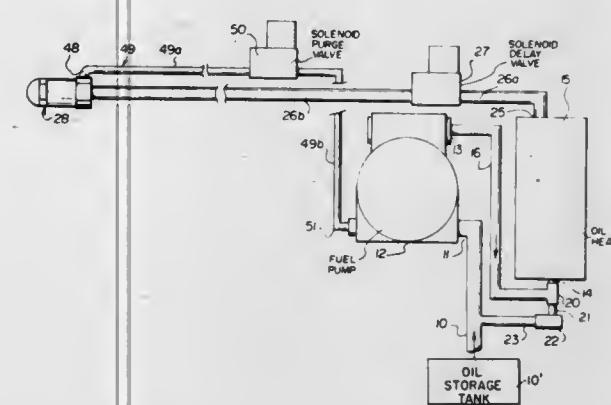
Filed Jan. 5, 1981, Ser. No. 222,752

Claims priority, application Canada, Jan. 29, 1980, 344575

Int. Cl.³ F23N 1/00

U.S. Cl. 431-37

10 Claims



1. An oil burner feed system comprising first pump means connected in a line between an oil storage tank and an inlet of an oil heater, an oil supply line having an inlet connected to an outlet of the oil heater and an outlet connected to a burner nozzle, a purge line having an inlet adjacent the point of connection between the nozzle and the oil supply line and in constant open communication with both the nozzle and the outlet of the oil supply line, second pump means connected in the purge line and an inlet of the oil heater, valve means in the purge line and control circuitry arranged to open the valve means on start-up of the feed system for a predetermined time interval whereby during the predetermined time interval oil is circulated through the oil supply line from the oil heater and through the purge line back to the heater.

4,392,811

GASIFYING DEVICE FOR LIQUID FUEL BURNER

Takao Ito, Sanjo, Japan, assignor to Dainichi Kogyo Co., Ltd., Shirone, Japan

Filed Feb. 13, 1981, Ser. No. 234,432

Claims priority, application Japan, Feb. 16, 1980, 55-018867

Int. Cl.³ F23N 1/00; F23D 11/44

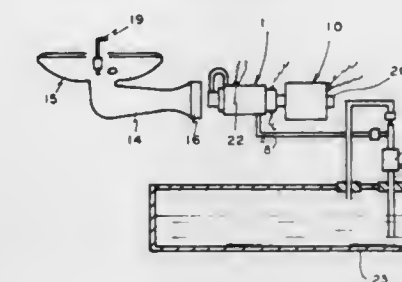
U.S. Cl. 431-37

8 Claims

1. A gasified liquid fuel combustion apparatus for supplying a gaseous mixture of air and a gasified liquid fuel ejected from a nozzle to a burner for combustion, said apparatus including a gasifying device comprising:

- (a) a gasifier including two concentric tubes having front and rear ends and defining a chamber and sealed at least at the rear end thereof and having a concentric inner tube disposed therein, said gasifier and inner tube being in sealed communicating relation with a nozzle head provided concentrically with and at the front end of said inner tube, said nozzle head including a nozzle;

- (b) a valve rod provided in said inner tube and having at its front end a valve needle cooperable with said nozzle;
- (c) a movable core provided at the rear end of said valve rod;
- (d) a solenoid provided at the rear end of said inner tube and operable to move said movable core;
- (e) an electric heater provided in a concentric space between said gasifier and said inner tube;



- (f) a fuel delivery pipe connected to the lower rear end of said gasifier and adapted to deliver fuel to the rear end of said gasifier chamber;
- (g) means causing said fuel to travel in a helical path around and along said chamber from its rear end to its front end; and
- (h) means connecting the front end of said gasifier chamber to said nozzle.

4,392,812

CONTROL CIRCUIT FOR GASIFIED LIQUID FUEL COMBUSTION APPARATUS

Hisao Yoshii, Sanjo, Japan, assignor to Dainichi Kogyo Co., Ltd., Shirone, Japan

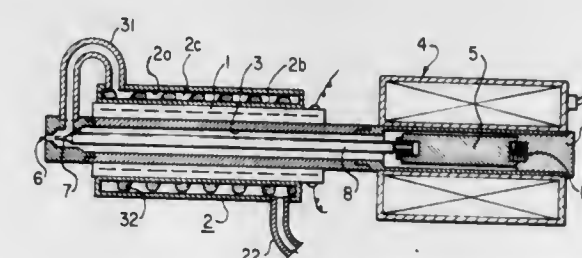
Filed Mar. 24, 1981, Ser. No. 247,154

Claims priority, application Japan, Mar. 31, 1980, 55-43557

Int. Cl.³ F23N 5/00

U.S. Cl. 431-73

8 Claims



1. A gasified liquid fuel combustion apparatus in which a gasified fuel is emitted from a nozzle having a valve needle actuated by a solenoid and is mixed with combustion air and the fuel-air gaseous mixture thus obtained is supplied to a burner for combustion, comprising a power supply; a solenoid control circuit including a timer circuit adapted to operate upon closing of a power switch; a contact switch adapted to open in response to said timer circuit; a voltage reducing transformer powered from said power supply through said power switch; a first rectifying circuit and a second rectifying circuit connected to said solenoid; said first rectifying circuit receiving from said power supply through said contact switch a voltage higher than but of the same phase as the voltage supplied from said power supply to said second rectifying circuit; said second rectifying circuit receiving a lower voltage from the secondary side of said voltage reducing transformer; said first and second rectifying circuits being connected to a common output line to provide a high DC output voltage until said contact switch is opened but to provide a low DC output voltage thereafter, thereby controlling said solenoid through said solenoid control circuit.

4,392,813

COMBUSTION APPLIANCE WITH SAFETY DEVICE

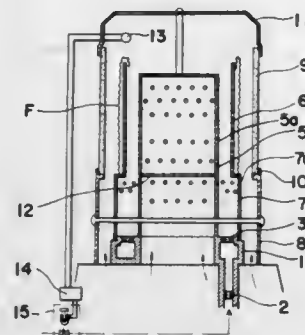
Eiichi Tanaka, Yamatokoriyama; Noboru Ishibashi, Nabari, and Shojiro Inoue, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Aug. 20, 1980, Ser. No. 179,874

Claims priority, application Japan, Aug. 20, 1979, 54-106343
Int. Cl.³ F23N 5/00

U.S. Cl. 431—76

5 Claims



1. A combustion appliance with a safety device therein, comprising a combustor composed of an inner flame cylinder with a plurality of small holes therein, a red-heat cylinder disposed on the outer side of said inner flame cylinder, an outer cylinder disposed on the outer side of said red-heat cylinder, and means for supplying combustible fuel between the inner flame cylinder and the red-heat cylinder, an oxygen sensor disposed in the flame rear flow of said combustor and in a position where the air excess ratio of said flames varies substantially depending on the amount of air available to combust fuel from said fuel supplying means, and a fuel feed cutting-off means for cutting off fuel supplied by said fuel supplying means with the output of said oxygen sensor, said oxygen sensor comprising a partial oxygen pressure sensitive oxygen sensor having a pair of spaced electrodes, the resistance between which varies with the partial oxygen pressure being detected.

4,392,814

FLUIDIZED BED

Brian Harding, West Bromwich, England, assignor to Can-Eng Holdings Limited, Niagara Falls, Canada

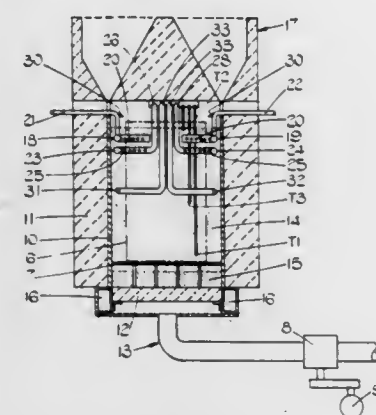
Filed Jun. 4, 1980, Ser. No. 156,530

Claims priority, application United Kingdom, Jun. 8, 1979, 7919979; Jul. 9, 1979, 7923683

Int. Cl.³ F23D 19/02

U.S. Cl. 431—170

5 Claims



1. A fluidized bed having a container for containing a mass of refractory particles, a porous base, conduit means for supplying a fluidizing medium to the underside of said porous base from which said medium will flow through the porous base and into the mass of refractory particles, an adjustable valve for the conduit means and means, disposed above said porous base, for supplying heat to the mass of refractory particles, the fluidized bed comprising:

a pair of temperature transducers disposed at vertically

spaced positions above the upper surface of said porous base, said transducers being connected together to provide a signal which is dependent upon the difference in the temperatures at said vertically spaced positions;

power-actuated means arranged to receive said signal and to actuate said adjustable valve in accordance with the signal received; and,

second conduit means disposed in the upper part of said bed, but beneath the upper surface of the mass of refractory particles when fluidized, for admitting a gas into said upper part of the bed, said second conduit means being connected to supply pipes which extend at least in part downwardly into the container from the upper end thereof without passing through the wall of the container at positions below the level of said upper surface of the mass of refractory particles when fluidized.

4,392,815

BURNER FOR BOTTOM FIRED FURNACE

Minoru Matsuzaki; Toshiei Kawauchi, both of Chiba; Tsugio Murakami, Ichihara, and Hideo Kishira, Chiba, all of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

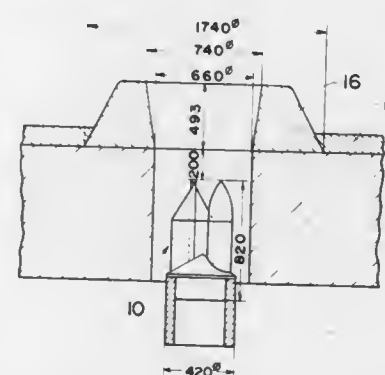
Filed Feb. 17, 1981, Ser. No. 234,911

Claims priority, application Japan, Jul. 17, 1980, 55-97938

Int. Cl.³ F23C 5/08

U.S. Cl. 431—175

6 Claims



1. A burner for a bottom fired, ingot heating furnace having a burner port through the bottom of said furnace, and comprising:

a gas header centrally disposed relative to a central axis of said burner port such that air is supplied to said burner port around said header;

plural gas nozzles arranged atop of and in communication with said header and equi-angularly arranged about said burner port central axis, each of said nozzles comprising a generally vertical conduit portion terminating in a head cover portion having a nozzle port such that gas is supplied to said burner port from said nozzle port along a direction generally defineable by a gas supply axis intersecting a plane perpendicular to said central axis at an angle, said gas supply axis being generally tangential to a circle contained within said plane and having a radius extending from said central axis to an apex of said angle; and

said head cover portion comprising a shield for the top of said conduit portion and said nozzle port, such that articles falling from said furnace are prevented from clogging said nozzle port;

whereby said gas is caused to flow helically and diffuse and mix with said air to provide a short flame.

4,392,816

WASTE GAS INCINERATOR

Elmer M. Berlie, and John D. Smart, both of Alberta, Canada, assignors to Western Research and Development, Calgary, Canada

Filed Mar. 2, 1981, Ser. No. 239,553

Int. Cl.³ F23D 13/20

U.S. Cl. 431—202

7 Claims



1. A waste gas incinerator comprising, an upright refractory lined, generally cylindrical casing, forming a combustion chamber and heat sink, having an open upper end and a lower end,

an upper wind shroud adjacent the open upper end and a lower wind shroud adjacent the lower end, both wind shrouds having a generally cylindrical shape with a larger diameter than the casing and a plurality of openings comprising vertical slots spaced around the wind shrouds, air access at the lower end of the casing within the lower wind shroud, the access having a restriction means to limit air entry and cause turbulent air flow in the casing, and waste gas entry to the casing.

4,392,817

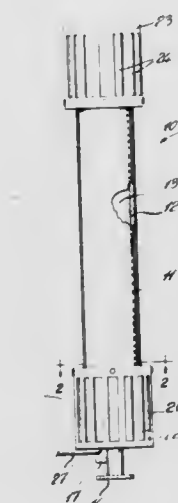
WASTE GAS INCINERATOR WITH ADDED FUEL GAS
Elmer M. Berlie; John D. Smart, and Michael J. Zelensky, all of Alberta, Canada, assignors to Western Research & Development, Calgary, Canada

Filed Mar. 2, 1981, Ser. No. 239,554

Int. Cl.³ F23D 13/20

U.S. Cl. 431—202

9 Claims



1. A waste gas incinerator for burning waste gases with additional fuel gas, comprising

an upright refractory lined generally cylindrical casing forming a combustion chamber and heat sink, having an open upper end and a lower end, an upper wind shroud adjacent the open upper end and a lower wind shroud adjacent the lower end, both wind

shrouds having a generally cylindrical shape with a larger diameter than the casing and a plurality of openings comprising vertical slots spaced around the wind shrouds, air access at the lower end of the casing within the lower wind shroud, the access having a restriction means to limit air entry and cause turbulent air flow in the casing, fuel gas entry at the lower end of the casing, waste gas supply system within the casing having preheating means for preheating the waste gases with combustion of fuel gas and air and having means for causing turbulence of the waste gases, and waste gas entry into the casing at a location where the fuel gas and air have commenced combustion.

4,392,818

MULTIPLE HEAT RECOVERY BURNER SYSTEM AND METHOD

Joachim Wünnig, Bergstrasse 20, D-7250 Leonberg 7, Fed. Rep. of Germany

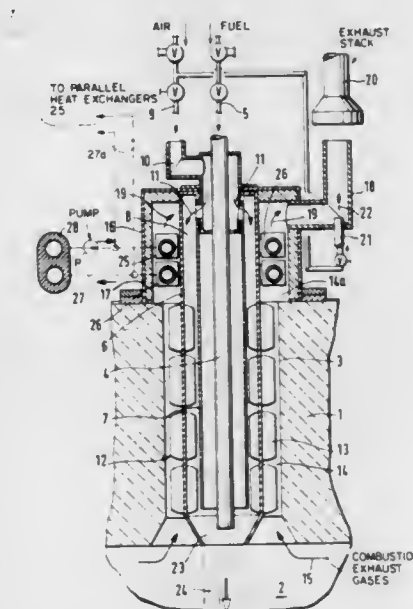
Filed Mar. 26, 1981, Ser. No. 247,832

Claims priority, application Fed. Rep. of Germany, May 8, 1980, 3017618

Int. Cl.³ F23D 11/44

U.S. Cl. 431—215

13 Claims



3. Burner system having a burner tube (4) adapted to receive a combustion fuel; a first heat exchanger-recuperator (12) positioned to surround said burner tube and having an inlet air duct (8) and a combustion exhaust gas duct (14); air inlet means (9, 10) furnishing combustion air to said inlet air duct and for supplying combustion air to the burner; exhaust gas conduit means (18, 20) in flow communication with said combustion exhaust gas duct, said first heat exchanger-recuperator preheating air for combustion by the burner by heat exchange with exhaust gases, and comprising an additional or auxiliary heat exchanger (25) positioned immediately adjacent to, and downstream of, said first heat exchanger-recuperator (12) to receive combustion exhaust gases from the combustion exhaust gas duct (14) of the first heat exchanger, said additional or auxiliary heat exchanger including means (26) in form of a ring-shaped structure (26), concentric with said first heat exchanger-recuperator (12) for confining a heat carrier medium and for cooling the exhaust gases flowing past said additional or auxiliary heat exchanger (25) prior to entry into the exhaust gas conduit means to a predetermined exhaust temperature.

4,392,819

PRELIMINARY HEATING APPARATUS FOR TORCH LAMP

Byorg R. Ahn, Room 706, Daekyo Apt.-1,1-892 Yoido-Dong, Seoul, Rep. of Korea

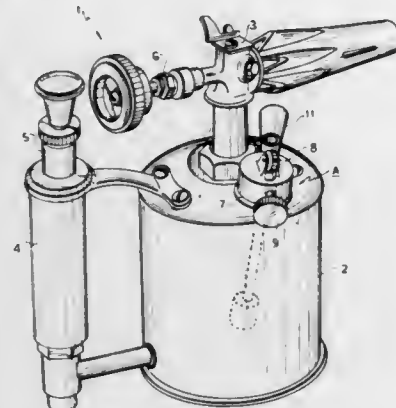
Filed Jan. 26, 1981, Ser. No. 228,522

Claims priority, application Rep. of Korea, Feb. 22, 1980, 1083/80[U]

Int. Cl.³ F23D 11/44

U.S. Cl. 431—231

1 Claim



1. Torch lamp comprising a fuel container for receiving fuel therein, evaporation means mounted on the outside of said fuel container and receiving fuel from said fuel container, a fuel valve connected to said evaporation means for controlling the fuel passing through said evaporation means, a compressor mounted on the outside of said fuel container for supplying compressed air to said fuel container, whereby compressed air in said fuel container is operable to force the fuel in said fuel container out through said evaporation means, said compressor having an elongated section functioning as a handle for handling the torch, a pouring hole in said fuel container for supplying fuel to said fuel container, preliminary heating means removably mounted in said pouring hole, said preliminary heating means being positioned for heating said evaporating means prior to operating the lamp to evaporate fuel, said preliminary heating means comprising a body disposed in said pouring hole, a supply pipe connected at one end to said body and extending downwardly therefrom into said fuel container, said supply pipe having at least one bottom orifice opening into the inside of said fuel container for receiving fuel from the inside of said fuel container and at least one upper orifice opening into the inside of said fuel container for receiving compressed air from the inside of said fuel container, said preliminary heating means further comprising an adjusting valve for regulating fuel and air through said supply pipe, a spouting pipe connected to said body and having an opening adjacent to said evaporation means so that when said adjusting valve is opened, fuel under pressure flows from said bottom orifice located in said fuel container and compressed air under pressure flows from said upper orifice located in said fuel container into said supply pipe to said body and thence through said open adjusting valve to exit through said spouting pipe, and ignition means mounted on said body for igniting the fuel at the spouting pipe such that burning fuel from said spouting pipe thereby heats the evaporating means until the evaporating means is sufficiently heated to support combustion of fuel supplied by way of said fuel valve.

4,392,820

PROCESS AND APPARATUS FOR UTILIZING WASTE OIL

Werner G. Niederholtmeyer, 7804 Fritz Rd., Fort Wayne, Ind. 46802

Filed Dec. 29, 1980, Ser. No. 220,827

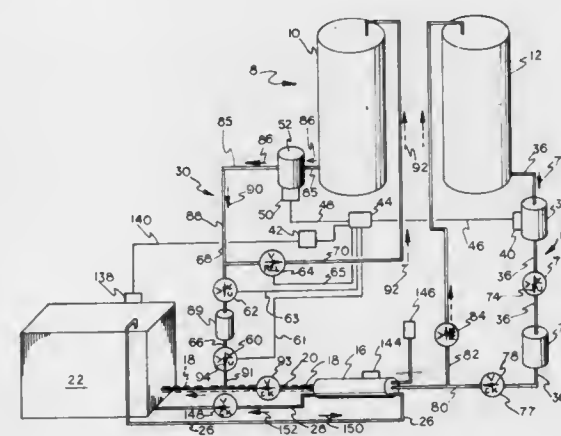
Int. Cl.³ F23G 5/12

U.S. Cl. 431—284

7 Claims

1. An apparatus for burning a combination of conventional heating oil and refuse oil, comprising storage means for the conventional heating oil and storage means for the refuse oil, a

burning chamber having a burning nozzle, passage means leading from the respective storage means to said burning nozzle, means for initially injecting conventional heating oil through said burner nozzle to effect a temperature of a predetermined value, means for conveying at least some heat to the refuse oil preliminary to its injection through said burning nozzle whereby the refuse oil is readily combustible upon ejection through said burning nozzle, means for maintaining each of said storage means in sealed relation from the other, notwithstanding the separated schedule of fuel flow from the respective storage means to said burning nozzle whereby no waste oil is permitted to enter the conventional heating oil storage means nor is conventional heating oil permitted to flow into the waste oil storage means; a timer means adapted to provide initial heating by providing a supply from said conven-



tional heating oil storage means solely, means for thereafter discontinuing said supply and providing for a flow only from said refuse oil storage means whereby during the initial heat-up time of the burning chamber there is utilized fuel from the conventional heating oil storage means and thereafter from the refuse oil storage means which serves as the primary fuel medium; remotely controlled solenoid operative valves in the passage means from at least one of said storage means, means for effecting the opening and closing of said solenoid operative valves whereby supply of oil to said nozzle is effective from only one of said storage means; a supply pump in each of the passage means for said conventional heating oil and refuse oil respectively, a motor associated with each of said pumps, and additional control valve means responsive to said timer for effectively isolating the respective storage means one from the other to prevent admixture of said oils in the respective means.

4,392,821

CALCINING FURNACE WITH GAS-PERMEABLE WALL STRUCTURE

Erwin Füssl, Zurich, and Norbert Berger, Thalwil, both of Switzerland, assignors to Maerz Ofenbau AG, Zurich, Switzerland

Filed Oct. 5, 1981, Ser. No. 308,561

Claims priority, application Switzerland, Oct. 14, 1980, 7665/80

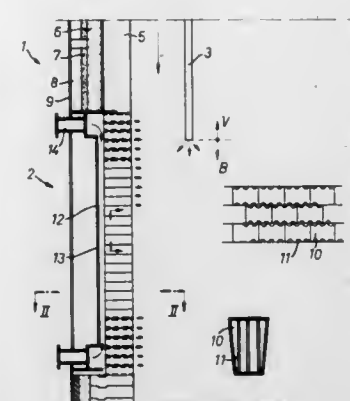
Int. Cl.³ F27D 1/08; F27B 3/24; F23M 5/02

U.S. Cl. 432—96

4 Claims

1. A regenerative shaft kiln for burning limestone or similar raw materials comprising: wall means formed of refractory material defining a kiln interior; burner means including at least one burner located in said kiln interior, said at least one burner having a burner opening arranged within said kiln at a distance from said wall means; an outer metallic shell surrounding said wall means on the outer side thereof and spaced therefrom in order to define an annular gap between said outer metallic shell and said wall means; and means for supplying a compressed gaseous medium into said gap between said outer metallic shell and said wall means; said wall means consisting essentially of refractory bricks having formed therein grooves in at least one lateral wall of said bricks, said grooves being formed to extend from an outer side of said bricks to an inner side thereof in

order thereby to form said wall means to be gas-permeable at least in the region of said burner opening, said grooves being thus formed to extend completely through said wall means in



flow communication between said gap and the interior of said furnace thereby effecting flow of said compressed gaseous medium therethrough.

4,392,822

SYSTEM FOR BURNING FINE-GRAINED MATERIAL, PARTICULARLY FOR THE MANUFACTURE OF CEMENT CLINKERS

Kunibert Brachthäuser, Bergisch Gladbach, and Horst Herchenbach, Troisdorf, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Division of Ser. No. 63,102, Aug. 2, 1979, Pat. No. 4,298,393.

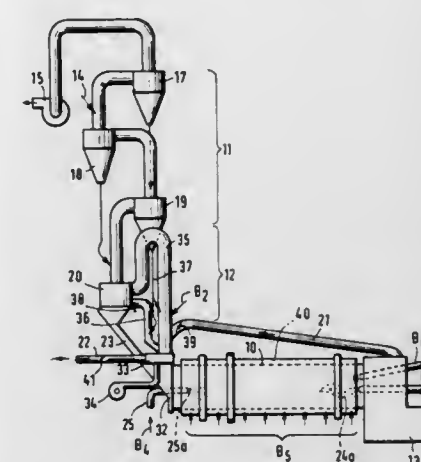
This application Jun. 1, 1981, Ser. No. 268,810

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1978, 2833744

Int. Cl.³ F27B 7/02; F27D 11/00; H05B 11/00; F27B 7/36

U.S. Cl. 432—106

9 Claims



1. In an apparatus for manufacturing calcined mineral products such as cement clinker from raw meal comprising a system including a raw meal preheater, a calciner, a rotary tubular kiln, and a clinker cooler in sequence, the improvement which comprises:

means for introducing a fossil fuel into said rotary kiln in an amount substantially less than the overall thermal energy supplied to said system, heat generator means acting on the contents of said kiln and producing no exhaust gases therein, and a bypass line connected to said rotary kiln to withdraw exhaust gases from said kiln created by the combustion of said fossil fuel.

4,392,823

METHOD AND APPARATUS FOR INDIRECTLY DRYING AND PREHEATING FINE MATERIAL

Heinrich Weber, Recklinghausen; Kurt Lorenz, Hattingen, and Horst Dungs, Herne, all of Fed. Rep. of Germany, assignors to Firma Carl Still GmbH & Co. KG, Fed. Rep. of Germany

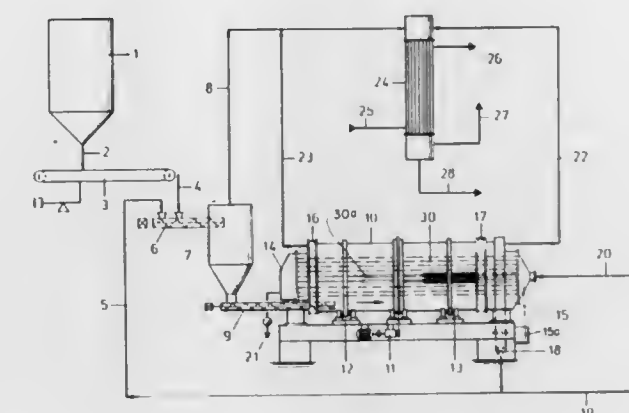
Filed Aug. 24, 1981, Ser. No. 295,496

Claims priority, application Fed. Rep. of Germany, Sep. 17, 1980, 3034952; Feb. 27, 1981, 3107407

Int. Cl.³ F27B 7/10

U.S. Cl. 432—114

18 Claims



1. An apparatus for drying and preheating fine material, comprising:

an outer rotary drum defining a space therein; drum drive means connected to said rotary drum for rotating said rotary drum; a plurality of heating tubes extending through and closed with respect to the space of said rotary drum, a pair of heads connected to opposite ends of said rotary drum for rotatably receiving said rotary drum with said heating tubes connected between said pair of heads; feed means connected at one end of said rotary drum for supplying moist fine material to said rotary drum; discharge means at an opposite end of said rotary drum for the removal of dried and preheated fine material from said rotary drum; vapor takeoff means connected to said rotary drum the top and at both opposite ends of said rotary drum for removing vapor, from the moist material, out of said rotary drum; and a return line connected between said discharge means and said feed means, at a location outside said rotary drum space, for recycling a portion of the preheated and dried fine material to said rotary drum with said moist fine material.

4,392,824

SYSTEM FOR IMPROVING THE FLOW OF GASES TO A COMBUSTION CHAMBER OF A COKE OVEN OR THE LIKE

Carl-Heinz Struck, Bochum, and Ralf Schumacher, Hagen, both of Fed. Rep. of Germany, assignors to Dr. C. Otto & Comp. G.m.b.H., Bochum, Fed. Rep. of Germany

Filed Sep. 28, 1981, Ser. No. 306,152

Claims priority, application Fed. Rep. of Germany, Oct. 8, 1980, 3037950

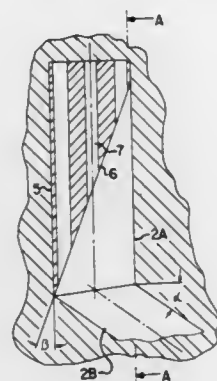
Int. Cl.³ F27D 17/00; C10B 1/06

U.S. Cl. 432—180

14 Claims

1. An industrial gas-fired system such as a coke oven, said system including a heating flue and ducts having a vertical portion and an obliquely-rising duct portion for conducting a flow of combustion gases into said heating flue, recuperative waste-heat recovery means receiving waste gases for preheating said combustion gases which comprise air when heating by combustion of rich gas and comprise air and lean gas when heating by combustion of lean gas, said combustion gases being introduced through said ducts from outlets of said waste-heat

recovery means into a heating flue, said system including the combination therewith of wedge-shaped refractory bricks each having at least one oblique surface, each brick being supported within a vertical portion of a duct and having vertical bores, the vertical portion of each duct having an increased diameter and extending to the base of the flue, each brick having a



rectangular cross section with vertical sides abutting the inner walls of the duct so that the said oblique surface extends at the bottom of the brick toward the mouth of the obliquely-rising duct portion, the sum of the cross-sectional areas of said cylindrical bores being within the range of 0.75 to 1.5 times the cross section of the gas-flow portion of the obliquely-rising duct portion.

4,392,825 STRAPPING

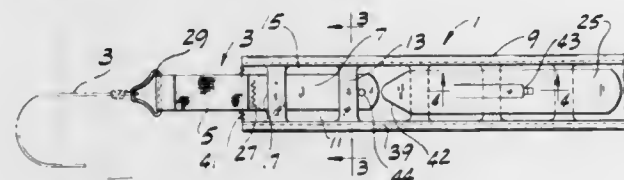
Irvin S. DeWoskin, St. Louis County, Mo., assignor to Ortho-band Company, Inc., Barnhart, Mo.

Filed Nov. 23, 1981, Ser. No. 323,673

Int. Cl.³ A61C 7/00

U.S. Cl. 433—5

27 Claims



1. Strapping having:

tensioning means comprising a first strap adapted to be pulled for developing a tension force;

a second substantially nonstretchable strap including an inner strip and an outer strip on one face constituting the outside face of the inner strip, said outer strip having openings therein spaced at intervals longitudinally of the strip and extending between the side edges of the strip; and

cooperable fastening means on the first strap and on the outside face of the inner strip of the second strap,

said first strap being adapted to be inserted between the inner and outer strips of the second strap and pulled to develop the desired tension force, said cooperable fastening means comprising a multiplicity of fastening elements projecting from either the first strap or the inner strip of the second strap, the other having a plush-like surface for interengagement with said fastening elements thereby to secure the first and second straps together with said tensioning means applying said tension force,

said fastening elements and plush-like surface being adapted to be held apart as the first strap is inserted between the inner and outer strips of the second strap by an elongate blade inserted between the first strap and the inner strip of the second strap, said blade being removable to permit interengagement of said fastening elements and said plush-like surface for securing the first and second straps together, the outer strip of the second strap at least partially

covering the first strap to ensure that said interengagement is maintained.

4,392,826

PALATAL ARCH BAR WITH COMBINATION LOCKING DEVICE AND ELASTIC ANCHOR

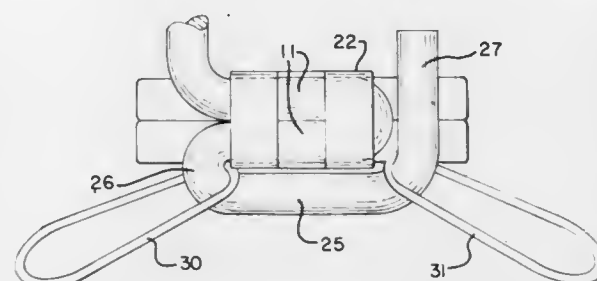
Robert A. Goshgarian, 2634 Grand Ave., Waukegan, Ill. 60085

Filed Feb. 16, 1982, Ser. No. 348,676

Int. Cl.³ A61C 7/00

U.S. Cl. 433—7

5 Claims



1. In an orthodontic appliance for applying rotating, expanding, contracting, intruding, and/or torquing forces to a pair of opposed molars in the upper arch of a person, wherein the appliance includes lingual tubes mounted lingually on said molars with mesiodistally extending openings therethrough, and a palatal arch bar having doubled-over ends received mesially by said lingual tubes, the improvement being in means for locking the arch bar to the lingual tubes, which locking means includes a U-shaped locking bar extending from each of the doubled-over ends and over the distal ends of the lingual tubes to prevent removal of said ends from the tubes.

4,392,827

SELF-CONTAINED ROOT CANAL HEATED CONDENSER DENTAL INSTRUMENT

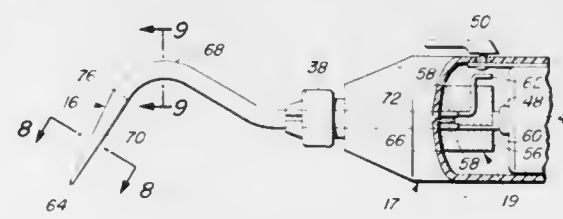
Howard Martin, 909 Pershing Dr., Silver Spring, Md. 20910

Filed Nov. 4, 1981, Ser. No. 318,069

Int. Cl.³ A61C 3/00

U.S. Cl. 433—32

8 Claims



1. A self-contained root canal heated condenser dental instrument, comprising:

a handle means, said handle means being hollow, said hollow handle means having an aperture at one end and being open at the opposite end, said handle means having a removable closure means for said open end;

a power source means, said power source means being affixed inside said hollow handle means;

a dental tool means, said dental tool means being used for filling root canal cavities, said dental tool means having a first end and a second end thereof, said first end being tapered, flexible, and having a memory, said first end being capable of spreading and condensing root canal filling material, said dental tool means being capable of being heated in order to heat said root canal filling material to cause it to be workable, said dental tool means being heated by a heating element means, said heating element means being folded upon itself to form a return loop configuration of two legs, said heating element means at the apex of said return loop being further configured into said taper;

an insulating means, said insulating means being located and placed within said dental tool means and between said two legs of said return loop, said insulating means insulating each said leg electrically from the other leg;

a coating material, said coating material being applied on said tapered portion of said heating element, said coating material preventing said root canal filling material from adhering thereto;

a heat transmission means, said heat transmission means being affixed inside said hollow handle means adjacent to said aperture therein, said heat transmission means being electrically connected to said power source means, said dental tool means having said second end thereof inserted through said aperture in said handle means and into said heat transmission means, said heat transmission means drawing power from said power source means and in turn heating said first end of said dental tool means through said heating element means.

4,392,828

METHOD FOR RESTORING A TOOTH

Lars E. M. Ehrnfors, 31 Sanekullavagen, 217 14 Malmö, Sweden

Continuation of Ser. No. 777,909, Mar. 15, 1977, abandoned.

This application Jan. 21, 1981, Ser. No. 226,636

Claims priority, application Sweden, Mar. 16, 1976, 7603313

Int. Cl.³ A61K 6/08

U.S. Cl. 433—217

1 Claim U.S. Cl. 434—258



1. A method of restoring a tooth which comprises applying thereto a dental composite comprising a particulate glass filler comprising a rigid and porous three-dimensional network of glass fibers produced by fusing together by heating the fibers having a diameter of less than 4 microns at a temperature sufficient to cause melting and complete fusion of substantially all of the individual glass fibers at their points of contact, the porosity of which is substantially continuous throughout the network, and mixed in an organic hardening resin; and allowing sufficient time for the hardening thereof.

4,392,829

METAL-PORCELAIN DENTAL RESTORATION AND METHOD OF MAKING

Asami Tanaka, 9307 North Laverne, Skokie, Ill. 60077

Filed Mar. 31, 1981, Ser. No. 249,682

Int. Cl.³ A61C 5/08, 5/10

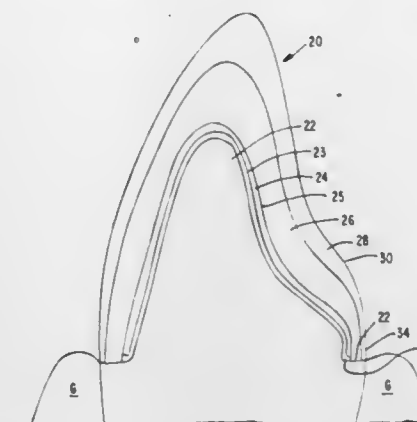
U.S. Cl. 433—222

15 Claims

1. A baked metal-porcelain dental restoration for mounting on a patient's shaped tooth base said restoration comprising:

- (a) an interior substrate of non-cast semi-precious alloy of soft, swageable thin metal foil for mounting on the shaped tooth base, said substrate having a textured exterior surface substantially free from surface coatings and an interior surface configuration that conforms substantially to the exterior configuration of said tooth base; and
- (b) a body porcelain layer chemically bonded directly to the

substrate textured exterior surface without any intermediate interface composition therebetween, said porcelain



layer having an exterior of prescribed configuration to provide a desired occlusal surface.

4,392,830

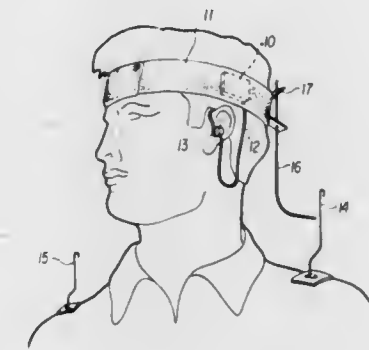
BODY COORDINATION TRAINING AID

Norman Salzman, 10508 Gainsborough Rd., Potomac, Md. 20854, and Edward Wellner, 4028 Hunt Rd., Fairfax, Va. 22031

Filed Oct. 27, 1981, Ser. No. 315,496

Int. Cl.³ A63B 69/36

11 Claims



1. A body coordination training aid, comprising:

- an audio oscillator;
- a power source for said audio oscillator;
- a first electrode;
- a second electrode;
- said first and second electrodes configured to make electrical contact when said user's head and shoulder are in a predetermined relative orientation;
- means to electrically contact said audio oscillator to said power source via said first and second electrodes;
- a mounting means for adjustably holding said first electrode and adapted to be mounted to the user's head; and
- a rigid, flexible, non-conducting mounting strip for supporting said mounting means, said audio oscillator, and said power source.

4,392,831

ORRERY

Fritz Schubert, 1144 Trevor Dr., Lakeview Heights, Kelowna, British Columbia, Canada (V1Z 2J8)

Filed Sep. 14, 1981, Ser. No. 301,781

Int. Cl.³ G09B 27/02

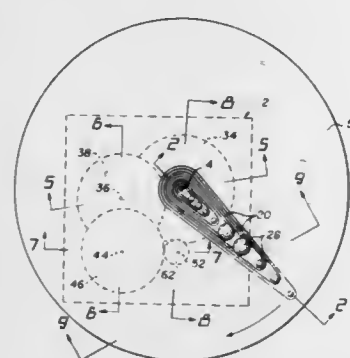
U.S. Cl. 434—291

7 Claims

1. An orrery comprising:

- (a) a frame;
- (b) a plurality of concentric hollow tubes rotatably mounted on said frame, each having first and second ends, the first and second ends of each of said tubes extending axially

- beyond first and second ends respectively of its outwardly adjacent tube;
- (c) a plurality of supports connected at inner ends thereof to the first end of respective tubes, so as to extend radially outward therefrom a distance increasing from said support connected to the innermost of said tubes to said support connected to the outermost of said tubes;
- (d) a plurality of planetary representations representing a plurality of inner planets and a plurality of outer planets connected to respective supports remote from said tubes so as to be rotated about said tubes when said tubes are rotated;
- (e) first set of circular gears connected to the second end of respective ones of said tubes which rotate planetary representations of inner planets;
- (f) a second set of circular gears connected to the second end of respective ones of said tubes which rotate planetary representations of outer planets;
- (g) first and second spaced apart axles mounted on said frame parallel to said tubes;
- (h) third and fourth sets of circular gears rotatably mounted on said first axle, each gear of said third set being adjacent



- and connected to a corresponding gear of the fourth set so as to rotate the latter when the former is rotated, and each gear of the fourth set engaging a corresponding gear of the second set of gears;
- (i) fifth and sixth sets of circular gears rotatably mounted on said second axle, each gear of said fifth set being adjacent and connected to a corresponding one of the sixth set of gears so as to rotate the latter when the former is rotated, and each gear of the sixth set engaging a corresponding one of said third set of gears;
- (j) a third axle rotatably mounted on said frame parallel to said tubes;
- (k) seventh and eighth sets of circular gears mounted on said third axle to rotate therewith, each gear of said seventh set of gears engaging a corresponding one of said first set of gears, and each gear of said eighth set of gears engaging a corresponding one of said fifth set of gears;
- (l) means connected to said third axle for rotating said third axle;
- each gear in said sets of gears being dimensioned so as to rotate said tubes at relative rotational velocities corresponding to the relative rotational velocities of the planets represented by the planetary representations.

4,392,832

STEERING AND PROPULSION SYSTEM FOR MARINE USE

Carl E. Moberg, P.O. Box 1828, Seattle, Wash. 98111
Filed Jun. 22, 1981, Ser. No. 276,075
Int. Cl.³ B63H 23/02, 3/08

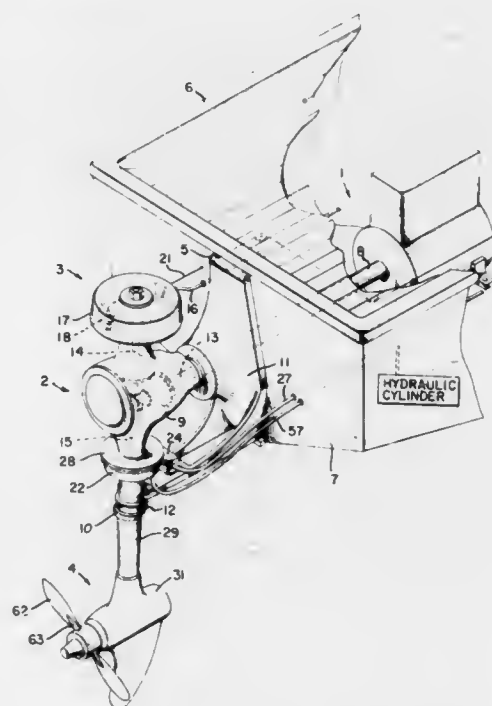
U.S. Cl. 440-49

10 Claims

1. A marine propulsion device comprising:
prime mover drive means,
marine propeller means, and
means for supplying power to said propeller means in selectively variable amounts, including: a differential gearing unit including a power input drive shaft drivingly connected to said drive means, oppositely extending output

driven shafts, gear means for differentially driving said output shafts from said power input shaft, and means for drivingly connecting said propeller means to one of said output shafts; and
brake means for selectively applying braking pressure to the other of said output shafts,
whereby power to said propeller means will be applied in direct proportion to the braking pressure applied by said brake means.

8. An adjustable pitch propeller comprising:
a rotatable propeller shaft;
drive means to rotate the propeller shaft;
means for lubricating the drive means with a lubricating fluid;
propeller blade means;



means for mounting said propeller blade means on said propeller shaft for rotation therewith, said mounting means including means forming a fluid pressure cylinder therein;
said propeller blade means including piston means affixed thereto and located in said cylinder,
a source of selectively variable fluid pressure acting on said piston means comprising
a bore in the propeller shaft in fluid communication with the cylinder and with the lubricating means, and
means to selectively pressurize the lubricating fluid; and
cam and follower means acting between said piston means and said fluid pressure cylinder for rotating said piston relative to said cylinder during linear displacement thereof.

4,392,833

COMBINED SINGLE AND DOUBLE WATER SKI TOW BAR

Gary N. Hayden, 5479 Mill Creek Blvd., Youngstown, Ohio 44512

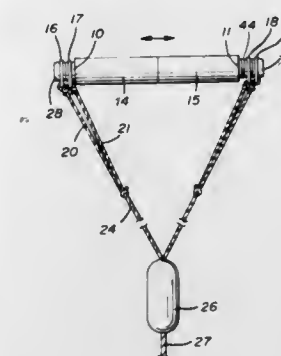
Filed Aug. 20, 1981, Ser. No. 294,480
Int. Cl.³ A63C 15/06

U.S. Cl. 441-69

1 Claim

1. An improvement in a water ski tow device comprising a tow rope for attachment at one end to a towing boat, said tow rope having four separate sections at its opposite end and a tow bar for a skier attached to said four sections of the tow rope, said tow bar comprising a pair of elongated body members, each having first and second ends, means on said first ends detachably joined to one another so as to position said elongated body members in end to end assembled relation, detachable members on the outer opposite second ends of said elon-

gated body members, said improvement comprising means attaching said four end sections of said tow rope to said elongated body members and said detachable members respectively, said means comprising two of said four sections of said tow rope being attached to said detachable members and two of said four sections of said tow rope being attached to said



outer opposite second ends of said elongated body members adjacent said detachable members, said detachable members when detached from said outer opposite second ends of said elongated body members being engagable with said means on said first ends of said elongated body members whereby two tow bars, each having two of said four sections of said tow rope attached to its ends may be formed from said tow bar.

4,392,834

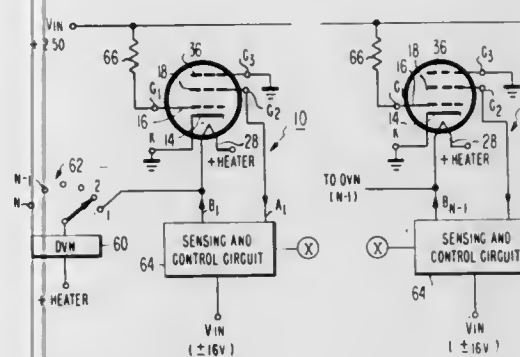
METHOD FOR AGING A CATHODE OF A CATHODE-RAY TUBE

Edgar M. Smith, Millersville, Pa., assignor to RCA Corporation, New York, N.Y.

Filed May 21, 1981, Ser. No. 265,772
Int. Cl.³ H01J 9/44

U.S. Cl. 445-6

2 Claims



1. A method of aging a cathode of an evacuated cathode-ray tube having an electron gun for generating at least one electron beam, said electron gun including a heater, a cathode, a control electrode, a screen electrode and a focus electrode, said method comprising the steps of:
interconnecting said cathode and said focus electrode,
applying a first potential to said heater,
applying a second potential to said cathode and said focus electrode,
applying a third potential, more positive than said second potential, to said control electrode,
applying a fourth potential to said screen electrode,
sensing a change in said fourth potential,
generating a control signal from said sensed change in said fourth potential,
using said control signal to vary said first potential to said heater, and
terminating said aging process when said control signal causes a predetermined value of said first potential to be achieved.

4,392,835

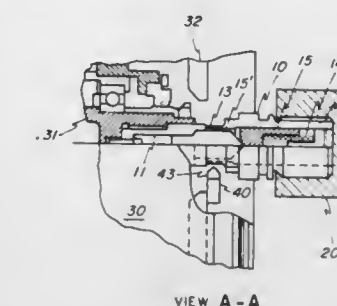
SLICER DISCONNECT

Ehtisham U. A. Siddiqui; James L. Wenzel, and John L. Butterfield, all of Erie, Pa., assignors to General Electric Company, Burlington, Vt.

Filed Feb. 27, 1981, Ser. No. 239,017
Int. Cl.³ F16D 9/00

U.S. Cl. 464-32

6 Claims



1. A shaft quick disconnect mechanism for intercoupling a high-speed driving shaft and a driven shaft, comprising:
a coupling shaft having an axis of rotation and its one end fixed against torsional relative movement with said driving shaft and its other end fixed against torsional relative movement with said driven shaft, and having a tubular intermediate portion of thin annular cross-section;
means for severing said coupling shaft at said intermediate portion thereof including:
slicing means having an edge portion and having a first disposition whereat said edge portion is spaced from said tubular intermediate portion and a second disposition whereat said edge portion is in tangential abutment with the periphery of said tubular intermediate portion;
detent means having a first disposition whereat it engages said slicing means and retains said slicing means in its first, spaced disposition and a second disposition whereat it is disengaged from said slicing means;
biasing means coupled to said slicing means for translating said slicing means, effective after said detent means has moved from its first, engaged disposition to its second, disengaged disposition, from said first, spaced disposition to said second, tangential abutment disposition, whereat said edge portion is in biased engagement with said tubular intermediate portion and as said driving shaft turns said coupling shaft said edge portion rubs against said tubular intermediate portion to provide a frictional force which provides localized heating of said tubular intermediate portion to cause plastic deformation and rupture of said tubular intermediate portion.

4,392,836

DEVICE FOR CONNECTING SPEEDOMETER TO FLEXIBLE SHAFT

Noboru Sugawara, Ageo, Japan, assignor to Kanto Seiki Co., Ltd., Saitama, Japan

Filed May 19, 1981, Ser. No. 265,160
Claims priority, application Japan, May 21, 1980, 55-69627[U]

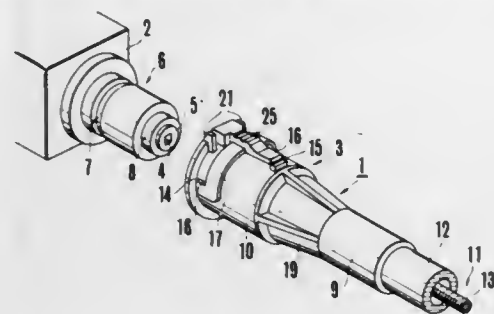
Int. Cl.³ F16B 21/00; F16C 1/06; F16D 1/00

U.S. Cl. 464-52

3 Claims

1. An assembly comprising a speedometer, a flexible shaft, and a device for connecting said flexible shaft to said speedometer, said speedometer including an axially extending stem with an outer circumferential surface, an annular groove formed in and extending around said circumferential surface, a rotating shaft extending through said stem, said flexible shaft includes an axially extending inner shaft, said inner shaft is coupled to and rotates said rotating shaft, said device comprises a connecting tube formed of a synthetic resin, said connecting tube includes a front tube part positioned around said stem, said front tube part having a pair of diametrically opposite piercing

holes, a rear tube part positioned around said flexible shaft, said front tube part having a larger diameter than said rear tube part, and a tapered tube part extending between and interconnecting said front and rear tube parts with the axes of said front, tapered, and rear tube parts disposed in axial alignment, a lever formed integrally with said connecting tube at the location of the connection of said tapered tube part to said front tube part, said lever connected to said connecting tube by a thin walled hinge part and said lever being pivotally displaceable between a first position standing upwardly from said connecting tube and a second position pivoted downwardly toward and extending in the axial direction of said front tube part, a U-shaped arm extending transversely of and formed



integrally with said lever at a location between the opposite ends of said arm, the opposite ends of said U-shaped arm being elastically deformable toward and away from one another, each of said opposite ends has a claw extending toward said claw on the other said opposite end, said U-shaped arm is dimensioned to fit around said front tube part and is displaceable with said lever from the first position where it is spaced from said front tube part into the second position where it fits partly around the outside surface of said front part and initially said claws deform outwardly away from one another and then said claws engage into said piercing holes with the inner ends of said claws engaging into said annular groove formed in the circumferential surface of said stem when said front tube part fits over said stem.

4,392,837

ROTARY DRIVE COUPLING

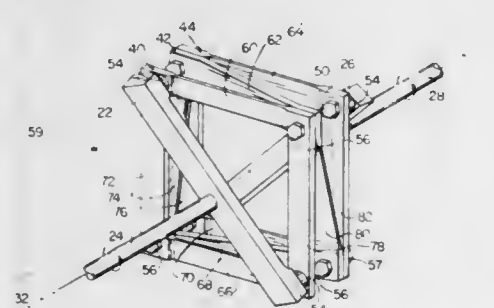
Charles J. Wirth, West Granby, Conn., assignor to Kamatics Corporation, Bloomfield, Conn.

Filed Nov. 14, 1980, Ser. No. 206,695

Int. Cl.³ F16D 3/62

U.S. Cl. 464—69

6 Claims



1. A flexible coupling for use in applications wherein more torque is to be transmitted in one direction of rotation than the other, said coupling comprising a driving member rotatable about a first axis, a driven member rotatable about a second axis generally colinear with said first axis, and a flex member located substantially in a plane generally perpendicular to said first and second axes, said flex member consisting of a first pair and a second pair of elongated flex elements all of which elements are of generally rectangular cross-section throughout the major portion of their lengths, each of said elements having two ends and each element of each of said pairs being of substantially the same length and cross-section as the other element of its pair, the two elements of said first pair having a thickness substantially different from that of the two said elements of said second pair, each end of each of said elements

being fixedly joined to an end of an element from the other of said pairs so that said elements form a unitary rectangular arrangement with the two elements of each of said pairs located on opposite sides thereof, said flex member having corners which are the corners of said rectangular arrangement, means fixing said driving member to diagonally opposite ones of said corners of said flex member, and means fixing said driven member to the remaining diagonally opposite ones of said corners of said flex member, said flex member being connected to said driving and driven members in such manner that when said driving and driven members rotate and transmit torque in said one direction of rotation the thinner two of said flex elements are in tension and the thicker two of said flex elements are in compression.

4,392,838

SEALING BOOT FOR UNIVERSAL JOINT

Hans-Heinrich Welschhof, Rodenbach, and Karl Damian, Rodgau, both of Fed. Rep. of Germany, assignors to Löhr & Bromkamp GmbH, Offenbach am Main, Fed. Rep. of Germany

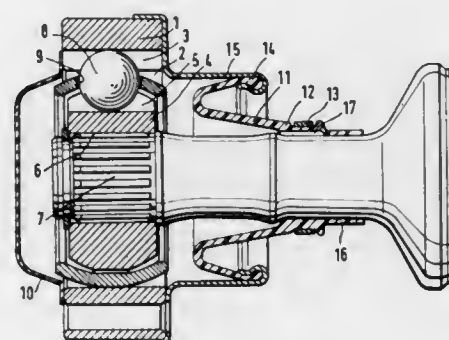
Filed Feb. 26, 1981, Ser. No. 238,444

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009639

Int. Cl.³ F16D 3/84

U.S. Cl. 464—175

8 Claims



1. In a sealing boot for a universal joint including a pair of terminal portions each engaged, respectively, with different parts of said universal joint to provide a protective seal for said joint, the improvement wherein at least one of said terminal portions comprises annular collar means arranged in sealed engagement with one of said different respective parts of said joint, channel means defined between said collar means and said one joint part for enabling fluid flow therethrough between the interior and exterior of joint portions sealed by said sealing boot and resilient check valve means located on one side of said channel means, said resilient check valve means being normally in sealing engagement with said one joint part to prevent fluid flow through said channel means with the level of fluid pressure within said channel means operating to resiliently release said resilient check valve means from said sealing engagement to enable fluid flow through said channel means.

4,392,839

DRIVE SHAFT CONSTRUCTION

Erich Aucktor, Offenbach am Main, Fed. Rep. of Germany, assignor to Löhr & Bromkamp GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed Feb. 26, 1981, Ser. No. 238,446

Claims priority, application Fed. Rep. of Germany, Mar. 11, 1980, 3009277

Int. Cl.³ F16C 3/00

U.S. Cl. 464—183

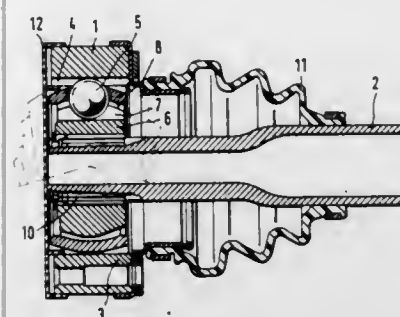
2 Claims

1. In a drive shaft construction for transmitting power in an automotive vehicle including an integral hollow tubular shaft having a pair of end portions formed with a splined configura-

tion adapted for receiving driving joints, the improvement which comprises:

that said tubular shaft is formed with a portion intermediate said end portions having an outer diameter greater than the outer diameter of said end portions;

that the wall thickness of said intermediate portion is between $\frac{1}{8}$ and $\frac{1}{15}$ of said outer diameter of said intermediate portion; and



that said tubular shaft includes two transition portions extending respectively between said intermediate portion and each of said end portions, said transition portions being formed as stepped configurations each including at least two steps and each having a wall thickness which increases from said larger-diameter intermediate portion to said smaller-diameter end portions.

4,392,840

BELT TENSIONER

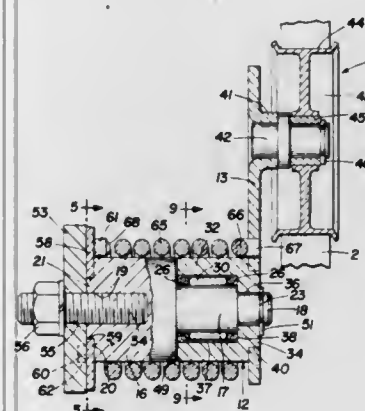
Mijo Radocaj, Massillon, Ohio, assignor to Dyneer Corporation, Canton, Ohio

Filed Jan. 12, 1981, Ser. No. 224,290

Int. Cl.³ F16H 7/00, 7/10

U.S. Cl. 474—117

11 Claims



1. An improved belt tensioner construction for tensioning an endless drive belt of the drive system for vehicle accessories, said construction including:

- (a) shaft means adapted to be mounted in a fixed position adjacent the drive belt;
- (b) pulley means movably mounted with respect to the shaft means and movable in a belt tensioning direction for tensioning engagement with the drive belt;
- (c) torsional spring means telescopically mounted on the shaft means for biasing the pulley means in the belt tensioning direction; and
- (d) clutch means telescopically mounted on the shaft means within the torsional spring means and operatively engaged with the pulley means and the shaft means for permitting movement of the pulley means in the belt tensioning direction and for restraining movement of the pulley means in a direction opposite to the belt tensioning direction.

4,392,841

GUIDE SPROCKET WHEEL, MORE PARTICULARLY FOR THE GEAR SHIFT DEVICES OF BICYCLES AND THE LIKE

Henri Juy, Dijon, France, assignor to Le Simplex, France

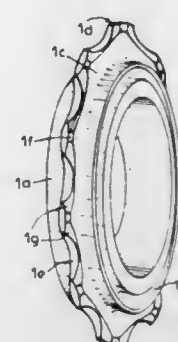
Filed Jun. 20, 1980, Ser. No. 161,399

Claims priority, application France, Jun. 26, 1979, 79 17272

Int. Cl.³ F16H 55/30, 11/08; B62M 9/12

U.S. Cl. 474—156

7 Claims



1. A guide sprocket wheel adapted for engagement with the rolls of a chain, comprising a plurality of teeth corresponding to the pitch of the chain to be engaged, the tops of the teeth being chamfered or bevelled on the periphery and on the lateral faces of the wheel; wherein on the lateral faces of the wheel, the angles formed on the tops of the teeth and on the side of the recesses between the teeth are cut off by further bevels around the profile of the teeth, gradually reducing the thickness of the teeth from the base to the tops thereof; the bevels extending between a central peripheral bevel to the bottom of the recesses between two successive teeth such that the thickness of the wheel is not modified at the bottom of the recesses of the teeth.

4,392,842

TOOTHED POSITIVE DRIVE POWER TRANSMISSION BELT WITH A FABRIC REINFORCEMENT SUSPENDED WITHIN THE BELT TEETH

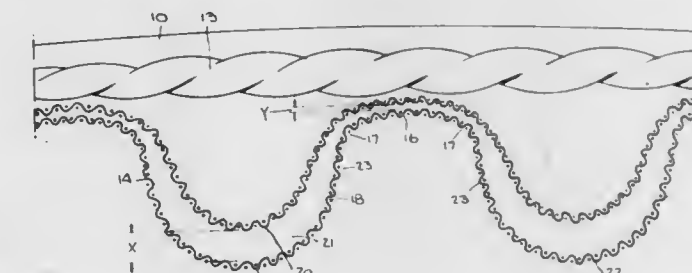
William A. Skura, Naugatuck, and Thaddeus F. Cathey, Woodbury, both of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Filed Oct. 10, 1980, Ser. No. 195,725

Int. Cl.³ F16G 1/28

U.S. Cl. 474—205

13 Claims



1. A positive drive belt for operation with toothed pulleys comprising an elastomeric body, a reinforcing tensile member imbedded in said body, teeth on at least one surface of said body said teeth having tip regions spaced from said reinforcing member and said teeth separated by land areas, a flexible covering on the outer surface of the belt teeth and land areas and a curvilinear shaped suspended reinforcing means within each tooth separated from the outer surface of the tooth and from the outer surface of the land areas by a curvilinear shaped cushion layer of elastomeric material, said cushion layer having a thickness varying gradually between a first given thickness in the region of the land areas to a second substantially greater given thickness in the tip regions whereby the outer surface of the belt is free to flex as the belt engages its pulleys

while the inner portion of the belt teeth are structurally reinforced against tooth shear.

4,392,843

METAL BELT

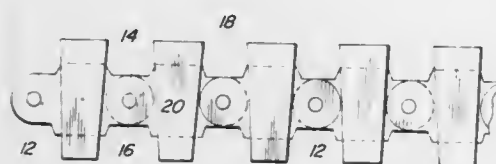
Geoffrey N. Smit, Rancho Palos Verdes, Calif., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 3, 1980, Ser. No. 212,300

Int. Cl.³ F16G 5/18

U.S. Cl. 474—245

5 Claims



1. An endless metal chain belt adapted for use in connecting pulleys in a pulley drive system wherein each pulley is constructed of a pair of flanges, said belt comprising:

a plurality of sets of links, each set of which is interleaved with the next adjacent sets of links;
pivot means joining the next adjacent sets of links to form an endless chain and to permit articulation thereof; and
metal drive blocks, each having a central window bounded by a bottom, top and sides, and each surrounding a set of links;

each drive block means being located between and generally spaced from the next adjacent pivot means;
each drive block means being frictionally positioned and secured to its set of links.

4,392,844

METHOD AND APPARATUS FOR CORRECTING STACK LEAN IN A ZIG-ZAG FOLDED WEB

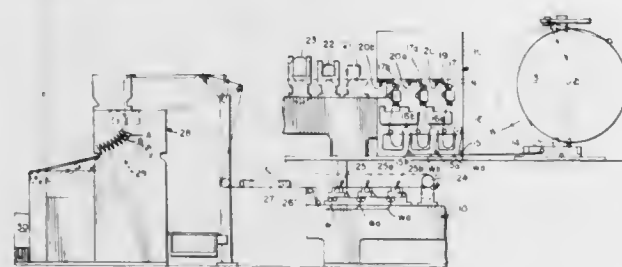
James B. Fulk, Saratoga, Calif.; Jerry L. McKeefry, Pulaski, Wis.; George F. Schuning, DePere, Wis., and John J. Bradley, Green Bay, Wis., assignors to Paper Converting Machine Company, Green Bay, Wis.

Filed Jun. 22, 1981, Ser. No. 275,796

Int. Cl.³ B65H 45/16

U.S. Cl. 493—399

16 Claims



1. In a method for correcting stack lean in a zig-zag folded continuous web having selected longitudinally spaced lines of transverse perforation and a fold at each said selected line, the steps of feeding a web through a means for transversely perforating the web while the web is under tension, and applying a cyclically varying additional force to the web for the purpose of changing the longitudinal length between said selected lines as the web passes through the perforating means, the duration of said cycle of said force extending at least over the web length between three folds.

4,392,845

DISCHARGE NOZZLE FOR CENTRIFUGAL SEPARATOR DRUMS

Hubert Gunnewig, Oelde, Fed. Rep. of Germany, assignor to Westfalia Separator AG, Oelde, Fed. Rep. of Germany

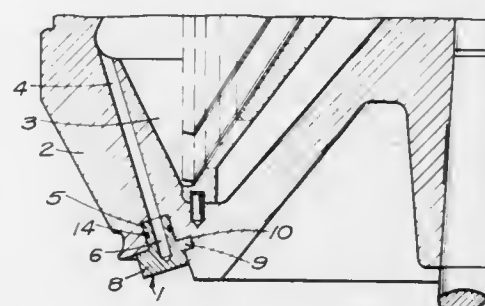
Filed Nov. 25, 1981, Ser. No. 324,920

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1981, 3103531

Int. Cl.³ B04B 1/10

U.S. Cl. 494—1

1 Claim



1. In a centrifugal separator drum with continuous discharge for the removal by centrifugal force of a concentrate from a peripheral portion of a separating chamber, having at least one discharge nozzle being disposed in an outer wall of the drum at a smaller drum diameter than that of the peripheral portion of the separating chamber, at least one discharge nozzle being rotatably inserted in the drum wall and sealed by a sealing ring and having an inlet orifice, a discharge orifice and a locking projection which engages a corresponding recess in the drum wall for the fastening of the discharge nozzle, the improvement wherein the discharge nozzle comprises an additional, eccentrically disposed projection opposite the locking projection for the limiting movement of the discharge nozzle in the drum wall and wherein the center of gravity of the discharge nozzle lies in this projection, whereby under the action of the centrifugal force when the drum is rotating the center of gravity establishes itself on a center-of-gravity axis extending radially from the drum axis and, wherein the discharge orifice is disposed at 90° from the center-of-gravity axis and opposite the direction of drum rotation.

4,392,846

CENTRIFUGE APPARATUS

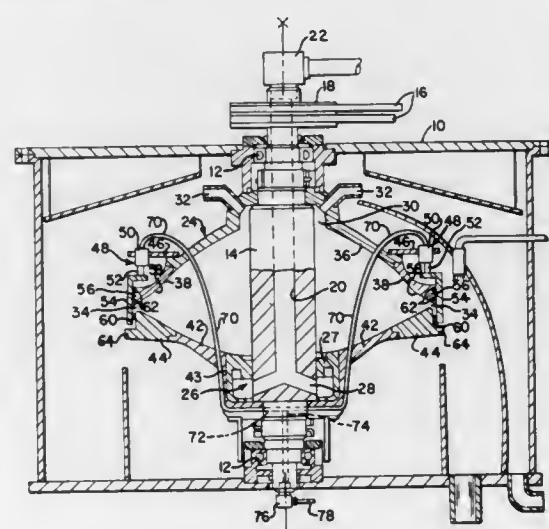
John Novoselac, Aurora, Colo., and Dale L. Churcher, Johannesburg, South Africa, assignors to Joy Manufacturing Company, Pittsburgh, Pa.

Filed May 18, 1981, Ser. No. 264,389

Int. Cl.³ B04B 1/10

U.S. Cl. 494—40

7 Claims



1. A centrifuge comprising:

an elongated shaft member rotatable about the longitudinal central axis thereof;
a bowl member having formed sections rigidly secured to axially spaced portions of said shaft member, respectively, said formed sections extending radially outwardly of and circumferentially encompassing said central axis to form a chamber in conjunction with said shaft member,
said formed sections having a discharge opening of a fixed axial configuration between radially outer peripheral portions of said formed sections for discharging a centrifuged material,
means for introducing a slurry into said bowl member,
said bowl member having means for discharging an effluent constituent of said slurry,
a ring structure encompassing the radially outermost extent of said peripheral portions at least a portion of which includes a resilient member forming one side of the material flow path from said discharge opening,
actuator means having relatively movable parts with one of said parts being secured to one of said formed sections and the other of said parts being cooperable with the resilient portion of said ring structure to displace at least a portion of said ring structure with respect to said radially outermost extent, and
said actuator means being selectively and independently operable to move said other of said parts and displace at least said portion of said ring structure to selectively and independently open and close said discharge opening.

4,392,847

INJECTION AND MONITORING SYSTEM

Douglass G. Whitney, 2518 W. Wesley Rd., and John K. Martin, III, 2837 Ridge Wood Cir., both of Atlanta, Ga. 30327

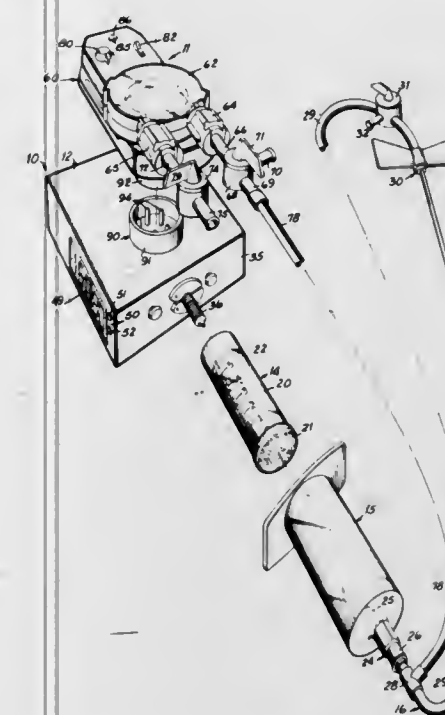
Continuation-in-part of Ser. No. 1,091, Jan. 8, 1979, Pat. No. 4,273,122, and a continuation-in-part of Ser. No. 964,953, Nov. 30, 1978, Pat. No. 4,235,234, which is a continuation-in-part of

Ser. No. 741,528, Nov. 12, 1976, Pat. No. 4,150,672. This application May 6, 1981, Ser. No. 260,964

Int. Cl.³ A61M 5/00

U.S. Cl. 604—118

9 Claims



1. A system for injecting fluid into a patient and monitoring the blood pressure of the patient comprising:
injector means carrying the fluid to be injected, said injector defining a fluid outlet therefrom and including expelling means for alternatively and successively discharging fluid for injection out of said fluid outlet for a first prescribed period of time and stopping the discharge of fluid out of said fluid outlet for a second prescribed period of time, display means, and rate indicator means operatively associated with said expelling means for generating an output

indicative of the rate of fluid injection connected to said display means for visually displaying the rate at which the fluid is being injected;

delivery tube means connected to said fluid outlet and adapted to be connected to the vascular system of the patient so that the fluid discharged from said fluid outlet will be injected into the vascular system of the patient;

a blood pressure monitor including transducer means having an inlet connected to said delivery tube means between said fluid outlet on said injector means and the patient so that said transducer means is in communication both with the vascular system of the patient through said delivery tube means and with said fluid outlet from said injector means for providing an output indicative of the pressure in said delivery tube means, said monitor further including pressure detector means responsive to the output of said transducer means to generate outputs indicative of the maximum and minimum pressures within said delivery tube means over a prescribed period of time; and

mounting means for selectively and removably mounting said blood pressure monitor on said injector means, said mounting means including connector means constructed and arranged so that, as an incident to the mounting of said monitor on said injector means, said connector means operatively connects the output of said pressure detector means in said blood pressure monitor to said display means in said injector means whereby said display means in said injector means automatically visually displays the output of said pressure detector means which is indicative of the maximum and minimum pressures in said delivery tube means so that, while the discharge of fluid from said fluid outlet in said injector means is stopped, the pressures in said delivery tube means and displayed on said display means is the patient's systolic and diastolic blood pressure.

4,392,848

CATHETERIZATION

Donald S. Lucas; Roger L. Stone, both of Fairfield, and Eugene R. Cooper, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 51,477

Int. Cl.³ A61M 5/00

U.S. Cl. 604—53

20 Claims

1. A method for catheterization with lowered risk of nosocomial infection by achieving microbial inhibition at and around the placement site of catheters and the like used in the bodies of humans and lower animals, comprising: inserting into the body of a human or lower animal in need of such treatment a catheter, or the like, said catheter comprising: a liquid reservoir of antimicrobial agent; a delivery means for transporting liquid materials, said delivery means being in the form of a tube; at least part of the portion of said tube which contacts the body comprising a carboxylic acid-permeable polymer, said polymer being in contact with both the environment external to said catheter and with said reservoir of antimicrobial agent flowing within the lumen of said catheter; said reservoir of antimicrobial agent comprising an aqueous solution containing at least a minimum lethal concentration of a straight chain carboxylic acid or carboxylic acid salt having from 4 to 9 carbon atoms.

4,392,849

INFUSION PUMP CONTROLLER

John H. Petre, and Delos M. Cosgrove, both of Cleveland Hts., Ohio, assignors to The Cleveland Clinic Foundation, Cleveland, Ohio

Filed Jul. 27, 1981, Ser. No. 287,516

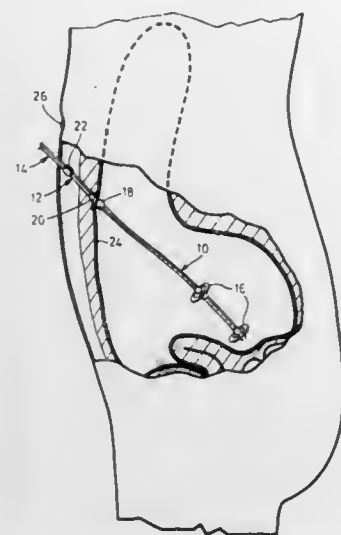
Int. Cl.³ A61M 5/00

U.S. Cl. 604—66

19 Claims

1. A medication introduction rate control system comprising:

said peritoneum section having flexible locating discs of inert plastics material extending therefrom;
the peritoneum section having a circumferentially extending bead of inert material adjacent the subcutaneous section and a fibrous peritoneum cuff outwardly of and close to the bead;
said fibrous peritoneum cuff having a fibrous disc extending radially therefrom;



said fibrous peritoneum cuff and fibrous disc being close to said bead as aforesaid whereby to cooperate with said bead to hold a peritoneum membrane therebetween and form a seal at the peritoneum membrane in use;
the subcutaneous section having means for sealing the catheter at the outer skin.

4,392,856

VASCULAR PUNCTURE STABILIZER FITTING FOR FACILITATING WITHDRAWAL

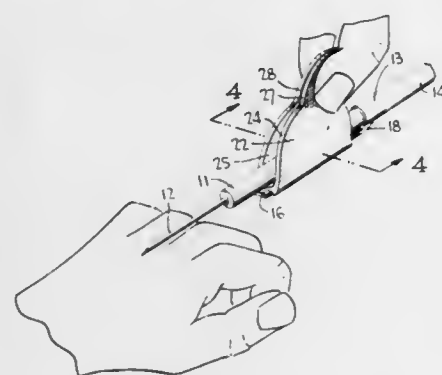
Joseph Lichtenstein, Colonia, N.J., assignor to Whitman Medical Corporation, Clark, N.J.

Filed Oct. 23, 1981, Ser. No. 314,481

Int. Cl.³ A61M 5/00

U.S. Cl. 604—177

16 Claims



1. A fitting for use in performing a vascular puncture by a blood vessel-entering element and for positionally stabilizing the blood vessel-entering element in situ after the vascular puncture, said fitting comprising:

- a holder for said blood vessel-entering element, said holder including an elongate member having a longitudinal axis extending substantially parallel to said blood vessel-entering element;
- a stabilizing member having top and bottom surfaces, a longitudinally-extending support region on said first surface, and first and second wing-like members extending in opposite direction transversely from said support region, said stabilizing member being flexible about said support region to define a first flexed position in which parts of the wing-like members at said top surface are brought into contact, said wing-like members normally residing in

substantially co-planar relation when said stabilizing member is in an unflexed second position;
gripping means defined in said first position of said stabilizing member for securing said holder in contact with and extending along said support region to preclude all relative movement between said holder and said stabilizing member; and
retaining means defined in said second position of said stabilizing member for retaining said holder in contact with and extending along said support region to preclude all relative movement between said holder and said stabilizing member except movement parallel to said longitudinal axis.

4,392,857

TUBE HOLDER

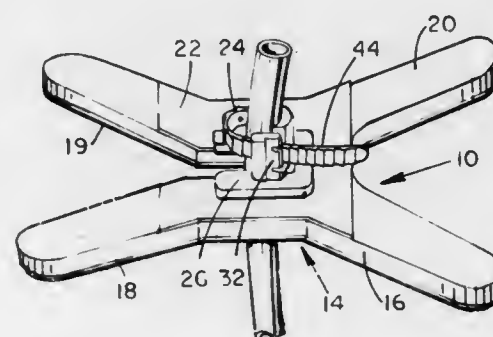
Anthony V. Beran, 1472 La Loma Dr., Santa Ana, Calif. 92705

Filed Apr. 23, 1981, Ser. No. 256,698

Int. Cl.³ A61M 25/02

U.S. Cl. 604—179

10 Claims



1. A tube clamp comprising:

- a clamp base including a lengthwise surface adapted to lie disposed against a section of the length of a tube;
- a U-shaped strap retainer fixed to the base at one side of said lengthwise surface, the arms of the U-shape extending substantially parallel said surface;
- a strap fixed at one end to said base at the other side of said lengthwise surface;
- complementally formed conformations on at least one side of said strap and one arm of said U-shaped strap retainer, the separation of said arms being such that said strap may be inserted sidewise between the arms of the strap retainer when said conformations are aligned and may not be inserted endwise between the arms without retraction of one of said conformations;
- the width of said strap being less than the length of at least one of said arms of the U-shaped strap retainer; and
- a projection extending from one arm toward the other of said U-shaped strap retainer at a point near the upper end of said one arm, the degree of extension being such as to preclude sidewise insertion of the strap between said arms, and sidewise removal, unless the arms of the U-shaped strap retainer are separated beyond their separation in relaxed condition.

4,392,858

WOUND DRAINAGE DEVICE

Robert D. George, Lake St. Louis, and Georgio di Palma, St. Peters, both of Mo., assignors to Sherwood Medical Company, St. Louis, Mo.

Filed Jul. 16, 1981, Ser. No. 283,702

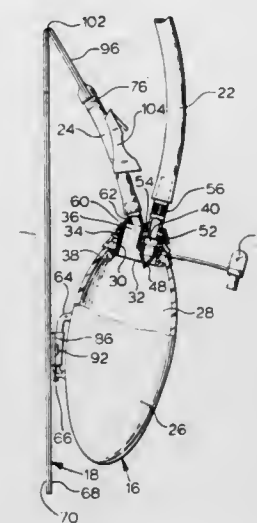
Int. Cl.³ A61M 1/00

U.S. Cl. 604—187

19 Claims

1. A patient wound drainage device comprising manually operable wound suction pump means for connection with a catheter disposed adjacent a body wound of a patient for removing and collecting drainage liquid from the body wound, said pump means including a resilient, at least partially collapsible drainage receptacle, a pump inlet port connected to said

receptacle means for connection said pump inlet port to a catheter so that said receptacle can receive drainage liquid from the body wound, and a pump outlet port connected to said receptacle for discharging drainage liquid therefrom, said receptacle being hand squeezable and releasable for producing a suction force at said pump inlet port, a one-way valve connected in series with said pump inlet port to prevent drainage liquid flow from said receptacle to the catheter, a fluid drainage storage bag including a pair of pliable sheet material members in face-to-face relation forming the sidewalls of the bag, a



bag inlet port connected to the upper end portion of said bag, fluid connector means for connecting said pump outlet port with said bag inlet so that drainage liquid can be pumped from said receptacle into said bag by hand squeezing said receptacle, releasable connection means for connecting said receptacle to said bag in side-by-side relation with the sidewalls of said bag and receptacle in facing adjacent relation and with said receptacle between the upper and lower ends of said bag, and means for securing said bag, with said receptacle connected thereto, to the patient.

4,392,859

FITMENTS FOR INJECTION DEVICES

Hugh R. Dent, Malmesbury, England, assignor to Sterimatic Holdings Limited, Tortola, British Virgin Isls.

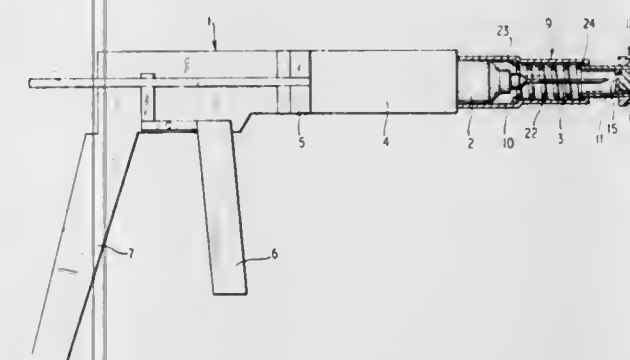
Filed Jul. 28, 1981, Ser. No. 287,775

Claims priority, application United Kingdom, Jul. 29, 1980, 8024765; Sep. 25, 1980, 8030985

Int. Cl.³ A61M 5/00

U.S. Cl. 604—198

17 Claims



1. A sterilizing fitment for an injection device of the kind in which injection liquid is delivered through a hollow needle, the fitment being provided to sterilize the needle prior to its application to the site of injection and again on withdrawal of the needle from the site of injection, which fitment comprises a collapsible sleeve comprising two telescoping tubes for surrounding the needle, means at one end of the sleeve on one of said tubes for attaching the sleeve to a needle support of the injection device, wall means at the other end of the sleeve on the other of said tubes closing off said other end so as to enclose the needle, and sterilizing means in the vicinity of said

other end of the sleeve, the two ends of the collapsible sleeve being reciprocable relative to one another in the direction of the length of the needle and being resiliently biased in the extended position, whereby, in use, when an injection is effected by placing said other end of the sleeve against the injection site and applying pressure to the injection device in a direction towards the injection site, the point of the needle moves through the wall means and the sterilizing means into the injection site as the sleeve collapses under the applied pressure and subsequently moves back through the wall means and the sterilizing means as the sleeve re-assumes its extended position on release of said pressure.

4,392,860

DISPOSABLE WOUND DRAINAGE DEVICE

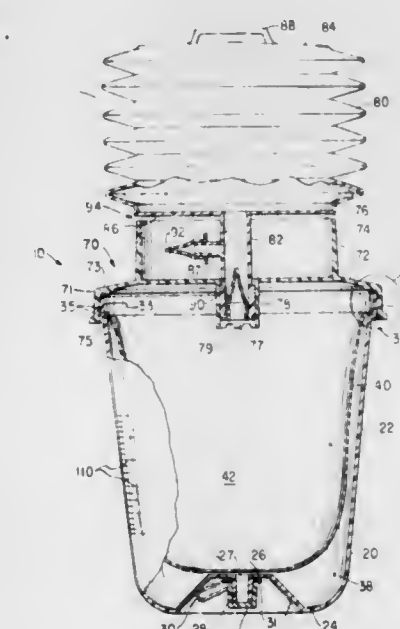
Charles M. Huck, Oldwick; John E. Studer, Flemington, both of N.J., and Philip H. Sauer, Indian Rocks Beach, Fla., assignors to Howmedica, Inc., New York, N.Y.

Continuation of Ser. No. 2,610, Jan. 11, 1979, abandoned. This application Dec. 8, 1980, Ser. No. 214,571

Int. Cl.³ A61M 1/00

U.S. Cl. 604—212

14 Claims



1. A device for removal of exudate from a wound comprising:

- a. a housing having a first end and a second end, side walls and end walls at each of the first and the second ends, said housing defining a generally enclosed chamber, each end having an opening for communicating with said chamber;
- b. a collapsible passive non-elastic member means expandable to its original extended state having a peripheral edge and being both airtight and watertight, said passive member means being disposed within the housing and sealingly connected at its periphery adjacent proximal to the second end of the housing so as to separate the interior of the housing chamber into a first chamber portion communicating with said first end wall opening and a second chamber portion communicating with said second end wall opening, said passive member means being configured and dimensioned such that when it is substantially expanded toward the first end wall it substantially conforms to the configuration of the inside of the side walls of the housing; and
- c. bellows means disposed outside of the walls of said housing and coupled to the second end wall opening for decreasing the pressure within said second chamber portion solely by said means so as to draw and collapse the passive member means toward the second end of the housing such that the volume of the first chamber portion is increased and a negative pressure is created therein.

4,392,861

TWO-PLY FIBROUS FACING MATERIAL

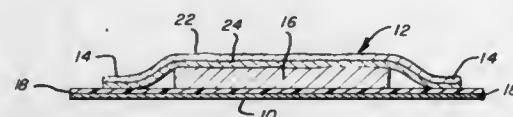
George A. M. Butterworth, Western Springs, and Frank J. Fillwalk, Oak Lawn, both of Ill., assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Oct. 14, 1980, Ser. No. 196,809

Int. Cl.³ A61F 13/16; B32B 7/06, 21/02, 21/10

U.S. Cl. 604—366

27 Claims



1. A high loft, low density, nonwoven, fibrous two-ply facing material for an absorbent product such as a diaper which comprises a first outer layer of irregularly arranged intersecting, overlapping, mechanically interengaged, loosely assembled natural wood pulp fibers defining interstices therebetween, and a second inner layer of similarly disposed fibers in contact with said outer layer at an interface between said two layers, said inner layer including intermixed natural wood pulp fibers and thermoplastic synthetic wood pulp fibers, said synthetic wood pulp fibers having a length and denier generally similar to natural wood pulp fibers, said inner layer containing generally in the range of about 10 percent to about 30 percent by weight of synthetic wood pulp fibers and said synthetic wood pulp fibers being present at the boundary surface of said inner layer adjacent said interface in a quantity sufficient to occupy no more than about 6 percent of the area occupied by exposed fiber segments contained in said inner layer at its said boundary surface, said synthetic wood pulp fibers having a melting point lower than the melting point, or degradation temperature, of the other fibers in said two-ply facing material, fiber segments extending from either of said fibrous layers across said interface between the two layers and into the interstices between the fibers of the other layer being substantially limited to outer end portions of such fibers, said synthetic wood pulp fibers in said inner layer having been heat fused in the absence of pressure in contact with other fibers in said layer to form a fiber structure of sufficient wet strength and integrity to be self-supporting in both dry and wet condition without any additional binder, the fibers in each of said two layers being bonded with one another and with fibers in the other layer by a water soluble adhesive binder to provide sufficient mechanical integrity throughout said two-ply facing material to allow normal handling of the dry material as a whole, and to help provide, together with the already existing mechanical interengagement of whole fibers in said outer layer, sufficient mechanical integrity in said outer layer to avoid disintegration of said outer layer when the bond between said two layers is weakened by dissolving out only a portion of said water soluble binder and is then ruptured by pulling said two layers apart, so that the dry, unsoiled two-ply facing material can be subjected to normal handling without damage to the material, and after use, the facing material and any solid waste matter deposited thereon can be immersed in water for a time, swirled around in the water to dissolve out only a portion of said water soluble binder, and pulled apart into two layers as above described, to produce a self-supporting, inner fibrous layer to be discarded separately from the outer layer, and a separate assemblage of substantially all said natural wood pulp fibers that were originally in said outer layer, which assemblage of fibers together with any residue of said solid waste matter not rinsed away by said swirling action can be flushed down a waste disposal system, where after the dissolving out of said water soluble binder is completed the assemblage will disintegrate into a multiplicity of separate individual fibers or small clumps of fibers.

11. The two-ply facing material of claim 1 which is superimposed on an absorbent fibrous batt to form an absorbent product.

12. The absorbent product of claim 11 which is superim-

posed on and attached to a liquid impermeable backing sheet to form a disposable infant's diaper.

15. In a diaper structure comprising a facing layer, an adsorbent batt and an impervious backing layer in which said facing layer and said backing sheet are outermost layers and said batt is positioned between said facing layer and said backing sheet, the improvement wherein said facing layer comprises the high loft, low density, nonwoven fibrous material of claim 1.

16. A method of producing a high loft, low density nonwoven, fibrous two-ply facing material for an absorbent product, such as a diaper, which comprises:

bringing together a first outer layer of irregularly arranged, intersecting, overlapping, mechanically interengaged, loosely assembled, natural wood pulp fibers defining interstices therebetween, and a second inner layer of similarly disposed fibers including intermixed natural wood pulp fibers and thermoplastic synthetic wood pulp fibers, said synthetic wood pulp fibers having a length and denier generally similar to natural wood pulp fibers, said second layer containing generally in the range of about 10 percent to about 30 percent by weight of thermoplastic synthetic wood pulp fibers, and said synthetic wood pulp fibers being present at the boundary surface of said second layer adjacent said first layer in a quantity sufficient to occupy no more than about 6 percent of the area occupied by the exposed fiber segments contained in said second layer at its said boundary surface, said synthetic wood pulp fibers having a melting point lower than the melting point of the other fibers in said two layers;

applying heat in the absence of pressure to said two fibrous layers thus brought together, to fuse at least some of said synthetic wood pulp fibers to each other and to some of said other fibers within said second layer to form a self-supporting fibrous structure in said second layer;

introducing a water soluble adhesive binder into said two fibrous layers and at the interface where said two layers have been brought together as described; and

drying and curing said binder to produce a facing material with sufficient mechanical integrity to allow normal handling of said facing material, and in addition, help provide, together with the already existing mechanical engagement of whole fibers in said first layer, sufficient mechanical integrity in said first layer to prevent its disintegration when the bond between said two layers is ruptured to produce delamination of the two layers after only a portion of said water soluble adhesive binder has been dissolved out of the facing material and delaminating forces have been applied to the two layers.

4,392,862

ABSORPTIVE DEVICE

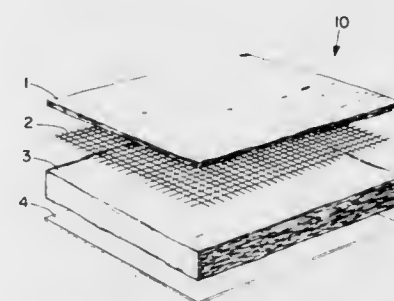
Mario S. Marsan, Cincinnati, Ohio, and Edward W. Hartwell, Lawrenceburg, Ind., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 2, 1981, Ser. No. 239,821

Int. Cl.³ A61F 13/16

U.S. Cl. 604—366

12 Claims



1. An absorptive device comprising a facing element, a fluid permeable support element, an absorbent pad, and an impervious backsheet wherein said facing element comprises a fluid permeable, unbonded web of hydrophobic thermoplastic fi-

bers, said fibers being from about 3 to about 15 denier; said web being formed without the use of bonding agents and having a density of from about 0.0002 to about 0.02 g/cc.; wherein said facing element is affixed to said support element in spaced apart regions of bonding by means selected from the group consisting of thermal bonding, hot melt adhesive bonding, and

chemical adhesive bonding to form an assembly and said assembly is superimposed on said absorbent pad which is superimposed on said backsheet.

CHEMICAL

4,392,863
METHOD OF UNIFORMLY DYEING HIGH TEMPERATURE HEAT SET POLYESTER YARN
 John C. Kaufmann, and Ronald S. Lenox, both of Lancaster, Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.
 Filed Dec. 30, 1981, Ser. No. 335,759
 Int. Cl.³ D06P 5/00; B29C 25/00

U.S. Cl. 8—400 **4 Claims**
 1. A method of pre-treating a plurality of otherwise identical polyester yarns that have different heat histories, to enable said yarns to be dyed uniformly, which method comprises measuring the pre-melt crystallization temperatures of each polyester yarn and thereafter heat treating each yarn at temperatures that vary by no more than 5° C. and that are at least the same as or higher than the highest measured pre-melt crystallization temperature.

4,392,864
STABILIZED ROMANOWSKY STAIN SOLUTION
 Elaine A. Helfrich, and Kin F. Yip, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.
 Filed Feb. 1, 1982, Ser. No. 344,390
 Int. Cl.³ C09B 44/00; G01N 1/00

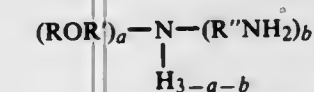
U.S. Cl. 8—506 **4 Claims**
 1. A method for the preparation of a Romanowsky-type stain solution having improved stability characteristics which comprises dissolving in methanol a mixture of Methylene Blue, Azure A, Azure B, Azure C or a combination of these azure dyes and the free acid of Eosin Y in such amounts that the resulting solution exhibits spectrophotometric absorption of at least 230 optical density units at 645 nm and 128 optical density units at 525 nm.

4,392,865
HYDROCARBON-WATER FUELS, EMULSIONS, SLURRIES AND OTHER PARTICULATE MIXTURES
 Aristid V. Grosse, Haverford, and Norman H. Cherry, Philadelphia, both of Pa., assignors to Lanko, Inc., Philadelphia, Pa.
 Continuation-in-part of Ser. No. 771,272, Feb. 23, 1977, abandoned. This application Jan. 16, 1980, Ser. No. 112,507
 Int. Cl.³ C10L 1/32; C01L 1/14

U.S. Cl. 44—51 **26 Claims**
 1. In a mixture of water and a substance selected from the group consisting of oil and gasoline, the improvement comprising maintaining the stability of such mixture with reference to separation into continuous phases, through the addition thereto of a relatively low molecular weight hydrophilic-lipophilic agent and a high molecular weight swellable material, having a molecular weight of at least 500,000.

4,392,866
ETHERAMINE CORROSION INHIBITOR FOR ALCOHOLS
 Rodney L. Sung, Fishkill; George J. Sidote, Hopewell Junction, and William M. Sweeney, Wappingers Falls, all of N.Y., assignors to Texaco Inc., White Plains, N.Y.
 Filed Nov. 5, 1981, Ser. No. 318,532
 Int. Cl.³ C10L 1/22

U.S. Cl. 44—53 **22 Claims**
 1. A composition comprising
 (i) a water-soluble alcohol; and
 (ii) as corrosion inhibiting additive an effective corrosion-inhibiting amount of an amine having the formula



wherein R contains 1–30 carbon atoms and is selected from the group consisting of alkyl, alkenyl, alkaryl, aralkyl, cycloalkyl, and aryl groups and R' and R'' are the same or different divalent hydrocarbon group containing

1–30 carbon atoms and are selected from the group consisting of alkylene, alkenylene, alkarylene, aralkylene, cycloalkylene, and arylene groups, and a and b are each an integer 1–2, and a plus b is less than four.

4,392,867
AMINO CORROSION INHIBITOR FOR ALCOHOLS
 Rodney L. Sung, Fishkill, and William M. Sweeney, Wappingers Falls, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.
 Filed Dec. 14, 1981, Ser. No. 330,107
 Int. Cl.³ C10L 1/22

U.S. Cl. 44—53 **20 Claims**
 1. A composition comprising:
 (i) a water-soluble alcohol; and
 (ii) an effective corrosion-inhibiting amount, as corrosion inhibiting additive, of an amine having the formula:



wherein R contains 4–30 carbon atoms and is selected from the group consisting of alkyl, alkenyl, alkaryl, aralkyl, cycloalkyl, and aryl groups and R' is a divalent hydrocarbon group containing 1–30 carbon atoms and is selected from the group consisting of alkylene, alkenylene, alkarylene, aralkylene, cycloalkylene, and arylene groups, n is an integer 2–30, and a is an integer 1–3.

4,392,868
GASOLINE FUEL EXTENDER FORMULATION
 Fred W. Teckmeyer, 158 Delaware Dr., Coraopolis, Pa. 15108, and George K. Dorn, 1606 W. 15th St., Beaver Falls, Pa. 15010
 Continuation-in-part of Ser. No. 173,915, Jul. 31, 1980, abandoned. This application Oct. 29, 1981, Ser. No. 316,352
 Int. Cl.³ C10L 1/18

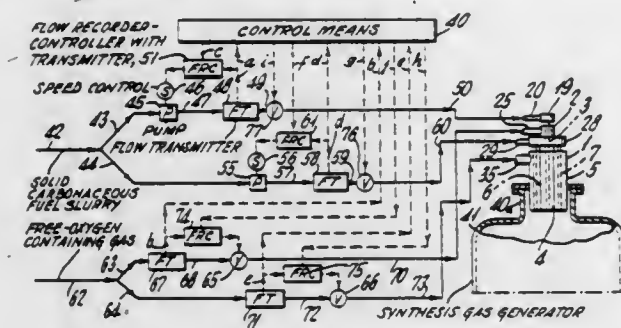
U.S. Cl. 44—56 **11 Claims**
 1. A homogenous combustion engine fuel formulation for blending with and use in commercial gasoline as an extender therefor in proportions of not greater than 50 parts by volume with respect thereto that is characterized by the stability of its alcohol content in the presence of water and its miscibility with and practicability for interchangeable usage with commercial gasoline; said formulation consisting essentially of naptha Z within a range of not less than about 6 to not more than about 10 parts by volume, about 1 part by volume of ethanol and about 1/4 to 1 1/4 parts by volume of a higher alcohol of the class consisting of anhydrous isopropyl and or N propyl alcohol, wherein the specific gravity of the ingredients of the formulation is not substantially greater than the gasoline to which it is to be added, wherein the premixed solution of ingredients is less soluble in water than ethanol, itself, and wherein its ingredients in the defined proportions as an extender for commercial gasoline have a substantially full phase stability therein.

4,392,869
HIGH TURNDOWN PARTIAL OXIDATION PROCESS
 Charles P. Marion, Mamaroneck; Albert Brent, Huntington; George N. Richter, San Marino; William B. Crouch, Chappqua; Edward T. Child, Tarrytown, all of N.Y., and Blake Reynolds, Riverside, Conn., assignors to Texaco Inc., White Plains, N.Y.
 Division of Ser. No. 167,876, Jul. 14, 1980, Pat. No. 4,351,645, which is a continuation-in-part of Ser. No. 107,215, Dec. 26, 1979, Pat. No. 4,338,099. This application Jun. 10, 1981, Ser. No. 272,415
 The portion of the term of this patent subsequent to Sep. 28, 1999, has been disclaimed.
 Int. Cl.³ C10J 3/46

U.S. Cl. 48—197 R **5 Claims**
 1. A method for controlling the partial oxidation of a first

reactant stream comprising a pumpable carbonaceous fuel slurry stream and a second reactant stream comprising a free-oxygen containing gas in the reaction zone of a gas generator comprising:

- (1) introducing said first and second reactant streams into the reaction zone of a vertical free-flow noncatalytic refractory lined synthesis gas generator where said partial oxidation reaction takes place by way of a two-section burner mounted downward through an inlet port in the top of said gas generator and comprising central and annular sections with first and second fluid passage means in said central section and third and fourth fluid passage means in said annular section, a separate inlet means connected to each of said separate passage means, said burner having connected respectively to the two separate inlet means in the central section of said burner two separate feedlines 1 and 3 and having connected respectively to the two separate inlet means in the annular section of said burner two separate feedlines 2 and 4; wherein one feedstream of carbonaceous fuel slurry is passed through either the first or second fluid passage means in the central section of the burner and/or simultaneously another feedstream of carbonaceous fuel slurry is passed through the third or fourth fluid passage means in the annular section, and a separate feedstream of free-oxygen containing gas and if necessary a separate feedstream of steam are simultaneously passed through the unoccupied fluid passage means in each of the central and/or annular sections of said burner which are associated with the fluid passage means through which the stream(s) of carbonaceous fuel slurry are passing, said burner discharging into said reaction zone; and wherein



the central section of said burner includes a central conduit, said central conduit being closed at the upstream end and having a unobstructed downstream circular exit orifice at the tip of the burner; said annular section being bounded by an outer conduit coaxial and concentric with said central conduit along its length and in spaced relationship therewith and forming an annular passage therebetween, said annular passage being closed at the upstream end and having a unobstructed downstream annular exit orifice at the tip of the burner and wherein the central longitudinal axis of the annular passage is parallel to the central longitudinal axis of the burner throughout its length; said first passage means comprising a central bunch of tubes passing through the closed end of said central conduit and making a gastight seal therewith, and wherein the downstream ends of said central bunch of tubes are retracted upstream from the burner face a distance of about 0 to 12 times the minimum diameter of the central conduit exit orifice at the tip of the burner; said second passage means comprising the space between the inside wall of said central conduit and the outside surfaces of the central bunch of tubes; said third passage means comprising an annular bunch of tubes passing through the closed end of said annular passage and making a gas tight seal therewith, and wherein the downstream ends of said annular bunch of tubes are retracted upstream from the burner face a distance of about 0 to 12 times the minimum width of the annular exit orifice at the tip of the burner; and said fourth passage means comprising the space between the inside wall of the outer conduit and the outside surfaces of the annular bunch of tubes;

- (2) separately sensing the flow rates for that portion of the

first reactant stream flowing through feedlines 1 and 2 and that portion of the second reactant stream flowing through feedlines 3 and 4 and providing to a separate control means signals a, d and b, e corresponding respectively to the actual flow rates of the portions of said first and second reactant streams flowing in feedlines 1, 2 and 3, 4; and

- (3) comparing in said separate control means said actual flow rate signals a, d, b and e with manual or automatically computed input signals representing the desired flow rate or set point for each of the reactant streams in the four feedlines and providing corresponding adjustment signals c and f to separate speed controlled positive displacement pumps in feedlines 1 and 2 respectively, and signals h and j to flow control valves in feedlines 3 and 4 respectively, and thereby controlling the flow rates of said portions of first and second reactant streams flowing in said four feedlines in accordance with the respective desired flow rate or set point of each, to maintain in the reaction zone an atomic ratio of oxygen to carbon in the range of about 0.5-1.95.

4,392,870

VAPOR RECOVERY UNIT PERFORMANCE TEST ANALYZER AND METHOD

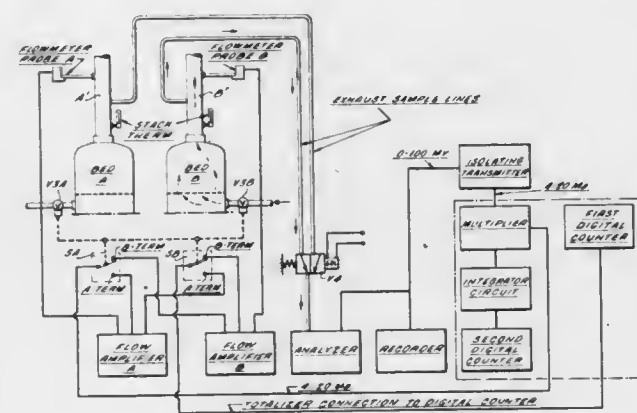
Anibole B. Chieffo; Howard K. Davis, both of Wilmington, Del., and Joyce A. Rizzo, West Chester, Pa., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed May 11, 1981, Ser. No. 262,144

Int. Cl.³ B01D 53/04

U.S. Cl. 55-20

4 Claims



1. A performance test analyzer for determining loss of hydrocarbons to the atmosphere when a tank truck or similar vehicle is filled with volatile hydrocarbons and wherein vapors of said hydrocarbons present during said filling operation are adsorbed in a first and second parallel charcoal bed operating alternately so that one bed is regenerated under vacuum while the other is adsorbing hydrocarbon vapors, comprising in combination:

- (a) temperature sensing means in each of the stacks of said beds,
- (b) a first flowmeter probe adapted to be inserted in the stack of said first charcoal bed,
- (c) a second flowmeter probe adapted to be inserted in the stack of said second charcoal bed,
- (d) a first flow amplifier and a second flow amplifier to enable the signal derived from said corresponding probe in a stack being tested to be fed into a first counter, the output of said counter reflecting the volume of gaseous flow in said stack under test as sensed by said respective first and second flowmeter probes,
- (e) switching means in combination with first valving means effecting the cycling of said charcoal beds which switching means inactivate said first or second flow amplifier during the cycling of a corresponding first or second bed from regeneration to adsorption,
- (f) exhaust sample lines from each of said stacks leading to

second valving means so as to enable gases from the stack being tested to be fed to hydrocarbon analyzing means for determining said hydrocarbons as propane concentration, whereby said hydrocarbon concentration, as propane, in each of said stacks at the time of test may be calculated from the parameters of (1) the barometric pressure at the test site, (2) the volume of gas from the stack being measured, (3) the measured stack temperature, and (4) the data from the analyzing means, and

- (g) electronic multiplier and integrator means to obtain the sum of said flow amplifier signal and said hydrocarbon analyzer means signal over the testing period, said sum being fed to a second counter to indicate the total flow integrated volume of hydrocarbon (as propane) in the exhaust of said stacks during the test period.

4,392,871

COMBUSTION PROCESS WITH WASTE GAS PURIFICATION

Göran Almlöf, Skattegarden 123, S-582 41 Linköping, and Peter Hagqvist, Norrsvängen 1A, S-582 47 Linköping, both of Sweden

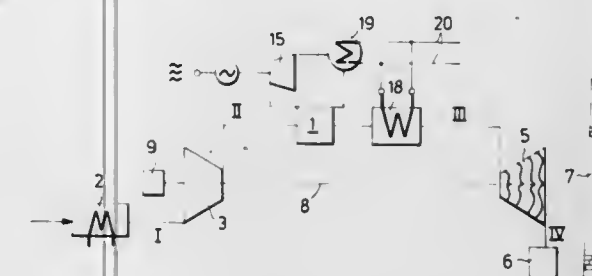
Continuation of Ser. No. 195,922, Oct. 10, 1980, abandoned.

This application Aug. 18, 1982, Ser. No. 409,327

Claims priority, application Sweden, Oct. 16, 1979, 7908565 Int. Cl.³ B01D 47/05

U.S. Cl. 55-23

3 Claims



1. A combustion process which provides an exhaust gas free of water vapor and other desirable contaminants, such as sulphur compounds, heavy metals and the like, including the steps of:

- compressing air to be used for combustion,
- burning fuel with the compressed combustion air in a combustion chamber,
- directing the exhaust gases from the combustion chamber to an expansion means, and
- expanding the heated exhaust gases in the expansion means to cause rapid cooling to a temperature of at least below zero degrees Celsius and drop in pressure of the exhaust gases to condense water vapor contained therein and to precipitate the undesirable contaminants.

4,392,872

AIR BLEEDER VALVE FOR WATERBED MATTRESSES

Charles P. Hall, Muir Beach, and John B. Johanning, Beverly Hills, both of Calif., assignors to Monterey Manufacturing, Inc., Los Angeles, Calif.

Filed Apr. 3, 1981, Ser. No. 250,864

Int. Cl.³ B01D 19/00

U.S. Cl. 55-36

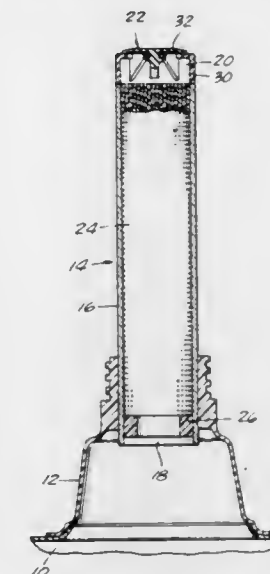
4 Claims

1. A method for bleeding air from the waterbed mattress having a fill spout comprising the steps of:

- (a) selecting an air bleeder valve comprising:
 - (i) an elongated, hollow tubular body having first and second ends and corresponding first and second end portions wherein at least the first end portion is adapted to snugly fit into the fill spout of a waterbed mattress;
 - (ii) a porous water barrier in the tubular body for preventing water from splashing out of the mattress when bleeding air from the mattress, the water barrier being constituted of a non-water absorbing material, the bar-

rier not acting as a wick for water and being sufficiently porous that when wet, air can pass through the barrier; and

- (iii) a check valve at the second end of the tubular body for allowing air to pass out of the body through the second end and for preventing air from passing into the body through the second end;



- (b) placing the bleeder valve into the fill spout so that at least the first end portion of the tubular body is snugly fit into the fill spout; and
- (c) subsequently causing air in the mattress to pass to the fill spout and out the bleeder valve, wherein water is prevented from splashing out of the mattress by the water barrier and air is prevented from passing from the atmosphere into the mattress by the valve.

4,392,873

CONTINUOUS VAPOR PHASE CHROMATOGRAPHY

Francis R. Brockington, 4016 MacGregor Dr., Columbia, S.C. 29206

Filed Jun. 12, 1981, Ser. No. 272,964

Int. Cl.³ B01D 15/08

U.S. Cl. 55-67

6 Claims

1. A chromatographic process in which both the gas phase and the liquid/solid phase are mobile and traversing in opposing directions through a common column which has one or more thermal gradients impressed lengthwise across it, and in which a mixture to be chromatographed is continuously introduced, partitioned and collected as fractions from the gas phase where:

- A. The said thermal gradients are formed by simultaneously heating a section of the column and cooling another section through the use of heat exchangers;
 - B. The said liquid/solid phase moves in direction in the column toward increasing column temperatures;
 - C. The said gas phase moves in a direction opposite the liquid/solid phase and toward increasing column temperatures;
 - D. The said mixture to be chromatographed is introduced to the column at the lower temperature end of the column and at a metered rate;
- The said fractions of the mixture are collected through the use of ducts which are dispersed along and intersect with the column, and said ducts are fitted with condensers and gas flow control devices.

4,392,874

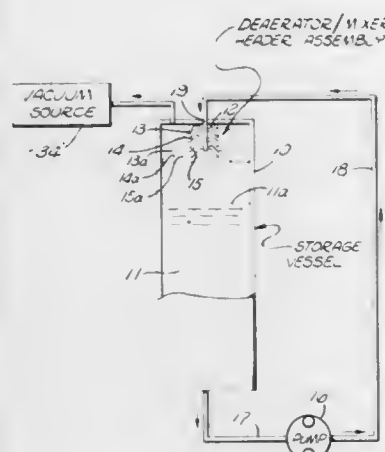
DEGASSIFYING AND MIXING APPARATUS FOR LIQUIDS

Samuel T. Yamauchi, Fountain Valley, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 25, 1981, Ser. No. 325,082
Int. Cl.³ B01D 19/00

U.S. Cl. 55—194

6 Claims



1. Liquid degassing apparatus comprising: a vacuum tight vessel for containment of liquid to be subjected to continuous degassing operations, the level of said liquid within said vessel producing a first liquid volume therein, the remainder of the volume of said vessel comprising a second volume; a header assembly within said second volume, said header assembly including a stacked, spaced plurality of axially narrow orifices, each of said orifices extending generally circumferentially about the axis of said header assembly to produce a plurality of cascades of spaced generally concentric, conical, liquid films into said first volume and means for adjusting the thickness of the liquid films; a first means including a liquid input and manifold for said header assembly, said manifold being formed of a generally cylindrical body having a generally axial cavity therein, and a liquid passage connecting each of said orifices to said liquid manifold; a second means for circulating said liquid from said first volume to said header assembly liquid input; and a third means for partially evacuating said second volume.

4,392,875

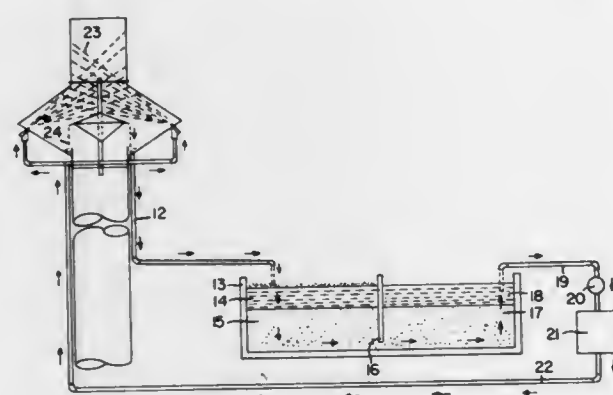
SMOG ELIMINATOR

Roberto V. Celis, Goodrich Village, Marikina, Philippines
Filed Feb. 11, 1981, Ser. No. 347,949

Int. Cl.³ B01D 47/00

U.S. Cl. 55—228

2 Claims



1. A device for eliminating carbon particulates from smoke using continuous, recirculating, pressure water sprays in a uniquely designed spray booth which is mounted on a smoke stack and means for cleaning the recirculating pressure water, which comprises:

(a) a spray booth means comprising two conical sections

joined at the bases thereof, the upper section being connected in a leak-proof way to the upper section of a smoke stack and the lower section being connected in a leak-proof way to the lower section of a smoke stack;

(b) a conical deflector means, centrally mounted by a mounting means within said spray booth means, having an upwardly directed vertex and a base diameter greater than the diameter of the lower section of said smoke stack;

(c) a spray means comprising a multiplicity of spray nozzles mounted around the inner circumference of the lower conical section of the spray booth means, adjacent to the juncture of the bases of the upper conical section and the lower conical section, and directed to spray above said conical deflector means within the upper conical section, whereby sprayed recirculating pressure water encounters rising smoke first as sprayed upward and second as deflected downward on striking the inside wall of the upper conical section of said spray booth;

(d) a water collecting means comprising the lower section of the smoke stack being connected to the lower conical section in a leak-proof way such that the upper-most edge of said smoke stack section protrudes into the spray booth means to form an annular water collecting gutter;

(e) a gravity drain means comprising a pipe mounted at the lowest edge of the lower conical section such that water in the water collecting means will drain through said pipe by gravity;

(f) an open water tank partially filled with sand and divided into two compartments by a partial vertical wall, said vertical wall being mounted so as to prevent flow from one compartment to the other except at the base thereof along the bottom of the open water tank;

(g) a recirculation pump; and

(h) a pressurized recirculation water reservoir; whereby, smoke containing carbon particulates in the smoke stack rising into the spray booth means has particulates removed therefrom by entrainment in pressurized water sprayed into the upper part of said spray booth means, the washed smoke thereafter rising into the upper section of the smoke stack while the pressurized water containing carbon particulates drops onto the conical deflector means and is deflected into the water collecting means, from which said water drains through the gravity drain means into the first compartment of the open water tank, passing through the sand filling and under the vertical wall into the second compartment of the open water tank by gravity, the majority of the carbon particulates being removed in the sand filling, being drawn into the recirculation pump, pumped into the pressurized recirculation water reservoir, and returned to the spray booth means through the spray means.

4,392,876

FILTER PACKING

Klaus Schmidt, Kaiserslautern, Fed. Rep. of Germany, assignor to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany
Filed Sep. 15, 1981, Ser. No. 302,574

Claims priority, application European Pat. Off., Sep. 15, 1980, 80105531

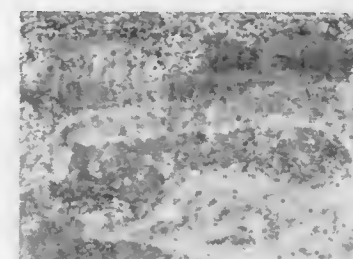
Int. Cl.³ B01D 39/14

U.S. Cl. 55—524

5 Claims

1. A filter packing comprising a composite of electrostatically spray formed microfibers alone or in combination with one or more porous carrier layers, wherein the microfibers comprise a nonporous fiber core surrounded by a foamed coating layer containing open cell pores which extend through

the foam coating in a substantially perpendicular direction to the surface, the cross section distribution of pores being sub-



stantially uniform and the foamed coating and the fiber core being made of the same polymer composition.

4,392,877

CONSTRAINT CONTROL OF A FRACTIONAL DISTILLATION PROCESS

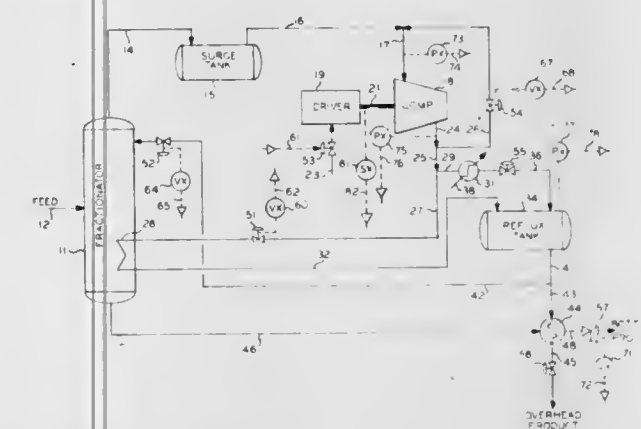
Gary L. Funk, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 6, 1981, Ser. No. 309,333

Int. Cl.³ B01D 3/42

U.S. Cl. 62—37

7 Claims



1. Apparatus comprising:

a fractional distillation column having a reboiler associated therewith;

means for providing a feed stream containing components to be separated to said fractional column;

a compressor having a suction inlet and a discharge outlet;

means for providing an overhead stream from said fractional distillation column to the suction inlet of said compressor;

first control valve;

means for providing fluid from the discharge outlet of said compressor through said first control valve to said reboiler to thereby supply heat to said fractional distillation column;

means for establishing a first signal representative of the actual position of said first control valve;

means for establishing a second signal representative of the desired position of said first control valve;

means for comparing said first signal and said second signal and for establishing a third signal which is responsive to the difference between said first signal and said second signal, wherein said third signal is scaled so as to be representative of the speed of said compressor required to maintain said first signal substantially equal to said second signal;

means for establishing a fourth signal representative of the actual suction pressure for said compressor;

means for establishing a fifth signal representative of the maximum allowable suction pressure for said compressor;

means for comparing said fourth signal and said fifth signal and for establishing a sixth signal which is responsive to

the difference between said fourth signal and said fifth signal, wherein said sixth signal is scaled so as to be representative of the speed of said compressor required to maintain the magnitude of said fourth signal substantially equal to the magnitude of fifth signal;

means for establishing a seventh signal representative of the actual discharge pressure for said compressor;

means for establishing an eighth signal representative of the minimum allowable discharge pressure for said compressor;

means for comparing said seventh signal and said eighth signal and for establishing a ninth signal which is responsive to the difference between said seventh signal and said eighth signal, wherein said ninth signal is scaled so as to be representative of the speed of said compressor required to maintain the magnitude of said seventh signal substantially equal to the magnitude of said eighth signal;

high select means;

means enabling provision of said third signal, said sixth signal and said ninth signal as inputs to high select means, wherein the one of said third, sixth and ninth signals representing the highest speed of said compressor is selected by high select means and is provided as a tenth signal from said high select means; and

means for controlling the speed of said compressor in response to said tenth signal.

4,392,878

GLASS FIBER FORMING UNIT

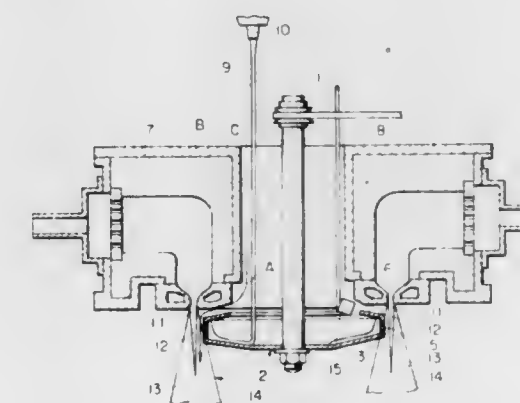
Kiwamu Okuma; Tsunehiro Haga; Masao Kizara; Keiji Otaki, and Ayahiro Hirai, all of Koriyama, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

Filed Dec. 14, 1981, Ser. No. 330,261

Claims priority, application Japan, Dec. 19, 1980, 55/180207
Int. Cl.³ C03B 37/04

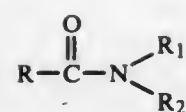
U.S. Cl. 65—6

4 Claims



3. In a method of forming glass fiber in a unit including a hollow-cylinder-shaped rotating spinner having (a) a bottom, (b) a surrounding wall having upper and lower outer surfaces and with a number of molten glass projecting orifices where the molten glass projects from each orifice such that a transition cone of the glass is formed with its base at the orifice and primary filaments of the glass extending from the apex of the cone; and (c) an upper annular flange extending inwardly from the upper edge of said surrounding wall; and an attenuating blast burner with jet flame orifices for attenuating primary filaments formed at the tips of transition cones of molten glass projecting from said rotating spinner into secondary filaments where the jet flame comprises an inner cone of flame surrounded by an outer cone of flame, the speed of the inner flame being greater than that of the outer flame, the improvement comprising directing each jet flame from each jet flame orifice, so that

(1) the inner cone of flame (a) contacts said primary filaments to attenuate them into the glass fibers due to the high speed of this flame and (b) does not contact said transition cones sufficiently to break them even though



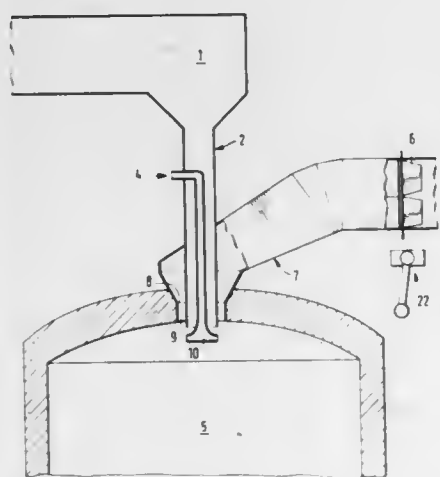
wherein R is haloalkyl having 1 to 6 carbon atoms inclusive; R₁ and R₂ can be the same or different and can be selected from the group consisting of hydrogen, alkyl having 1 to 12 carbon atoms inclusive, haloalkyl having 1 to 12 carbon atoms inclusive, alkenyl having 2 to 12 carbon atoms inclusive, haloalkenyl having 2 to 12 carbon atoms inclusive, alkynyl having 2 to 12 carbon atoms inclusive, hydroxyalkyl having 2 to 12 carbon atoms inclusive, cycloalkyl having 3 to 6 carbon atoms inclusive, alkylcycloalkyl having 4 to 8 carbon atoms inclusive, alkoxyalkyl having 2 to 20 carbon atoms inclusive and cycloalkenyl having 3 to 6 carbon atoms inclusive; provided that when R₁ is hydrogen R₂ is other than hydrogen; said antidote compound being antidotally active with said thiolcarbamate herbicide compound wherein said compound is present in an amount varying between about 0.001 to 30 parts by weight for each part by weight of the active thiolcarbamate herbicide compound.

4,392,885

METHOD AND APPARATUS FOR FORMING A DIRECTIONED SUSPENSION SPRAY OF A PULVEROUS MATERIAL AND A REACTION GAS
Launo L. Lilja, and Valto J. Mäkitalo, both of Pori, Finland, assignors to Outokumpu Oy, Helsinki, Finland
Filed Dec. 10, 1981, Ser. No. 329,301
Claims priority, application Finland, Dec. 30, 1980, 804053
Int. Cl.³ C22B 1/10

U.S. Cl. 75—26

9 Claims



1. A method of forming a directioned and controlled suspension spray of a pulverous material and a reaction gas by causing the pulverous material to flow into a reaction chamber and by directing a flow of the reaction gas evenly around the flow of pulverous material, comprising dividing the uninterrupted reaction-gas flow into at least three partial flows and then deflecting the direction of the partial flows 30°-90° so as to be substantially parallel to the central axis of the reaction chamber, the velocity of the partial flows being simultaneously increased, causing the partial reaction-gas flows thus formed, with minimal pressure losses, to discharge as an annular flow encircling the flow of pulverous material fed from inside the flow, which is caused to discharge in the reaction chamber and to mix effectively with this reaction-gas flow, which is not rotated as a whole, in order to produce a turbulent but controlled suspension spray necessary for the reactions.

4,392,886
METHOD OF RECOVERING CO-RICH EXHAUST GAS IN REFINING OF METAL

Mikio Kodaka; Hitoshi Morishita; Hajime Bada, and Fumio Sudo, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan
PCT No. PCT/JP81/00039, § 371 Date Oct. 22, 1981, § 102(e) Date Oct. 22, 1981, PCT Pub. No. WO81/02429, PCT Pub. Date Sep. 3, 1981

PCT Filed Feb. 27, 1981, Ser. No. 313,951

Claims priority, application Japan, Feb. 29, 1980, 55-23964
Int. Cl.³ C21C 5/34, 5/36

U.S. Cl. 75—52

7 Claims

1. A method of recovering CO-rich exhaust gas in refining of metal, comprising blowing granular limestone together with a carrier gas into a molten iron having a carbon concentration of at least 0.3% and kept in a metal-refining vessel through a tuyere located beneath the bath surface to generate CO, and recovering the CO-containing exhaust gas in an exhaust gas-recovering apparatus.

4,392,887

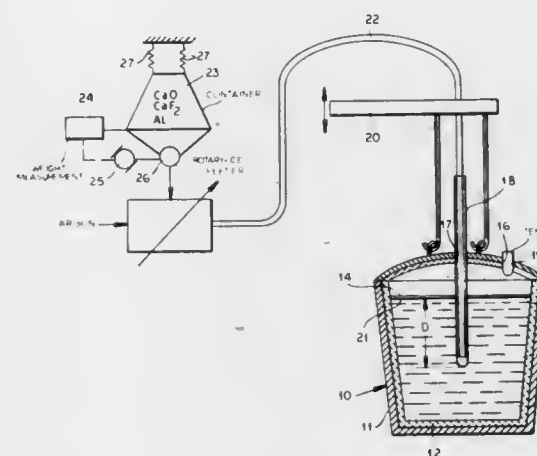
METHOD OF DESULFURIZING AN IRON MELT
Jean Goedert, Luxembourg, Luxembourg, assignor to Arbed S.A., Luxembourg, Luxembourg

Filed Dec. 4, 1981, Ser. No. 327,450

Int. Cl.³ C21C 7/02

U.S. Cl. 75—58

6 Claims



1. A method of desulfurizing an iron melt comprising the steps of:

- (a) forming a bath in a ladle having an upper surface free from slag;
- (b) covering said surface with 1 to 2 kg. of lime per ton of melt;
- (c) covering said ladle;
- (d) independently of the covering of said surface with lime, deoxidizing said melt to a maximum oxygen concentration of about 35 parts per million; and
- (e) independently of the covering of said surface with lime, blowing a desulfurizing mixture with an inert gas through an immersion lance into said melt at an average depth of about 1500 mm below said surface, said mixture consisting substantially of 50 to 98% lime, at least 1% Al up to 30% aluminum and at least 1% CaF₂ up to 20% calcium fluoride.

4,392,888

METAL TREATMENT SYSTEM

Charles E. Eckert, Plum Boro, and Ronald E. Miller, Murrysville, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 7, 1982, Ser. No. 337,529

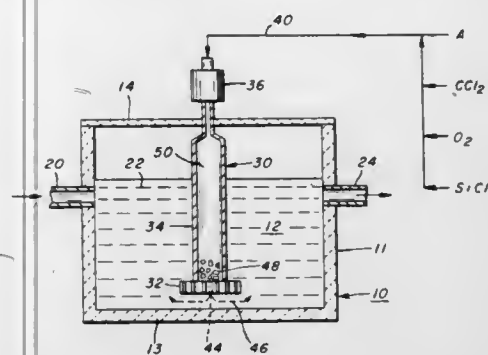
Int. Cl.³ C22B 21/06

U.S. Cl. 75—68 R

38 Claims

1. In a process for treating molten metal wherein said metal

is contacted with halogen values from a gas containing a halocarbon the improvement comprising contacting said halocar-



bon with an oxidizer under conditions to oxidize carbon constituent thereof prior to introducing said halogen values into the molten metal.

4,392,889

METHOD AND APPARATUS FOR RECOVERING SILVER AND PLASTIC FROM USED FILM

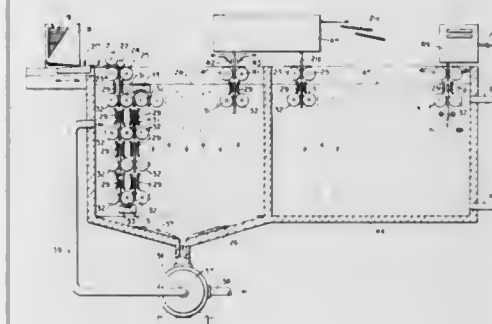
Kenneth M. Grout, Littleton, N.H., assignor to Kenmartin Development, Inc., Littleton, N.H.

Filed Jun. 22, 1981, Ser. No. 275,981

Int. Cl.³ C22B 11/00; B29H 19/00; C08J 1/00

U.S. Cl. 75—97 A

10 Claims



1. The method of recovering silver and polyester from photographic film of the type comprising a polyester base having a surface coating which provides adhesion for a silver emulsion layer on said surface coating, said method comprising:

- (a) passing the film through a bath of a material which will attack the silver emulsion layer until it separates from the film and deposits as a sludge in said bath;
- (b) removing said sludge from said bath;
- (c) separating the solid silver containing particles of said sludge from the liquid portion of said sludge;
- (d) passing the film, cleansed of said silver emulsion, through a second bath of a material which will attack and remove said surface coating from said polyester base;
- (e) restraining said film from having any portion of its surface coming into contact with any other film surface throughout its travel through said baths, whereby any agglomeration of film is avoided; and
- (f) removing said cleansed polyester from said second bath;
- (g) whereby said silver containing particles and said cleansed polyester constitute the desired valuable recovery products.

5. An apparatus for recovering silver and polyester from a photographic film of the type having a polyester base having a surface coating which provides adhesion for a silver emulsion layer on said surface coating, comprising:

- (a) a bath of a material which will attack and remove the silver emulsion layer from said film;
- (b) means for feeding said film into said bath;
- (c) means for guiding said film through said bath along a path of sufficient length so that the time of travel through

said bath is sufficient to cause said bath to substantially completely remove said emulsion from said film and deposit it as a sludge in said tank;

- (d) means for removing said sludge from said tank and for separating the solid silver containing particles of said sludge from its liquid portion, whereby said separated solid particles may be used as a valuable recovery product;
- (e) a second bath of a material which will attack and remove said surface coating from said polyester base;
- (f) means for feeding said film, cleansed of said silver emulsion, into said second bath;
- (g) means for guiding said film through said second bath along a path of sufficient length to cause said bath to substantially completely remove said surface coating from said polyester base;
- (h) means for leading said polyester base, cleansed of said surface coating, out of said second bath as a second valuable recovery product;
- (i) each of said guiding means being constructed and adapted to restrain said film from coming into contact with any other film surface, whereby agglomeration of said film is prevented.

4,392,890

CEMENT CLINKER PRODUCTION

Jean-Pierre Henin, La Madelaine, and Gerard Ghestem, Santes, both of France, assignors to Fives-Cail Babcock, Paris, France

Filed Mar. 3, 1982, Ser. No. 354,347

Claims priority, application France, Mar. 6, 1981, 81 04475

Int. Cl.³ C04B 7/02

U.S. Cl. 106—100

12 Claims

1. A method of producing cement clinker from cold, dry, finely divided raw material, which comprises the steps of

- (a) causing hot flue gases to flow in a first direction out of a rotary kiln having an axis;
- (b) suspending a major portion of the finely divided raw material in the hot flue gases until the raw material has been preheated and at least partially decarbonized;
- (c) introducing the preheated and at least partially decarbonized raw material into the kiln, and
- (d) pneumatically injecting a fraction of the cold, dry, finely divided raw material into an end of the kiln and counter-currently to said first direction approximately parallel to the axis of the kiln to form a dust cloud of the raw material occupying substantially the entire cross section of the kiln at said end, the end being upstream with respect to a second direction of flow of the raw material into the kiln.

4,392,891

DISHWASHER SOIL COLLECTING CIRCUIT

Theodore F. Meyers, Troy, Ohio, assignor to Hobart Corporation, Troy, Ohio

Continuation-in-part of Ser. No. 165,467, Jul. 2, 1980, abandoned, which is a continuation-in-part of Ser. No. 974,342, Dec. 29, 1978, abandoned. This application Nov. 9, 1981, Ser. No. 319,831

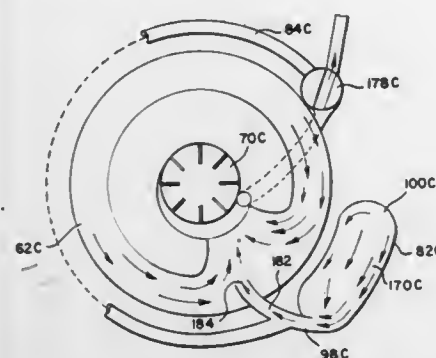
Int. Cl.³ B08B 3/02, 7/04

U.S. Cl. 134—10

23 Claims

21. A method of washing soiled food ware supported on racks in a chamber of a dishwasher, comprising the steps of: filling a sump at the bottom of said chamber with a wash solution, thereby initiating a soil collecting cycle; spraying said food ware and flushing soil therefrom to said sump by pumping said solution under pressure from said sump through spray arms with a recirculating pump, thereby forming a soil laden solution in said sump; ingesting said soil laden solution from said sump during said soil collecting cycle and passing said soil laden solution through a soil collecting circuit independent of said recirculating pump; filtering soil particles from said soil laden solution in said

circuit to collect and retain said filtered particles within said circuit thereby preventing reentrance of said filtered particles into said chamber during said soil collecting cycle and returning supernatant from said circuit for recirculation by said spray arms; and



upon completion of said soil collecting cycle, emptying said circuit of collected soil particles into said sump for draining the solution and said soil particles therefrom.

4,392,892

PROCESS FOR SEPARATING HYDROCARBONS FROM PARTICULATE SOLIDS

Fritz Wagner, Stöckheim; Walter Lindörfer, Kassel; Wilhelm Jahn-Held, Staufenberg, and Walther Schulz, Vechta, all of Fed. Rep. of Germany, assignors to Wintershall Aktiengesellschaft, Kassel and Gesellschaft für Biotechnologische Forschung, Braunschweig-Stöckheim, both of, Fed. Rep. of Germany

Continuation of Ser. No. 82,631, Oct. 5, 1979, abandoned. This application Sep. 18, 1981, Ser. No. 307,092

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843685

Int. Cl.³ B08B 3/08

U.S. Cl. 134—25.1

11 Claims

1. A process for separating oils or petroleum hydrocarbons from solid or solid/liquid mixtures thereof with particles of soil, sand or petroleum processing residues, which comprises the steps of (a) mixing said oil-containing mixture with an aqueous solution or dispersion of a crude extract of microbially produced glycolipids to form a slurry, said extract being obtained by a method consisting essentially of the steps of extracting a microbial culture solution with a solvent for glycolipids and evaporating the solvent from the extract; and (b) adding water, an aqueous salt solution or sea water to the slurry in an amount sufficient to cause a rapid rising of an oil phase from an aqueous phase; and (c) separating the oil phase from the aqueous phase, whereby said particles are rendered substantially oil-free.

4,392,893

METHOD FOR CONTROLLING CHARACTERISTICS OF A SEMICONDUCTOR INTEGRATED CIRCUIT BY X-RAY BOMBARDMENT

Nguyen T. Du, Hatogaya, and Akihide Asao, Ohita, both of Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 17, 1980, Ser. No. 207,178

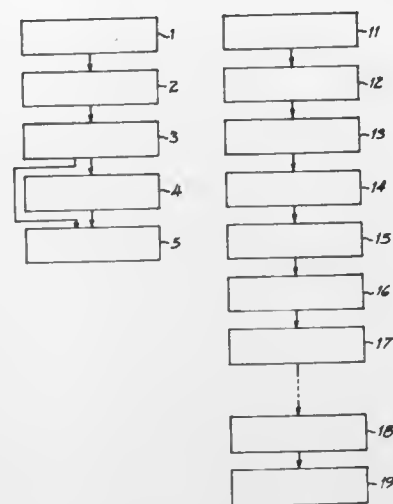
Int. Cl.³ H01L 21/265; B01J 17/00

U.S. Cl. 148—1.5

6 Claims

1. A method for manufacturing a semiconductor integrated circuit to provide a specific value of an electrical characteristic, comprising the steps of preparing a silicon substrate for said integrated circuit having a substrate resistivity of no more than 10Ω. cm at least at a portion of said substrate, forming a semiconductor device at an area including said portion of said substrate, testing said electrical characteristic of said integrated

circuit, and thereafter irradiating a predetermined amount of X-ray to a surface of said semiconductor device of said integrated circuit to alter said electrical characteristic measured in said test.



4,392,894

SUPERALLOY PROPERTIES THROUGH STRESS MODIFIED GAMMA PRIME MORPHOLOGY

David D. Pearson, West Hartford; Frank D. Lemkey, Glastonbury, and Bernard H. Kear, Madison, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

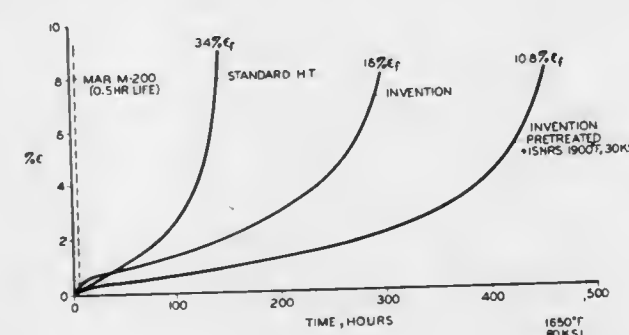
Continuation-in-part of Ser. No. 177,047, Aug. 11, 1980, Pat. No. 4,328,045, which is a continuation-in-part of Ser. No. 973,193, Dec. 26, 1978, abandoned, which is a

continuation-in-part of Ser. No. 913,131, Jun. 6, 1978, abandoned. This application Sep. 24, 1980, Ser. No. 190,137

Int. Cl.³ C22F 1/10

U.S. Cl. 148—2

13 Claims



1. A method for producing a high strength nickel superalloy article of the type having a gamma-gamma prime microstructure including the steps of:

- providing a homogeneous single crystal article of a gamma-gamma prime type alloy in which both the gamma and gamma prime phases are saturated in refractory elements, in which the gamma prime phase has a lattice parameter which is at least 0.1% smaller than the lattice parameter of the gamma phase, and in which (at equilibrium) the gamma prime phase is present in from 30-75 volume percent;
- heating the article to a temperature between the gamma prime solvus and the incipient melting temperature so as to dissolve the gamma prime phase into solid solution;
- cooling the article at a rate sufficient to effectively suppress growth of the gamma prime phase;
- applying a stress along an axis to the article while simultaneously heating it to a temperature at which growth of the gamma prime phase will occur; whereby the gamma prime phase grows in an oriented manner and the resultant microstructure is exceptionally resistant to creep along the axis of stress application during aging.

7. A nickel base gamma-gamma prime superalloy article

adapted to resist stresses at elevated temperatures along a principal axis which comprises:

a microstructure comprised of a gamma phase matrix containing aligned rods of the gamma prime phase oriented substantially parallel to the principle axis, with the spacing between adjacent gamma prime lamellae being less than about 0.5 micron;

said gamma and gamma prime phases being substantially saturated with refractory elements, said gamma prime phase having a lattice parameter which is at least 0.1% smaller than the gamma phase lattice parameter, and said gamma prime phase being present in an amount of from 30 to about 75 volume percent.

4,392,895

RAMJET FUEL

Russell Reed, Jr.; George W. Burdette; Gary W. Meyers, and William R. Vuono, all of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 9, 1981, Ser. No. 319,159

Int. Cl.³ C06B 45/10

U.S. Cl. 149—19.3

11 Claims

1. A solid ramjet fuel composition comprising a functionally terminated fluorocarbon prepolymer, a functionally terminated polybutadiene prepolymer, a curative cross-linking compound for both prepolymers, and metallic fuel.

4,392,896

METHOD OF PRODUCING A GYPSUM PLASTER BOARD

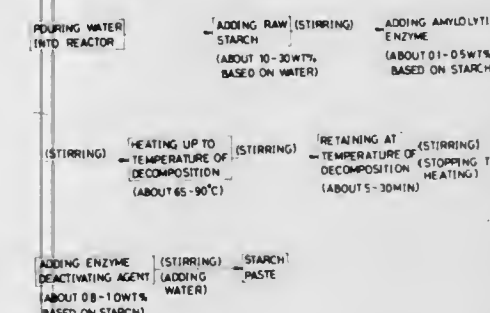
Syoji Sakakibara, Nagoya, Japan, assignor to Sakakibara Sangyo Kabushiki Kaisha, Nagoya, Japan

Filed Jan. 18, 1982, Ser. No. 340,183

Int. Cl.³ B32B 31/06, 13/08

U.S. Cl. 156—39

12 Claims



1. Method of producing a gypsum plaster board comprising the steps of:

- preparing a starch paste wherein starch is added into water with stirring to form milk of starch, into which an amylolytic enzyme is added, and heated with stirring until the decomposition temperature of said starch is reached, and then the heating operation is stopped at a point of DH 0.1-10 and an enzyme deactivating agent is added and stirred with water;
- mixing said starch paste with a raw material of a gypsum core member containing calcined gypsum, reinforcing agent and weight reducing agent as well as water to prepare a gypsum slurry;
- producing a gypsum plaster board wherein said gypsum slurry is poured between porous sheets such as paper boards and molded to a predetermined thickness by a molding device, then said gypsum slurry is set by hydration at room temperature and dried at about 50°-200° C. so as to evaporate excessive moisture therein.

4,392,897

MANUFACTURING PROCESS FOR CHANNEL SEAL

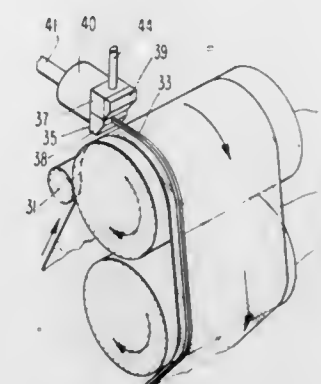
Fox J. Herrington, Holcomb, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 5, 1982, Ser. No. 365,814

Int. Cl.³ B29C 24/00; B65D 33/24

U.S. Cl. 156—66

32 Claims



25. A method of attaching a channel shaped adhesive strip having ribs along each side and an adhesive layer between said ribs to a plastic film comprising:

- moving a web of said film past a coextruding assembly; extruding a channel shaped strip of thermoplastic onto said moving web;
- applying a layer of adhesive between the ribs of said strip; and
- maintaining a temperature differential between said molten thermoplastic and said moving web so that said extruded thermoplastic channel strip adheres to said moving web upon contact and thereafter cools to set said extruded thermoplastic channel strip in said channel profile with said adhesive between the ribs of said strip.

4,392,898

DEVICE FOR ENCLOSING OBJECTS

Kenneth B. Pithouse, Swindon, England, and Christopher J. Swinburn, Cupertino, Calif., assignors to Raychem Limited, London, England

Continuation of Ser. No. 259,286, Apr. 30, 1981, abandoned.

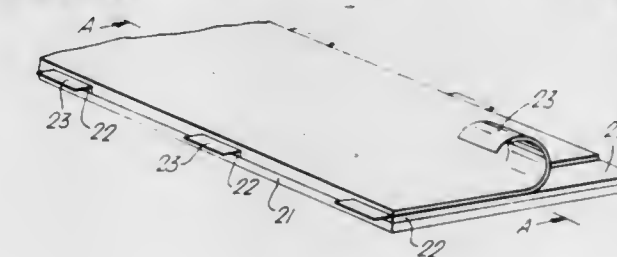
This application Mar. 31, 1982, Ser. No. 364,086

Claims priority, application United Kingdom, May 3, 1980, 8014923; Sep. 13, 1980, 8029663

Int. Cl.³ B29C 27/00; B32B 31/00; A61F 13/02; H02G 13/06

U.S. Cl. 156—85

22 Claims



1. A device for enclosing at least part of an object, which comprises:

- a dimensionally heat-recoverable cover;
- adhesive means coated on at least part of the cover for retaining the cover in position during heat recovery of the cover;
- sealant means covering the adhesive means for preventing the adhesive means from adhering to the article and at least a portion of the sealant means being separable from the adhesive means; and
- whereby upon separation of the sealant means, the adhesive means may adhere to the object with the cover enclosing at least part of the object.

18. A method of enclosing at least part of an object by means of a device as set forth in claim 1, which comprises the steps of:

- (a) positioning the cover about the object so that one portion of the cover can overlie another part thereof;
- (b) peeling a portion of the sealant means from the said portion of the adhesive means to allow the adhesive means to adhere to a surface of the object;
- (c) causing the said portion to overlie the other part of the cover so that the portion is bonded thereby by the adhesive means; and
- (d) heating the cover to cause recovery thereof.

4,392,899

PROCESS AND APPARATUS FOR MANUFACTURING VEHICLE TIRES

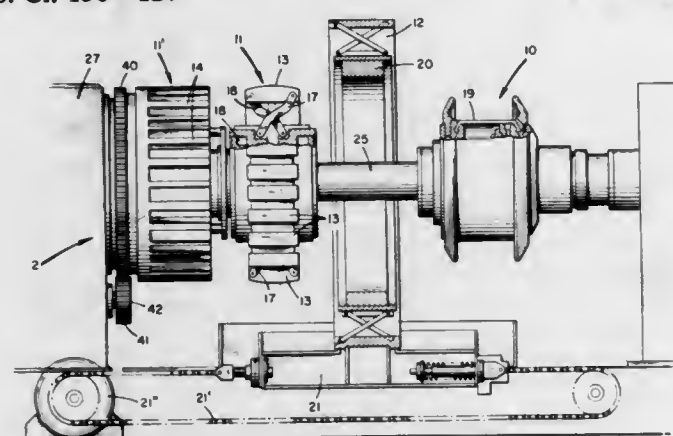
Giorgio Bertoldo, Arese, Italy, assignor to Societa Pneumatici Pirelli S.p.A., Milan, Italy

Filed Oct. 15, 1981, Ser. No. 311,601

Claims priority, application Italy, Oct. 15, 1980, 25340 A/80
Int. Cl.³ B29H 17/20

U.S. Cl. 156—127

10 Claims



1. In a process for manufacturing tires which comprise a carcass, an annular reinforcing structure, and a tread-band which process comprises the steps of:

- (a) preparing a carcass of a first tire in a cylindrical form on a first expandable drum;
- (a) building an annular reinforcing structure for the first tire on a hollow drum having a comb-shaped surface;
- (c) expanding the sectors of a second expandable drum, between void spaces of the comb, from an inner position to an outer position of the comb, thereby shaping and supporting the annular reinforcing structure only with the sectors;
- (d) slipping the comb-shaped drum from the drum-with-sectors;
- (e) applying a tread-band on the annular structure while it is supported by the sectors of the second drum;
- (f) transferring the annular reinforcing structure and the tread-band from the second to the first expandable drum;
- (g) expanding the first expandable drum to impart a final toroidal shape to the tire; and
- (h) removing said tire from said first expandable drum; the improvement which comprises the additional steps of:
- (i) building the annular reinforcing structure of a second tire on the comb-shaped drum in a slipped position from the sectors after step (d);
- preparing a carcass of a second tire in a cylindrical form on said first expandable drum after completion of step (h);
- (j) transferring, after step (f), the annular reinforcing structure of the second tire while supported by the comb-shaped drum around the sectors of the second drum; and
- (k) repeating steps (c) to (h).

3. In an apparatus for making a vehicle tire having a carcass, a tread band, and an annular reinforcing structure disposed between the carcass and the tread band, said apparatus comprising a building drum, axially separable into two distinct parts and recomposable into an assembled unity, for manufacturing and shaping said annular reinforcing structure and for assembling it with said tread band, said two distinct parts being respectively constituted by a first cylindrical, hollow, comb-shaped drum (11'), for manufacturing said annular structure,

and by a second expandable drum (11) with sectors (13), for shaping the annular structure and for supporting said shaped annular structure during its assembling with the tread band, said comb-shaped drum having its teeth (14) off-set with the sectors of the expandable drum when said building drum is in the state of assembled unity, the sectors of said second drum being radially expandable through the void spaces in between the teeth of the comb-shaped drum from inside towards the outside of said comb, said apparatus also comprising means to axially slide said comb-shaped drum from and towards said expandable drum, bringing said two drums alternatively axially separated, in a position of no mutual interference, and joined together in assembled unity,

the improvement wherein means are provided for allowing and for causing the comb-shaped drum to rotate independently in direction and speed with respect to the expandable drum, and centering means for aligning the teeth of said comb-shaped drum in off-set relationship with the sectors of the expandable drum, all said means acting when said drums are axially separated from each other.

4,392,900

METHOD AND APPARATUS FOR APPLYING A PATCH

Clarence H. Helbing, 485 Tailholt La., Shelbyville, Ind. 46176

Filed Jan. 21, 1982, Ser. No. 341,489

Int. Cl.³ B32B 31/12

U.S. Cl. 156—153

10 Claims

1. A method for applying a patch having an elastomeric mounting surface on a battery case or the like, the battery case comprising a polypropylene surface area, the method comprising the steps of:

- a. abrading the polypropylene surface area of the battery case sufficiently to remove a surface layer and expose the underlying surface of the battery case;
- b. applying hydrogen peroxide to the exposed, underlying surface of the battery case;
- c. after step b., applying a layer of cyanoacrylate adhesive to the exposed, underlying surface of the battery case; and
- d. positioning the patch with the elastomeric mounting surface against the adhesive.

4,392,901

REFLECTIVE GARMENT AND METHOD OF MANUFACTURING SAME

Vincent S. Pernicano, 2833 Railroad St., Boyne Falls, Mich. 49713, and Michael R. Wright, 24297 Ridgeview Dr., Farmington Hills, Mich. 48018

Division of Ser. No. 198,926, Oct. 20, 1980, abandoned, which is a division of Ser. No. 60,466, Jul. 25, 1979, Pat. No. 4,248,500.

This application Feb. 19, 1982, Ser. No. 350,333

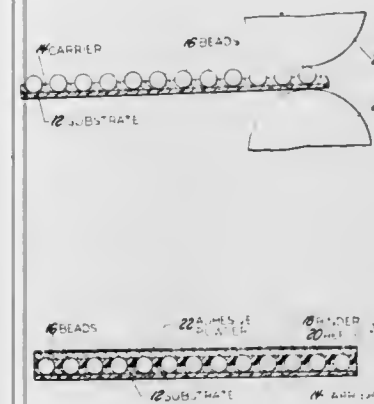
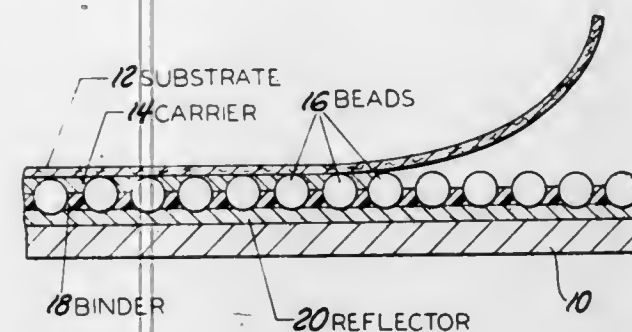
Int. Cl.³ B32B 31/00; C09J 7/00

U.S. Cl. 156—155

1 Claim

1. A method of making a reflective heat transfer combination including the steps of: applying a tacky mixture of tack wax and mineral spirits in a carrier layer over a paper substrate capable of absorbing the carrier layer when melted in response to heat, disposing a layer of glass beads over the carrier layer, forcing the glass beads into the carrier layer and against the substrate while allowing portions of the beads to be exposed above the carrier layer, applying a liquid binder layer around the beads and over the carrier layer, drying the binder layer, applying a liquid reflective coat over the binder layer and covering the beads, applying powdered adhesive over the reflective coat while the reflective coat is liquid, and drying the reflective coat and applying the heat transfer combination

to an article by placing the coating with the powdered adhesive therein against the article and applying heat and pressure



to activate the powdered adhesive whereby the adhesive responds to heat and melts and bonds to the article.

4,392,902

METHOD FOR PRODUCING A SIEVE BELT OF THERMOSETTABLE SYNTHETIC RESIN HELICES FOR A PAPERMAKING MACHINE

Johannes Lefferts, Enschede, Netherlands, assignor to Steg Siebtechnik GmbH, Ahaus-Alstätte, Fed. Rep. of Germany

Division of Ser. No. 111,497, Jan. 11, 1980, Pat. No. 4,346,138.

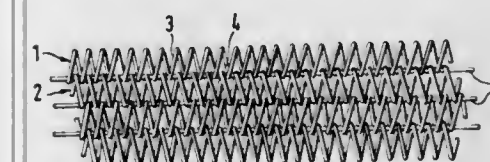
This application Mar. 25, 1982, Ser. No. 362,039

Claims priority, application Netherlands, Apr. 23, 1979, 7903176; Fed. Rep. of Germany, Sep. 21, 1979, 2938221

Int. Cl.³ B32B 5/00; D04H 3/02

U.S. Cl. 156—161

5 Claims



1. A method for producing a sieve belt characterized by the following method steps:

- (a) meshing helices of thermosettable synthetic resin filament by inserting the windings of one helix between the windings of an adjacent helix so that the overlapping windings form a channel, the meshed helices being free of bias,
- (b) passing a pintle-filament into said channel,
- (c) extending the thus-formed sieve belt by applying longitudinal tension, and
- (d) thermosetting the sieve belt in said extended condition.

4,392,903

PROCESS FOR MAKING A THERMAL-INSULATING NONWOVEN BULKY PRODUCT

Tadakazu Endo, Ohtsu; Hirotsugu Suzuki, Tokyo, and Masanori Takahashi, Kyoto, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

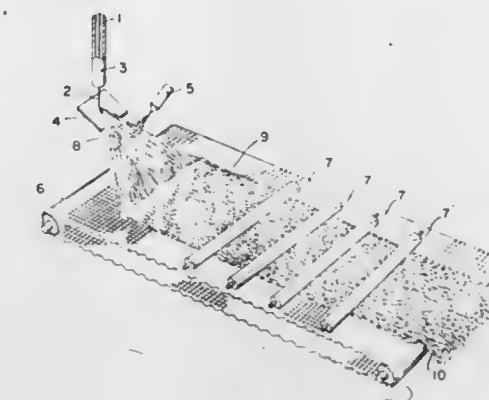
Division of Ser. No. 146,078, May 2, 1980, Pat. No. 4,320,166.

This application Sep. 25, 1981, Ser. No. 305,377

Int. Cl.³ B32B 3/28

U.S. Cl. 156—167

5 Claims



1. A process for producing a thermal insulating nonwoven bulky product the steps which comprise

- (a) spinning the filaments of a synthetic polymer under fluid pressure,
- (b) releasing the spun filaments together with fluid at high velocity for crimping and separating,
- (c) crimping and separating the filaments,
- (d) spraying the crimped and separated filaments with a binder,
- (e) spreading out and accumulating the separated filaments into layers, and
- (f) heating the layered filaments to the final product.

4,392,904

SCULPTURED LAMP BASE

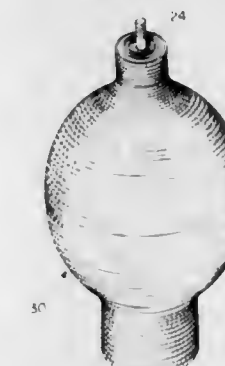
Gregory A. Van Pelt, 634 Wenonah Ave., Oak Park, Ill. 60304

Filed Jan. 14, 1981, Ser. No. 225,009

Int. Cl.³ B65H 81/00

U.S. Cl. 156—194

3 Claims



1. In a method for the production of sculptured lamp bases, the steps comprising: winding a pre-slit strip of single wall corrugated cardboard around a central core threaded or otherwise designed for the attachment of lamp hardware to form a tightly wound spiral of a certain diameter; positioning said spiral on a mold comprising a plurality of ribs radiating around a vertical axis coincident with said central core; distending said spiral downwardly along said mold beginning with the center-most position of said spiral; tautly shaping the distended spiral to conform with the shape of the mold; applying glue to the molded spiral to the inner surfaces thereof and about the central core and the outermost edge of the spiral; repeating the prior steps to form a mating molded spiral; gluing the bottom

of the first molded spiral to the top of the mating spiral; and coating the completed lamp base with glue.

4,392,905

METHOD OF TRANSFERRING DESIGNS ONTO ARTICLES

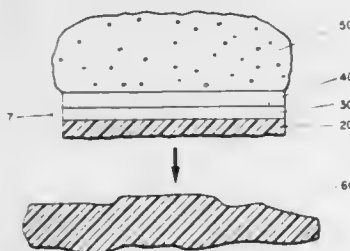
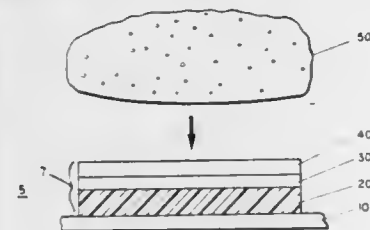
Mary G. Boyd, Framingham, and Donald R. Smith, Dover, both of Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Filed Jul. 30, 1981, Ser. No. 288,589

Int. Cl.³ B32B 31/00; B65C 9/25; C09J 5/06

U.S. Cl. 156—235

38 Claims



1. A process for transferring a film laminate to an article from a support member, wherein the film laminate comprises a resinous coating layer in contact with said support member, an ink layer, and a protective coating layer, said resinous coating layer comprised of a film forming component which is the polymerization product of a diamine with a dimerized fatty acid, said process comprising the steps of:

- heating the support member to a first temperature above the melting point of the resinous coating layer,
- heating the surface of a resilient transfer pad to a second temperature lower than said first temperature,
- pressing the heated transfer pad against the film laminate to transfer the laminate thereto,
- pressing the film laminate against the article so that the resinous coating layer contacts the article, and
- withdrawing the transfer pad from the article so that the pad separates from the film laminate, which remains in adhesive contact with the article.

4,392,906

METHOD OF AND APPARATUS FOR MANUFACTURING FASTENER ASSEMBLIES

Saburo Hara, Tokyo, Japan, assignor to Toska Co., Ltd.; Japan Bano'k Co., Ltd., both of Tokyo, Japan and Ben Clements & Sons, Inc., Hackensack, N.J.

Filed Sep. 9, 1981, Ser. No. 300,523

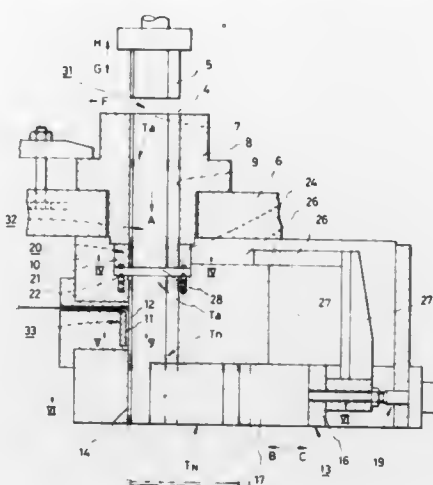
Int. Cl.³ B32B 31/18, 31/26

U.S. Cl. 156—250

8 Claims

1. A method of manufacturing a continuous assembly of fasteners, each said fastener including a head section and a bar section joined together by a filament section comprising the steps of successively punching individual fasteners out of a sheet of synthetic resin material, successively delivering said fasteners in a downward direction so that said fasteners are laminated in a continuous stack of fasteners, heating the bar sections of said fasteners so that said bar sections are fused

together to form a continuous assembly of joined fasteners, successively stretching the filament sections of said fasteners,



and delivering said stacked, joined and stretched fasteners in a continuous assembly.

4,392,907

METHOD FOR PRODUCING RECORDING HEAD

Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagami-hara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagami-hara, and Michiko Takahashi, Higashi Ohizumi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 133,317, Mar. 24, 1980, abandoned.

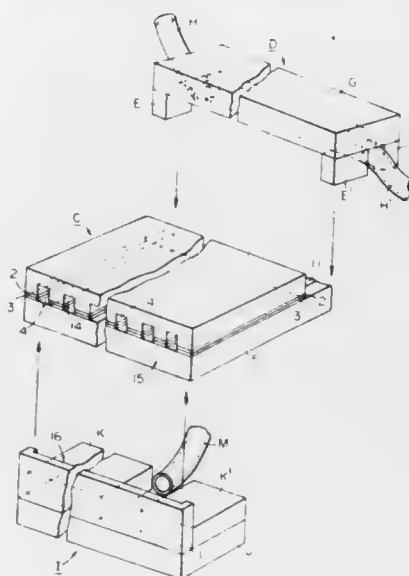
This application Oct. 7, 1981, Ser. No. 309,411

Claims priority, application Japan, Mar. 27, 1979, 54-36040; Mar. 27, 1979, 54-36042; Mar. 29, 1979, 54-37385; Mar. 29, 1979, 54-37389

Int. Cl.³ B32B 31/18; G01D 15/16

U.S. Cl. 156—252

17 Claims



1. A method for producing a recording head for ejecting a recording liquid in an action chamber from an orifice connected with said action chamber in a state of small droplets and depositing at least a part of said droplets onto a recording surface to achieve recording, said method comprising a step X' for forming a member a' having a perforation for constituting said action chamber by forming a curable resin layer on a surface of a first sub-member, forming a groove on said surface bearing said resin layer and curing said resin layer while said surface bearing said resin layer is maintained in contact with a second sub-member thereby adjoining said sub-members, a step Y' of adjoining an end aperture of said perforation to another member b' constituting an intermediate supply chamber of said liquid, and a step Z' of attaching to member a' another member c' for forming an opening in the vicinity of the other end aperture of said perforation.

4,392,908

PROCESS FOR MAKING ABSORBENT ARTICLES

Roger B. Dehnell, Sharnbrook, England, assignor to Lever Brothers Company, New York, N.Y.

Filed Jan. 9, 1981, Ser. No. 223,864

Claims priority, application United Kingdom, Jan. 25, 1980, 8002624

Int. Cl.³ B32B 31/00; C09J 5/00; B22F 3/00

U.S. Cl. 427—194

5 Claims

1. A process for manufacturing a water-absorbent article in which particles of a water-swellaible polymer are fixed to a water-absorbent substrate, which process comprises:

- forming on the surface of the water-swellaible particles a coating of a thermoplastic adhesive resin to form coated particles;
- locating the coated particles in their unswollen and dry state on or within the water-absorbent substrate also in the dry state; and
- applying heat to soften the thermoplastic coating of the particles and pressing the particles and substrate to cause the particles to be bound to the substrate.

4,392,909

METHOD AND DEVICE FOR PRODUCING MULTILAYER PRINTED CIRCUIT BOARDS

Hans Bohn, Schopfloch; Wolfgang Stein, Freudenstadt; Peter Bernsau, Wittlensweiler, and Fred Staubitzer, Dornstetten, all of Fed. Rep. of Germany, assignors to Robert Bürkle GmbH & Co., Freudenstadt, Fed. Rep. of Germany

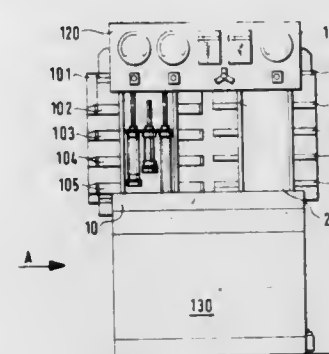
Filed Sep. 2, 1981, Ser. No. 298,722

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1980, 3032931

Int. Cl.³ C09J 5/10

U.S. Cl. 156—306.9

6 Claims



1. A method of assembling a plurality of printed circuit boards into a permanently bonded multilayer circuit board stock, the method comprising the steps of stacking printed circuit boards in alternation with bonding layers of thermosetting resin-based plastic to form multilayer stacks; heating a first multilayer stack under compression in a first panel press to a curing temperature at which the material of the bonding layers undergoes a curing process; precooking the first multilayer stack under compression in the first panel press to a transfer temperature which lies between the curing temperature and the ambient temperature; transferring the precooked first multilayer stack from the first panel press to a second panel press; loading a second multilayer stack in the first panel press; and aftercooling the transferred multilayer stack under compression in the second panel press to a temperature in the vicinity of the ambient temperature, while heating the second multilayer stack in the first panel press as afore-said.

4,392,910

WEB ALIGNING PROCESS AND APPARATUS

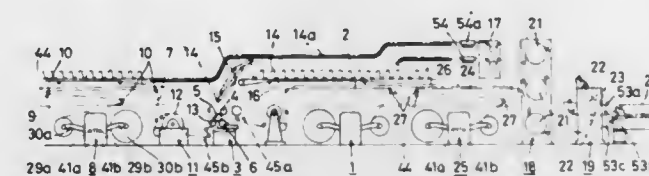
Masateru Tokuno, Nishinomiya; Yoshinori Ishii, Yao, and Hidetoshi Hoshiyama, Ibaragi, all of Japan, assignors to Rengo Co., Ltd., Osaka, Japan

Filed Sep. 21, 1981, Ser. No. 304,340

Claims priority, application Japan, Oct. 2, 1980, 55-138517 Int. Cl.³ B65H 25/26

U.S. Cl. 156—361

5 Claims



1. An apparatus for aligning at least two running webs to be glued together with each other in the production of corrugated fiberboard, said apparatus comprising:

two web position detectors provided adjacent to a gluing station for detecting the lateral positions of the respective webs,

a computing means for combining the signals from said web position detectors to generate a difference signal proportional to the difference therebetween,

web moving means disposed at a position at a predetermined distance upstream of the detection point for correcting any lateral displacement of one web in relation to the other,

a moved distance detector means for generating a signal proportional to the distance for which the web has been moved by said web moving means,

READY signal generator means for generating a first READY signal from when the web corrected has run at least for said predetermined distance after the last correction of displacement and generating a second READY signal at least from when a spliced point has passed the detection point after splicing of one web to the other web, and

a timing controller which in the presence of said first READY signal gives a timing signal until the signal from said moved distance detector means becomes equal to said difference signal,

said web moving means operating while it receives said timing signal and said second READY signal.

4,392,911

APPARATUS FOR SEALING CARTONS

Lawrence W. Ulrich, and Connie W. Walker, both of Bolingbrook, Ill., assignors to Durable Packaging Corporation, Chicago, Ill.

Filed May 12, 1982, Ser. No. 377,336

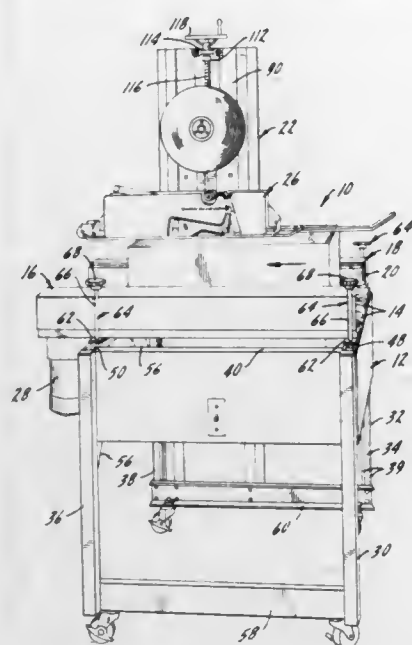
Int. Cl.³ B31F 1/00

U.S. Cl. 156—468

38 Claims

1. Apparatus of the type used for sealing the foldable flaps of cartons; said apparatus including a frame structure, a sealing head assembly mounted to said frame structure, and at least one longitudinally extending side arm assembly mounted to said frame structure; said frame structure comprising: a pair of entrance leg members positioned in a common transverse vertical plane and a pair of exit leg members positioned in a common transverse vertical plane spaced from the plane of said entrance leg members, said entrance leg members and said exit leg members including a front leg member and a rear leg member; an entrance cross support member extending between the upper portions of said entrance leg members and an exit cross support member extending between the upper portions of said exit leg members, said entrance cross support member and said exit cross support member being formed with upwardly extending open channel portions; and means secured to said side arm assembly for slidable receipt within said channel

portions of said entrance cross support member and said exit cross support member so as to permit selective transverse



movement of said side arm assembly above said channel portions.

4,392,912

BOBBIN CHANGER FOR JOINING SUCCESSIVE REELS OF WEB OF THE CIGARETTE INDUSTRY

John K. Horsley, High Wycombe, England, assignor to Molins Limited, London, England

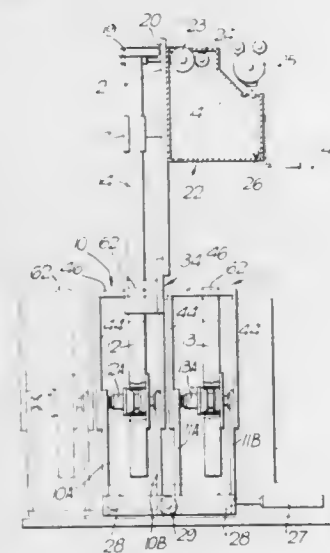
Filed Apr. 15, 1981, Ser. No. 254,284

Claims priority, application United Kingdom, Apr. 15, 1980, 8012336

Int. Cl.³ B65H 19/14, 19/18, 19/20

U.S. Cl. 156—504

13 Claims



12. A bobbin changer comprising a splicing device for joining the leading end of the web on each new reel to the web on the expiring reel; at least two cradles for receiving and supporting reels of the web during use, each having means for locating the end of the web of a new reel in readiness for splicing, the locating means including an upwardly-extending arm which carries a cross-bar including means for releasably holding the end of the web on each new reel in the position needed for splicing, and means for movably supporting each of the cradles whereby each cradle in turn can be moved from a standby position to an operative position aligned with the splicing device in preparation for a splicing operation; the splicing device including a fixed member having suction ports for gripping the expiring web, once it has stopped, in preparation for splicing, and an opposed movable member, said movable member and an opposed portion of said fixed member being set at a level below the cross-bar of each cradle, the leading end portion of a new reel being moved into a position

between the fixed and movable members when the cradle carrying that reel is moved to the operative position splicing being effected by movement of the movable member towards the fixed member, the splicing device further including a knife arranged to cut the expiring web below the suction ports to remove the tail end, the arrangement being such that, after the tail end of expiring web has been cut by the knife, the means moving the cradles is arranged to operate to bring the new web to a position between the old web and the movable member, whereby movement of the movable member towards the fixed member will press the two webs together and effect a joint by means of adhesive carried by the new web, for example, in the form of double-sided adhesive tape.

4,392,913

LABELLING APPARATUS

Peter J. Baumli, 213 Carrington Rd., Coogee, New South Wales, Australia

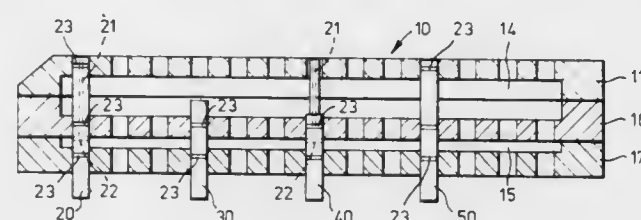
Filed Jun. 15, 1981, Ser. No. 273,311

Claims priority, application Australia, Jun. 23, 1980, PE4157/80

Int. Cl.³ B32B 35/00

U.S. Cl. 156—584

11 Claims



1. A programmable platen for a label applying system comprising a top plate, a bottom plate and a dividing plate therebetween defining two gas chambers, a predetermined arrangement of through bores extending in alignment through said three plates and a plurality of removable valving pins adapted to fit said through bores; each of said chambers being adapted to be coupled to a source of positive or negative gas pressure and wherein the surface of the platen at each valving pin location is subject to positive and/or negative pressure depending upon the form of valving pin fitted in each through bore in accordance with a predetermined program for arranging said valving pins; each valving pin extending between at least two of said plates and having gas sealing means between said pin and at least two of said plates.

4,392,914

METHOD FOR MANUFACTURING MASK FOR COLOR CRT

Shigeo Takenaka; Eiji Kamohara, and Kazuyuki Seino, all of Fukaya, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 1, 1982, Ser. No. 413,896

Claims priority, application Japan, Sep. 10, 1981, 56-141739

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06

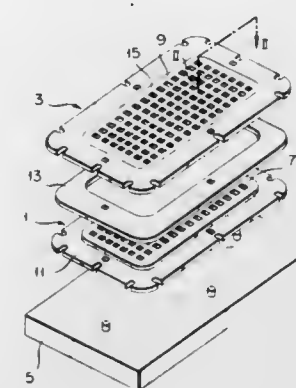
U.S. Cl. 156—633

9 Claims

1. A method for manufacturing a mask for a color CRT in which a plurality of flat mask members each of which has a number of apertures in an effective area thereof are formed, and the plurality of mask members are fixed at predetermined distances with the apertures thereof being aligned with each other, comprising the steps of:

bringing into tight contact and fixing in position at least parts of said effective areas which have said apertures of said flat mask members with an insulator interposed between peripheral portions surrounding said effective areas of said plurality of flat mask members;

press forming said plurality of flat mask members to provide a predetermined radius of curvature thereto; and



fixing said effective areas in position at said predetermined distances after shifting apart said plurality of mask members.

4,392,915

WAFER SUPPORT SYSTEM

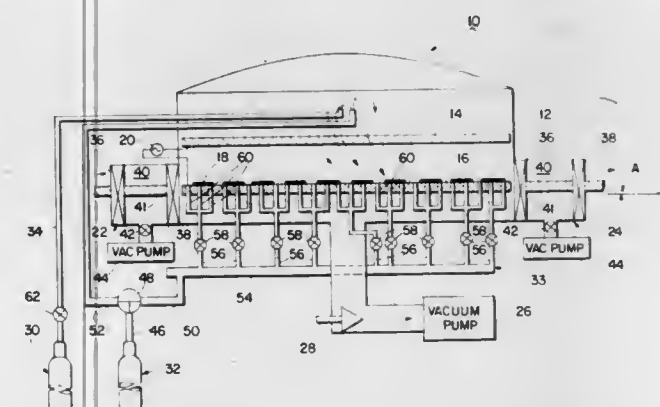
John Zajac, San Jose, Calif., assignor to Eaton Corporation, Cleveland, Ohio

Filed Feb. 16, 1982, Ser. No. 348,625

Int. Cl.³ H01L 21/306; B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—643

13 Claims



9. A method of operating a plasma etcher comprising positioning one or more wafers on an electrode within the vacuum chamber of said plasma etcher, directing a flow of a first gas into said vacuum chamber above said one or more wafers at a first predetermined volume flow, and selectively directing a second gas into said vacuum chamber through said electrode toward the one or more wafers positioned thereon at a second predetermined volume flow to alternately support said one or more wafers on a cushion of said second gas and then allow said one or more wafers to come to rest in engagement with said electrode.

4,392,916

PAPER-MAKING PROCESS WITH REGENERATED CHITIN FIBERS

Masashi Nishiyama, Kanonji; Yoshinari Kobayashi, Kagawa; Seiichi Tokura, and Norio Nishi, both of Sapporo, all of Japan, assignors to Director-General of the Agency of Industrial Science and Technology, Tokyo and President of Hokkaido University, Hokkaido, both of, Japan

Continuation-in-part of Ser. No. 235,588, Feb. 18, 1981, abandoned. This application Feb. 23, 1982, Ser. No. 351,636

Claims priority, application Japan, Jun. 17, 1980, 55-82258

Int. Cl.³ D21H 5/12

U.S. Cl. 162—157.1

4 Claims

1. A method for the preparation of a paper composed of chitinous fibers without the use of a binder material which comprises the steps of

- preparing a dope by dissolving chitin, an alkylated chitin or an acetylated chitin in a solvent,
- spinning the dope through a spinning nozzle into a coagulating bath to form fibers,
- chopping the fibers into staples,
- dispersing the staples of the fibers in water to make a fiber suspension, and
- subjecting the fiber suspension to sheet making, in which the fibers formed in the step (b) are subsequently kept wet with water throughout down to the step (e).

2. A method for the preparation of a paper from once dried fibers of a regenerated chitinous material of chitin, an alkylated chitin or an acetylated chitin by subjecting a fiber suspension of the chitinous fiber to sheet making without the use of a binder material which comprises contacting the once dried chitinous fibers with a hydrogen-bond forming agent and rinsing the thus treated chitinous fibers with water subsequently keeping the fibers wet with water down to the step of the sheet making.

4,392,917

AMPHOTERIC WATER-IN-OIL SELF-INVERTING POLYMER EMULSION

Stanley A. Lipowski, Livingston, and John J. Miskel, Jr., Mendham, both of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Division of Ser. No. 84,986, Oct. 15, 1979, Pat. No. 4,330,450.

This application Oct. 5, 1981, Ser. No. 308,175

Int. Cl.³ D21H 3/38

U.S. Cl. 162—168.1

10 Claims

1. In pulp and papermaking processes, the improvement which comprises adding to pulp an effective amount of an amphoteric water-in-oil self-inverting polymer emulsion having

- from about 10 to about 50 parts by weight of a polymer selected from the group consisting of
 - a copolymer having from about 30 to about 99 parts by weight of a water soluble nonionic vinyl monomer and from about 1 to about 70 parts by weight of a water soluble amphoteric vinyl monomer, and
 - a terpolymer having from about 30 to 98 parts by weight of a water soluble nonionic vinyl monomer, from about 1 to about 35 parts by weight of a water soluble anionic vinyl monomer and from about 1 to about 35 parts by weight of a water soluble cationic vinyl monomer,
- from about 10 to about 50 parts by weight of water,
- from about 5 to about 50 parts by weight of a hydrophobic liquid,
- from about 2 to about 25 parts by weight of a water-in-oil emulsifying agent, and
- from about 1 to about 15 parts by weight of an inverting surfactant

wherein the polymer is in the aqueous phase to improve drainage of the pulp.

4,392,918

TOROIDAL FIELD COIL TORQUE STRUCTURE

Albert L. Gaines, West Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jul. 25, 1979, Ser. No. 60,555

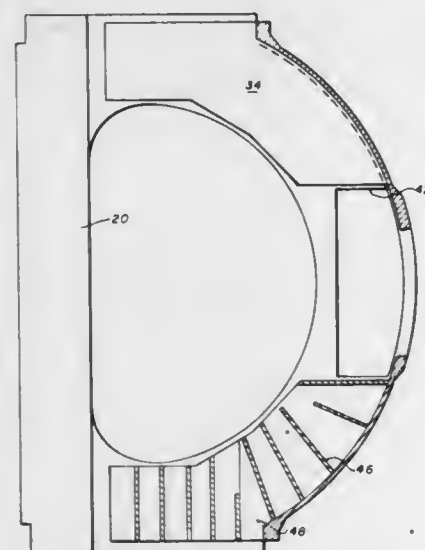
Int. Cl.³ G21B 1/00

U.S. Cl. 376—133

10 Claims

1. In a fusion reactor of the Tokamak-type that employs a toroidal magnetic field for purposes of effecting the confinement of the plasma therewithin, the fusion reactor including a multiplicity of toroidal field coils operable to produce said toroidal magnetic field, the improvement comprising a torque structure for providing support for the multiplicity of toroidal field coils, said torque structure forming a frame structure operable to enable torque loads acting on the toroidal field coils to be equilibrated as close to the area of force application as possible, said torque structure comprising:

a. a membrane shell positioned in surrounding relation to the toroidal field coils and operative to substantially enclose the toroidal field coils therewithin, said membrane shell including a multiplicity of membrane sections interconnected one to another so as to collectively effect the enclosure of the toroidal field coils, each of said multiplicity of membrane sections including a first segment, a second segment and a third segment, said first segment being operative to define a plane, said second segment having one end thereof affixed to one end of said first segment, said second segment having the other end thereof spaced outwardly away from said first segment and inclined at an angle in a first direction from the plane of said first segment, said third segment having one end thereof affixed to the other end of said first segment, said third segment having the other end thereof spaced outwardly away from said first segment and inclined at an angle in a second direction from the plane of said first



segment, said first segment having an opening formed therein to provide access to the interior of the fusion reactor; and

b. an intercoil structure including a multiplicity of intercoil sections, each of said multiplicity of intercoil sections interposed between an adjoining pair of toroidal field coils, each of said multiplicity of intercoil sections being cooperatively associated with a corresponding one of said multiplicity of membrane sections, each of said multiplicity of intercoil sections including a first spacer wedge and a second spacer wedge, said first spacer wedge and said second spacer wedge each being affixed to the corresponding one of said multiplicity of membrane sections such that said first spacer wedge and said second spacer wedge are located in spaced relation one to another and on opposite sides of the opening formed in said first segment of the corresponding one of said multiplicity of membrane sections.

4,392,919

CHARGING APPARATUS FOR COKE COOLING CHAMBERS

Manfred Galow, and Horst Joseph, both of Essen, Fed. Rep. of Germany, assignors to Didier Engineering GmbH, Fed. Rep. of Germany

Filed Mar. 13, 1981, Ser. No. 243,381

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011575

Int. Cl.³ C10B 39/02, 39/12

U.S. Cl. 202-228

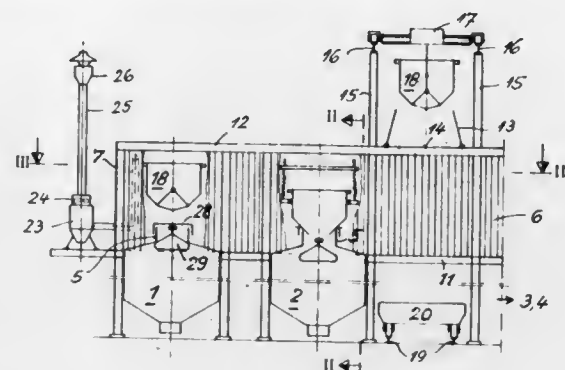
10 Claims

1. In combination an apparatus for the dry cooling of coke including a dry coke cooling chamber and a charging opening in said chamber wherein hot coke is transferred by means of a coke bucket to said cooling chamber, charging apparatus for charging said coke cooling chamber with said hot coke comprising:

an enclosure including a roof, a bottom and sides, said enclosure

encompassing at least an upper portion of said cooling chamber such that the charging opening of the cooling chamber extends into the enclosure, said enclosure being essentially gastight when sealed,

means for selectively opening and sealably closing an opening in said enclosure permitting access of said coke bucket to the interior of the enclosure, and sealing of said enclosure when said bucket is in the interior thereof for charging said coke to said cooling chamber,



transport means for shuttling said coke bucket into and out of said enclosure and to said coke cooling chamber for charging said coke to said cooling chamber, exhaust gas treatment means for evacuating said enclosure of emissions generated by the charging of the cooling chamber and for controlling release of said emissions to the atmosphere, and gas feed means connected to said enclosure for supplying inert gas to the interior of the enclosure.

4,392,920

METHOD OF FORMING OXIDE COATINGS

Glen E. McDonald, Strongsville, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jun. 10, 1981, Ser. No. 272,152

Int. Cl.³ C25D 5/50; C25B 1/02

U.S. Cl. 204-37 R

7 Claims

1. In a method of covering a substrate with a black metal oxide film from an electroplating bath containing about 270 grams per liter of cobalt sulfate, about 37 grams per liter of cobalt chloride, and about 30 grams per liter of boric acid having a pH in the range between about 1.5 and about 4.5 at a temperature between about 45° C. and about 60° C. to form a coating that is highly absorbing, the improvement comprising the steps of

adding an oxidizing agent to said bath, placing a metal substrate in said electroplating bath to form a cathode, electrodepositing a compound of cobalt from said bath onto said substrate at said cathode by passing a current of about 400 amps per square meter of substrate therethrough in the presence of said oxidizing agent thereby forming an oxide coating containing hydrated cobalt oxides, and contacting said coated substrate with water having a temperature substantially at the boiling point.

4,392,921

COMPOSITION AND PROCESS FOR ELECTROPLATING WHITE PALLADIUM

Kathleen B. Miscioscio, Bayside, N.Y., and Paul T. Smith, Pascoag, R.I., assignors to Occidental Chemical Corporation, Warren, Mich.

Filed Dec. 17, 1980, Ser. No. 217,318

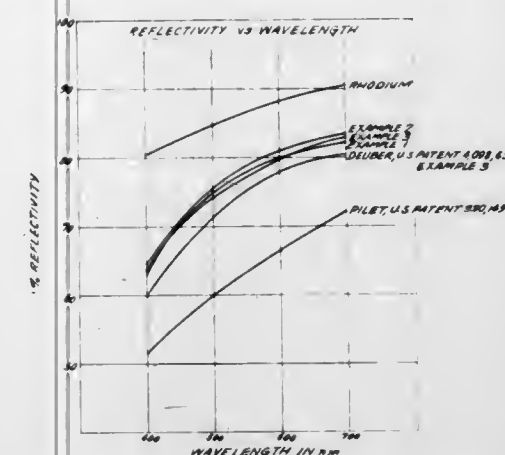
Int. Cl.³ C25D 3/50

U.S. Cl. 204-47

2 Claims

1. A stable aqueous electroplating bath suitable for obtaining thin, white deposits of palladium metal which consists essen-

tially of a bath soluble source of pure palladium metal, free of alloying elements, which source is present in amounts sufficient to provide from about 0.1 to about 20 g/l palladium in the bath, from about 30 to about 120 g/l of a bath soluble ammo-



nium conductivity salt, a sufficient amount of ammonium hydroxide to adjust and maintain the pH in the bath of from about 8 to 10 and a buffer selected from ammonium baborate and sodium tetraborate to maintain the pH within said range.

4,392,922

TRIVALENT CHROMIUM ELECTROLYTE AND PROCESS EMPLOYING VANADIUM REDUCING AGENT

Thaddeus W. Tomaszewski, Dearborn, Mich., assignor to Occidental Chemical Corporation, Warren, Mich.

Filed Nov. 10, 1980, Ser. No. 205,406

Int. Cl.³ C25D 3/06

U.S. Cl. 204-51

35 Claims

1. An aqueous acidic trivalent chromium electrolyte containing trivalent chromium ions, a complexing agent for maintaining the trivalent chromium ions in solution, halide ions, ammonium ions, hydrogen ions to provide a pH on the acid side, and a reducing agent comprising vanadium ions present in at least an amount effective to maintain the concentration of hexavalent chromium ions at a level which is not in excess of 0.4 grams/liter.

4,392,923

PROCESS FOR PREPARING THIAZOLINOZETIDINONE DERIVATIVES

Sigeru Torii, Akaiwa; Hideo Tanaka, Okayama; Junzo Nokami, Okayama; Michio Sasaoka, Okayama; Norio Saito, Itano, and Takashi Shiomi, Okayama, all of Japan, assignors to Otsuka Kagaku Yakuhin Kabushiki Kaisha, Japan

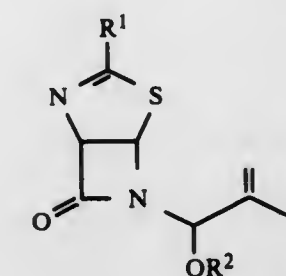
Filed Aug. 9, 1982, Ser. No. 406,505

Int. Cl.³ C25C 1/00; C07D 99/10

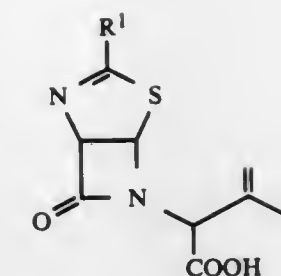
U.S. Cl. 204-59 R

11 Claims

1. A process for preparing a thiazolinozetidinone derivative represented by the formula



wherein R¹ represents aralkyl group or aryloxymethyl group and R² represents acyl group, the process comprising electrolyzing a compound of the formula



wherein R¹ is as defined above in the presence of a lower fatty acid.

4,392,924

PROCESS FOR CONTROLLING THE PERMEABILITY OF DIAPHRAGMS IN THE PREPARATION OF POLYVALENT METALS BY ELECTROLYSIS AND AN ELECTROLYSIS CELL FOR CARRYING OUT THE PROCESS

Marcel Armand, Meylan, France, assignor to Pechiney Ugine Kuhlmann, Paris, France

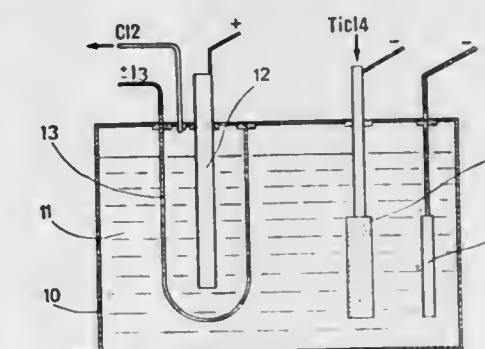
Filed Oct. 20, 1981, Ser. No. 313,229

Claims priority, application France, Nov. 27, 1980, 80 25504

Int. Cl.³ C25C 3/26, 3/28, 3/34, 7/06

U.S. Cl. 204-64 T

4 Claims



1. A process for controlling the permeability of the diaphragm of an electrolysis cell for the preparation of a metal selected from the group consisting of Ti, Zr, Hf, V, Nb and Ta, from an electrolyte based on molten metal halides, the diaphragm being coated with a deposit of the metal to be produced, characterized in that said control is provided by a deposit growth or re-dissolution process which is controlled in dependence on the voltage drop in the electrolyte impregnating the diaphragm, or a measured variable linked to said voltage drop.

4,392,925

ELECTRODE ARRANGEMENT IN A CELL FOR MANUFACTURE OF ALUMINUM FROM MOLTEN, SALTS

Hanspeter Alder, Flurlingen, and Eugen Schalch, Neuhausen, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Apr. 27, 1981, Ser. No. 257,891

Claims priority, application Switzerland, May 14, 1980, 3873/80

Int. Cl.³ C25C 3/08

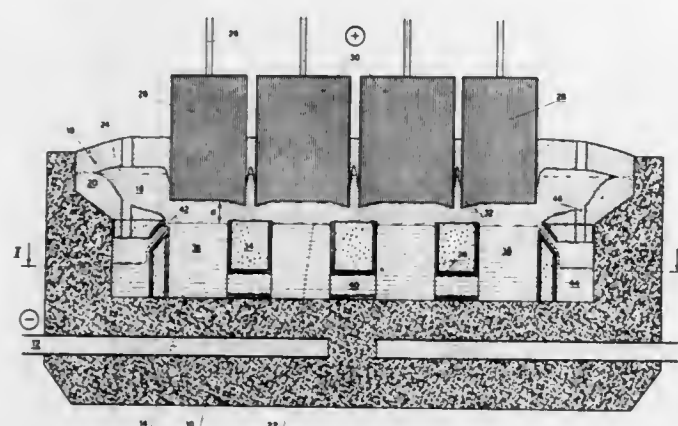
U.S. Cl. 204-67

28 Claims

1. An electrolytic cell for use in the production of aluminum comprising:

a pot having a floor and sidewalls;
a melt of liquid aluminum within said pot on said floor;
a molten electrolyte within said pot on said melt of liquid aluminum;
at least one anode within said pot projecting into said molten electrolyte such that the top surface of said melt of liquid

aluminum is a distance d from the active bottom surface of said at least one anode; and
insulating means within said pot in said melt of liquid aluminum for reducing the surface area of said melt of liquid



aluminum in direct contact with said molten electrolyte such that the total surface area of said melt of liquid aluminum exposed to said molten electrolyte is from about 10-90% the active surface area of said at least one anode.

4,392,926

PROCESS AND APPARATUS FOR PRODUCTION OF ALUMINUM

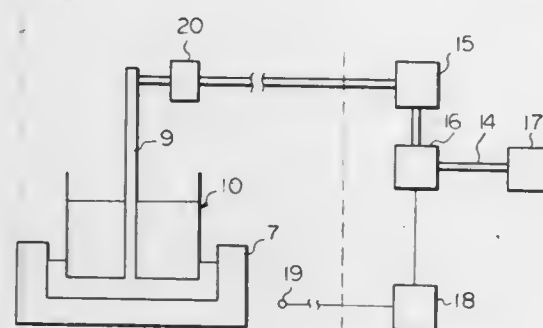
Teruto Ohta, and Yoshio Kinoshita, both of Chiba, Japan, assignors to Showa Aluminum Industries K.K., Tokyo, Japan
Filed May 19, 1981, Ser. No. 265,347

Claims priority, application Japan, May 30, 1980, 55-71549; Jul. 4, 1980, 55-90557

Int. Cl.³ C25C 3/06, 3/08, 3/14

U.S. Cl. 204-67

15 Claims



1. A process for the production of aluminum comprising the steps of:

forming in a cell body an electrolytic bath in which alumina is dissolved in a fused fluoride salt bath mainly composed of cryolite;

conducting a current from a self-baking type carbon anode, which is located above said cell body, to said cell body serving also as a cathode, thereby simultaneously conducting the baking of unbaked carbonaceous raw material in the carbon anode and the electrolytic reduction of alumina;

maintaining the immersion of said carbon anode in the electrolytic bath above the molten aluminum which is formed on the cell body as a result of electrolysis;

feeding alumina in accordance with the decrease in the alumina concentration of the electrolytic bath;

introducing a gas to the lower surface of said carbon anode which is in contact with the electrolytic bath via at least one aperture passing in an essentially vertical direction through the carbon anode; and

intermittently introducing the gas from said at least one aperture to the lower surface of the carbon anode during normal operation of the cell when the alumina concentration is higher than a critical alumina concentration so that an anode effect is not generated, thereby reducing the cell

voltage or increasing the inter-electrode distance of an aluminum electrolytic cell.

4,392,927

NOVEL ELECTRODE

Peter Fabian, Freigericht, Fed. Rep. of Germany, and Theo Muller, Wuustwezel, Belgium, assignors to Heraeus Elektroden GmbH, Fed. Rep. of Germany

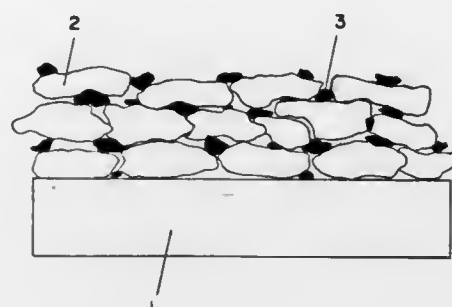
Filed Feb. 18, 1982, Ser. No. 349,839

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1981, 3106587

Int. Cl.³ C25B 1/34, 11/04, 11/08, 11/10

U.S. Cl. 204-98

32 Claims



1. A composite electrode comprising an electroconductive base with an electrolyte inert, electroconductive electrocatalytic layer applied by thermal spraying, the said layer being a powder of a matrix material selected from the group consisting of oxides, nitrides, phosphides, silicides, borides and carbides of a metal selected from the group consisting of boron, valve metals and iron group metals having uniformly admixed therewith electrocatalytically active particles of a different metal selected from the group consisting of platinum group metals and iron group metals and oxides thereof with a particle size smaller by at least one order of magnitude of the matrix particles.

4,392,928

METHOD OF DOPING A SEMICONDUCTOR

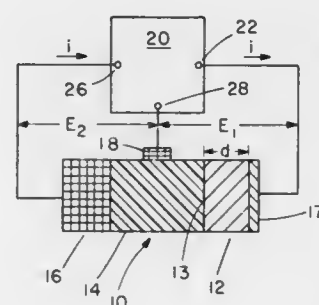
Chiang Y. Yang, Miller Place, N.Y., and Robert A. Rapp, Columbus, Ohio, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 26, 1982, Ser. No. 342,683

Int. Cl.³ C25D 5/00

U.S. Cl. 204-130

8 Claims



1. A method for doping semiconductor material with a chosen impurity comprising the steps of:

(a) establishing an interface between a solid semiconductor and a solid electrolyte, forming a semiconductor/electrolyte cell, said solid electrolyte being an ionic conductor of said impurity and said semiconductor and said electrolyte being jointly chosen so that any compound formed from said semiconductor and said impurity will have a free energy of formation no lower than the free energy of formation of said electrolyte; and,

(b) establishing a potential across said interface, said poten-

tial being chosen so as to allow diffusion of impurity ions from said electrolyte into said semiconductor.

4,392,929

PREPARATION OF BIS-(1-BROMO-2,3,3-TRICHLORO-2-PROPENYL) ETHER

Junichi Saito, and Toyohiko Kume, both of Tokyo, Japan, assignors to Nihon Tokushu Noyaku Seizo K.K., Tokyo, Japan Division of Ser. No. 110,051, Jan. 7, 1980, Pat. No. 4,317,937.

This application Jul. 30, 1981, Ser. No. 288,443

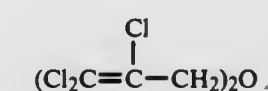
Claims priority, application Japan, Jan. 24, 1979, 54-6015

Int. Cl.³ B01J 19/12

U.S. Cl. 204-158 HA

4 Claims

1. A process for producing bis-(1-bromo-2,3,3-trichloro-2-propenyl) ether, comprising reacting bis-(2,3,3-trichloro-2-propenyl) ether of the formula



with bromine under irradiation with light.

4,392,930

PHOTOPOLYMERIZABLE RESINS

Roderick D. Hathaway, Cambridge; Edward Irving, Burwell, and John S. Waterhouse, Cherry Hinton, all of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 30, 1982, Ser. No. 393,894

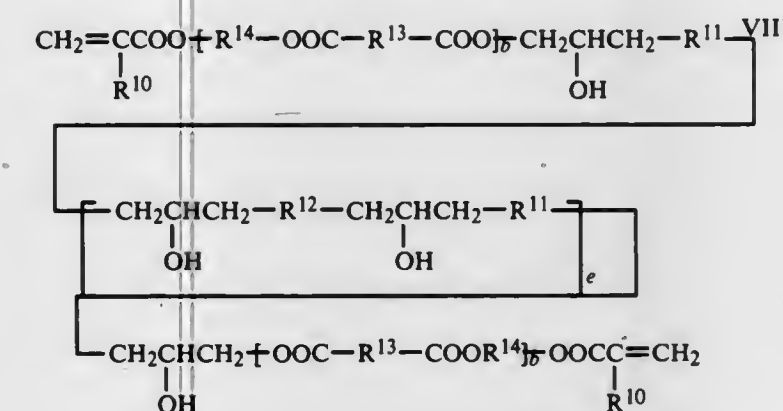
Claims priority, application United Kingdom, Jul. 9, 1981, 8121172; Apr. 3, 1982, 8209955

Int. Cl.³ C08F 8/00, 2/46

U.S. Cl. 204-159.14

9 Claims

1. A photopolymerizable resin of the formula



where

b represents zero or 1,

c is an integer of average value at least 1,

each R^{10} denotes a hydrogen atom or a methyl group,

each R^{11} represents the organic divalent residue of a compound having two glycidyl groups directly attached to an atom or atoms of oxygen, nitrogen, or sulfur, after removal of the said two glycidyl groups,

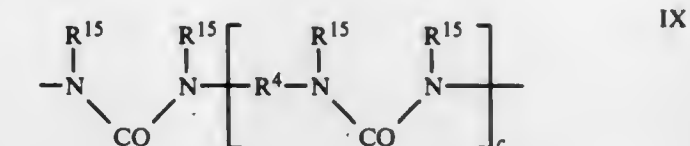
each R^{12} represents the divalent residue of a dihydric alcohol, a dihydric phenol, a saturated dicarboxylic acid of 2 to 8 carbon atoms, or a compound containing two groups selected from amide groups and imide groups, after removal of two terminal hydrogen atoms attached to an oxygen or nitrogen atom or atoms,

each R^{13} denotes an alkylene group of 1 to 6 carbon atoms, an alkenylene group of 2 to 10 carbon atoms, an arylene group of 6 to 10 carbon atoms, or a cycloalkylene or cycloalkenylene group of 5 to 8 carbon atoms,

each R^{14} denotes a divalent aliphatic, cycloaliphatic, or araliphatic group of 2 to 8 carbon atoms,

with the proviso that at least 25% of the total of the (e+1)

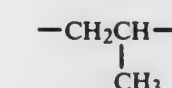
R^{11} and e R^{12} groups each represent a group of the formula



where

R^4 represents a divalent aliphatic, cycloaliphatic, or araliphatic radical of 1 to 8 carbon atoms, c denotes zero or 1, and

each R^{15} denotes an alkyl group of 1 to 4 carbon atoms or each pair of R^{15} conjointly represents a group of formula $-\text{CH}_2\text{CH}_2-$, $-\text{C}(\text{R}^{16}\text{R}^{17})\text{CO}-$,



$-\text{CH}_2\text{CH}_2\text{CH}_2-$, or $-\text{COCO}-$, wherein R^{16} and R^{17} each denote a hydrogen atom or a straight or branched alkyl group of up to 9 carbon atoms or R^{16} and R^{17} may together denote tetramethylene, pentamethylene, methylpentamethylene, or hexamethylene.

8. A method of polymerising a resin according to claim 1 which comprises subjecting a layer of the resin on a support to actinic radiation.

9. The method of claim 8 in which the resin has been applied to the support in water-borne form.

4,392,931

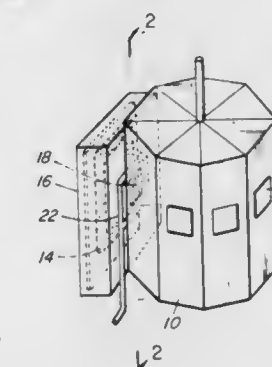
REACTIVE DEPOSITION METHOD AND APPARATUS
Shmuel Maniv, and William D. Westwood, both of Nepean, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Mar. 31, 1981, Ser. No. 249,402

Int. Cl.³ C23C 15/00

U.S. Cl. 204-192 R

11 Claims



1. Thin film deposition apparatus for reactively sputter depositing a film, the apparatus comprising a substrate, a target, means for directing sputtered target material towards the substrate, means for directing reactive gas at a present flow rate to the substrate, an apertured barrier containing a series of vertical slots intermediate the target and the substrate to limit passage of the reactive gas to the target and to control the rate at which target material reaches the substrate, whereby at said preset reactive gas flow rate to fix the composition of a film reactively deposited from the target material and the reactive gas;

and a mounting arrangement comprising a carousel having a control axis extending in the same direction as the longitudinal extent of said slots, said substrate being contained on said mounting arrangement whereby rotation of said mounting arrangement causes a deposition area of said substrate to move past said slots to ensure uniform deposition over said deposition area.

and one outlet for the electrolyte passing through the cell, said housing accommodating monopolar electrodes, each electrode consisting of a number of parallel plates fixed to a common carrier element, the electrodes being arranged in a staggered pattern so that the plates of one polarity extend into the gaps formed by the plates of the opposite polarity and at least one median electrode stack of one polarity with central electric power input is arranged between two electrode stacks of the other polarity, characterized in that the median electrode stack consists of a plurality of electrode plates and a power input plate of a length substantially equal to said plurality of electrode plates and a width substantially equal to that of the cell; said electrode plates being welded along one longitudinal side to said power input plate in a toothed pattern and said power input plate being joined to one side of wall of said cell housing and being provided with at least one power input connection.

4,392,938

RADIO FREQUENCY ETCH TABLE WITH BIASED EXTENSION MEMBER

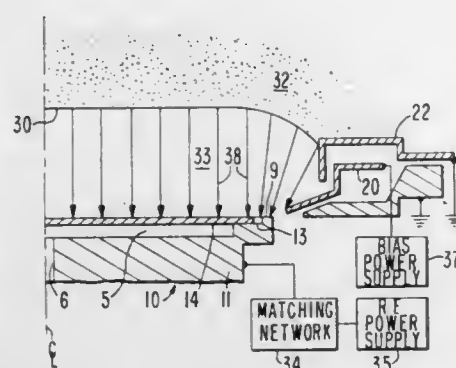
David J. Harra, Santa Cruz, and Frederick T. Turner, Sunnyvale, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Nov. 12, 1981, Ser. No. 320,385

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

11 Claims



1. An RF etch table for uniformly etching a semiconductor wafer by sputtering, comprising,
 - a table structure adapted to receive and hold a generally circular semiconductor wafer to be subjected to sputter etching;
 - an RF power supply electrically connected to said table structure;
 - an extension member positioned adjacent the periphery of said table, said extension member being electrically conductive and being insulated from other conductive members;
 - a bias power supply means for applying an electrical potential to said extension member whereby the plasma generated above said table structure extends horizontally beyond the periphery of said etch table and above at least a portion of said extension member; and
 - a shielding member placed over said extension member, but not in electrical communication with said extension member, whereby said biased extension member is protected from unwanted sputtering to thereby avoid metallic contamination of said semiconductor wafer.

4,392,939

MAGNETRON CATHODE SPUTTERING SYSTEM

Jacobus E. Crombeen; Petrus W. H. M. Crooymans, and Jan Visser, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 19, 1982, Ser. No. 369,948

Claims priority, application Netherlands, Mar. 5, 1982, 8200902

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

4 Claims

1. A magnetron cathode sputtering system comprising, in an

envelope, an anode and a flat cathode comprising a target in contact with a backing plate behind which means are provided to form a magnetic field near the target in the envelope, characterized in that the edge of the target is held against the edge of an aperture in the envelope in a gas-tight manner, said backing plate comprising a number of channels which communicate with the contact face of the target, the backing plate being held against the target by means of a vacuum in said channels.

4,392,940

COAL-OIL SLURRY PREPARATION

John C. Tao, Perkiomenville, Pa., assignor to International Coal Refining Company, Allentown, Pa.

Filed Apr. 9, 1981, Ser. No. 252,690

Int. Cl.³ C10G 1/00; C10L 1/32

U.S. Cl. 208—8 LE

12 Claims

1. A process for producing a pumpable coal/oil slurry product, useful as a liquid fuel, from pulverized sulfur-containing coal which comprises the steps of:

- (1) subjecting said pulverized coal to gravity separation to provide
 - (a) a highest density refuse portion comprising the major portion of the ash and sulfur content of the coal feed,
 - (b) a middlings coal portion of lower ash and sulfur content than said high density portion, and
 - (c) a deep-cleaned lowest density coal portion having a sulfur content of less than about 1%;
- (2) subjecting said highest density refuse portion to gasification by partial combustion in oxygen
 - (a) thereby obtaining a crude gas product comprising hydrogen, oxides of carbon, hydrogen sulfide and steam, thereafter
 - (b) subjecting said crude gas product to a water gas shift reaction in the presence of steam and over sulfur-resistant catalyst, to convert contained carbon monoxide to carbon dioxide with accompanying further production of hydrogen, and
 - (c) removing said carbon dioxide and hydrogen sulfide from the products of said shift reaction to recover a purified hydrogen-rich gas;
- (3) introducing said middlings coal portion into a liquefaction zone and treating the same with a coal derived solvent and with said purified hydrogen-rich gas under conditions of elevated temperature and pressure, thereby effecting liquefaction of said middlings coal portion to produce a coal derived, benzene soluble hydrocarbon oil distillate;
- (4) slurring said deep-cleaned coal portion of lowest density from step (1) with said coal derived hydrocarbon oil of step (3) to provide said coal/oil slurry product.

4,392,941

RECOVERY OF BITUMEN FROM TAR SANDS SLUDGE USING ADDITIONAL WATER

Robert B. Roth, Woodlyn, and Walter H. Seitzer, West Chester, both of Pa., assignors to Suncor, Inc., Toronto, Canada

Filed Jun. 11, 1981, Ser. No. 272,616

Claims priority, application Canada, Jul. 28, 1980, 357137

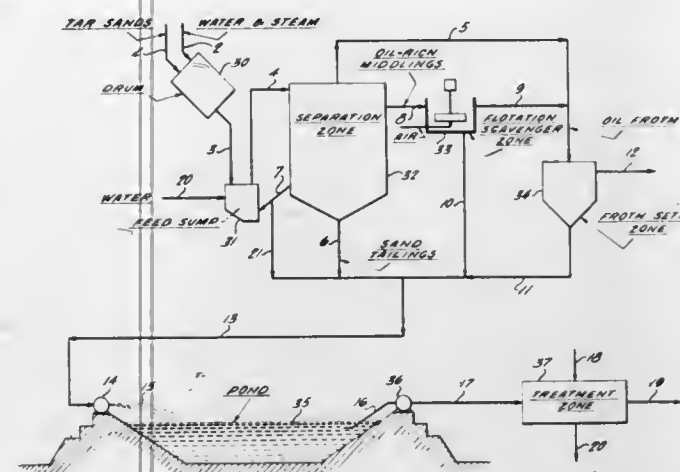
Int. Cl.³ C10G 1/00

U.S. Cl. 208—11 LE

3 Claims

1. The method of recovering bitumen from a sludge obtained from a retention pond containing tailings from the water extraction of tar sands, which comprises diluting the sludge with water, wherein the dilution range is between about 1 part water to 10 parts sludge and about 2 parts water to one part sludge, subjecting the diluted sludge to high-shear agitation and aeration, wherein during the high-shear agitation the diluted sludge is experiencing a Reynolds Number in excess of 10,000 and settling the resulting sludge to obtain an upper

bitumen-containing froth layer and a lower sludge layer reduced in bitumen content, whereby the recovery of bitumen is



greater than that obtained with aeration and mixing with mild agitation or with aeration alone or with agitation alone.

4,392,942

MODIFIED STAGED TURBULENT BED PROCESS FOR RETORTING CARBON CONTAINING SOLIDS

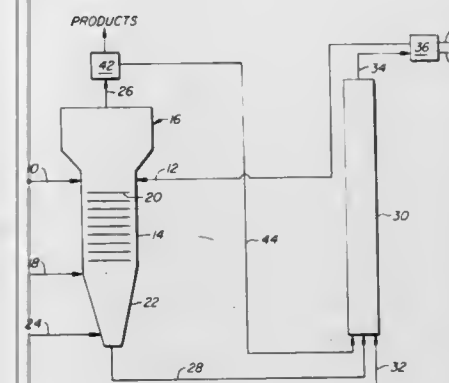
P. Henrik Wallman, Berkeley, and Byron G. Spars, Mill Valley, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 187,858, Sep. 17, 1980. This application Jun. 8, 1981, Ser. No. 271,297

Int. Cl.³ C10G 1/00

U.S. Cl. 208—11 R

13 Claims



13. A continuous process for retorting a particulate carbon containing solid which comprises:
 - passing heat transfer particles at an elevated temperature and raw carbon containing solid downwardly through a first retort zone;
 - passing a first stripping gas upwardly through said first retort zone;
 - maintaining the size of the heat transfer particles and the size of the particles of raw carbon containing solid such that a portion of the raw carbon containing solid are fluidized, and a portion of the particles of raw carbon containing solid and at least a portion of the heat transfer particles are nonfluidized in said first retort zone;
 - substantially limiting gross vertical backmixing and slugging of the particles within the first retort zone by passing said downwardly moving particles through a plurality of baffles in said first retort zone;
 - providing sufficient residence time in the first retort zone for the heavier nonfluidized particles of carbon containing solid to be substantially heated to retorting temperatures;
 - passing said heat transfer particles and said heated carbon containing solid particles from the bottom of said first retort zone to a second, non-fluidized, retort zone;
 - maintaining the particles of carbon containing solid in said second retort zone for a residence time sufficient to pro-

vide substantially complete pyrolysis of said carbon containing solids; passing a second stripping gas through the second retort zone to strip hydrocarbonaceous vapors from the retorted solids; withdrawing exhausted first stripping gas from the top of said first retort zone; withdrawing exhausted second stripping gas and hydrocarbonaceous vapors from said second retort zone; and withdrawing heat transfer particles and retorted solids from said second retort zone.

4,392,943

PROCESS AND DEVICE FOR WITHDRAWING SOLID PARTICLES AND INTRODUCING A LIQUID CHARGE AT THE LOWER PORTION OF A CONTACT ZONE

Jean-Paul Euzen, Ecully; Yves Jacquin, Sevres, both of France, and Hugo Van Landeghem, deceased, late of Oytier Saint Oblas, France by Renate Van Landeghem-Heynderickx, executor, assignors to Institut Français du Pétrole, Rueil-Malmaison, France

Filed Apr. 29, 1982, Ser. No. 373,183

Claims priority, application France, Apr. 29, 1981, 81 08761

Int. Cl.³ C10B 31/02, 31/12

U.S. Cl. 208—152

16 Claims



1. In a process for introducing into a reaction zone, containing catalyst particles, a fluid charge consisting essentially of at least one liquid and one gas of high hydrogen content, said zone having substantially an elongate and substantially vertical cylindrical shape, with the catalyst particles being introduced at the upper part of said reaction zone and progressively withdrawn from the lower part of the reaction zone after progressing downwardly through said reaction zone, with the fluid charge being introduced at least partly in the lower part of said reaction zone and withdrawn from the upper part thereof after progressing upwardly through said reaction zone, and wherein the catalyst particles are withdrawn from the lower end of at least one flared zone having the shape of an inverted cone or pyramid with the top thereof turned downwardly, the average angle between the axis of the cone or pyramid and one of the cone generatrices or one of the pyramid solid angles being from 10°-80°, the downwardly turned top having at least one opening of a size sufficient for discharging the catalyst particles, and the walls of said flared zone being substantially and regularly discontinuous by having at least a plurality of regularly spaced openings of a sufficient small size to prevent the catalyst particles from passing through said walls, but sufficiently large enough to permit passage, through said openings, of an upward stream of at least a part of the fluid charge, the improvement wherein at least a portion of the fluid charge is injected in the lower part of said reaction zone through a main pipe which is subdivided into a plurality of pipes arranged substantially vertically inside the reaction zone, and each of said pipes having orifices at the ends thereof, said orifices being located either above said walls or below said walls of said cone, or one or more orifices located above and one or more orifices located below said walls, with each orifice being located at a distance from said walls of said one at least equal to the average size of the catalyst particles fed into the reaction zone.

4,392,951

SCREEN FILTER

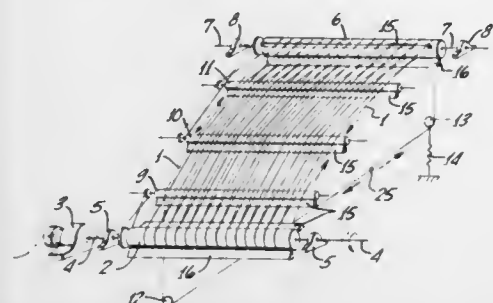
Toshiyuki Omori, and Kunihiro Abe, both of Kitakyushu, Japan, assignors to Kao Soap Co. Ltd., Tokyo, Japan
Filed Feb. 2, 1981, Ser. No. 230,393

Claims priority, application Japan, Aug. 20, 1979, 54-106526; Nov. 10, 1980, 55-158552

Int. Cl.³ B01D 33/14

U.S. Cl. 209—307

12 Claims



1. A screen filter comprising:
a plurality of rollers arranged in parallel, spaced relationship; carriers positioned between said rollers with the axes of said carriers parallel to the axes of said rollers;
a wire extending past and wound spirally over said rollers and engaging the surfaces of said carriers; and
driving means for engaging at least one of said rollers for driving said wire, including means for periodically alternating, in a predetermined time cycle, the direction of driving of said wire to effectively prevent clogging thereof.

4,392,952

BAR SCREEN WITH SCREEN CLEANER FOR WASTE WATER TREATMENT INSTALLATIONS

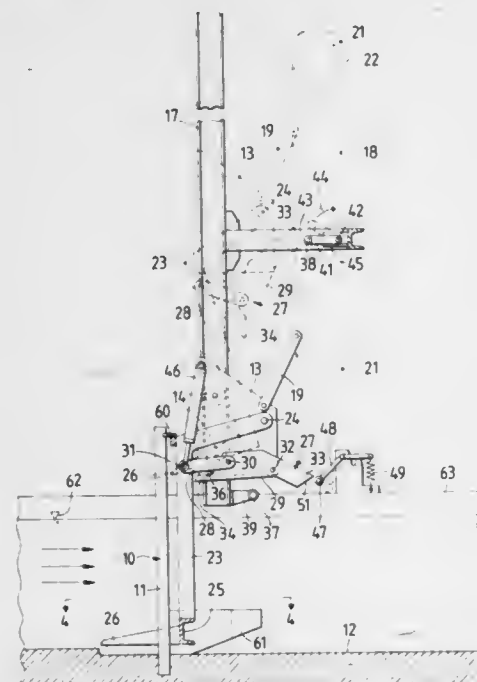
Leonhard Fechter, Kulmbach, and Hubert Jung, Hadamar, both of Fed. Rep. of Germany, assignors to Passavant-Werke Michelbacher Huette, Fed. Rep. of Germany

Filed Apr. 20, 1981, Ser. No. 255,883

Int. Cl.³ C02C 1/22

U.S. Cl. 210—159

4 Claims



1. In a bar screen with a screen cleaner for waste water treatment installations, embodying a carriage cooperating with means for movement upwardly and downwardly in guides extending parallel to said screen, a rake for cleaning said screen pivotally connected to said carriage by pivot arms with said rake being pivotable by means of said pivot arms between a first position of engagement with said screen and a second position of disengagement with and spaced from said screen, a foldable lever assembly pivotally connected to said carriage and pivotally connected to said pivot arms and movable in a

path of movement from a fully extended position to a first folded position which correspond to said first and second positions, respectively, of said rake and a lower stop means mounted in the path of movement of said foldable lever assembly, said lower stop means for engaging and moving said foldable lever assembly from said first folded position to an intermediate folded position at the end of the downward movement of said carriage and before said lever assembly reaches said fully extended position with said rake being retained in said second position of disengagement during downward movement of said carriage and being pivoted by the change of position of said lever assembly into a partially engaged position until said lever assembly is moved to said fully extended position, a stop member means mounted near the lowermost point of travel of said lever assembly for engaging and pivoting said lever assembly to its fully extended position only during upward movement and after commencement of upward movement of said carriage and after said lever assembly has been moved into said intermediate folded position by said lower stop means, said stop member means also for providing that movement of said rake into said first position of engagement with said screen is only completed after commencement of upward movement of said carriage and said rake is positively retained in the position of engagement with said screen while said lever assembly is in said fully extended position.

4,392,953

AQUARIUM FILTRATION APPARATUS

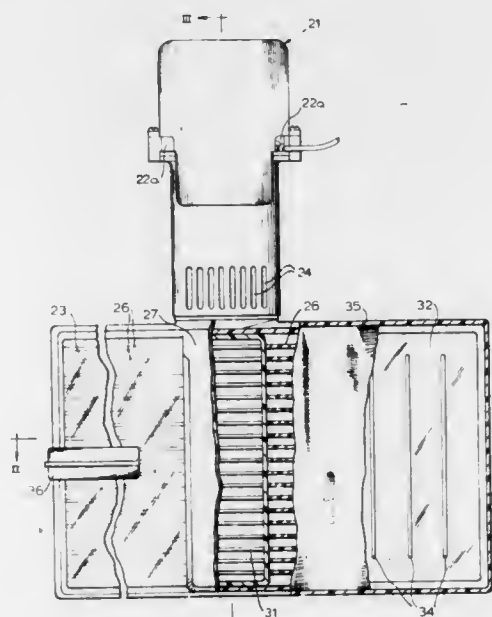
Douglas P. Cornelius, Brooklyn Park, and Charles G. Erickson, Anoka, both of Minn., assignors to Cornelius Products Inc., Brooklyn Center, Minn.

Filed Feb. 25, 1981, Ser. No. 238,072

Int. Cl.³ E04H 3/20; B01D 35/02

U.S. Cl. 210—169

1 Claim



1. A power driven cleaning device for an aquarium tank having a rim, comprising:

- (a) a body adapted to be suspended in the tank on the rim of the tank, and including an impeller housing portion and a filter housing portion, for both extending into the tank;
- (b) a motor supported on said body above the rim;
- (c) an impeller rotatably supported in said impeller housing portion and having a drive connection with said motor;
- (d) said filter housing portion having a shallow rectangular nest open along its longer sides and flatwise receptive of a flat sheet of filter media;
- (e) a removable cover for fixedly holding said filter media in place, said cover being rectangular and having a flat marginal portion corresponding in length and width to said longer sides of said nest and disposed in said nest for engaging one side of the flat filter media at its periphery;

4,392,955

LIQUID TREATMENT APPARATUS

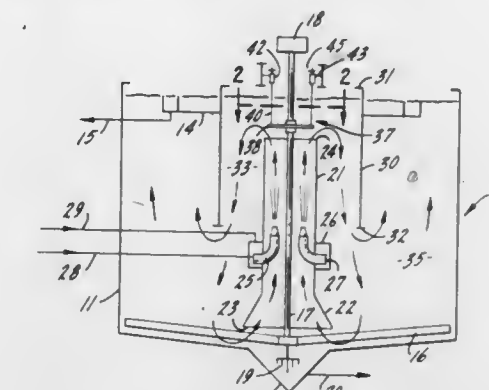
Alfonse J. Soriente, Gillette, N.J., assignor to Ecodyne Corporation, Union, N.J.

Filed Dec. 26, 1979, Ser. No. 107,007

Int. Cl.³ B01D 19/04; C02B 1/10

U.S. Cl. 210—195.4

5 Claims



1. Liquid treating apparatus comprising:

- A. a tank having a treated liquid outlet adjacent its upper end and a settled solids outlet adjacent its bottom, a rotatable rake adjacent the bottom of said tank for moving settled solids toward said settled solids outlet, and power-driven vertical shaft means coaxial with the center of said tank connected to said rake for rotating said rake;
- B. a generally circular, open-ended vertical updraft tube of predetermined diameter surrounding and coaxial with said shaft means, the lower end of said tube terminating above said rake, the upper end of said tube terminating below the upper surface of the liquid in said tank, an upwardly directed untreated liquid inlet nozzle within said tube, means connecting said nozzle to a pressurized source of untreated liquid for causing such untreated liquid from said nozzle to flow rapidly up and out of said upper end of said tube and thereby to draw settled solids into said lower end of said tube and through said tube where such solids mix with such untreated liquid;
- C. generally circular baffle means surrounding and coaxial with said tube, the upper end of said baffle means extending above the upper surface of the liquid in said tank, and the lower end of said baffle means terminating above said lower end of said tube, said baffle means defining a solids mixing and recirculation zone in said tank surrounding said tube; and
- D. means for controlling the amount of settled solids drawn upwardly into said tube comprising a substantially flat circular disc coaxial with said tube, said disc being constructed and arranged so that it is always positioned above and entirely outside of said tube in the flow path of liquid leaving said tube upper end, said shaft means passing through the center of said disc, and means outside of said tube for moving said disc vertically toward and away from said tube upper end, whereby the upward flow of settled solids in said tube is controlled by the vertical position of said disc outside of said tube.

4,392,956

ENCAPSULATED FRAME TYPE FILTER PRESS

George P. Vogel, Kingston, N.Y., assignor to Stavo Industries, Inc., Kingston, N.Y.

Filed Sep. 11, 1981, Ser. No. 301,219

Int. Cl.³ B01D 25/14

U.S. Cl. 210—224

8 Claims

1. An encapsulated frame-type filter press, said press including an upwardly opening tank having interconnected opposite side and end walls, a first stationary filter head mounted in one end of said tank, a second movable head mounted in the other end of said tank and adjustably shiftable toward and away from said first head, a plurality of alternating filter panels and filter

- (f) a plurality of spring clips embracing the edge portions of said cover and said filter housing portion;
- (g) means on said cover and said body defining a flow passage leading from a water inlet through said filter media, to said impeller, to a water outlet.

4,392,954

SEWAGE VENTILATING BASIN

Hans Bertschinger, Dübendorf, and Alfred Scherler, Reidholz, both of Switzerland, assignors to Locher & Cie. AG, Zurich and Cellulose Attisholz AG., Luterach, both of Switzerland

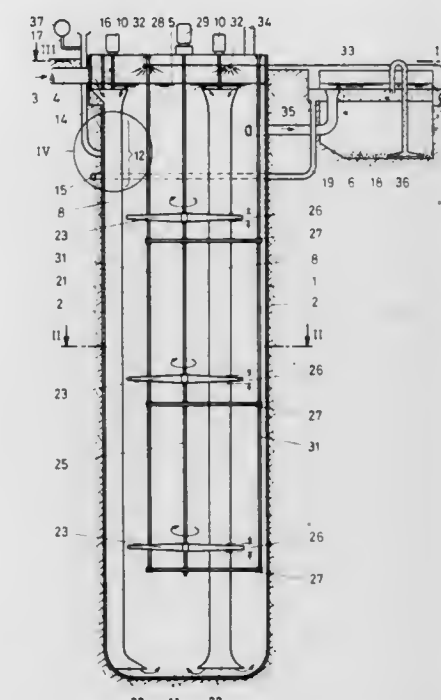
Filed Feb. 13, 1979, Ser. No. 11,890

Claims priority, application Switzerland, Feb. 16, 1978, 1717/78

Int. Cl.³ C02F 3/22

U.S. Cl. 210—195.3

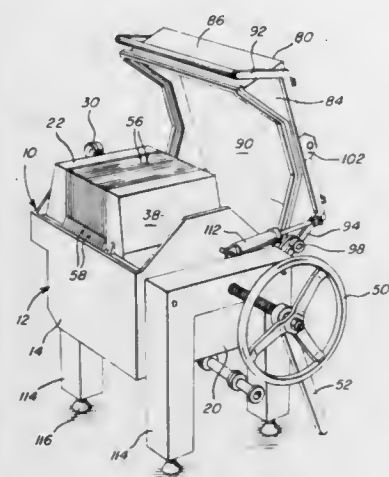
7 Claims



7. A sewage ventilating basin for use in a sewage treatment plant, comprising:

- a vertically elongated sewage container;
- at least one substantially cylindrical tube connecting the upper, or surface-water, zone of said elongated container with the bottom, or deepest-water, zone of said container;
- pump means for producing a downwardly directed flow in each said tube in order to maintain sewage circulation in the container when in use;
- gas introduction means, disposed in an upper part of each said tube, for introducing fine bubbles of air or oxygen thereto, said gas introduction means comprising at least one downwardly directed tapered wall portion in the form of a venturi tube, and an air and/or oxygen inlet connecting piece terminating in said upper part of said tube whereby, due to the suction effect caused by the injection principle, the air and/or oxygen is introduced into the flow within said tube adjacent said venturi;
- residual sludge recycling means for recycling residual sludge to said sewage ventilating basin, said residual sludge recycling means comprising a second venturi-shaped tapered wall portion in said upper part of said elongated tube, and residual sludge introduction means including a residual sludge line terminating in said upper part of said tube adjacent said second venturi-shaped tapered wall portion whereby residual sludge is caused to be sucked into the flow within said tube; and
- control means for maintaining the flow velocity of the sewage, in each said tube directly below said upper part thereof, higher than the uplift velocity of the gas bubbles suspended in the flow at the same point, when in use.

frames releasably clamped between said heads, said first head including inlet and outlet passages formed therethrough for inlet and outlet flow of fluid to be filtered to and from said filter panels and frames, a downwardly opening cover for said tank including interconnected opposite side and end walls, the lower marginal set of edges of said cover side and end walls and the upper marginal set of edges of said tank side and end walls being positionable in juxtaposed relation for closing said tank, support means swingably supporting said cover from said tank for forward and downward swinging of said cover into position closing said tank and upward and rearward swinging of said cover toward and an open position with said cover upwardly and rearwardly displaced relative to said tank and disposed in a forwardly and downwardly opening attitude, one



of said sets of edges including seal means for forming at least a generally fluid-tight seal with the other set of edges when said cover is in the closed position, said support means including a lift frame pivotally supported from said tank for oscillation relative thereto about a first horizontal axis extending longitudinally of said tank and stationary relative to said tank and frame, means supporting said cover from said frame for slight limited oscillation relative thereto about a second horizontal axis extending longitudinally of said tank, said end walls of said tank including generally isoclinical trapezoidal-shaped upper extensions and said end walls of said cover including complementary similar shape and size downwardly opening recesses in which said extensions are received when said cover is closed.

4,392,957

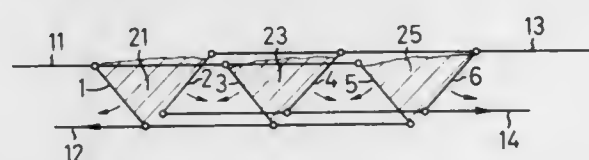
ANTI-POLLUTION EQUIPMENT

Michael G. Webb, Wootton Bridge, England, assignor to Vikoma International Limited, Isle of Wight, England
Continuation-in-part of Ser. No. 125,515, Feb. 28, 1980, abandoned. This application Jul. 10, 1981, Ser. No. 281,932
Claims priority, application United Kingdom, Mar. 6, 1979, 7907834

Int. Cl.³ B01D 17/00

U.S. Cl. 210-241

4 Claims



1. A device suitable for recovering viscous material derived from petroleum comprises a plurality of pairs of blades, each blade being pivotally mounted at either end, and the pivots on at least one end being connected to an actuating rod or rods, so that the position of the pivots can be moved substantially at right angles to the width of the blades, the blades and rods being arranged to operate in such a manner that in a first position, the pairs of blades are in a vertical position, adjacent to one another but remote from other pairs, in a second position the blades form a series of V-shaped containers and in a

third position the blades are again in vertical pairs, either in the same or in different pairs from the original position.

4,392,958

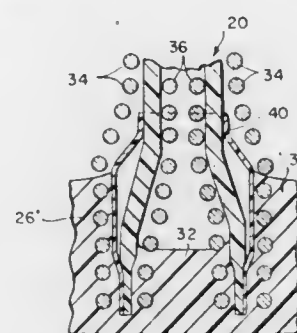
METHOD AND STRUCTURE FOR SEALING TUBULAR FILTER ELEMENTS

Gary C. Ganzi, Lexington, and Charles T. Paul, Westford, both of Mass., assignors to Millipore Corporation, Bedford, Mass.
Division of Ser. No. 121,561, Feb. 14, 1980. This application Mar. 23, 1981, Ser. No. 246,803

Int. Cl.³ B01D 27/06

U.S. Cl. 210-493.2

7 Claims



1. In a tubular filter element comprising a pleated microporous membrane disposed for fluid flow therethrough from its upstream side to its downstream side and having its ends sealed in solidified liquid sealer, the improvement wherein each end of the membrane on its upstream side includes a barrier strip of non-porous pleated film, one portion of the strip being joined fluid-tight to the membrane and the other portion being free from the membrane to permit relative movement therebetween, the solidified sealer terminating on the other portion of the film and sealing fluid-tight to the film and downstream side of the membrane, whereby the membrane may flex away from a portion of the strip in response to upstream pressure.

4,392,959

PROCESS FOR STERILIZATION AND REMOVAL OF INORGANIC SALTS FROM A WATER STREAM

Dudley W. Coillet, 319 Trapelo Rd., Belmont, Mass. 02178
Filed May 15, 1981, Ser. No. 263,869

Int. Cl.³ B01D 13/02

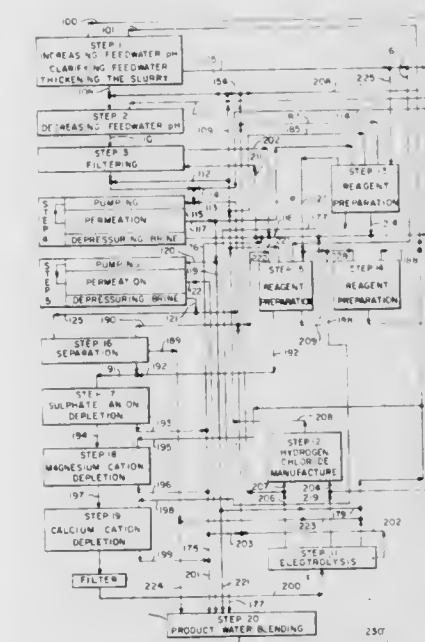
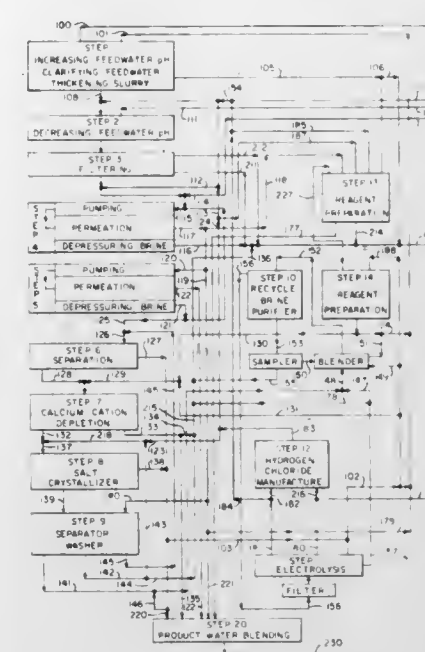
U.S. Cl. 210-638

31 Claims

1. A process for the desalination of unpotable feedwater comprising the steps of:

- decarbonating said feedwater by adding sodium hydroxide to said feedwater in a quantity sufficient to raise the pH level to at least about 9.5 but no greater than 11 to thereby convert substantially bicarbonate to carbonate and to precipitate said carbonate substantially as calcium carbonate in a sludge and a supernatant saline stream;
- separating the thus-formed sludge from the supernatant saline stream in a clarifier;
- subjecting the separated supernatant saline stream to first stage reverse osmosis across a membrane to produce a first stage permeate stream and a first stage sodium chloride brine stream, whereby multivalent cations at least are substantially rejected into the latter and a portion of the monovalent cations and of the water from the saline feed are preferentially retained as first stage permeate; and

(d) subjecting the first stage permeate stream to second stage reverse osmosis to form a second stage permeate stream of



potable water and a second stage sodium chloride brine stream.

4,392,960

PROCESS FOR THE REMOVAL OF UREA FROM AQUEOUS SOLUTIONS

Menahem A. Kraus; Moshe A. Frommer, both of Rehovot; Mara Nemas, Neve Monoson, and Rodika Gutman, Kiryat Sharet, all of Israel, assignors to A. T. Ramot Plastics, Ltd., Tel-Aviv, Israel

Filed Jan. 27, 1976, Ser. No. 652,812

Claims priority, application Israel, Jan. 27, 1975, 46510; Jul. 15, 1975, 47709

Int. Cl.³ B01D 13/00

U.S. Cl. 210-651

1 Claim

1. A process for the removal of urea from an aqueous solution containing same, wherein a removal equivalent to a rejection of at least 60% from a urea concentration of 5,000 ppm and at 600 psi operating pressure is achieved, which comprises subjecting the solution to reverse osmosis through a polymeric membrane produced from a polymer obtained by the polymerization of m-phenylenediamine, 3,3'-diamino-N,N',N''-triphenyl phosphoric triamide and isophthaloyl chloride.

4,392,961

MAGNESIUM ALUMINATE ANION EXCHANGERS

John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to The Dow Chemical Co., Midland, Mich.
Continuation of Ser. No. 183,907, Sep. 4, 1980, Pat. No. 4,326,961, which is a continuation-in-part of Ser. No. 71,920, Aug. 31, 1980, Pat. No. 4,243,555, which is a division of Ser. No. 939,544, Sep. 5, 1978, Pat. No. 4,183,900, which is a division of Ser. No. 812,542, Jul. 5, 1977, Pat. No. 4,116,857. This application Mar. 22, 1982, Ser. No. 360,717

The portion of the term of this patent subsequent to Apr. 27, 1999, has been disclaimed.

Int. Cl.³ B01J 41/02

U.S. Cl. 210-679

7 Claims

1. A method for removing negative-valent ions or radicals from aqueous medium, said method comprising contacting said aqueous medium with crystalline $Mg(OH)_2 \cdot nAl(OH)_3 \cdot mH_2O$, where n is a value of from about 1 to about 2 and m is a value of zero or more, and where the crystalline $Mg(OH)_2 \cdot nAl(OH)_3 \cdot mH_2O$ is supported by a substrate, thereby exchanging OH ions in the said crystalline material with the said negative-valence ions or radicals.

4,392,962

PROCESS FOR SEPARATING METALS FROM AQUEOUS SOLUTIONS

Klaus Lehr, Hürth-Knapsack; Gero Heymer; Christian May, both of Erftstadt, and Hermann Klein, Hürth, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 6, 1981, Ser. No. 318,736

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1980, 3042724

Int. Cl.³ C02F 1/62

U.S. Cl. 210-688

9 Claims

1. A process for separating a seminoble or noble metal, from an aqueous solution having a compound of a said metal dissolved therein, which comprises: passing said solution through a column subdivided into a plurality of zones, a lower zone containing a layer of active carbon particles having a size of 0.01 to 10 mm and an upper zone containing a layer of granular red phosphorus having a size of 0.01 to 10 mm.

4,392,963

RESORCINOL OR PHLOROGLUCINOL CONDENSATION PRODUCT FOR AQUEOUS MIXTURE PURIFICATION

Horst Perl; Dietmar Nussbaumer, both of Göttingen; Horst Klüver, Dransfeld, and Hans Beer, Göttingen, all of Fed. Rep. of Germany, assignors to Sartorius GmbH, Göttingen, Fed. Rep. of Germany

Filed Mar. 20, 1981, Ser. No. 245,957

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011739

Int. Cl.³ C02C 5/02; B01D 15/00

U.S. Cl. 210-692

16 Claims

1. A process for removing urea, ammonia, phenols and formaldehyde from an aqueous liquid, comprising: contacting said aqueous liquid with an incompletely condensed phenol/aldehyde resin having a large surface area, said incompletely condensed phenol/aldehyde resin comprising a condensation product of an aldehyde and resorcinol or phloroglucinol, said incompletely condensed phenol/aldehyde resin having free methylol groups in the ortho-position relative to the phenol hydroxyl group.

4,392,964

COMPOSITIONS AND METHOD FOR THICKENING
AQUEOUS BRINESRoy F. House, Houston, and Lonnie D. Hoover, Chappell Hill,
both of Tex., assignors to NL Industries, Inc., New York, N.Y.
Filed May 5, 1980, Ser. No. 146,286
Int. Cl.³ C09K 7/02; E21B 43/00

U.S. Cl. 252-8.5 C

12 Claims

1. A well servicing fluid comprising:
an aqueous brine having a density of at least 11.7 ppg; and
a polymeric composition comprising from about 5 to about
30% by weight of hydroxyethyl cellulose, at least about
40% by weight of isopropanol, and from about 3 to about
40% by weight of an aqueous liquid, wherein said isopro-
panol, when uniformly mixed with said hydroxyethyl
cellulose in a weight ratio of hydroxyethyl cellulose to
organic liquid of 1:2, produces a mixture with free liquid
present after remaining quiescent for one week at ambient
temperature in a sealed container.

4,392,965

LAUNDRY SOFTENER ANTISTATIC COMPOSITION

Fred E. Woodward, 200 Churchill Rd., West Palm Beach, Fla.
33405, and Alice P. Hudson, 728 W. Kalmia Dr., Lake Park,
Fla. 33403

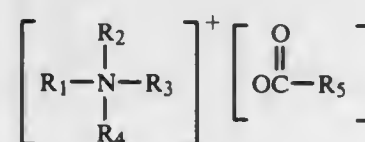
Filed Nov. 12, 1981, Ser. No. 320,169

Int. Cl.³ D06M 13/46; C11D 1/52, 3/26, 3/28

U.S. Cl. 252-8.8

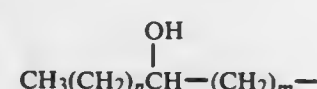
13 Claims

1. A laundry softener-antistatic composition which is a
water insoluble organic salt of carboxylate anions and quater-
nary ammonium cations of the structure

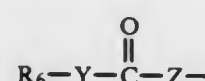


wherein R_1 and R_2 are straight or branched chain alkyl or
alkenyl containing 12 to 22 carbon atoms and may be the
same or different, and R_3 and R_4 are methyl, ethyl, or
propyl; R_5 is

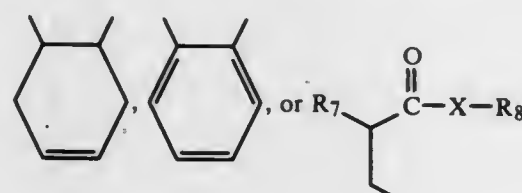
(a) straight or branched chain alkyl or alkenyl containing
10 to 22 carbon atoms, or



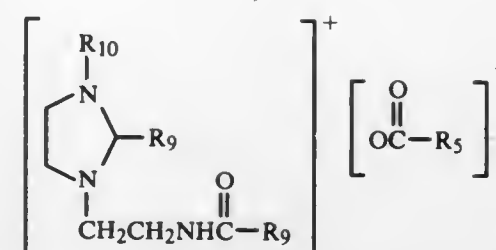
wherein $n + m$ is about 7 to 19, or



wherein R_6 is straight or branched chain alkyl or alke-
nyl containing 10 to 26 carbon atoms; Y is O, NH, or S,
and Z is $-CH=CH-$, $-CH_2-CH_2-$,



wherein X is O or NH, R_7 is straight or branched chain
alkenyl or alkyl containing 8 to 18 carbon atoms, and
 R_8 is straight or branched chain alkyl or alkenyl con-
taining 10 to 22 carbon atoms; or



wherein R_9 is straight or branched chain alkyl or alkenyl
containing 11 to 21 carbon atoms; R_{10} is methyl, ethyl, or
propyl; and R_5 is as described above.

4,392,966

MOLYBDENUM-ZINC DIALKYL DITHIOPHOSPHATES
AS LUBRICANT ADDITIVESRaymond C. Schlicht, Fishkill, N.Y., assignor to Texaco Inc.,
White Plains, N.Y.

Filed Jan. 15, 1982, Ser. No. 339,570

Int. Cl.³ C10M 1/54, 1/48

U.S. Cl. 252-32.7 E

11 Claims

1. An oil soluble lubricant additive having the generic for-
mula:



wherein $x=0-3$; $y=6$ to 12 and R is a straight-chained or
branched hydrocarbyl group having from 3 to 30 carbon atoms
or a mixture of at least two such hydrocarbyl groups where
each group can have values ranging from 1 to 99 molar per-
cents and whose sum equals 100.

4,392,967

PROCESS FOR CONTINUOUSLY MANUFACTURING
LUBRICATING GREASEA. Gordon Alexander, Sarnia, Canada, assignor to Exxon Re-
search and Engineering Co., Florham Park, N.J.

Filed Aug. 11, 1981, Ser. No. 291,944

Int. Cl.³ C10M 5/14

U.S. Cl. 252-41

19 Claims

1. In the process of manufacturing a lubricating grease
wherein thickener reactants, lubricating base oil and additives
are combined, dispersed, reacted, dehydrated and homoge-
nized to form the grease the improvement wherein the grease
is continuously manufactured comprising:

(a) introducing thickener reactants and lubricating oil into
selected locations of a screw process unit which contains
a series of adjacent, longitudinally connected barrel sec-
tions for performing different operative steps and houses a
rotating screw device traversing the interior of the barrel
sections and having separate elements along its length to
perform desired operations;

(b) mixing and conveying said reactants and lubricating oil
along said process unit through the adjacent barrel sec-
tions by continuous operation of said rotating screw to
form a feed mixture;

(c) controlling the temperature of said mixture while it is
being conveyed through said process unit by use of vari-
ous heat exchange means which are located in or adjacent
each barrel to aid in carrying out the operative steps of
dispersion, reaction, dehydration and homogenization;

(d) venting water resulting from the dehydration of the feed
mixture at selected barrel discharge points in said process
unit;

(e) homogenizing the formed grease by continued rotation of
said screw device; and

(f) removing the finished lubricating grease from the end
barrel section of said screw process unit.

4,392,968

METAL DEACTIVATOR AND COMPOSITION
CONTAINING SAMENoboru Ishida, Sagamihara, and Harumichi Watanabe, Yoko-
hama, both of Japan, assignors to Nippon Oil Company, Lim-
ited, Tokyo, Japan

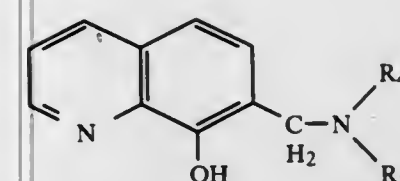
Filed Jul. 30, 1981, Ser. No. 288,343

Claims priority, application Japan, Aug. 13, 1980, 55-110391;
Aug. 13, 1980, 55-110392Int. Cl.³ C10M 1/32

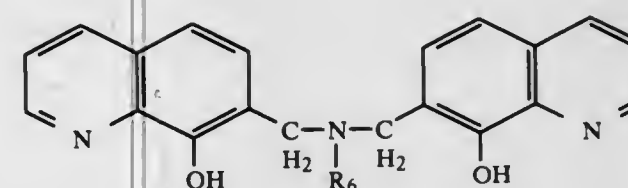
U.S. Cl. 252-51.5 R

7 Claims

1. A metal deactivator comprising at least one member
selected from the group consisting of compounds represented
by the formula

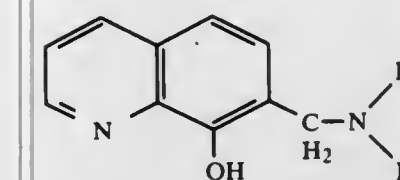


and compounds represented by the formula

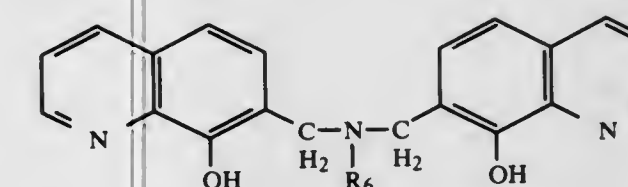


wherein R_4 , R_5 and R_6 are each independently a hydrogen
atom, an alkyl group having 1 to 20 carbon atoms, an alkenyl
group having 2 to 20 carbon atoms, a cycloalkyl group having
5 to 12 carbon atoms, an aryl group having 6 to 10 carbon
atoms, an aralkyl group having 7 to 9 carbon atoms, or a group
represented by the formula $R_7O(R_8O)_nR_9$ where R_7 is a hydro-
gen atom or an alkyl group having 1 to 20 carbon atoms, R_8
and R_9 are each an alkylene group having 2 or 3 carbon atoms
and n is an integer of 0 to 4.

5. A composition comprising an oil selected from the group
consisting of mineral oils and synthetic oils, said mineral oils
and synthetic oils having a kinematic viscosity ranging from 10
to 10,000 cSt (40° C.) and a viscosity index ranging from 80 to
250, and 0.001% to 10.0% by weight, based on the total weight
of the composition, of at least one member selected from the
group consisting of compounds represented by the formula



and compounds represented by the formula



wherein R_4 , R_5 and R_6 are each independently a hydrogen
atom, an alkyl group having 1 to 20 carbon atoms, an alkenyl
group having 2 to 20 carbon atoms, a cycloalkyl group having
5 to 12 carbon atoms, an aryl group having 6 to 10 carbon
atoms, an aralkyl group having 7 to 9 carbon atoms, or a group
represented by the formula $R_7O(R_8O)_nR_9$ where R_7 is a hydro-
gen atom or an alkyl group having 1 to 20 carbon atoms, R_8

and R_9 are each an alkylene group having 2 or 3 carbon atoms
and n is an integer of 0 to 4.

4,392,969

ALKYLATED 5,6,7,8-TETRAHYDRONAPHTHALENOLS
AS ANTIOXIDANTS IN LUBRICATING OILS AND
GREASESBruce E. Firth, Elk Grove, Ill., assignor to UOP Inc., Des
Plaines, Ill.

Filed Sep. 8, 1981, Ser. No. 299,707

Int. Cl.³ C10M 1/20

U.S. Cl. 252-52 R

11 Claims

1. A composition comprising a lubricating oil or grease
containing from about 5 ppm to about 5% by weight of an
additive selected from the group consisting of dialkyl- and
trialkyl-5,6,7,8-tetrahydronaphthalenols, and the dehydrocy-
clization products of said trialkyl-5,6,7,8-tetrahydronaph-
thalenols, wherein each alkyl group contains from 3 to about
16 carbon atoms.

6. The method of inhibiting oxidation in lubricating oils and
greases comprising adding thereto an oxidation inhibiting
amount of an additive selected from the group consisting of
dialkyl- and trialkyl-5,6,7,8-tetrahydronaphthalenols, and the
dehydrocyclization products of said trialkyl-5,6,7,8-tetrahy-
dronaphthalenols, wherein each alkyl group contains from 3 to
about 16 carbon atoms.

4,392,970

PIEZOELECTRIC CERAMICS

Hiromu Ouchi, Toyonaka; Masamitsu Nishida, Osaka, and
Kazunori Numata, Moriguchi, all of Japan, assignors to Mat-
sushita Electric Industrial Co., Ltd., JapanContinuation of Ser. No. 49,969, Jun. 19, 1979, abandoned,
which is a continuation of Ser. No. 671,980, Mar. 30, 1976,
abandoned, which is a continuation of Ser. No. 495,127, Aug. 5,
1974, abandoned. This application Feb. 3, 1982, Ser. No. 345,530
Claims priority, application Japan, Sep. 4, 1973, 48-100041Int. Cl.³ C04B 35/49

U.S. Cl. 252-62.9

6 Claims

1. A piezoelectric ceramic composition exhibiting high sta-
bility of resonant frequency with respect to temperature over
the range of -40°C . to 80°C . comprising a solid solution of a
material selected from the area bound by lines connecting
points A, B, C, D, E and F of the triangular diagram of FIG.
2, wherein A, B, C, D, E and F respectively have the following
formulae:

- A: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.01}\text{Ti}_{0.75}\text{Zr}_{0.24}\text{O}_3$
B: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.01}\text{Ti}_{0.09}\text{Zr}_{0.90}\text{O}_3$
C: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.09}\text{Ti}_{0.01}\text{Zr}_{0.90}\text{O}_3$
D: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.50}\text{Ti}_{0.01}\text{Zr}_{0.49}\text{O}_3$
E: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.50}\text{Ti}_{0.495}\text{Zr}_{0.005}\text{O}_3$
F: $\text{Pb}(\text{Sn}_{1/3}\text{Sb}_{2/3})_{0.25}\text{Ti}_{0.745}\text{Zr}_{0.005}\text{O}_3$

4,392,971

HEAT STORAGE MATERIAL

Hiroshi Kimura, and Junjiro Kai, both of Amagasaki, Japan,
assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo,
Japan

Filed Dec. 18, 1981, Ser. No. 332,172

Claims priority, application Japan, May 8, 1981, 56-69619

Int. Cl.³ C09K 5/06; F24H 7/00; F24J 3/02

U.S. Cl. 252-70

3 Claims

1. A heat storage material which comprises a composition of
 $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ modified for preventing a crystallization of
 $\text{CaCl}_2 \cdot 4\text{H}_2\text{O}$ and 0.01 to 3 wt.% of at least one compound
selected from the group consisting of KCl, RbCl, NaCl, NaF,
 NaMgF_3 , NaYF_4 , $\text{NaY}_3\text{F}_{10}$ and NaThF_6 .

4,392,972

ALUMINUM-CORROSION INHIBITIVE HEAT TRANSFER FLUID

Paul H. Mohr, Chappaqua, and William N. Matulewicz, Montgomery, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 30, 1981, Ser. No. 335,614
Int. Cl.³ C23F 11/14, 11/12

U.S. Cl. 252-75

34 Claims

1. An aluminum corrosion inhibitor composition concentrate comprising:

- (a) an alcohol or mixtures of water and alcohol, and
- (b) a polymerizable-acid graft copolymer comprising an unsaturated grafting acid and having a percent acid graft of between about 1% and 60% and a base polymer consisting of a poly(oxyalkylene) compound of the formula: $R''(OC_nH_{2n})_zOR'$ wherein R' and R'' are members selected from the group consisting of a hydrocarbon radical, a hydrogen atom or an acyl radical, a is an integer having a value of 1 to about 4, n has a value of 2 to 4 inclusive, z is an integer having a value of from 4 to 800 inclusive, said base polymer having a molecular weight of between about 200 and about 10,000,

and wherein the amount of component (b) is between greater than about 0.05 wt. % and about 20 wt. % based on the total amount of component (a) plus component (b) in said concentrate.

4,392,973

METHOD FOR TRANSMITTING POWER BY TRACTION UTILIZING BORATE ESTERS AS TRACTION FLUIDS AND A DEVICE FOR USING THE METHOD

Anthony J. Moore, Camberley, and Howard B. Silver, Escher, both of England, assignors to The British Petroleum Company Limited, London, England

Filed Mar. 18, 1981, Ser. No. 245,013

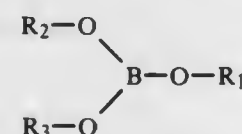
Claims priority, application United Kingdom, Mar. 18, 1980, 8009018

Int. Cl.³ C09K 5/00; C10M 3/20

U.S. Cl. 252-78.1

6 Claims

1. A method of transmitting power by traction wherein a traction fluid transmits the torque between rolling elements of a drive mechanism, comprises introducing between rolling elements of a drive mechanism a traction fluid consisting essentially of a borate ester having the general formula:



where R_1 is a saturated or unsaturated mono-cyclic hydrocarbyl group which from 1 to 5 side groups having from 1 to 20 carbon atoms, and R_2 and R_3 are the same or different cyclic hydrocarbyl groups as defined for R_1 or alkyl groups with from 1 to 20 carbon atoms.

4,392,974

LOW-PHOSPHATE DETERGENT BUILDER SALT MIXTURE AND PROCESS OF WASHING

Klaus Hachmann, Hilden, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft Auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,135

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852285

Int. Cl.³ C02F 1/42; C11D 3/06, 3/12, 3/20

U.S. Cl. 252-99

10 Claims

1. A builder salt mixture for washing, rinsing and cleansing agent compositions consisting essentially of:

- (a) from 50% to 75% by weight of at least one water-insoluble, finely-divided, synthetic, crystalline alkali metal alu-

minosilicate containing at least some combined water and having primary particles in the size range of from 50μ to 0.01μ and a calcium binding power of from 50 to 200 mg CaO/gm of anhydrous active substance when measured at 22° C. by the Calcium Binding Power Test Method set out in the specification and the formula on the anhydrous basis



where Me is an alkali metal,

- (b) from 20% to 35% by weight of at least one carboxymethylloxysuccinate selected from the group consisting of sodium carboxymethylloxysuccinate and potassium carboxymethylloxysuccinate, and
- (c) from 8% to 15% by weight, based on the anhydrous salt, of a triphosphosphate selected from the group consisting of sodium triphosphosphate and potassium triphosphosphate.

3. A washing, rinsing and cleansing agent composition comprising builder salts, tensides, wash alkalies, and optionally other conventional additives for washing, rinsing and cleansing agent compositions wherein

(A) said builder salts are present in an amount of from 25% to 60% by weight and consist of a builder salt mixture consisting essentially of:

- (a) from 50% to 75% by weight of at least one water-insoluble, finely-divided, synthetic, crystalline alkali metal aluminosilicate containing at least some combined water and having primary particles in the size range of from 50μ to 0.01μ and a calcium binding power of from 50 to 200 mg CaO/gm of anhydrous active substance when measured at 22° C. by the Calcium Binding Power Test Method set out in the specification and the formula on the anhydrous basis



where Me is an alkali metal,

- (b) from 20% to 35% by weight of at least one carboxymethylloxysuccinate selected from the group consisting of sodium carboxymethylloxysuccinate and potassium carboxymethylloxysuccinate, and
- (c) from 8% to 15% by weight, based on the anhydrous salt, of a triphosphosphate selected from the group consisting of sodium triphosphosphate and potassium triphosphosphate,

(B) said tensides are present in an amount of 5% to 20%,

(C) said wash alkalies are present in an amount of from 0 to 8% by weight of sodium silicate and from 0 to 10% by weight of other wash alkalies,

(D) said other conventional additives include from 0 to 30% by weight of sodium perborate-tetrahydrate, from 0 to 1% of organic nitrogen containing or phosphorus-containing sequestering agent and from 1% to 30% by weight of soil suspension agents, optical brighteners, enzymes, biocides, fabric softeners, dyes and perfumes, sodium sulfate and water,

with the proviso that the amount of said triphosphosphate component (c) in said washing, rinsing and cleansing agent composition does not exceed 5% by weight.

4,392,975

ACTIVATING COMPOSITION FOR BLEACHING WITH PEROXIDE PRODUCTS

Jacques Tournet, Paris, and Henry Carron, Pantin, both of France, assignors to L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procédés, Paris, France

Filed Sep. 22, 1981, Ser. No. 304,586

Claims priority, application France, Apr. 9, 1981, 81 07107

Int. Cl.³ C11D 7/18, 7/36

U.S. Cl. 252-99

20 Claims

1. In an activating composition for bleaching fibers with peroxide products, containing an activator of the cyanamide

type or a derivative thereof, the improvement wherein the composition further contains a ternary protective mixture for protecting the fibers against the injurious effect of the cyanamide compound or derivative, said protective mixture comprising a finely divided magnesium silicate powder, a sequestering agent of the acetic type and a sequestering agent of the phosphonic type.

4,392,976

ENHANCING OR AUGMENTING THE AROMA OF DETERGENTS USING MIXTURES INCLUDING 4-METHYL-3-CYCLOHEXENE-1-CARBOXYLIC ACID

Nicholas Calderone, Laurel Hollow, N.Y.; Hugh Watkins, Lincoff, and Takao Yoshida, West Long Branch, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 316,238, Oct. 29, 1981, which is a division of Ser. No. 299,211, Sep. 3, 1981. This application Jun. 24, 1982, Ser. No. 391,590

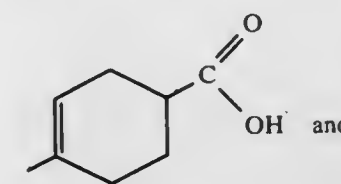
Int. Cl.³ C11D 3/50

U.S. Cl. 252-174.11

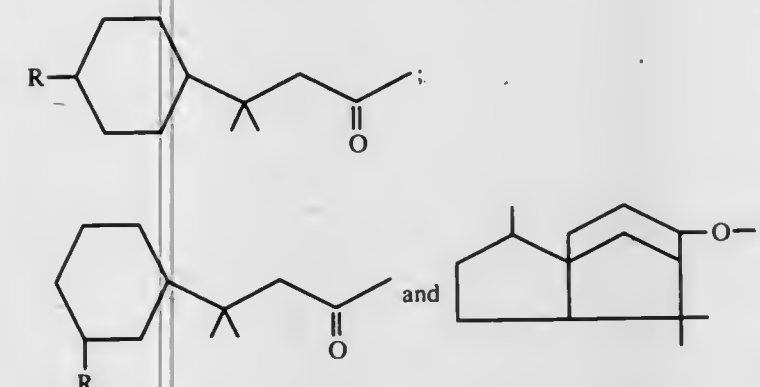
2 Claims

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base, an aroma augmenting or enhancing quantity of a mixture of chemical compounds comprising:

A. the compound having the structure:



B. at least one compound selected from the group consisting of compounds having the structures:



wherein R is selected from the group consisting of t-butyl and t-amyl and R' is selected from the group consisting of methyl, ethyl, propyl, allyl and methallyl.

4,392,977

LIQUID CLEANING AND MAINTENANCE COMPOSITION ESPECIALLY FOR DISHWASHERS

Theodor Altenschöpper, Dusseldorf, and Klaus Schumann, Erkrath, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft Auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Filed Jan. 19, 1981, Ser. No. 226,145

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1980, 3002789

Int. Cl.³ C11D 1/72, 7/50

U.S. Cl. 252-174.19

6 Claims

1. A liquid, aqueous or aqueous-alcoholic cleaning and maintenance composition, especially for dishwashers, consisting essentially of:

- (a) from 12% to 25% by weight of an acid having from 2 to

6 carbon atoms and having a first dissociation stage K value of $>10^{-6}$ selected from the group consisting of alkanolic acids, hydroxy substituted alkanolic acids, alkane polycarboxylic acids and hydroxy substituted alkane polycarboxylic acids,

- (b) from 5% to 12% by weight of glycerol,
- (c) from 1% to 5% by weight of a low-sudsing nonionic tenside,
- (d) from 0 to 5% by weight of customary additives selected from the group consisting of odorants, dyes, dissolving intermediaries and corrosion inhibitors,
- (e) from 0 to 30% by weight of a water-miscible alcohol having from 2 to 4 carbon atoms, and
- (f) the remainder to 100% by weight of water, where the amount of water is at least 25% by weight, based on the total weight of the composition.

4,392,978

SELECTIVE AROMATIC NITRATION

Ronald L. Elsenbaumer, Morristown, and Edel Wasserman, Summit, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 26, 1979, Ser. No. 107,235

Int. Cl.³ C09K 3/00; C07B 11/00; C07D 323/00

U.S. Cl. 252-182

10 Claims

1. A reagent for selective aromatic nitration which comprises a complex of a nitronium containing substance and at least a catalytic amount of a macrocyclic polyether in the presence of a solvent selected from the group consisting of CH_2Cl_2 , CHCl_3 , SO_2 , CH_3NO_2 , CH_3CN , $(\text{CH}_2)_4\text{SO}_2$, CS_2 and polyhaloalkanes having 1 to 8 carbons.

4,392,979

MAGNESIUM ALUMINATE ANION EXCHANGERS

John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to Dow Chemical Co., Midland, Mich.

Division of Ser. No. 183,907, Sep. 4, 1980, Pat. No. 4,326,961, which is a continuation-in-part of Ser. No. 71,920, Aug. 31, 1980, Pat. No. 4,243,555, which is a division of Ser. No. 939,544, Sep. 5, 1978, Pat. No. 4,183,900, which is a division of Ser. No.

812,542, Jul. 5, 1977, Pat. No. 4,116,857. This application Mar. 22, 1982, Ser. No. 360,716

Int. Cl.³ B01J 41/02; C01F 7/02

U.S. Cl. 252-184

27 Claims

1. Crystalline magnesium aluminates conforming generally to the empirical formula



where

A and Z represent negative-valence ions or radicals selected from the group comprising hydroxyl, halide, inorganic acid, and organic acid,

n is a value of from about 1 to about 2,

v is a negative valence of 1, 2, or 3,

a is a value of from zero to 2,

b is a value of from zero to 2,

with $(va) + (vb)$ equal to 2, and with m being a value of zero or more.

4,392,980

TRANSITION METAL ALUMINATES

John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to The Dow Chemical Co., Midland, Mich. Division of Ser. No. 183,908, Sep. 4, 1980, Pat. No. 4,333,846, which is a continuation-in-part of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,116,856, and a continuation-in-part of Ser. No. 95,692, Nov. 19, 1979, which is a division of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,166,856, and a continuation-in-part of Ser. No. 95,691, Nov. 19, 1979, abandoned, which is a continuation-in-part of Ser. No. 939,545, Sep. 5, 1978, Pat. No. 4,221,767, which is a division of Ser. No. 812,534, Jul. 5, 1977, Pat. No. 4,166,856. This application Mar. 29, 1982, Ser. No. 362,690

Int. Cl.³ B01D 15/04

U.S. Cl. 252—184

14 Claims

1. Crystalline transition metal aluminates conforming generally to the formula



where M is at least one divalent transition metal selected from the group comprising Cu, Zn, Mn, Fe, Co, and Ni, where AZ represents negative valence ions or radicals, n is a value of from about 1 to about 4, v is a negative valence of 1, 2, or 3, a and b are each values of from zero to 2, with (va)+(vb) equal to 2, and with m being a value of zero or more.

4,392,981

PARTIAL OXIDATION WITH RECYCLE OF RECOVERED CARBON

Roger J. Corbeels, Wappingers Falls, and Charles G. Sengenberger, Poughkeepsie, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Continuation of Ser. No. 179,376, Aug. 18, 1980, abandoned.

This application Apr. 30, 1982, Ser. No. 373,367

Int. Cl.³ C10J 3/46

U.S. Cl. 252—373

4 Claims

1. In a process for the gasification of a finely divided solid fuel entrained in a fluid medium which comprises subjecting a finely divided solid fuel ground so that at least 95% passes through a 14 mesh sieve to partial oxidation to produce a gas comprising carbon monoxide and hydrogen and containing carbon and ash bearing entrained particles and recycling said entrained particles to the partial oxidation step wherein the improvement comprises removing the entrained particles in a liquid quench medium, settling the carbon rich portion of said particles in said liquid medium, rejecting particles larger than about 0.84 mm from the settled particles and comminuting the remaining particles, subjecting the comminuted particles to froth flotation and recycling only the carbon rich float fraction to the partial oxidation step.

4,392,982

EXTENDED BIODEGRADABLE DYE PENETRANT COMPOSITION

Orlando G. Molina, Westminster, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Mar. 24, 1981, Ser. No. 247,183

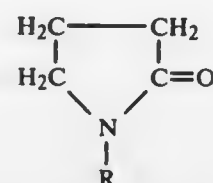
Int. Cl.³ G01N 21/88; C09C 3/00; B01N 33/00

U.S. Cl. 252—408.1

17 Claims

1. A biodegradable liquid dye penetrant composition for use in nondestructive testing for detecting cracks and other defects in the surface of an object, comprising (1) a nonionic surfactant consisting essentially of an oxyalkylated aliphatic alcohol or mixtures thereof, formed of an aliphatic primary or secondary alcohol carrying ethoxy or propoxy groups, or mixtures thereof (2) a small amount of a dye soluble in said surfactant

and (3) as extender, a substantial portion of an N-alkyl-2-pyrrolidone having the general formula:



where R is an alkyl group containing from 1 to 4 carbon atoms.

4,392,983

TRANSITION METAL COMPOSITION, PRODUCTION AND USE

Angus J. Hartshorn, Runcorn, and Eric Jones, Tarporley, both of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Jul. 21, 1981, Ser. No. 285,526

Claims priority, application United Kingdom, Jul. 21, 1980, 8023814; May 6, 1981, 8113834

Int. Cl.³ C08F 4/02, 4/44, 4/70

U.S. Cl. 252—429 B

12 Claims

1. A process for the production of a transition metal composition which process comprises spraying a material which comprises a hot single phase liquid and cooling the spray so formed so as to obtain essentially spheroidal particles characterized in that the said single phase liquid has a composition represented by the general formula:



(I)

where

M, where present, represents at least one metal of Groups Ib, IIa, IIb, VIIa, VIII or the lanthanide series of the Periodic Table,

X, where present, represents at least one anion,

T represents at least one transition metal of Groups IVA, VA or VIA of the Periodic Table,

Y represents at least one of the following atoms or groups: halide, oxyhalide, amino, alkoxide, thioalkoxide, carboxylate or sulphonate in an amount to satisfy the valency which T has in the composition,

Z, where present, represents at least one melt-producing compound which, on heating with the transition metal compound TY, forms a single phase liquid,

m is zero or a number less than 100;

n is zero or a number less than 8 (m+one); and

$$p \text{ is } \frac{m \times (\text{valency of } M)}{(\text{valency of } X)}$$

4,392,984

OLEFIN OLIGOMERIZATION CATALYSTS AND A PROCESS FOR THEIR PREPARATION

Heinz Engelbach; Werner Steigleiter, both of Limburgerhof, and Helmut Glietenberg, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 25, 1981, Ser. No. 247,624

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1980, 3014950

Int. Cl.³ B01J 21/02, 21/06, 23/18, 27/18

U.S. Cl. 252—432

4 Claims

1. A catalyst for olefin oligomerization, whose active material has the empirical formula



I

where A is boron, antimony, bismuth or 3 equivalents of titanium or mixtures thereof, X is NH_4^+ or an alkali metal cation

and/or one equivalent of an alkaline earth metal cation, or mixtures thereof Y is one equivalent of an anion, a is 0.02–0.2, b is 0–0.05 and n is 1–3.

4,392,985

HYDROCARBON CONVERSION CATALYST AND METHOD OF PREPARATION

William S. Millman, Brea, Calif., assignor to Union Oil Company of California, Brea, Calif.

Filed Jul. 27, 1981, Ser. No. 287,022

Int. Cl.³ B01J 27/14

U.S. Cl. 252—435

21 Claims

1. A catalytic composition prepared by the method comprising the steps of (1) impregnating support particles with an aqueous impregnating solution comprising dissolved cobalt, phosphorus, and at least 17 weight percent of Group VIB metal components, calculated as the trioxides, and wherein said dissolved phosphorus, calculated as P, is in a weight ratio to the Group VIB metal trioxide of about 0.01 to about 0.5, said solution having a pH less than about 1.0 and being characterized by a maximum extinction coefficient in the ultraviolet spectrum of about 0.7×10^4 to 1.8×10^4 liters/cm.moles of Group VIB metal, and (2) activating the impregnated support particles.

4,392,986

CATALYST FOR CARBOXYLIC ANHYDRIDE PRODUCTION

Tai-Cheng Yang, Mahwah; Krishna K. Rao, Paterson, and I-Der Huang, Upper Saddle River, all of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 309,725, Oct. 8, 1981, which is a continuation of Ser. No. 202,262, Oct. 30, 1980, abandoned.

This application Dec. 2, 1981, Ser. No. 326,543

Int. Cl.³ B01J 27/14

U.S. Cl. 252—435

31 Claims

1. A process for preparing a catalyst composition comprising vanadium, phosphorus and oxygen capable of catalyzing the oxidation of hydrocarbons comprising:

(1) reacting in the presence of a liquid organic media, a vanadium containing compound present in said liquid organic media as a heterogeneous suspension and a phosphorus containing compound, in a manner and under conditions sufficient to form in said liquid organic media a heterogeneous vanadium-phosphorus-oxygen containing first catalyst precursor composition having an atomic ratio of phosphorus to vanadium of from about 0.5:1 to about 2:1, and an average vanadium valence of from about 3.9 to about 4.7;

(2) separating said first catalyst precursor composition from said liquid organic media;

(3) treating said first catalyst precursor composition with at least one part by weight liquid water per part by weight first catalyst precursor composition at a temperature of at least about 30° C. for a period of at least about 0.5 hour to form a second vanadium-phosphorus-oxygen catalyst precursor composition;

(4) separating said second catalyst precursor composition from said water; and

(5) activating said second catalyst precursor composition in an atmosphere which excludes the presence of air alone therein.

4,392,987

ALUMINA SPHEROIDS WITH CONTROLLED SMALL PARTICLE SIZE AND A PROCESS FOR PRODUCING THEM

Norman R. Laine, Rockville, and Jose E. Herrera, Ellicott City, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Dec. 30, 1981, Ser. No. 335,781

Int. Cl.³ B01J 35/08

U.S. Cl. 252—448

17 Claims

1. A process for producing small spheroidal alumina parti-

cles in the size range of about 0.01 mm. to about 3.0 mm. comprising providing a slurry of an alumina and an acidic aqueous medium, spraying the slurry with an immiscible spraying fluid under nonatomizing conditions, aging the particles and drying and calcining the particles to produce alumina spheroids of small diameter.

4,392,988

METHOD OF PRODUCING STABLE ALUMINA

Jesse C. Dobson, La Jolla, and Richard W. Knight, Jr., Escondido, both of Calif., assignors to GA Technologies Inc., San Diego, Calif.

Filed May 11, 1981, Ser. No. 262,230

Int. Cl.³ B01J 21/12, 20/08

U.S. Cl. 252—455 R

10 Claims

1. A method of treating activated alumina to impart increased chemical stability and heat resistance thereto comprising

soaking activated alumina in silicone liquid to impregnate said activated alumina therewith,

draining excess silicone liquid from said activated alumina, and

heating said silicone liquid impregnated activated alumina in an oxygen-free atmosphere to between about 350° C. and about 1100° C. to leave a silica residue infused in the crystallite structure resulting in a silica-alumina phase over the internal and external structure of said alumina.

2. A method according to claim 1 in which said activated alumina having said silica residue is further heated in the presence of oxygen to burn off carbon residue at a temperature below the α -phase conversion temperature of activated alumina.

4,392,989

ZINC-GALLIUM ZEOLITE

Yung F. Chu, and Arthur W. Chester, both of Cherry Hill, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 11, 1981, Ser. No. 262,280

Int. Cl.³ B01J 29/30

U.S. Cl. 252—455 Z

6 Claims

1. A catalyst composition comprising by weight between about 0.1 and about 2 percent of gallium, between about 0.05 and about 8 percent of zinc, and a crystalline zeolite characterized by a constraint index within the approximate range of 1 to 12, and a silica to alumina ratio of at least 12.

3. The catalyst composition of claim 1 wherein said catalyst is composited with a porous matrix material in a proportion of between about 1 and about 90 percent by weight of catalyst composition in the dry composite.

4,392,990

HEATING SILICA GEL IN INERT ATMOSPHERE BEFORE ACTIVATION

Donald R. Witt, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 20, 1982, Ser. No. 340,937

Int. Cl.³ B01J 21/06, 23/26

U.S. Cl. 252—458

24 Claims

1. A process comprising:

forming a silica hydrogel;

aging said hydrogel for a time of at least one hour;

treating the thus aged hydrogel with a volatile normally liquid saturated aliphatic alcohol having a solubility in water of less than 6 grams per 100 grams of water to convert said hydrogel to a xerogel;

subjecting the thus formed xerogel to a heat treatment in an inert atmosphere at an elevated temperature; and

activating the thus heat treated xerogel, said xerogel also containing chromium, in an oxygen-containing ambient for a time sufficient to activate same.

3. A method according to claim 1 wherein said alcohol is a C₅ or C₆ alcohol.

5. A method according to claim 1 wherein said inert atmosphere comprises nitrogen and wherein said heat treatment in said nitrogen is carried out for a time within the range of 15 minutes to 1 hour at a temperature within the range of 800° to 1600° F.

4,392,991

METHOD OF MAKING α -HEMATITE CATALYST

Lymprios N. Yannopoulos, Churchill, and Joseph F. Pierre, West Deer, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 21, 1981, Ser. No. 303,807

Int. Cl.³ B01J 21/04, 23/74

U.S. Cl. 252-466 J

4 Claims

1. A method of making an alpha hematite catalyst comprising

- (A) forming a mixture of ferric oxide and an inert metal oxide support;
- (B) placing said mixture in a reaction vessel;
- (C) heating said mixture to a temperature of 900° to 1,000° C.;
- (D) passing a hydrogen halide gas over said mixture, whereby said ferric oxide forms a ferric halide which reacts with water vapor to reform ferric oxide as alpha hematite in said mixture.

4,392,992

CHROMIUM-SILICON-NITROGEN RESISTOR MATERIAL

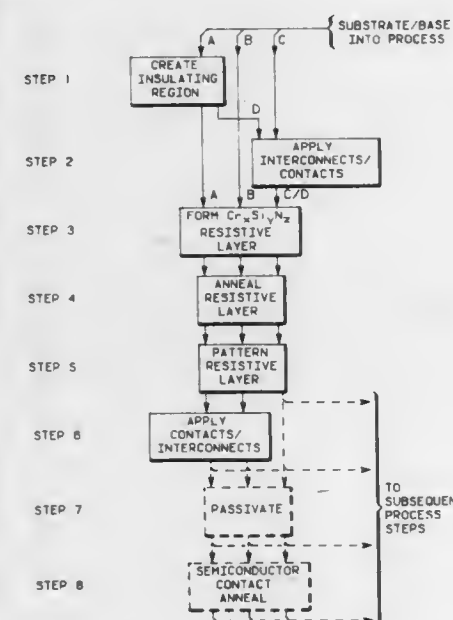
Wayne M. Paulson, Paradise Valley, and David W. Hughes, Mesa, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 30, 1981, Ser. No. 279,130

Int. Cl.³ H01B 1/06

U.S. Cl. 252-512

3 Claims



1. A resistor material comprising Cr, Si, and nitrogen in atomic percent proportions in the range 5% to 75% Cr, 5% to 85% Si, and 1% to 60% nitrogen.

4,392,993
ALICYCLIC UNSATURATED COMPOUNDS, THEIR PREPARATION AND USE OF SAME AS PERFUME INGREDIENTS

Alan F. Thomas, Borex/VD, and Ferdinand Näf, Geneva, both of Switzerland, assignors to Firmenich, SA, Switzerland

Filed Jul. 23, 1981, Ser. No. 286,269

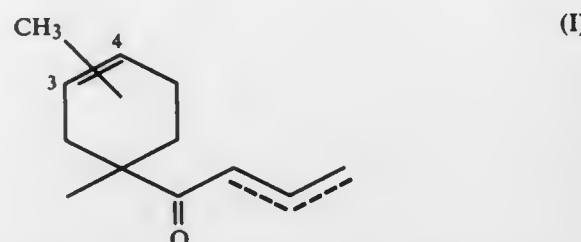
Claims priority, application Switzerland, Aug. 22, 1980, 6342/80

Int. Cl.³ A61K 7/46; C11B 9/00

U.S. Cl. 252-522 R

7 Claims

1. A compound of formula



possessing a methyl group attached to the carbon atom at position 3 or 4 of the ring and one double bond in one of the positions of the carbonyl side chain as indicated by the dotted line.

4,392,994

CORROSION INHIBITOR FOR CELLULOSIC INSULATION

Anthony P. Wagener, Park Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

Filed Oct. 29, 1980, Ser. No. 202,031

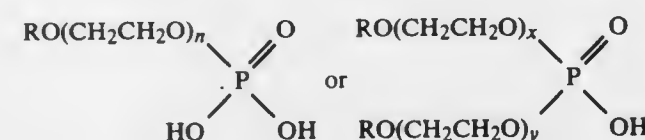
Int. Cl.³ C09K 3/00; C23F 11/00

U.S. Cl. 252-602

11 Claims

1. A process for limiting the corrosive nature of cellulosic insulation which has been treated with a fire-retardant composition, by applying to the insulation an effective amount of an aqueous corrosion inhibiting solution which comprises:

- (a) about 1.0 to about 99 parts water;
- (b) about 0.01 to about 10 parts of at least one amine or alkali metal salt of an aromatic triazole;
- (c) about 1 to about 99 parts of at least one amine or alkali metal salt of an organic phosphate ester acid; wherein the acid is selected from the group of acids having the formulas:



wherein R is alkyl from 1 to about 20 carbons or alkylaryl from 7 to about 30 carbons, or aryl; n is an integer from 1 to 50, x is an integer from 1 to 50 and y is an integer from 1 to 50.

4,392,995

MOLTEN TIN REPROCESSING OF SPENT NUCLEAR FUEL ELEMENTS

Richard A. Heckman, Castro Valley, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Dec. 19, 1980, Ser. No. 218,242

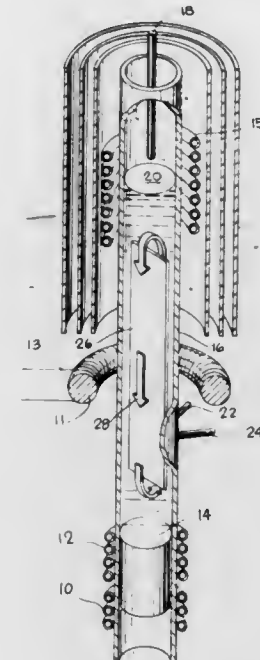
Int. Cl.³ G21C 19/48

U.S. Cl. 252-627

7 Claims

1. A method for reprocessing spent nuclear fuel in an apparatus having liquid tin dispersed within a containment vessel, and a solid plug of tin and nitride precipitates disposed within said containment vessel to interface with and support said liquid tin therein, comprising:

feeding spent nuclear fuel into said containment vessel; immersing said spent nuclear fuel in said liquid tin under an atmosphere of nitrogen, resulting in the formation of nitride precipitates from said nuclear fuel, whereby said nitride precipitates are dispersed throughout said liquid tin; solidifying a layer of liquid tin and nitride precipitates which interfaces with said plug, to thereby integrate said layer with said plug;



melting an end portion of said plug remote from an end of said plug which interfaces with molten tin, whereby said melted end portion may be removed, while leaving a sufficient amount of said plug solidified to provide support for said liquid tin and nitride precipitates remaining in said containment vessel; and removing said melted portion of said plug from said containment vessel.

4,392,996

PROCESS FOR THE PREPARATION OF BIOLOGICALLY ACTIVE PEPTIDE ANALOGUES

Ludwig A. Sternberger, Rochester, N.Y., assignor to The University of Rochester, Rochester, N.Y.

Filed Jul. 13, 1981, Ser. No. 282,910

Int. Cl.³ C07G 7/00

U.S. Cl. 260-112 R

5 Claims

1. A process for obtaining a neuropeptide analogue from brain or other organ of the body comprising adding a neuropeptide to brain or other organ of the body, the neuropeptide being present in an amount sufficient to displace the neuropeptide analogue from brain or other organ of the body, and isolating the neuropeptide analogue.

4,392,997

ANTIGENIC PEPTIDE COMPOUNDS

Erwin Goldberg, Evanston, Ill., assignor to Northwestern University, Evanston, Ill.

Continuation-in-part of Ser. No. 280,295, Jul. 6, 1981, abandoned. This application Jun. 16, 1982, Ser. No. 389,040

Int. Cl.³ C07C 103/52

U.S. Cl. 260-112.5 R

6 Claims

1. The antigenic peptide compounds arranged in a sequence from N-terminal to C-terminal amino acids selected from the class consisting of:

- (a) Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys
- (b) Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu

- (c) Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu—Ser
- (d) Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu—Ser—Arg
- (e) Cys—Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys
- (f) Cys—Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu
- (g) Cys—Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu—Ser, and
- (h) Cys—Glu—Gln—Leu—Ile—Gln—Asn—Leu—Val—Pro—Glu—Asp—Lys—Leu—Ser—Arg

wherein Gly represents glycine, and Glu, Gln, Leu, Ile, Asn, Val, Pro, Asp, Lys, Ser, Arg, and Cys, respectively represent the L-amino acid forms of glutamic acid, glutamine, leucine, isoleucine, asparagine, valine, proline, aspartic acid, lysine, serine, arginine, and cysteine.

4,392,998

ONE POT DIAZOTIZATION, COUPLING AND QUATERNIZATION OF AMINOTRIAZOLES

Hans-Peter Kühlthau, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 236,490

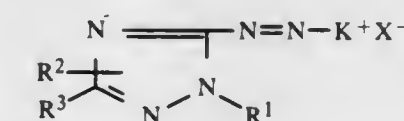
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1980, 3009267

Int. Cl.³ C07C 107/00; C09B 43/00

U.S. Cl. 260-146 R

6 Claims

1. In the preparation of a quaternized dyestuff of the formula



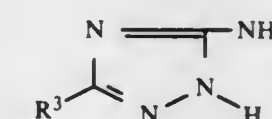
in which

R¹ and R² each is a C₁- to C₄-alkyl or alkenyl radical, or a C₁-C₄-alkyl or alkenyl radical substituted by halogen, hydroxyl, cyano, C₁- to C₄-alkoxy, C₁- to C₄-alkoxycarbonyl, C₁-C₃-alkylcarbonyloxy, aminocarbonyl, phenoxy, benzyloxy, benzoyloxy, mono- or di-(C₁ to C₂-alkyl)-amino, mono- or di-(C₁- to C₂-alkyl)-aminocarbonyl, phenylalkyloxy, phenoxy carbonyloxy or phenylaminocarbonyloxy; a benzyl, α - or β -phenethyl or α -, β - or γ -phenylpropyl radical; or a benzyl, α - or β -phenylethyl or α -, β - or γ -phenylpropyl radical substituted by C₁- to C₄-alkyl or by any of the substituents set forth in connection with alkyl;

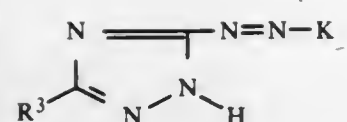
R₃ is hydrogen; a C₁- to C₄-alkyl radical; a C₁- to C₄-alkyl radical substituted as in R¹ and R²; a cyclohexyl, phenyl, naphthyl, benzyl, α - or β -phenylethyl or α -, β - or γ -phenylpropyl radical; or a cyclohexyl, phenyl, naphthyl, benzyl, α - or β -phenylethyl or α -, β - or γ -phenylpropyl radical substituted by C₁ to C₄-alkyl or by any of the substituents set forth in connection with alkyl;

K is the radical of a coupling component HK, and X is an anion,

wherein an aminotriazole of the formula



is diazotized and coupled to a coupling component HK to form an intermediate dyestuff of the formula



and the intermediate dyestuff is quaternized with an alkylating or aralkylating agent capable of providing the radicals R^1 and R^2 in a medium also providing the anion X^- , the improvement which comprises effecting the coupling at a pH of 4 to 6 and thereafter, without isolation of the intermediate dyestuff, effecting the quaternization.

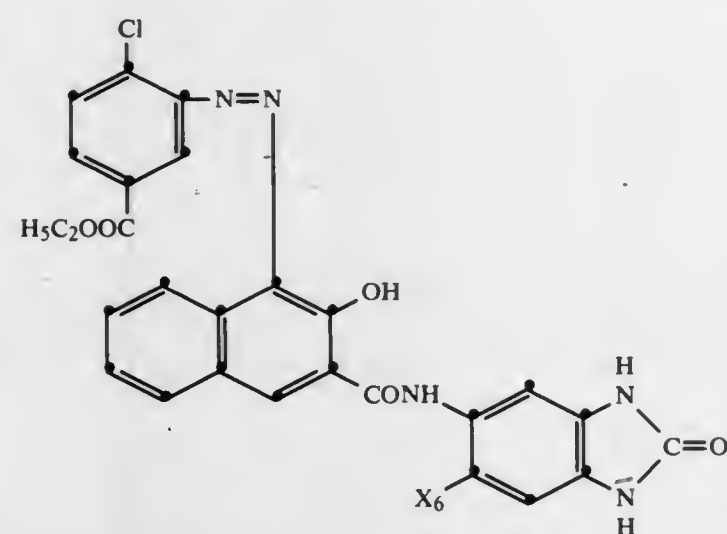
4,392,999
MONOAZO PIGMENTS CONTAINING
HYDROXYNAPHTHOYLAMINO BENZIMIDAZOLONE
RADICAL

Rolf Müller, Aesch; Armand Roueche, Bottmingen; Paul Müller, Basel, and Karl Ronco, Riehen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 147,817, May 8, 1980, abandoned, which is a continuation of Ser. No. 911,002, May 30, 1978, Pat. No. 4,229,344. This application Sep. 14, 1981, Ser. No. 301,807. Claims priority, application Switzerland, Jun. 3, 1977, 6868/77.

Int. Cl.³ C09B 29/36; C09B 43/12; D06P 1/52, 1/649
U.S. Cl. 260—157 3 Claims

1. A monoazo pigment corresponding to the formula



wherein X_6 is hydrogen or methyl.

4,393,000
CYCLIZATION PROCESS FOR PRODUCING
AZIRIDINE-2-CARBOXYLIC ACID OR ITS SALTS
Ryuichi Mita, Kawasaki; Chojiro Higuchi, Kamakura; Toshio Kato, Kawasaki; Nobuyuki Kawashima; Akihiro Yamaguchi, both of Kamakura; Shosuke Nagai, Yokohama, and Takao Takano, Fujisawa, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Dec. 9, 1980, Ser. No. 214,728
Claims priority, application Japan, Dec. 12, 1979, 54/160351; Dec. 25, 1979, 54/167681; Jan. 16, 1980, 55/2566

Int. Cl.³ C07D 203/02, 203/08
U.S. Cl. 260—239 E 13 Claims

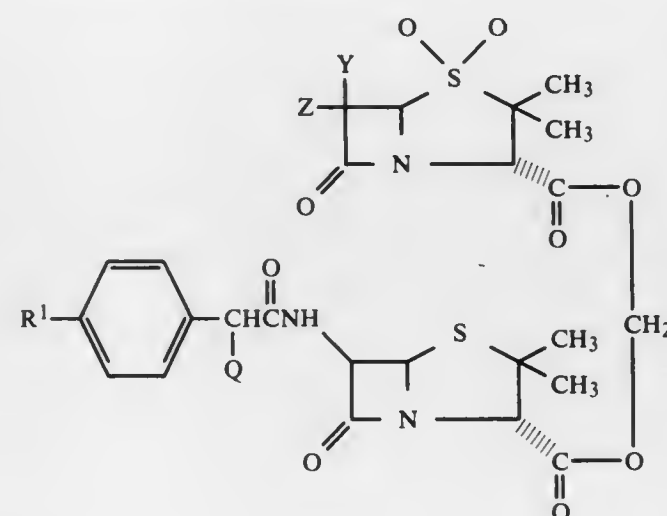
1. A process for producing aziridine-2-carboxylic acid salt which comprises a step wherein an α -halogeno- β -aminopropionitrile-containing reaction mixture obtained by reacting an α , β -dihalogenopropionitrile or an α -halogenoacrylonitrile with ammonia in water, an organic solvent or a mixture of water and an organic solvent at a temperature of -40° to 30° C., is treated with an alkali or alkaline earth metal hydroxide.

4,393,001
INTERMEDIATES FOR PRODUCTION OF
1,1-DIOXOPENICILLANOXYLOXYMETHYL
6-(2-AMINO-2-PHENYLACETAMIDO)PENICILLANATES
Vytautas J. Jasys, New London, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 246,456, Mar. 23, 1981, abandoned. This application Sep. 29, 1982, Ser. No. 427,215

Int. Cl.³ C07D 499/32
U.S. Cl. 260—239.1 10 Claims

1. A compound of the formula



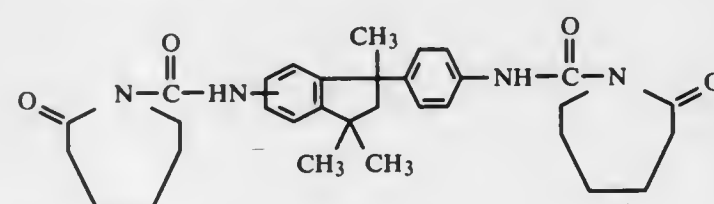
wherein
 R^1 is H or OH;
Y and Z are each Cl, Br or I, or Y is H and Z is Cl, Br or I
and
Q is N_3 or $NHCO_2CH_2C_6H_4R^4$ where R^4 is H, Cl, Br, NO_2 , CH_3 or OCH_3 .

4,393,002
 ϵ -CAPROLACTAM BLOCKED DIISOCYANATES
Jonas Weiss, Port Chester, and Raymond Seltzer, New City, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 19, 1982, Ser. No. 360,031
Int. Cl.³ C07D 210/00

U.S. Cl. 260—239.3 R 3 Claims

1. A ϵ -caprolactam-blocked diisocyanate isomeric mixture corresponding to the formula



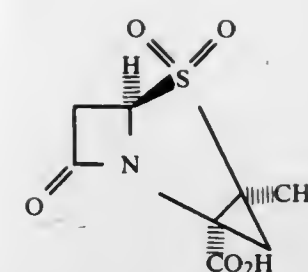
said mixture comprising from about 10 to 80% of the 5-isomer and from about 90 to 10% of the 6-isomer.

4,393,003
 β -LACTAMASE INHIBITORS
Dennis D. Keith, Montclair; John P. Teng, Cedar Grove, and Manfred Weigle, North Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Apr. 8, 1981, Ser. No. 252,106
Int. Cl.³ C07D 499/00; A61K 31/425

U.S. Cl. 260—245.2 R 6 Claims

1. A compound of the formula



and the pharmaceutically acceptable salts thereof.

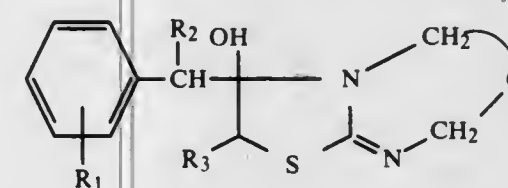
4,393,004
3-[(α -SUBSTITUTED-BENZYL)-2,3-DIHYDRO-
THIAZOLO[3,2-A][1,3]DIAZACYCLAN-3-OL
DERIVATIVES

Andrew S. Tomcufcik, Old Tappan; William B. Wright, Jr., Woodcliff Lake, both of N.J., and Joseph W. Marsico, Jr., Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 206,803, Nov. 14, 1980, Pat. No. 4,340,734. This application Jan. 29, 1982, Ser. No. 344,118

Int. Cl.³ C07D 513/04
U.S. Cl. 260—245.5 26 Claims

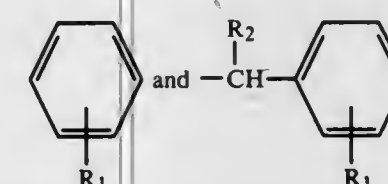
1. A compound selected from those of the formula:



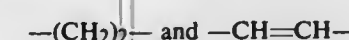
wherein R_1 is hydrogen, fluoro, chloro, bromo, alkyl having from 1 to 3 carbon atoms or alkoxy having from 1 to 3 carbon atoms; R_2 is hydrogen or



wherein R_1 is as hereinbefore defined; R_3 is hydrogen, alkyl having from 1 to 3 carbon atoms, or a moiety selected from the group consisting of those of the formulae:

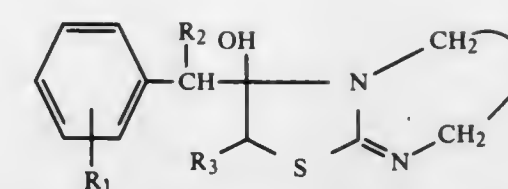


wherein R_1 and R_2 are as hereinbefore defined, and Q is a divalent moiety selected from the group consisting of those of the formulae:

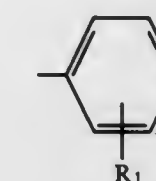


as well as the pharmaceutically acceptable salts thereof.

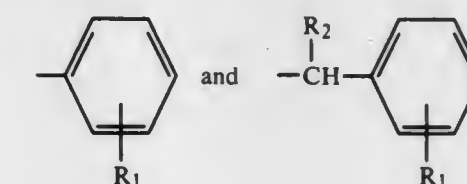
20. A compound selected from those of the formula:



wherein R_1 is hydrogen, fluoro, chloro, bromo, alkyl having from 1 to 3 carbon atoms or alkoxy having from 1 to 3 carbon atoms; R_2 is hydrogen or



wherein R_1 is as hereinbefore defined; R_3 is hydrogen, alkyl having from 1 to 3 carbon atoms, or a moiety selected from the group consisting of those of the formulae:



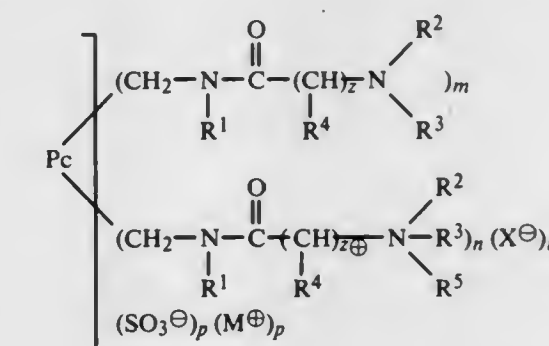
wherein R_1 and R_2 are as hereinbefore defined, and Q is $-(CH_2)_3-$, as well as the pharmaceutically acceptable salts thereof.

4,393,005
CATIONIC PHTHALOCYANINE DYES
Manfred Patsch, Wachenheim; Manfred Ruske, Ludwigshafen, and Erwin Hahn, Heidelberg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

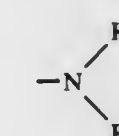
Filed Mar. 15, 1982, Ser. No. 357,808
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1981, 3111199

Int. Cl.³ C09B 47/04
U.S. Cl. 260—245.73 9 Claims

1. A cationic phthalocyanine dye of the formula

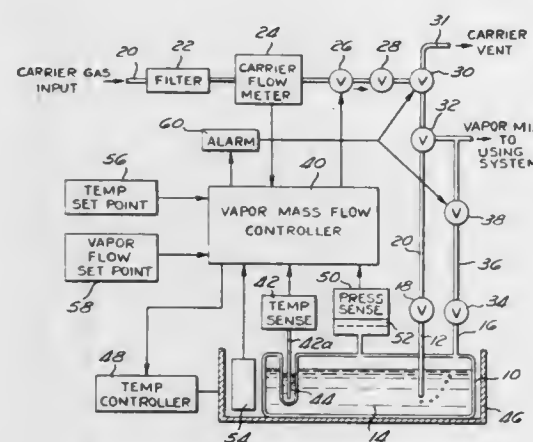


where Pc is an $(n+m+p)$ -valent radical of a phthalocyanine, R^1 is hydrogen or C_1 - C_4 -alkyl, R^2 and R^3 independently of one another are C_1 - C_{14} -alkyl, C_2 - C_4 -hydroxyalkyl, C_5 - C_8 -cycloalkyl, benzyl, phenyl or tolyl, or



tainer, which includes pressure variations therein caused by conditions downstream from the container; generating a signal utilizing said pressure deviation; transmitting said signal to said flow control valve, said signal adjusting said flow control valve to control the carrier gas flow to provide said continuous, uniform mass flow of said vaporized material with reduced error in said mass flow which would otherwise be caused by said pressure deviation.

5. A chemical vapor delivery system comprising:
a bubbler container for holding a quantity of high purity liquid to be vaporized and applied to a using system, said container being at substantially atmospheric pressure;
means for transporting a carrier gas through said liquid to transport the vaporized material to the using system;
means for sensing the carrier gas flow rate;
valve means for controlling the flow of said carrier gas;



means for sensing and controlling the temperature of said liquid;
means for sensing the total gaseous pressure in said container which includes pressure variations therein caused by conditions downstream from the container; and
controller means connected to receive the sensed carrier gas flow rate, the sensed temperature and the sensed pressure and to compare said sensed pressure with a reference pressure to provide a pressure differential indicative of a relatively small deviation from atmospheric pressure, said controller utilizing said pressure differential for reducing error in the mass flow rate of vapor which would otherwise be caused by said pressure deviation and producing a signal for controlling said carrier gas flow control valve means in a manner to produce a continuous, uniform mass flow of said vaporized liquid to said using system.

4,393,014

METHOD OF CASTING EXPLOSIVE CHARGE WITH HIGH SOLIDS CONTENT

George E. Ziegler, Sparta, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 16, 1981, Ser. No. 302,946

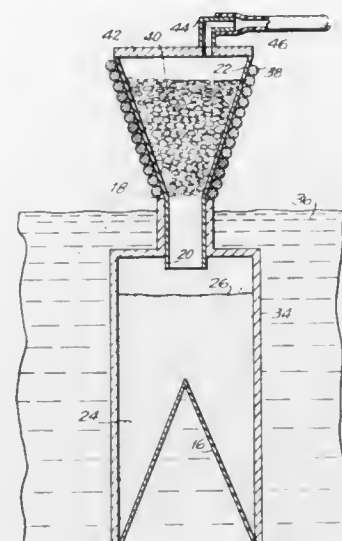
Int. Cl.³ C06B 21/00

U.S. Cl. 264-3 R

9 Claims

1. A method of casting an explosive charge of trinitrotoluene containing a high percentage of solid particles insoluble therein in a mold comprising:
adding said solid particles to said mold;
adding an appropriate quantity of said trinitrotoluene to said mold over said solid particles;
heating said mold with said solid particles and said trinitrotoluene contained therein whereby said trinitrotoluene is liquefied and diffuses into said solid particles;

drawing a vacuum in said mold whereby release of air from said explosive charge is encouraged; and



continuing the heating and drawing steps simultaneously for a long enough time to complete the diffusion and air release.

4,393,015

PROCESS OF PRODUCING URETHANE-MODIFIED POLYISOCYANURATE FOAMS

Hiroshi Kaneda, Higashimurayama; Katsuhiko Arai, Kodaira; Akira Suzuki, Hidaka, and Takashi Ohashi, Iruma, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan
Filed Jan. 5, 1982, Ser. No. 337,154

Claims priority, application Japan, Jan. 16, 1981, 56-3760

Int. Cl.³ C08G 18/14, 18/48, 18/18, 18/22

U.S. Cl. 264-51

20 Claims

1. A process of producing urethane-modified polyisocyanurate foams by reacting an organic polyisocyanate with a polyol in the presence of a catalyst, a blowing agent and a surfactant to form a urethane-modified polyisocyanurate foam, wherein
(1) said polyol is at least one poly(oxyalkylene-oxyethylene)-polyether polyol having at least two functional groups and containing from about 10 to about 50% by weight of ethylene oxide;
(2) the molecular weight of said polyol is within a range of about 500 to about 1500 when said polyol is used singly, and the average molecular weight M of said polyols is within a range from about 500 to about 2500 and is represented by the formula

$$\bar{M} = \frac{M_1A_1 + M_2A_2 + \dots}{A_1 + A_2 + \dots}$$

wherein M_1, M_2, \dots are molecular weights of said polyols, and A_1, A_2, \dots are quantities thereof in parts by weight, when more than one said polyols are used in the form of a mixture;
(3) said polyol is used in an equivalent ratio to organic polyisocyanate of about 0.05:1 to about 0.5:1; and
(4) said catalyst is an alkali metal salt of a carboxylic acid or combination thereof with a tertiary amino compound.

4,393,016

PROCESS FOR PRODUCING PLATE-LIKE POLYSTYRENE RESIN FOAM

Hirofumi Akiyama; Hideo Hatakeyama, both of Hiratsuka; Nobuyoshi Shimoyashiki, Isehara; Yoshiaki Momose, Hiratsuka, and Fusao Imai, Kamakura, all of Japan, assignors to Japan Styrene Paper Corporation, Tokyo, Japan
Filed Aug. 28, 1981, Ser. No. 297,172

Claims priority, application Japan, Sep. 1, 1980, 55/119856

Int. Cl.³ 264 DIG. 5; B29D 27/00

U.S. Cl. 264-53

4 Claims

1. In a process for producing a plate-like polystyrene resin

foam which comprises extruding a molten mixture consisting of a polystyrene resin and a volatile blowing agent by an extruder into a zone having a lower pressure than the inside of the extruder; the improvement wherein said volatile blowing agent is a mixture consisting of dichlorodifluoromethane, ethyl chloride and methyl chloride in which dichlorodifluoromethane accounts for 50 to 70% by weight of the mixture and the remainder consists of ethyl chloride and methyl chloride and the amount of ethyl chloride is at least 30% by weight based on the total amount of ethyl chloride and methyl chloride; and wherein said volatile blowing agent is present in said molten mixture in a proportion of 8 to 17 parts by weight per 100 parts by weight of the polystyrene resin component.

4,393,017

APPARATUS AND METHOD FOR MAKING FOAMED RESIN PRODUCTS

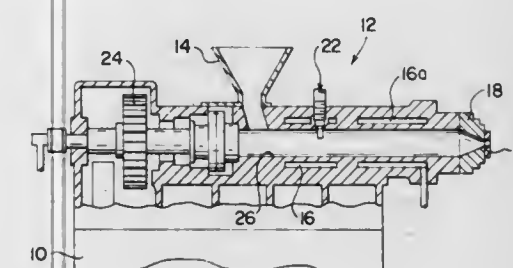
Hueng T. Kim, Avon Lake, and Sam D. Nehmey, Lorain, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Jun. 18, 1981, Ser. No. 274,997

Int. Cl.³ B29D 27/00; B29F 3/00; B01F 15/02

U.S. Cl. 264-53

9 Claims



1. Method for extruding a cellular resin product comprising charging resin into an extruder disposed horizontally, conveying the resin through the extruder by means of a feed screw disposed in the extruder, melting the resin as it is conveyed through the extruder, introducing a blowing agent into the resin through a conduit in a plurality of streams along a vertical plane through said resin and extruding the mixture of the resin and the blowing agent into a zone of lower pressure whereupon the blowing agent expands to form numerous cells in the resin.

4,393,018

METHOD FOR MAKING A CONCRETE BLOCK

William L. Harbaugh, Westmoreland County, and Raymond S. Smetana, Butler County, both of Pa., assignors to Burrell Construction & Supply Co., New Kensington, Pa.

Filed Sep. 8, 1981, Ser. No. 299,941

Int. Cl.³ F26B 3/00

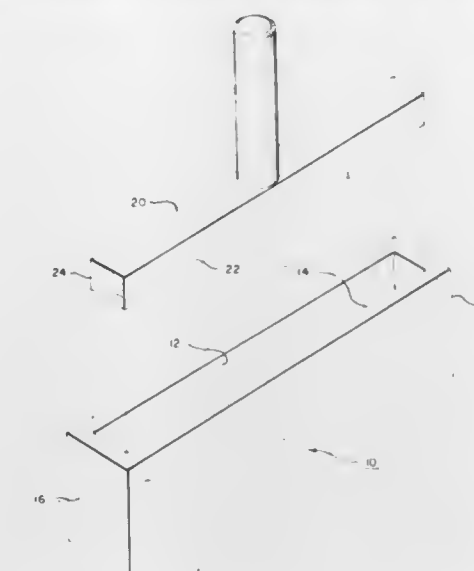
U.S. Cl. 264-82

18 Claims

1. A method for making metal fiber reinforced concrete block having a pair of opposite parallel surfaces in which the deviation from parallel throughout the spacing of the surfaces is not greater than plus or minus 0.032 inches and when installed in a crib configuration the crib develops 3,000 PSI compressive strength comprising:

- providing a mold having two parallel, aligned, spaced apart inner face walls wherein the deviation from the parallel alignment of the inner face walls of the mold is not greater than plus or minus 0.032 inches;
- providing a mix as follows:
 - commencing with aggregates;
 - adding metal fibers to the aggregates and mixing them with the aggregates; and
 - then adding cement to the aggregates and metal fibers;
- adding water to the mix and forming a mixture;
- filling a mold with the mixture and compacting it in the mold to form the concrete block; and

e. advancing a stripper means through the mold wherein the stripper means frictionally engages the inner surfaces of



the two parallel walls and removes the concrete block from the mold.

4,393,019

METHOD OF PRESSING RECONSTITUTED LIGNOCELLULOSIC MATERIALS

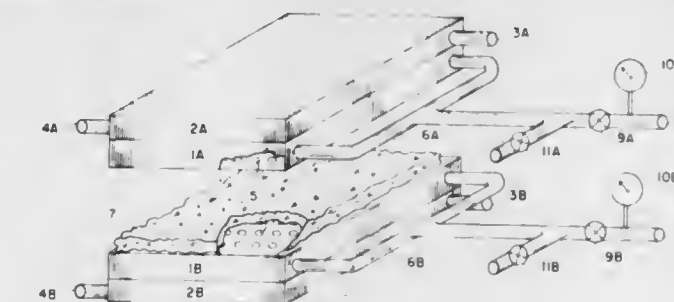
Robert L. Geimer, Verona, Wis., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Nov. 30, 1981, Ser. No. 326,086

Int. Cl.³ B29J 5/02

U.S. Cl. 264-83

8 Claims



1. A method of producing a panel or the like from a mat formed of lignocellulosic material and a thermosetting resin binder in a press including a pair of heated platens wherein each platen has apertures opening to one surface thereof which is adjacent to the other platen, the improvement comprising the steps of:

- compressing the mat between the apertured platens to a density of less than about 26 to 28 pounds per cubic foot;
- introducing saturated steam into the mat through apertures of both apertured platens and simultaneously further compressing the mat between the apertured platens at a rate such that a mat centerline temperature of at least 212° F. is reached before the mat achieves a density of from 34 to 36 pounds per cubic foot and permitting the steam to escape through the edges of the mat;
- continue compressing the mat between the apertured platens while maintaining the steam flow, until a desired final mat density is reached;
- continue steaming the mat for a length of time sufficient for the mat to reach a maximum centerline temperature; and
- maintaining the mat between the apertured platens for a length of time sufficient to cure the thermosetting resin binder.

4,393,020

METHOD FOR MANUFACTURING A FIBER-REINFORCED THERMOPLASTIC MOLDED ARTICLE

George S. Li, Macedonia; John F. Jones, Cuyahoga Falls, and William M. Giffen, Jr., Hudson, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation of Ser. No. 106,064, Dec. 20, 1979, abandoned.

This application Oct. 19, 1981, Ser. No. 313,015

Int. Cl.³ B29D 3/02

U.S. Cl. 264—108

14 Claims

1. The method for manufacturing a molded article from a fiber-reinforced thermoplastic resin comprising

(A) copolymerizing at least two vinyl monomers in the presence of fibers which are unidirectionally disposed to produce a resin-fiber composite composed of from about 60 to 95% by weight of fibers and correspondingly from about 5 to 40% by weight of resin, and

(B) compression molding the substantially oriented resin-fiber composite at a suitable temperature and pressure to form said molded article.

4,393,021

METHOD FOR THE MANUFACTURE OF GRANULAR GRIT FOR USE AS ABRASIVES

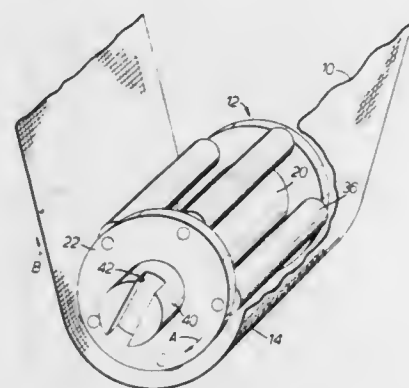
Gustav Eisenberg, Hanover, and Günter Bigorajski, Gehrden, both of Fed. Rep. of Germany, assignors to Vereinigte Schmirgel und Maschinen-Fabriken AG, Hannover-Hainholz, Fed. Rep. of Germany

Filed Jun. 9, 1981, Ser. No. 271,983

Int. Cl.³ B02C 4/14

U.S. Cl. 264—143

6 Claims



1. A method of producing granular grit particles each including several individual grits comprises the steps of mixing the grits with a binding medium, and a filler to form a pasty mass, pressing the mass through a mesh by relative rolling motion to form extruded lengths of the mass, heating the extruded lengths to harden them, and pressing the hardened lengths through a mesh by relative rolling action to form the said required granular grit particles.

4,393,022

ERASER AND PROCESS FOR ITS MANUFACTURE

Werner Handl, Altdorf, Fed. Rep. of Germany, assignor to J. S. Staedtler, Nuremberg, Fed. Rep. of Germany

Division of Ser. No. 100,959, Dec. 6, 1979, abandoned, which is a division of Ser. No. 67,001, Aug. 16, 1979, Pat. No. 4,335,033.

This application Nov. 6, 1981, Ser. No. 318,923

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 2837159

Int. Cl.³ B29C 17/14

U.S. Cl. 264—148

2 Claims

1. A method for the manufacture of an eraser based on polyvinyl chloride or polyvinyl chloride copolymer comprising preparing a polyvinyl chloride plastisol or polyvinyl chloride-copolymer plastisol in connection with unvulcanized

synthetic or natural rubber, wherein first a pourable or flowable homogeneous substance is produced from mixing the polyvinyl chloride plastisol or polyvinyl chloride-copolymer plastisol and the rubber, and this substance is then fed into an extruder which has varying temperature ranges which increase from approximately 90° to 135° C. and from whose nozzle the cured or vulcanized eraser strand emerges and is cut into usable eraser size pieces after passing through a cooling zone.

4,393,023

METHOD FOR PREPARING A PARISON AND TRANSFERRING IT TO A MOLDING MACHINE

Peter T. Schurman, Woodbridge, Conn., assignor to The Plastic Forming Company, Inc., Woodbridge, Conn.

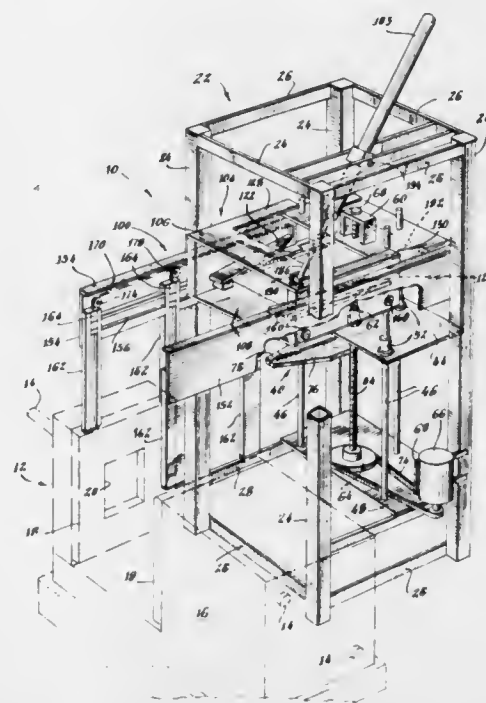
Division of Ser. No. 115,944, Jan. 28, 1980, Pat. No. 4,340,345.

This application Aug. 31, 1981, Ser. No. 297,921

Int. Cl.³ B29C 17/07, 17/16

U.S. Cl. 264—150

10 Claims



1. A method of preparing a parison that is continuously extruded in an extrusion direction from an extrusion head and for transferring sections of said parison to a stationary molding machine mounted at a location laterally displaced from and below said extrusion head, said method comprising the steps of:

grasping and sealing said parison at one location on its length;

stretching said parison, while being extruded, in said extrusion direction by moving said one location away from said extrusion head at a controlled rate;

releasing said one location of said parison;

grasping and sealing said parison, after being stretched, at a second location on its length intermediate said one location and said extrusion head;

grasping and sealing said parison at a third location intermediate said second location and said one location to define a parison section between said one and third locations;

transferring said parison section transversely away from said extrusion head to sever said parison section from said parison between said second and said third locations; and delivering said parison section, in a direction generally parallel to said extrusion direction, to said molding machine.

4,393,024

METHOD OF PRODUCING A RACKET FRAME

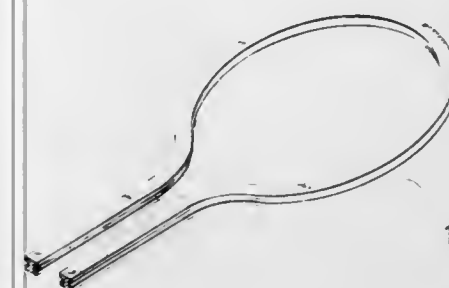
Chin-San You, No. 3, Lane 1019, Fong-Shih Rd., Fong Yuan City, Taiwan

Filed Dec. 18, 1981, Ser. No. 332,312

Int. Cl.³ B29C 17/08; B29D 3/02

U.S. Cl. 264—162

8 Claims



1. A method for making a racket frame comprising the steps of preparing two elongated strip members each including two racket handle portions and a racket head portion intermediate said racket handle portions and defining an elongated mold cavity section extending throughout its length, placing a thermosetting resin composition and fibres for reinforcing into the mold cavity sections, bringing said two strip members together in face-to-face relation with the mold cavity sections thereof in opposing relation to each other to form a structural member defining an elongated mold cavity containing said thermosetting resin composition and fibres, bending said strip members to form a shape of a racket frame, curing said thermosetting resin composition, and removing the strip members which comprise said structural member after curing.

4,393,025

METHOD OF AND APPARATUS FOR MEASURING THE POWER DISTRIBUTION IN NUCLEAR REACTOR CORES

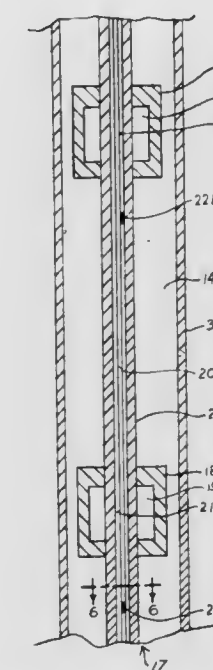
Robert H. Leyse, 11114 Whisperwood La., Rockville, Md. 20852

Continuation of Ser. No. 913,977, Jun. 7, 1978, abandoned. This application Nov. 14, 1980, Ser. No. 206,741

Int. Cl.³ G21C 17/00

U.S. Cl. 376—247

28 Claims



17. The method of monitoring elongated fuel elements, which emit gamma rays, of a nuclear reactor core, comprising: (a) providing a flow path for the flow of a cooling fluid to be used for calibration purposes, and passing said cooling fluid along said flow path for calibration purposes, (b) providing an elongated instrument element including

electrical conducting material having first and second zones,

(c) locating said instrument in said flow path and exposing it to said fluid so that the temperature of the second zone depends on said temperature and rate of flow of said cooling fluid more than the temperature of the first zone depends on the temperature and rate of flow of said cooling fluid,

(d) passing an electrical current, for calibration purposes, through said electrical conducting material to supply heat to both of said zones with the first zone rising in temperature more than the second zone due to cooling effect of said cooling fluid on said second zone,

(e) measuring the temperature difference between said first and second zones to calibrate the instrument,

(f) placing the instrument parallel to and adjacent said elongated fuel elements,

(g) passing a cooling fluid past the instrument while it is adjacent said elongated fuel elements,

(h) the step of passing a cooling fluid past the instrument for calibration purposes as aforesaid involving fluid cooling conditions substantially identical to those characterizing the cooling fluid that is passed by the instrument while it is adjacent to the elongated fuel elements, and

(i) measuring the temperature difference between said two zones while the instrument is adjacent the elongated fuel elements with cooling fluid flowing past the same and without said electrical current flowing, whereby in view of the previous calibration of the instrument with said flow of current the output of the elongated fuel elements may be determined.

4,393,026

COMPOUNDS CONTAINING SULFUR AND AMINO GROUPS

Neil E. S. Thompson, Creve Coeur; Derek Redmore, Webster Groves; Bernardus A. Oude Alink, St. Louis, and Benjamin T. Outlaw, Webster Groves, all of Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 161,198, Jun. 19, 1980, Pat. No. 4,332,967.

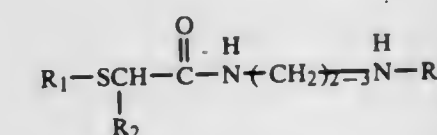
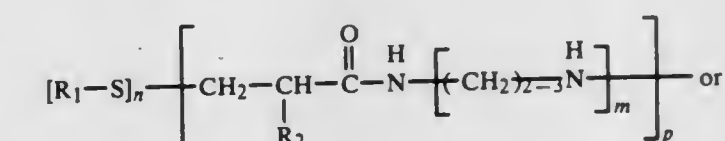
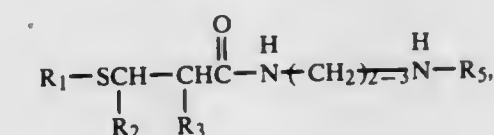
This application Nov. 10, 1981, Ser. No. 320,048

Int. Cl.³ C23F 11/04

U.S. Cl. 422—12

6 Claims

1. A process for inhibiting corrosion which is characterized by treating a metal with a composition containing



where R₁ is a hydrocarbon group, R₂, R₃ are H or alkyl, R₄, R₅ are H, alkyl, alkanol, or —alkylene N_nH_n, n, m or p are one or more, or mixtures thereof.

4,393,027

PROCESS FOR ERECTING A ROTOR ASSEMBLY FOR A ROTARY EXTRACTOR AND APPARATUS THEREFOR

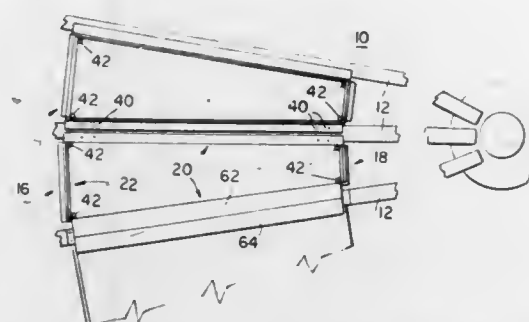
Donald A. Gessler, 5702 Crestmont Ave., Verona, Pa. 15147

Filed Sep. 8, 1981, Ser. No. 300,190

Int. Cl.³ B01D 11/02

U.S. Cl. 422-269

5 Claims



1. In a rotary solvent extractor including a vessel having a vertically-disposed rotor from which there is radially-disposed a plurality of cells arranged in a circumferential manner on a generally horizontal plane wherein each of said cells is disposed between radially-extending upper and lower support beams members mounted to said vertically-disposed rotor and wherein each cell is open at the top and provided with a hinged screen bottom door member, an improved cell assembly, which comprises:

side wall members having a cell surface and a side wall mounting surface, said side wall mounting surface having upper and lower prefabricated horizontally-disposed mounting elements, said mounting elements being positioned and affixed to said upper and lower support beam members, respectively, said cell surface of said side wall members being provided with prefabricated upper and lower inner and outer positioning bar elements;

an inner wall member having a cell surface and disposed between said side wall members with respect to said upper and lower inner positioning bar elements thereof;

an outer side wall member having a cell surface and disposed between said side wall members with respect to said upper and lower outer positioning bar elements; and

a gable cap means disposed over paired side wall members of adjacent cells to direct liquid flow into respective cells thereof.

4,393,028

METHOD OF REMOVING URANIUM FROM A SLURRY CONTAINING MOLYBDENUM

Thomas J. Crossley, Littleton, Colo., assignor to Wyoming Mineral Corporation, Lakewood, Colo.

Filed Jun. 12, 1981, Ser. No. 273,175

Int. Cl.³ C01G 43/00

U.S. Cl. 423-15

6 Claims

1. A method of separating uranium from molybdenum contaminated with said uranium comprising:

- preparing an aqueous slurry of said uranium contaminated molybdenum which comprises calcium, about 40 to about 60% of a water-insoluble molybdate, and about 0.1 to about 0.6% uranium calculated as U_3O_8 ;
- raising and maintaining the pH of said slurry about 10 with an alkali metal hydroxide;
- adding sufficient carbonate ion to said slurry to precipitate calcium carbonate and calcium uranate; and
- separating said precipitated calcium carbonate and calcium uranate from the liquid portion of said slurry, which contains said molybdenum.

4,393,029

PROCESS FOR THE PRODUCTION OF AN IRON-FREE CHROMIUM (III) COMPOUND

Seppo O. Heimala; Stig E. Hultholm, both of Pori, and Frans H. Tuovinen, Ulvila, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

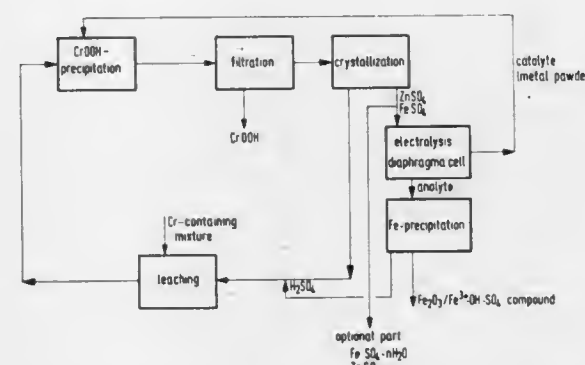
Filed Jul. 22, 1981, Ser. No. 286,038

Claims priority, application Finland, Aug. 5, 1980, 802445

Int. Cl.³ C01G 37/00

U.S. Cl. 423-55

4 Claims



1. A process for the leaching of a chromium raw material and the precipitation of a substantially iron-free chromium (III) compound at an elevated temperature and pressure from an acidic aqueous solution which contains iron and chromium, comprising leaching the chromium raw material and precipitating the chromium compound substantially in the same autoclave vessel, which vessel has leaching and precipitation zones separated from each other only by partition walls, whereby solution can pass from one zone to another zone by overflowing said walls; adding a finely divided additive selected from the group consisting of zinc, iron, chromium, manganese and a mixture of two or more members of the group to the precipitation zone in an amount sufficient to provide at least 2 g/l of bivalent chromium in the solution and to neutralize the acid present in the solution, the precipitation being carried out at a pH between 0.5 and 2.2 by addition of the additive and the temperature being from about 110° to 300° C., whereby the pressure is that which results from treating said solution at such temperature in an autoclave.

4,393,030

UPGRADING OF PHOSPHATE ORE

John B. Sardisco, and Dysart E. Holcomb, both of Shreveport, La., assignors to Pennzoil Company, Houston, Tex.

Filed Jan. 12, 1982, Ser. No. 338,998

Int. Cl.³ C01F 1/00; C01B 15/16, 25/26

U.S. Cl. 423-167

2 Claims

1. A method for upgrading unground low grade phosphate ore to remove slimes therefrom and provide a phosphate ore suitable for acidulation which comprises the steps of:

- contacting unground phosphate ore with phosphoric acid having a concentration of about 1 to 20 weight percent in an amount of about 2 to 10 parts of phosphoric acid per part of phosphate ore in a desliming unit to form a suspension containing the slimes and the phosphate ore;
- removing the suspension to a solids separator and separating phosphate ore slurry solids from the suspension containing the slimes;
- passing the phosphate ore to a grinding unit and grinding the phosphate ore solids in the presence of a weak phosphoric acid solution to provide a phosphate rock slurry suitable for acidulation;
- removing the suspension containing the slimes and flocculating the slime solids to cause precipitation of the slime solids and provide separation between the slime solids and the phosphoric acid process liquids;
- removing the resulting mixture to separation means and separating the slime solids from the process liquids;

- recycling at least a portion of the process liquids to the desliming unit and at least a portion to the grinding unit;
- removing the slime solids and reacting with weak phosphoric acid to acidulate finely divided phosphate rock contained therein and form a reaction mixture;
- removing the reaction mixture to a separation device and separating the slime solids from the process liquids;
- washing the slime solids with water, combining the wash water with the process liquids and recycling to be combined with the process liquids recovered from the separator in step (c); and
- recovering the slime solids which contain P_2O_5 values.

4,393,031

PROCESS FOR EFFICIENTLY REMOVING OXIDES OF NITROGEN FROM EXHAUST GAS

Werner Henke, P.O. Box 51932 Oil Center Station, Lafayette, La. 70501

Continuation of Ser. No. 13,892, Feb. 22, 1979, abandoned, and a continuation of Ser. No. 149,281, May 12, 1980, abandoned.

This application Apr. 20, 1981, Ser. No. 255,824

Int. Cl.³ B01J 8/00; C01B 21/00

U.S. Cl. 423-239

5 Claims

1. A process for the removal of nitrogen oxides from a hot waste gas of a temperature of at least 420° F. and containing nitrogen oxides, comprising:

- dividing the waste gas into a first, second and third portion;
- passing said third portion through a cooling loop;
- adding a methane containing gas mixture to said second portion so as to convert part of said second portion into at least the amount of ammonia required for stoichiometric reaction with the nitrogen oxides in the waste gas;
- combining said first, third and ammonia containing second portion;
- thoroughly mixing said combination until said combination is substantially thermally and compositionally homogeneous by passing said combination through a static mixing element; and
- passing the thoroughly mixed combination over a catalyst that catalyzes the reduction of nitrogen oxides to gaseous nitrogen in the presence of ammonia.

4,393,032

PRODUCTION OF PHOSPHORIC ACID AND ADDITIONAL PRODUCTS FROM PHOSPHATE ORE

Erhart K. Drechsel, Montgomery, Tex.; Dysart E. Holcomb, and John B. Sardisco, both of Shreveport, La., assignors to Pennzoil Company, Houston, Tex.

Filed Jan. 12, 1982, Ser. No. 338,999

Int. Cl.³ C01B 25/16, 15/16, 25/26

U.S. Cl. 423-320

55 Claims

1. A process for the production of phosphoric acid from deslimed phosphate ore which comprises the steps of:

- contacting said deslimed phosphate ore with a sufficient amount of a phosphoric acid solution in an acidulator to solubilize said phosphate ore and convert at least a portion of the calcium contained in the ore so as to form a solution of monocalcium phosphate in phosphoric acid containing sand solids and residual slimes;
- passing said solution through a separator to remove the sand solids from the solution of monocalcium phosphate in phosphoric acid and dividing the solution into two portions, said solution still containing residual slimes;
- contacting one of said portions which still contains residual slimes, with sufficient sulfuric acid in a first crystallizer to convert all the incoming calcium equivalent to the calcium in the ore to calcium sulfate, and wherein the sulfuric acid is added to the said portion at a sufficient rate to maintain a total SO_3 content in the first crystallizer solution of about 1.5 to 4.0 wt.% and form a mixture containing phosphoric acid and calcium sulfate;
- reacting the mixture from the first crystallizer with the remaining portion of the said solution which still contains

residual slimes, in a second crystallizer, there being sufficient calcium in the said remaining portion to neutralize the SO_3 content contained in the mixture from the first crystallizer and form a slurry containing calcium sulfate and phosphoric acid;

- removing the resulting slurry, passing to a separator and separating the calcium sulfate solids from the phosphoric acid solution; and
- recovering the phosphoric acid.

4,393,033

PROCESS FOR THE PREPARATION OF AMMONIUM SULFAMATE

Adolf Metzger, Wiesbaden; Rolf Konrad, Steinbach, and Reinhold Gräser, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

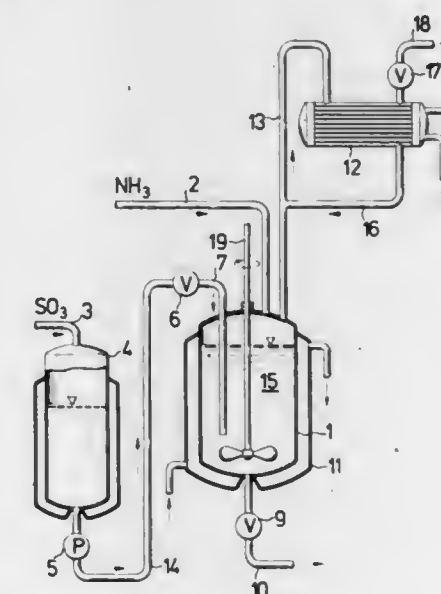
Filed Dec. 18, 1981, Ser. No. 332,236

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1980, 3048057

Int. Cl.³ C01B 21/093, 21/086

U.S. Cl. 423-388

8 Claims



1. A process for the continuous preparation of ammonium sulfamate, starting from ammonia and sulfur trioxide, by introducing liquid sulfur trioxide and liquid ammonia in a molar ratio NH_3/SO_3 greater than 2.0:1 into a pressure reactor containing the reaction product in a molten state, excess ammonia being removed continuously from the reactor and the liquid sulfur trioxide being introduced into the melt, which comprises introducing the liquid ammonia onto the surface of the melt.

4,393,034

ENERGY EFFICIENT PROCESS FOR THE PRODUCTION OF CARBON BLACK

Norman L. Smith, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Oct. 22, 1980, Ser. No. 199,173

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423-450

2 Claims

1. A method of operating an elongated, generally cylindrical reactor having an upstream and downstream end for the production of carbon black by the furnace process wherein the combustible gases generated a pyrolytically dissociating a carbon black producing feedstock are cyclically utilized as the fuel for effecting the dissociation reaction, which comprises: introducing a hydrocarbon fuel together with a 25-75% stoichiometrical excess of oxidant gas containing at least 70 volumetric percent oxygen into the upstream end of said reactor and substantially completely burning the fuel to provide a turbulent mixture of combustion gases; injecting a normally liquid aromatic-rich hydrocarbon feed-

stock into said turbulent mixture of combustion gases and burning said feedstock to the extent provided by the presence of free oxygen in the combustion gases while essentially simultaneously effecting the pyrolytical dissociation of the unoxidized portion of the feedstock to generate a carbon black aerosol;

quenching the pyrolysis reaction and discharging the aerosol from the downstream end of the reactor whence the carbon black is recovered by filtration;

continuously maintaining the production of carbon black in the manner above defined until steady state conditions are attained; and

thereupon recycling a portion of the filtered reactor gaseous effluent substantially free of condensable gases to the reactor in lieu of the hydrocarbon fuel utilized in attaining steady state conditions, said effluent being introduced at a rate adapted to provide a combustion temperature of about that associated with the burning of the initially introduced hydrocarbon fuel while continuing to introduce a 25-75% stoichiometrical excess of the oxidant gas for burning said filtered gaseous effluent.

4,393,035

CHLORINE DIOXIDE PRODUCTION USING MIXED HYDROCHLORIC AND SULFURIC ACID FEED

Maurice C. J. Fredette, Mississauga, Canada, assignor to ERCO Industries Limited, Islington, Canada

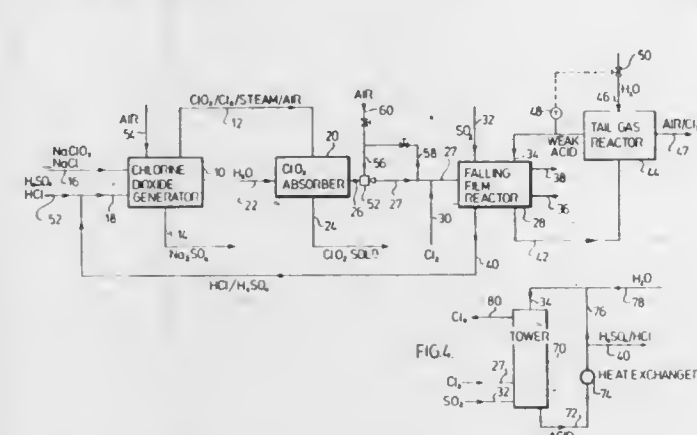
Filed Nov. 2, 1981, Ser. No. 317,518

Claims priority, application United Kingdom, Nov. 17, 1980, 8036835

Int. Cl.³ C01B 11/02, 7/01, 17/74

U.S. Cl. 423-478

22 Claims



1. In a process for the production of chlorine dioxide wherein chlorine dioxide and chlorine are formed in gaseous admixture with steam from an aqueous acid reaction medium to which are fed sodium chlorate, hydrochloric acid and sulphuric acid, and optionally sodium chloride, which is maintained at its boiling point under subatmospheric pressure and from which sodium sulphate precipitates as a by-product, chlorine dioxide solution is formed from the gaseous admixture, hydrochloric acid and sulphuric acid are formed by reaction of sulphur dioxide, chlorine and water in a reaction zone, and the hydrochloric acid and sulphuric acid are forwarded to the reaction medium, the improvement which comprises cooling said reaction zone sufficiently to maintain the reactants in said reaction zone at a temperature below the boiling point of water during said reaction, said cooling being achieved, at least in part, by effecting said reaction of sulphur dioxide, chlorine and water in a cooled falling film absorber in which the water forms the falling film and having integral cooling passages through which a cool heat exchange medium flows out of fluid flow communication with but in heat exchange with the falling film.

16. A method for the production of hydrochloric acid and sulphuric acid, which comprises:

separately feeding chlorine, sulphur dioxide and water to a reaction zone,

intimately contacting said chlorine, sulphur dioxide and

water to cause the same to react in the presence of excess water in accordance with the equation:



to form an aqueous mixture of hydrochloric acid and sulphuric acid, and

cooling said reaction zone sufficiently to maintain the reactants in said reaction zone at a temperature below the boiling point of water during said reaction,

said reaction zone being defined by a packed tower, to which said chlorine and sulphur dioxide are directly fed and to which said water is fed in admixture with cooled recycled mixed acid, a hot mixed acid stream of hydrochloric acid and sulphuric acid is removed from the packed tower and passed through a heat exchanger to which a cool heat exchange medium also is passed in order to cool the hot mixed acid, a proportion of the cooled mixed acid is recovered as a product stream, and the remainder of the cooled mixed acid is recycled to the reaction zone in said admixture with said water.

4,393,036

PRODUCTION OF MIXED SULFURIC AND HYDROCHLORIC ACID FEED AND CHLORINE DIOXIDE GENERATION THEREWITH

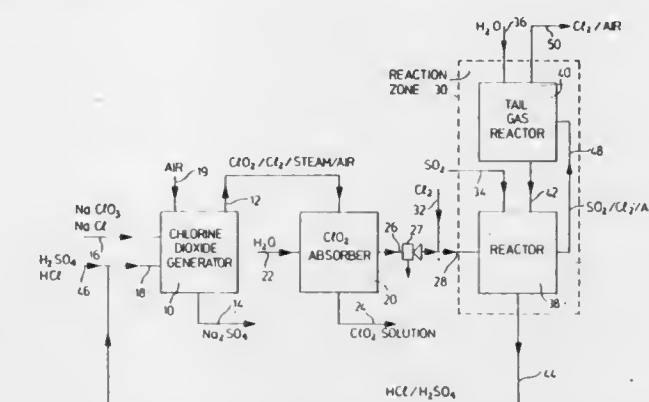
Maurice C. J. Fredette, Mississauga, Canada, assignor to ERCO Industries Limited, Islington, Canada

Filed Nov. 10, 1981, Ser. No. 319,971

Int. Cl.³ C01B 7/01, 11/02, 17/74

U.S. Cl. 423-478

9 Claims



1. A process for the production of chlorine dioxide, which comprises:

reacting sodium chlorate with chloride ions and hydrogen ions in an aqueous acid reaction medium having a total acid normality of about 2 to about 4.8 normal to form chlorine dioxide and chlorine, said chloride ions being provided by hydrochloric acid alone or by hydrochloric acid and sodium chloride and said hydrogen ions being provided by sulphuric acid and said hydrochloric acid,

maintaining said reaction medium at its boiling point at a temperature below that above which substantial decomposition of chlorine dioxide occurs while applying a subatmospheric pressure to a first reaction zone containing said reaction medium to form steam in a volume ratio of steam to chlorine dioxide of about 4:1 to about 10:1,

depositing anhydrous neutral sodium sulphate from the reaction medium and removing the same from said first reaction zone,

removing a gaseous mixture of chlorine dioxide, chlorine and steam from said first reaction zone and forming an aqueous solution of said chlorine dioxide therefrom, said aqueous solution of chlorine dioxide also containing part of said chlorine,

forwarding the chlorine not dissolved in said chlorine dioxide solution at substantially atmospheric pressure and in admixture with air to a second reaction zone to which sulphur dioxide and water, along with additional chlorine, if neces-

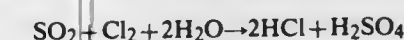
sary, are fed for reaction between said chlorine, sulphur dioxide and water in the presence of excess chlorine to form an aqueous mixture of hydrochloric acid and sulphuric acid, venting unreacted chlorine and said air from said second reaction zone, controlling the partial pressure of said unreacted chlorine vented from said second reaction zone to a value in the range of about 150 to about 550 mm Hg to provide sufficient of said excess chlorine in said second reaction zone to form said aqueous mixture of hydrochloric acid and sulphuric acid having a total acid normality of about 6 to about 14 normal and from which dissolved sulphur dioxide is absent, and

forwarding said aqueous mixture of hydrochloric acid and sulphuric acid to said reaction medium and forwarding such additional quantities of hydrogen ions, chloride ions and sulphate ions to said reaction medium as are required by the stoichiometry of the reactions occurring in the reaction medium.

6. A process for the production of hydrochloric acid and sulphuric acid, which comprises:

separately feeding chlorine, sulphur dioxide and water to a reaction zone;

intimately contacting said chlorine, sulphur dioxide and water in the presence of air and excess chlorine and water and reacting the same in accordance with the equation:



to form an aqueous mixture of hydrochloric acid and sulphuric acid,

venting unreacted chlorine and said air from said reaction zone, controlling the partial pressure of said unreacted chlorine vented from said reaction zone to a value in the range of about 150 to about 550 mm Hg to provide sufficient of said excess chlorine in said reaction zone to form said aqueous mixture of hydrochloric acid and sulphuric acid having a total acid normality of about 6 to about 14 normal and from which dissolved sulphur dioxide is absent, and removing the sulphur dioxide-free aqueous mixture of hydrochloric acid and sulphuric acid from the reaction zone.

4,393,037

METHOD FOR RECONDITIONING BACTERIA-CONTAMINATED HYDROGEN SULFIDE REMOVING SYSTEMS

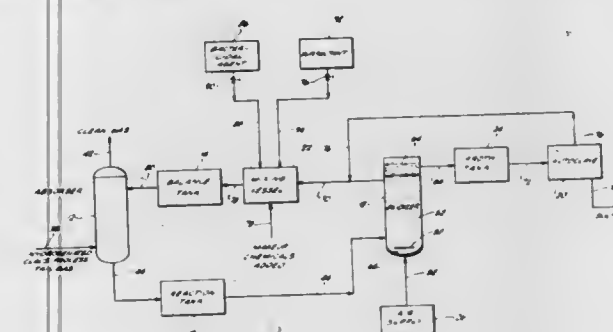
Dennis D. Delaney, Placentia, and Donald M. Fenton, Anaheim, both of Calif., assignors to Union Oil Company of California, Brea, Calif.

Filed Dec. 16, 1981, Ser. No. 331,070

Int. Cl.³ B01D 53/34; C01B 17/04, 17/14

U.S. Cl. 423-573 R

19 Claims



1. A method for reconditioning a hydrogen sulfide gas removal system employing a washing solution in which hydrogen sulfide is reacted to form elemental sulfur and which has means for agglomerating said particles to enable sulfur removal from said solution and means for regenerating said solution for reuse, after said system and said solution have become contaminated with living, sulfur-feeding bacteria to an extent that normal operations of said sulfur removal means and

of said solution regenerating means are substantially impaired, said reconditioning method comprising the steps of:

(a) contacting said sulfur-feeding bacteria in said solution with a bactericidal agent selected from the group consisting of water-soluble phenols, the water-soluble salts and hydrates of phenols and the mixtures thereof to destroy substantially all of said sulfur-feeding bacteria; and

(b) contacting said sulfur particles in said solution with a surfactant to remove a sufficient number of destroyed sulfur-feeding bacteria from surfaces of said sulfur particles to enable said particles to agglomerate in said sulfur removal means.

4,393,038

HYDROGEN PEROXIDE PRODUCTION

Hsiang-ning Sun, Media; John J. Leonard, Springfield, and Harold Shalit, Bala Cynwyd, all of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 16, 1981, Ser. No. 312,060

Int. Cl.³ C01B 15/02

U.S. Cl. 423-584

3 Claims

1. A method of preparing aqueous solution of hydrogen peroxide which method consists of:

providing a slightly acidic aqueous solution containing ions tending to stabilize hydrogen peroxide and substantially free from ions catalyzing the decomposition of hydrogen peroxide;

dissolving oxygen in said aqueous solution; positioning a first surface of a predominantly palladium membrane metallic structure in contact with said aqueous solution containing dissolved oxygen;

controlling the pressure of a hydrogen stream so that hydrogen is supplied to the surface opposite said first surface of said metallic structure at a rate at least equal to the diffusion rate of hydrogen through said membrane;

controlling the temperature of said aqueous solution and said metallic structure to be within the range from 10°-150° C., whereby the hydrogen diffusing to said first surface surface of said membrane reacts with dissolved oxygen to form a reaction mixture consisting of hydrogen peroxide and water plus said aqueous solution;

directing a stream of said reaction mixture to a recovery zone appropriate for the recovery of the thus produced hydrogen peroxide.

4,393,039

COOLING BY CONVERSION OF PARA TO ORTHO-HYDROGEN

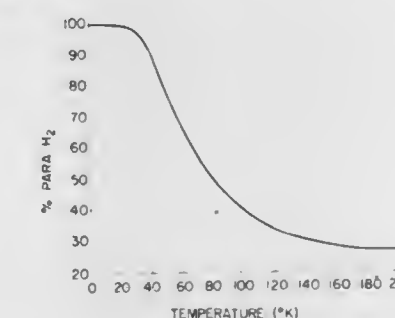
Allan Sherman, Lanham, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 301,075

Int. Cl.³ C01B 1/00

U.S. Cl. 423-648 R

9 Claims



1. A hydrogen vapor cooling process, comprising the steps of:

generating a vapor having a high para-hydrogen composition;

transferring heat from a heat source to said vapor to cool said heat source; accelerating the conversion of said vapor

from a high para-hydrogen composition to a mixture of para-hydrogen and ortho-hydrogen by passing said vapor through a layer of a catalyst selected from the group consisting of metal hydride gels of iron, nickel or copper; transferring heat from a second heat source to said vapor to cool said heat source.

4,393,040

IN-VITRO DIAGNOSTIC METHOD FOR DETECTION OF ACETYSALICYLIC ACID INGESTION

Alberto F. Lopapa, and Theodore D. Hall, both of Los Angeles, Calif., assignors to Lopapa Institute, Inc., Los Angeles, Calif.
Filed Mar. 24, 1981, Ser. No. 246,993
Int. Cl.³ G01N 33/56, 33/58, 33/60

U.S. Cl. 424—1

8 Claims

1. An in-vitro diagnostic method for detecting acetylsalicylic acid ingestion by a patient by utilizing radioimmunoassay procedure, the method comprising the steps of:
 - (a) derivatizing acetylsalicylic acid with a protein moiety, said derivatizing procedure being effected in a molar ratio of about 1 mole of protein to at least 30 moles of acetylsalicylic acid;
 - (b) coupling the acetylsalicylic acid derivatized protein obtained from step (a) with a water insoluble solid matrix, said coupling being effected with a coupling agent having a reactive group selected from the group consisting of amino groups, hydroxyl groups, nitro groups, halo groups, amido groups, carboxylic groups and mixtures thereof;
 - (c) obtaining a sample of serum from a patient suspected of having ingested acetylsalicylic acid;
 - (d) lyophilizing said serum including any antibodies specific to acetylsalicylic acid to concentrate said serum to a solid phase;
 - (e) diluting said lyophilized serum to from about 100 to about 1,000 times the serum's original concentration;
 - (f) incubating said solid matrix coupled with the acetylsalicylic acid derivatized protein with said concentrated serum for a sufficient period of time to allow any antibodies specific to acetylsalicylic acid to attach to said solid matrix coupled with the acetylsalicylic acid derivatized protein, said incubation occurring for a period of at least 24 hours at a temperature of from about 4° C. to about 42° C.;
 - (g) thereafter, incubating said solid matrix bound with specific antibodies present with radioactively labelled antibodies specific to acetylsalicylic acid derivatized protein obtained from a test animal for a sufficient period of time to allow binding between said labelled antibodies and said solid matrix obtained from step (f);
 - (h) separating the solid matrix from the liquid phase;
 - (i) and measuring radiation emitted from at least one of the separated phases.

4,393,041

FIBRIN BINDER/CARRIER FOR ACTIVE BIOCHEMICAL AGENTS

Ross G. Brown, David R. Bright, and Robert D. Williams, all of Terre Haute, Ind., assignors to International Minerals & Chemical Corp., Terre Haute, Ind. and International Minerals & Chemical Corp., Terre Haute, Ind.
Filed Apr. 25, 1980, Ser. No. 143,709
Int. Cl.³ A61K 9/24

U.S. Cl. 424—19

7 Claims

1. In a method of administering an active biochemical agent to a living animal over a controlled period of time by subcutaneously implanting in said animal a pellet comprising said active biochemical agent and a biocompatible excipient comprising bovine fibrin, said active biochemical agent being selected from the group consisting of hormones, steroids, estradiol compounds and anabolic agents for promoting growth and feed efficiency in said living animal.

4,393,042

ULTRA HIGH-FOAM DENTIFRICE

Orlando A. Battista, 3725 Fox Hollow Rd., Fort Worth, Tex. 76109

Continuation-in-part of Ser. No. 176,013, Aug. 7, 1980, abandoned. This application Nov. 20, 1981, Ser. No. 323,394
Int. Cl.³ A61K 9/16

U.S. Cl. 424—49

8 Claims

1. In the art of cleaning teeth with a regular or electric toothbrush the improvement which consists essentially of the step of using the toothbrush with a heavy-bodied astringent dentifrice resembling, in texture, whipped cream, which sweeps up and physically holds, or which entraps mouth bacteria, food particles and gum line debris which can be subsequently flushed out of the mouth with water, the dentifrice comprising essentially water and a non-toxic, alkaline soap, the soap constituting at least about 25 percent up to about 50 percent of the weight of the dentifrice and being further characterized in producing a high viscosity, stable foam having a pH of at least about 7.5, the foam consisting of a multiplicity of firm, discrete bubbles which entrap and physically hold and, upon flushing with water, carry away mouth bacteria, food particles and gum line debris on and adjacent the surfaces of and crevices between the teeth.

4,393,043

SOLUTIONS CONTAINING AT LEAST ONE ESSENTIAL FATTY ACID AND VEGETABLE OIL, AND COSMETIC COMPOSITIONS CONTAINING THESE SOLUTIONS

Constantin Koulbanis; Arlette Zabotto, both of Paris; Jacqueline Griat, Ablon, and Jean Charrier, Chevilly-Larue, all of France, assignors to Societe Anonyme dite L'Oreal, Paris, France

Filed Jan. 19, 1981, Ser. No. 226,093

Claims priority, application France, Jan. 25, 1980, 80 01681
Int. Cl.³ A61K 7/42

U.S. Cl. 424—59

4 Claims

1. A cosmetic composition which comprises an oxidation-stable solution of 0.5 to 20% of an essential fatty acid or a mixture of essential fatty acids in a vegetable oil, said essential fatty acid or acids being selected from the group consisting of linoleic acid or an isomer thereof, a conjugated linoleic acid or an isomer thereof, α -linolenic acid or an isomer thereof, γ -linolenic acid or an isomer thereof, and arachidonic acid or an isomer thereof, and said vegetable oil being jojoba oil in an amount of about 80% to about 99.5% by weight of said solution.

4,393,044

STEROID ESTER, AND COSMETICS AND OINTMENTS CONTAINING THE SAME

Atsunobu Takada, Yokohama, and Yuzo Higaki, Machida, both of Japan, assignors to The Nisshin Oil Mills Limited, Tokyo, Japan

Filed May 21, 1981, Ser. No. 265,847

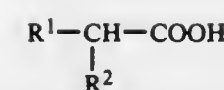
Claims priority, application Japan, May 29, 1980, 55/71708; Jun. 10, 1980, 55-78156

Int. Cl.³ A61K 7/42, 7/02, 7/025

U.S. Cl. 424—59

51 Claims

1. A cosmetic comprising a cosmetic ingredient and a steroid ester obtained by reacting at least one steroid component which is a trimethylsteroid or a mixture comprising said trimethylsteroid, and wherein the trimethylsteroid is dihydrolanosterol, lanosterol, dihydroagnoterol, agnoterol, cycloartanol, cycloartenol, 2,4-methylenecycloartanol, cyclolaudenol, cyclobranol, isocholesterol or a mixture thereof, with at least one carboxylic acid-based component selected from the group consisting of free α -branched carboxylic acids having a general formula



(where R¹ is an alkyl group having at least two carbon atoms, and R² is an alkyl group having at least four carbon atoms) and reactive derivatives of said α -branched carboxylic acid which are acid halides or anhydrides, said cosmetic is a creamy cosmetic for the skin including a cold cream, a nutritive cream, and a cleansing cream, a stick cosmetic for the skin including a lipstick and an eyeshadow, a pasty cosmetic for the hair including a pomade, or a liquefied or emulsified cosmetic for the hair including a hair dresser and a hair rinse.

4,393,045

COSMETIC COMPOSITION

Esther G. Henderson, and Inger V. Mallet, both of 2521 Main St., Baton Rouge, La. 70802

Filed Oct. 29, 1981, Ser. No. 316,111

Int. Cl.³ A01N 63/02; A61K 35/12

U.S. Cl. 424—95

6 Claims

1. A curative, cosmetic composition formed by intimately admixing the extrudate of a citric acid containing fruit with the inner lining of a mollusk shell, said composition having healing properties on a variety of skin afflictions when applied topically to humans.

4,393,046

COMBINATION OF THIOPEPTIN AND OTHER RELATED SULFUR-CONTAINING CYCLIC POLYPEPTIDE ANTIBIOTICS WITH RUMEN-ACTIVE DIIMIDES TO IMPROVE RUMINANT FEED EFFICIENCY

Francis P. Baylis, Greenbrook, N.J., and Gary E. Smith, Vale, Oreg., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 30, 1981, Ser. No. 229,806

Int. Cl.³ A23K 1/16, 1/17; A61K 31/40, 47/00

U.S. Cl. 424—117

4 Claims

1. An orally administered synergistic combination useful for increasing the feed efficiency of ruminants which comprises a finished feed product and a synergistic combination of from 0.0001% to 0.01% by weight of thiopeptin with from 0.0001% to 0.02% by weight of a pyromellitic diimide compound selected from the group consisting of
 - (a) pyromellitic diimide;
 - (b) N-(2-hydroxyethyl)pyromellitic diimide; and
 - (c) N,N'-bis-(2-hydroxyethyl)pyromellitic diimide.

4,393,047

ANTIBIOTIC CYTOPHAGIN AND A PROCESS FOR PRODUCING THE SAME

Hamao Umezawa; Tomio Takeuchi, both of Tokyo, and Hiroshi Nakano, Machida, all of Japan, assignors to Microbiochemical Research Foundation, Tokyo, Japan

Continuation-in-part of Ser. No. 131,344, Mar. 18, 1980, abandoned. This application Jul. 1, 1981, Ser. No. 279,489

Int. Cl.³ A61K 35/00; C12P 1/04, 21/00; C12R 1/01

U.S. Cl. 424—118

4 Claims

1. A substance having antibiotic activity, designated as cytophagin, which is stable in the form of colorless powder and which possesses the following physico-chemical properties:
 - (1) Elemental analysis: H: 6.94%, C: 47.22%, N: 13.21%
 - (2) Molecular weight: 1,000 to 1,500 [determined by gel filtration]
 - (3) Melting point: Browning at about 210° C. and decomposing with foaming at about 220° C.
 - (4) Specific rotation: $[\alpha]_D^{25} = +5^\circ$ (c=1 in DMSO)
 - (5) Ultraviolet absorption spectrum: As shown in FIG. 1 (c=25 μ g/ml in methanol)

(6) Infrared absorption spectrum: As shown in FIG. 2 (by KBr tablet method)

(7) Solubility in various solvents: Readily soluble in acetic acid and dimethylsulfoxide, substantially soluble in methanol and ethanol, and hardly soluble in water, chloroform, acetone, ethyl acetate and ethyl ether

(8) Color reaction: Positive in ninhydrin reaction, Ehrlich reaction and isatine reaction, and negative in Sakaguchi reaction, Pauly reaction and anisidine reaction.

(9) Nature: Neutral

(10) Color and appearance: Colorless powder

(11) Amino acids constituents: Lysine, aspartic acid, threonine, serine, proline, glycine, leucine, tryptophan and other 3 amino acids (each one molecule thereof)

(12) Rf value: 0.23 [by silica gel thin layer chromatography using as silica gel plate Art. 5721 (Merck AG., Germany) and a solvent system of n-butanol/acetic acid/water (12:3:5)].

3. A process for producing the substance claimed in claim 1, which process comprises the steps of culturing a microorganism selected from Cytophaga BMF 694-N3 (FERM P-4846; NRRL B-12109) and mutants thereof capable of producing the said substance in a culture medium under aerobic conditions to accumulate the said substance in the cultured broths and recovering the said substance therefrom.

4,393,048

PROTECTIVE GEL COMPOSITION FOR WOUNDS

Arthur D. Mason, Jr.; Avery A. Johnson, Jr., both of San Antonio; Harrel L. Walker, Sutherland Springs; Eleanor G. Bowler, San Antonio, all of Tex., and Charles R. Ritchey, Stillwater, Okla., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation of Ser. No. 121,868, Feb. 15, 1980, abandoned.

This application Oct. 30, 1981, Ser. No. 316,574

Int. Cl.³ A61K 33/38

U.S. Cl. 424—132

13 Claims

1. A gel composition, having use as a wound dressing, comprising a water-soluble hydrogel consisting essentially of about 0.5 to 3% by weight of alkali metal alginate, about 8 to 12% by weight glycerine and about 82 to 90% by weight water wherein said hydrogel has a pH in the range of 6.8 to 7.2 and which upon drying forms a flexible, stretchable, transparent water-soluble protective film, nontoxic and adherent to a wound surface to which said gel composition is applied for protection.

4,393,049

TREATMENT FOR OBESITY

David F. Horrobin, Montreal, Canada, assignor to Efamol Limited, London, England

Continuation-in-part of Ser. No. 89,293, Oct. 30, 1979, Pat. No. 4,302,477, which is a continuation-in-part of Ser. No. 4,924, Jan. 19, 1979, Pat. No. 4,373,763. This application Jun. 10, 1981, Ser. No. 272,082

Claims priority, application United Kingdom, Jan. 23, 1978, 2642/78; Feb. 7, 1978, 4921/78; Apr. 19, 1978, 15481/78; Aug. 17, 1978, 33682/78; Oct. 24, 1978, 41761/78

Int. Cl.³ A61K 33/30, 31/315, 31/20, 31/33

U.S. Cl. 424—145

14 Claims

1. A method of treating obesity comprising administering to a person suffering therefrom an effective amount of γ -linolenic acid or physiologically functional derivative thereof and/or dihomogamma-linolenic acid or physiologically functional derivative thereof.

4,393,050

ANALOGS OF EXTENDED N-TERMINAL
SOMATOSTATIN

Wylie W. Vale, Jr.; Jean E. F. Rivier, both of La Jolla, and Marvin R. Brown, Del Mar, all of Calif., assignors to The Salk Institute for Biological Studies, San Diego, Calif.

Filed Apr. 29, 1981, Ser. No. 258,878

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

16 Claims

1. A pharmaceutical composition for decreasing gastric acid secretion comprising an effective amount of an analog of SS-28 having the formula:

H-Ser-Ala-Asn-Ser-Asn-Pro-Ala-Leu-Ala-Pro-Arg-Glu-Arg-

Lys-Ala-Gly-Cys-R₁₈-R₁₉-Phe-Phe-D-Trp-Lys-Thr-R₂₅-

R₂₆-R₂₇-R₂₈-OH

wherein R₁₈ is Lys or des R₁₈, R₁₉ is Asn or des R₁₉, R₂₅ is Phe or Tyr, R₂₆ is Thr or des R₂₆, R₂₇ is Ser or D-Ser and R₂₈ is D-Cys or Cys, or a nontoxic addition salt thereof, and a pharmaceutically acceptable liquid or solid carrier therefor.

4,393,051

1-N-(AMINOPOLYHYDROXYALKYL)AMINOGLYCO-
SIDE ANTIBIOTICS AND METHOD OF USE

Peter Stadler, Haan; Karl G. Metzger, Wuppertal; Eckart Voss, Cologne; Uwe Petersen, Leverkusen, and Hans-Joachim Zeiler, Velbert, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 2, 1980, Ser. No. 155,896

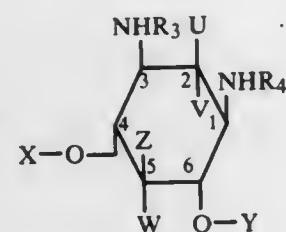
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1979, 2924659

Int. Cl.³ A61K 31/71; C07H 15/22

U.S. Cl. 424—180

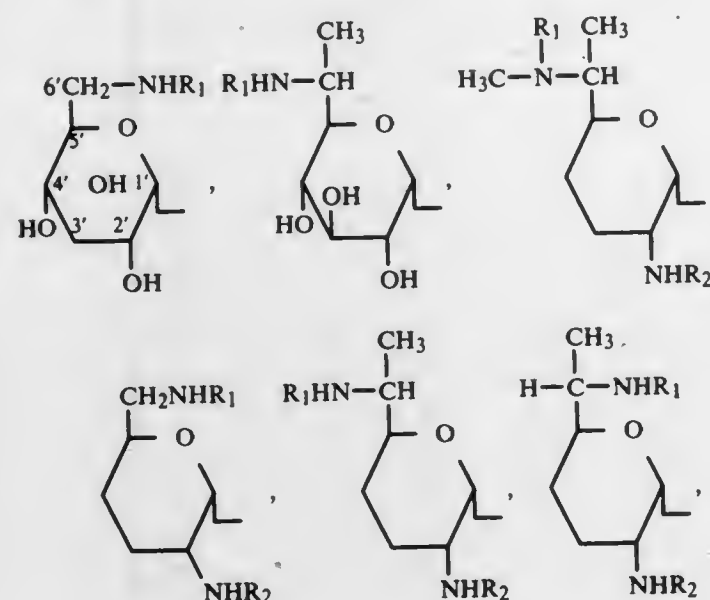
12 Claims

1. A compound which is a pseudotrisaccharide of the formula

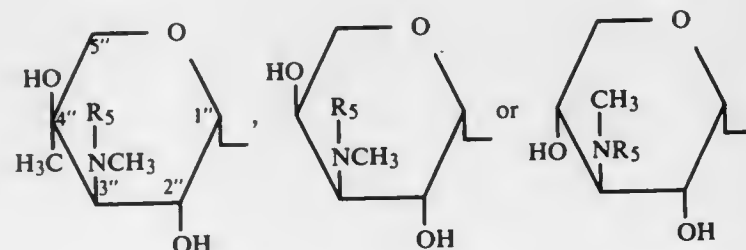


or a pharmaceutically acceptable acid addition salt thereof, in which

X denotes a radical of the formulae



Y denotes a radical of the formula



U and V both denote hydrogen atoms, or one denotes a hydrogen atom and one denotes a hydroxyl group and W and Z both denote hydrogen atoms, or one denotes a hydrogen atom and one denotes a hydroxyl group, or Z denotes NHR₆ and W denotes a hydrogen atom, and

R₁, R₂, R₃, R₄, R₅ and R₆ independently of one another denote a hydrogen atom or an amino-polyhydroxyalkyl radical derived from an amino sugar which is optionally N-protected and optionally carries C₁-C₄-alkyl, carboxylic acid acyl or C₁-C₆-alkylidene radicals on one or more OH-groups, at least one of the radicals R₁ to R₅ being other than hydrogen.

10. A method of combating bacterial diseases in warm-blooded animals which comprises administering to the animals an antibacterially effective amount of an active compound according to claim 1 either alone or in admixture with a diluent or in the form of a medicament.

4,393,052

ANTITUMOR ANTHRACYCLINE GLYCOSIDES, THEIR
PREPARATION, INTERMEDIATES THEREFOR, AND
COMPOSITIONS AND USE THEREOF

Alberto Bargiotti, Milan; Giuseppe Cassinelli, Voghera; Sergio Penco, Milan; Federico Arcamone, Nerviano, and Annamaria Casazza, Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Filed Oct. 29, 1981, Ser. No. 316,058

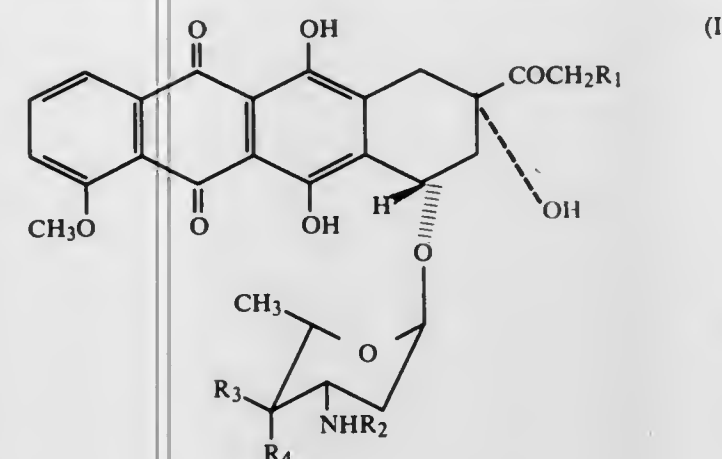
Claims priority, application United Kingdom, Nov. 1, 1980, 8035195

Int. Cl.³ A61K 31/71; C07H 15/22

U.S. Cl. 424—180

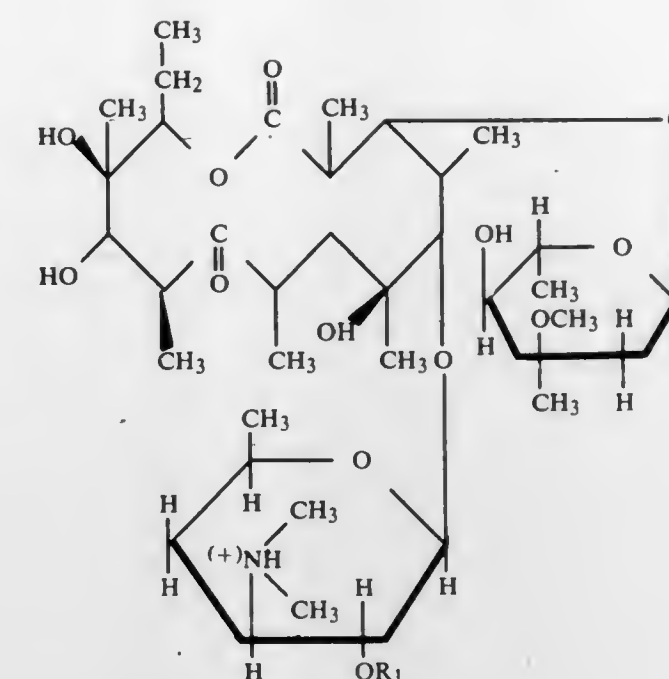
10 Claims

1. An anthracycline glycoside of the formula I:



wherein R₁ is hydrogen or hydroxy; R₂ is hydrogen or trifluoroacetyl; R₃ is methyl, hydroxymethyl, aminomethyl or trifluoroacetylaminomethyl; and R₄ is hydrogen or hydroxy, with the proviso that when R₄ is hydroxy, R₃ is aminomethyl; or R₃ and R₄ together form methylene, and pharmaceutically acceptable acid addition salts thereof.

10. A method of inhibiting the growth of P388 ascitic leukemia comprising administering to a mammal afflicted therewith, a therapeutically effective amount of a compound according to claim 1.



in which R₁ is H or CH₃-CH₂-CO.

4. A pharmaceutical composition comprising as the active ingredient a thiolic derivative according to claim 1 in an amount effective to have an erythromycin activity together with a pharmaceutically acceptable carrier.

4,393,054

METHOD OF TREATING CARDIAC ARRHYTHMIA
Harry R. Allen, Texas Township, Kalamazoo County, Mich.,
assignor to The Upjohn Company, Kalamazoo, Mich.

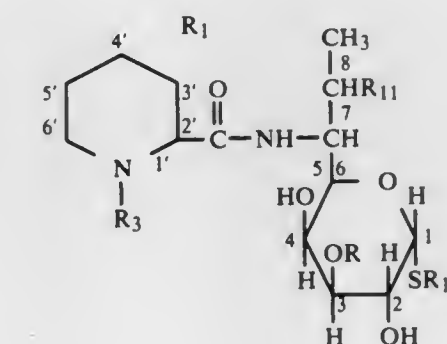
Filed May 19, 1982, Ser. No. 379,528

Int. Cl.³ A61K 31/71; C07H 15/16

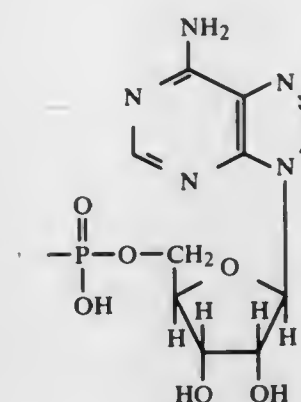
U.S. Cl. 424—180

3 Claims

1. The method for the treatment of cardiac arrhythmia in a patient which comprises administering a pharmaceutical carrier and a cardiac arrhythmia inhibiting quantity of a compound of the formula



wherein R is



R₁ is H, C₁-C₈-alkyl; R₁₁ is OH, OCH₃, halogen (Cl, Br, I), —SCH₂CH₂OH, —SCH₂CH₂CH₂OH, SCH₃; R₁₂ is CH₃, CH₂CH₃, —CH₂CH₂OH,

4,393,053

THIOLIC DERIVATIVES OF ERYTHROMYCIN HAVING
THERAPEUTIC ACTIVITY AND PHARMACEUTICAL
COMPOSITIONS CONTAINING THEM

Jacques Gonella, Zollikon, Switzerland, assignor to Refarmed S.A., Zollikon, Switzerland

Filed Feb. 2, 1982, Ser. No. 344,961

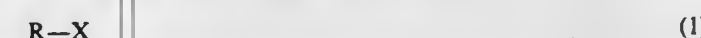
Claims priority, application France, Feb. 2, 1981, 82 00821

Int. Cl.³ A61K 31/71; C07H 17/08

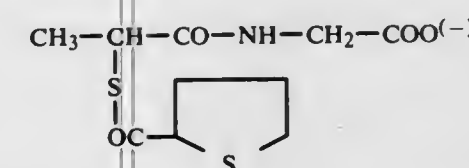
U.S. Cl. 424—180

7 Claims

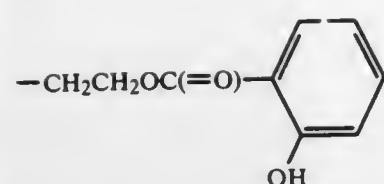
1. Thiolic derivatives of erythromycin and of the propionic ester of erythromycin having the formula



wherein R is the radical of thenoyl alpha-mercaptopropionylglycine



and X is the radical of erythromycin or of 3'-propionic ester of erythromycin having the formula



or the pharmaceutically acceptable acid addition salts thereof.

4,393,055

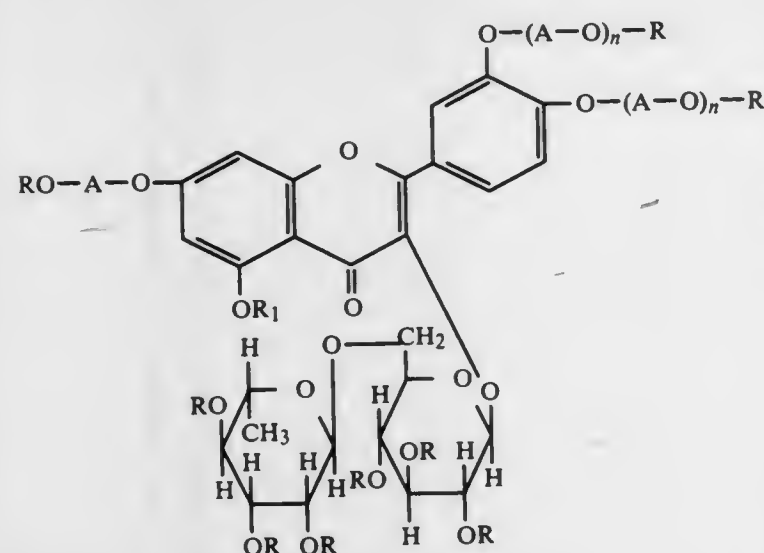
HYDROXYALKYL ETHER DERIVATIVES OF RUTIN POLY(H)-SULFATE AND METHOD OF USE

Vijay G. Nair, New York, N.Y.; Joseph P. Joseph, Montvale, N.J., and Seymour Bernstein, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
Filed May 3, 1982, Ser. No. 373,958
Int. Cl.³ A61K 31/70; C07H 11/00

U.S. Cl. 424-180

35 Claims

11. A method of inhibiting the complement system in a body fluid which comprises subjecting said body fluid to the action of an effective complement inhibiting amount of a compound of the formula:



wherein A is C₁-C₅ alkylidyl; n is an integer zero or one; R is SO₃B; R₁ is hydrogen or SO₃B; and B is a pharmaceutically acceptable salt cation, wherein the salt forming moiety is selected from the group alkali metal, alkaline earth metal, ammonia and substituted ammonia selected from the group C₁-C₆ trialkylamine, piperidine, pyrazine, C₂-C₆ alkanolamine and C₃-C₆ cycloalkylamine.

4,393,056

ANTIBIOTICS TETRONOLIDE COMPOUNDS AND PROCESS FOR PRODUCTION THEREOF

Fusao Tomita; Tatsuya Tamaoki; Kunikatsu Shirahata, all of Machida; Masaji Kasai, Fujisawa; Noriaki Hirayama, Machida; Makoto Morimoto, Numazu, all of Japan, and Masanori Fukui, Chicago, Ill., assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

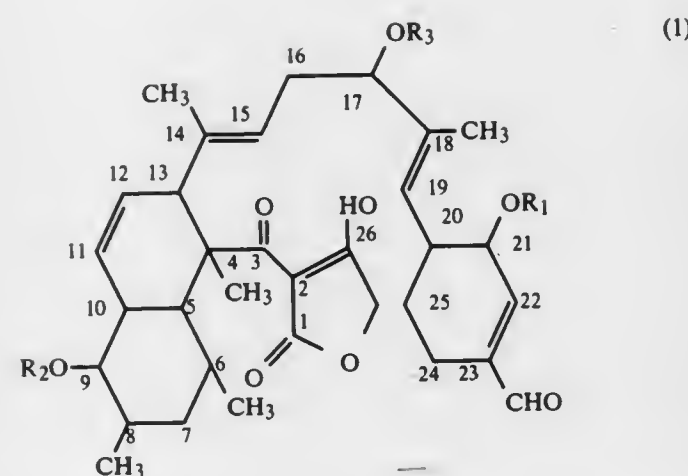
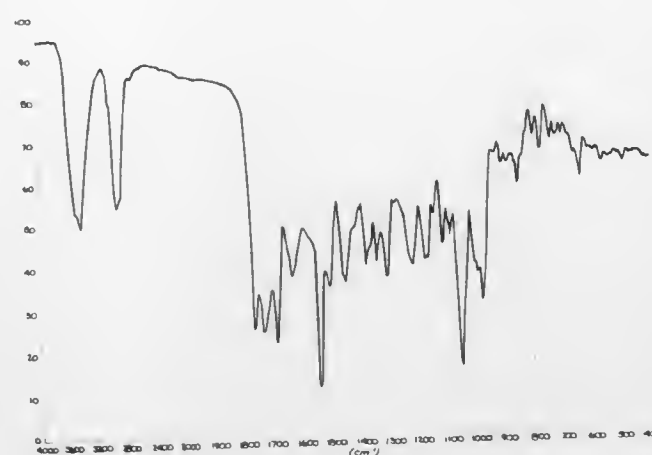
Filed Jun. 15, 1981, Ser. No. 273,377

Claims priority, application Japan, Jun. 14, 1980, 55-80482
Int. Cl.³ A61K 31/71; C07G 11/00

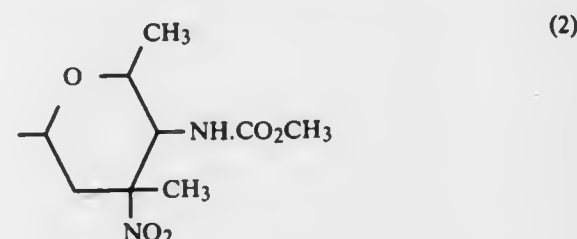
U.S. Cl. 424-181

2 Claims

1. A composition of matter having an antibacterial activity which is represented by the formula (1)



wherein R₁ and R₂ may be the same or different substituents and represent a hydrogen atom or an acyl group and R₃ represents a hydrogen atom, an acyl group or a tetronitrose represented by the formula (2)



and the pharmaceutically acceptable salts thereof.

2. A pharmaceutical composition for eliciting an antibacterial response comprising a pharmaceutical carrier and, as an active ingredient, an antibacterially effective amount of the composition of matter of claim 1.

4,393,057

PHARMACEUTICAL PREPARATIONS

Walter Boguth, Riehen, Switzerland, and Georges Hirth, Hunningue, France, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 228,792, Jan. 27, 1981, Pat. No. 4,339,447.
This application Apr. 26, 1982, Ser. No. 371,400

Claims priority, application Switzerland, Feb. 7, 1980, 983/80
Int. Cl.³ A61K 31/625

U.S. Cl. 424-229

7 Claims

1. A pharmaceutical preparation comprising an effective amount of a pharmaceutically active sulphonamide and a solvent containing a glycerol lower-alkyl ether selected from glycerol 1-methyl ether, glycerol 1-ethyl ether, glycerol 1,3-dimethyl ether and glycerol, 1,2-dimethyl ether, said glycerol lower-alkyl ether and said solvent being present in an amount sufficient to dissolve said active ingredient.

4,393,058

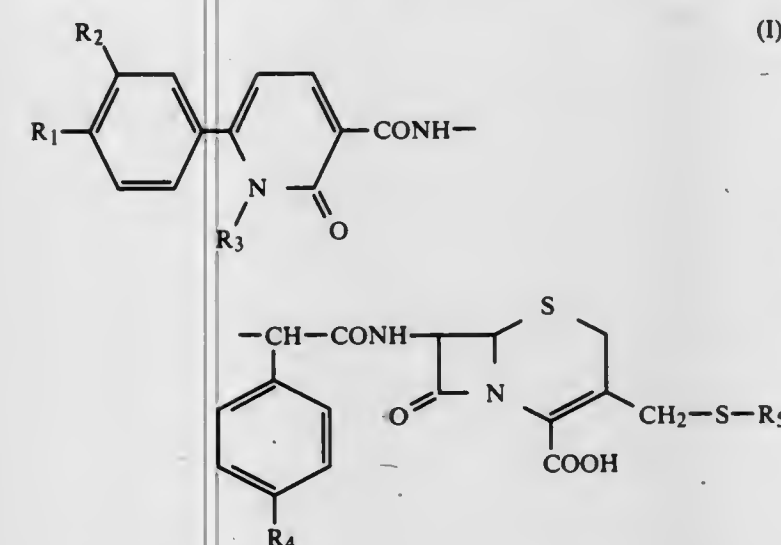
CEPHALOSPORIN COMPOUNDS

Osamu Makabe, Tokyo; Yasushi Murai, Yokosuka; Tunes Okonogi; Masahiro Onodera, both of Yokohama; Yoshiyuki Koyama, Naka, and Takashi Yoshida, Tokyo, all of Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan
Filed Sep. 18, 1980, Ser. No. 188,417
Claims priority, application Japan, Sep. 18, 1979, 54-118788
Int. Cl.³ C07D 501/36; A61K 31/545

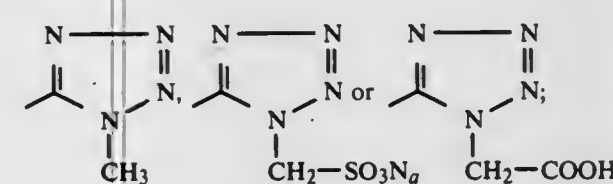
U.S. Cl. 424-246

3 Claims

1. A cephalosporin compound of the formula (I)



wherein R₁ represents a methoxy group or a 3,4-dimethoxybenzyloxy group; R₂ represents a methoxy group; R₃ represents a hydrogen atom; R₄ represents a hydroxyl group; and R₅ represents



or a pharmaceutically acceptable salt thereof.

4,393,059

CEPHEM COMPOUNDS

Takao Takaya, Kawanishi; Hisashi Takasugi, Kohamanishi; Kiyoshi Tsuji, Osaka, and Toshiyuki Chiba, Nara, all of Japan, assignors to Fujisawa Pharmaceutical Company, Limited, Osaka, Japan

Division of Ser. No. 886,340, Mar. 14, 1978. This application
Sep. 15, 1981, Ser. No. 302,639

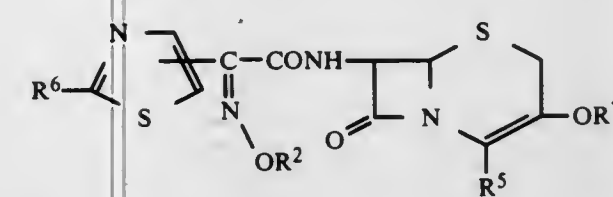
Claims priority, application United Kingdom, Mar. 14, 1977, 10699/77; Jul. 12, 1977, 29245/77; Oct. 11, 1977, 42315/77; Jan. 3, 1978, 75/78

Int. Cl.³ C07D 501/20; A61K 31/545

U.S. Cl. 424-246

8 Claims

1. A syn compound of the formula:



wherein

R² is hydrogen or an aliphatic hydrocarbon which may be substituted with halogen, carboxy or pharmaceutically acceptable esterified carboxy,
R⁵ is carboxy or pharmaceutically acceptable esterified carboxy,

R⁶ is amino or protected amino and
R⁷ is lower alkanesulfonyl or arenesulfonyl, and pharmaceutically acceptable salt thereof.

4,393,060

ISOCYANURIC ACID DERIVATIVES, METHOD OF PREPARATION, THERAPEUTIC COMPOSITIONS WITH A CYTOSTATIC ACTION AND THERAPEUTIC METHOD

Herbert Fischer; Manfred Budnowski, and Ulrich Zeidler, all of Dusseldorf, Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

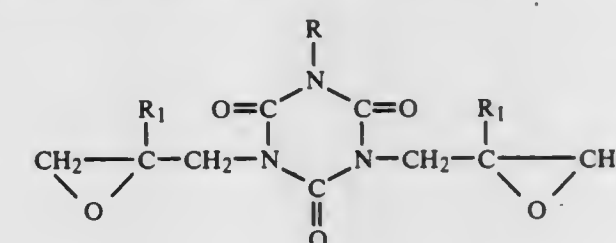
Filed Oct. 7, 1980, Ser. No. 194,908

Claims priority, application Austria, Oct. 8, 1979, 6552/79
Int. Cl.³ A61K 31/53; 31/535; C07D 251/32, 413/08

U.S. Cl. 424-248.5

10 Claims

1. A cytostatic composition consisting essentially of a cytostatically effective amount of at least one N-substituted-diglycidyl-isocyanurate having the formula:



wherein R has from 1 to 15 carbon atoms, which R is a hydrocarbon-containing radical selected from the group consisting of alkyl, aryl, aralkyl, alkaryl, cycloalkyl, and unsaturated derivatives thereof, which R may be further substituted by: heterocycles selected from the group consisting of piperidine, hexamethylenimine, morpholine, benzthiazol-2-ylthio and benzimidazol-2-ylthio, and further substituents on said R selected from the group consisting of halogen, hydroxyl, amino, N-substituted amino having the formula:



wherein R₂ and R₃ together have a total of no more than 8 carbon atoms and are members selected from the group consisting of alkyl and alkyl substituted by hydroxy, halogen and alkoxy, mercapto, alkylmercapto, alkylmercapto substituted by hydroxy, halogen and alkoxy, arylmercapto, alkylsulfoxyl, arylsulfoxyl, alkoxy, aryloxy and alkanoyloxy and aroyloxy, and R₁ represents a member selected from the group consisting of hydrogen and alkyl having from 1 to 4 carbon atoms, and a pharmaceutically acceptable carrier therefor.

4,393,061

ANESTHETIC-ANTIPRURITIC MORPHOLINE COMPOUNDS, COMPOSITIONS AND USE

Cheng-Sein Yu, Kaohsiung, Taiwan, assignor to Stiefel Laboratories, Inc., Coral Gables, Fla.

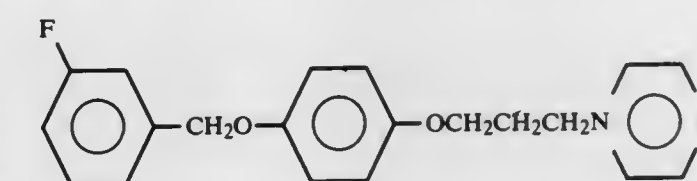
Filed Jun. 21, 1982, Ser. No. 390,572

Int. Cl.³ C07D 295/08; A61K 31/535

U.S. Cl. 424-248.58

6 Claims

1. A compound selected from the group consisting of the free base of the formula:



and the pharmaceutically acceptable acid addition salts thereof.

6. A topical pharmaceutical composition comprising a compound according to claim 1 in an amount sufficient to produce a topical anesthetic-antipruritic effect, in combination with a carrier which is pharmaceutically acceptable for topical application.

4,393,062

PHARMACEUTICAL COMPOSITIONS AND METHOD FOR THE PRODUCTION OF AN ANTI-INFLAMMATORY EFFECT

David R. Brittain, and Robin Wood, both of Macclesfield, England, assignors to Imperial Chemical Industries PLC, London, England

Division of Ser. No. 964,725, Nov. 29, 1978, Pat. No. 4,251,528.

This application Oct. 6, 1980, Ser. No. 194,211

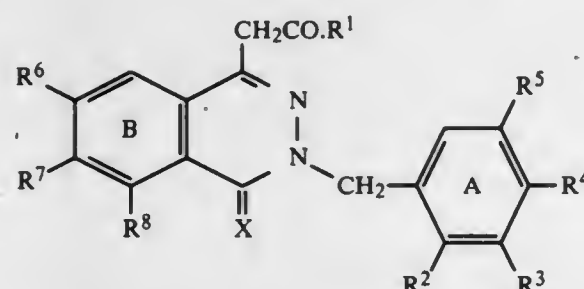
Claims priority, application United Kingdom, Dec. 29, 1977, 54142/77

Int. Cl.³ C07D 237/32; A61K 31/495

U.S. Cl. 424—250

5 Claims

1. A pharmaceutical composition suitable for use in producing an anti-inflammatory effect in a warm-blooded animal which comprises a compound of the formula:



wherein R¹ is hydroxy, R² is fluoro, R³ and R⁵ are hydrogen and R⁴ is chloro, bromo or iodo; or R² and R⁵ are hydrogen, and R³ and R⁴ are each independently chloro, bromo or iodo; and in either case R⁶, R⁷ and R⁸ are hydrogen and X is oxygen; or a pharmaceutically acceptable base-addition salt thereof; together with a pharmaceutically acceptable diluent or carrier.

4,393,063

TREATMENT FOR GASTRIC LESIONS

Salvador E. Moncada, West Wickham, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

Division of Ser. No. 907,355, May 18, 1978, Pat. No. 4,337,254.

This application Jul. 6, 1981, Ser. No. 280,853

Claims priority, application United Kingdom, Aug. 23, 1977, 35261/77

Int. Cl.³ A61K 31/34, 31/44, 31/52, 31/505

U.S. Cl. 424—251

4 Claims

1. A method for prophylaxis and/or treatment of a gastric lesion in a mammal, which comprises simultaneously or sequentially internally administering 1 part by weight of (a) a compound selected from the group consisting of prostacyclin, dihydroprostacyclin, and their pharmaceutically acceptable salts, in an amount insufficient to cause vasodilation, and 1 to 200 parts by weight of (b) a phosphodiesterase inhibitor selected from the group consisting of theophylline, 3-isobutyl-1-methyl xanthine, dipyridamole, a pharmaceutically acceptable salt of theophylline, a pharmaceutically acceptable salt of dipyridamole, and a pharmaceutically acceptable salt of 3-isobutyl-1-methyl xanthine.

4,393,064

PROCESS AND COMPOSITION FOR TREATMENT OF LEUKEMIA AND PROCESS FOR PREPARING THE SAME

Joseph I. DeGraw, Jr., Sunnyvale, Calif., and Francis M. Sirot-nak, New York, N.Y., assignors to SRI International, Menlo Park, Calif. and Sloan Kettering Institute for Cancer Research, New York, N.Y.

Continuation-in-part of Ser. No. 664,213, Mar. 5, 1976, abandoned, and Ser. No. 761,152, Jan. 21, 1977, abandoned, and Ser. No. 883,627, Mar. 6, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 75,913

Int. Cl.³ A61K 31/505

U.S. Cl. 424—251

18 Claims

1. A pharmaceutical composition in tablet form for treating leukemia or an ascites tumor comprising an amount within the range from about 0.1 to about 500 mg of 10-deazaminopterin per tablet therapeutically effective to ameliorate leukemia or the ascites tumor, together with a pharmaceutically acceptable nontoxic carrier or diluent therefor.

4,393,065

ANIMAL FEED AND PROCESS

Melvin J. DeGeeter; John M. McCall, both of Kalamazoo, and Dirk L. Teagarden, Portage, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 161,943, Jun. 23, 1980, Pat. No. 4,316,901, and a continuation-in-part of Ser. No. 161,944, Jun. 23, 1980, Pat. No. 4,307,093, and a continuation-in-part of Ser. No. 161,945, Jun. 23, 1980, Pat. No. 4,282,228, and a

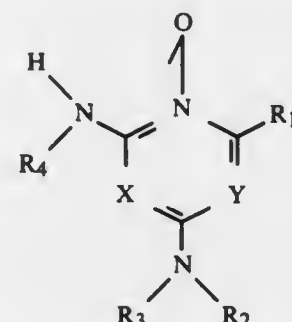
continuation-in-part of Ser. No. 161,946, Jun. 23, 1980, Pat. No. 4,315,930, and a continuation-in-part of Ser. No. 161,976, Jun. 23, 1980, Pat. No. 4,308,271. This application Apr. 14, 1981, Ser. No. 249,762

Int. Cl.³ A61K 31/505, 27/00, 31/54, 31/53

U.S. Cl. 424—251

2 Claims

1. A process for obtaining increased meat, milk, egg or wool production in healthy animals comprising the administration to a healthy animal a long acting composition containing an effective amount of a compound of the formula



Ia

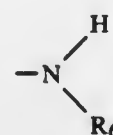
wherein

X is N;

Y is CR₅;

R is alkyl of from 1 to 8 carbon atoms, inclusive, including isomeric forms thereof;

R₁ is R or



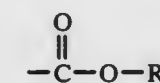
R₂ and R₃ are the same or different and are hydrogen, provided that R₂ and R₃ are not both hydrogen, R, cycloalkyl of from 3 to 8 carbon atoms, inclusive, alkyl substituted cycloalkyl of the formula



alkenyl of from 2 to 8 carbon atoms, inclusive, including isomeric forms thereof, aralkyl wherein

Ar is phenyl or substituted phenyl wherein 1 or 2 hydrogens are replaced with chlorine, fluorine, bromine, iodine, R, —OR, or CF₃, and the substituents can be the same or different, and alkyl is from 1 to 4 carbon atoms, inclusive, including isomeric forms thereof; and P₂ and R₃ taken together with —N< is a heterocyclic moiety of from 3 to 8, inclusive, ring atoms and 1 or 2 hetero atoms selected from the group consisting of nitrogen, oxygen or sulfur or a substituted heterocyclic moiety wherein 0, 1, 2, or 3 of the carbon atoms of the heterocycle are substituted with R;

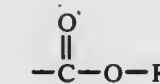
R₄ is hydrogen,



alkenyl of from 2 to 8 carbon atoms, inclusive, including isomeric forms thereof, cycloalkyl of from 3 to 7 carbon atoms, inclusive, or lower acyl wherein acyl is up to and including 5 carbon atoms;

R₅ is hydrogen, R, bromo or chloro;

R₆ is hydrogen,



or lower acyl;

R₇ is hydrogen or alkyl of from 1 to 5 carbon atoms, inclusive, including isomeric forms thereof; n is an integer of from 2 to 7, inclusive, said composition being in the form of an implant, bolus, or sterile injectable.

4,393,066

METHOD FOR TREATMENT OF HERPETIC LESIONS

David M. Garrett, 5711 39th St., Groves, Tex. 77619, and Wallace R. Robin, 114 6th Ave., Nederland, Tex. 77627

Filed Jun. 5, 1981, Ser. No. 271,039

Int. Cl.³ A61K 31/505

U.S. Cl. 424—251

1 Claim

1. A method of treating herpetic lesions comprising the topical administration to the lesion site and surrounding tissue area of a patient suffering from said lesions of an amount of folic acid effective for treating said lesions.

4,393,067

NICOTINOYL ESTERS FOR ANALGESIC AND ANTI-INFLAMMATORY TREATMENT

Alberto Reiner, Como, Italy, assignor to D and D Srl, Milan, Italy

Continuation-in-part of Ser. No. 225,978, Jan. 19, 1981, abandoned. This application Nov. 25, 1981, Ser. No. 325,029

Claims priority, application Italy, Jan. 19, 1980, 19354 A/80

Int. Cl.³ A61K 31/435; C07D 213/62

U.S. Cl. 424—256

6 Claims

1. A method for the treatment of inflammation in a patient in need of such treatment, said method comprising administering to said patient a therapeutically effective amount of the nicotino-yl ester of (3-4)-O-isopropylidene pyridoxine.

4,393,068

PYRIDYLALKYL THIOCARBONATES AS INSECT REPELLENTS

Rayman Y. Wong, 3411 Lowell Ave., Richmond, Calif. 94804

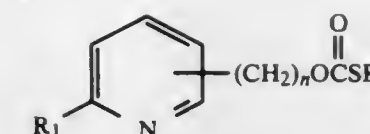
Filed Jan. 4, 1982, Ser. No. 337,039

Int. Cl.³ A01N 43/40; C07D 213/66

U.S. Cl. 424—263

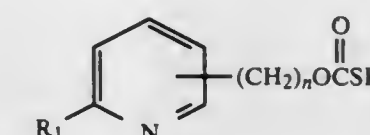
84 Claims

1. A compound having the formula



in which R is alkyl, cycloalkyl, aralkyl, wherein alkyl is a group containing up to 20 carbon atoms chlorophenyl or chlorobenzyl, R₁ is hydrogen or lower alkyl, and n is 1, 2, or 3.

67. A method of repelling insects from a locus to be protected therefrom, comprising applying to said locus an effective insect repelling amount of a compound having the formula



in which R is alkyl, cycloalkyl, aralkyl, wherein alkyl is a group containing up to 20 carbon atoms chlorophenyl or chlorobenzyl, R₁ is hydrogen or lower alkyl, and n is 1, 2, or 3.

4,393,069

8-ARYLALKYL-3-PHENYL-3-NORTROPANOLS AND SALTS THEREOF

Adolf Langbein, Gau-Algesheim; Herbert Merz; Rainer Sobotta, both of Ingelheim am Rhein; Rudolf Bauer, Wiesbaden; Hans M. Jennewein, Walluf, and Joachim Mierau, Mainz, all of Fed. Rep. of Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Nov. 25, 1981, Ser. No. 324,680

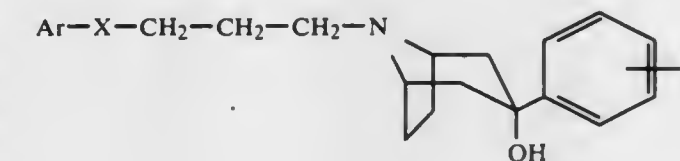
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1980, 3045688

Int. Cl.³ C07D 401/02; A61K 31/46

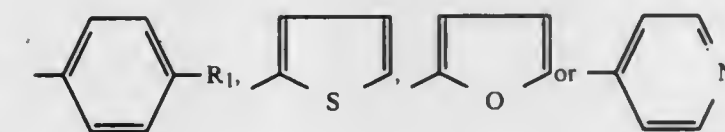
U.S. Cl. 424—265

6 Claims

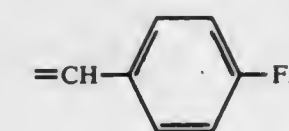
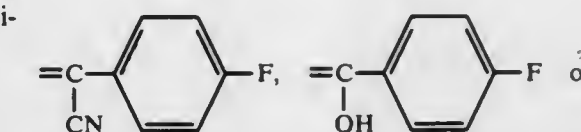
1. A compound of the formula



wherein
Ar is



R₁ is hydrogen, fluorine, bromine, methyl or methoxy; X is —CO—, —CH—CN, —CH—OH, —O—, —S—, —NH—,



and

R is hydrogen, 4-fluoro, 4-chloro, 4-trifluoromethyl, 3-trifluoromethyl, 3-trifluoromethyl-4-chloro, 4-methyl or 4-methoxy;
or a non-toxic, pharmacologically acceptable acid addition salt thereof.

4,393,070

DIHYDROPYRIDINE DERIVATIVE, AND PHARMACEUTICAL COMPOSITION COMPRISING THE SAME

Yoshinari Sato, Takaishi, and Tsutomu Teraji, Osaka, both of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

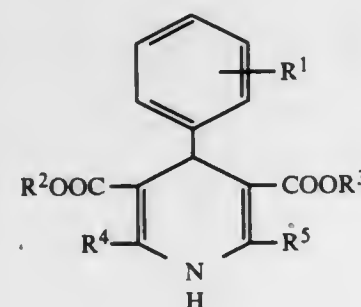
Division of Ser. No. 70,098, Aug. 27, 1979, Pat. No. 4,307,103. This application Dec. 4, 1980, Ser. No. 213,047

Claims priority, application United Kingdom, Sep. 8, 1978, 36132/78

Int. Cl.³ C07D 213/55; A61K 31/44

U.S. Cl. 424-266

1. A compound of the formula:



wherein

R¹ is cyano or trifluoromethyl,
R² is [N-lower alkyl-N-mono- or dihalophenyl(lower)alkyl- amino(lower)alkyl;
R³ and R⁴ are each lower alkyl, and
R⁵ is formyl, di(lower)alkoxymethyl or hydroxymethyl, and pharmacologically acceptable salt thereof.

7. A pharmaceutical composition for treatment of hypertension comprising, as an active ingredient, an effective amount of the compound of claim 1, in association with a nontoxic, pharmacologically acceptable carrier or excipient.

4,393,071

METHOD OF TREATING GASTRIC, MAMMARY, LUNG AND UTERUS TUMORS

Naoharu Fujii, No. 6-10, Jingumae 3-chome, Shibuya-ku, Tokyo, and Noboru Iijima, No. 2-1, Kyobashi, Chuo-ku, Tokyo, both of Japan

Continuation-in-part of Ser. No. 14,428, Feb. 23, 1979, abandoned, and continuation of Ser. No. 559,018, Mar. 17, 1975, abandoned. This application Mar. 6, 1981, Ser. No. 241,308

Int. Cl.³ A61K 31/40, 31/555

U.S. Cl. 424-274

8 Claims

1. A method of treating in an animal body malignant tumors selected from the group consisting of gastric tumor, mammary tumor, lung tumor, and uterus tumor, comprising the step of daily administering to the animal body of between 5 to 100 mg. of protoporphyrin.

4,393,072

THIENYLBENZOIC ACID DERIVATIVES

Wulf Merkel; Dieter Bormann; Dieter Mania, all of Kelkheim, and Roman Muschawek, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. is a continuation of Ser. No. 94,059, Nov. 14, 1979, abandoned. This application Sep. 16, 1982, Ser. No. 418,649

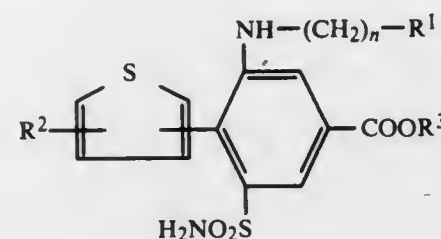
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849646

Int. Cl.³ A61K 31/38; C07D 333/24

U.S. Cl. 424-275

9 Claims

1. A thienylbenzoic acid compound of the formula



or a pharmaceutically acceptable salt thereof with an acid or base wherein,

R¹ is phenyl, thienyl, furyl, or is phenyl, thienyl or furyl substituted by halogen, -CF₃, -CH₃, or -OCH₃;
R² is hydrogen, halogen, or -CH₃;
R³ is hydrogen, alkyl having from 1 to 4 carbon atoms, or benzyl; and
n is 1 or 2.

4,393,073

PHARMACEUTICAL PREPARATIONS

Walter Boguth, Riehen, and Georges Hirth, Huningue, both of France, assignors to Hoffmann-La Roche Inc., Nutley, N.J. Division of Ser. No. 228,792, Jan. 27, 1981, Pat. No. 4,339,447.

This application Apr. 26, 1982, Ser. No. 371,621

Claims priority, application Switzerland, Feb. 7, 1980, 983/80 Int. Cl.³ A61U 31/07; 31/12; 31/33; 31/355

U.S. Cl. 424-284

6 Claims

1. A pharmaceutical preparation comprising an effective amount of a vitamin selected from the group consisting of vitamin A acetate, vitamin K₁ and vitamin E and a solvent containing a glycerol lower-alkyl ether selected from glycerol 1-methyl ether, glycerol 1-ethyl ether, glycerol 1,3-dimethyl ether and glycerol, 1,2-dimethyl ether, said glycerol lower-alkyl ether and said solvent being present in an amount sufficient to dissolve said active ingredient.

4,393,074

FLUORINATED CARBAMATE INSECTICIDES

William J. Middleton, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

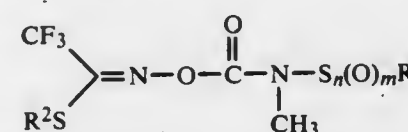
Division of Ser. No. 139,797, Apr. 14, 1980, Pat. No. 4,323,578, which is a continuation-in-part of Ser. No. 65,485, Sep. 10, 1979, abandoned. This application Jan. 11, 1982, Ser. No. 338,476

Int. Cl.³ A01N 43/08; C07C 119/18; A01N 37/52

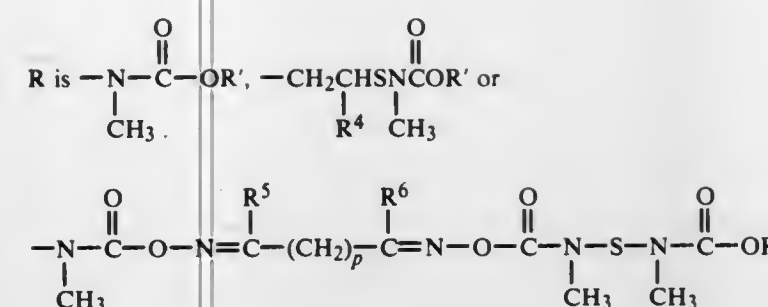
U.S. Cl. 424-285

9 Claims

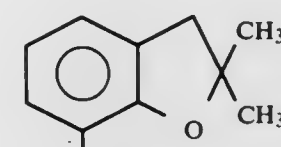
1. A compound of the formula:



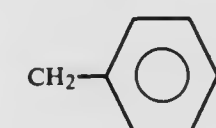
wherein



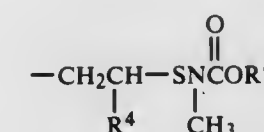
where
R' is



R² is C₁-C₆ alkyl; C₃-C₆ alkenyl, or



R⁴ is H;
n is 1 or 2;
m is 0 or 1;
p is 0, 1 or 2;
R⁵ or R⁶ are independently H, C₁-C₄ alkyl, phenyl or phenyl substituted with one atom of F, Cl, Br or CH₃;
provided that when:
(1) R is



n must be 1;

(2) n is 2, m must be 0.

4. An insecticide composition consisting essentially of a surfactant, diluent, and an effective amount of a compound of claim 1.

4,393,075

QUINONE COMPOUNDS AND THEIR USE IN SUPPRESSING THE PRODUCTION OF SRS-A IN MAMMALS

Shinji Terao, Toyonaka; Mitsuru Shiraishi, Suita, and Yoshitaka Maki, Kyoto, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 26, 1981, Ser. No. 248,042

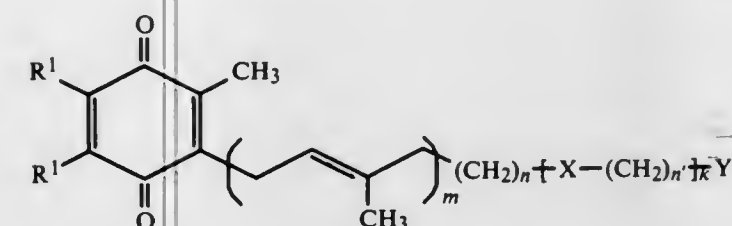
Claims priority, application Japan, Apr. 14, 1980, 55-49433; Apr. 30, 1980, 55-58464; Dec. 27, 1980, 55-186622

Int. Cl.³ A61K 31/12; 31/275; C07C 50/00

U.S. Cl. 424-304

14 Claims

7. A compound of the formula:



wherein R¹ is methyl or methoxy, or the two R¹ groups jointly represent -CH=CH-CH=CH-,
X is -CH=CH- or -C≡C-,
Y¹ is hydrogen, carboxyl, cyano, C₂₋₄ alkanoyloxy, benzoyloxy or -COZ in which Z is amino or mono- or di-C₁₋₄ alkylamino,

m is zero or an integer of 1 to 3,

n is zero or an integer of 1 to 10,

n' is an integer of 1 to 5,

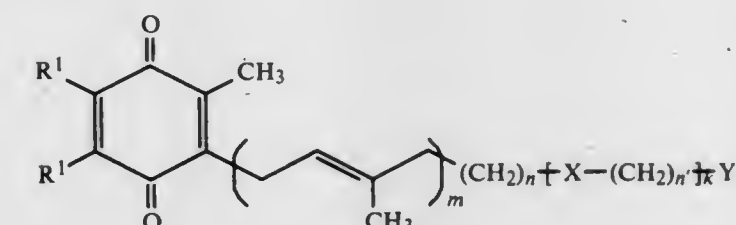
k is an integer of 1 to 3, and

when k is 2 or 3, n' is optionally variable within the range of 1 to 5 in each occurrence of the -X-(CH₂)_{n'} group, with the proviso that there are 8-15 carbon atoms in series between the quinone ring and Y¹,

or its hydroquinone form,

or a pharmaceutically acceptable salt thereof.

14. A method for suppressing the production of SRS-A in a mammal in need thereof, which comprises administering to said mammal an effective amount of a compound of the formula:



wherein R¹ is methyl or methoxy, or the two R¹ groups jointly represent -CH=CH-CH=CH-,

X is -CH=CH- or -C≡C-,

Y¹ is hydrogen, hydroxyl, carboxyl, cyano, C₂₋₄ alkanoyloxy, benzoyloxy or -COZ in which Z is amino or mono- or di-C₁₋₄ alkylamino,

m is zero or an integer of 1 to 3,

n is zero or an integer of 1 to 10,

n' is an integer of 1 to 5,

k is an integer of 1 to 3, and

when k is 2 or 3, n' is optionally variable within the range of 1 to 5 in each occurrence of the -X-(CH₂)_{n'} group, or its hydroquinone form,

or a pharmaceutically acceptable salt thereof.

4,393,076

ANTI-INFLAMMATORY AND ANALGESIC GEL COMPOSITION

Kanji Noda, Chikushino; Akira Nakagawa; Tetsuya Yamagata, both of Tosu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co., Inc., Tosu, Japan

Continuation-in-part of Ser. No. 260,633, May 5, 1981, abandoned. This application Feb. 16, 1982, Ser. No. 348,887

Claims priority, application Japan, May 14, 1980, 55/65066; May 14, 1980, 55/65067

Int. Cl.³ A61K 31/19

U.S. Cl. 424-317

15 Claims

1. An anti-inflammatory and analgesic gel composition comprising, by weight, 0.5-10% of ketoprofen as the effective ingredient, 2-40% of a glycol selected from the group consisting of propylene glycol, butylene glycol, polyethylene glycol, polypropylene glycol, polyethylene glycol dodecyl ether and glycerine, 20-55% of water, up to 60% of a lower alcohol selected from the group consisting of ethanol, denatured ethanol, propanol and isopropanol, 0.5-5% of a gelling agent selected from the group consisting of carboxyvinyl polymers, hydroxycellulose, methylcellulose, carboxymethylcellulose, hydroxypropylcellulose and alginic acid-propylene glycol ester and 0.1-3% of a neutralizing agent selected from the group consisting of triethanolamine, diethylamine, triethylamine, diisopropylamine and diisopropanolamine.

4,393,077

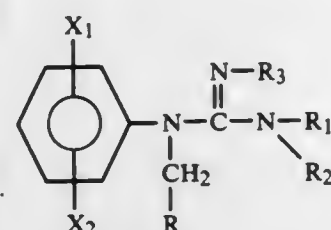
1-METHYLENE-1-PHENYLGUANIDINE COMPOUNDS
George H. Douglas, Malvern, and Henry F. Campbell, Lansdale, both of Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

Filed Jul. 2, 1981, Ser. No. 280,072
Int. Cl.³ A61K 31/155; C07C 129/08

U.S. Cl. 424—326

4 Claims

1. A method for ganglionic blocking which comprises administering an effective amount of a compound of the formula



and the pharmaceutically acceptable salts thereof, wherein X₁ and X₂ each represent a member selected from the group consisting of hydrogen, halo, trifluoromethyl, acyl, alkyl, hydroxy, alkoxy and amino,

R₁, R₂, and R₃ each represent a member selected from the group consisting of hydrogen, lower alkyl and lower alkenyl and

R represents a member selected from the group consisting of cycloalkyl, cycloalkenyl and aryl, also, R₃ and either R₁ or R₂ can constitute a methylene bridge, —(CH₂)₂— or —(CH₂)₃—, resulting in the formation of a five- or six-membered ring.

4,393,078

BUPROPION AND ETHANOL

Anthony W. Peck, Bromley, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

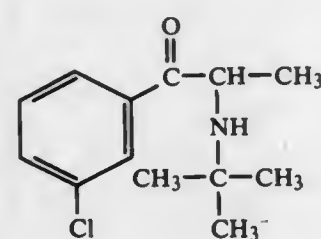
Filed Mar. 15, 1982, Ser. No. 358,354

Int. Cl.³ A61K 31/135

U.S. Cl. 424—330

9 Claims

1. A method of reversing the impaired mental alertness effects of ethanol in a human, which comprises administering to a human who has consumed alcohol an effective, non-toxic amount of the compound of formula (I)



or a pharmaceutically acceptable acid addition salt thereof to reverse the mental alertness effects of ethanol in the human.

4,393,079

PHARMACEUTICAL COMPOSITIONS

William G. Cole, Twickenham; Alexander C. Goudie, Harlow, and Carl J. Rose, London, all of England, assignors to Beecham Group Limited, United Kingdom

Division of Ser. No. 599,638, Jun. 20, 1975, Pat. No. 4,062,978.

This application Dec. 15, 1976, Ser. No. 750,684

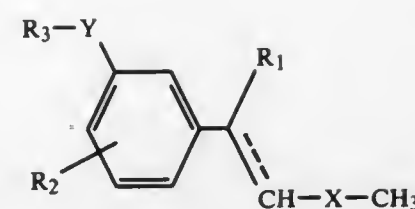
Claims priority, application United Kingdom, Jul. 4, 1974, 29651/74

Int. Cl.³ A61K 31/12; C07C 49/248

U.S. Cl. 424—331

14 Claims

1. A pharmaceutical composition useful for the treatment of inflammation in humans and animals which comprises an anti-inflammatory amount of a compound of the formula



wherein

X is CO or CHOH;

Y is CO;

the dotted line represents a double bond which is present or absent;

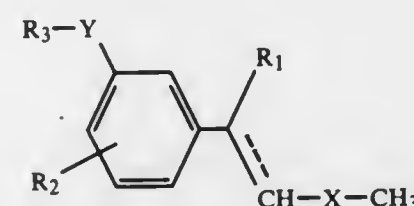
R₁ is hydrogen or methyl;

R₂ is hydrogen, fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxyl, hydroxyl or nitro; and

R₃ is phenyl unsubstituted or substituted by 1 or 2 substituents selected from the group consisting of fluorine, chlorine, bromine, methyl, ethyl, methoxyl, ethoxyl, hydroxyl, trifluoromethyl, nitro, methylthio or methylsulphonyl;

in combination with a pharmaceutically acceptable carrier.

2. A method of treating inflammation in humans and animals which comprises administering to a human or animal in need thereof an anti-inflammatory amount of a compound of the formula



wherein

X is CO or CHOH;

Y is CO;

the dotted line represents a double bond which is present or absent;

R₁ is hydrogen or methyl;

R₂ is hydrogen, fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxyl, hydroxyl or nitro; and

R₃ is phenyl unsubstituted or substituted by 1 or 2 substituents selected from the group consisting of fluorine, chlorine, bromine, methyl, ethyl, methoxyl, ethoxyl, hydroxyl, trifluoromethyl, nitro, methylthio or methylsulphonyl;

(I) in combination with a pharmaceutically acceptable carrier.

4,393,080

ADHESIVE COMPOSITIONS

John M. Pawelchak, East Windsor; James L. Chen, East Brunswick; John G. Cryan, East Brunswick, and Anthony L. LaVia, East Brunswick, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Dec. 24, 1981, Ser. No. 334,284

Int. Cl.³ C09J 7/02; B32B 9/00

U.S. Cl. 428—355

31 Claims

15. A skin barrier comprising an adhesive layer having a thin continuous or discontinuous polymeric film laminated to one surface of the adhesive, said adhesive comprising a substantially homogeneous mixture on a percent weight basis of from about 30% to about 70% of a pressure sensitive viscous adhesive material and an optional thermoplastic elastomer said pressure sensitive adhesive material selected from the group consisting of natural rubber, silicone rubber, acrylonitrile rubber, polyurethane rubber, and polyisobutylenes and said optional thermoplastic elastomer selected from the group consisting of medium molecular weight polyisobutylenes, butyl rubber, and styrene copolymers and from about 3% to 60% by weight of one or more natural or synthetic polymers capable of developing elastomeric properties when hydrated selected

from the group consisting of gluten and long chain polymers of methyl vinyl ether/maleic acid.

4,393,081

METHYL 3-ACETAMIDO-2-(5-METHOXY-INDOL-3-YL) PROPANOATE AND HYPOTENSIVE USE THEREOF

Robert N. Schut, Edwarsburg, Mich.; Max E. Safdy, Elkhart, Ind., and Enrique Hong, Cerro San Francisco, Mexico, assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Oct. 28, 1981, Ser. No. 315,638

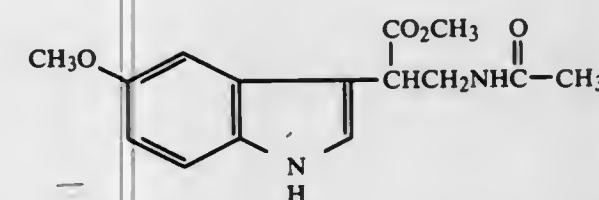
The portion of the term of this patent subsequent to Aug. 11, 1998, has been disclaimed.

Int. Cl.³ A61K 31/405; C07D 209/20

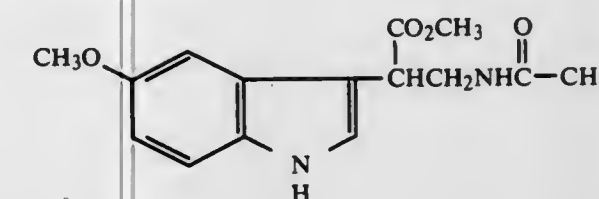
U.S. Cl. 424—274

2 Claims

1. Methyl 3-acetamido-2-(5-methoxyindol-3-yl) propanoate of the formula:



2. A method of treating hypertension in a individual requiring such treatment which comprises administering to such individual an anti-hypertensively effective amount of a compound of the formula:



4,393,082

ION EXCHANGE MATERIALS TO INCREASE CONSUMPTION OF NON-PROTEIN NITROGEN BY RUMINANTS

Joe L. White, Lafayette, and Alvin J. Ohlrogge, West Lafayette, both of Ind., assignors to Purdue Research Foundation, West Lafayette, Ind.

Continuation-in-part of Ser. No. 715,973, Aug. 19, 1976, abandoned, which is a continuation-in-part of Ser. No. 89,579, Nov. 16, 1970, abandoned. This application Jul. 5, 1977, Ser. No. 812,797

Int. Cl.³ A23K 1/22

U.S. Cl. 426—2

19 Claims

1. A method for feeding ruminants urea or biuret as a non-protein nitrogen (NPN) compound and for mitigating the toxic effects of high ammonium ion content in ruminal fluid produced by decomposition of said NPN compound to ammonia in the rumen during post-feeding fermentation and conversion to protein amino acids, which comprises:

- introducing into the rumen at least one foraminous bolus containing a crystalline alumino silicate cation exchange material in an amount sufficient to substantially reduce the ammonium ion content of the ruminal fluid during said post-feeding fermentation and decomposition of said NPN compound, said bolus being of sufficient size, weight, and/or shape to remain in the rumen,
- maintaining said bolus in the rumen during a large number of digestive cycles, and
- feeding said ruminant urea or biuret, the resulting ammonium ions formed in the post-feeding fermentation and decomposition of said NPN compound being partially exchanged onto the cation exchange material to substantially reduce the ammonium ion content of the ruminal fluid, and thereafter being gradually released into the

ruminal fluid by the regenerant action of saliva entering the rumen during rumination.

4,393,083

METHOD FOR PRODUCING GRAPE MUST AND WINE
Masazumi Watanabe, Kashiwa; Mikio Uehara, Noda; Yoshimi Shimazu, Noda; Jiro Ishiyama, Noda, and Motohiko Kato, Noda, all of Japan, assignors to Kikkoman Corporation, Noda, Japan

Filed Jun. 23, 1981, Ser. No. 276,497

Claims priority, application Japan, Jul. 7, 1980, 55-91749; Jul. 8, 1980, 55-92285

Int. Cl.³ C12G 1/02; C12P 7/20

U.S. Cl. 426—15

7 Claims

1. A noble botrytized grape must enriched in glycerol content to about 6% (w/v) or more obtained by adding a compound selected from the group consisting of cyclic-3',5'-adenylic acid; an alkali metal salt of cyclic-3',5'-adenylic acid; an alkaline earth metal salt of cyclic-3',5'-adenylic acid; N⁶,O²-dibutyl-cyclic-3',5'-adenylic acid and N⁶-butylestercyclic-3',5'-adenylic acid to a grape must and fermenting the grape must aerobically with mycelia of *Botrytis cinerea*.

4,393,084

BREAD MIX AND PROCESS

Seymour Pomper, Stamford, and Glenn D. LaBaw, Greenwich, both of Conn., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Jun. 1, 1981, Ser. No. 268,703

Int. Cl.³ A21D 8/00, 10/00

U.S. Cl. 426—19

26 Claims

1. A process for preparing bread which comprises: mixing water with a dry bread mix to form a dough, the dry mix comprising flour, from 1.5 to 2.5% quick-leavening active dry yeast, and from 0.1 to 0.75% of a dough conditioner selected from the group consisting of calcium stearoyl-2-lactylate, sodium stearoyl-2-lactylate, and mixtures of these, all percentages based on the weight of the dry mix; shaping the dough into units for baking; proofing the shaped units for from about 30 to about 45 minutes; and baking.

4,393,085

ENZYME DIGESTION FOR A DOG FOOD OF IMPROVED PALATABILITY

Joseph E. Spradlin; Jeffrey D. Morgan, both of Bourbonnais; Allan R. Olson, Ashkun, and Joseph P. Howley, Flossmoor, all of Ill., assignors to General Foods Corporation, White Plains, N.Y.

Filed Aug. 13, 1981, Ser. No. 292,473

Int. Cl.³ A23K 1/00, 1/18

U.S. Cl. 426—28

17 Claims

1. A process for preparing a nutritionally-balanced dog food having improved palatability, said dog food comprising fat, protein, carbohydrates, vitamins and minerals and containing of a weight basis from 20% to 80% farinaceous ingredients and from 20% to 80% proteinaceous ingredients, including proteinaceous meaty material at from about 25% to about 55% by weight of the proteinaceous ingredients, said process comprising the steps of:

- preparing a slurry comprising water, from about 5% to about 25% of the total weight of said farinaceous ingredients, and a major portion of the proteinaceous meaty material;
- forming a reaction product by treating said slurry with added alpha-amylase and added protease enzymes in an amount and under conditions effective to convert at least a portion of the farinaceous material to a mixture of oligo saccharides ranging in size from 1 to 10 monomer units, and at least a portion of the proteinaceous material to a mixture of peptides ranging in size from 2 to 300 monomer units, and effective to reduce the viscosity of the slurry by 50%; and thereafter,

(c) incorporating the reaction product of the slurry into a dog food in an amount effective to provide a significant increase in the palatability of the dog food to dogs.

4,393,086

DIETARY PRODUCT CONTAINING GLUCOMANNAN POWDER AND METHOD FOR PREPARING

Yoshinari Masuyama, No. 5-19-19, Higashi Gotanda, Shinagawa-Ku, Tokyo, Japan 141

Continuation-in-part of Ser. No. 96,160, Nov. 20, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,382
Claims priority, application Japan, Oct. 19, 1979, 54-134156
Int. Cl.³ A23L 1/30

U.S. Cl. 426—74

3 Claims

1. A dietary powder composition in the form of a tablet which comprises 20 to 50 parts by weight of glucomannan powder having an average particle size of 100 to 200 mesh, 5 to 10 parts by weight of beef bone dust containing marrow and having an average particle size of 100 and 200 mesh, and 20 to 50 parts by weight of lactose powder having an average particle size of 80 to 150 mesh.

4,393,087

PROCESS FOR THE PRODUCTION OF A FLOATING AQUATIC FOOD PELLET

Richard D. Sullins, Manchester, Mo., and Kent J. Lanter, Millstadt, Ill., assignors to Ralston Purina Company, St. Louis, Mo.

Filed May 4, 1981, Ser. No. 259,882
Int. Cl.³ A23K 1/175

U.S. Cl. 426—74

29 Claims

1. A process for the production of a floating aquatic food pellet comprising:

- forming a first mixture of proteinaceous and farinaceous materials with fat and sufficient expanded grain particles to provide floatability for said pellets;
- separately forming a hardenable carbohydrate matrix and combining said matrix with said first mixture;
- pelletting the combined matrix and mixture by the application of heat and pressure with the matrix preventing compaction of the expanded grain particles to and form a floating aquatic food pellet with good structural integrity in water.

4,393,088

STERILIZING PROCESS FOR FOODS BY APPLYING MICROWAVES THERETO

Osamu Matsusaka, Yokohama, Japan, assignor to Mitsubishi Monsanto Chemical Company, Kanagawa, Japan
Filed Sep. 15, 1980, Ser. No. 187,621

Claims priority, application Japan, Sep. 26, 1979, 54-123660
Int. Cl.³ A23L 3/10; B65B 55/16

U.S. Cl. 426—234

7 Claims

1. A sterilizing process for a food mixture by applying microwaves thereto, comprising the sequential steps of: placing a solid food material into a container which is capable of transmitting microwaves therethrough; then feeding a liquid material having an elevated temperature close to the temperature that said mixture is to be heated to and 80° C. to 100° C. higher than that of said solid food material into said container; whereby said container is completely filled with the mixture of said solid and liquid food materials; hermetically sealing said container before said mixture of said solid and liquid food materials reaches an equilibrium temperature thereof to thereby allow for some contraction on cooling before applying the next step; and applying microwaves under ambient pressure to said container before said mixture reaches an equilibrium temperature to raise the temperature of the mixture of said solid and said liquid materials in said sealed container to a sterilizing temperature of from 70° to 105° C., whereby

said mixture becomes sterilized without damage to said container.

4,393,089

MICROBIAL HETEROPOLYSACCHARIDE

Roger B. Cox, Reading, and David C. Steer, Wirral, both of England, assignors to Lever Brothers Company, New York, N.Y.

Division of Ser. No. 166,220, Jul. 7, 1980, Pat. No. 4,329,448.
This application Dec. 16, 1981, Ser. No. 331,510
Claims priority, application United Kingdom, Jul. 10, 1979, 7924040; Dec. 20, 1979, 7943878
Int. Cl.³ A23L 1/04, 1/24

U.S. Cl. 426—573

6 Claims

1. An edible composition comprising a thickening or suspending amount of Biopolymer PS 87 wherein said Biopolymer PS 87 is a heteropolysaccharide which comprises from 40 to 45% by weight of glucose, from 10 to 20% by weight galactose, from 25 to 30% by weight mannose, from 16 to 13% by weight glucuronic acid and from 0 to 1.5% by weight fucose, a 1% by weight solution of said Biopolymer PS 87 having pseudoplastic properties, a consistency at 20° C. of at least 150 poise and a yield stress value at 20° C. of at least 30 dynes/cm².

4,393,090

BEEF PRODUCT FOR COOKING ON A VERTICAL ROTISSERIE

James H. Coroneos, 11335 Frederick Rd., West Friendship, Md. 21043

Continuation of Ser. No. 166,481, Jul. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 917,077, Jun. 19, 1978, Pat. No. 4,245,373. This application May 14, 1982, Ser. No. 378,360
Int. Cl.³ A23L 1/31

U.S. Cl. 426—646

1 Claim

1. A beef product for cooking on a vertical rotisserie comprising ingredients which are listed in the order of predominance in the following percentages of the total product: beef, 75.5 percent; water, 9.0 percent; onions, 7.5 percent; textured vegetable protein, 4.5 percent; salt, 1.5 percent; paprika, 1.5 percent; and spices, 0.5 percent;

said beef product prepared from said ingredients by the process comprising: cutting beef into small pieces and grinding said pieces in a mechanical grinder, regrinding the ground meat a second time; preparing a mixture of the additive ingredients comprising, the water, onions, textured vegetable protein, salt, paprika, and spices; spreading the ground beef on a working surface and introducing the mixture of additive ingredients evenly over the ground beef, kneading the combination of ground beef and the additive ingredients until the additive ingredients are thoroughly and evenly mixed throughout the ground beef; placing the prepared mixture of ground beef and additive ingredients into a cylindrical mold and mechanically compressing the mixture in the mold to squeeze out substantially all of the entrapped air within the mixture, said compressing of the mixture in the mold providing a concave top surface which is necessary to permit subsequent expansion of the meat mixture to an essentially flat top surface when the compressive force is subsequently removed, said compressing of the meat mixture in said mold forming said meat mixture into an integrated unit comparable to an original meat mass, said flat surface being necessary for subsequent cooking of a plurality of molded meat units; while the compressed mixture is still under pressure in the mold, inserting a hollow plastics skewer sleeve through a center guide opening in center of said mold and into the

4,393,092

METHOD FOR CONTROLLING THE CONDUCTIVITY OF POLYIMIDE FILMS AND IMPROVED DEVICES UTILIZING THE METHOD

Graham P. Gill, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 12, 1982, Ser. No. 357,375
Int. Cl.³ B05D 3/06, 5/12

U.S. Cl. 427—38

20 Claims

center of the compressed mixture, using a solid mandrel to force the skewer sleeve into place; removing the mandrel, leaving the skewer sleeve in place in the compressed mixture, removing the compression force from the mixture in the mold, removing the mold, the highly compressed molded unit of prepared beef being solid and unitary in form; wrapping the molded unit carefully in suitable wrapping means and transporting the molded unit on a support means to a freezer means; when frozen, the molded unit, separately or in conjunction with other molded units, is ready and easily handable for placing on a vertical rotisserie and is ready for cooking, said hollow plastics skewer sleeve providing a preformed aperture through a frozen meat unit; and when cooking said product placing at least one frozen molded unit on a vertical rotisserie skewer by passing said skewer through said skewer sleeve in the center of said frozen molded unit, placing said skewer, with said molded unit thereon, on the vertical rotisserie and cooking, said flat top surface facilitating and accommodating the addition of other molded units on said skewer in a similar manner, a plurality of molded units thereby being capable of being cooked on a vertical rotisserie at the same time.

4,393,091

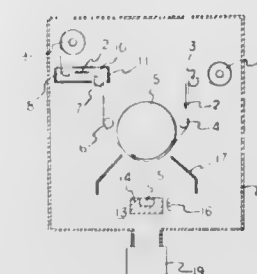
METHOD OF VACUUM DEPOSITING A LAYER ON A PLASTIC FILM SUBSTRATE

Koichi Shinohara, Kobe, and Takashi Fujita, Kawanishi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

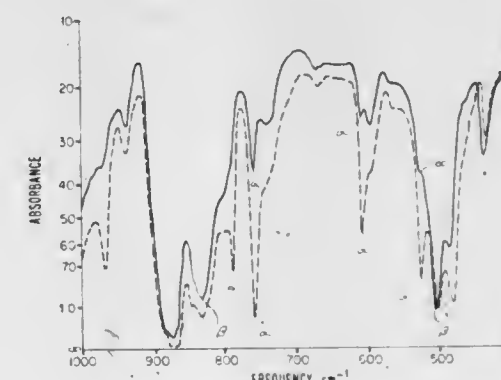
Filed Jun. 10, 1981, Ser. No. 272,119
Claims priority, application Japan, Jun. 10, 1980, 55-78593; Jun. 10, 1980, 55-78609
Int. Cl.³ B05D 3/00, 3/06

U.S. Cl. 427—13

5 Claims



1. A method of vacuum depositing a layer on a plastic film prior to winding the film comprising the steps of: transporting the film along a metal surface which is movable with the film, said metal surface being grounded and which metal serves to control the temperature of the film in contact therewith by conducting heat away from said film; rendering said film in an electret state with a surface potential higher than 150 V, prior to or at the same time as the film contacts the metal surface, whereby said film is electrostatically attracted to said metal surface, thereby increasing the efficiency of the heat conduction between the film and the metal surface; depositing a material on the portion of said film which is opposite the portion in contact with said metal surface; and neutralizing the surface potential of said film so as to render it into a non-electret state after said deposition step and prior to winding the film.



1. A process for increasing the piezoelectric activity of a vinylidene fluoride polymer containing an α crystalline phase and having an α/β ratio of at least about 0.05 comprising treating the polymer with a glow discharge at reduced pressure to convert a portion of the α crystalline phase to γ crystalline phase and then poling the polymer in an electric field.

4,393,094

STABILIZATION OF ELECTRON BEAM CURABLE COMPOSITIONS FOR IMPROVED EXTERIOR DURABILITY

David L. Garrett, Jr., Southfield, and Joseph C. Cassatta, Taylor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 19, 1982, Ser. No. 369,946

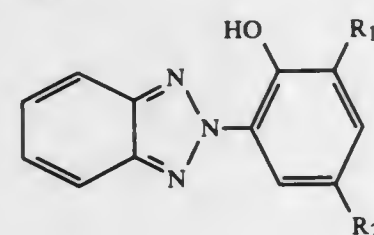
Int. Cl.³ B05D 3/06

U.S. Cl. 427-44

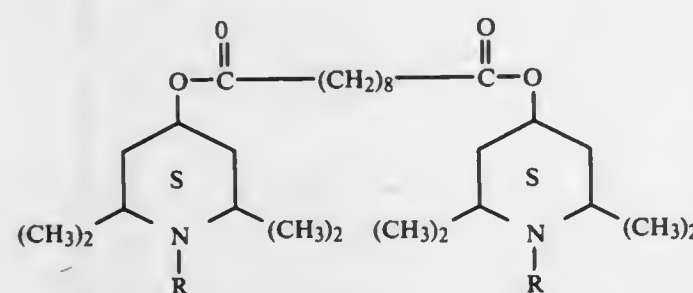
49 Claims

1. A coating composition polymerizable by low dosage ionizing radiation, which comprises an organic resin/monomer mixture of:

- (A) between about 97 and about 3 weight percent alpha-beta olefinically unsaturated organic resin containing between about 0.5 and about 5 vinyl unsaturation units per 1000 units molecular weight of said resin; and
- (B) between about 3 and about 97 weight percent vinyl monomers polymerizable with said resin upon exposure to radiation, said vinyl monomers including N-vinyl-2-pyrrolidone in an amount of between about 3 and about 20 weight percent based on the total weight of (A) and (B); and
- (C) about 0.5 to about 5.0 parts each per 100 parts of the total of said organic resin and said monomer of:
 - (i) benzotriazole selected from the group consisting of compounds having the formula:



wherein R₁ or R₂=H or an alkyl group of C₁-C₂₅; and (ii) hindered amine selected from the group consisting of amine having the formula:

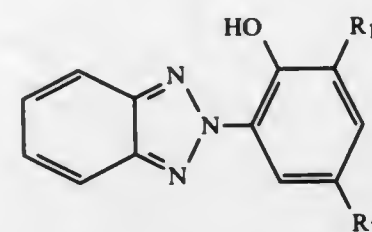


wherein R=H or methyl.

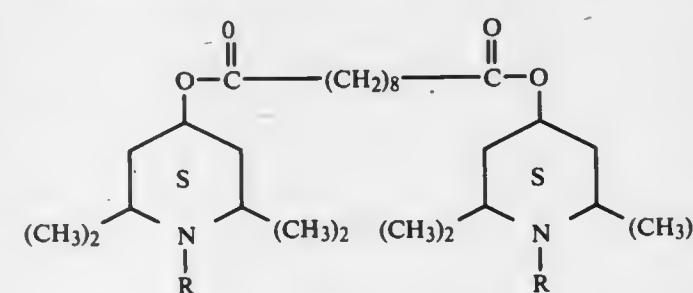
32. A method for coating a substrate, the coating composition polymerizable by low dosage ionizing radiation, which comprises:

- (A) applying a first coating composition comprising up to about 60 weight percent pigment to the surface of a prepared substrate;
 - (B) curing said first coating composition by exposure to an electron beam until an adherent dry coating is formed;
 - (C) applying a second coating composition comprising 0-10 weight percent pigment to the coated surface of said substrate; and
 - (D) curing said second coating composition by exposure to an electron beam until an adherent dry coating is formed;
- wherein said first coating composition and said second coating composition comprises an organic resin/monomer mixture of:
- (A) between about 97 and about 3 weight percent alpha-beta olefinically unsaturated organic resin containing between about 0.5 and about 5 vinyl unsaturation units per 1000 units molecular weight of said resin; and
 - (B) between about 3 and about 97 weight percent vinyl monomers polymerizable with said resin upon exposure to radiation, said vinyl monomers comprising N-vinyl-2-pyr-

rolidone which is included in said composition in an amount of between about 3 and about 20 weight percent based on the total weight of (A) and (B); and (C) about 0.5 to about 5.0 parts each per 100 parts of the total of said organic resin and said monomer of: (i) benzotriazole selected from the group consisting of compounds having the formula:



where R₁ or R₂=H or an alkyl group of C₁-C₂₅; and (ii) hindered amine selected from the group consisting of amines having the formula:



wherein R=H or methyl.

4,393,095

CHEMICAL VAPOR DEPOSITION OF VANADIUM OXIDE COATINGS

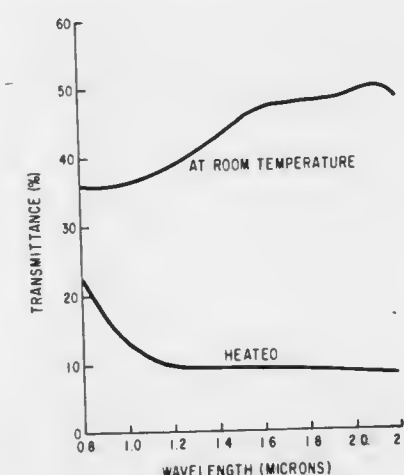
Charles B. Greenberg, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 1, 1982, Ser. No. 344,257

Int. Cl.³ B05D 5/12, 3/02; C03C 17/245

U.S. Cl. 427-87

17 Claims



1. A method for the chemical vapor deposition of vanadium oxide films comprising the steps of:
 - a. heating a glass substrate to a sufficient temperature to convert a vanadium compound to vanadium oxide;
 - b. vaporizing a liquid vanadium compound;
 - c. contacting a surface of said heated glass substrate with the vapor of said vanadium compound to deposit a vanadium oxide film on the glass surface.

4,393,096

ALUMINUM-COPPER ALLOY EVAPORATED FILMS WITH LOW VIA RESISTANCE

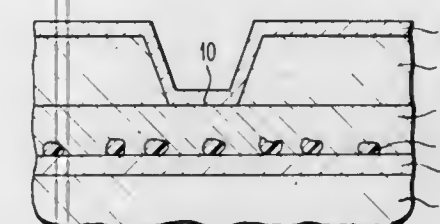
Joseph J. Gajda, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 321,833, Nov. 16, 1981, abandoned. This application Sep. 20, 1982, Ser. No. 420,174

Int. Cl.³ H01L 21/285

U.S. Cl. 427-90

4 Claims



1. A method of fabricating thin film interconnected metallization on a dielectric coated integrated circuit substrate having ohmic contact via openings through said dielectric to elements of said circuit, comprising:
 - forming a vacuum environment about said substrate;
 - heating said substrate in said vacuum environment to between about 180° C. to about 200° C. to condition said substrate for deposition of first level metallization film;
 - discontinuing said heating and coincidentally initiating evaporation of said first level metallization to deposit, during cooling of said substrate, a first aluminum-copper metal film over said dielectric and in said ohmic contact via openings;
 - defining in said first metallization film a predetermined interconnection pattern to said circuit elements;
 - depositing a dielectric layer over said first metallization level and said dielectric coating;
 - forming a second pattern of via openings in said dielectric layer to expose selected portions of said first metallization pattern;
 - dry etching to sputter clean said exposed first level metallization pattern and said dielectric layer in an inert atmosphere and at ambient temperatures;
 - initiating evaporation of a second level aluminum-copper film at ambient temperatures over said dielectric layer and in said second vias and
 - coincidentally initiating heating of said substrate to a temperature in the range of about 150° C. to about 200° C. over the deposition time of said evaporation of said second level metallization.

4,393,097

ELECTRICALLY CONDUCTIVE Si₃N₄-C SERIES AMORPHOUS MATERIAL AND A METHOD OF PRODUCING THE SAME

Toshio Hirai, 4-91, Takamori 3-Chome, and Takashi Goto, 2-12-304, Kuromatsu 3-Chome, both of Izumi, Japan

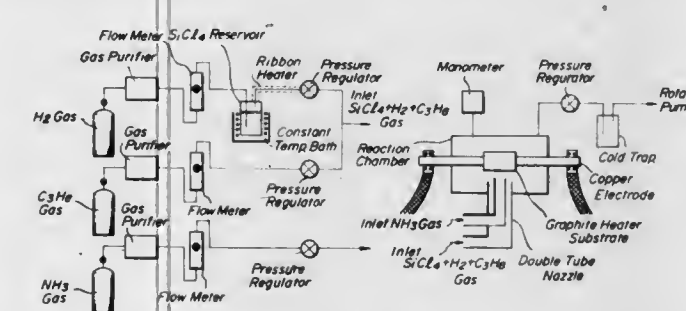
Filed Jul. 18, 1980, Ser. No. 170,168

Claims priority, application Japan, Jul. 24, 1979, 54-93942

Int. Cl.³ B05D 1/12; C23C 11/00; B32B 9/04

U.S. Cl. 427-94

14 Claims



1. A method of producing massive and pure Si₃N₄-C series amorphous material composed of a deposited amorphous

Si₃N₄ matrix and codeposited carbon uniformly distributed in said matrix, having an electrical conductivity σ of a formula:

$$\sigma = \sigma_0 \exp(-E/2kT)$$

wherein σ_0 is an electrical conductivity at 0° K., E is a value of 0.02-0.06 eV, k is the Boltzmann constant and T is an absolute temperature, a carbon content of about 0.2-10% by weight, an electrical conductivity σ of about 10⁻³ to 10⁻¹ Ω^{-1} cm⁻¹ at a temperature from ambient to about 900° C., a density of about 2.7 to 3.0 g/cm³, a thermal conductivity of about 0.004-0.010 cal/cm²·sec·K at ambient temperature, a specific heat of about 0.16 cal/g·K at ambient temperature, a thermal diffusivity of about 0.010-0.022 cm²/sec at ambient temperature, and a micro Vickers hardness of about 2,500-3,500 kg/mm² (100 g load) at ambient temperature by chemical vapor deposition process, which comprises reacting SiCl₄ as silicon source gas, a nitrogen source gas and a hydrogen source gas with a carbon source gas at a deposition condition of a deposition temperature of about 1,100° to 1,300° C. under a reduced total pressure of about 30-70 mmHg in a reaction furnace to deposit the Si₃N₄-C series amorphous material on a surface of a substrate selected from the group consisting of graphite, silicon carbide and silicon nitride, the substrate being heated to said deposition temperature.

4,393,098

PROCESS FOR DEVELOPING A COATING FILM ON A HEATED GLASS SHEET

Wilbur G. Stinson, Southgate; Lawrence J. Schwei, Ypsilanti, and Sandy T. S. Vong, Ann Arbor, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

PCT No. PCT/US82/01036, § 371 Date Jul. 29, 1982, § 102(e)

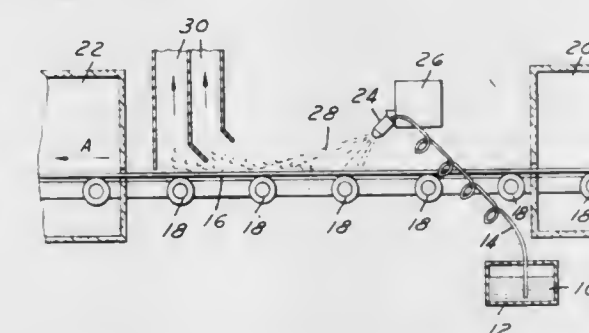
Date Jul. 29, 1982

PCT Filed Jul. 29, 1982, Ser. No. 425,195

Int. Cl.³ B05D 1/12; C03C 17/23

U.S. Cl. 427-168

7 Claims



1. A process for developing a coating film on a surface of a sheet of glass, the sheet of glass being at a temperature in a range of 510°-625° C., which process is characterized by the step of:
 - engaging the surface of the heated glass sheet with a spray powder composition which comprises a plurality of hollow, generally spherical particles, each particle generally being formed from heat decomposable, organo-metallic salts of at least two metals.

4,393,099

METHOD FOR WINDING VULCANIZABLE TAPE

Alfio Deregibus, Padua, Italy, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 32,629, Apr. 23, 1979, abandoned,

which is a division of Ser. No. 841,786, Oct. 13, 1977, Pat. No. 4,177,755. This application Oct. 6, 1980, Ser. No. 194,177

Claims priority, application Italy, Apr. 5, 1977, 23159 A/77

Int. Cl.³ B05D 1/36, 3/12

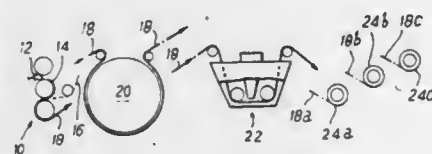
U.S. Cl. 427-177

3 Claims

1. A method, for the formation of a tape having raw vulcanizable rubber exposed at one major face of the tape and fabric

exposed at the other major face of the tape, which comprises the steps of:

- (i) entraining the tape about successive spaced guide rollers such that the portion of tape lying between the rollers is substantially horizontal and has said one major face of raw vulcanisable rubber exposed upwardly;
- (ii) depositing downwardly onto said upwardly exposed substantially horizontal major face of said tape portion a layer of zinc stearate powder to provide a powder-bearing face on which some of said powder is secured by tackiness



of the rubber to serve as an anti-adherent, whereas other of said powder remains loose on said upwardly exposed face;

- (iii) causing said tape as it leaves the downstream one of said guide rollers to have a portion of its length passing upwardly at an inclination, and
- (iv) acting with a rotary brush, disposed at an intermediate position along the upwardly inclined portion of tape, on said powder-bearing face for removing from said face that powder which remains loose on said face.

4,393,100

METHOD OF COATING A FUSED SILICA ENVELOPE

Ralph M. Potter, Pepper Pike, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 107,253, Dec. 26, 1979, Pat. No. 4,339,686.

This application Aug. 24, 1981, Ser. No. 295,462

Int. Cl.³ B05D 5/12

U.S. Cl. 427-181



1. A method of applying a coating of fiber like shaped particles selected from the group consisting of refractory metal oxides, oxynitrides, and nitrides or mixtures thereof to the interior surface of a fused silica envelope comprising:
 - an initial heating of said envelope above red heat to assure surface cleanliness and dryness;
 - coating a quantity of said film like shaped particles with an ultrafine, reactive powder that sinters or melts when strongly heated;
 - mulling said coated fiber like shaped particles into a viscous solution having a solvent and a solute wherein said solute is an acceptable binder, said mulling resulting in suspension of said coated fiber like shaped particles in said solution;
 - applying said suspension to said envelope interior;
 - vaporizing said solvent;
 - removing said binder by heating said envelope; and
 - applying additional heat to said envelope to fuse said powder to said fiber like shaped particles and thereby bind said fiber like shaped particles to each other and cause adhesion of said fiber like shaped particles to said envelope.

4,393,101

DIETHYNYLBENZENE-ETHYNYLPYRENE COPOLYMERS

Norman Bilow, Encino, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Division of Ser. No. 307,345, Sep. 30, 1981, Pat. No. 4,369,297.

This application Jun. 11, 1982, Ser. No. 387,580

Int. Cl.³ B05D 3/02

U.S. Cl. 427-228

1 Claim

1. A method for the production of a resinous impregnated carbon-carbon composite ablative material which comprises the steps of (1) forming an interwoven graphite fiber structure, (2) impregnating said structure with a matrix resinous precursor composed of a polymerizable mixture of diethynylbenzene and ethynylpyrene, (3) heating said impregnated structure at a temperature and for a period of time sufficient to effect the copolymerization of said mixture (4) further heating said polymerized structure at a temperature, pressure and period of time sufficient to pyrolyze said structure (5) graphitizing said pyrolyzed structure and (6) recovering the resulting carbon-carbon composite structure.

4,393,102

NET FINISHING COMPOSITION AND PROCESS FOR USING SAME

Richard J. Guglielmo, Sr., 140 Walnut St., Northvale, N.J. 07647

Filed Mar. 20, 1978, Ser. No. 888,373

Int. Cl.³ B05D 5/00, 1/18; C08K 5/07; C08L 27/06

U.S. Cl. 427-243

14 Claims

1. A concentrate solution for preparing a net finishing solution for treating a net substrate to improve the physical properties thereof which comprises:

a solution of a low molecular weight, high acetate content, vinyl chloride-vinyl acetate copolymer; a monomeric plasticizer and a polymeric plasticizer in a solvent system, said copolymer having a molecular weight of from 20,000 to 65,000 and having an acetate content of from about 10 to about 20 percent by weight, said monomeric and polymeric plasticizers being present in an amount of from about 40 to 60 parts per 100 parts of said copolymer, the ratio of said monomeric plasticizer to said polymeric plasticizer being in the range of from 1:1 to 3:1, said solvent system being present in an amount to effect a solids content of said concentrate solution of between about 45 to 55 percent by weight.

9. A process for treating a net substrate formed of a synthetic material to improve the physical properties thereof, which comprises:

(a) coating said net substrate with a net finishing solution comprised of a low molecular weight, high acetate content vinyl chloride-vinyl acetate copolymer, a monomeric plasticizer and a polymeric plasticizer in a solvent system, said copolymer having a molecular weight of from 20,000 to 65,000 and having an acetate content of from about 10 to about 20 percent by weight, said monomeric and polymeric plasticizers being present in an amount of from about 40 to 60 parts per 100 parts of said copolymer, the ratio of said monomeric plasticizer to said polymeric plasticizer being in range of from 1:1 to 3:1, said solvent system including ketones and being present in an amount to result in a solids content of from 20 to 40 percent by weight of said net finishing solutions; and

(b) drying said coated net substrate.

4,393,103

ERASABLE DENSE PAPER AND IMPROVED METHOD OF MANUFACTURING

William G. Loudon, c/o Loudon and Company, Erwinna, Pa. 18920

Filed Aug. 28, 1981, Ser. No. 297,104

Int. Cl.³ B05D 3/02; B32B 23/08, 27/10

U.S. Cl. 427-391

15 Claims

1. A process for manufacturing dense paper comprising the steps, performed in the following sequence, of:
 - advancing a web of paper having a dry uncalendered density in a range of between about 7 to about 14 lbs./mil.;
 - applying to the advancing web an aqueous dispersion containing a blend of a rigid polymeric material and an inorganic filler, said blend consisting essentially of from about 35 to about 90% of said polymeric material, from about 10 to about 65% of said inorganic filler, and an organic compound of tin in a range of about 0.10% to about 2.0%, said percentages being by weight based on the non-tin portion of the weight of the blend, said rigid polymeric material having a glass transition temperature in a range of between about 15 to about 60° C.;
 - removing the excess dispersion from said web; and
 - heating said web after the excess dispersion has been removed to fuse said blend to said web so that the resulting paper comprises in a range of between about 8.5% to about 50%, by weight of the blend, said weight being based on the dry weight of the web.
13. The process according to claim 1 wherein said polymeric material of said blend is selected from the group of materials consisting of polyvinyl acetate, polyacrylate, and polyvinyl chloride.

4,393,104

TABLE PLACEMAT

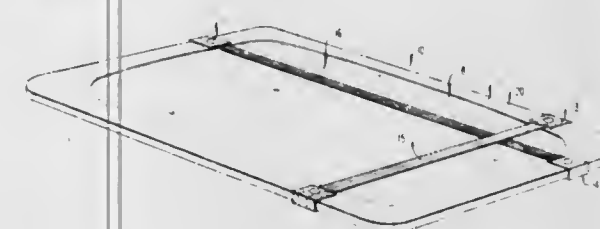
Helen M. Fink, 8 Indian Dawn, Wayland, Mass. 01778, assignor to Helen M. Fink, Hastings-on-Hudson, N.Y.

Filed May 18, 1981, Ser. No. 264,705

Int. Cl.³ A47G 23/00; B65D 65/02

U.S. Cl. 428-7

7 Claims



1. A placemat of a type placed on a tabletop for organizing a table setting, the placemat comprising:
 - rigid support means for defining a predetermined shape of the placemat, said rigid support means being formed of a substantially flat, rigid material having a predetermined thickness and respective first and second surfaces arranged parallel to the tabletop, said first surface facing away from the tabletop and having a predetermined surface area, said second surface facing toward the tabletop;
 - first cover means removably attached to said rigid support means, said first cover means being formed of a flexible material having a surface area greater than said predetermined surface area of said first surface of said rigid support means, said first cover means being arranged over said first surface of said rigid support means so as to have an extending portion of said first cover means which extends beyond said predetermined shape of the placemat, said extending portion of said first cover means being drawn around said predetermined thickness of said rigid support means so as to cover at least partially said second surface of said rigid support means, said extending portion thereby being interposed between said rigid support

means and the tabletop when the placemat is placed thereon;

- first cover holding means on said extending portion of said first cover means for maintaining said extending portion over said second surface of said rigid support means;
- second cover means removably arranged over a predetermined portion of said first cover means, said second cover means being formed of a flexible material having a graphical pattern thereon, said graphical pattern having a selectable one of a predetermined significance and a complementary coordinated design with that of said first cover; and
- second cover holding means formed of an elastomeric material for applying a tensile force to said second cover means and thereby holding said second cover means over said predetermined portion of said first cover means, said second cover holding means being arranged to be interposed between said rigid support means and the tabletop when the placemat is placed thereon.

4,393,105

METHOD OF FABRICATING A THERMAL PANE WINDOW AND PRODUCT

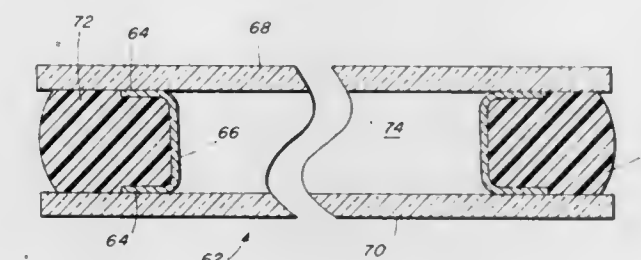
Wallace S. Kreisman, Malden, Mass., assignor to Spire Corporation, Bedford, Mass.

Filed Apr. 20, 1981, Ser. No. 255,641

Int. Cl.³ E06B 3/24

U.S. Cl. 428-34

6 Claims



1. A method of fabricating a thermal pane window comprising:
 - (a) providing an assembly of at least two panes of glass in spaced parallel relation to each other so as to define a space therebetween and separated all around the edges by a metal spacer frame;
 - (b) inserting a spacer electrode within said metal spacer frame;
 - (c) roll bonding said assembly all around said edges by concurrently applying heat and pressure to one point at a time along said edges while passing an electric current across the glass-metal, glass interfaces at said one point, said pressure being applied to said one point being about 1000 p.s.i., said roll bonding said assembly hermetically sealing said space between said panes of glass;
 - (d) evacuating said hermetically sealed space to about one torr or less; and
 - (e) sealing off said evacuated space.
6. A thermal pane window exhibiting no corrosion and condensation characteristics despite prolonged use comprising:
 - (a) at least two panes of glass in parallel spaced relation to one another and separated by a thin metal spacer frame said spaces offset from the edges of said panes of glass along opposed interfaces formed between said spacer frame and said panes of glass, said spacer frame being electrostatically sealed to said panes of glass along said opposed interfaces hermetically sealing the space between said panes, said metal spacer frame being formed of aluminum alloy, and a plastic material disposed in and occupying the space between said panes of glass outwardly of said thin metal spacer frame toward the edges of said panes of glass, said plastic material provides structural strength and rigidity to said thermal pane window; and

(b) a low heat-transfer gas devoid of oxygen and moisture contained within said space, said low heat-transfer gas being selected from the group including argon, krypton, and Freon R-12.

4,393,106

LAMINATED PLASTIC CONTAINER AND PROCESS FOR PREPARATION THEREOF

Yoshitsugu Maruhashi, Yokohama; Isao Tanikawa, Ayase; Sadao Hirata, Yokohama; Jinichi Yazaki, Tokyo, and Kozaburo Sakano, Kawasaki, all of Japan, assignors to Toyo Seikan Kaisha Ltd., Tokyo, Japan

Filed Oct. 28, 1981, Ser. No. 315,952

Claims priority, application Japan, Oct. 31, 1980, 55-152243; Oct. 31, 1980, 55-152245

Int. Cl.³ B65D 23/00; B32B 31/00; B29D 9/04; B05D 1/36
U.S. Cl. 428—35 16 Claims



1. A laminated plastic container in the form of a bottle, the wall of which comprises a substrate formed of a melt-moldable plastic material, a coating layer formed on at least one surface of the substrate, said coating layer being composed of a copolymer consisting essentially of 99 to 70% by weight of vinylidene chloride and 1 to 30% by weight of at least one acrylic or methacrylic monomer and further including up to 100 parts by weight of at least one member selected from other ethylenically unsaturated monomers per 100 parts by weight of the total amount of said two monomers, said copolymer having an oxygen permeation coefficient of less than 9×10^{-14} cc.cm/cm².sec.cmHg as measured at a temperature of 20° C. and a relative humidity of 100% and a water vapor permeability coefficient of less than 3×10^{-3} g.cm/m².day as determined according to the method of JIS Z-0208, and a protecting surface layer of a film-forming synthetic resin other than a vinylidene chloride resin having an Izod impact strength of at least 1.1 kg/cm² as measured at 5° C. according to the method of ASTM D-256, said protecting surface layer being formed by coating an aqueous latex or organic solvent solution of the synthetic resin on the surface of the coating layer of the vinylidene chloride copolymer, the weight per unit inner volume of said substrate being in the range of from 0.001 to 5 g/ml, said coating layer of the vinylidene chloride copolymer having a thickness of 1 to 30μ, and said protecting surface layer having a thickness of 3 to 700μ.

16. A process for the preparation of laminated plastic containers, which comprises coating an aqueous latex or organic solvent solution of a copolymer consisting essentially of 99 to 70% by weight of vinylidene chloride and 1 to 30% by weight of at least one acrylic or methacrylic monomer and further including up to 100 parts by weight of at least one member selected from other ethylenically unsaturated monomers per 100 parts by weight of the total amount of said two monomers on at least one surface of a preform composed of a heat-moldable, orientable thermoplastic polymer, injecting or extruding a heat-moldable, orientable thermoplastic polymer on the coated surface of the preform to form a multi-layer parison, and drawing the multi-layer parison in the axial direction under such temperature conditions that molecular orientation is caused in at least one of the thermoplastic polymer on the inner surface side and the thermoplastic polymer on the outer surface side, while

drawing the multi-layer parison in the circumferential direction by blowing the thickness of the copolymer layer being 1 to 30μ and that of the heat-moldable orientable thermoplastic polymer layer being 3 to 700μ.

4,393,107

COMPOSITE LABEL WEB

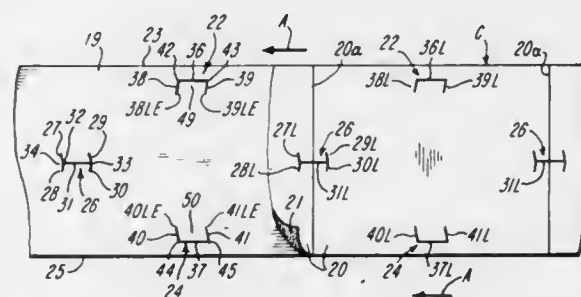
William A. Jenkins, Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Mar. 2, 1981, Ser. No. 239,817

Int. Cl.³ B32B 3/10, 3/16

U.S. Cl. 428—42

26 Claims



1. A composite label web for use in a label dispensing apparatus, the composite web comprising: a longitudinally extending carrier web, a series of labels releasably adhered by a coating of pressure sensitive adhesive to the carrier web, the composite web being wound into a roll and having an outer free end, longitudinally spaced groups of cuts in the carrier web, at least some groups of cuts including a single lateral cut at a leading location with respect to the outer free end of the composite web and a single lateral cut at a trailing location with respect to the outer free end of the carrier web, a generally longitudinal cut converging toward the respective end portions of the lateral cuts, the lateral cut of each group at the leading location and the respective longitudinal cut making an obtuse angle and the lateral cut of each group at the trailing location and the respective longitudinal cut making an acute angle, and wherein each lateral cut of said some groups is disposed on only one side of the respective longitudinal cut.

2. A composite label web for use in a label dispensing apparatus, the composite web comprising: a longitudinally extending carrier web, a series of labels releasably adhered by a coating of pressure sensitive adhesive to the carrier web, the composite web being wound into a roll and having an outer free end, longitudinally spaced groups of cuts in the carrier web, at least some groups of cuts including two and only two lateral cuts, one lateral cut being at a leading location with respect to the outer free end of the composite web and the other lateral cut being at a trailing location with respect to the outer free end of the web, a generally longitudinal cut converging toward the respective end portions of the lateral cuts, the lateral cut of each said group at the leading location and the respective longitudinal cut making an obtuse angle, the lateral cut of each said group at the trailing location and the respective longitudinal cut making an acute angle, and wherein each lateral cut is disposed at one side of the respective longitudinal cut.

23. A composite label web for use in lateral dispensing apparatus, the composite label web comprising: a longitudinally extending carrier web, a series of labels releasably adhered by a coating of pressure sensitive adhesive to the carrier web, the composite web being wound into a roll and having an outer free end, longitudinally spaced groups of cuts in the carrier web, the groups being disposed closely adjacent one side edge of the carrier web, each group including a generally longitudinally extending cut and at least one lateral cut, the longitudinal cut having a leading location with respect to the outer free end of the composite web, a said lateral cut converging from the outer free end of the composite web toward the leading loca-

tion of the longitudinal cut of the respective group, all the lateral cuts of each group being disposed on the side of the respective longitudinal cut away from the adjacent side edge of the carrier web, wherein each longitudinal cut has a trailing location with respect to the outer free end of the composite web, and each group of cuts includes a lateral cut converging from the outer free end of the composite web toward the trailing location of the respective longitudinal cut, wherein the lateral cuts of each group are parallel.

4,393,108

SIMULATED CERAMIC TILE

John C. Barker, Cowansville, and Ivan P. McLaughlin, Dunham, both of Canada, assignors to J. J. Barker Company Limited, Canada

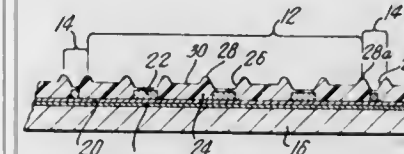
Continuation of Ser. No. 52,008, Jun. 25, 1979, abandoned, which is a continuation-in-part of Ser. No. 808,662, Jun. 21, 1977, Pat. No. 4,169,907, which is a continuation-in-part of Ser. No. 550,875, Feb. 19, 1975, abandoned. This application Jul. 13, 1981, Ser. No. 340,992

Claims priority, application Canada, Nov. 15, 1974, 213914 The portion of the term of this patent subsequent to Oct. 2, 1996, has been disclaimed.

Int. Cl.³ B32B 3/00, 3/10

U.S. Cl. 428—44

15 Claims



1. A decorative simulated ceramic tile comprising a substrate having a surface coated with an under-coat effective to provide a coloured, printable base; an inked layer comprising a layer of coloured ink lines of a silicone-containing ink forming a printed pattern on said printable base, said printed pattern being clearly visible; and a colouring pigment-containing top coat of a hard resinous, substantially silicone-free film-forming material, said top coat containing about 1% to about 4% by weight of said pigment; said top coat having a variable height thickness defining a contour of valleys, hills, and plains, wherein the intensity of colour in the top coat varies with the variation in the contour; the valleys having a top coat thickness less than 1 mil and occurring over said ink lines such that the colour of the ink is not obscured, and the hills lying adjacent said ink lines, said colour in the top coat providing a contrast with the colour in the under-coat and with the colour in the printed pattern, the silicone content of said inked layer being sufficient to repel said top coat to create the ceramic effect without deleteriously affecting the adherence of said top coat.

5. A panel defining a plurality of decorative simulated ceramic tiles comprising a substrate having a surface coated with an under-coat effective to provide a coloured, printable base; a printed ink layer comprising a layer of coloured ink lines of silicone-containing ink defining a plurality of individual complete designs on said printable base, each of said designs being associated with a defined rectangular area, said layer of ink lines being clearly visible; and a colouring pigment-containing top coat of a hard resinous, substantially silicone-free film-forming material, said top coat containing about 1% to about 4% by weight of said pigment; said top coat having a variable depth and defining a contour of valleys, hills, and plains, wherein the intensity of colour in the top coat varies with the variation in the contour; the valleys having a top coat thickness less than 1 mil and occurring over said ink lines such that the colour of the ink is not obscured, and the hills lying adjacent said ink lines; said colour in the top coat providing a contrast with the colour in the under-coat and with the colour in the printed pattern, the silicone content of said inked layer being sufficient

to repel said top coat to create the ceramic effect without deleteriously affecting the adherence of said top coat.

4,393,109

EXTRUDED FIN-TYPE WEATHERSTRIP

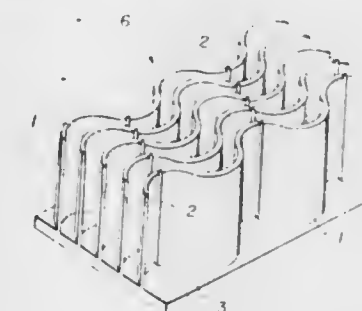
Gerald Kessler, 302 McClurg Rd. at Southern Blvd., Box 389, Youngstown, Ohio 44501

Filed Dec. 23, 1981, Ser. No. 333,912

Int. Cl.³ B32B 1/04, 27/06

U.S. Cl. 428—119

16 Claims



1. An integrally extruded resilient all plastic fin-type weatherstrip comprising an elongated longitudinal substrate from which integrally projects vertically therefrom at least one thin, flexible, deformable, wavy S-configured fin member, said at least one fin member being unsplit along the length thereof.

4,393,110

MAGNETIC RECORDING MEDIUM

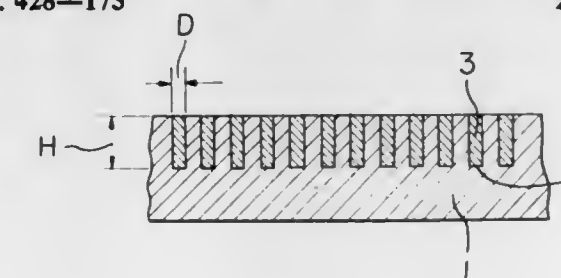
Kazumasa Fukuda, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Jan. 20, 1982, Ser. No. 341,052

Int. Cl.³ B32B 3/00

U.S. Cl. 428—173

2 Claims



1. In a magnetic recording medium having a high density of magnetic recording including a non-magnetic substrate having fine holes in a direction of thickness and a magnetic material filled in said fine holes, an improvement wherein said fine holes have a diameter ranging from 200 Angstroms to 5000 Angstroms and a depth ranging from 2000 Angstroms to 5 microns at a ratio of depth to diameter of substantially 10.

4,393,111

FABRICATION OF CONDUCTOR-CLAD COMPOSITES USING MOLDING COMPOUNDS AND TECHNIQUES

Theodore H. Klein, Livingston, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 121,821, Feb. 15, 1980, Pat. No.

4,323,421. This application Jul. 31, 1981, Ser. No. 288,689

Int. Cl.³ B32B 3/10; H05K 1/00

U.S. Cl. 428—195

4 Claims

1. A molded composite, upon which a circuit of conductive material is defined, formed from a composition comprising: resin, 60-80 parts by weight; cross-linking monomer which forms a three dimensional network with the polymeric portion of the resin formulation, 0.5-60 parts by weight; low profile additive, 15-40 parts by weight; catalyst, 0.5-3 parts by weight; filler, 100-200 parts by weight; viscosity control agent,

0-5 parts by weight; and reinforcement, 20-250 parts by weight.

4,393,112

TRANSFER POWDER MARKING METHOD USING A CORE-SHELL POWDER COMPRISING A PIGMENT, SOLVENT-INSOLUBLE POLYESTER RESIN AND A VOLATILE HALOGENATED HYDROCARBON INSOLUBLE INGREDIENT

Satoru Honjo, Asaka; Yasuaki Yuyama; Masakazu Iwasa, both of Odawara, and Kazuo Imanishi, Saga, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

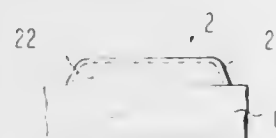
Continuation of Ser. No. 46,278, Jun. 7, 1979, abandoned. This application May 20, 1981, Ser. No. 265,317

Claims priority, application Japan, Jun. 7, 1978, 53-68639

Int. Cl.³ B32B 5/16, 27/00

U.S. Cl. 428-207

22 Claims



1. In a marking process which comprises transfer of a pattern of a powder of a marking agent across a wide air gap between a metal member to be marked in a marking pattern and an image-holding member and solvent-fixing said powder, the improvement wherein said powder has a particle diameter of about 20 to 200 μm and comprises a pigment, a fixing solvent-soluble polyester resin, and from 15 to 70% by volume of the marking agent of a volatile halogenated hydrocarbon-insoluble ingredient, wherein said powder comprises a core and a shell portion wherein said core consists of said volatile halogenated hydrocarbon-insoluble ingredient.

4,393,113

NOVEL SILICON-CONTAINING COPOLYMER, ULTRATHIN SOLID MEMBRANE COMPOSED OF SAID COPOLYMER, USE OF SAID SOLID MEMBRANE FOR CONCENTRATING A SPECIFIED GAS IN A GASEOUS MIXTURE, AND PROCESS FOR PRODUCING SAID SOLID MEMBRANE

Kiyoshi Sugie; Takeyoshi Yamada, and Teizo Yamaji, all of Iwakuni, Japan, assignors to Teitin Limited, Osaka, Japan

Filed Jun. 3, 1981, Ser. No. 270,128

Claims priority, application Japan, Jun. 5, 1980, 55-74860; Apr. 20, 1981, 56-58443

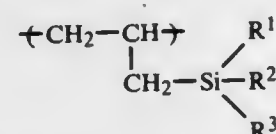
Int. Cl.³ B01D 13/00; C08F 230/08

U.S. Cl. 428-220

13 Claims

1. An ultrathin solid membrane capable of producing a concentrated gas from a mixture of two or more gases, especially for obtaining an oxygen-enriched gas from a gaseous mixture containing oxygen gas, said solid membrane having a thickness of from about 50 to about 3,000 \AA and being composed substantially of a film-forming silicon-containing copolymer consisting substantially of

(a) at least one recurring unit of the following formula

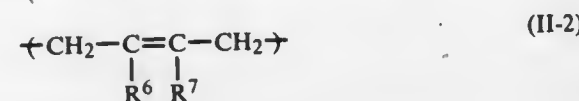


wherein R^1 , R^2 and R^3 are identical or different, and each represents an alkyl group having 1 to 10 carbon atoms, or a phenyl group which may be substituted by an alkyl group having 1 to 4 carbon atoms, and

(b) at least one additional recurring unit selected from recurring units of the formula (II-1) and (II-2):



wherein R^4 represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, and R^5 represents a hydrogen atom, an alkyl or alkenyl group having 1 to 20 carbon atoms, or a phenyl group which may be substituted by an alkyl group having 1 to 4 carbon atoms; and



wherein R^6 and R^7 are identical or different, and each represents a hydrogen atom, a chlorine atom, or a methyl group.

the proportion of said recurring unit of formula (I) being about 5 to about 95 mole% based on the total recurring units of the silicon-containing copolymer and said silicon-containing copolymer having an inherent viscosity, measured at 25° C. for a solution of 0.5 g of the copolymer in 100 cc of cyclohexane, of about 0.5 to about 4.0.

11. The solid membrane of claim 1 which is carried on a porous sheet-like material.

12. A composite film membrane comprising a porous sheet-like material supporting thereon a laminate of the ultrathin solid membrane of claim 1 and another solid membrane able to separate gases, said laminate having a total thickness in the range of about 50 to about 5,000 \AA .

4,393,114

MEAT PACKAGING MATERIAL

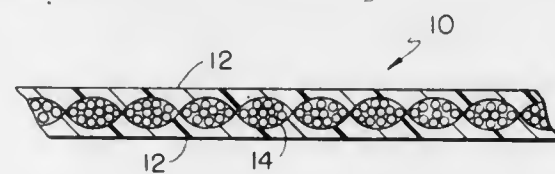
Ralph Gillespie, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Dec. 9, 1982, Ser. No. 448,307

Int. Cl.³ B32B 7/00

U.S. Cl. 428-252

3 Claims



1. A fabric particularly useful as a wrapping for foodstuffs, such as meat comprising: a layer of warp knit, weft inserted, synthetic fabric and a layer of wax coated to both sides of said layer.

4,393,115

MULTILAYERED POLYPROPYLENE FILM

(I) Toshiya Yoshii, Ohtsu; Satoru Nakura, Kusatsu, and Masatsugi Murakami, Moriyama, all of Japan, assignors to Toray Industries, Tokyo

Filed Jul. 15, 1981, Ser. No. 283,380

Claims priority, application Japan, Jul. 22, 1980, 55-100228

Int. Cl.³ B32B 5/16, 27/32

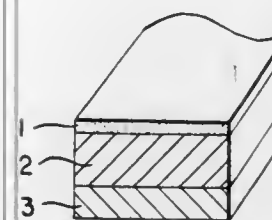
U.S. Cl. 428-323

20 Claims

1. A multilayered polypropylene film capable of being readily cut by hand and having a surface which is capable of accepting writing or drawing thereon, which comprises a biaxially oriented polypropylene layer and a polypropylene

layer uniaxially oriented in the direction of its width, and laminated upon at least one surface of said laminated film a

packaging spool so that the surface of the adhesive coating contacts the second side of said substrate; the improvement wherein said adhesive coating is applied as a substantially solvent-free hot-melt coating, said adhesive coating is caused to solidify by positive cooling applied to the unspooled web, wherein said cooling is controlled so



propylene-ethylene block copolymer layer stretched uniaxially or biaxially.

4,393,116

SHAPED MATERIALS

Derek P. Taylor, Essington, near Wolverhampton, England, assignor to Fastbac Research Limited, West Midlands, United Kingdom

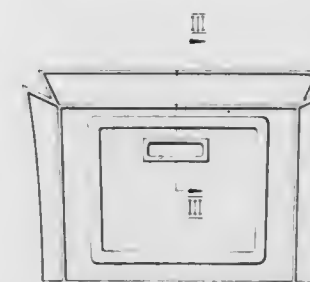
Filed Jul. 18, 1980, Ser. No. 170,236

Claims priority, application United Kingdom, Jul. 24, 1979, 7925655

Int. Cl.³ C09J 7/02, 5/02

U.S. Cl. 428-343

22 Claims



1. A soft permeable material having on at least one face thereof a coating of a substance having latent adhesive capacity to form a treated material, said substance containing a pre-polymer and which under normal conditions is stable but is activated by heat alone at a temperature above about 80° C. to undergo a chemical reaction and act as an adhesive forming a strong permanent bond, whereby said treated material may be shaped by applying mechanical compressive force so as to impart the desired shape thereto under the application of said heat such that the latent adhesive substance is activated and cured to the extent necessary to hold said treated material in the desired shape, wherein said treated material can be stored for several months, and wherein the substance is substantially non-tacky prior to being activated but is irreversibly converted to a strong adhesive after activation and curing.

4,393,117

HOT MELT TRANSFER COATING PROCESS AND PRODUCTS

George O. Stricker, Midlothian; Karl H. Teumer, Chicago, and Ronald C. Groenendal, Oak Forest, all of Ill., assignors to Ludlow Corporation, Chicago, Ill.

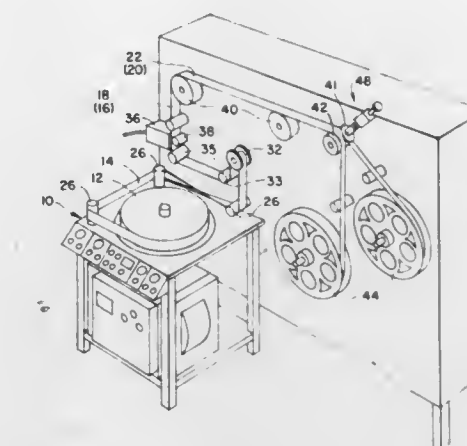
Filed Jul. 13, 1981, Ser. No. 282,581

Int. Cl.³ C09J 7/04; B05D 3/12, 5/10

U.S. Cl. 428-352

9 Claims

1. In a process for placing a releasable pressure-sensitive adhesive coating on an unspooled web which is being unwound from a supply spool and which comprises a first side having a first release coating having relatively high peel strength with respect to said adhesive coating, and a second side having a second release coating having relatively low peel strength affinity with respect to said adhesive coating, and thereupon spooling the resulting adhesive-coated web onto a



that moisture condensation on the web is substantially avoided, and wherein the entire supply spool-to-packaging spool travel time of said web is a period of about 0.5 to 5 seconds.

4,393,118

METHOD OF PREPARING A DARK BODY PHOSPHOR

Harry L. Marshall, and Alan R. Schwartz, both of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Nov. 18, 1981, Ser. No. 322,330

Int. Cl.³ B05D 5/06, 5/12

U.S. Cl. 428-403

8 Claims

1. A method of making pigmented phosphor comprising the steps of: preparing an aqueous suspension of phosphor particles and finely powdered carbon; adding colloidal silica to the suspension; agitating the suspension; removing the liquid and drying the phosphor particles.

4,393,119

ARTICLE COATED WITH AQUEOUS DISPERSION OF FLUOROPOLYMERS IN COMBINATION WITH EPOXY-TYPE FILM FORMERS

Thomas P. Concannon, Newtown Square, Pa., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Division of Ser. No. 279,162, Jun. 30, 1981, Pat. No. 4,335,030. This application Feb. 16, 1982, Ser. No. 349,304

Int. Cl.³ B32B 27/38

U.S. Cl. 428-413

30 Claims

1. An article coated with a cured coating of an aqueous coating composition having a dispersed phase which consists essentially of:

(A) 90 to 10% by weight, based on the weight of (A) plus (B), of the reaction product of:

(1) at least 50%, based on the weight of (1) plus (2), of an epoxy resin containing, on the average, two terminal 1,2-epoxy groups per molecule and having an epoxy equivalent weight of 750-5000;

(2) a carboxyl-functional polymer in an amount sufficient to provide at least 2.50 equivalents of carboxyl groups, when the source of the carboxyl group is a mono-protic acid, and at least 4.0 equivalents of carboxyl groups, when the source of such groups is a diprotic acid, per equivalent of 1,2-epoxy groups in the epoxy resin, said polymer having a weight average molecular weight (determined by light scattering) of about 10,000-160,000 and an acid number of 200-500;

(3) an aqueous solution of at least 1.50 equivalents of a tertiary amine per equivalent of 1,2-epoxy groups in the

epoxy resin, said tertiary amine being selected from the group consisting of $R_1R_2R_3N$, pyridine, N-methylpyrrolidine, N-methyl piperidine, N-methyl pyrrolidine, N-methyl morpholine, and mixtures thereof and wherein R_1 and R_2 are substituted or unsubstituted monovalent alkyl groups containing one or two carbon atoms in the alkyl portion and R_3 is a substituted or unsubstituted monovalent alkyl group containing 1-4 carbon atoms; and

- (4) 10-90% of the amount required for stoichiometric reaction with the carboxyl-functional polymer of (2), of at least one primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide, such that the pH of the reaction product of (A) is greater than 8.5;

Y being at least about $6+0.75(2^x)$, where Y is the milliequivalent of carboxyl groups neutralized by primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide per 100 grams of acid polymer plus epoxy, and X is the epoxy equivalent weight divided by 1000;

and wherein for increasing ratios of carboxyl groups to 1,2-epoxy groups, the amount of amine is increased to keep the carboxyl-functional polymer water dispersible;

- (B) 10-90% by weight, based on the weight of (A) plus (B), of a fluorocarbon polymer; and
(C) optionally, up to 20% by weight, based on the weight of (A), of a nitrogen or phenolic crosslinking agent.

4,393,120

PLASTIC COATED WITH GOLDEN EVAPORATED FILM
Harubisa Watai, Kariya; Hiroyuki Furuta, Kounan, and Akira Kawamoto, Nagoya, all of Japan, assignors to Yuken Industry Co., Ltd., Kariya, Japan

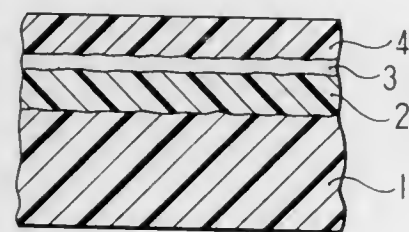
Filed Aug. 18, 1981, Ser. No. 294,030

Claims priority, application Japan, Sep. 26, 1980, 55-134739; Jan. 27, 1981, 56-10510

Int. Cl.³ B32B 27/08, 33/00

U.S. Cl. 428-457

4 Claims



1. In a plastic article coated with a golden color evaporated metal film and comprising a plastic substrate, a primary coating layer provided on said substrate, a golden color evaporated metal film provided on said primary coating layer and an outer coating layer provided on said golden color evaporated metal film, the improvement wherein said golden color evaporated metal film is a Cu-Sn-Al alloy composed of 5-15 wt. % Al, 3-20 wt. % Sn, less than 6 wt. % impurities and the balance 75-90 wt. % Cu.

4,393,121

POLYESTER COIL COATING

Michael A. Tobias, Bridgewater, and Conrad L. Lynch, Metuchen, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 23, 1981, Ser. No. 323,518

Int. Cl.³ B32B 15/08; C08G 63/16; C08L 67/02

U.S. Cl. 428-458

8 Claims

1. A linear thermosettable polyester resin based upon 10-20 weight percent cyclohexanedimethanol, 10-16 weight percent adipic acid, 12-16 weight percent neopentyl glycol, 12-16

weight percent propylene glycol or butanediol, and 40-48 weight percent isophthalic acid component.

3. A coating composition comprising

- (A) a linear thermosettable polyester resin based upon 10-20 weight percent cyclohexanedimethanol, 10-16 weight percent adipic acid, 12-16 weight percent neopentyl glycol, 12-16 weight percent propylene glycol or butanediol, and 40-48 weight percent isophthalic acid component,
(B) between about 10 weight percent and about 20 weight percent on resin solids of an aminoplast,
(C) between about 0.1 and about 1 weight percent on resin solids of an acid catalyst, and
(D) an inert organic solvent in an amount sufficient to provide a solids content of between about 50 weight percent and about 75 weight percent.

4,393,122

CLAD STEEL PLATES

Akira Takayasu, 5-1 Horita-dor, Mizuho-ku, Nagoya-shi, Aichi 467, Japan

PCT No. PCT/JP80/00044, § 371 Date Dec. 18, 1980, § 102(e) Date Dec. 8, 1980, PCT Pub. No. WO80/02246, PCT Pub. Date Oct. 30, 1980

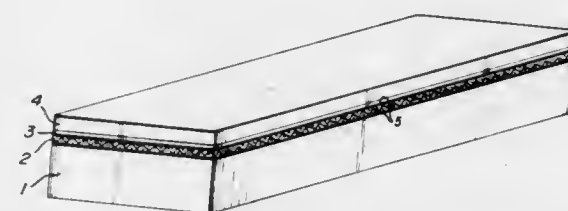
PCT Filed Mar. 14, 1980, Ser. No. 224,537

Claims priority, application Japan, Apr. 18, 1979, 54-52585[U]

Int. Cl.³ B32B 3/30

U.S. Cl. 428-594

1 Claim



1. A clad steel plate produced by sandwiching a thin copper sheet and a stainless steel net between a steel plate and an anticorrosive metal plate and locally bonding them to each other by welding.

4,393,123

FUEL CELL TEMPERATURE CONTROL ASSEMBLY

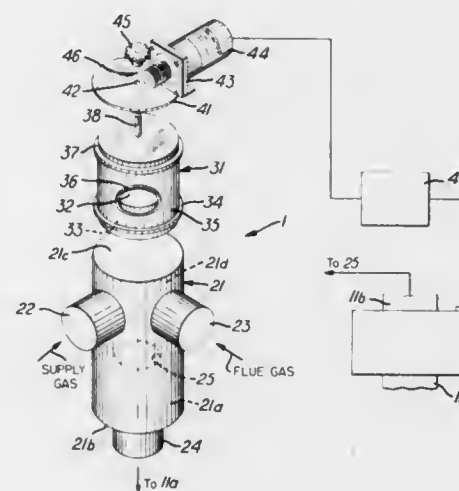
Matthew A. Lambrecht, Sherman, Conn., assignor to Energy Research Corporation, Danbury, Conn.

Filed Feb. 1, 1982, Ser. No. 344,374

Int. Cl.³ H01M 8/04

U.S. Cl. 429-24

15 Claims



1. An assembly for use in controlling the temperature of a fuel cell having input and output ports for receiving supply gas and discharging exhaust gas, said assembly comprising:
an outer valve member including first, second, and third

ports, said first and second ports being spaced and adapted to receive supply gas at first and second temperatures, respectively, said first temperature being higher than said second temperature, said third port being displaced from said first and second ports and being adapted to connect to said input port of said fuel cell;

an inner valve cylinder having an input coupling port and an output coupling port, said inner valve member being movably mounted in said outer valve member such that said input coupling port in the position of said first and second ports overlaps said first and second ports, respectively, and such that said output coupling port communicates with said third port;

and means for sealing said first and second ports from said third port such that coupling between said first and second ports and said third port occurs only through said input and output coupling ports.

4,393,124

SOLID ELECTROLYTES STRENGTHENED BY METAL DISPERSIONS

Robert J. Lauf, and Chester S. Morgan, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 5, 1981, Ser. No. 308,739

Int. Cl.³ H01M 4/36

U.S. Cl. 429-104

7 Claims

1. In a secondary battery, a solid electrolyte comprising:
an ion-conductive sodium beta-alumina ceramic material;
and
a discontinuous metal phase dispersed throughout said ceramic material and selected from the group consisting of Pt, Cr, Fe, Co, Ni, Nb and alloys and mixtures thereof.

4,393,125

BATTERY CATHODES

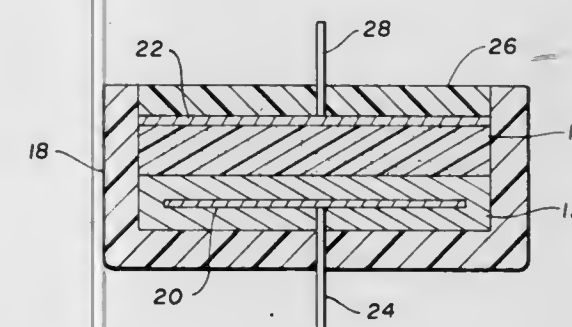
Paul M. Skarstad, Wayzata; Arthur J. Coury, St. Paul, and Darrel F. Untereker, Cedar, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 21, 1980, Ser. No. 142,662

Int. Cl.³ H01M 10/40

U.S. Cl. 429-105

1 Claim



1. An iodine cathode for batteries, the cathode comprising a liquid/solid composition, the liquid portion being saturated with dissolved iodine and including an organic donor complexed with at least part of the iodine and further including an additional component of styrene copolymerized with a vinylpyridine donor, the solid portion of the cathode consisting essentially of iodine.

4,393,126
METHOD FOR MANUFACTURING IN-LINE HOLOGRAM LENS

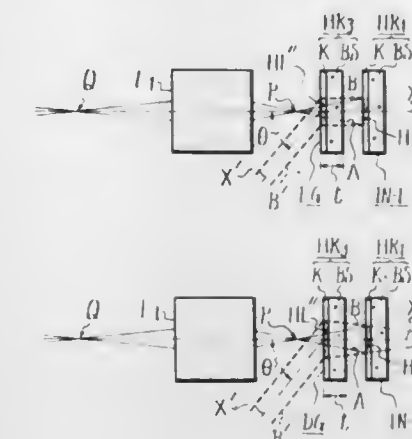
Chiaki Kojima, Yokohama; Kayoko Hasegawa, Kamakura, and Kosuke Miyahara, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 7, 1981, Ser. No. 261,728

Claims priority, application Japan, May 14, 1980, 55-63795 Int. Cl.³ G03C 5/00; G02B 5/32

U.S. Cl. 430-2

5 Claims



1. A method of producing an inline hologram lens, comprising the steps of:
producing a coherent diffracted wave beam by diffraction means;
producing a coherent spherical wave beam by objective lens means separate from said diffraction means;
providing said diffracted wave beam perpendicularly incident on a photo-sensitive layer as a reference wave beam; simultaneously providing said spherical wave beam perpendicularly incident on said photo-sensitive layer as a subject wave beam through said diffraction means; and
developing said photo-sensitive layer to produce said inline hologram lens.

4,393,127

STRUCTURE WITH A SILICON BODY HAVING THROUGH OPENINGS

Johann Greschner, Pliezhausen; Georg Kraus, Wildberg, and Gerhard E. Schmid, Leinfelden-Echterdingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

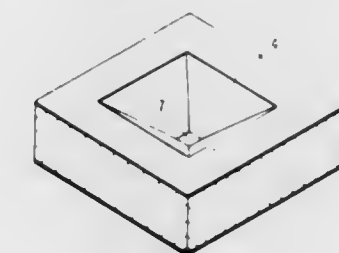
Filed Jul. 17, 1981, Ser. No. 284,268

Claims priority, application European Pat. Off., Sep. 19, 1980, 80105618.5

Int. Cl.³ H01L 21/306

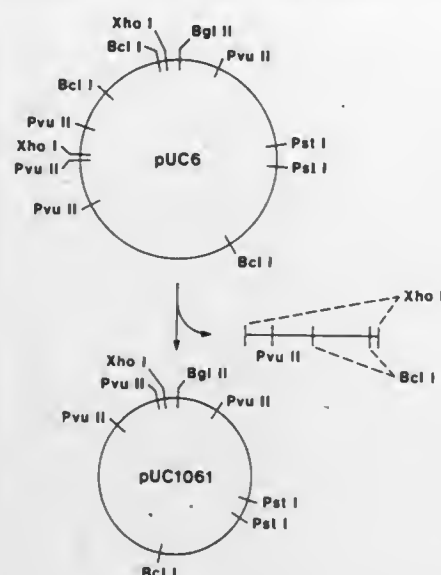
U.S. Cl. 430-5

13 Claims



1. A structure for modifying energetic radiation comprising a silicon body having a through hole defining a passage for said

- (a) digestion of pUC6 DNA with restriction endonuclease XhoI to obtain fragmented linear plasmid DNA;



- (b) ligating the largest fragment of said plasmid DNA to obtain plasmid pUC1061; and,
(c) transforming said plasmid into said suitable host.

4,393,138

METHOD FOR DISINFECTING IMMOBILIZED ENZYMES

Jean-Luc A. G. Baret, Moret, France, assignor to Corning Glass Works, Corning, N.Y.

Filed Nov. 12, 1980, Ser. No. 206,099

Claims priority, application France, Dec. 12, 1979, 79 30598
Int. Cl.³ C12N 11/14, 11/00, 9/38, 9/92

U.S. Cl. 435—176 4 Claims

1. A method for disinfecting immobilized enzymes which comprises contacting the immobilized enzymes with a dilute aqueous solution of at least one substituted diethylenetriamine at a concentration and for a period of time which is sufficient to substantially kill the contaminating microorganisms without significant deleterious effects on the immobilized enzymes, in which the enzymes are selected from the group consisting of lactase and glucose isomerase, the enzymes are immobilized on an inorganic support, and the substituted diethylenetriamine is selected from the group consisting of diocetyl diethylenetriamine and a mixture of diocetyl diethylenetriamine and trioctyl diethylenetriamine.

4,393,139

PROCESS FOR THE SELECTIVE SEPARATION OF ENDOPROTEASES

Jürgen Schrenk, Weilheim, and Peter Wunderwald, Haunshofen, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Aug. 28, 1981, Ser. No. 297,467

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1980, 3034043

Int. Cl.³ C12N 9/50, 9/48, 9/60

U.S. Cl. 435—219 5 Claims

1. Process for the selective separation of endoproteases from aqueous solutions, which process comprises treating an aqueous solution containing proteases with a complex, present in the solid phase, of alpha₂-macroglobulin with a divalent metal selected from zinc, cobalt, nickel and copper, and then separating off the solid phase containing endoprotease inhibited by alpha₂-macroglobulin.

4,393,140

PROCESS FOR THE PREPARATION OF THE HIGHLY PURE ENZYME KALLIKREIN FROM SWINE PANCREAS EXTRACTS

Hermann Schutt, Wuppertal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Jan. 12, 1982, Ser. No. 339,017

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1981, 3103257

Int. Cl.³ C12N 9/64

U.S. Cl. 435—226

5 Claims

1. A process for the preparation of pure kallikrein, which comprises adjusting an organ extract containing kallikrein to a conductivity of 2 to 6 mS cm⁻¹ at a pH value of 5 to 8, bringing the organ extract thus prepared into contact with an ion exchanger in batch form or column form, eluting the kallikrein by continuously or discontinuously increasing the ionic strength by means of a mono- or divalent alkali metal salt or alkaline earth metal salt or by lowering the pH value and subsequently purifying the eluate by affinity chromatography on BPTI covalently bonded to a carrier and then desorbing from the BPTI-carrier at a pH value of 4.0 to 5.0.

4,393,141

METHOD AND DEVICE FOR EXAMINING URINE FOR PARTICULATE CONSTITUENTS

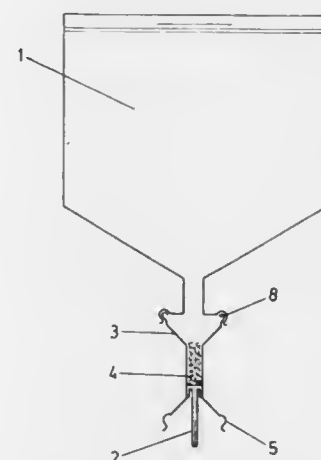
Gert Schlueter, Liederbach, and Wilhelm Schuster, Frankfurt am Main, both of Fed. Rep. of Germany, assignors to Battelle-Institut e.V., Frankfurt am Main, Fed. Rep. of Germany
Filed Feb. 25, 1982, Ser. No. 352,070

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1981, 3108133

Int. Cl.³ G01N 33/48, 31/06

U.S. Cl. 436—63

7 Claims



4. Device for carrying out the method of examining urine for particulate constituents, the device consists essentially of (a) a urine collector, and (b) a detachable filter cartridge, which is affixed to said collector, said filter cartridge containing, as filter material, synthetic fibers that are soluble in alcohol or in aqueous alcohol, after the urine has passed through the filter, and after the collector has been removed, a liquid-tight connection is establishable between one opening of the filter cartridge and a storage vessel and the other opening is closable in a liquid-tight manner.

4,393,142

ASSAY METHOD AND REAGENT FOR THE DETERMINATION OF CHLORIDE

Thomas W. Stephens, Indianapolis, Ind., assignor to American Monitor Corporation, Indianapolis, Ind.

Filed Feb. 1, 1982, Ser. No. 344,331

Int. Cl.³ G01N 33/52, 33/84

U.S. Cl. 436—125

8 Claims

4. A method for the determination of chloride in a protein-containing fluid, comprising the steps of:

- (a) combining a sample of said fluid with a reagent to form a solution, said reagent comprising:
(i) 2,4,6-tripyridyl-s-triazine,
(ii) mercuric ions,
(iii) ferrous ions,
(iv) at least one salt selected from the group consisting of sodium sulfate, manganese sulfate, magnesium sulfate, and cupric sulfate; and
(v) a buffer selected from the group consisting of sulfuric acid and toluene sulfonate;
(b) measuring the absorbance of said solution; and
(c) comparing the absorbance of said solution with the absorbance obtained on solutions containing known amounts of chloride.

4,393,143

AMORPHOUS REFRACTORY SETTABLE AT LOW TEMPERATURES

Satoru Yoshinaka, Okayama; Masao Fushida, Bizen, and Tatsuzi Kimoto, Okayama, all of Japan, assignors to Tsurumi Synthetic Refractories Co., Ltd., Japan

Filed May 22, 1981, Ser. No. 266,299

Int. Cl.³ C04B 35/52

U.S. Cl. 501—89

5 Claims

1. An amorphous refractory which is settable at low temperatures consisting essentially of a dry mixture of refractory material, silicon powder in an amount of 0.5 to 5% by weight based on the whole amount of the refractory and serving as a sintering agent, and a phosphate glass powder in an amount of 0.5 to 3% by weight based on the whole amount of the refractory and serving as a sintering and setting agent, the refractory being usable in the form of a powder.

4,393,144

METHOD FOR PRODUCING METHANOL

Masaru Ichikawa, Yamato, Japan, assignor to Sagami Chemical Research Center, Tokyo, Japan

Continuation of Ser. No. 77,223, Sep. 29, 1979, abandoned. This application Jan. 15, 1981, Ser. No. 225,168

Claims priority, application Japan, Sep. 20, 1978, 53-114538

Int. Cl.³ C07C 27/06, 29/15, 31/04

U.S. Cl. 518—715

3 Claims

1. A method for producing methanol which comprises reacting a gas containing a carbon oxide and hydrogen in the presence of a catalyst consisting essentially of palladium supported on at least one oxide of metal selected from the group consisting of yttrium oxide, lanthanum oxide and neodymium oxide.

4,393,145

ANIONIC ION EXCHANGE RESINS WITH CHOLESTEROL-DECREASING PROPERTIES

Hans N. Zemp, Lugano, Switzerland, assignor to Etablissement Texcontor, Vaduz, Liechtenstein

Continuation of Ser. No. 35,091, May 1, 1979, abandoned. This application Aug. 19, 1981, Ser. No. 294,146

Int. Cl.³ B01J 41/12

U.S. Cl. 521—38

14 Claims

1. An anionic ion exchange resin prepared from monomers of the group consisting of non-toxic styrene, acrylic or epoxy compounds, cross-linked through divinylbenzene and containing methylamino and methylammonium groups, which resin has strong cholesterol-decreasing properties, an apparent density in water of 0.18 to 0.20 g of dry material/ml and a water absorption capacity of 69 to 73% by weight of the polymer weight wherein the amount of cross-linking agent when the monomer is styrene is not substantially less than 1.5% by weight and not substantially more than 2.5% by weight, when the monomer is an acrylic is not substantially less than 10% by weight and not substantially more than 12% by weight and when the monomer is an epoxy is not substantially less than 3% by weight and not substantially more than 4% by weight, said

4,393,146

FIRE RETARDANT FINE PARTICULATE EXPANDABLE STYRENE POLYMERS

Josef K. Rigler, Recklinghausen; Ekkehard Wienhöfer, Marl; Horst Leithäuser, Marl, and Karl Trukenbrod, Marl, all of Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed May 20, 1982, Ser. No. 380,070

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1981, 3122342

Int. Cl.³ C08J 9/20, 9/22

U.S. Cl. 521—56

6 Claims

1. In a process for the preparation of shaped bodies based on expanded styrene or a mixture thereof with at least one monomer copolymerizable therewith, the addition of an expanding agent and a fire retardant organic halogen compound, preforming of the resulting expandable particles, ageing of the formed particles, and molding thereof in a pressure resistant mold, the improvement comprising: carrying out the polymerization in the presence of about 0.0001 to 0.1 percent by weight based on the weight of said styrene or mixture thereof of esters of aliphatic dicarboxylic acids and aliphatic epoxy alcohols, said esters having at least 11 carbon atoms and said esters soluble in said monomers and comonomers.

4,393,147

EXPANDABLE POLYMERIC STYRENE PARTICLES

Richard A. Schwarz, Big Spring, Tex., assignor to Cosden Technology, Inc., Dallas, Tex.

Filed Nov. 22, 1982, Ser. No. 443,309

Int. Cl.³ C08J 9/18

U.S. Cl. 521—60

6 Claims

1. An expandable polymeric styrene particle having incorporated therein a blowing agent and a from about 0.1% to about 1.0% of ethylene-bis-stearamide and a from about 1% to about 1.5% of dibromoethyl dibromocyclohexane, all percentages being based upon the weight of the polymeric styrene.

4,393,148

REACTION OF T-ALKYLHYDRAZINIUM SALTS AND ORGANIC PEROXIDES TO FOAM UNSATURATED POLYESTER RESINS

Ernest R. Kamens, Tonawanda, N.Y., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Sep. 30, 1982, Ser. No. 431,545

Int. Cl.³ C08J 9/10

U.S. Cl. 521—93

11 Claims

1. A foamable and curable composition comprising an admixture of an unsaturated polyester and a polymerizable unsaturated monomer or polymethylmethacrylate and a polymerizable unsaturated monomer, a peroxide, at least one transition metal salt promoter where at least one of the metals is selected from group consisting of iron and copper, and a t-alkylhydrazinium salt blowing agent.

4,393,149

METHOD OF PREPARING POLYURETHANE FOAMS USING IMIDAZOLINES AS CATALYSTS

Paul E. Eckler, Terre Haute, Ind., assignor to Angus Chemical Company, Northbrook, Ill.

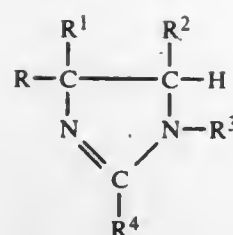
Filed Mar. 30, 1982, Ser. No. 363,719

Int. Cl.³ C08G 18/18

U.S. Cl. 521—129

4 Claims

1. A method of catalyzing the curing of polyurethane foams formed by reacting a polyol with a diisocyanate in the presence of a blowing agent and a catalyst comprising using as the catalyst a compound of the formula



where R can be hydrogen, methyl, ethyl or $R^4CO_2CH_2-$; R^1 can be hydrogen, methyl, ethyl or $R^4CO_2CH_2-$; R^2 can be hydrogen or an alkyl group of 1-3 carbon atoms; R^3 can be alkyl of 1-4 carbon atoms or phenyl, and R^4 can be hydrogen, alkyl or alkenyl of 1-17 carbon atoms.

4,393,150

ADHESIVE BANDAGE MATERIAL

Stanley Kresner, 100 Moree Loop, #19, Winter Springs, Fla. 32708

Filed May 7, 1982, Ser. No. 375,807

Int. Cl.³ C08K 3/10, 5/05

U.S. Cl. 523-111

4 Claims

1. An adhesive bandage material adapted to be formed into sheet material and applied to a bandage cloth comprising: a blend of 20-35% by weight of polyisobutylene and polybutene; 5-15% by weight of butyl rubber; 1-10% by weight of reinforcing fibers of aromatic polyamide fibers; 1-4% by weight of zinc oxide; talc filler material; and ethyl alcohol to thereby form a viscous material capable of being formed in a sheet for attachment to bandage cloth.

4,393,151

STABLE SUSPENSIONS OF WATER-SOLUBLE POLYMERS AND THEIR MANUFACTURE

Francois Dawans, Bougival; Daniel Binet, Rueil Malmaison; Norbert Kohler, Le Chesnay, and Quang Dang Vu, Paris, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jul. 15, 1981, Ser. No. 283,322

Claims priority, application France, Jul. 15, 1980, 80 15586

Int. Cl.³ C08J 3/08; C08K 5/01, 5/09; C08L 5/00

U.S. Cl. 523-130

22 Claims

1. A stable anhydrous suspension of a water-soluble polymer, consisting essentially of solid particles of at least one water-soluble polymer suspended in (a) a liquid hydrocarbon medium, non-solvent for the water-soluble polymer, said liquid hydrocarbon medium comprising at least one aliphatic or aromatic hydrocarbon, the proportions being 40 to 150 parts by weight of said water-soluble polymer per 100 parts by weight of said liquid hydrocarbon medium, said stable anhydrous suspension further comprising per 100 parts by weight of said liquid hydrocarbon medium, from 0.1 to 5 parts by weight of (b) at least one thickening agent selected from the alkali or alkaline-earth metal salts of fatty acids having 6-33 carbon atoms.

21. In an enhanced oil recovery process comprising flooding an oil field by injecting an aqueous solution in an injection well so as to displace the oil from the underground rock formation into the production well, the improvement comprising adding to the aqueous solution the stable suspension of a water-soluble polymer as defined by claim 1.

4,393,152

OXIDATIVELY COUPLED COLD-SET BINDERS

Charles E. Seeney, Brazil; John F. Kraemer, Terre Haute, both of Ind., and Nancy C. Varnum, Kingsville, Mo., assignors to International Minerals & Chemicals Corp., Terre Haute, Ind.

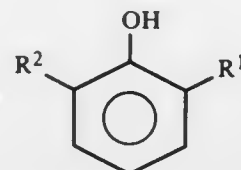
Filed Jul. 16, 1981, Ser. No. 283,718

Int. Cl.³ C08L 71/00

U.S. Cl. 523-139

16 Claims

1. A foundry composition adaptable to forming cores and molds comprising a foundry aggregate, a binder therefor polymerizable by contact with oxygen, an amine and a metal salt catalyst, the binder being a disubstituted phenol represented by the formula



where R^1 and R^2 can be lower alkyl, methoxy, halide or phenyl.

4,393,153

IMPACT MODIFIED GLASS/MINERAL REINFORCED POLYESTER BLENDS

Leonard R. Hepp, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Oct. 30, 1981, Ser. No. 316,947

Int. Cl.³ C08L 25/10, 67/02

U.S. Cl. 523-201

10 Claims

1. In a thermoplastic composition comprising (a) a polyester composition comprising: (i) a major proportion of a poly(1,4-butylene terephthalate) resin or a copolyester thereof with a minor amount of an aliphatic or aromatic dicarboxylic acid or an aliphatic polyol and (ii) a minor proportion of a poly(ethylene terephthalate resin); (b) an impact improving amount of a core-shell resin having a rubbery core surrounded by a grafted acrylic shell; and (c) an effective reinforcing amount of a combination comprising approximately equal weights of mica and glass fibers, the improvement which comprises providing not substantially less than about 2.6 and not substantially more than about 4 parts by weight of poly(1,4-butylene terephthalate) resin component (a) (i) per 1 part by weight of said impact improving acrylic resin component (b).

4,393,154

CURABLE LONG FIBER LOADED RUBBER COMPOSITION AND METHOD OF MAKING SAME

Keith A. Tyler, and Sidney R. Fix, both of Lincoln, Nebr., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jul. 30, 1981, Ser. No. 288,702

Int. Cl.³ C08F 36/02; C08L 21/00

U.S. Cl. 524-12

4 Claims

1. An improved curable chopped fiber loaded rubber composition consisting essentially of a blend of about 5 to 50 percent by weight of chopped fibers of about 0.4 centimeters up to about 1.3 centimeters long, about 95 to 50 percent by weight of particulate unvulcanized rubber being capable of passing a 6 mesh U.S. Standard screen.

4,393,155

ENHANCED VISCOSITY MAINTENANCE AND DEMULSIBILITY IN ASPHALT EMULSIONS

William R. Garrett, Jr., Catlettsburg, Ky., assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Aug. 13, 1982, Ser. No. 408,368

Int. Cl.³ C08K 3/20

U.S. Cl. 524-60

10 Claims

1. Asphalt emulsions having demulsibility values of at least about 60%, and viscosity maintenance values of at least about 20 to about 400 Saybolt Furol Seconds over about 240 hours at $65^\circ \pm 10^\circ$ C. comprising in combination; water, asphalt of penetration in the range of from about 75 to about 300 mm/10, emulsifying agents compatible with said asphalt, and from about 0.05 to about 1.0 percent by weight based on the total weight of said emulsion of an acrylic polymer having molecular weight of above about 1,000,000.

4,393,156

POLYESTER-CARBONATE COMPOSITIONS

Kenneth F. Miller, Mt. Vernon, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed Jul. 20, 1981, Ser. No. 285,351

Int. Cl.³ C08L 69/00, 83/06

U.S. Cl. 524-114

65 Claims

1. An aromatic polyester-carbonate composition having improved hydrolytic stability comprising in admixture an aromatic polyester-carbonate resin and a stabilizing amount of at least one hydrolytic stabilizer selected from the class consisting of epoxy silanes and epoxy siloxanes.

4,393,157

VARIABLE INDUCTOR

Gerald Roberge, Repentigny, and Andre Doyon, Boucherville, both of Canada, assignors to Hydro Quebec, Montreal, Canada

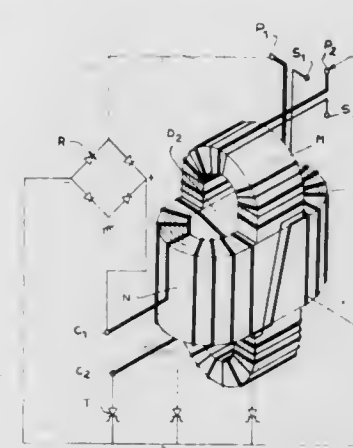
Filed Dec. 5, 1978, Ser. No. 966,555

Claims priority, application Canada, Oct. 20, 1978, 313821

Int. Cl.³ H01F 17/06

U.S. Cl. 323-355

20 Claims



1. A variable inductor comprising: a first closed magnetic circuit, formed of an anisotropic material through which flows an alternative magnetic field; a second closed magnetic circuit, also formed of an anisotropic material, through which circulates an adjustable direct current magnetic field; said first and second magnetic circuits being mounted with respect to one another so as to define at least two common magnetic spaces in which the respective alternative and direct magnetic fields are orthogonally superimposed to orient the magnetic dipoles in said common spaces following a direction predetermined by the intensity of said direct current magnetic field of the second circuit and thus to control the permeability of said second magnetic circuit to said alternative field, a coil being wound around the anisotropic material of said first magnetic circuit and a coil being wound around the anisotropic core of said second magnetic circuit and connected to a control circuit

governing the intensity of the direct current magnetic field, said control circuit comprising a rectifying bridge connecting the alternative field coil to the direct field coil to accomplish a self-control of said variable inductor.

4,393,158

HYDROLYTICALLY STABLE POLYCARBONATE COMPOSITIONS

Kenneth F. Miller, Mt. Vernon, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed Jul. 20, 1981, Ser. No. 284,639

Int. Cl.³ C08L 69/00

U.S. Cl. 524-114

12 Claims

1. An aromatic polycarbonate composition exhibiting improved hydrolytic stability comprising in admixture an end-capped aromatic polycarbonate resin and a hydrolytically stabilizing amount of at least one stabilizing compound of the formula

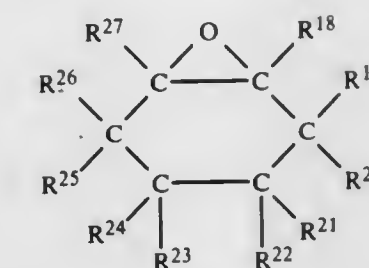


wherein

n is an integer from 1 to 3 inclusive;

R^3 is independently selected from hydrogen, alkyl radicals; substituted alkyl radicals; alkenyl radicals; cycloalkyl radicals; aryl radicals; alkaryl radicals; aralkyl radicals; divalent organic radicals which together with the silicon atom form a cyclic structure, said organic radicals being selected from divalent saturated aliphatic hydrocarbon radicals and divalent saturated aliphatic organic radicals containing carbon and oxygen atoms in the ring structure; OR^4 radicals wherein R^4 is selected from hydrogen, alkyl radicals, substituted alkyl radicals, alkenyl radicals, aryl radicals, aralkyl radicals, alkaryl radicals, cycloalkyl radicals; $-R^5OR^4$ radicals wherein R^5 is a divalent saturated aliphatic hydrocarbon radical or a divalent aromatic hydrocarbon radical; $-COOR^4$ radicals; $-OOCR^4$ radicals; $-R^5COOR^4$ radicals; $-R^5OOCR^4$ radicals; and polyether radicals.

Z is of the formula



wherein:

(i) R^{18} through R^{27} are independently selected from the class consisting of hydrogen; alkyl radicals; substituted alkyl radicals; alkenyl radicals; aryl radicals; alkaryl radicals; aralkyl radicals; OR^{29} radicals wherein R^{29} is selected from the class consisting of hydrogen, alkyl radicals, substituted alkyl radicals, alkenyl radicals, aryl radicals, alkaryl radicals, and aralkyl radicals; $-R^{30}OOR^{29}$ radicals wherein R^{30} is a divalent saturated aliphatic hydrocarbon radical or a divalent aromatic hydrocarbon radical; $-COOR^{29}$ radicals; $-OOCR^{29}$ radicals; $-R^{30}OOCR^{29}$ radicals; $-R^{30}COOR^{29}$ radicals; OR^{31} radicals wherein R^{31} is selected from the class consisting of oxirane ring containing saturated aliphatic hydrocarbon radicals and oxirane ring containing aliphatic-aromatic hydrocarbon radicals; $-R^{31}OOCR^{31}$ radicals; and $-R^{30}COOR^{31}$ radicals; with the proviso that

(ii) one of R^{18} through R^{27} is selected from the class consisting of divalent saturated aliphatic hydrocarbon radicals; divalent aromatic hydrocarbon radicals; 13

OR³²— radicals wherein R³² is selected from divalent saturated aliphatic hydrocarbon radicals and divalent aromatic hydrocarbon radicals; —R³⁰OR³²— radicals; —OOCR³²— radicals; —COOR³²— radicals; —R³—OOCR³²— radicals; and —R³⁰COOR³²— radicals.

4,393,159

ANTI-STATIC MATERIAL AND METHOD OF MAKING THE MATERIAL

William Lybrand, Northridge, Calif., assignor to Bengal, Inc., Sepulveda, Calif.

Filed Dec. 4, 1981, Ser. No. 327,470

Int. Cl.³ C09K 3/16

U.S. Cl. 524—243

31 Claims

1. In combination for eliminating static charges by providing resistivities in the range of approximately 10⁷ to 10⁹ ohms, polypropylene a salt in which the positive ion is selected from a group consisting of copper, silver, tin, iron, calcium and iridium, the salt being mixed in the polypropylene in the range of approximately 0.005% to 0.01% by weight, and ethoxylated amines mixed in the polypropylene in the range of approximately 2.0% to 2.7% by weight.

4,393,160

AQUEOUS DEVELOPABLE POLY(OLEFIN SULFONE) TERPOLYMERS

Thomas R. Pampalone, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 219,517, Dec. 23, 1980, Pat. No. 4,341,861.

This application Feb. 9, 1982, Ser. No. 347,107

Int. Cl.³ C08G 75/22

U.S. Cl. 524—360

7 Claims

1. A positive electron beam resist terpolymer comprising a monomer component and sulfur in a 1:1 molar ratio, said monomer component being comprised of from about 70 mole percent to about 93 mole percent of 3-methylcyclopentene and from about 7 mole percent to about 30 mole percent of 2-cyclopentene-1-acetic acid.

4,393,161

HIGH IMPACT, HIGH MODULUS REINFORCED AROMATIC CARBONATE POLYMERIC MIXTURES

Petrus C. A. M. Van Abeelen, Gilze, and Hans de Munck, Huybergen, both of Netherlands, assignors to General Electric Company, Pittsfield, Mass.

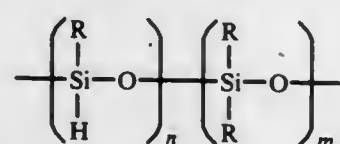
Filed Jul. 9, 1981, Ser. No. 281,710

Int. Cl.³ C08L 69/00, 25/04

U.S. Cl. 524—506

7 Claims

1. A high impact strength, high modulus thermoplastic composition comprising an intimate admixture of:
(a) an aromatic carbonate polymer or copolymer;
(b) a polystyrene resin, the total weight of (a) plus (b) being from about 35 to about 95 parts of the composition;
(c) from about 5 to about 65 parts by weight of a pristine fibrous reinforcing agent; and
(d) from about 0.05 to about 4 parts by weight of a hydrogen siloxane comprising units of the formula:



wherein R is hydrogen, C₁–C₁₀ alkyl, phenyl or a mixture thereof, and n plus m is at least about 4.

4,393,162

POLYAMIDES AND COPOLYAMIDES COMPRISING -1,2-DI(P-AMINOPHENOXY) ETHANE MOIETIES

Edward E. Paschke, Wheaton, and C. Bruce Petty-Weeks, Naperville, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

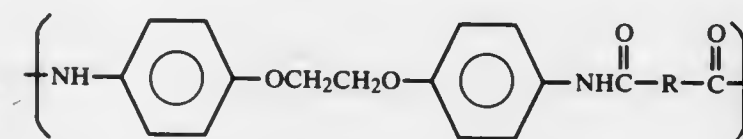
Filed May 14, 1982, Ser. No. 378,119

Int. Cl.³ C08G 69/32, 69/40

U.S. Cl. 524—606

30 Claims

1. A polyamide comprising the following recurring structure:



wherein R is a divalent aliphatic or aromatic hydrocarbon radical or an aromatic hydrocarbon radical containing from 6 to 10 carbon atoms joined directly or by a stable linkage selected from the group consisting of —O—, methylene



—SO—, —SO₂— and S radicals.

4,393,163

METHOD FOR STABILIZING AN ACRYLAMIDE POLYMER IN A PETROLEUM RECOVERY PROCESS

Shoichi Kanda, and Gengiro Kawamura, both of Yokohama, Japan, assignors to Nitto Chemical Industry, Co., Ltd., Tokyo, Japan

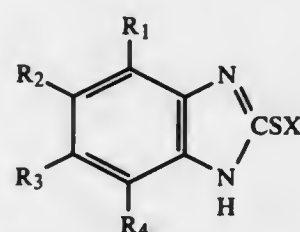
Continuation-in-part of Ser. No. 970,022, Dec. 14, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,672. Claims priority, application Japan, Dec. 14, 1977, 52-149330; Nov. 6, 1978, 53-136440; U.S.S.R., Dec. 18, 1978, 2701054

Int. Cl.³ C08K 5/45

U.S. Cl. 524—608

1 Claim

1. An aqueous solution of an acrylamide polymer stabilized for use in a petroleum recovery process comprising a partially hydrolyzed polyacrylamide, water, and a stabilizing effective amount of 2-mercaptobenzoimidazole or a water-soluble salt thereof having the general formula



wherein R₁, R₂, R₃ and R₄ each represents a hydrogen atom or a lower alkyl group, and X represents a hydrogen atom, an alkali metal atom or an ammonium group.

4,393,164

TRANSPARENT IMPACT-RESISTANT MOLDING MATERIAL

Graham E. McKee, Weinheim; Franz Haaf, Bad Dürkheim; Juergen Hambrecht, Heidelberg; Klaus Benker, Neustadt; Rudolf Stephan, Ludwigshafen, and Hans Breuer, Battenberg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 26, 1982, Ser. No. 362,407

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1981, 3113627

Int. Cl.³ C08L 51/04, 33/12, 25/12

U.S. Cl. 525—83

4 Claims

1. Transparent, impact resistant molding material which can be processed above 200° C. without recognizable yellowing and odor development, consisting of a mixture of

(A) 15 to 70 parts by weight of a methylmethacrylate polymer containing 90 to 100 percent by weight of a methylmethacrylate and 10 to 0 percent by weight of an alkylacrylate having 1 carbon atom to 8 carbon atoms in the alkyl radical,

(B) 10 to 50 parts by weight of a styrene/acrylonitrile copolymer containing 78 to 88 parts by weight styrene and 22 to 12 parts by weight acrylonitrile,

(C) 20 to 50 parts by weight of a copolymerized graft polymer mixture and

(D) additives in an amount from 0 to 20 percent by weight relative to the total of components A, B and C wherein the parts by weight of A, B and C total 100 and where the difference between the refractory index of component C and the refractive index of the mixture of components A, B and D is less than 0.005,

wherein the copolymerized graft polymer mixture C is produced by grafting

(C₁) 50 to 80 percent by weight relative to the copolymerized graft polymer C of a diene elastomeric grafting base having a glass temperature below —20° C. with

(C₂) 20 to 50 percent by weight consisting of the following components as a mixture or in sequence:

(C₂₁) 40 to 100 parts by weight of one or more methacrylates of C₁–C₈ alkanols and

(C₂₂) 0 to 60 parts by weight of styrene or an alkylstyrene having up to 12 carbon atoms.

4,393,165

POLYMER COMPOSITIONS

Takashi Sasaki, Takasaki; Miyuki Hagiwara, Maebashi; Fumio Hosoi, Fujioka, and Tohru Takagi, Hiratsuka, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Aug. 9, 1982, Ser. No. 406,974

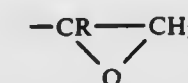
Claims priority, application Japan, Aug. 12, 1981, 56-126458

Int. Cl.³ C08G 63/76; C08L 67/00

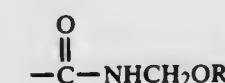
U.S. Cl. 525—10

12 Claims

1. A polymer composition which consists essentially of:
(A) 90 to 50 wt. % of a saturated polymer having in one molecule (1) at least two groups of at least one type selected from the group consisting of an epoxy group of the formula



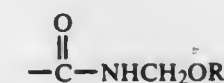
(R is hydrogen or methyl), an alcoholic or phenolic hydroxyl group and an alkoxyethyl-substituted acid amide group of the formula



(R is an alkyl group of C₁ to C₄) and (2) a repeating unit

made of a nonaromatic methylene group or methine group; and

(B) 50 to 10 wt. % of a nonfunctional radical polymerizable monomer mixture consisting of (a) a radical polymerizable monomer having in one molecule at least one functional group selected from the group consisting of a carboxyl group, an acid anhydride group, an alcoholic hydroxyl group, an alkoxyethyl-substituted acid amide group of the formula



(R is an alkyl group of C₁ to C₄) and an amino group of the formula —NR₁R₂ (R₁ and R₂ are each an alkyl group of C₁ to C₈) and an ethylenic double bond, and (b) a radical polymerizable monomer having one epoxy ring and one ethylenic double bond in one molecule.

3. A polymer composition according to claim 1 wherein the saturated polymer is a saturated polyester prepared from a saturated divalent alcohol and a saturated dibasic acid.

4,393,166

PROCESS FOR THE PREPARATION OF POLYADDITION PRODUCTS OF ISOCYANATES AND DENATURED BIOMASSES, THEIR USE AS REACTIVE FILLERS AND AS PLANT NUTRIENTS AND A PROCESS FOR THE PRODUCTION OF SHEETS OR SHAPED ARTICLES USING THE POLYADDITION PRODUCTS

Artur Reischl, and Kuno Wagner, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 5, 1980, Ser. No. 146,859

Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920525

Int. Cl.³ C08G 83/00; C05F 11/00; C08K 11/00; B29J 5/00

U.S. Cl. 525—27

17 Claims

1. A process for the production of denatured polyaddition products of biomasses and isocyanates, comprising reacting
(A) from 5 to 98%, by weight, based on (A)+(B), of a biomass based on microorganisms or derivative and decomposition products thereof with

(B) from 95 to 2%, by weight, based on (A)+(B), of a compound containing isocyanate groups, at temperatures of at least 50° C. with complete denaturing of component (A).

11. The process of claim 1, wherein said biomass is an aqueous or dried sludge from industrial or communal purification plants which were optionally subjected to aerobic or anaerobic digestion.

4,393,167

POLYMER BLENDS CONTAINING POLYMER OF β-HYDROXYBUTYRIC ACID AND CHLORINE OR NITRILE GROUP CONTAINING POLYMER

Paul A. Holmes, Middlesbrough; Frank M. Willmouth, Royston, and Alan B. Newton, Welwyn Garden City, all of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Nov. 10, 1981, Ser. No. 320,127

Claims priority, application United Kingdom, Nov. 18, 1980, 8036967

Int. Cl.³ C08L 67/04, 27/06, 33/18

U.S. Cl. 525—64

20 Claims

1. A polymer blend comprising (i) 0.2 to 95% by weight of a β-hydroxybutyric acid polymer of molecular weight above 50,000 and containing 100 to 50 mole % of β-hydroxybutyric acid residues and correspondingly 0–50 mole % of β-hydroxyvaleric acid residues in the polymer chain, and (ii) an organic polymer containing at least 25% by weight of chlorine and/or nitrile groups.

4,393,168

BLENDS OF POLYETHERIMIDES AND RUBBER MODIFIED VINYL AROMATIC POLYMERS

Harold F. Giles, Jr., Cheshire, Mass., and Dwain M. White, Schenectady, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Mar. 18, 1982, Ser. No. 359,261
Int. Cl.³ C08L 79/08

U.S. Cl. 525—66

12 Claims

1. A composition comprising a blend of (a) a rubber modified vinyl aromatic polymer and (b) a polyetherimide.

4,393,169

MOLDABLE RESIN COMPOSITIONS CONTAINING POLYCARBONATE STYRENE POLYMER AND THREE PHASE GRAFT POLYMER

Takeshi Moriwaki, Sakai, and Shinji Tokuhara, Himeji, both of Japan, assignors to Daicel Chemical Industries, Ltd., Sakai, Japan

Filed Nov. 12, 1981, Ser. No. 320,629
Int. Cl.³ C08L 25/04, 69/00, 51/00

U.S. Cl. 525—67

6 Claims

1. A thermoplastic moldable resin composition, the resin components of which consist essentially of a blend of

I. 100 parts by weight of a mixture comprising

(A) from 95 to 5 parts by weight of an aromatic vinyl polymer, and

(B) from 5 to 95 parts by weight of thermoplastic polycarbonate resin, and

II. from 1 to 20 parts by weight of

(C) a three-stage polymer produced by three, sequential, emulsion polymerization stages, wherein

(1) in the first emulsion polymerization stage, a mixture of (a) from 50 to 100 percent by weight of first, aromatic, vinyl monomer, (b) from 0 to 50 percent by weight of second, vinyl monomer different from said first monomer and copolymerizable therewith and (c) from 0 to 10 percent by weight of a multifunctional bridge-forming monomer, is emulsion polymerized to obtain a first stage polymer,

(2) in the second emulsion polymerization stage, a mixture of (a) said first stage polymer and (b) a monomer mixture of (i) from 50 to 100 percent by weight of butadiene, (ii) from 0 to 50 percent by weight of a third, vinyl monomer copolymerizable with said butadiene, and (iii) from 0 to 1 percent by weight of a multifunctional bridge-forming monomer, is emulsion polymerized to obtain a second stage polymer, and

(3) in the third emulsion polymerization stage, a mixture of (a) said second stage polymer and (b) a monomer mixture of (i) from 50 to 100 percent by weight of an alkyl methacrylate having 1 to 4 carbon atoms in the alkyl group, (ii) from 0 to 50 percent by weight of a fourth, vinyl monomer different from said alkyl methacrylate and copolymerizable therewith, and (iii) from 0 to 10 percent by weight of a multifunctional bridge-forming monomer, is emulsion polymerized.

4,393,170

POLYMERIC BLENDS

John R. Haws, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 145,091, Apr. 30, 1980, abandoned.
This application Jul. 22, 1981, Ser. No. 286,097Int. Cl.³ C08L 53/00

U.S. Cl. 525—89

6 Claims

1. A composition of matter that is a blend of polymers comprising:

(a) a block copolymer of lactone with a comonomer chosen from the group consisting of (1) conjugated diene, (2) monovinylarene, and (3) both conjugated diene and monovinylarene,

(b) acrylic ester polymer,

(c) coumarone-indene resin, and

(d) conjugated diene-movinylarene teleblock copolymer represented by the general formula (A—B—)_nY wherein A represents a block of polymerized monovinylarene monomer, B represents a block of polymerized conjugated diene units or alternatively a random or random tapered block copolymer of conjugated diene and monovinylarene monomers, Y is the residual unit from a polyfunctional coupling agent or a polyfunctional initiating species and n has a value from 2 to 6.

4,393,171

PROCESS FOR PREPARING RUBBERY POLYMER REINFORCED STYRENIC RESINS

William J. I. Bracke, Hamme, and Emmanuel Lanza, Waterloo, both of Belgium, assignors to Labofina, S.A., Brussels, Belgium

Filed Feb. 26, 1981, Ser. No. 238,414

The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

Int. Cl.³ C08F 257/02

U.S. Cl. 525—309

43 Claims

1. A process for continuous preparation of a rubbery polymer material reinforced styrenic resin comprising the steps of:

a. adding a monomer material selected from the group consisting of alkyl esters of acrylic acid, alkyl esters of methacrylic acid and mixtures thereof, together with a polyfunctional cross-linking agent to a first solution of a copolymeric matrix of a styrenic compound and an acrylonitrile compound in an inert solvent, whereby there is formed a second solution of monomer material, polyfunctional cross-linking agent and said copolymeric matrix in said inert solvent;

b. continuously charging said second solution into a polymerization zone and subjecting said second solution in said polymerization zone to mass polymerization conditions to polymerize said monomer material whereby there is formed in situ a cross-linked rubbery material dispersed in said copolymeric matrix;

c. continuously withdrawing the reaction mixture from said polymerization zone and continuously charging the withdrawn mixture into a devolatilization zone to remove the inert solvent and any residual monomer material, and

d. recovering a rubbery polymer material reinforced styrenic resin wherein the rubbery material formed in situ is highly dispersed in the copolymer matrix.

4,393,172

HIGH-NOTCHED-IMPACT CORE-SHELL POLYMERS HAVING IMPROVED WEATHER RESISTANCE

Christian Lindner, Cologne; Karl-Heinz Ott, Leverkusen, and Alfred Pischtschan, Kuerten, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 235,096, Feb. 17, 1981, abandoned. This application Oct. 8, 1981, Ser. No. 309,569
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1980, 3006804Int. Cl.³ C08L 51/04; C08F 279/02, 265/04

U.S. Cl. 525—310

6 Claims

1. Particulate graft polymer comprising

(a) a core which is a crosslinked homopolymer of a conjugated diene or a copolymer thereof with up to 10% by weight of copolymerized styrene or acrylonitrile and having a gel content of more than 50%,

(b) a first shell which is a crosslinked rubber formed by polymerizing a monomer mixture consisting of at least one acrylic acid alkyl ester having 1 to 8 carbon atoms in the alkyl moiety and 0.05 to 10% by weight, based on the weight of (b), of a crosslinking polyfunctional monomer and

(c) a second shell of a polymer of at least one resin-forming monomer selected from the group consisting of α -methyl styrene, styrene, acrylonitrile and methyl methacrylate.

4,393,173

COMPLEXES OF N-METHYLOLACRYLAMIDES WITH POLYALKOXYLATES AND POLYMERIZATION TO UNGELLED POLY(N-METHYLOLACRYLAMIDES)

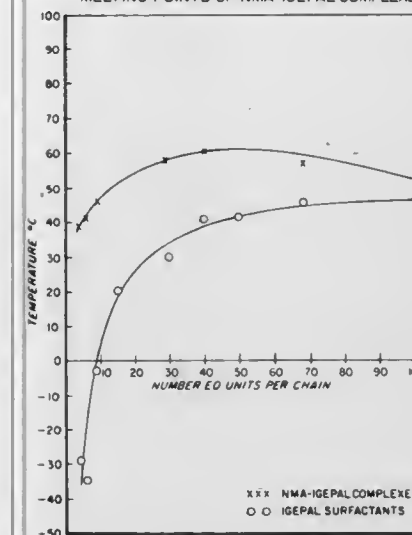
Wiley E. Daniels, Easton, and Dennis J. Nagy, Allentown, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Sep. 21, 1981, Ser. No. 303,732
Int. Cl.³ C08L 33/24; C08G 69/48

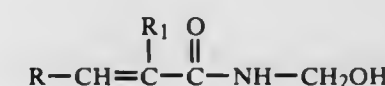
U.S. Cl. 525—329.4

17 Claims

MELTING POINTS OF NMA-ICEPAL COMPLEXES



1. A composition of matter comprising a complex consisting essentially of (1) an N-methylol monomer of the following general formula:

wherein R is hydrogen, lower alkyl (C₁-C₄), isopropenyl, or phenyl radical and R₁ is hydrogen or methyl radical and (2) a polyalkoxylate substance having at least a portion of its structure represented by (alkylene oxide)_x, wherein x is an integer greater than one, the complex containing at least about x molecules of the N-methylol monomer per molecule of polyalkoxylate.

4,393,174

BASE HYDROLYSIS OF PENDANT AMIDE POLYMERS

Daniel J. Dawson, Los Altos, and Phillip J. Brock, Sunnyvale, both of Calif., assignors to Dynapol, Palo Alto, Calif.

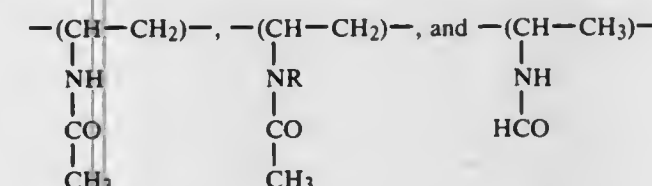
Filed Nov. 9, 1981, Ser. No. 319,614

Int. Cl.³ C08F 8/12

U.S. Cl. 525—369

10 Claims

1. The process of treating a polymer having recurring pendant amide units having a structure selected from among



wherein R is a lower alkyl to form pendant amine units which comprises contacting said polymer in liquid phase with aqueous strong base at elevated temperature for a time effective to hydrolyze said amide units to amine units.

4,393,175

PROCESS FOR THE CONTINUOUS DIAZOTIZATION OF WATER-SOLUBLE POLYMERIC AMINES

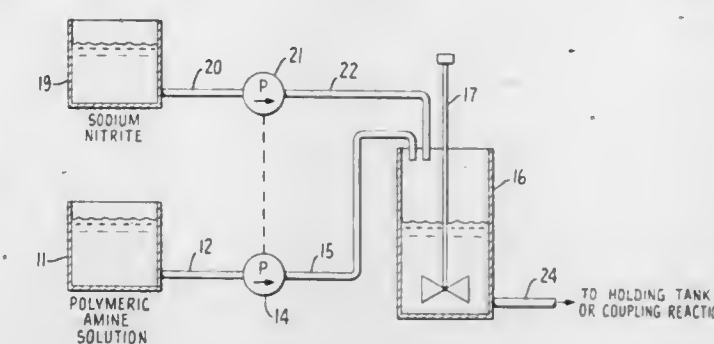
Phillip J. Brock, Sunnyvale, and Daniel J. Dawson, Los Altos, both of Calif., assignors to Dynapol, Palo Alto, Calif.

Filed Sep. 9, 1981, Ser. No. 300,621

Int. Cl.³ C08F 8/30

U.S. Cl. 525—377

6 Claims



1. In a process of diazotizing a polymeric aromatic amine wherein a solution of the polymeric amine is admixed with a solution of nitrite ion, the improvement comprising continuously feeding said solutions to a turbulent reaction zone at a combined liquid flow rate of not less than one reaction zone volume per minute and continuously withdrawing the resulting reaction product to maintain the reaction zone liquid volume.

4,393,176

ANTI-STATIC MATERIAL AND METHOD OF MAKING THE MATERIAL

William Lybrand, Northridge, Calif., assignor to Bengal, Inc., Sepulveda, Calif.

Filed Dec. 4, 1981, Ser. No. 327,471

Int. Cl.³ C09K 3/16

U.S. Cl. 525—379

20 Claims

1. In combination for eliminating static charges by providing a resistivity in the range of approximately 10¹¹ to 10¹² ohms, a first material selected from a group consisting of polystyrene and modified styrenes, and ethoxylated amines mixed with the first material in a range of approximately four percent (4%) to twelve percent (12%) by weight.

4,393,177

THERMOSETTING RESIN COMPOSITION, PROCESS FOR PREPARATION THEREOF AND CURED PRODUCT THEREOF

Takeo Ishii, Masatsugu Ogata, both of Hitachi, and Toshikazu Narahara, Tokai, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 11, 1981, Ser. No. 242,617

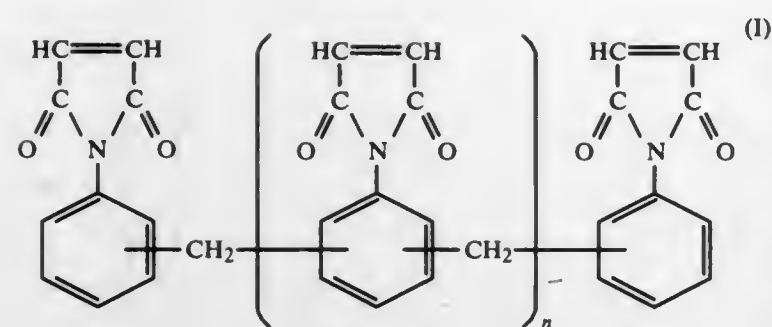
Claims priority, application Japan, Mar. 11, 1980, 55/29810; Mar. 12, 1980, 55/30354; Mar. 12, 1980, 55/30355

Int. Cl.³ C08F 283/04; C08G 73/16; C08L 79/08

U.S. Cl. 525—422

24 Claims

1. A thermosetting resin composition which comprises an admixture consisting of tri-allylisocyanurate, a polymaleimide represented by the following general formula:



wherein n is a number of at least 1, and a thermoplastic resin, the amount of said thermoplastic resin is 1 to 20 parts by weight per 100 parts by weight of said polymaleimide and said tri-allylisocyanurate, said thermoplastic resin having a glass transition temperature lower than the curing temperatures of other components in said admixture and the amount of said tri-allylisocyanurate is 3 to 300 parts by weight per 100 parts by weight of the polymaleimide.

4,393,178

FAST CRYSTALLIZING POLYESTER COMPOSITIONS

Roger M. H. Legras, Hannut; Jean-Jacques E. R. G. Biebuyck, Rixensart, and Jean P. Mercier, Kessel-Lo, all of Belgium, assignors to Imperial Chemical Industries PLC, London, England

Continuation-in-part of Ser. No. 159,916, Jun. 16, 1980, abandoned. This application Oct. 23, 1981, Ser. No. 314,382

Claims priority, application United Kingdom, Jun. 19, 1979, 7921321

Int. Cl.³ C08F 283/00; C08G 63/76; C08L 63/00

U.S. Cl. 525—437

11 Claims

1. A fast crystallising polyester composition obtained by reacting a polyester which comprises at least 90 mole % of residues of ethylene terephthalate with an ionisable metal salt of an organic compound having at least one acidic proton and at least one aromatic ring in which the ionisable metal salt is one which, when present in polyethylene terephthalate at a concentration of 1% by weight, will:

- give a difference in the crystallisation peak temperatures ($\Delta T = T_c - T_n$) of at least 100° measured by differential scanning calorimetry on heating (T_n) and on cooling (T_c) using heating and cooling rates of 10° C./minute, and
- has a melt degradation value (K value) measured in polyethylene terephthalate according to the method given in Makromol Chem 179, 2201-2209 (1978) of less than 60.

4,393,179

SYNTHETIC RESIN

Karl Hoppe, and Udo Strauss, both of Münster, Fed. Rep. of Germany, assignors to BASF Farben & Fasern A.G., Hamburg, Fed. Rep. of Germany

Filed Nov. 23, 1981, Ser. No. 324,109

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1980, 3045251

Int. Cl.³ C08L 63/00, 61/34

U.S. Cl. 525—490

21 Claims

1. A synthetic resin in the form of a metal complex compound comprising a reaction product of:

- Mannich bases which are free from epoxide groups; with
- epoxide resins; wherein aliphatic hydroxy groups originating from (a), (b), or a mixture thereof are at least partially converted into urethane groups by reaction with partially blocked isocyanate, said Mannich base (a) formed from components selected from:

(a1) condensed phenols which are free from ether groups and contain at least two aromatic rings and at least two phenolic hydroxyl groups;

(a2) condensed phenols which contain other groups and contain at least two aromatic rings and at least two phenolic hydroxyl groups;

(a5) formaldehyde or compounds which split off formaldehyde;

(a3) secondary amines having at least two hydroxyalkyl group; and

(a4) dialkylamines or dialkoxyalkylamines which do not contain free hydroxyl groups; or from the components:

(a1) and (a2) with (a5) and (a3);

(a1) with (a5) and (a3);

(a2) with (a5) and (a3);

(a1) with (a5), (a3), and (a4); or

(a2) with (a5), (a3), and (a4); and copper complex bound with said reaction product to form said metal complex compound.

4,393,180

CURING AGENTS FOR EPOXIDE RESINS AND COMPOSITIONS CONTAINING THEM

Christopher M. Andrews, Cambridge, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 21, 1982, Ser. No. 390,468

Claims priority, application United Kingdom, Jun. 30, 1981, 8120142

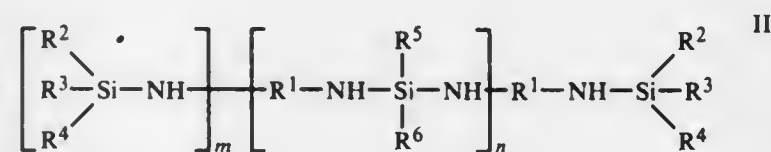
Int. Cl.³ C08L 61/00, 61/06

U.S. Cl. 525—504

10 Claims

1. Compositions for curing epoxide resins and activated by water, said compositions comprising

- a silamine of the formula



where

either m represents 1, in which case R^1 represents the divalent residue of an aromatic, aliphatic, araliphatic, or cycloaliphatic diprimary amine after removal of the two primary amino groups and n represents zero or an integer of from 1 to 10, or m represents 2, in which case R^1 represents the trivalent residue of an aliphatic triprimary amine after removal of the three primary amino groups and n represents zero, and

R^2 , R^3 , R^4 , R^5 , and R^6 , which may be the same or different, each represent an alkyl group of 1 to 8 carbon atoms or an aryl group of 6 to 10 carbon atoms, and

(b) as accelerator, a substantially anhydrous organic acid or a substantially anhydrous phenol.

4,393,181

POLYFUNCTIONAL PHENOLIC-MELAMINE EPOXY RESIN CURING AGENTS

Roy A. Allen, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

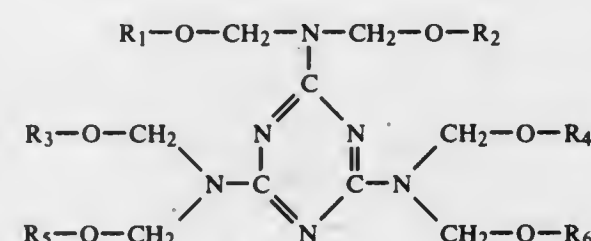
Filed Jun. 30, 1982, Ser. No. 393,974

Int. Cl.³ C08L 61/00; C08G 59/14; C08F 283/00

U.S. Cl. 525—504

9 Claims

1. An epoxy resin curing agent prepared by reacting a polyhydric phenol with an amino-triazine having the general formula



wherein R_1 , R_2 , R_3 , R_4 , R_5 and R_6 are the same or different alkyl radicals of 1 to 4 carbon atoms, said polyhydric phenol

and amino-triazine being reacted in an amount to provide at least two phenolic hydroxyl groups to one alkoxy group.

5. A heat curable composition, especially suitable for powder coating applications, comprising:

(a) at least one normally solid epoxy resin containing at least one vicinal epoxy group,

(b) a curable amount of a curing agent prepared as in claim 1, and

(c) an alkaline epoxy curing agent accelerator.

4,393,182

OLEFIN POLYMERIZATION PROCESS WITH NOVEL SUPPORTED TITANIUM CATALYST COMPOSITIONS

Brian L. Goodall; Adrianus A. van der Nat, and Willem Sijardijn, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 143,578, Apr. 25, 1980, Pat. No. 4,329,253. This application Nov. 5, 1981, Ser. No. 318,649

Claims priority, application United Kingdom, May 17, 1979, 7917240

Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 526—125

21 Claims

1. Process for the polymerization of alpha-monoolefins which comprises contacting the monomers to be polymerized with a catalyst composition comprising an organoaluminum compound, a selectivity control agent, or an at least partial reaction product of those two components, and a titanium-containing catalyst component obtained by:

- contacting with a halohydrocarbon in liquid phase a solid reaction product comprising a magnesium halide in which the atomic ratio of halogen to magnesium is at least 1.2:1, a titanium halide and an electron donor;
- optionally washing the resulting solid with an inert diluent to remove liquid remaining from the contacting step;
- contacting the resulting solid with a halide of tetravalent titanium in liquid phase; and
- washing the resulting solid with an inert diluent to remove residual unreacted titanium compound;

and recovering the resulting olefin polymer.

4,393,183

2-CYANOACRYLATE ADHESIVE COMPOSITION

Kaoru Kimura, Kuroishi, and Kyoji Sugiyama, Nagoya, both of Japan, assignors to Toagosei Chemical Industry Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1981, Ser. No. 329,918

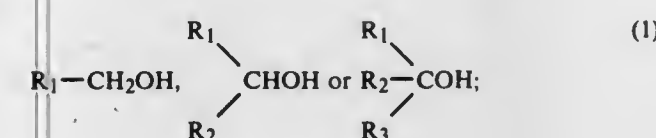
Claims priority, application Japan, Dec. 16, 1980, 55-176502

Int. Cl.³ C08F 20/42, 120/42

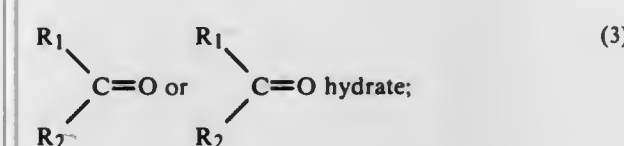
U.S. Cl. 526—245

11 Claims

1. An adhesive composition which comprises 2-cyanoacrylate and at least one compound selected from the group consisting of the following compounds:



(2) R_1-CHO or R_1-CHO hydrate;



(4) pentafluorophenol;

(5) hexachloroacetone or hexachloroacetone hydrate; and

(6) chloral or chloral hydrate

wherein R_1 is a fluorinated alkyl or aryl group having up to 12 carbon atoms, and R_2 and R_3 are fluorinated or non-fluorinated

alkyl or aryl groups having up to 12 carbon atoms, as an anionic-polymerization inhibitor.

4,393,184

LENS HAVING A HIGH REFRACTIVE INDEX WITH A LOW DISPERSION

Niro Tarumi; Shigeo Komiya, both of Akishima, and Mitsuo Sugimura, Fussa, all of Japan, assignors to Hoya Lens Corporation, Tokyo, Japan

Filed Oct. 26, 1981, Ser. No. 315,354

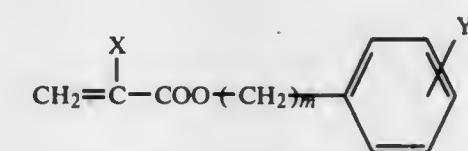
Claims priority, application Japan, Dec. 15, 1980, 55/175779

Int. Cl.³ C08F 18/16

U.S. Cl. 526—261

2 Claims

1. A lens having a low dispersion and a high refractive index, comprising a copolymer of at least one polyfunctional allyl monomer selected from the group consisting of diallylorthophthalate, diallylisophthalate, diallylterephthalate, diallylchloride, triallylcyanurate and triallylisocyanurate with at least one monomer of the formula



in which

X is H, CH_3 or Cl,
 Y is H, CH_3 , C_2H_5 , $n-C_3H_7$, $iso-C_3H_7$, OCH_3 , C_6H_{11} , Cl, Br, CH_2Cl , CH_2Br , C_6H_5 , $CH_2C_6H_5$ or SCH_3 ,

m is 0, 1 or 2, and

n is 0, 2, 3, 4 or 5,

the polyfunctional allyl monomer comprising about 70 to 90% of the copolymer by weight, at most about 10% by weight of the polyfunctional allyl monomer comprising a trifunctional allyl monomer.

4,393,185

THERMALLY POLYMERIZABLE MIXTURES AND PROCESSES FOR THE THERMALLY-INITIATED POLYMERIZATION OF CATIONICALLY POLYMERIZABLE COMPOUNDS

Godwin Berner, Rheinfelden, and Rudolf Kirchmayr, Aesch, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 21, 1982, Ser. No. 380,801

Claims priority, application Switzerland, Jun. 2, 1981, 3599/81

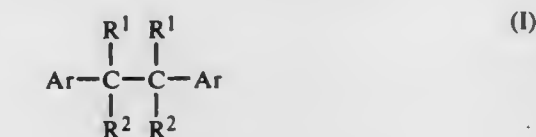
Int. Cl.³ C08G 77/04

U.S. Cl. 528—27

5 Claims

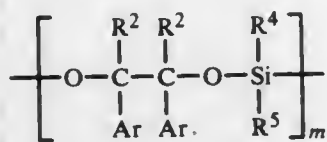
1. A thermally polymerisable mixture which comprises
(A) one or more cationally polymerisable compounds,
(B) a quaternary ammonium salt of an aromatic-heterocyclic compound which contains 1 or 2 N-atoms, and of a complex halide anion selected from the series consisting of BF_4^- , PF_6^- , SbF_6^- , $SbF_5(OH)^-$ or AsF_6^- ,
(C) a thermal radical former selected from one of the following classes

(C1) diaryl ethane derivatives of the formula I



wherein Ar is phenyl, naphthyl or phenyl which is substituted by C_1-C_4 alkyl or chlorine, R^1 is OH, C_1-C_4 alkoxy, $-O-CO-R^3$ or $-O-Si(R^4)(R^5)(R^6)$, wherein R^3 is C_1-C_6 alkyl or phenyl, and each of R^4 , R^5 and R^6 independently of the other is C_1-C_4 alkyl or phenyl, and R^2 is C_1-C_4 alkyl, cyclohexyl or Ar.

(C₂) an oligomeric compound of the Formula II



wherein m is 2 to 20,

(C₃) an organic peroxide compound or

(C₄) a quinone, and

(D) optionally further additives.

4,393,186

THERMOPLASTIC POLYURETHANES PREPARED BY REACTING POLYISOCYANATE, POLYESTER POLYOL, CYCLOALIPHATIC DIOL AND A MONOFUNCTIONAL CHAIN-TERMINATING COMPOUND

Dennis J. Damico, and Vincent J. Pascarella, both of Erie, Pa., assignors to Lord Corporation, Erie, Pa.

Continuation of Ser. No. 153,558, May 27, 1980, abandoned, which is a division of Ser. No. 50,070, Jun. 19, 1979, Pat. No. 4,250,274. This application Aug. 27, 1981, Ser. No. 296,629

Int. Cl.³ C08G 18/30

U.S. Cl. 528-49

10 Claims

1. A heat-resistant, thermoplastic polyurethane substantially free of reactive isocyanate and hydroxyl groups comprising the reaction product of

- at least one polyisocyanate having at least two reactive isocyanate groups;
- at least one polyester polyol having at least two hydroxyl groups;
- at least one cycloaliphatic diol chain-extending agent; and
- at least one monofunctional isocyanate-reactive chain-terminating compound;

said polyisocyanate being present in an excess amount with respect to said polyester polyol and said cycloaliphatic diol;

said monofunctional isocyanate-reactive compound being present in an amount sufficient to ensure reaction of excess isocyanate groups;

said polyester polyol having been prepared from the reaction of

- at least one saturated acyclic, cyclic or aromatic monomeric or polymeric polyol having at least two hydroxyl groups;
- from 30 to 100 mole percent terephthalic acid; and
- from 70 to 0 mole percent of at least one saturated or unsaturated acyclic, cyclic or aromatic carboxylic acid, other than terephthalic acid, having at least two carboxyl groups;

said polyurethane having a molecular weight of at least 20,000.

4,393,187

STAIN RESISTANT, ABRASION RESISTANT POLYURETHANE COATING COMPOSITION, SUBSTRATE COATED THEREWITH AND PRODUCTION THEREOF

Joseph Boba, Fort Lee, and Robert P. Conger, Park Ridge, both of N.J., assignors to Congoleum Corporation, Kearny, N.J.

Filed Oct. 23, 1982, Ser. No. 391,796

Int. Cl.³ C08G 18/62

U.S. Cl. 528-60

8 Claims

1. Homogeneous, unitary, crosslinked polyurethane coating on a substrate wherein the nitrogen atoms of the polyurethane structures are joined to alicyclic rings or to straight aliphatic chains and the crosslinkages consist essentially of crosslinks between polyurethane structures, via isocyanate residues and triol or tetrol residues forming in combination, urethane group crosslinkages in the polyurethane structures; and crosslinks between polyurethane structures, deriving from double bonds

(II) in diacrylates, triacrylates or tetra acrylates and acrylate moieties which esterify alkane or polyether diol, triol or tetrol residues, which residues are linked as urethanes to the polyurethane structures; said coating also having urea groups linking the polyurethane structures; and wherein on an equivalent basis the ratio of double bond crosslinkages:urethane group crosslinkages joining polyurethane structures, formed by triol or tetrol residues, is between 1.0 and 2.5; where the number of equivalents of double bond crosslinkage in the coating is taken as being equal to the number of equivalents of carbon-carbon double bond in the uncured coating composition, and the number of equivalents of urethane crosslinkage in the coating is taken as being equal to the number of equivalents of hydroxyl group provided by the triols and the tetrols in the uncured coating composition; and in said coating the content of urethane groups in the main polyurethane chains amounts on an equivalent weight basis to about 40% up to no more than 70% of the total of urethane groups in the main polymer chains plus urethane crosslinkages plus urea groups present in said coating; the content of urethane group crosslinkages, formed from triol or tetrol residues, amounts to between about 20 and about 40 equivalent weight percent of said total of main chain urethane groups, urethane crosslinkages and urea groups and the content of urea groups in said coating amounts to between about 5 to about 25 equivalent percent of the total of said urethane main chain groups, urethane crosslinkages and urea groups and calculated as weight of unreacted isocyanate groups available for conversion to urea groups, amounts to about 0.5 to about 5 percent by weight of said coating; and in said coating, the vinyl groups other than those of acrylate groups incorporated by urethane links in the polyurethane structures, are combined via double bond linkages with each other and with said acrylate groups incorporated in the polyurethane structures.

4,393,188

THERMOSETTING PREPOLYMER FROM POLYFUNCTIONAL MALEIMIDE AND BIS MALEIMIDE

Akio Takahashi, Hitachiohta; Motoyo Wajima, Hitachi; Ritsuro Tada, Mito; Hirosada Morishita, Hitachi; Yutaka Mizuno, Shimodate; Shunya Yokozawa, Oyama, and Kenji Tsukanishi, Shimodate, all of Japan, assignors to Hitachi Chemical Company, Ltd., Japan

Filed Feb. 12, 1981, Ser. No. 233,746

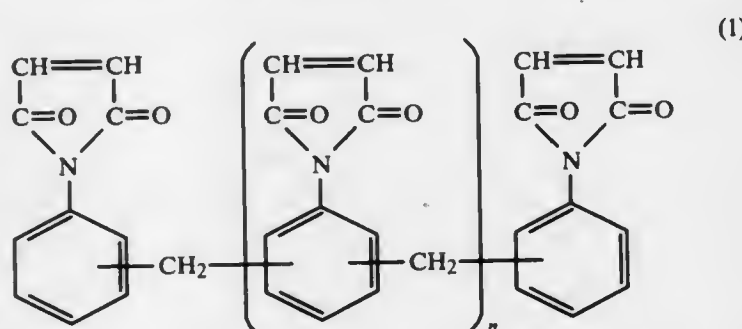
Claims priority, application Japan, Feb. 14, 1980, 55-18094

Int. Cl.³ C08G 59/06; G08G 59/08

U.S. Cl. 528-88

8 Claims

1. A process for preparing a thermosetting maleimide prepolymer, which comprises reacting (A) a polyfunctional maleimide compound obtained by the dehydration reaction of an amide acid formed from maleic anhydride and a polyamine prepared by the condensation of aniline with formaldehyde and represented by the formula (1)



10 to 90 mole percent in the presence of a catalytic amount of a metallic compound selected from the group consisting of a Group IV or V metal salt, oxide and organometallic derivative under polymerization reaction conditions.

4,393,192

CRYSTALLINE COPOLYMERS PREPARED FROM N,N'-TEREPHTHALOYLDI-BETA-ALANINE AND A GLYCOL

Benedict S. Curatolo, Maple Heights, and Gerald P. Coffey, Lyndhurst, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

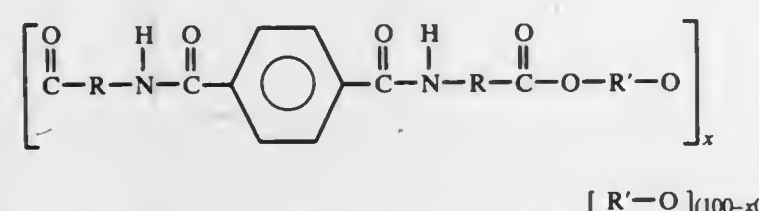
Filed Dec. 21, 1982, Ser. No. 451,998

Int. Cl.³ C08G 69/08, 69/44

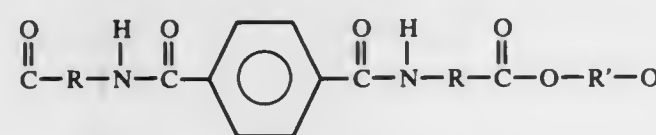
U.S. Cl. 528—292

18 Claims

1. Novel water insoluble polyamide esters of the general formula:



where each R and R' independently are a divalent aliphatic, alicyclic or aromatic radical;
x is a number of 0 to 100 and represents the percentage of the polyamide ester chain structure containing the following unit:



4,393,193

PROCESS FOR PRODUCING MOLDED ARTICLES FROM POLYLACTAMS BY ACTIVATED ANIONIC POLYMERIZATION OF MEDIUM LACTAMS

Werner Hartmann, Immenstaad, Fed. Rep. of Germany, assignor to Harwe AG, Zurich, Switzerland

Continuation of Ser. No. 811,057, Jun. 29, 1977, Pat. No. 4,233,433, which is a continuation-in-part of Ser. No. 579,620, May 21, 1975, abandoned. This application Sep. 15, 1980, Ser. No. 187,152

The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.³ C08G 69/18

U.S. Cl. 528—326

1 Claim

1. A homogeneous molded polylauric lactam article free of bubble formations and shrink holes and which does not show a melting point and disintegrates into crumbs when heated to a temperature from approximately 220° C. to 280° C. prepared by a process involving activated anionic polymerization and which comprises:

- adding to a first lactam melt contained in a first vessel at least one polymerization catalyst for the lactam with agitation and maintaining the mixture of the lactam melt and added catalyst under agitation and protected by an inert gas at a first temperature in the range from about 167.5° C. and about 169.5° C., and at a temperature deviation tolerance of about ±1° C. for said first temperature;
- adding, following the addition of the catalyst to the first lactam melt, at least one activator for the polymerization of the lactam to a second lactam melt under agitation and maintaining the mixture of the second lactam melt and activator stirred and protected by an inert gas at a second temperature which is lower than the temperature of the first melt and within a temperature range of from about

164° C., and about 166° C., and at a temperature deviation tolerance of about ±1° C. for said second temperature;

- pumping the first and second melts at about the melt temperatures by respective first and second gear pumps to a mixing zone through respective first and second essentially straight conveyor tube systems, each respectively at substantially the same temperature as said first and second melts and having an angle of incline to the horizontal plane of a maximum of about 10°, each conveyor tube having a volume at least one-third greater than the volume-conveying capacity of the gear pump to which said tube is coupled;
- combining and mixing the melts in a mixing zone maintaining between about 170° C. and about 175° C. to initiate a polymerization reaction;
- injecting the melt from the mixing zone into a mold for the molded article to form the article with attendant release of gas; and
- returning at least part of the released gas to at least one of the mixing vessels by the conveyor tube systems.

4,393,194

SUBSTITUTED-QUATERPHENYLENE POLYAMIDE

Russell A. Gaudiana, Merrimack, N.H., and Palaiyur S. Kalyanaraman, Chalfont, Pa., assignors to Polaroid Corporation, Cambridge, Mass.

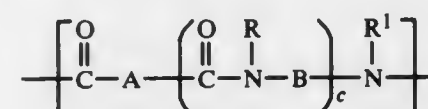
Filed Mar. 2, 1981, Ser. No. 239,180

Int. Cl.³ C08G 69/32

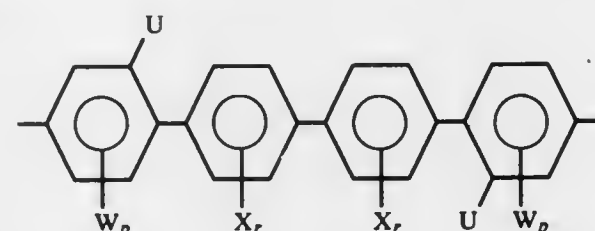
U.S. Cl. 528—348

57 Claims

1. A rigid rod-like film- or fiber-forming polymer comprising recurring units of the formula



wherein A is a divalent radical and B is a divalent radical or B represents a single bond; R and R¹ are each hydrogen, alkyl, aryl, alkaryl or aralkyl; and c is zero or one; and wherein, when c is one, at least one of A and B is a divalent substituted-quaterphenylene radical having the formula:



where each U is a substituent other than hydrogen, each W is hydrogen or a substituent other than hydrogen, each p is an integer from 1 to 3, each X is hydrogen or a substituent other than hydrogen and each r is an integer from 1 to 4, said U, W_p and X_r substitution being sufficient to provide the aromatic nuclei of said radical with a non-coplanar molecular configuration with respect to each other; and wherein, when c is zero, A is a divalent substituted-quaterphenylene radical having the aforesaid formula.

4,393,195

CURABLE CYANATE ESTER/ACRYLIC EPOXY ESTER COMPOSITION

Morio Gaku, Showamachi; Nobuyuki Ikeguchi, Tokyo, and Satoshi Ayano, Ninomiya, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Aug. 5, 1980, Ser. No. 175,510

Claims priority, application Japan, Aug. 8, 1979, 54-100929

Int. Cl.³ C08G 83/00, 73/12

U.S. Cl. 528—361

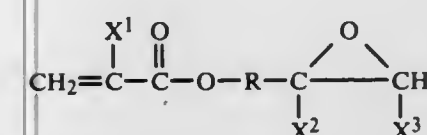
8 Claims

1. A curable resin composition consisting essentially of
- at least one cyanate ester compound selected from the group consisting of:
 - a polyfunctional aromatic cyanate ester monomer having the formula:



wherein m is 2 to 5 and R is an aromatic organic group, the cyanate groups being bonded to an aromatic ring of said aromatic organic group,

- a homopolymer of one or more polyfunction aromatic cyanate ester monomers of (1), and
- a copolymer of (1) and an amine; and
- at least one compound, said compound being selected from the group consisting of acrylic epoxy esters and methacrylic epoxy esters represented by the formula:



wherein X¹ is hydrogen or methyl, each of X² and X³ is hydrogen, methyl or ethyl, or when together X² and X³ represent alkylene having 3-5 carbon atoms, R is hydrocarbon or substituted hydrocarbon having 1-16 carbon atoms, homopolymers of one or more acrylic epoxy esters, homopolymers of one or more methacrylic epoxy esters, copolymers of acrylic epoxy esters and methacrylic epoxy esters and mixtures thereof; said composition including a mixture of components (a) and (b), a preliminary reaction product of components (a) and (b), or the combination of said mixture and said-preliminary reaction product.

4,393,196

POLYMERS CONTAINING RECURRING UNITS FROM DIENOIC ACID

Howard G. Rogers, Weston, Mass.; Russell A. Gaudiana, Merrimack, N.H.; Jeannette S. Manello, Lawrenceville, N.J., and Ronald A. Sahatjian, Lexington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

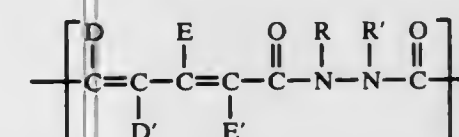
Filed Mar. 2, 1981, Ser. No. 238,057

Int. Cl.³ C08G 69/26, 73/08

U.S. Cl. 528—363

13 Claims

1. A film- or fiber-forming polymer comprising recurring units of the formula



wherein each of D, D', E and E' is hydrogen, alkyl or substituted-alkyl and each of R and R' is hydrogen, alkyl, aryl, alkaryl or aralkyl.

4,393,197

ARYLENE SULFIDE POLYMER PREPARATION

James T. Edmonds, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Feb. 16, 1982, Ser. No. 349,276

Int. Cl.³ C08G 75/14

U.S. Cl. 528—388

10 Claims

1. A method for producing polymers comprising:
- contacting at polymerization conditions a reaction mixture consisting essentially of:
 - (1) at least one polyhalo-substituted aromatic compound,
 - (2) at least one organic amide,
 - (3) at least one alkali metal carbonate,
 - (4) H₂S, and
 - (5) water in an amount up to 5 weight percent of the total of the other reaction mixture components, and
 - (b) maintaining said reaction mixture at polymerization conditions for a time sufficient to produce polymer.

4,393,198

COPOLYMERS FROM OCTAFLUORONAPHTHALENE

Madeline S. Toy, Palo Alto, and Roger S. Stringham, Woodside, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Division of Ser. No. 182,562, Aug. 29, 1980, Pat. No. 4,321,359.

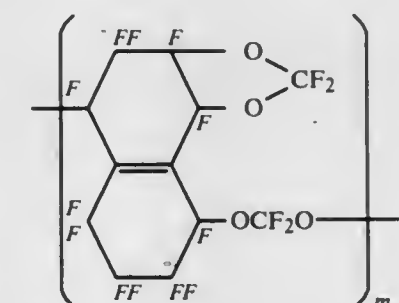
This application Sep. 30, 1981, Ser. No. 307,347

Int. Cl.³ C08G 65/00

U.S. Cl. 528—397

2 Claims

1. As a compound, the copolymer having the formula



wherein n is an integer of from 2 to 30.

4,393,199

CATIONIC POLYMERIZATION

Gerald E. Manser, Cupertino, Calif., assignor to S R I International, Menlo Park, Calif.

Filed May 12, 1981, Ser. No. 262,935

Int. Cl.³ C08G 65/10, 65/18, 65/20; C07C 43/11

U.S. Cl. 528—408

8 Claims

1. A method of polymerizing a monomer which is capable of cationic polymerization which comprises:
- providing a monomer capable of cationic polymerization
 - providing a preinitiator precursor and a catalyst, the catalyst being effective to cause cationic polymerization of monomers, the preinitiator precursor being such that it will form an adduct with the catalyst which in turn will form an initiating species with the monomer which will undergo chain extension with a further quantity of the monomer,
 - forming a mixture of the catalyst and preinitiator precursor or separately forming an adduct of the catalyst and preinitiator precursor,
 - bringing such mixture or preformed adduct into contact with a quantity of the monomer in the proportion of one mol of adduct to n mols of monomer, n being a relatively small number, the quantity of adduct considerably exceeding the quantity required for catalysis, and
 - causing polymerization to proceed to substantial completion, thereby producing a polymer of low polydispersity consisting predominantly of n mer units derived from the

monomer and one unit derived from the preinitiator precursor.

4,393,200

18- α -GLYCYRRHIZINIC ACID AND SALT THEREOF
Akira Miyashita, Yokohama; Kenzo Okada, Tokyo, and Takashi Kuramoto, Onomichi, all of Japan, assignors to Maruzen Kasei Kabushiki Kaisha, Japan

Filed Jan. 6, 1981, Ser. No. 222,880

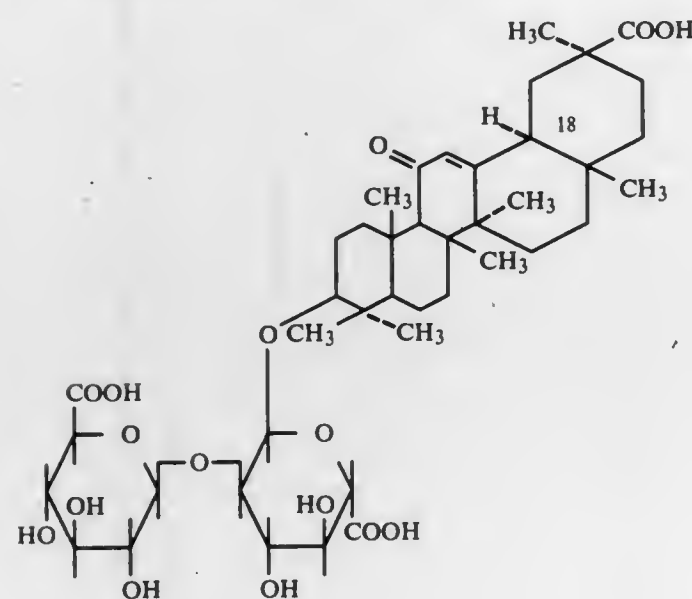
Claims priority, application Japan, Jan. 9, 1980, 55/580; Feb. 29, 1980, 55/24023

Int. Cl.³ C07H 15/20

U.S. Cl. 536—18.1

4 Claims

1. 18- α -glycyrrhizinic acid having the structural formula,



and salts thereof.

4,393,201

DNA WHICH CODES FOR GLYCOPROTEIN OF ERA-STRAIN RABIES VIRUS

Peter J. Curtis, Berwyn, and William H. Wunner, Devon, both of Pa., assignors to The Wistar Institute, Philadelphia, Pa.

Filed Nov. 4, 1981, Ser. No. 318,315

Int. Cl.³ C07H 21/04; A61K 39/205

U.S. Cl. 536—27

1 Claim

1. The single strand DNA that codes for the glycoprotein of ERA-strain rabies virus beginning with an initiation codon (ATG) and ending with a termination codon (TGA), and having the nucleotide sequence as follows: ATG GTT CCT CAG GCT CTC CTG TTT GTA CCC CTT CTG GTT TTT CCA TTG TGT TTT GGG AAA TTC CCT ATT TAC ACG ATA CTA GAC AAG CTT GGT CCC TGG AGC CCG ATT GAC ATA CAT CAC CTC AGC TGC CCA AAC AAT TTG GTA GTG GAG GAC GAA GGA TGC ACC AAC CTG TCA GGG TTC TCC TAC ATG GAA CTT AAA GTT GGA TAC ATC TTA GCC ATA AAA ATG AAC GGG TTC ACT TGC ACA GGC GTT GTG ACG GAG GCT GAA ACC TAC ACT AAC TTC GTT GGT TAT GTC ACA ACC ACG TTC AAA AGA AAG CAT TTC CGC CCA ACA CCA GAT GCA TGT AGA GCC GCG TAC AAC TGG AAG ATG GCC GGT GAC CCC AGA TAT GAA GAG TCT CTA CAC AAT CCG TAC CCT GAC TAC CGC TGG CTT CGA ACT GTA AAA ACC ACC AAG GAG TCT CTC GTT ATC ATA TCT CCA AGT GTA GCA GAT TTG GAC CCA TAT GAC AGA TCC CTT CAC TCG AGG GTC TTC CCT AGC GGG AAG TGC TCA GGA GTA GCG GTG TCT TCT ACC TAC TGC TCC ACT AAC CAC GAT TAC ACC ATT TGG ATG CCC GAG AAT CCG AGA CTA GGG ATG TCT TGT GAC ATT TTT ACC AAT AGT AGA GGG AAG AGA GCA TCC AAA GGG AGT GAG ACT TGC GGC TTT GTA GAT GAA AGA GGC CTA TAT AAG TCT TTA AAA GGA GCA TGC AAA

CTC AAG TTA TGT GGA GTT CTA GGA CTT AGA CTT ATG GAT GGA ACA TGG GTC GCG ATG CAA ACA TCA AAT GAA ACC AAA TGG TGC CCT CCC GAT CAG TTG GTG AAC CTG CAC GAC TTT CGC TCA GAC GAA ATT GAG CAC CTT GTT GTA GAG GAG TTG GTC AGG AAG AGA GAG GAG TGT CTG GAT GCA CTA GAG TCC ATC ATG ACA ACC AAG TCA GTG AGT TTC AGA CGT CTC AGT CAT TTA AGA AAA CTT GTC CCT GGG TTT GGA AAA GCA TAT ACC ATA TTC AAC AAG ACC TTG ATG GAA GCC GAT GCT CAC TAC AAG TCA GTC AGA ACT TGG AAT GAG ATC CTC CCT TCA AAA GGG TGT TTA AGA GTT GGG GGG AGG TGT CAT CCT CAT GTG AAC GGG GTG TTT TTC AAT GGT ATA ATA TTA GGA CCT GAC GGC AAT GTC TTA ATC CCA GAG ATG CAA TCA TCC CTC CTC CAG CAA CAT ATG GAG TTG TTG GAA TCC TCG GTT ATC CCC CTT GTG CAC CCC CTG GCA GAC CCG TCT ACC GTT TTC AAG GAC GGT GAC GAG GCT GAG GAT TTT GTT GAA GTT CAC CTT CCC GAT GTG CAC AAT CAG GTC TCA GGA GTT GAC TTG GGT CTC CCG AAC TGG GGG AAG TAT GTA TTA CTG AGT GCA GGG GCC CTG ACT GCC TTG ATG TTA ATA ATT TTC CTG ATG ACA TGT TGT AGA AGA GTC AAT CGA TCA GAA CCT ACG CAA CAC AAT CTC AGA GGG ACA GGG AGG GAG GTG TCA GTC ACT CCC CAA AGC GGG AAG ATC ATA TCT TCA TGG GAA TCA CAC AAG AGT GGG GGT GAG ACC AGA CTG TGA.

4,393,202

METHOD FOR DEWATERING STARCH SLURRIES CONTAINING SWOLLEN STARCH GRANULES RESULTING FROM TREATMENT WITH CATIONIC REAGENTS

William F. Breuninger, Greenwood, Ind., assignor to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Aug. 17, 1982, Ser. No. 408,987

Int. Cl.³ C08B 31/00, 31/02, 31/08

U.S. Cl. 536—102

6 Claims

1. In a process for dewatering starch conversion products containing swollen starch granules resulting from treatment with cationic reagents, the improvement which comprises adding to the starch slurry a water soluble anionic polymer, thereby increasing the production rate and yield while reducing suspended solids in the effluent.

4,393,203

PROCESS OF PREPARING ALKYL POLYSACCHARIDES
Mark H. K. Mao, Cincinnati; Larry E. Miller, Madeira, and John M. Weeman, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 26, 1982, Ser. No. 371,693

Int. Cl.³ C07G 3/00; C07H 1/00; C08B 37/00

U.S. Cl. 536—124

5 Claims

1. In the process of removing fatty alcohol containing from about 12 to about 18 carbon atoms from a mixture of said alcohol with an alkyl polysaccharide wherein saccharide chain length is greater than one on the average and less than about 20 the improvement of heating the mixture under vacuum in a thin film evaporator wherein the thin film evaporator provides, in operation, a Reynolds number of at least about 20,000 and a film thickness of less than about 10 mm and the temperature is from about 120° C. to about 200° C. and the vacuum is from about 0.1 to about 20 mm of mercury so that no more than about 2% of said fatty alcohol remains.

4,393,204

3-[[5-(4-CHLOROPHENYL)FURFURYLIDENE]AMINO]-5-(SUBSTITUTED)-2-OXAZOLIDINONES

Stanford S. Pelosi, Jr., Norwich, N.Y., assignor to Norwich Eaton Pharmaceuticals, Inc., Norwich, N.Y.

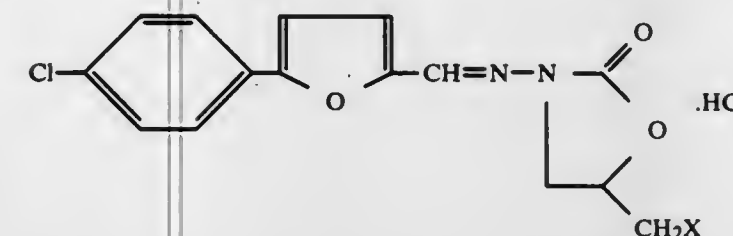
Filed May 21, 1982, Ser. No. 380,823

Int. Cl.³ C07D 413/12

U.S. Cl. 542—420

3 Claims

1. A compound of the formula:



wherein X represents 4-morpholinyl or 1-pyrrolidinyl.

4,393,205

CEPHAPIRINE ESTERS AND SALTS THEREOF
Marco Falciani, and Renato Broggi, both of Milan, Italy, assignors to Dobfar S.p.A., Milan, Italy

Filed Mar. 5, 1981, Ser. No. 240,945

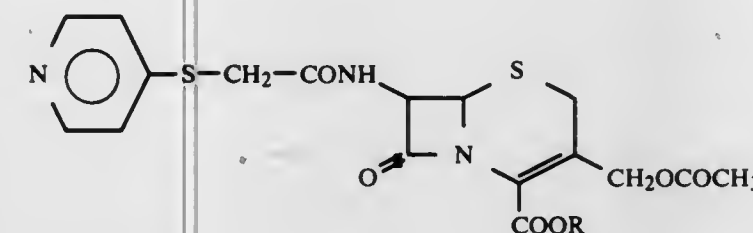
Claims priority, application Italy, Mar. 14, 1980, 20666 A/80

Int. Cl.³ C07D 501/34

U.S. Cl. 544—28

3 Claims

1. Cephaliprine esters having the formula



wherein R is



4,393,206

PROCESS FOR THE PRODUCTION OF 2,3-DIHYDRO-4H-1,4-BENZOTHAZINES

Paul Uhrhan, Odenthal, and Edmund Krauthausen, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 18, 1982, Ser. No. 359,221

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1981, 3111487

Int. Cl.³ C07D 279/16

U.S. Cl. 544—51

6 Claims

1. A process for the production of 2,3-dihydro-4H-1,4-benzothiazines, characterized in that 2-(2-hydroxyalkyl)-thioanilines are cyclized using phosphorous acid with the release of water.

4,393,207

ALKOXYALKYLAMINOTRIAZINE TRANS-ETHERIFICATION PRODUCTS

Rainer Hummerich, Ludwigshafen; Wolfram Weiss, Mutterstadt; Franz Merger, Frankenthal; Guenther Immel, Weinheim; Hans-Joachim Kraus, Ludwigshafen, and Karl-Clemens Peters, Bad Dürkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jul. 1, 1981, Ser. No. 279,586

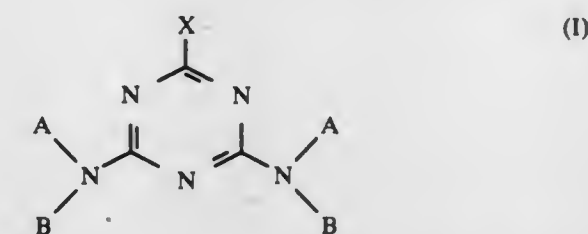
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1980, 3025352

Int. Cl.³ C07D 251/70, 251/18

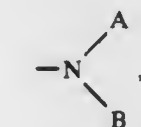
U.S. Cl. 544—196

5 Claims

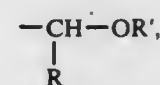
1. An alkoxyalkylaminotriazine trans-etherification product suitable for use in baking finishes or acid-hardening finishes, which is obtained by reacting an alkoxyalkylaminotriazine of the formula (I)



where X is hydrogen, alkyl of 1 to 15 carbon atoms, phenyl, alkylphenyl, where alkyl is of 1 to 4 carbon atoms, or



A and B are identical or different and each is hydrogen, alkyl of 1 to 4 carbon atoms, alkenyl of 3 to 15 carbon atoms or



and R and R' are identical or different and each is hydrogen or alkyl of 1 to 9 carbon atoms, with from 0.1 to 6 moles, per mole of alkoxyalkylaminotriazine, of a β -hydroxyaldehyde of the general formula (II)



where R'', R''' and R'''' are identical or different and each is hydrogen or alkyl of 1 to 5 carbon atoms or R''' and R'''' together with the α -carbon atom form a cyclopentane or cyclohexane ring, and R''' or R'''' can also be hydroxyalkyl of 1 to 4 carbon atoms and R'''' can also be phenyl, in the presence of an acidic catalyst, and removing the alcohol resulting from the trans-etherification.

4,393,208

5-METHYL-2-TRIFLUOROMETHYLINDOLO[2,3-b]QUINOXALINE

Robert J. Alaimo, Norwich, N.Y., assignor to Norwich Eaton Pharmaceuticals, Inc., Norwich, N.Y.

Filed Mar. 29, 1982, Ser. No. 362,899

Int. Cl.³ C07D 487/04; A61K 31/495

U.S. Cl. 544—343

1 Claim

1. The compound 5-methyl-2-trifluoromethylindolo[2,3-b]quinoxaline.

4,393,209

DECAPRENYLAMINE DERIVATIVES

Yoshiyuki Tahara, Ohi; Hiroyasu Koyama, Ageo; Yasuhiro Komatsu, Niiza; Reiko Kubota, Tokyo, and Toshihiro Takahashi, Ohi, all of Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

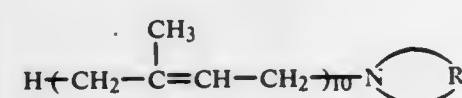
Filed Nov. 19, 1980, Ser. No. 208,326

Claims priority, application Japan, Nov. 19, 1979, 54/148822
Int. Cl.³ C07D 211/06, 295/02, 239/20, 277/22

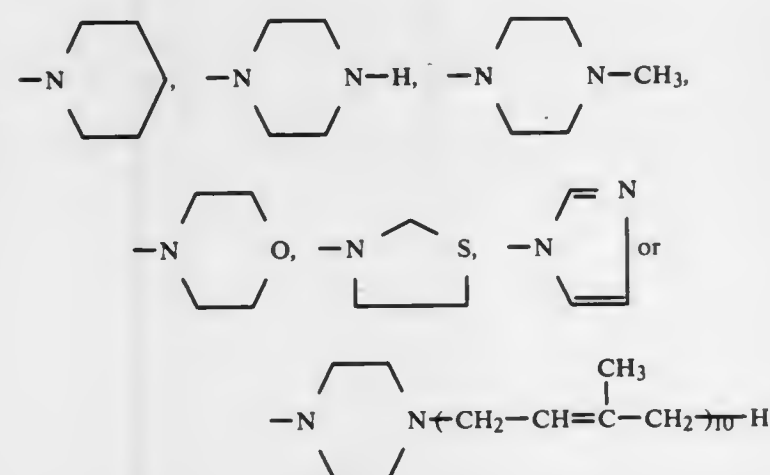
U.S. Cl. 544-404

4 Claims

1. A compound of the general formula



wherein R, taken together with the nitrogen atom to which it is attached, is



and the acid addition salts thereof.

4,393,210

1(2H)-ISOQUINOLONE COMPOUNDS AND ACID ADDITION SALTS THEREOF

Shigeo Senda, Gifu; Eiichi Katho, Aza-nishimachi; Osamu Oh-tani, Minokamo; Hidekazu Miyake, and Khosuke Fujiwara, both of Tokushima, all of Japan, assignors to Seiyaku Co., Ltd., Aichi and Taiho Pharmaceutical Co., Ltd., Tokyo, both of Japan

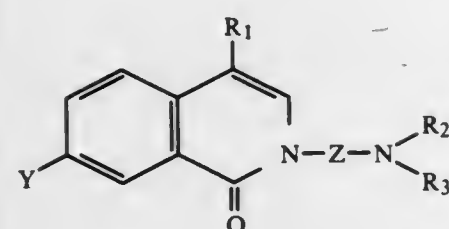
Filed Aug. 28, 1980, Ser. No. 182,188

Int. Cl.³ C07D 217/14; A61K 31/47

U.S. Cl. 546-141

5 Claims

1. 1(2H)-Isoquinolone compounds represented by the formula (I)



wherein Y represents hydrogen, chlorine or a methoxy group, Z represents a straight chain or branched chain divalent saturated aliphatic hydrocarbon group having 2 to 4 carbon atoms, R₁ represents a cyano group, a lower alkoxy carbonyl group, a carbamoyl group, N-alkylcarbamoyl having 1 to 4 carbon atoms in the alkyl moiety, N,N-dialkylcarbamoyl having 1 to 4 carbon atoms in each alkyl moiety, 4-methylpiperazinocarbonyl or morpholinocarbonyl, a phenyl group or halophenyl or alkoxyphenyl having 1 to 4 carbon atoms in the alkoxy moiety, R₂ represents hydrogen or a lower alkyl group, R₃ represents a lower alkyl group, or R₂ and R₃ can form, when taken together with nitrogen atom to which they are attached, pyrrolidino, piperidino, 4-methylpiperazino, 4-hydroxyethyl-

piperazino or morpholino, and the pharmaceutically acceptable acid addition salts thereof.

4,393,211

PREPARATION OF AROMATIC SULFOHALIDES

Peter Tonne, Neustadt, and Hagen Jaedicke, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Nov. 12, 1981, Ser. No. 320,334

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1981, 3107700

Int. Cl.³ C07D 215/36; C07C 143/70

U.S. Cl. 546-153

10 Claims

1. A process for the preparation of an aromatic sulfohalide by reacting an aqueous solution, containing a hydrogen halide, of an aromatic diazonium halide with sulfur dioxide, which process comprises:

(a) reacting

(1) an aqueous solution which does not dissolve sulfur dioxide, said solution essentially containing the hydrogen halide HX of a diazonium salt which is derived from the corresponding aromatic amine and the halogen X of the desired sulfohalide, with

(2) sulfur dioxide in the presence of an inert organic solvent which dissolves the sulfur dioxide but which is immiscible or only partially miscible with water;

(b) decomposing the diazonium salt, simultaneously or subsequently, by means of a catalyst for diazonium salt decomposition; and

(c) treating the resulting reaction mixture, or the organic phase thereof after removal of the aqueous phase, with an oxidizing agent.

4,393,212

CERTAIN NICOTINIC ACID ESTERS AND CORRESPONDING NICOTINONITRILES

John J. Baldwin, and Gerald S. Ponticello, both of Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

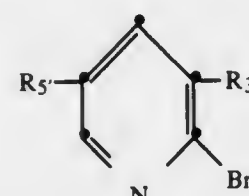
Division of Ser. No. 7,092, Jan. 29, 1979, Pat. No. 4,279,913, which is a continuation-in-part of Ser. No. 866,961, Jan. 4, 1978, abandoned. This application May 13, 1981, Ser. No. 263,335

Int. Cl.³ C07D 213/55

U.S. Cl. 546-286

2 Claims

1. A compound of the formula



wherein R₃ is COOC₂H₅ or CN and R₅ is CH₂Br, CHBr₂ or CBr₃.

4,393,213

PROCESS FOR PRODUCING 6-PHENOXYPICOLINIC ALDEHYDES

Kiyomi Ozawa, and Shigeru Ishii, both of Funabashi, Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Oct. 26, 1981, Ser. No. 315,228

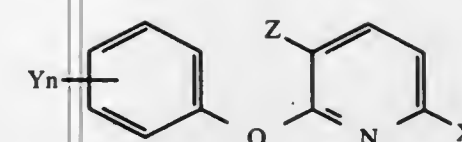
Claims priority, application Japan, Jan. 14, 1981, 56-3224; Jul. 6, 1981, 56-105294

Int. Cl.³ C07D 213/64

U.S. Cl. 546-298

16 Claims

1. A process for producing 6-phenoxy picolinic aldehydes, which comprises reacting a 2-halogeno-6-phenoxy pyridine represented by the general formula I:



where X is a halogen atom, Y is independently an alkyl group of 1 to 4 carbon atoms, an alkoxy group of 1 to 4 carbon atoms, an alkoxy group of 1 to 4 carbon atoms substituted by a halogen atom, an alkylthio group of 1 to 4 carbon atoms, a trifluoromethyl group, a fluorine atom or a chlorine atom, Z is a hydrogen atom or a fluorine atom, said magnesium metal being in an amount of from 1 to 2 equivalents to said 2-halogeno-6-phenoxy pyridine, and n is an integer of 0 to 2, with magnesium metal, and then with a formylating reagent.

4,393,214

PREPARATION OF

2-CHLORO-5-TRIFLUOROMETHYLPYRIDINE AND 2-CHLORO-5-PERCHLOROFLUOROMETHYLPYRIDINES

Norman L. Roberts, Walton, and Graham Whitaker, Frodsham, both of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 143,479, Apr. 22, 1980, Pat. No. 4,288,600, which is a continuation-in-part of Ser. No. 95,678, Nov. 19, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,428

Claims priority, application United Kingdom, Dec. 7, 1978, 47583/78

The portion of the term of this patent subsequent to Sep. 8, 1998, has been disclaimed.

Int. Cl.³ C07D 213/26

U.S. Cl. 546-345

4 Claims

1. A process for the preparation of 2,6-dichloro-3-trifluoromethylpyridine which consists essentially of vaporizing 3-trifluoromethylpyridine and chlorinating the vaporized 3-trifluoromethylpyridine by contacting the same in the vapour phase with gaseous chlorine at a temperature in the range from 400° C. to 500° C. using at least one mole of chlorine per mole of 3-trifluoromethylpyridine.

4,393,215

CLEFTAGE OF DIALKOXYKETOXIME

Milorad M. Rogic, Whippany, and Bryce C. Oxenrider, Florham Park, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

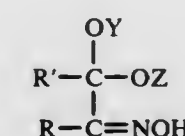
Filed Jul. 6, 1981, Ser. No. 280,754

Int. Cl.³ C07D 271/08

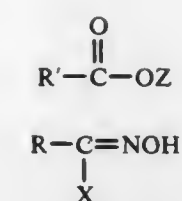
U.S. Cl. 548-125

6 Claims

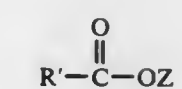
1. A process of cleaving a dialkoxyketoxime which comprises reacting in the liquid phase a dialkoxyketoxime of the formula:



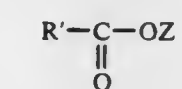
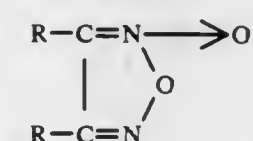
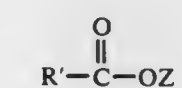
wherein Y and Z are each independently linear or branched alkyl and R and R' are each independently linear or branched alkyl or are together $-(\text{CH}_2)_n-$ where n is an integer from 3 to 10, with a halogen selected from elemental chlorine and elemental bromine in the presence of a base and at least an equimolar amount of water under conditions forming a product selected from the group consisting of an oximinohalide of the formula:



where R, R' and Z' are as defined above and X is Cl or Br; a nitrile oxide of the formula:



a furoxan of the formula:



and mixtures thereof.

4,393,216

METHOD OF PRODUCING AMINOBENZIMIDAZOLONES

Tsuneaki Hirashima; Toshiyuki Miyata, both of Sakai; Yoshikazu Yamamoto, Ikeda, and Mitsuyuki Kato, Neyagawa, all of Japan, assignors to Showa Chemical Co., Ltd. and Osaka Municipal Government, both of Japan

Filed Jun. 22, 1981, Ser. No. 275,619

Claims priority, application Japan, Dec. 30, 1980, 55-187383
Int. Cl.³ C07D 235/26

U.S. Cl. 548-305

13 Claims

1. A method of producing 5-aminobenzimidazolones which comprises reacting a 2,4-dinitroaniline with carbon monoxide in a solvent in the presence of selenium, a base selected from the group consisting of tertiary amines, N,N-dialkylamides and inorganic bases selected from the group consisting of hydroxides, oxides, carbonates, bicarbonates and sulfides or alkali metals and alkaline earth metals, and water, said 2,4-dinitroaniline containing no additional substituents or only containing substituents which are substantially inert in the reaction.

4,393,217

SUBSTITUTED PHENYL-5-AMINOPYRAZOLES

John P. Dusza, and Jay D. Albright, both of Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jan. 12, 1981, Ser. No. 224,606

Int. Cl.³ C07D 231/38

U.S. Cl. 548-362

3 Claims

1. The compound 5-amino-N-benzyl-1-methyl-4-pyrazolecarboxamide.

4,393,218

2,2,4,5,5-PENTAMETHYL-3-FORMYL- Δ^3 -PYRROLINE
AND THE PREPARATION THEREOF

Silvestro Costanzi, S. Guiliano Mi; Francesco Tessarolo, Monza, and Maurizio Brunelli, Milan, all of Italy, assignors to Anic, S.p.A., Palermo, Italy

Continuation-in-part of Ser. No. 149,511, May 13, 1980, abandoned. This application Dec. 7, 1981, Ser. No. 327,753
Claims priority, application Italy, May 29, 1979, 23080 A/79
Int. Cl.³ C07D 207/24

U.S. Cl. 548—530

3 Claims

1. The compound, 2,2,4,5,5-pentamethyl-3-formyl- Δ^3 -pyrroline.
2. A process for the preparation of the compound of claim 1 which comprises reacting di-tert-propargylamine at a pH equal to or less than 3 in an environment comprising from 60 to 65% of sulfuric acid, based on the total solution, at a temperature of between 120° and 135° C.
3. A process for the preparation of the compound of claim 1 which comprises reacting di-tert-propargylamine at a pH equal to or less than 3 in an environment comprising between 45 and 50% of sulfuric acid and between 0.6 and 0.7% of mercury oxide, based on the total solution, at a temperature between 100° and 115° C.

4,393,219

SALT OF CHLORHEXIDINE

Koji Inoue, Osaka; Nobukatsu Sato, Nara, and Takashi Tamura, Takatsuki, all of Japan, assignors to Maruishi Pharmaceutical Co., Ltd., Japan

Filed Sep. 11, 1981, Ser. No. 301,892

Claims priority, application Japan, Mar. 30, 1981, 56-47043
Int. Cl.³ C07D 207/28

U.S. Cl. 548—534

1 Claim

1. Chlorhexidine-di-2-pyrrolidone-5-carboxylate.

4,393,220

2-ALKENYL AND 2-ALKYNYL SUCCINIC ACID
N-(3,5-DICHLOROPHENYL)IMIDES

Norman Häberle, Munich; Otto Eberle, Ottobrunn, and Walter Hafner, Furth, all of Fed. Rep. of Germany, assignors to Consortium für elektrochemische Industrie GmbH, Munich, Fed. Rep. of Germany

Filed Mar. 31, 1981, Ser. No. 249,323

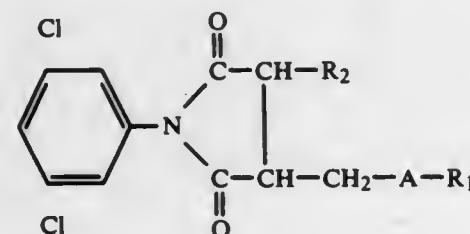
Claims priority, application Fed. Rep. of Germany, Apr. 9, 1980, 3013566

Int. Cl.³ A01N 37/32; C07D 207/40

U.S. Cl. 548—545

2 Claims

1. A compound of the formula



in which
A denotes the $-\text{CH}=\text{CH}-$ or $-\text{C}\equiv\text{C}-$ group and
 R_1 and R_2 represent hydrogen or methyl.

4,393,221

PROCESS TO PRODUCE HEXAHYDRONAPHTHACENE
DERIVATIVES

Michael J. Broadhurst, Baldock; Cedric H. Hassall, Welwyn, and Gareth J. Thomas, Luton, all of England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 111,348, Jan. 11, 1980, Pat. No. 4,316,985.
This application Nov. 4, 1981, Ser. No. 318,172

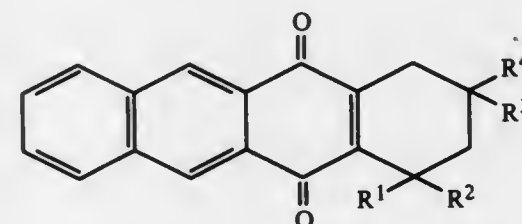
Claims priority, application United Kingdom, Jan. 16, 1979, 7901537; Jul. 26, 1979, 7926151

Int. Cl.³ C07C 50/22; C07D 317/72, 339/06

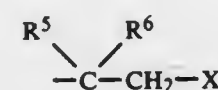
U.S. Cl. 549—39

3 Claims

1. A process for the manufacture of compounds of the general formula

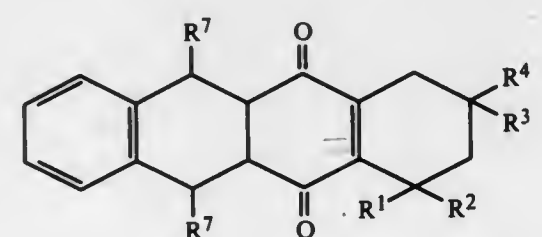


wherein one of R^1 and R^2 represents a hydrogen atom and the other represents a hydrogen atom or a hydroxy group or R^1 and R^2 together represent an ethylene ketal or ethylene thio ketal group, R^3 represents a hydrogen atom or a hydroxy or lower alkanoyloxy group and R^4 represents a lower alkyl or lower alkoxy carbonyl or benzyloxy carbonyl group or a group of the formula



wherein R^5 and R^6 together form an oxo group or an ethylene ketal or ethylene thio ketal group and X represents a hydrogen atom or a hydroxy or lower alkanoyloxy group, which comprises

- (a) eliminating 2 mols of the lower alkane carboxylic acid R^7H from a compound of the general formula



wherein R^1 , R^2 , R^3 and R^4 have the significance given earlier in this claim and R^7 represents a lower alkanoyloxy group,

by heating or treatment with an alkali metal hydroxide.

4,393,222

TRICYCLO[6.4.0.0^{2,7}]
DODECANE-3,6-DIPHENYL-1,8,4,5-TETRACARBOXYLIC
ACID DIANHYDRIDES

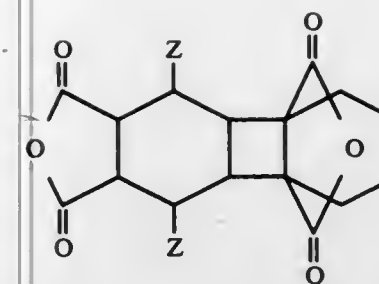
Tayseer S. Nimry, Wheaton, and Ellis K. Fields, River Forest, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 294,348, Aug. 19, 1981, Pat. No. 4,358,580.
This application Jun. 10, 1982, Ser. No. 386,888Int. Cl.³ C07D 493/04

U.S. Cl. 549—234

1 Claim

1. As a composition of matter the dianhydrides of the following structure:



wherein Z is either hydrogen or benzene radical.

4,393,223

PROCESS FOR THE PRODUCTION OF MACROCYCLIC
ESTERS AND LACTONES UTILIZING MIXED METAL
CATALYSTS

Eugene G. Harris, West Chester, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio

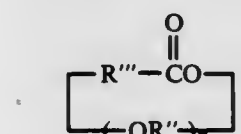
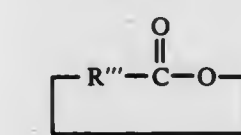
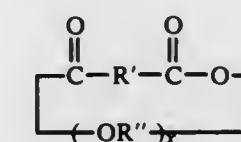
Continuation-in-part of Ser. No. 73,755, Sep. 10, 1979, abandoned. This application Jul. 22, 1981, Ser. No. 285,727

Int. Cl.³ C07D 313/00, 313/18, 321/04, 321/08, 321/12, 321/00, 323/00

U.S. Cl. 549—266

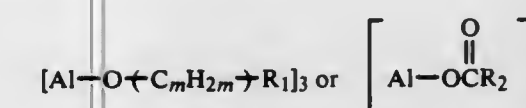
8 Claims

1. A process for the production of macrocyclic compounds having 8 to 20 carbon atoms in the ring and selected from the group consisting of

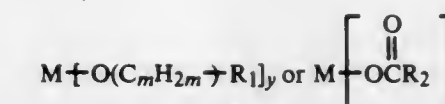


where R' is a bivalent aliphatic hydrocarbon radical having 1 to 16 carbon atoms, R'' is a saturated bivalent aliphatic hydrocarbon radical having from 2 to 12 carbon atoms, R''' is a bivalent aliphatic hydrocarbon radical having 6 to 18 carbon atoms and x is an integer from 1 to 4 by thermal depolymerization of the corresponding linear polyester which comprises heating the polyester at a temperature from 200° C. to 400° C. and pressure less than 50 mm Hg. in the presence of 0.01% to 20% by weight, based on the polyester, of a mixed metal catalyst comprising:

- (a) an aluminum alkoxide or aluminum carboxylate corresponding to the formula



- (b) from 0.05 to 8 moles, per mole of (a), of an alkali metal or magnesium alkoxide or carboxylate corresponding to the formula



wherein R_1 , R_2 and m are the same as defined above, M is lithium, sodium, potassium or magnesium and y is 1 when M is lithium, sodium or potassium, and 2 when M is magnesium.

4,393,224

TELOMERIZATION OF BUTADIENE AND CARBON
DIOXIDE

James A. Daniels, Frodsham, England, assignor to Imperial Chemical Industries Plc., London, England

Filed Oct. 19, 1981, Ser. No. 312,914

Claims priority, application United Kingdom, Oct. 20, 1980, 8033740

Int. Cl.³ C07D 309/32

U.S. Cl. 549—273

12 Claims

1. A process for the manufacture of 2-ethylidenehept-6-en-5-olide which comprises reacting in a liquid medium 1,3-butadiene with carbon dioxide in the presence of

- (a) a palladium complex catalyst which is a complex of palladium with a phosphorus (III) compound or pyridine or a substituted pyridine, and
- (b) a tertiary amine having a pKa value in the range 10 to 14.

4,393,225

AI-77 COMPOUNDS AND PHARMACEUTICALLY
ACCEPTABLE SALTS THEREOF

Hiroshi Hayashi; Yukiji Shimojima; Takashi Shirai; Torao Ishida, all of Fuji, and Mitsuru Shibukawa, Yokohama, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jul. 11, 1980, Ser. No. 167,581

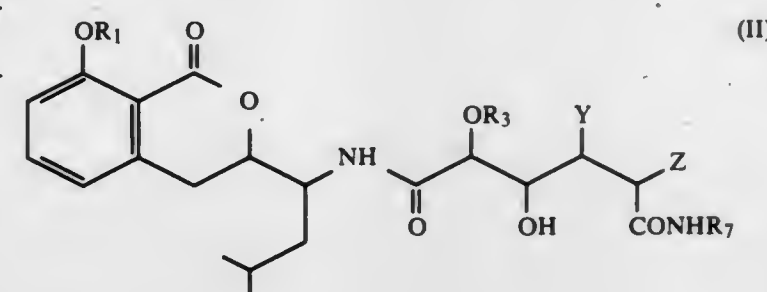
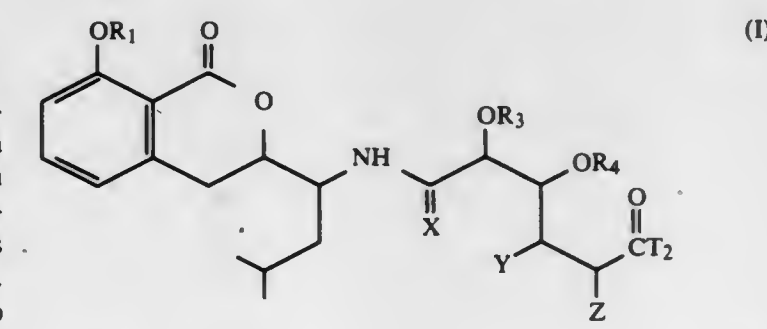
Claims priority, application Japan, Jul. 11, 1979, 54-86892; May 12, 1980, 55-61685

Int. Cl.³ C07D 311/76

U.S. Cl. 549—289

5 Claims

1. An AI-77 compound of the formula (I) or (II):



wherein:
X is NR_6 or O;
Y is NHR_5 or combines with Z to provide a link for bonding C and C;
Z is H or combines with Y to provide a link for bonding C and C;
 R_1 , R_3 and R_5 are each H, R' , $-\text{CH}_2\text{R}$, or $-\text{COR}$;
 R_6 is H or R;

R₇ is H, R or CH₂R;

R is a hydrocarbon group consisting of a straight or branched alkyl group of C₁ to C₁₇ containing from 0 to 3 double bonds or triple bonds, an aromatic group of C₆ to C₁₀, a bridged hydrocarbon group of C₇ to C₁₀, a cycloalkyl group of C₃ to C₈ and an arylaliphatic group having a C₆ to C₁₀ aromatic group on a C₁ to C₅ aliphatic group, wherein the above hydrocarbons can be substituted with halogen, oxo, carboxyl, hydroxyl, a straight or branched aliphatic group of C₁ to C₅ containing from 0 to 3 double bonds or triple bonds, an aromatic group of C₆ to C₁₀, a cycloalkyl group of C₃ to C₈, an aromatic-aliphatic group of C₇ to C₁₁, alkoxy of C₁ to C₅, thioalkoxy or C₁ to C₅, carboalkoxy of C₂ to C₆, acyl of C₁ to C₆ or acyloxy of C₂ to C₆;

R' is the same as R exclusive of those groups wherein unsaturated carbon or tertiary carbon is directly bonded to O or N; R₄ is H or combines with T₂ to provide a link for bonding C and O in a lactone ring; and

T₂ is OH or combines with R₄ to provide a link for bonding C and O in a lactone ring;

or a pharmaceutically acceptable salt thereof with hydrohalogenic acid, phosphoric acid, sulfuric acid, oxalic acid, maleic acid or an organic sulfonic acid.

4,393,226

COMPOUNDS AND METHODS FOR CHANGING CALCIUM METABOLISM WITHIN THE CELLS OF A MAMMAL

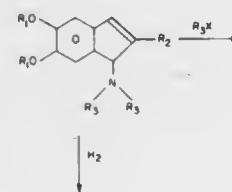
Donald T. Witiak, Mount Vernon, and Ralf G. Rahwan, Columbus, both of Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ohio

Filed May 6, 1981, Ser. No. 261,008

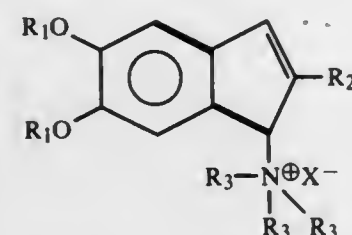
Int. Cl.³ C07D 317/44; A61K 31/36

U.S. Cl. 549—433

30 Claims

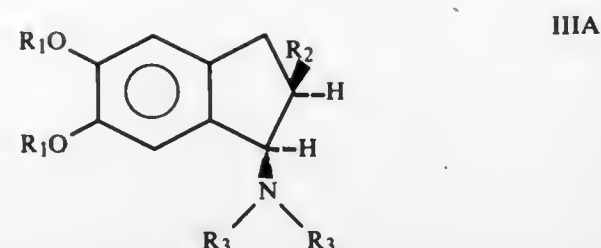


1. A 2-alkyl-5,6-dialkoxyindene-1-trialkylammonium salt of Formula II



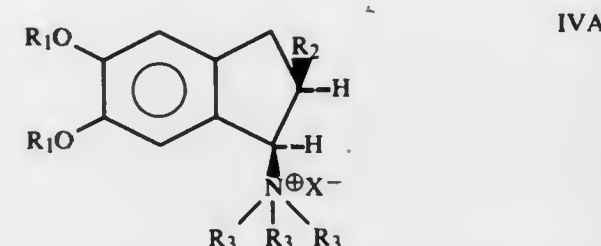
wherein the two R₁'s together form an alkylene group of 1 to 3 carbon atoms, R₂ is an alkyl group of 1 to about 8 carbon atoms, a cycloalkyl group of 3 to about 7 carbon atoms or a phenyl group, each R₃ independently is an alkyl group of 1 to 3 carbon atoms and X⁻ is an anion.

11. A cis 2-alkyl-5,6-dialkoxy-1-dimethylaminoindane of Formula IIIA



wherein the two R₁ groups together form an alkylene group of 1 to 3 carbon atoms, R₂ is an alkyl group of 1 to about 8 carbon atoms, a cycloalkyl group of 3 to about 7 carbon atoms or a phenyl group, and each R₃ independently is an alkyl group of 1 to 3 carbon atoms.

21. A cis 2-alkyl-5,6-dialkoxyindane-1-trialkylammonium salt of Formula IVA



wherein the two R₁ groups together form an alkylene group of 1 to 3 carbon atoms, R₂ is an alkyl group of 1 to about 8 carbon atoms, a cycloalkyl group of 3 to about 7 carbon atoms or a phenyl group, each R₃ independently is an alkyl group of 1 to 3 carbon atoms and X⁻ is an anion.

4,393,227

PROCESS FOR DECHLORINATING ORGANIC COMPOUNDS

Edward N. Squire, Glen Mills, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

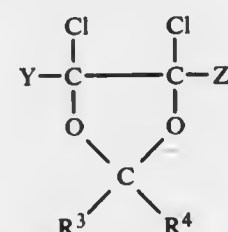
Filed Aug. 12, 1981, Ser. No. 292,060

Int. Cl.³ C07D 317/10

U.S. Cl. 549—455

18 Claims

1. A process for dechlorinating an organic compound selected from the group consisting of



where each of Y and Z independently is hydrogen, chlorine or fluorine, provided at least one of Y and Z is fluorine; and each of R₃ and R₄ independently is hydrogen, fluorine or trifluoromethyl to the ethylenically unsaturated compound,

said process comprising contacting the organic chlorine-containing compound with at least a stoichiometric amount of metallic magnesium, a mercury based promoter selected from water-soluble mercury salts and metallic mercury, and iodine in the presence of tetrahydrofuran at a temperature from about room temperature to at least the boiling point of tetrahydrofuran at the operating pressure; with a proviso that magnesium amalgam can be used in lieu of magnesium and the mercury-based promoter.

4,393,228

EPOXYSUCCINIC ACID DERIVATIVES

Jiro Sawada, Kodaira; Kazunori Hanada; Masaharu Tamai, both of Ageo; Shigeo Morimoto, Saitama, and Sadafumi Omura, Ageo, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Feb. 22, 1978, Ser. No. 880,180

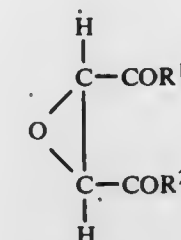
Claims priority, application Japan, Mar. 3, 1977, 52-23092; Mar. 4, 1977, 52-23536; Mar. 4, 1977, 52-23537

Int. Cl.³ C07D 303/48, 407/12, 411/12, 407/02

U.S. Cl. 549—549

14 Claims

1. Trans-epoxysuccinic acid derivatives represented by the general formula



wherein

(1) R¹ and R² are each R³ wherein R³ is —O—A¹—R⁴, —O—A²—R⁵ or —OCH₂—R⁶ wherein A¹ is alkylene containing zero to 4 carbon atoms or said alkylene substituted with methyl, R⁴ is cycloalkyl containing 3 to 10 carbon atoms, or said cycloalkyl substituted with one to 3 halogen or methyl, A² is alkylene containing 2 or 3 carbon atoms, or alkenylene containing 2 or 3 carbon atoms, R⁵ is phenyl, R⁶ is furyl, tetrahydrofuryl, thienyl, naphthyl, naphthyl substituted with one or two halogen or methyl, phenyl substituted with one to three halogen, methyl, methoxy, methylenedioxy or trifluoromethyl, or cycloalkenyl containing 5 to 8 carbon atoms, or

(2) R¹ is hydroxy, R³ or R⁷, and R² is hydroxy or R⁸ wherein R³ is as defined above, R⁷ is alkoxy containing one to 12 carbon atoms, allyloxy, propargyloxy, phenoxy or benzyloxy, and R⁸ is an amino acid residue represented by the general formula



wherein A³ is methylene, ethylene, trimethylene, alkylidene containing 2 to 5 carbon atoms or said alkylidene substituted with one to 3 hydroxy, methyl, thiol, methylthio, benzylthio, phenyl, phenyl substituted with hydroxy or halogen, indazolyl, imidazolyl, —COR¹⁰ or —NHR¹¹ wherein R¹⁰ is amino or —OR¹² wherein R¹² is hydrogen, alkyl containing one to 5 carbon atoms, benzyl or an alkali metal cation, and R¹¹ is hydrogen, formyl, alkoxycarbonyl containing 2 to 5 carbon atoms, benzyloxycarbonyl, methoxybenzyloxycarbonyl, tosyl, guanlyl, or guanlyl substituted by nitro, and R⁹ is amino or —OR¹³ wherein R¹³ is hydrogen, alkyl containing one to 5 carbon atoms, benzyl or an alkali metal cation, with the proviso that R¹ is neither hydroxy, alkoxy containing one to 12 carbon atoms; nor phenoxy when R² is hydroxy, and salts thereof when R¹ or R² is hydroxy.

4,393,229

REDISTRIBUTION OF POLYSILANES IN HIGH BOILING RESIDUES

Alan Ritzer, Sand Lake; Abraham L. Hajjar, Scotia; Harry R. McEntee, Waterford, and Ray W. Shade, Clifton Park, all of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Apr. 28, 1982, Ser. No. 372,601

Int. Cl.³ C07F 7/08

U.S. Cl. 556—430

34 Claims

1. A process for treating alkyl-rich disilane-containing residues, comprising contacting the residue with alkyltrialosilane

or silicon tetrahalide in the presence of a catalyst and a catalytic amount of a hydrosilane reaction promoter at an elevated temperature to produce a redistribution product containing halogen-rich disilanes and dialkyltrialosilane.

4,393,230

METHOD OF PREPARING ETHYL SILICATE

William A. Crocker, Corvallis, and Duane L. Hug, Albany, both of Oreg., assignors to Teledyne Industries, Inc., Albany, Oreg.

Filed Sep. 25, 1981, Ser. No. 305,554

Int. Cl.³ C07F 7/08, 7/18

U.S. Cl. 556—457

5 Claims

1. A method of continuously producing ethyl silicate, having a predetermined percentage of silica content, in high yields from the reactants silicon tetrachloride, ethanol and water comprising adjusting the flowrate of the reactants to the reactor in relation to fluctuations in the temperature of the reaction in the reactor.

4,393,231

FLUORINE-CONTAINING PHENYL BENZOATE COMPOUNDS, AND THEIR PRODUCTION AND USE

Susumu Misaki, Minoo; Masahiro Suefuji, Settsu; Tamio Mitote, Kawanishi, and Naotake Matsumura, Itami, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Continuation of Ser. No. 75,686, Sep. 14, 1979, abandoned. This application Sep. 11, 1981, Ser. No. 301,128

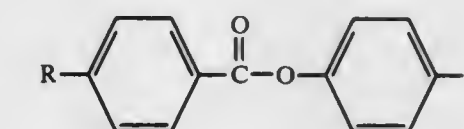
Claims priority, application Japan, Sep. 19, 1978, 53/115447; Nov. 21, 1978, 53/144571

Int. Cl.³ C09K 3/34; C02F 1/13; C07C 69/635, 121/60, 121/75, 79/12, 79/35

U.S. Cl. 560—73

1 Claim

1. A fluorine-containing phenyl benzoate compound of the formula:



wherein R is a C₆—C₈ alkoxy group and X is a trifluoromethyl group.

4,393,232

PREPARATION OF 3-BROMO-4-FLUORO-BENZOIC ACID

Fritz Maurer, Wuppertal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 2, 1981, Ser. No. 298,827

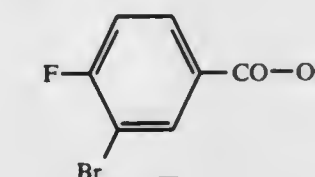
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1980, 3035355

Int. Cl.³ C07C 51/29

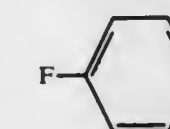
U.S. Cl. 562—419

5 Claims

1. A process for the preparation of 3-bromo-4-fluorobenzoic acid of the formula



comprising reacting fluorobenzene of the formula



with acetyl chloride in the presence of an acylation catalyst at

a temperature from about 0° to 100° C., without isolation reacting the reaction mixture thereby obtained with bromine at a temperature from about 50° to 150° C., separating the resulting bromination product and without purification reacting it with hypochlorite solution at a temperature between about 0° and 100° C.

4,393,233

PREPARATION OF

P-(1,1-DIMETHYL-2-HYDROXYETHYL)BENZOIC ACID

Herbert K. Reimschuessel, Morristown, and Bruce T. DeBona, Madison, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 153,361, May 27, 1980, Pat. No. 4,310,655. This application Jan. 7, 1982, Ser. No. 337,900

Int. Cl.³ C07C 65/00

U.S. Cl. 562—473

2 Claims

1. Process for production of (p-1,1-dimethyl-2-hydroxyethyl)benzoic acid comprising the steps:
 - (a) Brominating isobutyric acid;
 - (b) Condensing the resulting alpha-bromoisobutyric acid with benzene;
 - (c) Brominating the resulting dimethylphenylacetic acid;
 - (d) Reducing the carboxyl group of the brominated acid obtained in step (c) to form p-(1,1-dimethyl-1-hydroxyethyl)bromobenzene;
 - (e) Replacing the bromine atom in the product obtained in step (d) by the cyano group;
 - (f) Converting the cyano group in the product of step (e) to the carboxyl group.

4,393,234

PROCESS FOR THE PREPARATION OF 3-HYDROXYBENZOIC ACID

Heinz U. Blank, Odenthal; Eike Gabel, Bergisch-Gladbach; Ernst Goldschmitt, Dormagen, and Werner Mentzel, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 17, 1982, Ser. No. 378,922

Claims priority, application Fed. Rep. of Germany, Jun. 4, 1981, 3122260; Jun. 4, 1981, 3122264

Int. Cl.³ C07C 65/04

U.S. Cl. 562—475

28 Claims

1. In a process for the preparation of 3-hydroxybenzoic acid by contacting 3-sulphobenzoic acid with an alkali metal hydroxide at an elevated temperature, the improvement which comprises:
 - (A) employing a technical 3-sulphobenzoic acid mixture containing sulphuric acid and/or sulphur trioxide, which technical mixture contains at least 75% by weight of 3-sulphobenzoic acid, relative to the total organic constituents present, and not more than 35% by weight of sulphuric acid and/or SO₃, relative to the total mass;
 - (B) the technical mixture is contacted with mixing at an elevated temperature with sufficient 50 to 100% strength by weight alkali metal hydroxide, the remaining 50 to 0% by weight consisting essentially of water, such that 2.5 to 8 mols of alkali metal hydroxide are present per mol of 3-sulphobenzoic acid, after neutralization of the sulphuric acid and all of the sulfo and carboxyl groups;
 - (C) the resultant alkaline reaction mixture is reacted at a temperature in the range of 220° to 450° C. under a pressure of 1 to 120 bars; and
 - (D) the alkaline reaction mixture so obtained is acidified with a mineral acid to a pH value less than 4 and 3-hydroxybenzoic acid is recovered at a temperature in the range of -5° to +40° C.

4,393,235

PROCESS FOR PRODUCING P-HYDROXYPHENYL/ACETIC ACID

Alan Mitchell, Macclesfield, and Thomas Bailey, Bramhall, both of England, assignors to Imperial Chemical Industries PLC, London, England

Filed May 4, 1981, Ser. No. 259,925

Claims priority, application United Kingdom, Jun. 11, 1980, 8019155

Int. Cl.³ C07C 65/01

U.S. Cl. 562—478

5 Claims

1. A process for the manufacture of p-hydroxyphenylacetic acid which comprises reducing p-hydroxymandelic acid with a stannous salt under acidic conditions, the reduction being carried out in aqueous solution in the presence of a mineral acid at a temperature of up to 100° C.

4,393,236

PRODUCTION OF NONHYGROSCOPIC SALTS OF 4-HYDROXYBUTYRIC ACID

Joseph Klosa, Jänickestrasse 13, D-1000 Berlin 37, Fed. Rep. of Germany

Filed Jul. 13, 1981, Ser. No. 282,419

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1980, 3027390; Nov. 20, 1980, 3049869

Int. Cl.³ C07C 59/00

U.S. Cl. 562—579

21 Claims

1. Waterfree calcium-4-hydroxybutyrate of the formula Ca(COOCH₂CH₂CH₂OH)₂.

4,393,237

POLYOXYALKYLENEPOLYACRYLAMIDES

Ernest L. Yeakey, Houston, and Lewis W. Watts, Jr., Austin, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

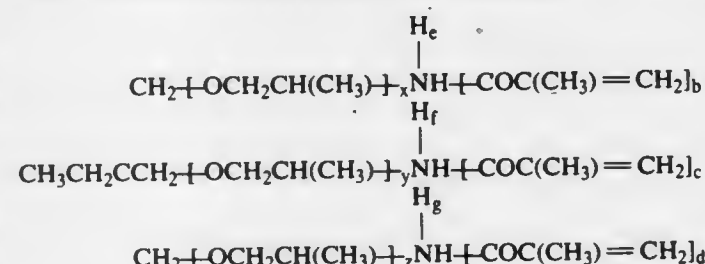
Filed Jul. 2, 1981, Ser. No. 279,906

Int. Cl.³ C07C 103/153

U.S. Cl. 564—153

3 Claims

1. A mixture of compounds of the formula



wherein x+y+z has an average value of 3 to 30; b, c, d are 0 or 1; provided, if b=0, e is 1 and conversely e is 0 if b=1; if c=0, f is 1 and conversely f is 0 if c=1; if d=0, g is 1 and conversely g is 0 if d=1; provided, further, at least one of b, c and d must be 1.

4,393,238

METHOD FOR THE PRODUCTION OF BLOCKED ISOCYANATES

Hans-Georg Zengel, Kleinwallstadt, and Manfred Bergfeld, Erlenbach, both of Fed. Rep. of Germany, assignors to Akzo NV, Arnhem, Netherlands

Filed May 18, 1981, Ser. No. 265,321

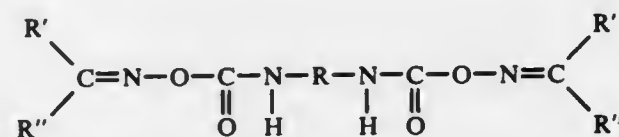
Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019491

Int. Cl.³ C07C 131/00

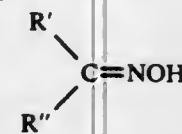
U.S. Cl. 564—255

4 Claims

1. Method for the production of blocked isocyanates of the general formula



in which R, R' and R'' represent an aliphatic, cycloaliphatic or aromatic hydrocarbon group, whereby R' and R'' can be the same or different, and when R' is an aromatic group, R'' can also be a hydrogen atom, comprising reacting terephthalic dialdioxime, isophthalic dialdioxime or an aliphatic, cycloaliphatic or aromatic ketoxime or an aromatic aldioxime of the general formula



in the presence of 10–100 Mol% sodium-, potassium- or calcium-hydroxide, relative to the ketoxime or aldioxime used, with the sodium-, potassium- or calcium-salt of a bis-N-chloramide of the general formula



in water or a mixture of water and an aprotic solvent, at temperatures in the range between 20° and 100° C.

4,393,239

PROCESS FOR THE PREPARATION OF POLYARYL AMINES HAVING METHYLENE BRIDGES

Efim Biller, Zürich, Switzerland, assignor to Elprochine AG, Zurich, Switzerland

Continuation of Ser. No. 2,812, Jan. 11, 1979, abandoned, which is a continuation of Ser. No. 847,650, Nov. 1, 1977, abandoned.

This application Apr. 16, 1980, Ser. No. 140,914

Claims priority, application Switzerland, Nov. 6, 1976, 14012/76

Int. Cl.³ C07C 85/08

U.S. Cl. 564—331

4 Claims

1. In a process for the preparation of polyaryl amines having methylene bridges from arylamines and formaldehyde in the presence of acids wherein 0.25–1.3 mol of formaldehyde per mol of arylamine is added in a first mixing step in the presence of 0.85–1.01 mol of acid, the improvement which comprises adding at least 0.1 mol of free arylamine before the formed compounds of the anhydroformaldehyde aniline type are noticeably rearranged into benzyl anilines, then reacting the reaction mixture at temperatures between 30° and 70° C. to form benzyl anilines and, finally, converting the resulting precondensate at temperatures between 70° and 120° C. into polyamines having methylene bridges.

4,393,240

OPTICALLY ACTIVE PHOSPHINES

John K. Stille, c/o Polymer Sciences Corporation, 330 Madison Ave., New York, N.Y. 10017

Filed Jul. 6, 1981, Ser. No. 280,220

Int. Cl.³ C07F 9/50, 15/00

U.S. Cl. 568—13

6 Claims

1. (R)-1,2-bis(diphenylphosphino)-3-benzoyloxypropane.

4,393,241

SYNTHESIS OF ALKOXY AND PHENOXY SUBSTITUTED ARYL SULFIDES

Harry T. Hanson, Millburn, N.J., and John B. Sapp, Jr., Houston, Tex., assignors to Celanese Corporation, New York, N.Y.

Filed Feb. 1, 1982, Ser. No. 344,337

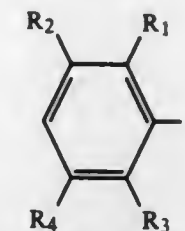
Int. Cl.³ C07C 149/32

U.S. Cl. 568—49

17 Claims

1. A process for the synthesis of an alkoxy or phenoxy substituted aryl sulfide comprising reacting in the presence of a catalytic amount of an alkali metal tetrafluoroborate catalyst a

sulfur dihalide with an aromatic reactant compound of the structural formula



wherein R₁, R₂, R₃ and R₄, which can be the same or different, represent hydrogen or a lower alkyl, and Z is —OR₅ with R₅ representing an alkyl having from 1 to 8 carbon atoms or a phenyl.

4,393,242

PROCESS FOR PREPARING METHYLVANILLYL KETONE FROM ISOEUGENOL

Meyer Slettinger, North Plainfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 79,748, Sep. 28, 1979, Pat. No. 4,337,360. This application Jul. 6, 1981, Ser. No. 280,623

The portion of the term of this patent subsequent to Jun. 29, 1999, has been disclaimed.

Int. Cl.³ C07C 45/52

U.S. Cl. 568—322

6 Claims

1. A through process for preparing methylvanillyl ketone which comprises:

- (1) direct oxidation of an unprotected isoeugenol in an aqueous solution of an organic acid to obtain a reaction mixture containing unprotected isoeugenol glycol as an intermediate therein; said organic acid being selected from the group consisting of formic acid, acetic acid, propionic acid, trichloroacetic acid, or trifluoroacetic acid;
- (2) heating said reaction mixture at a temperature of about 25°–100° C. with an aqueous solution of a strong acid in an inert solvent; said strong acid being selected from the group consisting of sulfuric acid, alkyl or aryl sulfonic acid, hydrobromic acid, hydrochloric acid, or phosphoric acid; and,
- (3) recovering methylvanillyl ketone directly from said acid-treated reaction mixture without isolating said unprotected isoeugenol glycol intermediate.

4,393,243

CAROTENOID INTERMEDIATE BY AN OXIDATION PROCESS

Bruno Lohri, Kaiseraugst, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

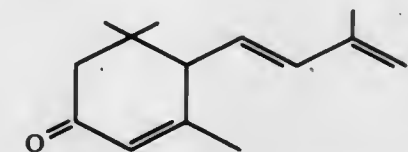
Filed Mar. 17, 1981, Ser. No. 244,574

Int. Cl.³ C07C 45/34

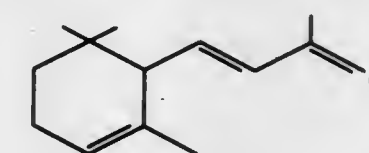
U.S. Cl. 568—344

19 Claims

1. A process for the manufacture of 3,5,5-trimethyl-4-[(E)-3-oxo-1-butenyl]-2-cyclohexen-1-one of the formula



which process comprises oxidizing α-ionone of the formula



in a reaction mixture containing concentrated acetic acid with

oxygen or an oxygen-containing gas in the presence of a cobalt acetate/bromide catalyst.

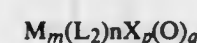
4,393,244

METHOD AND THE MANUFACTURE OF CYCLIC MONO AND/OR DIKETONES FROM CYCLIC MONO OR SESQUI TERPENES BY CATALYTIC OXIDATION
Sumit Bhaduri, and Madan M. Mahandru, both of Maharashtra, India, assignors to Indian Explosives Limited, Calcutta, India
Filed Aug. 26, 1981, Ser. No. 296,280
Int. Cl.³ C07C 45/34

U.S. Cl. 568—360

10 Claims

1. A process for the preparation of cyclic mono and/or diketones which comprises reacting a cyclic mono or sesquiterpenoid hydrocarbon containing at least one unsubstituted methylene group adjacent to a double bond with oxygen or an oxygen containing gas in the presence of a catalyst selected from the group consisting of compounds of the formula:



where

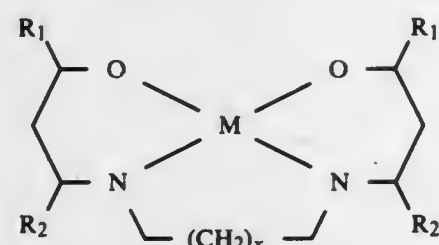
L_2 is 2,2'-bipyridyl or 1,10-orthophenanthroline, and either

- (a) M is Cu, m=2, X is I, Br or Cl, p=2, q=0; or
(b) M is Cu, m=1, n=1, X is NO₂, p=2 and q=0; or
(c) M is Mo, m=1, n=1, X=Br, p=2 and q=2;



where

L is triphenylphosphine;



where

M is Co, X=2 to 3 and R₁ and R₂ which may be the same or different represent methyl, ethyl, propyl, trifluoromethyl, phenyl or benzyl; and



where

R₁ and R₂ which may be the same or different represent methyl, ethyl, n-propyl, trifluoromethyl, phenyl or benzyl, and

- (a) M is V, m=1, n=2, or
(b) M is Mo, m=2, n=2, or
(c) M is Co, m=0, n=2, or
(d) M is Co, m=0, n=2, or
(e) M is Mn, m=0, n=2, or
(f) M is Cu, m=0, n=2, or
(g) M is Rh, m=0, n=3, or
(h) M is Fe, m=0, n=3.

4,393,245

MUSK-LIKE SCENTS AND THEIR MANUFACTURE
Werner Hoffman, Neuhausen; Karl von Fraunberg, Bobenheim, and Manfred Baumann, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 812,153, Jul. 1, 1977, abandoned. This application Dec. 2, 1981, Ser. No. 326,597

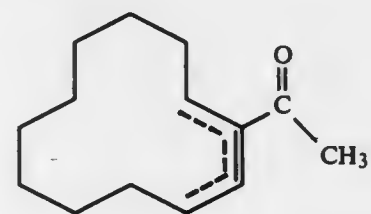
Claims priority, application Fed. Rep. of Germany, Jul. 9, 1976, 2630835

Int. Cl.³ C07C 49/547, 49/307

U.S. Cl. 568—375

1 Claim

1. The compound 1-acetyl-1-cyclododecene having a musk-like scent of the formula



4,393,246

PROCESS FOR BROMINATING SIDE CHAIN OF M-PHENOXYTOLUENE

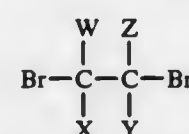
Masashige Kubo, Tokuyama; Mitsuaki Yoshimitsu, and Kanzi Katsuragawa, both of Shin-nanyo, all of Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Yamaguchi, Japan
Filed Oct. 29, 1981, Ser. No. 316,448

Claims priority, application Japan, Nov. 21, 1980, 55-163360
Int. Cl.³ C07C 41/22

U.S. Cl. 568—639

5 Claims

1. In a process for brominating a side chain of m-phenoxytoluene with a polyhalogenated ethane having the formula



wherein W and Z respectively represent Cl or Br and X and Y respectively represent Cl, Br or H, as a brominating agent, the improvement consisting of carrying out said bromination in the liquid phase in the presence of an amorphous carbon.

4,393,247

NORBORNYL ETHERS

Mark A. Sprecker, Sea Bright, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

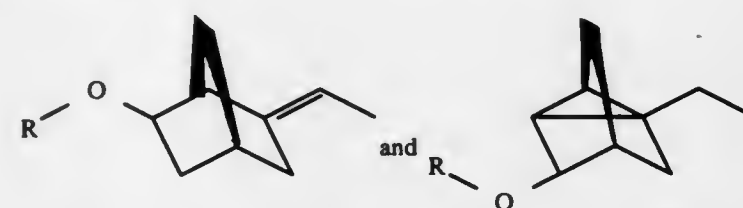
Continuation-in-part of Ser. No. 280,274, Jul. 6, 1981, abandoned, which is a division of Ser. No. 200,012, Oct. 23, 1980, Pat. No. 4,311,861. This application Dec. 29, 1981, Ser. No. 335,561

Int. Cl.³ C07C 43/188

U.S. Cl. 568—665

5 Claims

1. A composition of matter consisting essentially of at least one compound having a structure selected from the group consisting of:



wherein "R" in each of the compounds is the same and represents hydroxy ethyl or methoxy ethyl.

4,393,248

FLAME RETARDED HALOGENATED POLYOL
Stanley R. Sandler, Springfield, and Joseph M. Bohen, King of Prussia, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

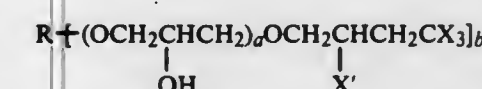
Filed Aug. 20, 1981, Ser. No. 294,699

Int. Cl.³ C07C 43/10, 43/12; C08G 18/00, 18/14

U.S. Cl. 568—676

8 Claims

1. A flame retardant polyol of the formula



wherein

a is an integer of 0 or 1, with the proviso that when a is 0, b is an integer of 1 to 8, R is selected from the group consisting of a substituted linear or branched alkyl of 2 to 12 carbons and a substituted cyclic alkyl of 3 to 12 carbons; X is selected from the group consisting of F, Cl, and Br; and X' is selected from the group consisting of H, F, Cl, and Br; whereby the substituent is selected from the group consisting of at least 1 hydroxyl groups, and when a is 1, b is an integer of 1 to 8, R is selected from the group consisting of hydrogen, a substituted linear or branched alkyl of 2 to 12 carbons and a substituted cyclic alkyl of 3 to 12 carbons; X is selected from the group consisting of F, Cl, and Br; and X' is selected from the group consisting of H, F, Cl, and Br; whereby the substituent is selected from the group consisting of at least 1 hydroxyl groups.

4,393,249

PROCESS FOR REMOVING ALKYNES FROM C₄ HYDROCARBON MIXTURES

Albert Heuvelsland, Heikant; Fritz F. F. Jann, Terneuzen, both of Netherlands, and Greet de Block-Martens, Stekene, Belgium, assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 23, 1981, Ser. No. 314,288

Int. Cl.³ C07C 41/08, 7/00

U.S. Cl. 568—688

21 Claims

1. A process comprising contacting an alkyne with a C₁-C₄ monohydric alcohol or mixture thereof under reaction conditions to form an ether, said reactive process occurring in the presence of a catalytic amount of a cation-exchange resin having a plurality of pendant sulfonate groups with silver metal counterions.

4,393,250

PROCESS FOR PRODUCING ALCOHOLS AND ETHERS
Klaus Gottlieb, Herdecke-Ende; Hartmut Bruderreck, Gelsenkirchen-Buer, and Friedel-Heinrich Wehmeier, Bottrop-Kirchhellen, all of Fed. Rep. of Germany, assignors to Veba Oel AG, Gelsenkirchen-Buer, Fed. Rep. of Germany

Filed Apr. 28, 1982, Ser. No. 372,804

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1981, 3116779

Int. Cl.³ C07C 41/06, 37/72

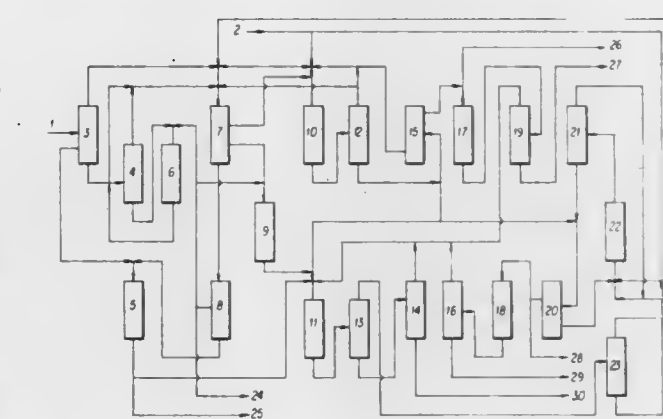
U.S. Cl. 568—697

23 Claims

1. A process for producing isopropyl tert-butyl ether from a mixture of light hydrocarbons containing propane and butane comprising:

- (a) separating from said mixture of light hydrocarbons a propane fraction and a butane fraction containing at least n-butane;
(b) isomerizing at least a portion of said n-butane in said butane fraction from step (a) whereby a hydrocarbon mixture containing at least n-butane and isobutane is formed;
(c) catalytically dehydrogenating said isobutane in said hy-

drocarbon mixture from step (b) whereby a hydrocarbon mixture containing at least isobutene is produced;
(d) catalytically dehydrogenating said propane in said propane fraction from step (a) whereby a hydrocarbon mixture containing at least propene is produced;
(e) reacting said propene in said hydrocarbon mixture from step (d) with water, whereby a mixture containing hydrocarbons and isopropyl alcohol is formed;



- (f) reacting said isopropyl alcohol from step (e) with at least part of said isobutene in said hydrocarbon mixture from step (c) whereby a mixture containing hydrocarbons and isopropyl tert-butyl ether is formed;
(g) recycling said hydrocarbons in said hydrocarbon mixture from step (e) to step (d);
(h) recycling said hydrocarbons in said hydrocarbon mixture from step (f) to step (c); and
(i) recovering at least said isopropyl tert-butyl ether.

4,393,251

PREPARATION OF PROPANEDIOLS USING A COPPER-AND ZINC CONTAINING HYDROGENATION CATALYST

Franz J. Broecker, Ludwigshafen; Leopold Hupfer, Friedelsheim; Franz Merger, Frankenthal; Ernest Miesen, Ludwigshafen; Juergen Paetsch, Wachenheim, and Guenter Zirker, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

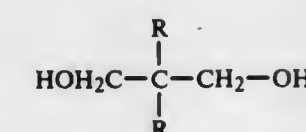
Division of Ser. No. 274,486, Jun. 17, 1981. This application Feb. 10, 1982, Ser. No. 347,380

Int. Cl.³ C07C 31/20, 33/26, 31/27, 41/26

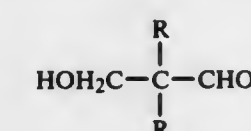
U.S. Cl. 568—811

9 Claims

1. In a process for the preparation of a propanediol of the formula



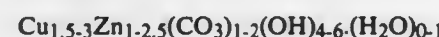
where the R's may be identical or different and each is an aliphatic, araliphatic or aromatic radical, or the two R's together with the adjacent carbon atom are members of an alicyclic ring, by hydrogenating a hydroxypropionaldehyde of the formula



where R has the above meanings, in the presence of a copper-containing hydrogenation catalyst, the improvement which comprises:

carrying out the hydrogenation in the liquid phase with a hydrogenation catalyst which has been obtained by pre-

precipitating copper and zinc in a ratio of from 0.6 to 3 atoms of copper per atom of zinc from a solution of their compounds in the presence of a carbonate at a pH of from 6.9 to 8, and decomposing the resulting mixed crystals of the formula



at from 200° to 500° C., introducing into said catalyst during its preparation at least one metal additive selected from the group consisting of chromium, calcium, magnesium and aluminum in an amount of up to 10 percent by weight, based on the total catalyst.

4,393,252

PROCESS FOR PRODUCING ETHYLENE GLYCOL

John Kollar, Wyckoff, N.J., assignor to Redox Technologies, Inc., Wyckoff, N.J.

Continuation of Ser. No. 286,721, Jul. 28, 1981, abandoned, which is a continuation-in-part of Ser. No. 183,537, Sep. 2, 1980, Pat. No. 4,337,371. This application Mar. 26, 1982, Ser. No. 362,433

Int. Cl.³ C07C 31/20

U.S. Cl. 568—852

26 Claims

1. In a process for producing ethylene glycol by reacting methanol and an organic peroxide, said peroxide having the formula $\text{R}-\text{O}-\text{O}-\text{R}_1$ wherein R and R_1 each is an alkyl or aralkyl group containing from 3 to 12 carbon atoms, the improvement comprising adding to the reactants a basic material in an amount sufficient to reduce the hydrogen ions that are being formed in the reaction without unduly reducing the ethylene glycol production due to by-product formation.

8. In a process for producing ethylene glycol by reacting methanol, an organic peroxide and formaldehyde in the presence of water, said organic peroxide having the formula $\text{R}-\text{O}-\text{O}-\text{R}_1$, wherein R and R_1 each is an alkyl or aralkyl group containing 3 to 12 carbon atoms, the improvement comprising adding to the reactants, a basic material in an amount sufficient to reduce the hydrogen ions that are being formed in the reaction without unduly reducing the ethylene glycol production due to by-product formation.

4,393,253

HYDROXYLATION OF OLEFINS

Robert C. Michaelson, Waldwick, and Richard G. Austin, Ridge-wood, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 209,789, Nov. 24, 1980, Pat. No. 4,314,088. This application Oct. 9, 1981, Ser. No. 310,099. The portion of the term of this patent subsequent to Feb. 2, 1999, has been disclaimed.

Int. Cl.³ C07C 29/03, 33/20; C07D 307/77; C07C 59/105
U.S. Cl. 568—860

10 Claims

1. A process for hydroxylating olefins which comprises reacting at least one olefinic compound having at least one ethylenic unsaturation with water and at least one organic hydroperoxide in the presence of a catalyst composition under conditions and in a manner sufficient to convert at least one of said ethylenic unsaturation to its corresponding diol said catalyst composition comprising:

- Osmium tetroxide; and
- at least one co-catalyst selected from the group consisting of alkali metal halide, alkaline earth metal halide, hydrogen halide, quaternary hydrocarbyl phosphonium halide, halogen, and transition metal halide said transition metal being selected from the group consisting of Fe, Co, Ni, Cu, V, Cr, Mn, Sc, Ti, Mo, Ru, Rh, Pd and W.

4,393,254

PROCESS FOR THE PRODUCTION OF ALKYLENE GLYCOLS

Fred L. Johnson, Jr., and Lewis W. Watts, Jr., both of Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 12, 1981, Ser. No. 224,412

Int. Cl.³ C07C 29/10

U.S. Cl. 568—867

8 Claims

1. A process for the production of alkylene glycol which comprises contacting water and an alkylene oxide in the presence of a heterogeneous catalyst comprising a partially amine-neutralized sulfonic acid resin wherein the mole ratio of alkylene oxide to water ranges from about 2 to about 10, the temperature of reaction ranges from about 100° to 200° C. and the reaction pressure ranges from about 200 to 400 psi.

4,393,255

CATALYTIC CONVERSION

Thomas O. Mitchell, Trenton, and Darrell D. Whitehurst, Titusville, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 110,436, Jan. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 973,658, Dec. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 819,026, Jul. 25, 1977, abandoned, which is a

continuation-in-part of Ser. No. 681,883, Apr. 30, 1976, abandoned, which is a continuation-in-part of Ser. No. 443,557, Feb. 19, 1974, Pat. No. 3,980,583. This application Dec. 10, 1981, Ser. No. 329,481

Int. Cl.³ C07C 29/00, 33/22

U.S. Cl. 568—902

18 Claims

1. A process for the conversion of a feedstock comprising carbon monoxide, hydrogen, and alcohol of from 1 to about 20 carbon atoms per molecule to product comprising an alcohol having a higher boiling point than said feedstock alcohol and an olefin which comprises contacting said feedstock under conversion conditions including a temperature of from about 100° C. to about 400° C., a pressure of from about 0.1 atmosphere to about 10,000 atmospheres, a contact time of from about 1 second to about 100 hours and a hydrogen/carbon monoxide mole ratio of from about 0.2 to about 5 with a catalyst comprised of a substrate of a porous refractory oxide having surface hydroxyl groups, a minimum surface area of about 10 m²/g and pores with a minimum pore diameter of about 5 Angstrom Units, said substrate being modified by at least one amine functional member, containing the element silicon, coordinated to a metal function of a transition metal selected from the group consisting of Group VIII metals of the Periodic Table of Elements, said amine functional member acting as a bridging member between said substrate and said metal function, as a ligand covalently bonded to said substrate.

4,393,256

HYDRATION OF OLEFINS

Robert J. Schmidt, Rolling Meadows, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Dec. 17, 1981, Ser. No. 332,042

Int. Cl.³ C07C 29/06, 29/00, 31/08, 31/10

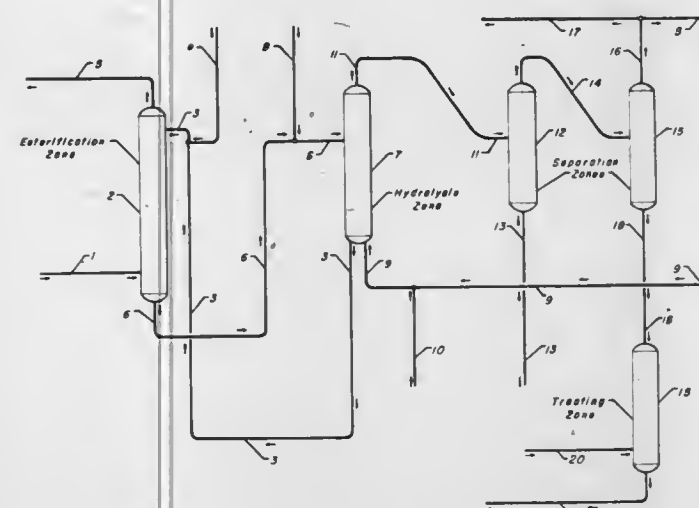
U.S. Cl. 568—907

11 Claims

1. A process for the hydration of an olefinic hydrocarbon which comprises:

- esterifying said olefinic hydrocarbon with a concentrated inorganic acid at esterification conditions in an esterification zone to produce alkyl salts of said acid;
- hydrolyzing said alkyl salts of said acid by treatment with water at hydration conditions in a hydration zone to form an alcohol and ether hydrolysis product containing reconstituted inorganic acid;
- stripping away alcohol and ether hydrolysis product from said reconstituted inorganic acid and removing said reconstituted inorganic acid from said alcohol and ether hydrolysis product;

- separating said alcohol from said ether of said hydrolysis product in a separation zone at separation conditions to form a product alcohol stream and an ether stream;
- thermally decomposing said ether in a decomposition zone maintained at a temperature in the range of from about 500° C. to about 750° C. and a pressure in the range of from subatmospheric to about 1500 psi to produce an



olefinic hydrocarbon and an additional amount of product alcohol;

- recovering said additional amount of product alcohol; and
- recycling at least a portion of said olefinic hydrocarbon produced in thermal decomposition step (e) to said esterification as a part of said olefinic hydrocarbon.

4,393,257

PROCESS FOR PREPARING BENZOTRIFLUORIDE AND ITS DERIVATIVES

Tsuneo Nakagawa, Uji Hiramatsu, and Toshiba Honda, all of Osaka, Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 859,755, Dec. 12, 1977. This application Jun. 20, 1979, Ser. No. 50,211

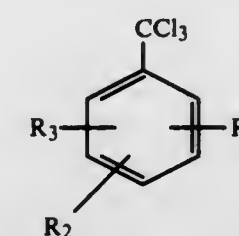
Claims priority, application Japan, Dec. 27, 1976, 51-159033; Italy, Dec. 15, 1977, 30726 A/77; Fed. Rep. of Germany, Dec. 16, 1977, 2756235; France, Dec. 27, 1977, 77 39362

Int. Cl.³ C07C 17/20

U.S. Cl. 570—145

6 Claims

1. A process for preparing benzotrifluoride derivatives which comprises contacting a benzotrichloride compound of the formula:



wherein R_1 , R_2 and R_3 are each hydrogen, trichloromethyl, nitro, cyano or halogen but wherein all of R_1 , R_2 and R_3 are not hydrogen at the same time and when one of R_1 , R_2 and R_3 is nitro, each of the other two is not nitro, with hydrogen fluoride in the absence of any catalyst in the gaseous phase and in the presence of chlorine at an elevated temperature.

4,393,258

1-CYCLOHEXYL-2-CYCLOHEXYLPHENYLETHANE DERIVATIVES

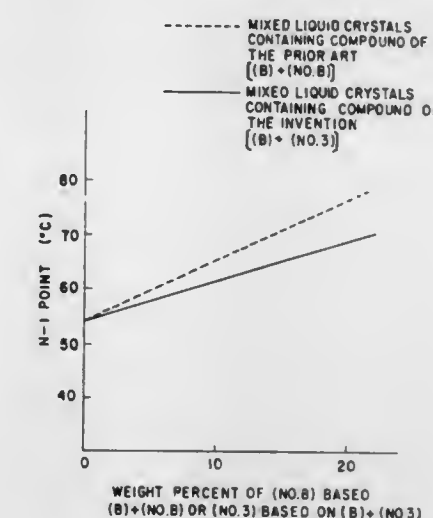
Hisato Sato, Tokyo; Haruyoshi Takatsu, Kodaira; Yutaka Fujita, Yokohama; Masayuki Tazume; Kiyohumi Takeuchi, both of Urawa, and Hiroyuki Ohnishi, Kawagoe, all of Japan, assignors to Dainippon Ink & Chemicals Inc., Tokyo, Japan

Filed Jun. 10, 1982, Ser. No. 386,994

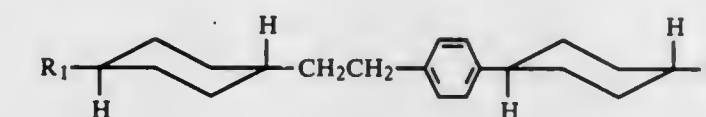
Int. Cl.³ C07C 13/18, 13/28

U.S. Cl. 585—25

8 Claims



1. A 1-cyclohexyl-2-cyclohexylphenylethane derivative of the following general formula



wherein R_1 and R_2 , independently from each other, represent a linear alkyl group having 1 to 7 carbon atoms.

4,393,259

PROCESS FOR CONVERSION OF PROPANE OR BUTANE TO GASOLINE

Dennis J. Ward, South Barrington, and Bipin V. Vora, Elk Grove Village, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

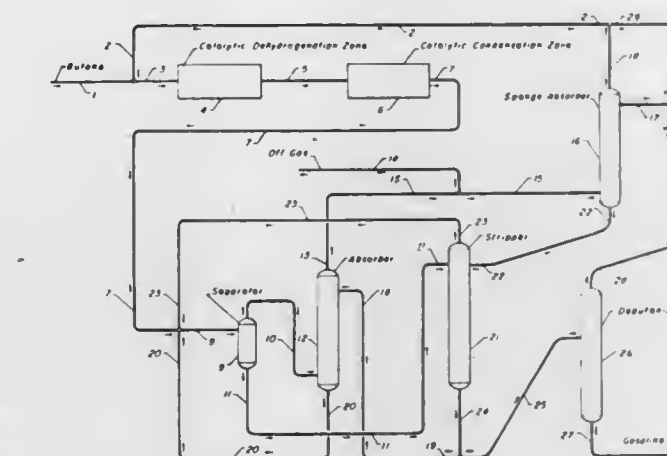
Continuation-in-part of Ser. No. 121,353, Feb. 14, 1980, Pat. No. 4,293,722, and a continuation-in-part of Ser. No. 163,763, Jun. 27, 1980, Pat. No. 4,304,948. This application Aug. 5, 1981, Ser. No. 290,031

The portion of the term of this patent subsequent to Dec. 8, 1998, has been disclaimed.

Int. Cl.³ C07C 2/08

U.S. Cl. 585—315

5 Claims



1. A hydrocarbon conversion process which comprises the steps of:

- (a) passing a feed stream comprising a butane and a hereinafter characterized recycle stream into a dehydrogenation zone operated at butane dehydrogenation conditions and thereby forming a dehydrogenation zone effluent stream comprising hydrogen, a butane and a butylene;
- (b) passing the entire dehydrogenation zone effluent stream into a catalytic condensation zone operated at conditions which effect the conversion of butylene into C₈ hydrocarbons and thereby forming a catalytic condensation zone effluent stream which comprises hydrogen, a butane and C₈ hydrocarbons; and,
- (c) separating the catalytic condensation zone effluent stream into a vent gas stream comprising hydrogen, said recycle stream, which comprises hydrogen and a butane, and a product stream which comprises C₈ hydrocarbons.

4,393,260

PREPARATION OF CYCLOHEXYL COMPOUNDS

Louis J. Velenyi, Lyndhurst; Serge R. Dolhyj, Parma, and Andrew S. Krupa, Twinsburg, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 174,463, Aug. 1, 1980, Pat. No. 4,319,066.

This application Jun. 5, 1981, Ser. No. 270,703

Int. Cl.³ C07C 1/20, 1/32, 1/00

U.S. Cl. 585—357

7 Claims

1. A process for preparing a cyclohexenyl compound, the process comprising contacting a corresponding cyclohexyl carboxylic acid with a decarboxylation catalyst of the formula:



where

M is a combination of copper and molybdenum;

M' is at least one of sodium, potassium, cesium, tin and bismuth;

a is a number of about 0.1 to 1;

b is a number of about 0.01 to 0.5 and

x is the number of oxygen atoms determined by the valence requirement of the other elements present.

4,393,261

HYDROCARBON RESIN AND PROCESS FOR PREPARATION

Robert P. Allen, Longview, Tex., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 22, 1982, Ser. No. 421,632

Int. Cl.³ C07C 3/18

U.S. Cl. 585—422

12 Claims

10. A process for preparing a liquid hydrocarbon resin having a Gardner color of about 2 or less and a viscosity of about 1,500 cp. at 38° C. to about 10,000 cp. at 38° C. comprising polymerizing a mixture of xylene and norbornene with a Friedel-Crafts catalyst at a temperature of about 60° C. to about 170° C. for a period of from 1 to 4 hours and hydrogenating to provide a water white liquid hydrocarbon resin.

4,393,262

PRODUCTION OF ISOPROPYLBENZENE

Warren W. Kaeding, Westfield, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 14, 1978, Ser. No. 969,626

The portion of the term of this patent subsequent to Sep. 22, 1998, has been disclaimed.

Int. Cl.³ C07C 63/34; B01J 29/06

U.S. Cl. 585—467

10 Claims

1. A process for the propylation of benzene with selective production of isopropylbenzene, said process comprising contacting mixtures of benzene and propylene with a crystalline zeolite catalyst at a temperature of between about 100° C. and the critical temperature, and a pressure of between about 10⁵ N/m² and 6×10⁶ N/m², said zeolite being characterized by a silica/alumina mole ratio of at least about 12 and a constraint

index within the approximate range of 1 to 12, said zeolite being 2 sm-12.

4,393,263

TERTIARY-BUTYLSTYRENE PRODUCTION

Glen F. Crum, Odessa, Tex., and Samuel J. Paton, Wilaya D'Oran, Algeria, assignors to El Paso Products Company, Odessa, Tex.

Filed Jan. 29, 1980, Ser. No. 116,659

Int. Cl.³ C07C 5/48

U.S. Cl. 585—443

6 Claims

1. A process for the production of tertiary-butylstyrene under oxydehydrogenation conditions which comprises contacting a feed mixture of tertiary-butylethylbenzene and oxygen at a temperature in the range between about 350° C. and 650° C. with a coprecipitated aluminum-calcium-silicon-tungsten phosphate catalyst, wherein the aluminum:calcium:silicon:tungsten elements, respectively, are present in the catalyst in an atomic ratio of about 1-12:1-12:0.2-5:2-20, and wherein the conversion selectivity to tertiary-butylstyrene is at least 80 mole percent, and the conversion selectivity to dialkenylbenzenes is essentially zero mole percent.

4,393,264

CONTINUOUS NON-CATALYTIC PYROLYSIS OF AQUEOUS SLURRY OF OXYGEN-CONTAINING DERIVATIVES OF BENZENE AND TOLUENE

John K. Allen, St. Charles, and Gerard C. Lammers, Oswego, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 86,451, Oct. 19, 1979,

abandoned. This application Aug. 7, 1980, Ser. No. 176,086

Int. Cl.³ C07C 1/20

U.S. Cl. 585—469

10 Claims

1. A continuous method of non-catalytic pyrolysis of a solid mixture comprising aldehyde-, keto-, carboxy-, aldehyde-and-carboxy-, keto-and-carboxy-, and methylol-and-carboxy-, substituted benzenes and toluenes to decarboxylate and decarboxylate such mixture which comprises adding a suspension of comminuted solid mixture of said substituted benzenes and toluenes in water, but without an externally added catalyst, to a bed of inert, non-catalytic particulated solids which can be fluidized, expanded or made ebullient with the flow of a gas through said bed wherein said bed is heated to a temperature of at least 700° C. and the gas stimulating said movement of the particles in the bed is nitrogen, air, or a mixture of nitrogen and air, or a mixture of air and oxygen gas, or oxygen gas alone or in admixture with steam.

4,393,265

LIGHT MONOOLEFINS FROM METHANOL AND/OR DIMETHYL ETHER

Cristobal Bonifaz, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Jul. 24, 1981, Ser. No. 286,604

Int. Cl.³ C07C 1/24, 1/20; B01J 29/38, 29/06

U.S. Cl. 585—639

15 Claims

1. Process of preparing hydrocarbons rich in light monoolefins by:

(a) activating a hydrogen-exchanged aluminosilicate catalyst having a silica to alumina ratio of less than 12 by treating with steam at a temperature of at least 400° C.;

(b) contacting the steam-activated catalyst in a reaction zone, at a temperature of about 350° to about 600° C., with a gas stream consisting essentially of dimethyl ether or a mixture of methanol and dimethyl ether, as reactant, and sufficient water such that the mole ratio of water to ether in the reaction zone is at least 0.3, at a pressure of about 0.2 to about 30 atmospheres (about 20 to about 3000 kPa), and at a weight hourly space velocity (WHSV) of greater than about 0.5 h⁻¹, to convert at least 85 wt. % of the reactant to hydrocarbons comprising at least 50 wt. % ethylene and

propylene, said 85% conversion being achieved before the contacting has exceeded 1 g of reactant per g of catalyst, until the catalyst is spent; and

(c) regenerating the spent catalyst with a mixture comprising steam and oxygen at a temperature of at least 400° C.

4,393,266

SEPARATION OF PARA-XYLENE

William Smolin, Fishkill, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 152,865, May 23, 1980, Pat. No. 4,351,981. This application Aug. 27, 1982, Ser. No. 412,448

Int. Cl.³ C07C 7/13

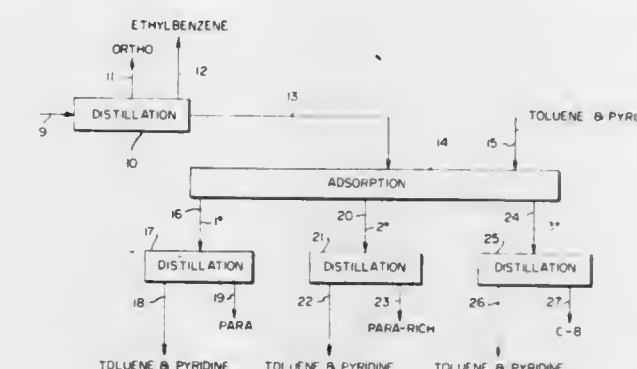
U.S. Cl. 585—828

22 Claims

1. The process for separating para-xylene from a feed mixture containing C-8 aromatic hydrocarbon including para-xylene which comprises

contacting said feed mixture with, as an adsorbent, a pyridine or substituted pyridine-containing sodium Y zeolite, said sodium Y zeolite being characterized by a ratio of silicon to aluminum of 1.5-2.1 and by a pyridine or substi-

tuted pyridine content of at least about 3.3 wt. % based on said zeolite, thereby selectively adsorbing substantially all



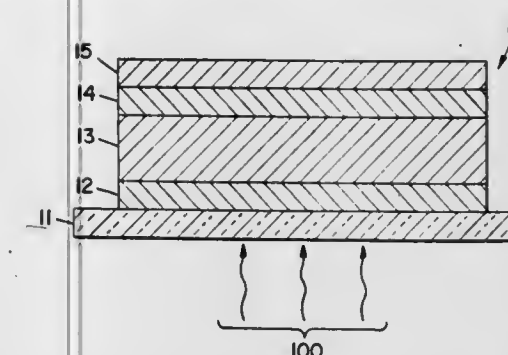
ELECTRICAL

4,393,267
METHOD FOR IMPROVING THE EFFICIENCY OF A SOLAR CELL AND AN IMPROVED CADMIUM SULFIDE/COPPER SULFIDE PHOTOVOLTAIC CELL
 Terry M. Peterson, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 267,324, May 26, 1981, abandoned. This application Jun. 29, 1981, Ser. No. 278,799
 Int. Cl.³ H01L 31/06, 31/18

U.S. Cl. 136—260

8 Claims



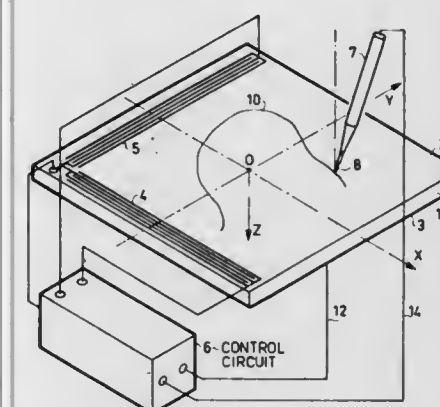
1. A method of fabricating a solar cell, comprising:
 - (a) fabricating a layer of CdS on a conductive substrate and forming an ohmic contact thereto;
 - (b) fabricating a Cu_xS layer on said layer of CdS;
 - (c) rinsing the device of the previous steps (a) and (b) in an aqueous acid rinse having a pH less than about pH 3;
 - (d) curing the device of step (c) in H₂ at an elevated temperature; and
 - (e) fabricating an electrical contact to said copper-containing layer.

4,393,268
MARKING SYSTEM USING ELASTIC SURFACE WAVES
 Richard Guedj; Eugene Dieulesaint, and Daniel Royer, all of Paris, France, assignors to Thomson-CSF, Paris, France
 Filed May 19, 1981, Ser. No. 265,325

Claims priority, application France, May 23, 1980, 80 11551
 Int. Cl.³ G08C 21/00

U.S. Cl. 178—18

9 Claims



1. A marking system using elastic surface waves comprising:
 - a substrate for the surface propagation of linear wavefronts of said waves along a free surface in two separate directions with the vibratory energy propagating perpendicularly to said linear wavefronts, and having an uneven area with a depth significantly less than the wavelength of said elastic surface waves;
 - an electro-mechanical transducer coupled to said substrate for producing said waves;
 - excitation means connected to said transducer means for supplying pulses to excite said transducer means;
 - a stylus having a tip adapted for movement over said surface in contact therewith including a member for feeding a marking substance to said tip to leave a mark on said

surface as said tip is moved over said surface and transmitting a pulse induced in said tip by passage of said linear wavefronts of said elastic surface waves; and
 chronometric means connected to said excitation means and to said stylus for measuring the time taken by the elastic waves to reach the stylus of said two directions and thus the position of said stylus.

4,393,269
METHOD AND APPARATUS INCORPORATING A ONE-WAY SEQUENCE FOR TRANSACTION AND IDENTITY VERIFICATION

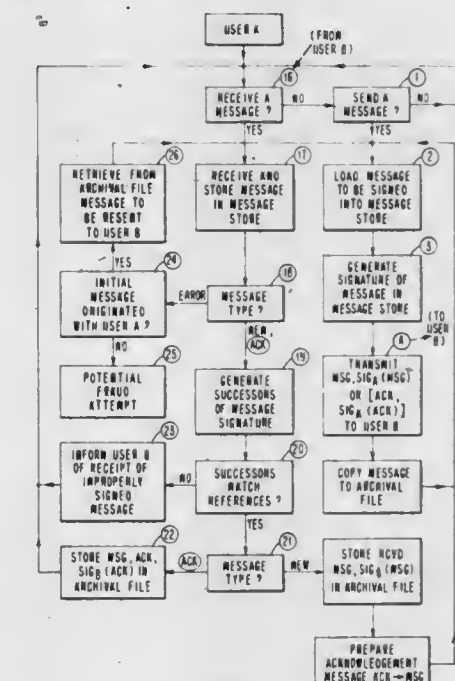
Alan G. Konheim, Yorktown Heights; Stephen M. Matyas, and Carl H. Meyer, both of Kingston, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 29, 1981, Ser. No. 229,494

Int. Cl.³ H04L 9/00

U.S. Cl. 178—22,08

24 Claims



12. A method for verifying the content of a message and the identity of the sender, said method comprising two participants (USER A and USER B) first exchanging a contract containing two finite sequences of keyed-reference-signatures:

$$KSS_A(k_{A,1})KSS_A(k_{A,2}), \dots$$

$$KSS_B(k_{B,1})KSS_B(k_{B,2}), \dots$$

wherein the j^{th} reference signature $KSS_A(k_{X,j})$ of USER X is the r^{th} or final term in the j^{th} keyed-signature-sequence

$$KSS_0(k_{X,j})KSS_1(k_{X,j}), \dots, KSS_r(k_{X,j})$$

whose terms are defined and related as follows: the initial element

$$KSS_0(k_{X,j})$$

of the j^{th} sequence is derived from USER X's (secret) key k_X and the index j specifying the keyed-signature-sequence by means of the rule

$$KSS_0(k_{X,j}) = DES\{k_{X,j} + k_X\}$$

where DES denotes the Data Encryption Standard and wherein each succeeding element $KSS_i(k_{X,j})$ with $i=1, 2, \dots, r$ of the j^{th} keyed-signature-sequence is derived from the immediately preceding element $KSS_{i-1}(k_{X,j})$ by a known algorithm f according to the rule

$$KSS_i(k_{X,j}) = f(KSS_{i-1}(k_{X,j}))$$

to transmit signed data to USER B, USER A, appending to DATA a number s of signatures

$DATA, SIG_0, SIG_1, \dots, SIG_{s-1}$

the t^{th} signature SIG_t , where $t=0, 1, \dots, s-1$ being the element in position p_t

$KSS_{p_t}(k_A, NUM_t)$

in USER A's NUM_t^{th} keyed-signature-sequence

$KSS_0(k_A, NUM_t), KSS_1(k_A, NUM_t), \dots, KSS_{p_t}(k_A, NUM_t)$

the position p_t of the t^{th} signature SIG_t being determined by the rank of the data

p_0, p_1, \dots, p_{s-1}

USER A determining the rank of data to produce a sequence of s numbers

p_0, p_1, \dots, p_{s-1}

each term being an integer having one of the values $0, 1, \dots, r-1$. The value of the t^{th} term p_t depends on DATA through a predetermined cryptographic protocol, USER B, upon receipt of the signed message

$DATA, SIG_0, SIG_1, \dots, SIG_{s-1}$

independently determining the rank of DATA,

p_0, p_1, \dots, p_{s-1}

USER B then deriving presumptive values for the s reference elements by computing the appropriate successor reference signatures for each of the s appended signatures; as defined by:

$r - p_0^{th}$ successor of SIG_0

$r - p_1^{th}$ successor of SIG_1

...

$r - p_{s-1}^{th}$ successor of SIG_{s-1}

USER B comparing the computed successor reference elements to the corresponding reference signatures in the previously exchanged contract, and

USER B accepting the transaction if and only if there is complete agreement.

4,393,270

CONTROLLING PERCEIVED SOUND SOURCE DIRECTION

Johannes C. M. van den Berg, Kleibroek 14, Castricum, Netherlands

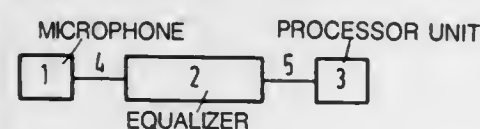
Continuation-in-part of Ser. No. 964,372, Nov. 28, 1978. This application May 28, 1980, Ser. No. 153,903

Claims priority, application Netherlands, Nov. 28, 1977, 7713076

Int. Cl.³ H04R 3/00, 5/00

U.S. Cl. 179-1 D

6 Claims



1. A method of generating and processing electrical signals indicative of sound so that upon conversion of such signals into sounds and audition of such sounds by a normal human lis-

tener, such listener will perceive such sounds as emanating in preselected directions of perception from the listener, said method comprising the steps of:

- generating a plurality of signals each respectively from one of a plurality of directional microphones, each such microphone being predominantly responsive to sounds impinging on it in a unique one of a plurality of preselected directions of reception; and
- separately modulating each said electrical signal with a unique modulating signal indicative of a different one of said preselected directions of perception so that during such modulation different amplitude adjustments will be applied to different components of said signal, such adjustments varying with frequency in a manner corresponding to the variation of amplitude response with frequency of the normal human auditory system for sounds impinging on a listener from such one direction.

4,393,271

METHOD FOR SELECTIVELY DISPLAYING A PLURALITY OF INFORMATION

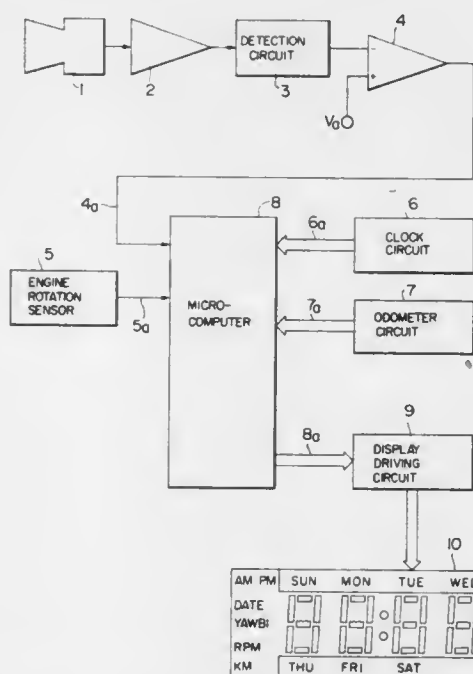
Hiroshi Fujinami, Bloomfield Hills, Mich., and Takashi Yamada, Anjo, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 3,935, Jan. 16, 1979. This application Aug. 27, 1980, Ser. No. 181,903

Int. Cl.³ G10L 1/00

U.S. Cl. 179-1 SM

1 Claim



1. A method for selectively displaying on a single display unit in a vehicle a value of any one of time, a plurality of calendar data and a plurality of vehicle operating condition data in response to voice commands associated with said types of data comprising the steps of:

- preliminarily associating a unique signal pattern with each of said calendar data and vehicle operating condition data; generating signals indicative of the time, each of said calendar data and each of said vehicle operating condition data; displaying initially the time on said single display unit until any voiced command is received;
- receiving a voice command by a microphone to produce voice signals corresponding to said voiced command; matching a signal pattern of said voice signals with said unique signal pattern preliminarily associated with one of said plurality of calendar data and said plurality of vehicle operating condition data;
- further displaying in place of said initial displaying step a value of one of signals generated by said signal generating step and selected by said matching step on said single display unit;
- limiting the display of a value of one of said calendar data of

lesser importance to a predetermined period of time to resume the display of the time thereafter; and continuing the display of a value of one of said vehicle operating condition data of greater importance than said calendar data by said further displaying step and the resumed display of the time until another voiced command is received by said receiving step.

4,393,272

SOUND SYNTHESIZER

Fumitada Itakura, Houya, and Noboru Sugamura, Iruma, both of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

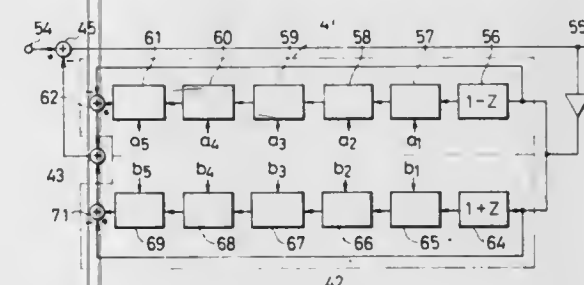
Filed Sep. 19, 1980, Ser. No. 188,782

Claims priority, application Japan, Oct. 3, 1979, 54-128365

Int. Cl.³ G10L 1/00

U.S. Cl. 179-1 SA

27 Claims



1. A sound synthesizer comprising:

- a sound source signal source for generating a sound source signal;
- a control parameter source for delivering control parameters a_i, b_i ($i=1, 2, 3, \dots$) for controlling the characteristic of a synthesis filter, said control parameters a_i, b_i being expressed by $a_i = -2 \cos \omega_i$ and $b_i = -2 \cos \theta_i$ where ω_i and θ_i are LSP parameters and $0 < \theta_1 < \omega_1 < \theta_2 < \omega_2 < \theta_3 < \dots < \pi$; and
- all-pole type synthesis filter means for synthesizing a sound signal under the control of said control parameters, said all-pole type synthesis filter means comprising: feedback adder means one input of which is supplied with said sound source signal, and first and second feedback means the input side of each of which is supplied with the output from said synthesis filter means and the output of each of which is supplied to another input of said feedback adder means thereby to provide first and second feedback loops, said first and second feedback means respectively including in the feedback paths thereof first cascade operating second-order filter means expressed by $(1 + a_i Z + Z^2)$ and second cascade operating second-order filter means expressed by $(1 + b_i Z + Z^2)$ where Z represents unit time delay means.

4,393,273

FM-RECEIVER WITH TRANSMITTER CHARACTERIZATION

Theodoor A. C. M. Claassen; Gerardus C. M. Gielis; Johan M. Schmidt, and Harry B. Schoonheijm, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 19, 1981, Ser. No. 226,561

Claims priority, application Netherlands, Jan. 31, 1980, 8000607

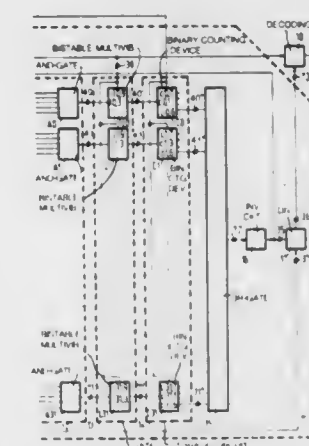
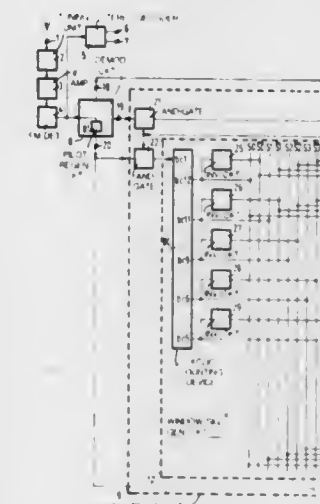
Int. Cl.³ H04H 5/00

U.S. Cl. 179-1 GD

12 Claims

- A clock regeneration circuit for an FM-receiver with transmitter characterization having a tuning unit connected to an aerial input and to which there are connected one after the other, an IF-amplifier, an FM-detector, a demodulation circuit for demodulating a discrete transmitter characterization signal, a decoding device for decoding the discrete transmitter characterization signal and a signal processing unit, also comprising a pilot regeneration circuit connected to the FM-detector for regenerating a stereo pilot signal, characterized in that the

clock regeneration circuit comprises a phase search circuit having a cyclic counting device coupled to the pilot regeneration circuit for dividing at least a portion of the transmitter characterization signal into discrete phase steps determined by the periods of the pilot signal and also having a coincidence circuit connected to the cyclic counting device and to the demodulator for allotting phase steps to at least a portion of the pulse edges in the transmitter characterization signal, a storage



circuit for storing the information about the phase steps and a phase selection circuit connected to the storage circuit for selecting the phase step in which, statistically, the greatest number of pulse edges occur in the transmitter characterization signal, the clock regeneration circuit also comprising a divider which has a setting input coupled to the phase selection circuit, a signal input to the pilot regeneration circuit and a signal output to an output of the clock regeneration circuit.

4,393,274

AM STEREO RECEIVER

Yukihiko Miyamoto, Tokyo, Japan, assignor to Trio Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 18, 1981, Ser. No. 293,839

Claims priority, application Japan, Aug. 20, 1980, 55-117754[U]

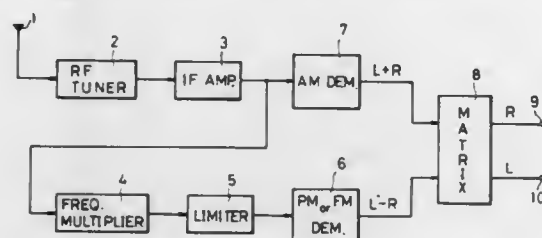
Int. Cl.³ H04H 5/00

U.S. Cl. 179-1 GS

2 Claims

- An AM stereo receiver comprising: an RF AM tuner for selecting and converting an RF AM stereo signal of an AM-PM or AM-FM system into an IF AM stereo signal;

an IF AM signal amplifier for amplifying the IF AM stereo signal from the RF AM tuner;
a frequency multiplier for frequency multiplying the IF AM stereo signal from the IF AM signal amplifier to obtain a frequency-multiplied IF AM stereo signal having a frequency higher than the maximum frequency of a signal handled by the RF AM tuner;
A limiter for amplitude limiting the frequency-multiplied IF AM stereo signal from the frequency multiplier to obtain a frequency-multiplied IF PM or FM difference signal;



a PM or FM demodulator for phase or frequency modulating the frequency-multiplied IF PM or FM difference signal from the limiter to obtain a difference signal;
an AM demodulator for amplitude demodulating the IF AM stereo signal from the IF AM signal amplifier to obtain a sum signal; and
a matrix circuit for deriving a right signal and a left signal from the difference signal from the PM or FM demodulator and the sum signal from the AM demodulator.

4,393,275

HEARING AID WITH CONTROLLABLE WIDE RANGE OF FREQUENCY RESPONSE

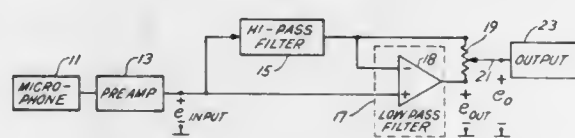
Stanley Feldman, Evanston, and Gary Koch, Arlington Heights, both of Ill., assignors to Beltone Electronics Corporation, Chicago, Ill.

Filed Sep. 30, 1981, Ser. No. 307,009

Int. Cl.³ H04M 1/00

U.S. Cl. 179-1 VL

5 Claims



1. A hearing aid having a wide range of frequency response, comprising:
microphone input means responsive to sound waves for generating an electrical signal representative of the sound waves;
high pass filter means for filtering said electrical signal, said high pass filter means generating a first signal representative of the high frequency portions of said electrical signal;
low pass filter means receiving both said electrical signal and said second signal, said low pass filter means generating a second signal representative of the amplitude subtraction of said last named signals;
proportioning means combining a selected amplitude portion of said first signal with a selected amplitude portion of said second signal for generating an output signal, said proportioning means minimizing frequency effects in said output signals in the frequency range where said high pass filter means and low pass filter means overlap,
control means connected to said proportioning means and manually adjustable for controlling the selected amplitude portions of said first and said second signals; and
output means responsive to said output signal for enhancing the hearing of sound waves by a wearer of the hearing aid.

4,393,276 FOURIER MASKING ANALOG SIGNAL SECURE COMMUNICATION SYSTEM

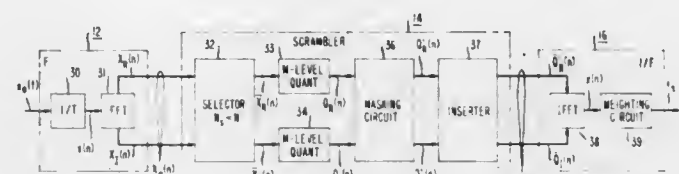
Raymond Steele, Hazlet, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 19, 1981, Ser. No. 245,627

Int. Cl.³ H04K 9/00

U.S. Cl. 179-1.5 R

11 Claims



1. In a secure communication system for analog communication signals:

- a scrambling arrangement (10) capable of receiving as an input a time domain analog message communication signal ($x_a(t)$) and producing as an output signal a secure time domain analog communication signal ($x_s(t)$) related to said input message signal, and
- a descrambling arrangement (20) capable of receiving as an input said secure time domain analog communication signal produced by said scrambling arrangement and transforming said secure signal back into said input time domain analog message communication signal

characterized in that

the scrambling arrangement includes:

- a Fourier transform processor (12) capable of generating as an output a Fourier transform frequency domain signal ($X_a(n)$) related to the input time domain analog message communication signal;
- scrambling means (14) capable of encoding said Fourier transform frequency domain signal produced by said Fourier transform processor to produce as an output a secure Fourier transform frequency domain signal ($X_s(n)$); and
- an inverse Fourier transform processor (16) capable of transforming said secure Fourier transform frequency domain signal produced by said scrambling means into the secure time domain analog communication signal ($x_s(t)$); and

the descrambling arrangement includes:

- a Fourier transform processor (22) capable of receiving as an input said secure time domain analog communication signal produced by said scrambling arrangement and generating as an output a secure Fourier transform frequency domain signal ($X_s(n)$) corresponding to said secure Fourier transform frequency domain signal produced by said scrambling means;
- descrambling means (24) capable of decoding said secure Fourier transform frequency domain signal produced by said descrambling arrangement Fourier transform processor to produce as an output a Fourier transform frequency domain signal ($X_a(n)$) corresponding to said Fourier transform frequency domain signal produced by said scrambling arrangement Fourier transform processor; and
- an inverse Fourier transform processor (26) capable of transforming said Fourier transform frequency domain signal produced by said descrambling means into the time domain analog message communication signal ($x_a(t)$).

4,393,277

REMOTE TUNER CONTROL SYSTEM

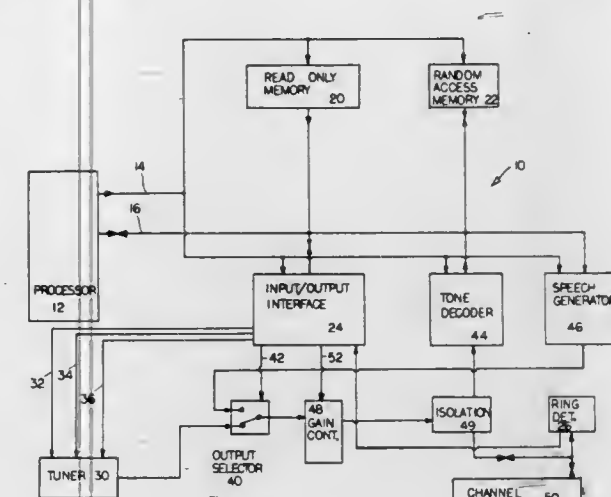
Peter D. Besen; Don H. Shulsinger, both of Arlington, Mass., and Stuart D. Goldberg, New York, N.Y., assignors to Selecta-station, Inc., New York, N.Y.

Filed Mar. 18, 1981, Ser. No. 245,138

Int. Cl.³ H04M 11/00

U.S. Cl. 179-2 A

15 Claims



1. A remote tuner control system for responding to command signals generated by a user transmitted on a full-duplex communication channel comprising: tone decoder means coupled to said communication channel for conversion of pushbutton telephone tones generated by a user to binary numeric data; tuner means for reception of local audio broadcast radio signals; speech generator means for generating audio speech command menus and command acknowledgements; output selector means coupled to said tuner means and to said speech generator means for selection of audio information returned to the user; input/output interface means coupled to said tuner means and output selector means, said input/output interface means being adapted to control reception frequency of said tuner means and output selection of said output selector means; and processor means coupled to said input/output interface means, said speech generator means and said tone decoder means, said processor means being adapted to receive said binary numerical data from said tone decoder means and control said input/output interface means and said speech generator means in response to said binary numeric data from said tone decoder means.

4,393,278

TELEPHONE SECURITY SYSTEM

Allan M. Miyoshi, 6493 Ellenvue Ave., Canoga Park, Calif. 91307

Filed Aug. 26, 1980, Ser. No. 181,993

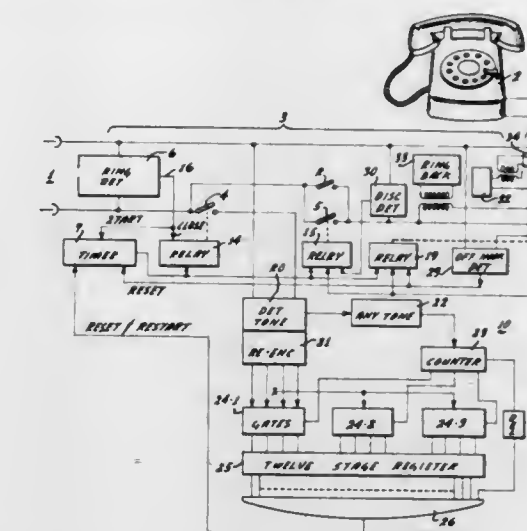
Int. Cl.³ H04M 3/38

U.S. Cl. 179-84 C

3 Claims

1. An apparatus interposed between a telephone subscriber outlet and a telephone, comprising:
input means including ring detector means connected to the outlet and including a first switch, the detector means responding to incoming ring signals and being connected for closing the switch, the first switch being included in a circuit which, when completed, provides a through-connection from the subscriber outlet to the telephone, the circuit and through-connection being, however, not yet completed when the first switch is closed, the circuit requires for completion that the first switch be closed as a preparation for such completion;
means connected to be responsive to the closing of the switch and being connected to the outlet upon closing of the switch to be effective across the outlet for establishing impedance conditions equivalent to answering a phone so that ring signals arriving at the outlet will stop;
signal-detecting means connected to the circuit as prepared

by said first switch closing and being responsive to dial signals received through the outlet after closing of the first switch and after the ring signals have stopped;
logic circuit means connected to the signal-detecting means to determine agreement between a sequence of the dial signals representing a dialed-in number and a preset number;
output means including a ring generator and a second switch



4,393,280

ELECTRICAL SWITCHING ARRANGEMENT

Masayosi Iwata, Hashima, and Harumi Douke, Komaki, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

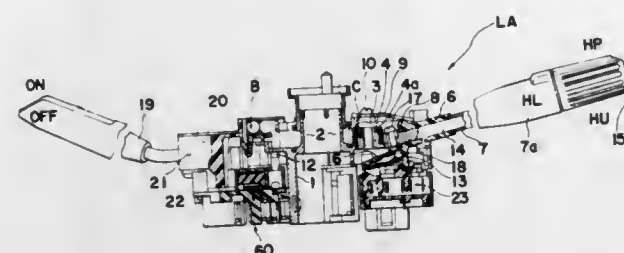
Filed Oct. 30, 1980, Ser. No. 202,196

Claims priority, application Japan, Nov. 7, 1979, 54-155141[U]

Int. Cl.³ H01H 9/00

U.S. Cl. 200—4

8 Claims



1. An electrical switching arrangement for use in a motor vehicle or the like, said arrangement comprising:

- a support frame;
- a lever support member pivotally mounted on said support frame for pivotal movement about a first support axis;
- a hollow control lever member pivotally mounted with respect to said lever support member for pivotal movement about a second support axis extending in a direction different from that of said first support axis;
- a control shaft extending coaxially through the hollow interior of said control lever member and rotatable with respect thereto about the longitudinal axis thereof;
- a first actuating member connected to said control lever member;

- a second actuating member connected to said control shaft;
- switching means mounted on said support frame and including:
 - a switch base;
 - a plurality of switch elements disposed on said switch base;
 - a second sliding member mounted for sliding movement in a predetermined first direction;
 - a first sliding member carried by said second sliding member for movement therewith in said first direction, said first sliding member being mounted for sliding movement with respect to said second sliding member in a second direction extending approximately at a right angle to said first direction;
 - a plurality of cam actuators mounted for movement with respect to said switch base for selective opening and closing of said switch elements; and
 - cam means on said first sliding member for selectively displacing said cam actuators with respect to said switch base; and

connecting means for connecting said second sliding member to one of said first and second actuating members and for connecting said first sliding member to the other of said first and second actuating members, such that upon selective pivoting movement of said control lever member about said second support axis and rotational movement of said control shaft about said longitudinal axis, said first sliding member is moved in said second direction independently of said second sliding member, or said first sliding member is moved in said first direction with said second sliding member, thereby to displace selectively said cam actuators for opening and closing selected of said switch elements.

4,393,281

DIP SWITCH

Hiroyuki Ohmori, Tokyo; Hiroshi Uchimura, Chiba, and Yuzo Mikage, Funabashi, all of Japan, assignors to Matsu Kyu Kabushiki Kaisha, Japan

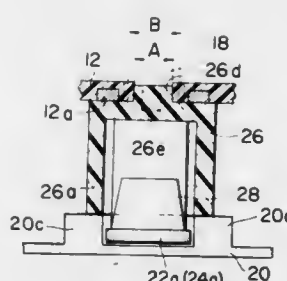
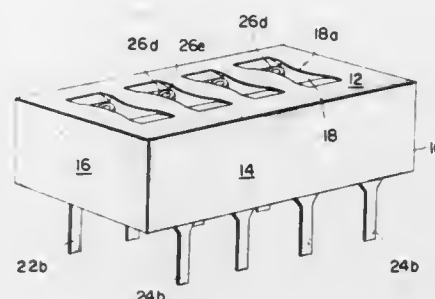
Continuation-in-part of Ser. No. 94,488, Nov. 15, 1979, abandoned. This application Aug. 18, 1981, Ser. No. 293,977

Claims priority, application Japan, Apr. 20, 1979, 54-53103[U]

Int. Cl.³ H01H 15/02

U.S. Cl. 200—16 D

9 Claims



1. A dual inline package switch assembly containing one or more separated electrical switches, comprising:

- (a) an insulating housing having a base and a cover enclosing an interior space, at least one switch positioned in said interior space, said cover having a top wall with at least one elongated slit extending into said interior space in alignment with said switch;
- (b) said switch including at least one pair of switch contacts having a first fixed arm extending on said base from one side of said housing, a second fixed arm extending on said base from the other side of said housing to face the free end of said first arm, and legs integral with and extending from each arm from the respective sides of said housing for insertion into electrical circuit openings, each arm being flat in a common plane and engaged against said base;
- (c) said switch further including at least one actuating means movably positioned within said interior space and having an operating stub positioned in said slit of said housing and having a resilient conductive bridging strip for selectively breaking and making an electrical connection between said fixed arms with movement of said actuating means, said actuating means being displaceable onto said housing base for sliding movement thereon and said bridging strip having inwardly curved rounded end portions to maintain constant the pressure between said resilient conductive bridging strip and said fixed arms; and
- (d) said slit of said housing having a center neck whose width is slightly smaller than the diameter of said operation stub of said actuating means for detenting movement of said actuating means.

4,393,282

ELECTRODE FOR IGNITION SYSTEMS

Werner Grünwald, Gerlingen; Ernst Zehender, Althengstett; Karl-Hermann Friese, Leonberg; Jürgen Schmatz, Ludwigsburg; Hans Neu, Vaihingen; Kuno Kirner, Gerlingen, and Bernd Schumacher, Vaihingen-Aurich, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

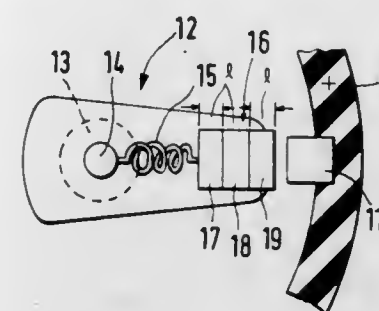
Continuation-in-part of Ser. No. 75,906, Sep. 17, 1979, abandoned. This application Mar. 18, 1981, Ser. No. 245,170

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846590

Int. Cl.³ H01H 19/00

U.S. Cl. 200—19 R

25 Claims



5. Electrical interference suppressed spark apparatus, particularly distributor for an internal combustion engine, to provide a spark across a spark gap, comprising:

- a first electrode (11, 21, 31, 41);
- and a second electrode (16, 26, 27, 37, 44, 46, 54, 56) separated from said first electrode by said spark gap, said second electrode having an end part adjacent said spark gap, and wherein at least said end part has a minimum resistance per unit length of at least 400 ohms per millimeter.

4,393,283

JACK WITH PLUG ACTUATED SLIDE SWITCH

Toru Masuda, Higashi-Osaka, Japan, assignor to Hosiden Electronics Co., Ltd., Osaka, Japan

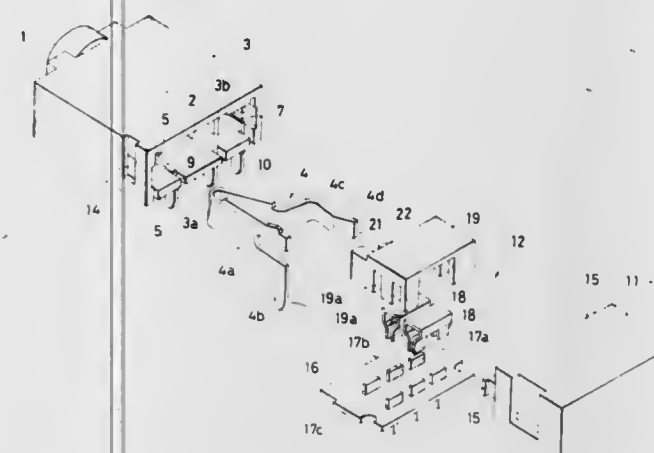
Filed Jun. 9, 1981, Ser. No. 271,945

Claims priority, application Japan, Apr. 10, 1980, 55-48956[U]

Int. Cl.³ H01A 33/30; H01H 9/02

U.S. Cl. 200—51.09

5 Claims



1. A jack, comprising:

- a jack case having a first opening for receiving a plug and a second opening for receiving a switch case;
- a contact strip attached to an inner surface of the jack case, the contact strip being resiliently urged into a first position engageable by the plug on insertion thereof, the plug engaging and moving the contact strip to a second position, the contact strip having a free end portion, carried

thereupon, disposed adjacent the second opening in the jack case; and,

a switch case, having a self-contained switch mechanism therein, removably fitted into the second opening, the switch mechanism having electrical contacts and a movable member adapted to open and close the contacts, the movable member being engaged by the free end portion of the contact strip, opening and closing the contacts in response to insertion and removal of the plug.

4,393,284

DIRECT-CURRENT ELECTRIC SWITCH

Marc Rivollet, and Pierre Monzer, both of Oyonnax, France, assignors to Etablissements Fernand Berchet, Oyonnax, France

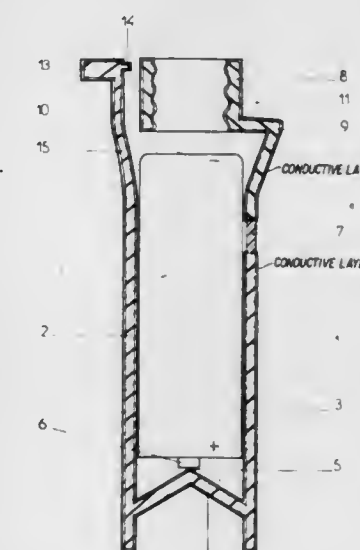
Filed Nov. 19, 1981, Ser. No. 322,755

Claims priority, application France, Nov. 21, 1980, 80 25023

Int. Cl.³ F21V 23/04

U.S. Cl. 200—60

11 Claims



1. An electric switch for electrically connecting a direct-current source such as a cell, a battery, or a storage battery, to a load on a direct-current which is produced from the direct-current source, comprising an insulating, semi-rigid, integral piece of plastic covered with a conducting layer, said integral piece of plastic comprising:

- a first blade provided with a means for making electrical contact between a first pole of the direct-current source and the load, said first blade also being provided with an electrical break to current passage along the length of the first blade;
- a second blade which is parallel to the first blade and is arranged on an opposite side of the direct-current source from the first blade, said second blade being provided with a means to make electrical contact to the load wherein said second blade acts as a flexure member for said means to make electrical contact;
- a means for keeping the direct-current source located between said first and second blades, said keeping means being attached to the first and second blades; and
- a connecting blade capable of absorbing shock energy and dimensional variation of said direct-current source, said connecting blade being joined to the bases of said first and second blades while being in electrical contact with a second pole of the direct-current source.

4,393,285

TRANSMISSION SWITCH ARRANGEMENT FOR A POWER TRANSMISSION RESPONSIVE TO SHIFTING OF GEAR POSITION

Kazuyoshi Hiraiwa, Yokohama, and Saburo Yamasaki, Fujisawa, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

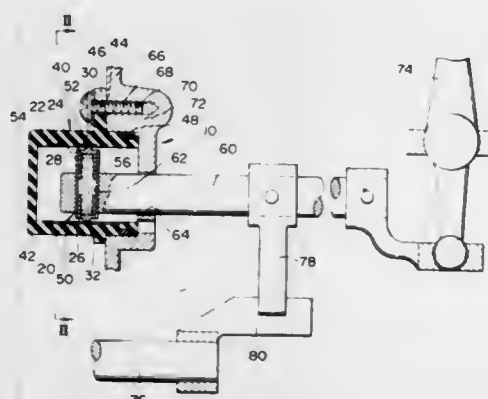
Filed May 5, 1981, Ser. No. 260,699

Claims priority, application Japan, May 6, 1980, 55-58578

Int. Cl.³ H01H 9/06

U.S. Cl. 200—61.88

12 Claims



5. A transmission switch arrangement for detecting a transmission gear position to produce a gear position signal indicative of the transmission gear position in a power transmission, comprising:

- a transmission housing;
- a switch box secured to said transmission housing;
- a striking rod connecting a shift lever and a transmission gear assembly for shifting operation of the transmission gear position in response to operation of said shift lever, said striking rod extending in substantially parallel relationship with the internal periphery of said switch box and movable in relation thereto;
- a movable switch member secured on said striking rod for cooperation with a transmission gear shifting mechanism and disposed within said switch box, said movable switch member including a movable contact which opposes the internal periphery of the switch box; and
- stationary contacts secured on the internal periphery of said switch box at locations facing said movable contact, said stationary contacts being arranged at locations respectively corresponding to each respective transmission gear position.

4,393,286

VACUUM CIRCUIT BREAKERS

Kunihiko Takagi, Tama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

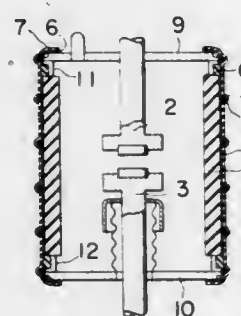
Filed Aug. 15, 1979, Ser. No. 66,772

Claims priority, application Japan, Aug. 24, 1978, 53-102273; Aug. 24, 1978, 53-102274

Int. Cl.³ H01H 33/66

U.S. Cl. 200—144 B

3 Claims



1. In a vacuum circuit breaker having a vacuum bulb includ-

ing an insulating member for containing a movable contact and a stationary contact, the improvement which comprises: a coating of a greasy compound of a water repellent material provided on the outer surface of said insulating member; an insulating tube of a water repellent and heat shrinkable material provided on said coating of the greasy compound; and insulating rings between said coating of the greasy compound and said insulating tube.

4,393,287

ARC SUPPRESSING MEANS FOR CURRENT LIMITING CIRCUIT BREAKERS

Kunimitsu Nakano, Osaka, Japan, assignor to Matsushita Electric Works, Ltd., Osaka, Japan

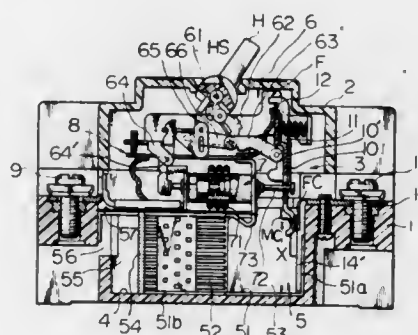
Filed Sep. 10, 1980, Ser. No. 185,802

Claims priority, application Japan, Sep. 14, 1979, 54-129722[U]

Int. Cl.³ H01H 33/08, 9/34

U.S. Cl. 200—144 R

10 Claims



1. An arc suppressing means for current limiting circuit breakers comprising a base made of an insulative material for mounting a circuit breaker; a movable contactor pivoted to be rockable at one end having a movable contact; means for manually operating said movable contactor; means electrically connecting a load side terminal to the movable contactor; means for tripping a contact closing position of the movable contactor in response to an excess short-circuiting current; an arc suppressing chamber provided in said base so as to receive adjacent an end wall thereof at least said rockable end of the movable contactor; a fixed contactor mounted to the base and including a part having a fixed contact positioned to contact with said movable contact in said contact closing position adjacent said one end wall of said arc suppressing chamber, said part of said fixed contactor extending substantially in a direction parallel to the movable contactor along the one end wall of the arc suppressing chamber; a first arc running plate extended along a surface of the arc suppressing chamber which is perpendicular to said one end wall surface of the chamber and including means for electrically connecting said first arc running plate to said extended part of the fixed contactor; a second arc running plate disposed substantially in parallel to said first arc running plate and electrically connected to the movable contactor; and a deion grid disposed between said first and second arc running plates and arranged within the arc suppressing chamber with entrance ends of respective gaps directed to the one end wall of the arc suppressing chamber and with terminating the ends directed to the other end wall of the chamber, wherein said first arc running plate has a beginning end at said one end wall of the arc suppressing chamber, and said means for electrically connecting the first arc running plate to the fixed contactor is connected to said beginning end of the first arc running plate perpendicular to the first arc running plate and in substantially parallel relation to the movable contactor, said movable contact engaging said fixed contact adjacent the end of said connecting means that is remote from said beginning end of said first arc running plate to thereby render an excess short-circuiting current path on the side of the fixed contactor to be substantially maximum.

4,393,288

CIRCUIT BREAKER

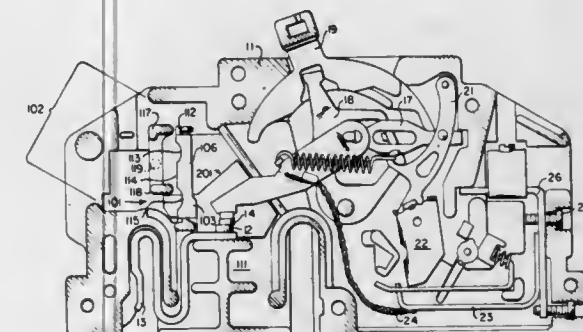
Harold E. Belttary, Rio Piedras, P.R., assignor to GTE Products Corporation, Stamford, Conn.

Filed Jun. 23, 1981, Ser. No. 276,574

Int. Cl.³ H01H 33/08, 33/10

U.S. Cl. 200—144 R

9 Claims



1. In a circuit breaker including two electroconductive elements between which an arc may form, a molded insulated housing having a pair of opposing interior surfaces with each of said surfaces having an opposing formed recess extending along and close to the arc-path between said electroconductive elements, at least one of said electroconductive elements being supported from said molded housing, said molded housing being rigid and possessed of sufficient structural strength to be self-supporting, the improvement comprising the combination of

- a pair of composition sheets, each said sheet residing alongside a respective said opposing surface and held in place within a respective said formed recess, said composition sheets including material comprising a water-insoluble binder and an arc suppressing substance selected from the class consisting of the oxides and hydrates of aluminum and magnesium, said binder constituting at least ten percent of the composition; and
- a channel for providing electric arc cooling and quenching within said circuit breaker comprising an integral, generally U-shaped member forming a base and opposing side walls having a length from one end to an opposite end, said one end of said opposing side walls having extending widths thereby providing a pair of enlarged side wall surfaces for engaging with and being held by said composition sheets, each of said one end and said opposite end of said base being formed with an extending tab for engaging a molded feature of an interior surface of said molded housing, whereby said extending tabs and said composition sheets are adapted to space said channel away from said interior surfaces of said molded housing, thereby exposing surfaces of said channel not in contact with said sheets, said base having an arrangement of venting holes therein, and wherein

said composition sheets physically contact said extending widths of said channel but physically do not engage a majority of said length of said channel

whereby said composition sheets, in addition to having arc suppression characteristics, also support said channel away from said molded housing, thereby helping exhaust gases produced during arcing to vent both through said venting holes and along said exposing surfaces of said channel, said sheets further insulating said channel thermally from said housing.

4,393,289

CIRCUIT BREAKER

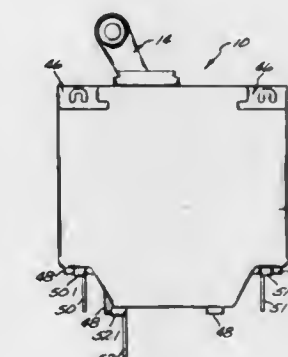
Aime J. Grenier, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 878,957, Feb. 17, 1978, Ser. No. 755,514, Dec. 30, 1976. This application Aug. 6, 1979, Ser. No. 64,453

Int. Cl.³ H01H 33/08, 9/30

U.S. Cl. 200—147 R

4 Claims



1. A contact system for a circuit breaker comprising a pair of first electrical contacts which are disposed in spaced relation to each other in a common plane, and an electrically conductive contact arm having bifurcations at one end which are spaced apart along a line to be simultaneously engaged with the respective first contacts, said arm having an intermediate arm portion which extends parallel to said line to electrically connect the bifurcations to each other at a location closely adjacent to said one arm end, said arm having an additional portion extending from said intermediate arm portion to an opposite end of the arm, and said arm having said opposite end pivotally mounted on an axis which extends parallel to said line for pivoting the bifurcations in a first arc around said axis in side-by-side relation to each other and for pivoting said intermediate arm portion around said axis in a second arc spaced radially inward from the first arc, said arm being pivotable for moving the bifurcations between a closed circuit position in which the bifurcations lie in said plane engaging the first contacts and an open circuit position in which the bifurcations are moved out of said plane away from the respective first contacts, and said intermediate arm portion being located so that said intermediate arm portion is disposed in said plane at one side and radially inward from said line closely adjacent to said first contacts as the arm is moved into and out of said closed circuit position and so that electrical current flowing in said bifurcations and in said intermediate arm portion during said circuit opening and closing deflects electrical arcs formed between the bifurcations and contacts during said circuit opening and closing in a direction away from the contacts and away from the contact arm.

4,393,290

PUFFER-TYPE GAS BLAST SWITCH

Günter Mittelbach, Kassel; Günter Horstmann, Gudensberg; Werner Heiss, Kassel; Dietrich Hoffmann, Kassel-Kirchditmold; Günter Siebrecht; Karl Kriechbaum, both of Kassel, and Günter Rapp, Kassel-B, all of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 10, 1980, Ser. No. 128,897

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909264; Mar. 9, 1979, 2909270; Oct. 22, 1979, 2942624; Oct. 22, 1979, 2942625; Oct. 22, 1979, 2942626; Oct. 22, 1979, 2942627

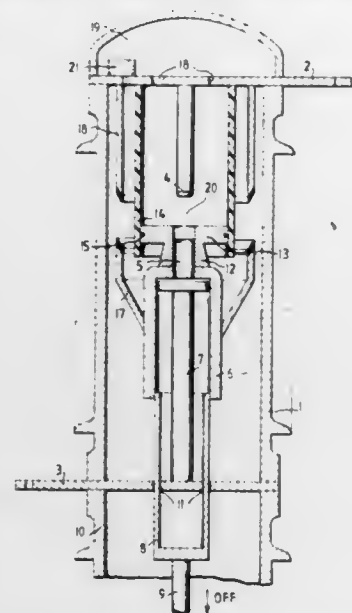
Int. Cl.³ H01H 33/88

U.S. Cl. 200—148 A

12 Claims

1. In a puffer-type gas blast circuit interrupter switch including means defining two separable power current conducting contacts between which an arc is created upon contact separation, a nozzle of insulating material disposed for directing a stream of gas against such arc, means including a stationary

piston and a movable cylinder defining a compressor operable by separation movement of the contacts to supply a mass of gas under pressure to the nozzle, a cylindrical member surrounding the region in which such arc is created and the nozzle, a shield member forming part of the nozzle, shaped to correspond with the cylindrical member and slidably engaging the cylindrical member for guiding movement of the nozzle relative to the cylindrical member, and means defining an inter-



ruptable rated current conducting path in parallel with the power current conducting contacts, the rated current conducting path being interruptable before separation of the power current conducting contacts, the improvement wherein said rated current conducting path means comprise two stationary contact pieces spaced from one another and a contact bridging member mounted on said cylinder for connecting said stationary contact pieces together when said switch is closed.

4,393,291

GAS BLAST INTERRUPTERS

John S. Stewart, West Bridgford, and Stanislaw M. Gonek, Long Eaton, both of England, assignors to Brush Switchgear Limited, England

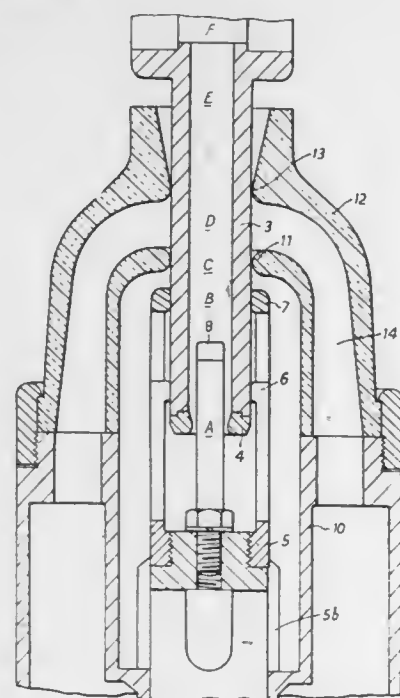
Filed Aug. 22, 1980, Ser. No. 180,340

Claims priority, application United Kingdom, Oct. 12, 1979, 7935551

Int. Cl.³ H01N 33/70

U.S. Cl. 200—148 R

8 Claims



1. A gas-blast type interrupter comprising:
(a) first and second electrodes, said first electrode having a

tubular end on which two sets of contact formations are provided in an axially spaced apart relationship, said second electrode being slidably engaged by both of said sets of contact formations when said electrodes are in said closed position, and disengaging from one of said sets of contact formations before becoming disengaged from the other set of contact formations during movement of said contacts from said closed position towards said open position;

(b) means operative to move said first and second electrodes between a closed position in which said electrodes are in mutual electrical engagement and an open position in which said electrodes are mutually separated, movement of said electrodes from said closed position toward said open position causing an arc to be drawn therebetween;

(c) a tubular housing having an interior in which said first electrode is disposed;

(d) a guide surrounding said tubular housing, said guide and said tubular housing defining therebetween an annular chamber into which pressurized gas is supplied upon movement of said electrodes from said closed position toward said open position;

(e) means defining a first insulating orifice in said tubular housing through which said second electrode substantially sealingly passes when said electrodes are in said closed position, said second electrode passing out of the first insulating orifice during movement of said electrodes toward said open position thereby permitting said pressurized gas from the annular chamber to flow through the first insulating orifice into said interior of said tubular housing in a direction essentially along said arc; and

(f) means defining a second insulating orifice in said guide through which said second electrode also substantially sealingly passes when said electrodes are in said closed position, said second electrode passing out of the second insulating orifice during movement of said electrodes towards said open position thereby permitting said pressurized gas from the annular chamber to flow through the second insulating orifice in a direction opposed to the direction of gas flow through the first insulating orifice, the first and second insulating orifices being co-axial and of essentially the same size.

4,393,292

METHOD OF AND APPARATUS FOR ELECTRICAL DISCHARGE MACHINING A SMALL AND DEEP HOLE INTO OR THROUGH A WORKPIECE

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed Aug. 29, 1980, Ser. No. 182,423

Claims priority, application Japan, Jul. 17, 1979, 55-98266; Aug. 30, 1979, 54-110552; Aug. 31, 1979, 54-111427; Nov. 6, 1979, 54-144117; Nov. 29, 1979, 54-155107; Dec. 27, 1979, 54-172587

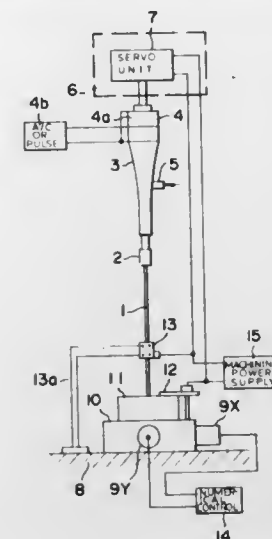
Int. Cl.³ B23P 1/08

U.S. Cl. 219—69 M

33 Claims

1. A method of electrical discharge machining a small and deep hole having a diameter of 1 mm or less and a depth to diameter ratio of at least 5 into or through a workpiece, the method comprising the steps of: juxtaposing a thin and elongated tubular electrode with the workpiece across a machining gap; supplying a water machining fluid through the tubular electrode into the machining gap at a pressure of at least 20 kg/cm²; applying a series of electrical machining pulses between the tubular electrode and the workpiece to cause time-

spaced electrical discharges through the machining gap the main body to electrically insulate the shaft; the arm, and thereby removing material from the workpiece; and advancing the power conductor means from the main body.



4,393,294

ELECTRON BEAM WORKING APPARATUS FOR CYLINDRICAL MEMBERS

Michitsune Shima; Seiichi Iida, both of Kobe; Shiso Kihara, Akashi; Masaharu Minami, Kobe; Toshikazu Shimoyama, Kobe; Genta Takano, Kobe, and Akira Kato, Hiroshima, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 30,877, Apr. 17, 1979, abandoned. This application Jan. 9, 1981, Ser. No. 223,927

Claims priority, application Japan, May 17, 1978, 53-65088 Int. Cl.³ B23K 15/00

U.S. Cl. 219—121 EC

2 Claims

the tubular electrode in its longitudinal direction relatively into the workpiece.

4,393,293

RESISTANCE WELDING MACHINE

Nobuyoshi Inoue, and Tomomi Kishi, both of Toyotashi, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

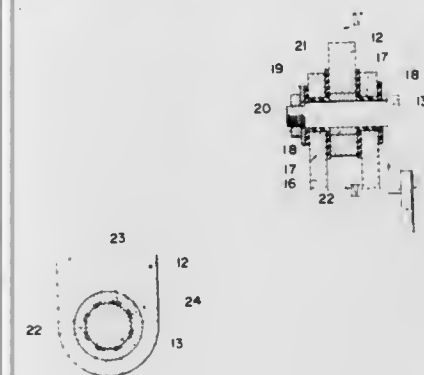
Filed Apr. 24, 1981, Ser. No. 257,171

Claims priority, application Japan, May 13, 1980, 55-064460[U]

Int. Cl.³ B23K 11/10

U.S. Cl. 219—90

5 Claims



1. A resistance welding machine comprising: a first electrode; a second electrode pivotally movable toward and away from the first electrode to engage work therebetween to supply electric resistance welding current to the work; a main body supporting the first electrode; an electrically conductive arm pivotally supported on the main body and supporting the second electrode and making electrical contact therewith to conduct the welding current; a conductive shaft extending through the body; power conductor means rigidly connected to the shaft, said shaft being non-rotably held in the body; conductive bushing means inserted in the arm and making good electrical contact therewith to conduct the welding current, said bushing means being rotatably mounted on the shaft and comprising an inner surface defined by regions of cylindrical curvature closely conforming to the surface of the shaft rotatably supporting the bushing means to make good electrical contact therewith to permit the welding current to flow therethrough and to furnish rotational mechanical support for the arm around the shaft, the inner surface of the bushing comprising a plurality of recesses spaced therearound to receive powdered material generated by rotational rubbing of the inner surface of the bushing on the shaft and lubricant to entrap the powdered material in the recesses; and hollow cylindrical and annular radial insulating means surrounding the shaft axially outward of the bushing and between the shaft and

1. An electron beam apparatus for welding a pair of cylindrical workpieces having inner and outer surfaces and stacked one on the other and abutting along a circular line around the periphery thereof, said apparatus comprising:

two disk-shaped partition plates having inflatable annular seal members disposed along the respective outer peripheral edges thereof, which partition plates are adapted to be placed inside the pair of cylindrical workpieces with one above and the other below the circular line wherein the workpieces abut with said seal members pressed against the inner peripheral surfaces of the pair of cylindrical workpieces to define a first vacuum chamber surrounded by said two partition plates and the inner peripheral surfaces of the pair of cylindrical workpieces;

two annular fixed chamber wall members having inflatable annular seal members disposed along the respective inner peripheral surfaces thereof, which chamber wall members are adapted to be placed outside the pair of cylindrical workpieces with one above and the other below the circular line wherein the workpieces abut with said seal members pressed against the outer peripheral surfaces of the pair of cylindrical workpieces;

an annular rotary chamber wall member rotatably mounted around said two annular fixed chamber wall members and a seal member on the rotary chamber wall members adjacent the upper one of said partition plates and a seal member on the rotary chamber wall members adjacent the lower one of said partition plates, said seal members being in sliding sealing contact with said fixed chamber wall members to thereby form a second vacuum chamber surrounded by the outer peripheral surfaces of said cylindrical workpieces, said two annular fixed chamber wall members and the inner peripheral surface of said rotary chamber wall member; vacuum means disposed outside said chamber wall members and connected to said vacuum chambers; pressure fluid means outside the workpieces and connected to said seal members for supplying pressure fluid thereto; and

an electron gun on said rotary chamber wall member level with the circular line wherein the workpieces abut for directing an electron beam against the circular line

wherein the workpieces abut so that electron beam welding can be carried out along the circular line wherein the workpieces abut while said rotary chamber wall member is being rotated with respect to the cylindrical workpieces.

4,393,295

APPARATUS AND METHOD FOR ENGRAVING WITH AN ELECTRON BEAM

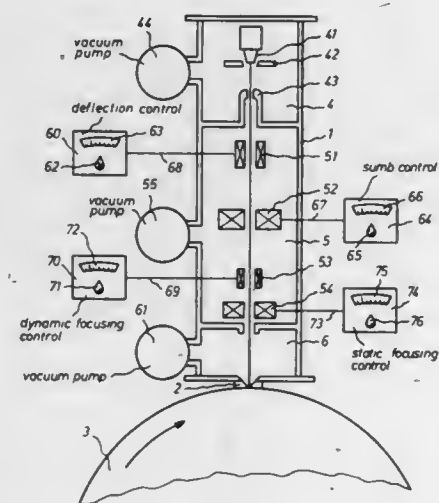
Siegfried Beisswenger; Wolfgang Boppel, both of Preetz, and Dieter Grieger, Kiel, all of Fed. Rep. of Germany, assignors to Ing. Rudolf Hell GmbH, Fed. Rep. of Germany
Filed Mar. 5, 1981, Ser. No. 240,869

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947444

Int. Cl.³ B23K 15/00

U.S. Cl. 219—121 EJ

6 Claims



1. An electron beam engraving method for the fast, successive generation of depressions of different sizes in the surface of a workpiece, whereby the different depressions are generated by means of the different influence of the electron beam, comprising the steps of directing the beam on the workpiece, and defocusing said beam on the workpiece in the periods between the generation of the individual depressions while maintaining the electron beam on the workpiece during said periods between the generation of depressions such that cutting does not occur.

4,393,296

APPARATUS FOR THE CONTINUOUS MANUFACTURE OF METALLIC ANODES FROM MOLTEN METAL

John M. A. Dompas, Olen, Belgium, assignor to Metallurgie Hoboken-Overpelt, Brussels, Belgium

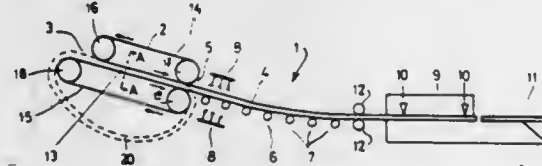
Division of Ser. No. 957,445, Nov. 3, 1978, abandoned. This application Mar. 9, 1981, Ser. No. 241,612

Claims priority, application Luxembourg, Nov. 16, 1977, 78531; Jun. 21, 1978, 79853

Int. Cl.³ B23K 7/02, 9/00

U.S. Cl. 219—121 PC

13 Claims



1. An apparatus for cutting a moving metallic strip into uniform pieces along a predetermined profile, comprising:

- (a) a frame;
- (b) a cutting zone;
- (c) a carriage mounted on said frame above said moving metallic strip, said carriage adapted to move within said

cutting zone in a direction of movement with the movement of said metallic strip and in the opposite direction;

(d) a thermal cutting device containing at least one plasma torch, said cutting device mounted on said carriage and adapted to travel in a direction transverse to the direction of movement of said metallic strip;

(e) an endless roller conveyor having an upper run for supporting said metallic strip in the cutting zone, said roller conveyor adapted to move in said cutting zone in the same direction as said metallic strip, each roller of said roller conveyor including an inner cavity defined by a peripheral surface for supporting said metallic strip and opposed side walls, and a plurality of apertures formed in said side walls providing a communicating path from the exterior of each said roller to its inner cavity for entry of a cooling liquid, said apertures arranged in a position in said side walls to retain a volume of cooling liquid within said inner cavity providing a measure of cooling during movement of each roll along said upper run;

(f) a tank filled with a cooling liquid, each said roller of said roller conveyor moving through said tank for entry of said cooling liquid through said apertures into said inner cavity thereby to mix with and thereby reduce the temperature of the cooling liquid therein and to cool the peripheral surface and side walls of each said roller before moving toward said upper run; and

(g) an evacuation zone for the cut metallic pieces.

4,393,297

METHOD FOR THE ARC CUTTING OF METAL

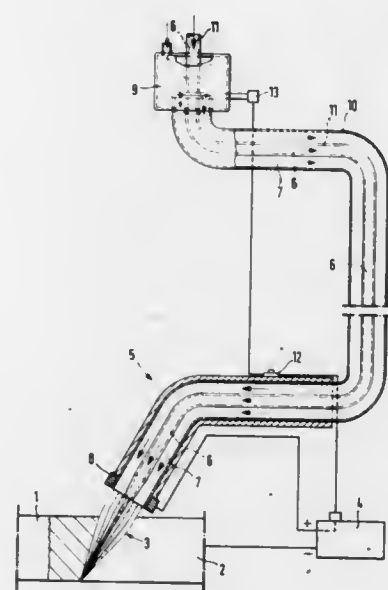
Juhani Niinivaara, Elimäki, Finland, assignor to Osmo Asonen, Finland

Filed Jul. 24, 1981, Ser. No. 286,510

Int. Cl.³ B23K 9/00, 35/00

U.S. Cl. 219—137 R

11 Claims



1. In a method for arc cutting of metal, in which method an electric arc is formed between the metal and a cutting torch, and the cutting is achieved by simultaneously blowing gas into the cut; the improvement comprising injection of a paste through the torch into the region of the arc, said paste containing a finely-divided electrically conducting substance mixed with a carrier, so that the aforesaid finely-divided substance acts as an electrode which causes the electric arc to be struck.

4,393,298

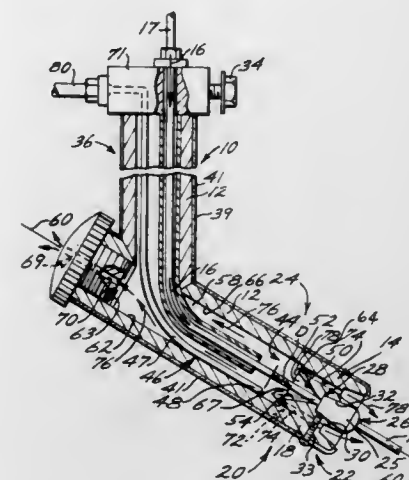
LIQUID COOLING FOR A WELDING TORCH

John G. Frantz, Sr., Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation-in-part of Ser. No. 973,048, Dec. 7, 1978, abandoned. This application Sep. 24, 1980, Ser. No. 190,132
Int. Cl.³ B23K 9/16

U.S. Cl. 219—137.62

7 Claims



1. In a welding torch (10) having a body (12) and an electrode pathway (16), said body (12) having a contact tip assembly (14) and first and second end portions (24,36), said contact tip assembly (14) being positioned at said first end portion (24) of said body (12), said electrode pathway (16) passing through said contact tip assembly (14), the improvement comprising:

said body (12) having a central axis (60) and walls (62,63,64) defining a central chamber (58), said central chamber (58) having a periphery (66) and being symmetrical about said central axis (60);

an expansion element (44) defined by a surface (50) and positioned for receiving a flow of liquid and controllably initiating a flow of gas in said central chamber (58) in response to gasification of said liquid at said expansion element (44), said surface (50) defining an aperture (52) symmetrical about said central axis (60) and through which said central axis (60) passes and opening through a wall (64) of said body (12) into said central chamber (58) immediately adjacent said contact tip assembly (14);

vent means (69) for controllably maintaining a preselected flow of gas from said central chamber (58) to a location spaced from said first end portion (24) of said body (12); and

means (46) for controllably delivering a preselected amount of liquid onto said expansion element (44), said means (46) including a delivery orifice (48) positioned in said central chamber (58) and spaced a preselected distance (D) from said periphery (66) of said central chamber (58) at the opening of said aperture (52) onto said wall (64) and oriented for directing said delivered liquid through said central chamber (58) into said aperture (52) to a preselected location on said expansion element (44).

4,393,299

ELECTRIC RADIANT HEATER UNIT FOR A GLASS CERAMIC TOP COOKER

Joseph A. McWilliams, Droitwich, England, assignor to Micro-pore International Limited, Droitwich, England

Filed Nov. 16, 1981, Ser. No. 321,634

Claims priority, application United Kingdom, No. 17, 1980, 8036864

Int. Cl.³ H05B 3/68

U.S. Cl. 219—446

6 Claims

1. An electric radiant heater unit for a glass ceramic top cooker, the heater unit comprising:

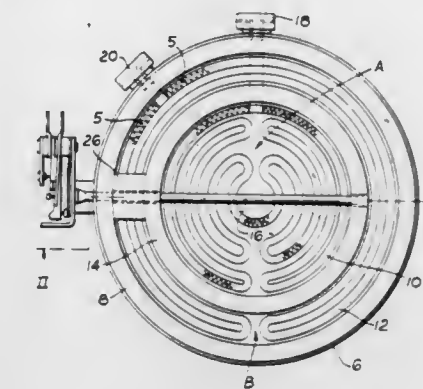
a base layer of electrical and thermal insulating material; at least first and second bare heater elements positioned on said base layer and arranged such that said second heater

element extends substantially entirely around the periphery of said first heater element;

means to connect said heater elements to a power source; means for energising said first heater element independently of said second heater element;

a dividing wall of thermal insulating material positioned on said base layer and arranged between said first and second heater elements for keeping heat within said dividing wall; and

a peripheral wall of thermal insulating material positioned



on said base layer and surrounding said second heater element for keeping heat within said peripheral wall, wherein said second heater element has an electrical resistance and said first heater element has an electrical resistance such that, in use of the heater unit, the electrical power fed to said second heater element and to said first heater element per unit surface area of the heater unit enclosed by the peripheral wall is greater than the electrical power fed to said first heater element per unit surface area of that part of the heater unit enclosed by the dividing wall.

4,393,300

HEATING CONTROL SYSTEM

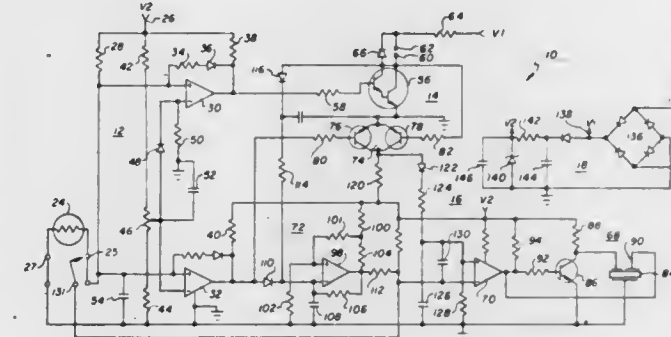
Gary R. Proctor, Indianapolis, Ind., assignor to Emhart Industries, Inc., Indianapolis, Ind.

Filed Oct. 29, 1981, Ser. No. 316,056

Int. Cl.³ H05B 1/02

U.S. Cl. 219—497

9 Claims



1. A temperature detecting heating control system comprising:

a temperature sensor; a first voltage comparator means having an output terminal and two input terminals;

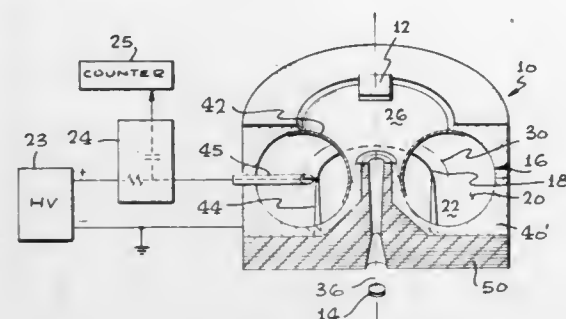
first means for coupling said temperature sensor to one input terminal of said first comparator means;

a second voltage comparator means having an output terminal and two input terminals;

second means for coupling said temperature sensor to one input of said second comparator means;

means for generating a pair of dependently variable reference voltages, one of said reference voltages representing a variable set point temperature and being coupled to the other input terminal of said first comparator means, the

means for establishing an electrical potential between said cathode and anode;



said anode positioned so it lies closer to the radially inner side than the radially outer side of the cathode chamber.

4,393,307

NEUTRON DETECTORS

Shinichi Nozaki, Yokohama; Ichiro Tai, Tokyo, and Shimpey Shirayama, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

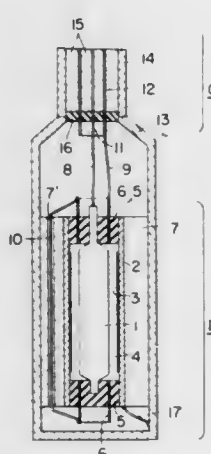
Filed Nov. 10, 1980, Ser. No. 205,613

Claims priority, application Japan, Nov. 15, 1979, 54-148189

Int. Cl.³ G01T 3/00

U.S. Cl. 250—390

2 Claims



1. In a neutron detector of the type comprising an ionization chamber provided with an anode electrode and a cathode electrode for detecting neutron flux injected into said ionization chamber and a guide cable connected to said ionization chamber, said guide cable comprising a central conductor arranged within and coaxially with said cable and connected to one of said anode electrode and cathode electrode for deriving ionization current created by said neutron flux out of said ionization chamber, and an outer conductor extending coaxially with said central conductor and insulated therefrom, said outer conductor being connected to the other one of said anode and cathode electrodes, said outer conductor being electrically connected to a casing of said ionization chamber, the improvement which comprises an intermediate annular conductor arranged coaxially with and between said central and outer conductors of said cable and insulated therefrom, and upper and lower annular conductors embedded in insulating members disposed between said anode and cathode electrodes for supporting said one of the anode and cathode electrodes which is connected to said central conductor, said upper and lower annular conductors being electrically connected together and said upper annular conductor being connected to said intermediate annular conductor of said guide cable.

4,393,308

HIGH CURRENT ELECTRON SOURCE

Klaus Anger, Munich; Juergen Frosien, Berlin; Burkhard Lischke; Erich Plies, both of Munich, and Klaus Tonar, Berlin, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

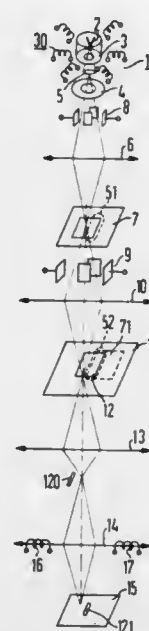
Filed Mar. 5, 1981, Ser. No. 240,881

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010815

Int. Cl.³ H01J 37/00

U.S. Cl. 250—396 R

6 Claims



1. In a high current electron source having a narrow energy band and having a beam generating system including a cathode, a plurality of focusing electrodes, and a deflection system and an illumination lens disposed after said anode in the direction of electron beam travel, the improvement comprising: one of said focusing electrodes being disposed between said cathode and said anode and consisting of non-movable means for generating an octupole effect on said electron beam, said means selectively varying the size of said cross-over and the orientation of said cross-over in a plane perpendicular to said electron beam.

4,393,309

METHOD AND APPARATUS FOR CONTROLLING THE OBJECTIVE LENS IN A SCANNING ELECTRON MICROSCOPE OR THE LIKE

Setsuo Norioka, Akishimashi, Japan, assignor to JEOL Ltd., Tokyo, Japan

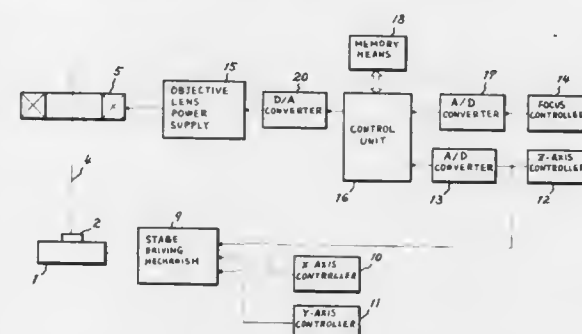
Filed Sep. 3, 1981, Ser. No. 299,009

Claims priority, application Japan, Sep. 12, 1980, 55-126812

Int. Cl.³ G21K 1/08, 5/10; H01J 3/14

U.S. Cl. 250—396 R

2 Claims



1. A method for controlling the excitation current of the objective lens in a scanning electron microscope or the like comprising:

(a) a step for storing data which specify the relation between

the excitation current (I) of the object lens and the focusing distance (D) of the objective lens;

- (b) a step for focusing the beam upon the specimen by varying the objective lens excitation current while observing the specimen image; and memorizing the initial focusing distance (D_0) corresponding to the objective lens excitation current determined by focusing;
- (c) a step for detecting the change in the focusing distance (ΔD) due to the specimen shift relative to the initial focusing distance (D_0) along the optical axis of the objective lens after the said focusing operation;
- (d) a step for reading out the excitation current corresponding to the focusing distance ($D_0 + \Delta D$) from the data stored in step (a); and
- (e) a step for supplying the objective lens with the excitation current read out in step (d).

4,393,310

METHOD OF AND DEVICE FOR ADJUSTING A SHAPED-ELECTRON-BEAM WORKING DEVICE

Eberhard Hahn, 9, Pestalozzistrasse, Jena, District of Gera, German Democratic Rep.

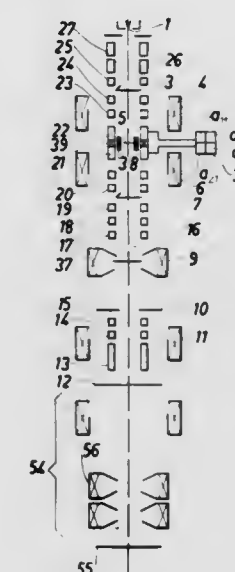
Filed Jan. 5, 1979, Ser. No. 502

Claims priority, application German Democratic Rep., Jan. 19, 1978, 01203296

Int. Cl.³ H01J 37/26

U.S. Cl. 250—398

5 Claims



1. A method of adjusting a shaped-electron-beam working device in which a first angular aperture is imaged onto the plane of a second angular aperture completing each other such that a rectangularly shaped beam results which is demagnified via an objective into a target plane and which is positioned therein through an x, y-deflection system, and in which a crossover of said shaped-electron-beam working device is imaged into the tilt plane of a format deflection system for format variation and from there onto the plane of an aperture diaphragm (entrance pupil) of said objective, adjustments of the pupil, of the beam format and of a beam format calibration being performed comprising in time sequence the steps of displaying the electron beam shape image in the target plane on a screen, displaying the image of the entrance pupil on the screen, checking the images of said beam shape and said entrance pupil, and in the event of misalignments from an adjusted state prevailing

the following adjustment steps are performed:

- imaging the aperture diaphragm and focusing of the pupil onto the plane of the aperture diaphragm for pre-adjustment of the pupil,
- imaging of the target plane and cyclically positioning of a zero-format in x, y-deflection direction in the target plane in the step width of the zero-format and correcting the wedge error (non-parallel opposing sides), the parallelogram error, the distance error, and the brightness differ-

ences visible at the format edges of four adjacent edges of the zero-format for format adjustment where the zero-format is the cross-section of the beam in the currentless state of the format deflection system, imaging of the aperture diaphragm and cyclic format variation, phase shifted in x, y-direction, and subsequent correction of the pupil displacement occurring in the course thereof, for pupil adjustment, imaging of the target plane and cyclic positioning of the format with simultaneous format variation, and correction of the distance error visible at the format edges for format calibration.

4,393,311

METHOD AND APPARATUS FOR SURFACE CHARACTERIZATION AND PROCESS CONTROL UTILIZING RADIATION FROM DESORBED PARTICLES

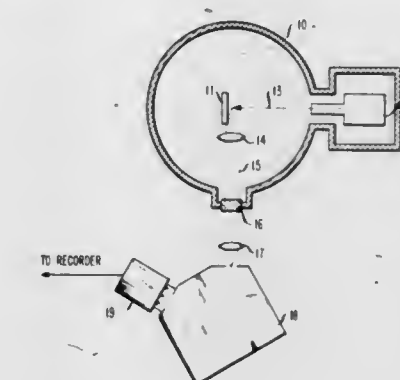
Leonard C. Feldman, Berkeley Heights; Joseph S. Kraus, Stirling; Norman H. Tolk, Mendham; Morton M. Traum, Warren, and John C. Tully, Berkeley Heights, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 159,167, Jun. 13, 1980. This application May 21, 1982, Ser. No. 380,702

Int. Cl.³ G01N 23/22; H01J 37/26

U.S. Cl. 250—459.1

43 Claims



- 1. Method for analyzing a solid surface comprising
 - (a) exposing at least part of the surface to a beam of probe radiation of intensity and energy such that the exposed surface area remains solid;
 - (b) detecting responsive characteristic electromagnetic radiation in the infrared, visible, or UV part of the spectrum emitted by excited particles desorbed from the surface; characterized in that
 - (c) the probe radiation consists of low-momentum radiation, "low-momentum radiation" being radiation that transfers negligible linear momentum to particles in the surface.

4,393,312

VARIABLE-SPOT SCANNING IN AN ELECTRON BEAM EXPOSURE SYSTEM

Robert J. Collier, New Providence, and Michael G. R. Thomson, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 655,427, Feb. 5, 1976, abandoned. This application Nov. 29, 1977, Ser. No. 855,608

Int. Cl.³ H01J 37/00

U.S. Cl. 250—492.2

25 Claims

- 1. A method for achieving variable-spot-size scanning of an electron beam in a lithographic exposure system adapted to fabricate microminiature devices, said method comprising the steps of
 - directing an image of a single electron-beam-illuminated aperture onto a mask plate which has a single aperture therethrough,
 - and successively controlling the registration of said image with respect to said second-mentioned mask plate aperture

during said scanning to establish plural different cross-sectional configurations of the beam that is transmitted



through said second-mentioned mask plate aperture thereby to selectively define variable spot sizes during said scanning.

4,393,313

WIDTH DETECTOR SYSTEM

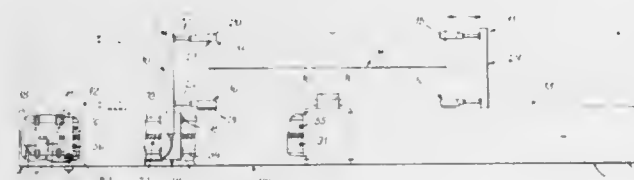
James D. Calkins, Oak Brook Terrace; Eugene E. Bushong, Bensenville, and Lee R. Schuck, Buffalo Grove, all of Ill., assignors to Binks Industries, Inc., Wood Dale, Ill.

Filed Apr. 29, 1981, Ser. No. 258,738

Int. Cl.³ G01N 21/86

U.S. Cl. 250—560

9 Claims



1. A width detector system for constantly monitoring and measuring the width of moving elongated strip materials, comprising: a pair of carriages, one movably mounted adjacent each lateral edge of a strip of material to be measured; a pair of sensor means mounted, one on each carriage, for movement therewith along parallel paths transversely of the elongated axis of said strip material; each sensor means comprising a light source and a photo sensitive cell disposed on opposite faces of said strip material and productive of signals proportional to the intensity of light received by said cell; a pair of drive means, one for bidirectionally moving each carriage and sensor means; a pair of pulse generators, one operatively driven by each drive means, and operable to generate positive and negative output signals dependent on the direction of travel of said carriages along said paths; control means responsive to signals from each sensor means for controlling its associated said drive means whereby to cause each sensor means to independently follow an adjacent edge of said material, and measurement means responsive to the combined output signals of said generators for constantly monitoring the distances of said sensor means from a fixed datum including means for totalizing said distances whereby to determine the measured distance between said sensor means representing the width of said material.

4,393,314
CIRCUIT ARRANGEMENT FOR THE GENERATION OF A SAWTOOTH VOLTAGE

Dieter Kunze, Kaltenkirchen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

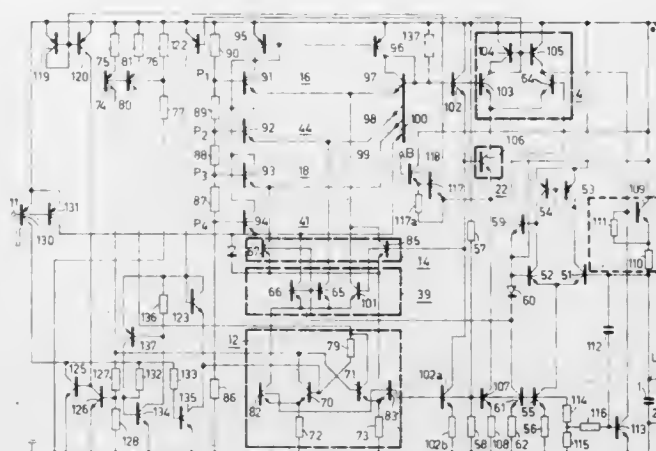
Filed Nov. 24, 1980, Ser. No. 209,774

Claims priority, application Fed. Rep. of Germany, Dec. 6, 1979, 2949066

Int. Cl.³ H03K 4/08

U.S. Cl. 307—228

13 Claims



1. Circuit arrangement for the generation of a sawtooth voltage at a capacitor, which is charged by a first current, until a first threshold voltage is reached, and is discharged by a second current, until a second threshold voltage is reached comprising:

a source of synchronization signals, means for changing the direction and/or the intensity of the direct current supplied to the capacitor at the instant the threshold voltage is reached, whereby the differences between the first and the second threshold voltage as well as the charge and the discharge current determine the natural frequency of the sawtooth voltage generated, and a synchronization signal detector and means for switching said circuit from said natural frequency under the influence of said synchronization signal detector for establishing the presence of said synchronization signal, whereby at least one of the two capacitor charge switching instants can be determined by synchronization signals supplied having a substantially constant nominal repetition frequency, the sawtooth voltage being thus synchronizable by said synchronization signals, and whereby said natural frequency is given substantially the nominal value in the absence of synchronization signals, said synchronization signal detector being implemented as a coincidence circuit to which a signal corresponding to a determined time interval, of the sawtooth voltage and a signal corresponding to a determined time interval of the incoming synchronous signal are supplied and which on coincidence of these two signals supplies a signal to a switching stage for switching the natural frequency of the sawtooth circuit arrangement from a value corresponding to at least substantially to the nominal frequency to a lower value.

4,393,315

HIGH-GAIN STABILIZED CONVERTER

Tedd K. Stickel, Chalfont, and Stephen A. Ransom, Huntingdon Valley, both of Pa., assignors to Sperry Corporation, New York, N.Y.

Filed May 18, 1981, Ser. No. 264,898

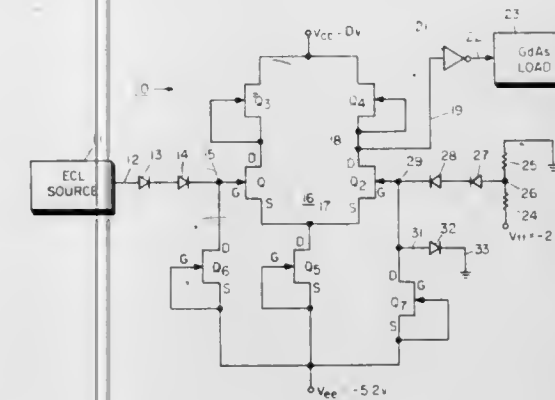
Int. Cl.³ H03K 5/00, 19/092

U.S. Cl. 307—264

13 Claims

1. A high-gain level converter for employing emitter coupled logic (ECL) source signals as an input to gallium arsenide (Ga As) logic circuitry, comprising:

a first plurality of Ga As level shifting diodes couplable to said ECL source signals, an input node line coupled to the output of said first plurality of diodes, a voltage source, a Ga As differential amplifier of the type comprising at least three transistors arranged as an active input transistor, a reference input transistor and a current source transistor couplable to said voltage source, said input node line being connected to the gate of said input transistor of said differential amplifier,



a voltage divider having an intermediate voltage tap whose output voltage is approximately equal to the mid-point switching voltage of said ECL source signals, a second plurality of Ga As level shifting diodes having an input coupled to said intermediate voltage tap of said voltage divider, an output node line coupled to the output of said second plurality of diodes, and said output node line being connected to the gate of said reference input transistor to provide an inverted output at the drain of said reference input transistor to provide a Ga As output voltage line compatible with the input voltage swings required for Ga As logic circuitry.

4,393,316

TRANSISTOR DRIVE CIRCUIT

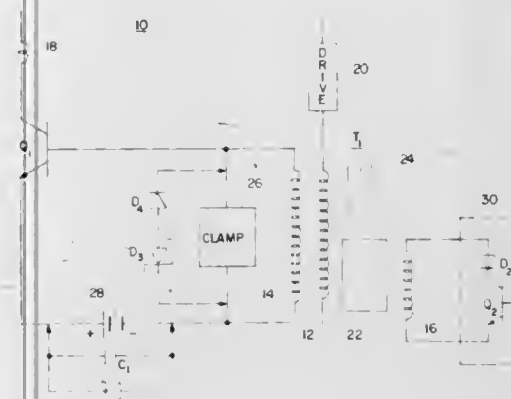
Harold J. Brown, Lorain, Ohio, assignor to Reliance Electric Co., Cleveland, Ohio

Filed Mar. 11, 1981, Ser. No. 242,603

Int. Cl.³ H03K 3/45, 3/33

U.S. Cl. 307—270

16 Claims



1. A bipolar transistor drive and control circuit comprising: (a) a DC charge means directly coupled to said transistor for providing a source of charge for turn off of said transistor; (b) a transformer having both a high permeability magnetic core and a low permeability linear magnetic core said transformer also having input and output drive current means said input drive means receiving a drive current signal and said output drive means being connected to both said charge means and said transistor; and

(c) turn off control winding means acting only on said high permeability core.

4,393,317

MAGNETICALLY CONTROLLABLE ELECTRONIC SWITCH

Wolfgang Radziwill, Aachen; Günter Döring, Würselen, both of Fed. Rep. of Germany, and Hans Steinbusch, Schaesberg, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

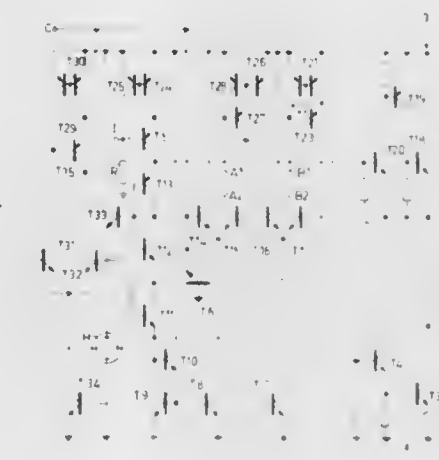
Filed Sep. 26, 1980, Ser. No. 191,103

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2939917

Int. Cl.³ H03K 3/26

U.S. Cl. 307—309

16 Claims



1. A magnetically controllable integrated circuit electronic switch comprising, a Hall element exhibiting an offset corresponding to a magnetic field having a value B_0 and adapted to be controlled by a magnetic field having a component B normal to the Hall element, first and second electric supply input terminals and an output terminal, first and second electric switching paths coupled between the first and second supply input terminals and the output terminal, respectively, with each of said switching paths exhibiting a threshold $(\Delta B/2) \geq 0$, and means including said Hall element for controlling said first and second switching paths so that exposure of the Hall element to said magnetic field with said normal component B causes the first switching path to be closed if $B > B_0 + (\Delta B/2)$ and the second switching path to be closed if $B < B_0 - (\Delta B/2)$, and wherein the first and second switching paths are both open if $|B - B_0| < (\Delta B/2) \times \Gamma$, wherein $0 < \Gamma < 1$ and Γ is a factor taking into account the transition between open and closed conditions of said switching paths.

4,393,318

SAMPLE AND HOLD CIRCUIT

Masayuki Takahashi, Utsunomiya; Kunihiko Goto, Kawasaki; Hisami Tanaka, Yokohama, and Michinobu Ohhata, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 30, 1980, Ser. No. 154,949

Claims priority, application Japan, Jun. 1, 1979, 54/68552

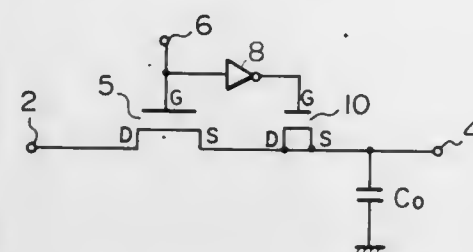
Int. Cl.³ H03K 17/687; G11C 27/02

U.S. Cl. 307—353

10 Claims

1. A sample and hold circuit, for holding a sampled input voltage, comprising: an input terminal; an output terminal; a first field-effect transistor, connected between said input terminal and said output terminal, for sampling an input voltage applied to said input terminal; means for applying a first control voltage to the gate of said first field-effect transistor for selectively switching said

first field-effect transistor between conductive and non-conductive states,
 a holding capacitor, connected to said output terminal, for holding said sampled input voltage;
 means operatively connected to the gate of said first transistor for receiving and inverting the first control voltage and outputting the inverted voltage as a second control voltage;
 a second field-effect transistor having a source and drain commonly connected to said output terminal and a gate connected to said inverting means and receiving said second control voltage for selectively switching said



second field-effect transistor between non-conductive and conductive states, relative to the conductive and non-conductive states, respectively, of said first field-effect transistor, wherein the sum of the capacitance between the gate and source plus the capacitance between the gate and the drain of said second field-effect transistor is approximately equal to the capacitance between the gate and the source of said first field-effect transistor, and the area of the channel region, defined by multiplying the channel length L times the channel width W , of said second field-effect transistor is approximately equal to half of the area of the channel region of said first field-effect transistor.

4,393,319

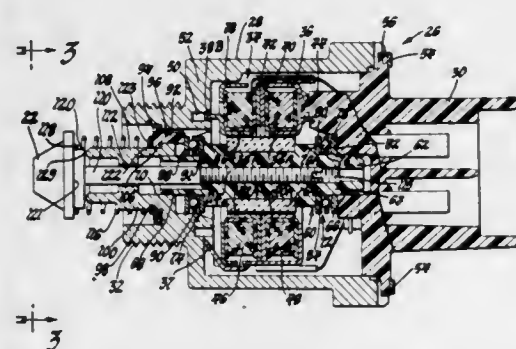
ELECTRIC MOTOR POWERED ACTUATOR

Gustavus P. Bock, Bellbrook, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 8, 1980, Ser. No. 214,199
 Int. Cl.³ H02K 7/06

U.S. Cl. 310—80

8 Claims



1. An electric motor powered actuator comprising in combination;
 a shaft axially movable between an extended and stopped position and varying retracted positions,
 a motor rotor telescoped on said shaft and in threaded relation therewith to position the shaft in accord with rotation of the rotor,
 a first thrust bearing effective to oppose movement of the rotor in the retraction direction when the shaft is in extended and stopped position,
 a second thrust bearing, one side of which engages said rotor, effective to oppose movement of the rotor in the extended direction, and
 resilient means effective to exert a resilient expanding force between the shaft and an opposite side of said second thrust bearing to aid the motor in moving the shaft in the

extended direction and to take up any last motion between the second thrust bearing and the rotor.

4,393,320

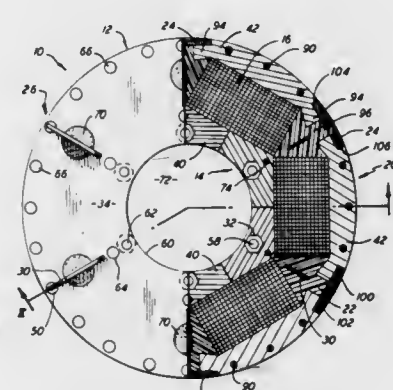
PERMANENT MAGNET ROTOR

Gordon K. Anderson, Tustin, Calif., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Sep. 2, 1981, Ser. No. 298,703
 Int. Cl.³ H02K 21/12

U.S. Cl. 310—156

3 Claims



1. A permanent magnet rotor comprising:
 an electrically conductive, non-magnetic housing including an annular front plate and an annular back plate, and defining a central, rotor axis;
 an inner ring secured within the housing between the front and back plates and annularly extending around the rotor axis;
 a plurality of permanent magnets supported within the housing and circumferentially spaced around the inner ring;
 an outer ring secured within the housing between the front and back plates and circumferentially extending around the permanent magnets, and including a plurality of outer ring segments;
 wherein the front and back plates, the permanent magnets, and the outer ring define a plurality of pockets;
 electrically non-conductive filler material filling each of the pockets;
 a plurality of electrically conductive, non-magnetic damper plates located radially outward of the filler material, engaging the front and back plates, and engaging and extending between adjacent outer ring segments; and
 means securing the damper plates within the housing and including:
 a plurality of front rivets, each front rivet being integral with one of said damper plates, extending forward therefrom, through the front plate and including a front head portion located forward of and overlaying a portion of the front plate, and
 a plurality of back rivets, each back rivet being integral with one of said damper plates, extending rearward therefrom, through the back plate and including a back head portion located rearward of and overlaying a portion of the back plate.

4,393,321

SURFACE ACOUSTIC WAVE TRANSDUCER

Alexandr S. Bagdasarian, ulitsa Popova, 10, kv. 12, Moskoyskaya oblast, Fryazino; Jury V. Gulyaev, ulitsa Baikalskaya, 23, kv. 29; Vladimir N. Fedorets, Ryazansky prospekt, 95, korpus 4, kv. 66, both of Moscow, and Anatoly M. Kmita, prospekt Mira, 22, kv. 231, Moskovskaya oblast, Fryazino, all of U.S.S.R.

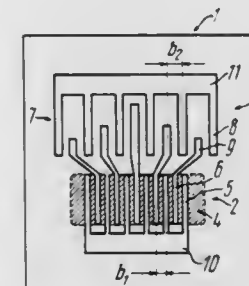
PCT No. PCT/SU80/00147, § 371 Date May 28, 1981, § 102(e) Date May 22, 1981, PCT Pub. No. WO81/00939, PCT Pub. Date Apr. 2, 1981

PCT Filed Aug. 27, 1980, Ser. No. 269,019

Claims priority, application U.S.S.R., Sep. 28, 1979, 2821084 Int. Cl.³ H01L 41/10

U.S. Cl. 310—313 B

5 Claims



1. An interdigital surface acoustic wave transducer comprising a substrate of a material in which surface acoustic waves may be propagated and at least two rows of electrodes are laid down on the substrate, a main row of said rows comprising a first group of electrodes arranged in parallel with one another and connected electrically to a first current-conducting pad, and a second group of electrodes arranged in parallel with said electrodes of said first group, said electrodes of said first group being positioned in corresponding spaces between adjacent electrodes of the second group so that overlap regions of the electrodes of the groups are formed, said overlap regions having a constant length, said electrodes of said second group being connected to a second current-conducting pad, a second row positioned between said main row and said second current-conducting pad and comprising a first group of electrodes arranged in parallel with one another and electrically connected to said second current-conducting pad, and also comprising a second group of electrodes arranged in parallel with said electrodes of said first group in said second row and arranged between the electrodes of said first group in a manner such that at least some of the electrodes of said first and second groups of the second row form overlap regions of a variable length, said length being determined by a given impulse response of the transducer, said electrodes of said second group of said second row being coupled conductively and in a direct way to the corresponding electrodes of the second group of the main row, wherein the improvement comprises the substrate comprising at least first and second areas, the first area having and the second area having no piezoelectric properties, the main row having electrodes arranged on the first area of the substrate having piezoelectric properties, and the second row having electrodes arranged on the second area of the substrate having no piezoelectric properties.

4,393,322

IMAGE INTENSIFIER FACEPLATE

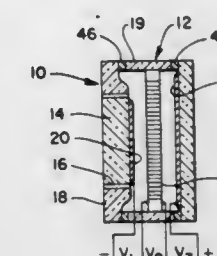
Walter P. Siegmund, Woodstock, Conn., assignor to Warner Lambert Technologies, Inc., Southbridge, Mass.

Filed Aug. 15, 1980, Ser. No. 178,317

Int. Cl.³ H01J 43/28

U.S. Cl. 313—544

4 Claims



1. A faceplate for an image intensifier comprising the fused assembly of:
 a central glass plate having a finished edge;
 a ring of light-absorbing glass extending about said edge of said central plate; and
 an outer annular supporting flange of glass.

4,393,323

FLUORESCENT LAMP SHIELD

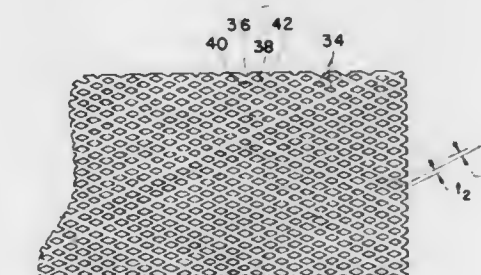
Fritz Hübner, Zeeland, Mich., assignor to Plascore, Inc., Zeeland, Mich.

Filed Jan. 23, 1981, Ser. No. 227,965

Int. Cl.³ H01J 5/16; H01K 1/28

U.S. Cl. 313—110

5 Claims



1. An assembly for shielding a fluorescent light tube, comprising:
 an elongated plastic, tubular shield having an inner peripheral surface;
 an elongated, one-piece expanded metal tubular shaped heat sink positioned within the shield and adjacent the inner

peripheral surface of the shield, said heat sink defining a plurality of rows of apertures; and a pair of end caps positioned one at each end of said shield, said end caps including means for receiving the ends of said shield to support the assembly about the light tube.

4,393,324

SPARK PLUG WITH A SPHERE-LIKE METAL CENTER ELECTRODE AND MANUFACTURING PROCESS THEREOF

Kanemitsu Nishio, Komaki; Shunichi Takagi, Tajimi, and Yasuhiko Suzuki, Nagoya, all of Japan, assignors to NGK Spark Plug Co., Nagoya, Japan

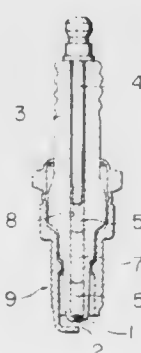
Filed Sep. 10, 1980, Ser. No. 185,956

Claims priority, application Japan, Sep. 14, 1979, 54-118046

Int. Cl.³ H01T 13/20, 13/32

U.S. Cl. 313-133

25 Claims



1. A spark plug comprising a refractory insulator with a center bore having a bottom end provided with a small end bore being smaller than the remainder of the center bore and a discharge center electrode fixed to said small end bore by means of pressing a metallic sphere having a higher melting point than a sealing temperature of a conductive sealing glass in said small end bore.

4,393,325

LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP WITH MERCURY AMALGAM

Auke G. van der Kooi, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 24, 1980, Ser. No. 171,692

Claims priority, application Netherlands, Aug. 15, 1979, 7906203

Int. Cl.³ H01J 61/28, 61/30

U.S. Cl. 313-552

3 Claims

1. A low-pressure mercury vapor discharge lamp comprising a hollow glass inner member which is closely surrounded with a discharge-tight fit by a predominantly cylindrical, glass outer member, one end of each member being closed, the two members being sealed together in a gas-tight manner at their ends, the lamp also comprising two electrodes between which a discharge takes place during operation, said discharge being present in a discharge space between the electrodes formed by a groove in the wall of at least one of the members and by the wall portions of the other member, located opposite this groove, characterized in that intermediate the sealed edge and

the discharge space there is a mercury amalgam present on or adjacent to a wall portion which is not in but is accessible to

the discharge space via a channel defined by facing surfaces of the two members.

4,393,326

DC PLASMA DISPLAY PANEL

Takeo Kamegaya, Tokyo, and Satoshi Watanabe, Saitama, both of Japan, assignors to Okaya Electric Industries Co., Ltd., Tokyo, Japan

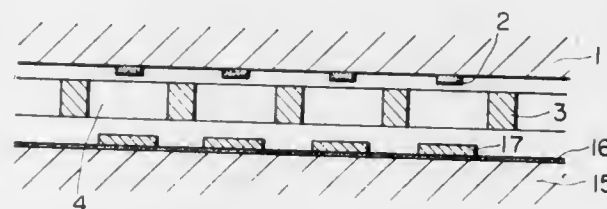
Filed Feb. 20, 1981, Ser. No. 236,379

Claims priority, application Japan, Feb. 22, 1980, 55-21789; Feb. 22, 1980, 55/21790; Jan. 12, 1981, 56/2838

Int. Cl.³ H01J 61/06

U.S. Cl. 313-582

11 Claims



1. A DC plasma display panel comprising first and second substrates defining a gas chamber therebetween; an ionizable gaseous medium within said chamber; an anode layer formed onto said first substrate; a cathode layer formed onto said second substrate; an emitter layer formed onto said cathode layer; said cathode layer, said emitter layer, and said anode layer being disposed within said chamber for ionizing said gaseous medium; said emitter layer being formed onto said cathode layer by plasma spray coating.

4,393,327

ELECTRIC SPARK TYPE LIGHT SOURCE FOR PRODUCING LIGHT FOR SPECTROSCOPIC ANALYSIS

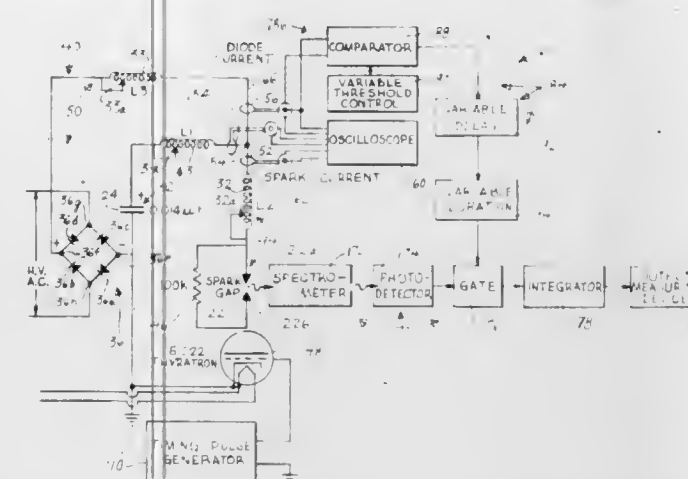
John P. Walters, and Steven G. Barnhart, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jul. 29, 1981, Ser. No. 287,894

Int. Cl.³ H05B 7/20; G01J 3/30

U.S. Cl. 315-241 R

33 Claims



1. An electric spark type light source for producing light for spectroscopic analysis, comprising an analytical spark gap, an energy storage capacitor, a charging and discharging circuit for alternately charging said capacitor and causing said capacitor to discharge across said spark gap to produce sparks which generate light for spectroscopic analysis, said circuit including at least one inductance coil for causing the discharge current through said spark gap to be oscillatory and pulsating in waveform, said circuit including rectifier means for causing the discharge current through said spark gap to have at least a unidirectional component, and time gate pulse generating means for deriving time gate pulses from said circuit with said time gate pulses synchronized with the oscillatory pulsating waveform of the spark gap current for use in selecting repetitive segments of the light from said sparks for use in spectroscopic analysis.

4,393,328

HOT CATHODE, ITS PRODUCTION PROCESS AND ELECTRON TUBE INCORPORATING SUCH A CATHODE

Arvind Shroff, and Pierre Palluel, both of Paris, France, assignors to Thomson-CSF, Paris, France

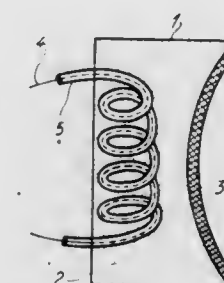
Filed Nov. 5, 1980, Ser. No. 204,176

Claims priority, application France, Nov. 9, 1979, 79 27715

Int. Cl.³ H01J 1/14

U.S. Cl. 313-346 R

4 Claims



1. A process for producing a cathode formed from a matrix of a fritted powder metal impregnated with a barium compound, and a heating filament associated with said matrix, wherein the matrix is formed from a mixture of two metals, tungsten and another high work function refractory metal, and

wherein the matrix is covered with a high work function refractory metal film, comprising the following successive stages:

- (a) mixing powders of tungsten and another high work function refractory metal
- (b) pressing the mixture between 7 and 10 t/cm²
- (c) prefitting under hydrogen at between 1100° and 1300° CB for approximately 12 h
- (d) fritting in vacuo at a temperature between 1850 and
- (e) impregnation with calcium and barium aluminates
- (f) elimination of the excess aluminate present on the surface by a chemical process
- (g) deposition of the high work function refractory metal film.

4,393,329

ARTICLE OF MANUFACTURE FOR PROJECTION TELEVISION SYSTEM

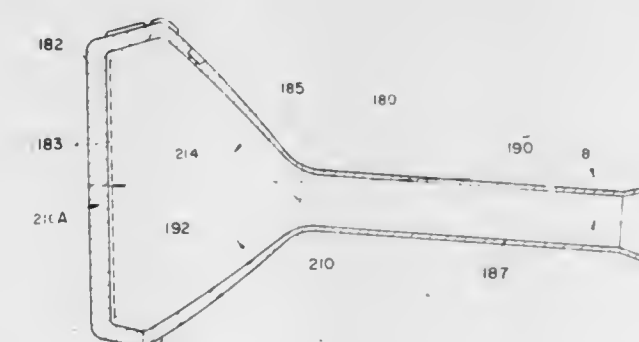
Stanley E. Lehnert, Addison, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Continuation-in-part of Ser. No. 110,413, Jan. 7, 1980, Pat. No. 4,274,110. This application May 29, 1980, Ser. No. 154,197

Int. Cl.³ H01J 29/86

U.S. Cl. 313-477 R

10 Claims



1. For use in a projection television system, an article of manufacture comprising a cathode ray picture tube having a face panel with a rearwardly extending skirt and a window for receiving a cathodoluminescent imaging screen, said tube having a seal land which defines a plane whose normal makes a non-zero acute angle with respect to the axis of said window.

4,393,330

METHOD FOR EFFECTIVELY CONTACTING MANGANESE-ACTIVATED ZINC SILICATE PHOSPHOR WITH ANTIMONY OXIDE DURING PHOSPHOR COATING, AND RESULTING LAMP

Henry Skwirut, Verona, and Robert G. Young, Nutley, both of N.J., assignors to North American Philips Electric Corp., New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,494

Int. Cl.³ H01J 61/48; B05D 1/38, 7/22

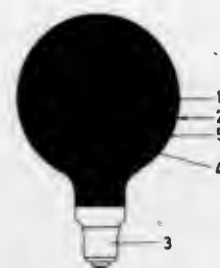
U.S. Cl. 313-487

25 Claims

1. A fluorescent lamp having a predetermined correlated color temperature and combined high efficacy and good color rendition, said lamp comprising a sealed elongated light-transmitting envelope having electrodes operatively positioned therein proximate the ends thereof and enclosing a discharge-sustaining filling comprising mercury and a small charge of inert ionizable starting gas which when energized generates a discharge comprising ultraviolet radiations and a limited proportion of visible radiations, phosphor means comprising a predetermined amount of a first phosphor layer carried on the inner surface of said envelope and a predetermined amount of a second phosphor layer coated on and carried on said first phosphor layer so that said second phosphor layer is positioned nearer to said discharge than said first phosphor layer; said first phosphor layer principally comprising finely divided apatite-structured calcium halophosphate activated

by predetermined proportions of antimony and manganese, said first phosphor layer when excited by said discharge, emitting visible radiations of a color which approximates said predetermined correlated color temperature of said lamp, said first phosphor layer having been applied in predetermined amount by flowing over the envelope interior surface a phosphor coating paint comprising a liquid vehicle and organic binder having said first phosphor suspended therein as a slurry, said coating paint also including a small predetermined amount of finely divided antimony oxide, and said applied coating paint having been leached at a temperature sufficient to volatilize the organic binder therefrom but insufficient to volatilize more than a minor proportion of said antimony oxide; and said second phosphor layer substantially comprising a mixture of predetermined amounts and relative proportions of finely divided narrow-band blue-emitting phosphor activated by divalent europium having an emission substantially confined to the wavelength range of from 430 nm to

inner surface being a red-emitting phosphor coating and the luster filter coating on said outer surface being an orange luster whose transmittance at 400 nm is about 40%,



at 500 nm is about 60%, and at 600 nm is about 70%, whereby said lamp radiates light having a color similar to that of an incandescent lamp with a color temperature of about 2,800° K.

4,393,332

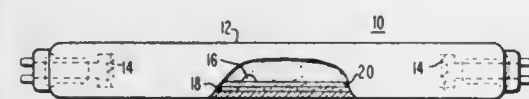
GYROTRON TRANSVERSE ENERGY EQUALIZER
Robert S. Symons, Los Altos, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Sep. 5, 1980, Ser. No. 184,497

Int. Cl.³ H01J 25/00

U.S. Cl. 315—4

7 Claims



485 nm, finely divided green-emitting phosphor comprising manganese-activated zinc silicate, and finely divided red-orange-emitting trivalent-europium-activated yttrium oxide, the predetermined amounts and relative proportions of said mixed phosphors comprising said second phosphor layer when excited by said discharge emitting visible radiations of a color which approximates said predetermined correlated color temperature of said lamp, said second phosphor layer having been applied in predetermined amount by flowing over said leached first phosphor layer a second phosphor coating paint comprising a liquid vehicle and organic binder having said phosphors of said second layer mixed and suspended therein as a slurry, and said second layer applied coating paint having been leached at a temperature sufficient to drive organic binder therefrom and also sufficient to volatilize an appreciable portion of residual antimony oxide in said first phosphor layer to cause said volatilized antimony oxide to contact said manganese-activated zinc silicate.

4,393,331

HIGH PRESSURE MERCURY VAPOR DISCHARGE LAMP WITH OUTER BULB

Alexander Dobrusskin, Taufkirchen; Lutz Klein, Scheuring, and Günter Woizan, Munich, all of Fed. Rep. of Germany, assignors to Patent-Treuhand-Gesellschaft für elektrische Glühlampen mbH, Munich, Fed. Rep. of Germany

Filed Apr. 8, 1981, Ser. No. 252,071

Claims priority, application Fed. Rep. of Germany, Apr. 16, 1980, 8010444[U]

Int. Cl.³ H01J 1/62, 61/40

U.S. Cl. 313—489

3 Claims

1. An improved high pressure mercury vapor discharge lamp comprising an inner arc tube which radiates light with electric leads attached thereto surrounded by an outer transparent bulb, the inner surface of said outer bulb being coated with a phosphor coating and the outer surface of said outer bulb being coated with a luster filter coating,

the improvement comprising said phosphor coating on said

inner surface being a red-emitting phosphor coating and the luster filter coating on said outer surface being an orange luster whose transmittance at 400 nm is about 40%,

at 500 nm is about 60%, and at 600 nm is about 70%, whereby said lamp radiates light having a color similar to that of an incandescent lamp with a color temperature of about 2,800° K.

4,393,333

MICROWAVE PLASMA ION SOURCE

Noriyuki Sakudo, Ohme; Katsumi Tokikuchi, Hachioji; Hidemi Koike, Tokorozawa; Ichiro Kanomata, Fuchu, and Humihiko Nakashima, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 10, 1980, Ser. No. 215,064

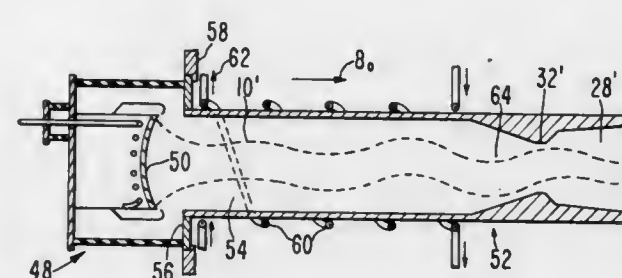
Claims priority, application Japan, Dec. 10, 1979, 54-169847[U]

Int. Cl.³ H01J 7/24; H05B 31/26

U.S. Cl. 315—111.81

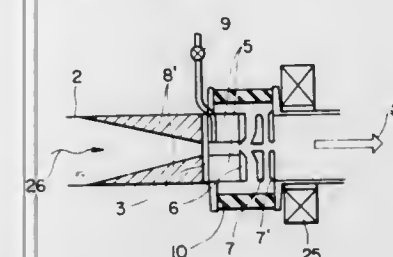
6 Claims

1. A microwave plasma ion source comprising a source for



1. A gyrotron electron tube comprising:
means for generating a beam of electrons parallel to an axis;
and
periodic means for causing all electrons in said beam to gain approximately the same transverse energy, said periodic means including means for generating a steady field component perpendicular to said axis whose direction rotates about said axis as a periodic function of distance along said axis.
4. A method for operating a gyrotron electron tube comprising means for forming a beam of electrons parallel to an axis, said method comprising the steps of applying a steady periodic field component perpendicular to said axis whose direction rotates about said axis as a periodic function of distance along said axis, and correlating the strength and axial length of said periodic field so that all electrons in said beam at different initial distances from said axis acquire approximately the same transverse energy.

generating microwaves, a waveguide connected to said source for propagating the microwaves, a discharge chamber provided in an end portion of said waveguide to form a plasma therein by applying an electric field generated by the microwaves admitted thereto and a magnetic field to a discharge gas introduced thereto, ion extraction electrodes provided adjacent to said discharge chamber so as to extract ions from



the plasma, a solenoid provided on the low-voltage side of said ion extraction electrodes so as to form the magnetic field in said discharge chamber, and a high-permeability member arranged adjacent to said waveguide on the microwave admission side of said discharge chamber for permitting the microwaves to be propagated freely and for setting the shape of the magnetic field.

4,393,334

ELECTRON ACCELERATION IN IONIZABLE GAS

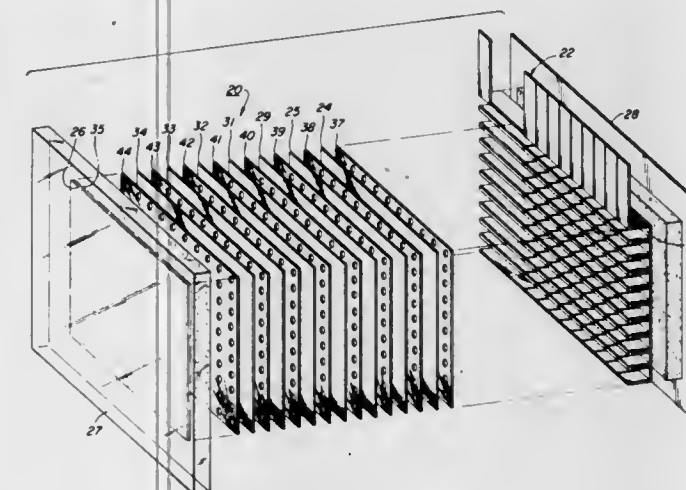
David Glaser, 1918 Raymond Dr., Northbrook, Ill. 60062

Filed Feb. 9, 1981, Ser. No. 232,972

Int. Cl.³ H05B 41/16; H01J 61/62

U.S. Cl. 315—167

18 Claims



1. In a gas-discharge device of the type having a generally planar cathode for emitting electrons and a generally planar anode for accelerating said electrons toward a luminescent target, said anode and said cathode being mutually parallel and the space between said cathode and said anode containing an ionizable gaseous atmosphere, the combination comprising a plurality of planar electron-transmissive accelerator electrodes mounted in spaced parallel relationship between said cathode and said anode, insulator means insulating said electrodes from one another and from said cathode and said anode, and permitting said electrons to pass as they travel from said cathode toward said target, and means connecting to said electrodes voltages which are respectively positive relative to the voltage level of said cathode, which voltages increase in value from the one of said electrodes which is closest to said target, the voltage difference between adjacent ones of said accelerator electrodes being less than the ionization voltage and the surface breakdown voltage therebetween, said electron-transmissive accelerator electrodes are respectively provided with a plurality of holes through which

said electrons must pass as they travel from said cathode to said anode, and the minimum dimension of said holes being less than the Debye length of the gaseous atmosphere in which they are located.

4,393,335

ELECTRONIC FLASH DEVICE

Shinji Hirata, Toyonaka, and Hirohiko Ina, Kobe, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

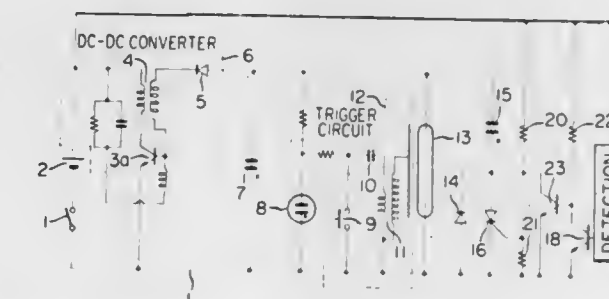
Filed Apr. 28, 1981, Ser. No. 258,301

Claims priority, application Japan, Apr. 28, 1980, 55-59007[U]; May 30, 1980, 55-75659[U]

Int. Cl.³ H05B 41/32

U.S. Cl. 315—241 P

3 Claims



1. An electronic flash device comprising
(a) a DC-DC converter which includes an npn type oscillation transistor and an oscillation transformer and which steps up a voltage across a low-voltage power source,
(b) a main flash capacitor charged by said DC-DC converter,
(c) a flash lamp which is connected across said main flash capacitor and which establishes a discharge-flash loop with said main flash capacitor,
(d) a trigger circuit which includes a trigger capacitor connected in parallel with said main flash capacitor and which excites said flash lamp,
(e) a diode whose anode is connected to the high-voltage-side terminal of said main flash capacitor,
(f) an auxiliary flash capacitor which is adapted to be charged through said diode by said DC-DC converter,
(g) a silicon controlled rectifier means which is connected across said diode in the opposite direction and which establishes a discharge loop of said auxiliary flash capacitor,
(h) a control circuit which is connected across said low-voltage power source and which controls the application of the gate signal to said silicon controlled rectifier means, said control circuit comprising:
(1) a drive circuit for delivering the gate signal to said silicon controlled rectifier means,
(2) a switching element which is connected across said low-voltage power source through a resistor and which is adapted to short-circuit the gate of said silicon controlled rectifier means, and
(3) a switching element control circuit for controlling said switching element, and
(i) a detection circuit which is adapted to control said control circuit in response to the exposure conditions.

4,393,336

REGULATION OF THE EHT VOLTAGE OF A CRT

Terrance C. Schmidt, Waterloo, Canada, assignor to Electrohome Limited, Kitchener, Canada

Filed Apr. 2, 1981, Ser. No. 250,262

Claims priority, application United Kingdom, Dec. 23, 1980, 8041238

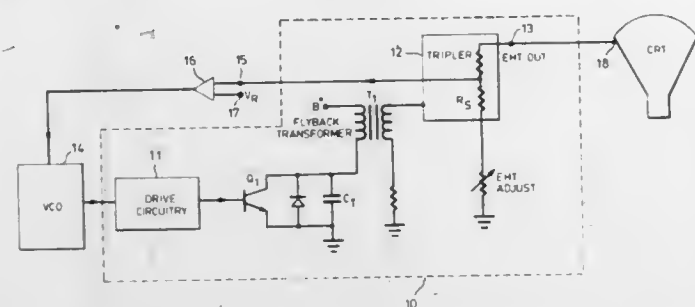
Int. Cl.³ H01J 29/70

U.S. Cl. 315—387

1 Claim

1. In combination with a cathode ray tube having an anode;

means for deriving and supplying EHT to said anode other than via horizontal deflection circuitry that supplies deflection current to the horizontal deflection coil for said cathode ray tube, said deriving and supplying means including a tuned flyback transformer producing flyback pulses; a voltage controlled oscillator; means for deriving an error signal indicative of a change in EHT both above and below a predetermined magnitude; means supplying said error signal to said voltage



controlled oscillator to decrease the frequency of the output signal thereof in response to a decrease in EHT and to increase the frequency of the output signal thereof in response to an increase in EHT; and means utilizing said output signal to control the operation of said flyback transformer in such a way that the magnitude of said flyback pulses are increased in response to a decrease in EHT and decreased in response to an increase in EHT.

4,393,337

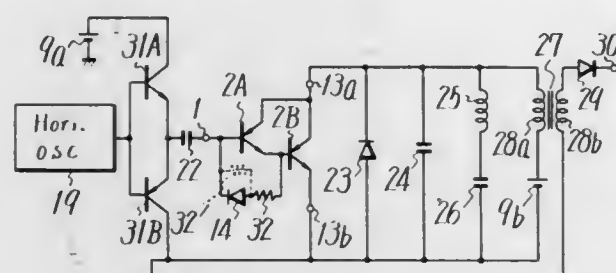
SWITCHING CIRCUIT

Tamiji Nagai, Kawasaki, and Takeshi Matsushita, Sagami-hara, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Mar. 20, 1979, Ser. No. 22,306

Claims priority, application Japan, Mar. 25, 1978, 53-34356
Int. Cl.³ H01J 29/70; H01L 29/74

U.S. Cl. 315-408

10 Claims



10. A horizontal deflection circuit for a television system comprising: a deflection coil; a fly-back transformer; a damper diode; a resonant capacitor; said deflection coil, fly-back transformer, damper diode and resonant capacitor being connected together and constituting a load; a horizontal oscillator producing a repetitive signal having first and second voltage levels; a switching circuit having an input terminal and first and second load terminals; said load being connected to said first and second load terminals; said switching circuit including a first three-junction gate-controlled switch having a first gate, a first anode and a first cathode and a second three-junction gate-controlled switch having a second gate, a second anode and a second cathode; said first gate being connected to said input terminal; said second cathode being connected to said first load terminal; said first and second anodes being connected to said second load terminal; said first cathode being connected to said second gate; means responsive to said first and second voltage levels for applying positive and negative signals to said input terminal; said first and second gate-controlled switches having ON and OFF conditions; and delay means for delaying a change of said second gate-controlled switch from said ON to said OFF condition until said first gate-controlled switch has completed a change from said ON to said OFF condition.

4,393,338 VEHICLE PROPULSION MOTOR CONTROL APPARATUS

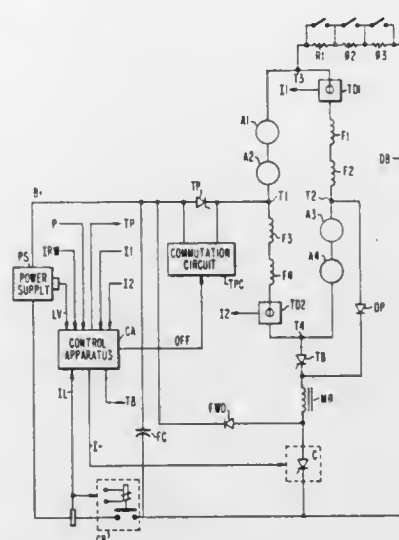
Stanley W. Jones, McMurray, and James H. Franz, Jr., Murrysville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 29, 1981, Ser. No. 258,852

Int. Cl.³ H02P 3/00

U.S. Cl. 318-86

5 Claims



1. In control apparatus for a plurality of direct current motors operative with a voltage source and an effort request signal for determining one of a power mode of operation and a brake mode of operation for said motors, with each of said motors having an armature and a field, the combination of: circuit means having first and second terminals and a first circuit including the armature and field of a first motor and a second circuit including the armature and the field of a second motor connected between said first and second terminals, said circuit means having third and fourth terminals and a third circuit including the first motor armature and the second motor field and a fourth circuit including the first motor field and the second motor armature connected between said third and fourth terminals, first switch means connected with said voltage source and controlling the current through said first and second circuits to establish said power mode, and second switch means connected to control the current through said third and fourth circuits to establish the brake mode, with the first switch means including a power diode connected to be conductive in a first direction and provided to conduct power mode current through the first and second motor armatures in said first direction, and with the second switch means including a brake diode connected to be conductive in a second direction and provided to conduct brake mode current through the first and second motor armatures in said second direction.

4,393,339

MOTOR APPARATUS

Kenji Kimura, Tachikawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 2, 1981, Ser. No. 239,496

Claims priority, application Japan, Mar. 7, 1980, 55-28692

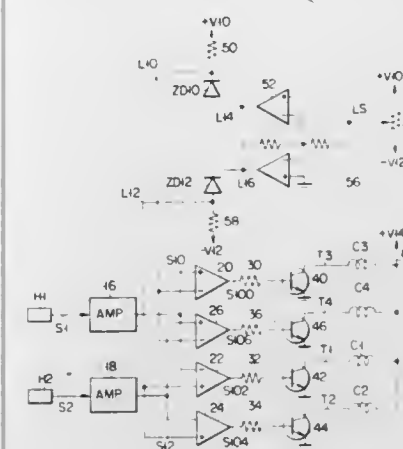
Int. Cl.³ H02K 29/00

U.S. Cl. 318-254

10 Claims

1. A motor apparatus comprising: a motor including a rotor; detection means coupled to said motor for providing a detection signals corresponding to a position of said rotor; converter means coupled to said detection means for providing multiphase pulse signals by slicing off said detection signal at a predetermined threshold level, said multiphase

pulse signals being either high or low in level and overlapped with one another in the high level thereof; and changing means coupled to said converter means for changing said threshold level;



wherein the rotation speed of said rotor is controlled in accordance with said threshold level.

4,393,340

MOTOR SPEED CONTROL DEVICE

Teruo Iwasama, and Hitomi Tojiki, both of Hachioji, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

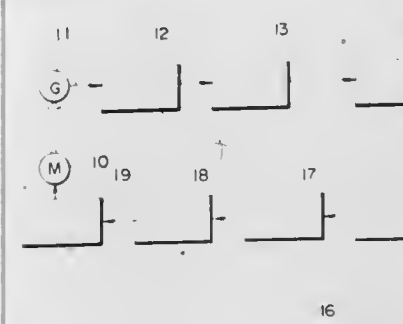
Filed Jun. 10, 1981, Ser. No. 272,378

Claims priority, application Japan, Jun. 11, 1980, 55/78503

Int. Cl.³ H02P 5/16

U.S. Cl. 318-301

4 Claims



1. A motor speed control device, comprising: means for generating pulse output corresponding to the revolution speed of the motor; means for generating saw-tooth output in synchronization with the pulse output; means for generating reference voltage; a current mirror load differential amplifier including a first amplifier element having a first current mirror circuit connected as load and supplied with the saw-tooth wave output and a second amplifier element having a second current mirror circuit connected as load and supplied with the reference voltage, and supplying current to the first or second current mirror circuit corresponding to the result of comparing the reference voltage with the saw-tooth wave output; an integrating circuit to be charged or discharged by the charging current flowing through one of the first and second current mirror circuits and the discharging current flowing through the other of both current mirror circuits; and means for driving the motor by output of the integrating circuit.

4,393,341 WINDSHIELD CLEANING SYSTEM

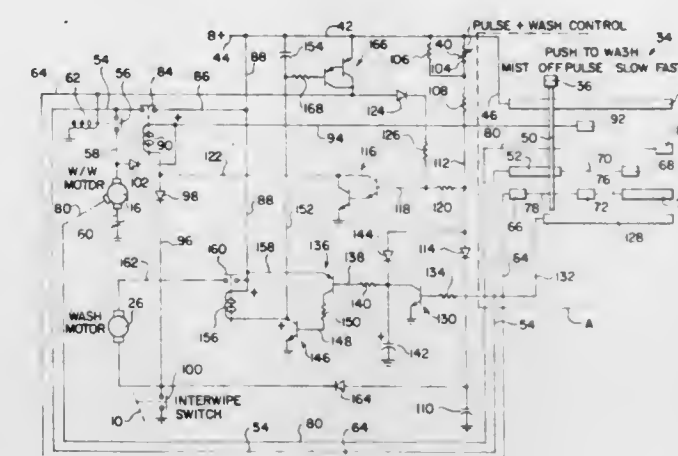
James C. Byrne, Farmington Hills, Mich., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Jun. 15, 1981, Ser. No. 273,495

Int. Cl.³ H02P 5/00

U.S. Cl. 318-443

20 Claims



1. A windshield cleaning system comprising drivable windshield cleaning means including blade means and wash fluid pump means, first and second motor means for respectively driving said blade means and said pump means, motor control circuit means including power supply means and manually positionable means for connecting said motor means across said power supply means for providing a selected one of a plurality of selectable driving modes for said drivable means, said modes including a wash mode in which both said first and second motor means are connected across said power supply, said blade means and said pump means in said wash mode each having a corresponding operating period, said motor control circuit means including timing means operable in said wash mode for determining the duration of said operating period for said pump means independent of said operating period for said blade means in said wash mode, and means for adjusting said timing means for varying said duration of said operating period of said pump means in said wash mode.

4,393,342

DOOR OPERATION CONTROL APPARATUS

Shigeru Matsuoka; Takeshi Tokunaga; Seiji Yonekura; Koji Yamauchi, and Mitsuo Suzuki, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

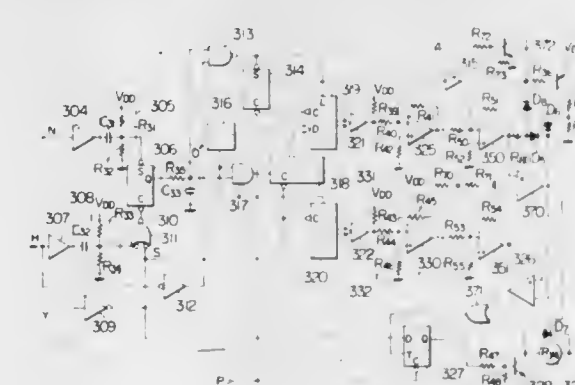
Filed Dec. 9, 1981, Ser. No. 329,046

Claims priority, application Japan, Dec. 12, 1980, 55-174593

Int. Cl.³ G05B 5/00

U.S. Cl. 318-467

12 Claims



1. A door operation control system comprising a door operating device including a driving unit for driving a door and connector means for connecting said driving unit to said door, and a control unit for issuing a predetermined command signal to said door operating device to control movement of said

door, said control unit comprising counter means for counting the time of door operation, section detector means for counting the time of door movement from one end to the other end of a specified section of travel thereof, memory means for storing the count detected by said section detector means, means for producing a comparison reference value which is determined as a function of said count stored in said memory means, and means for comparing said count detected by said counter means with said comparison reference value and providing a command signal in the form of a door operating condition control signal to said door operating device when the count thereof exceeds said comparison reference value.

4,393,343

POSITION ADJUSTING DRIVE UNIT

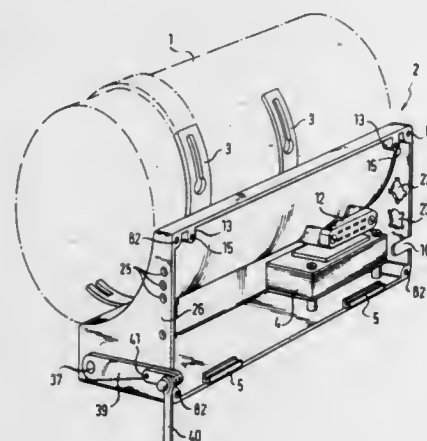
Wolfgang Angersbach, Darmstadt, and Karl-Heinz Meier, Zeilhard, both of Fed. Rep. of Germany, assignors to Quick-Rotan Elektromotoren GmbH, Darmstadt, Fed. Rep. of Germany
Filed Jul. 10, 1980, Ser. No. 167,325

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1979, 2930228

Int. Cl.³ G05B 1/06

U.S. Cl. 318—640

5 Claims

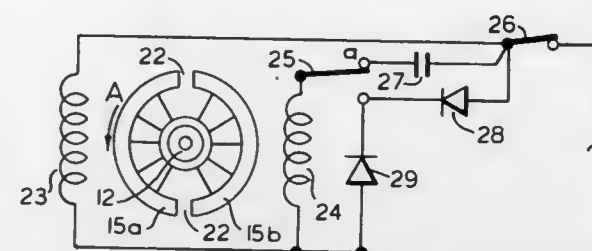


1. A position adjusting drive unit for a rotary shaft of a machine, particularly a sewing machine, comprising a driving electrical motor having an adjustable rotary speed; an electrical speed regulating circuit for said motor; an electrical angular position adjusting circuit for the rotary shaft of the machine; said circuits including means for generating signals corresponding to desired values of the rotary speed and of the angular position and to actual values of the rotary speed and of the angular position; a common circuit board detachably connected to the motor, said board supporting and interconnecting the electrical and mechanical component parts of said circuits; said means for generating electrical signals including a plurality of light barriers controlled by a stop plate having stop apertures arranged according to a code for generating a digital code of the desired value signals; and electrooptical signal generating-and-receiving means arranged in a modular unit; said modular unit including a plurality of light-emitting diodes arranged at different levels in a pack, a corresponding plurality of photo-transistors arranged at corresponding levels and at a spaced relationship from said light-emitting diodes, an intermediate partition extending in a part of the space between said diodes and phototransistors and having a free edge stepped according to the levels of said diodes, a stop plate slidable in the remaining interspace between said diodes and said phototransistors and having one edge thereof stepped in a complementary fashion relative to the stepped edge of said intermediate partition to provide adjustable stop apertures, and further including fixed stop apertures arranged at the level of respective steps; and said means for generating the desired value electrical signals including at least one light barrier controlled by a stop plate.

4,393,344
SQUIRREL CAGE INDUCTION MOTORS
Geoffrey E. Whellams, 3 Spruce Ave., Greenstead, Colchester, Essex, England
Division of Ser. No. 14,114, Feb. 22, 1979, abandoned. This application Jul. 11, 1980, Ser. No. 168,684
Int. Cl.³ H02P 3/24

U.S. Cl. 318—759

10 Claims



1. A squirrel cage motor of the single phase running type and control means therefor, which motor comprises a rotor and a stator, said rotor being arranged in the form of a core and a cage built up of two conductor end rings and conductor bars connecting said end rings, and said stator comprising a stator core carrying primary and secondary windings, in which motor at least one of said two conductor end rings of the rotor is provided with at least two gaps diametrically opposed to each other to divide said one end ring into at least two separate portions, said gaps serving as insulating sections between the separate end ring portions, and said control means comprising supply means to feed a single phase alternating current supply to said primary stator winding, switch means in series with said secondary stator winding and selectively operable between a run position and a stop position, a capacitor connected between the switch means and the alternating current supply means so as to be arranged in series with said secondary winding when said switch means is in the run position so that alternating current thereby flowing through the primary and secondary windings generates a polyphase field, and full wave rectifier means also connected between the switch means and the alternating current supply means so as to be arranged in series with said secondary winding when said switch means is in the stop position whereby direct current thereby flowing through the secondary winding causes the rotor to stop at an angular position determined by the disposition of said gaps in said one end ring.

4,393,345
CIRCUIT FOR DAMPING HUNTING BY ELECTRIC MACHINES

Kurt Fork, Neunkirchen; Wolfgang Kaufhold; Wolfgang Meusel, both of Erlangen, and Hermann Waldmann, Weiher, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 22, 1980, Ser. No. 199,685

Claims priority, application Fed. Rep. of Germany, Nov. 12, 1979, 2945599

Int. Cl.³ H02H 7/06; H02P 9/00

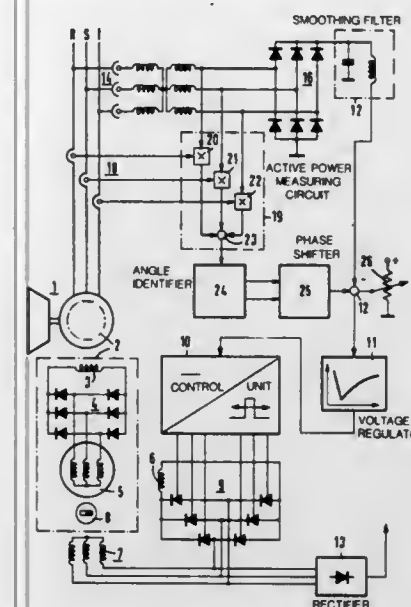
U.S. Cl. 322—19

10 Claims

1. A circuit for damping hunting oscillations of a controlled electric synchronous machine of the type having a rotor and a stator, the circuit being of the type which determines the hunting oscillation and combines a phase-shifted oscillation correction signal with a control signal of the circuit, the circuit further comprising:

identification circuit means for producing a first signal having a frequency which corresponds to a frequency of the hunting oscillation and a second signal having said frequency and shifted in phase by 90° with respect to said first signal;
phase shift means for forming the phase-shifted oscillation correction signal, said phase-shifted oscillation correction

signal being shifted in phase with respect to said first and second signals by a selectable amount, said first and sec-



ond signals being combined with one another in accordance with their respective amplitudes.

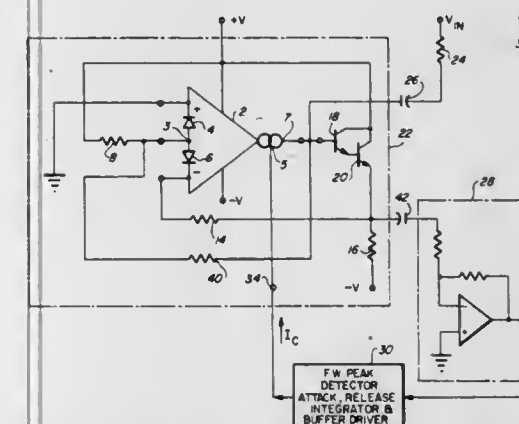
4,393,346
VOLTAGE CONTROLLED RESISTOR
Ronald R. Jones, Phoenix, Ariz., assignor to Circuit Research Labs, Tempe, Ariz.

Filed Jul. 6, 1981, Ser. No. 280,546

Int. Cl.³ G05F 1/46

U.S. Cl. 323—280

11 Claims



1. A voltage controlled resistor circuit, comprising: an operational transconductance amplifier having an inverting input, a non-inverting input adapted to be coupled to a first source of supply voltage, a diode bias input, a bias input for receiving a gain control current, first and second power supply terminals adapted to be coupled to second and third supply voltages, respectively, and an output for exhibiting a high output impedance when the gain control current is substantially zero, said output impedance decreasing as said gain control current increases, said operational transconductance amplifier having first and second linearizing diodes each having an anode coupled to said diode bias input, said first linearizing diode having a cathode coupled to said inverting input and said second linearizing diode having a cathode coupled to said non-inverting input;
first means coupled to said output for providing a low impedance buffered output;
first impedance means coupled to said diode bias input for producing current flow through said first and second linearizing diodes;
second impedance means coupled to said low impedance buffered output for providing feedback to said inverting

input and for supplying and controlling bias current to said first linearizing diode; and
third impedance means coupled between said output and said diode bias input for maintaining bias to said first means when said output approaches open circuit output impedance conditions.

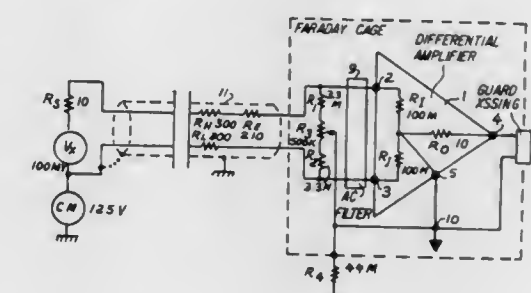
4,393,347
COMMON MODE VOLTAGE REJECTION CIRCUIT
Norman G. Looper, San Diego, Calif., assignor to Action Instruments Co. Inc., San Diego, Calif.

Filed Aug. 6, 1980, Ser. No. 175,800

Int. Cl.³ G01R 1/30; H03F 3/68

U.S. Cl. 324—126

3 Claims



1. In an electrical apparatus for measuring minute differential voltage levels between a first low-source-impedance signal applied to the apparatus positive input terminal and a second low-source-impedance signal applied to the apparatus negative input terminal in the presence of substantial common-mode voltages in reference to earth, wherein said apparatus has balanced high input impedances between each of said terminals and the apparatus zero-reference point, and wherein said zero-reference point is isolated from earth, an improvement for limiting the effect of any unbalance between the input-path impedances of said signals which comprises:
a low-impedance shunt across each of the input terminals and the apparatus zero-reference point; and
a high-impedance shunt between the apparatus zero-reference point and earth;
wherein the value of said low-impedance shunt in relation to the high-impedance shunt is selected so as to attenuate the common-mode voltages without reducing the terminal input impedances in relation to the signal source-impedances to a point where the measurement error due to the signal source impedance is likely to be equal or greater than the measurement error due to the effect of the common-mode voltages in the absence of said low-impedance and high-impedance shunts.

4,393,348
METHOD AND APPARATUS FOR DETERMINING MINORITY CARRIER DIFFUSION LENGTH IN SEMICONDUCTORS

Bernard Goldstein; Joseph Dresner, both of Princeton, and Daniel J. Szostak, Mercerville, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jan. 26, 1981, Ser. No. 228,575

Int. Cl.³ G01R 31/26

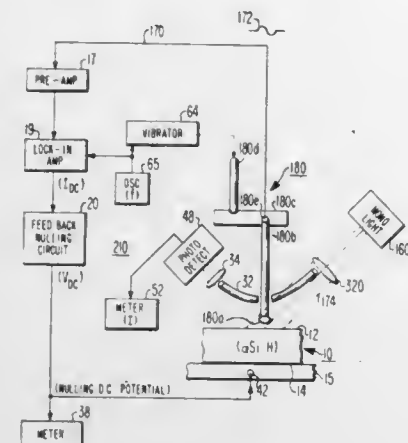
U.S. Cl. 324—158 R

13 Claims

1. An apparatus for determining the minority carrier diffusion length of a sample of semiconductor material, the sample having two major surfaces, one of the surfaces arranged for illumination and the other surface shielded from illumination comprising:

(a) means for illuminating a portion of the one major surface of the sample with steady d.c. monochromatic light that is of a selected wavelength to provide a d.c. surface photovoltage (d.c. SPV);
(b) vibrating means positioned adjacent said illuminated

- surface for providing an alternating electrical signal representing said d.c. SPV on the sample;
- (c) electronic servo means responsive to said alternating electrical signal for automatically providing a nulling potential equal to said d.c. SPV; and



- (d) means for providing a signal representing the illumination incident upon the sample by detecting a portion of said illuminating light.

4,393,349

ASYMMETRICAL SQUID

Max B. Burbank, Maple Ridge; Randy K. Lomnes; Jiri Vrba, both of Port Coquitlam, and Alistair A. Fife, Coquitlam, all of Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

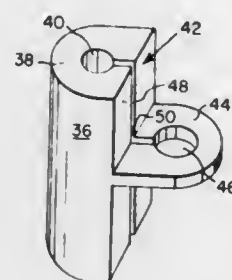
Filed May 21, 1980, Ser. No. 151,815

Claims priority, application Canada, Jul. 26, 1979, 332608

Int. Cl.³ G01R 33/02; H03K 3/38

U.S. Cl. 324-248

4 Claims



1. A SQUID device for magnetic field measurements comprising a tubular body of superconducting material, said body being truncated longitudinally to provide a flat surface; a hole having a longitudinal axis which is coaxial with the longitudinal axis of said body; a slot having a longitudinal axis parallel with said longitudinal axis of said body and joining said hole and said flat surface; a coil of superconducting wire having ends centrally affixed to said flat surface and directly adjacent said slot, wherein the inductance of said coil is different than the inductance of said hole; and wherein a weak link is located in said slot adjacent said flat surface.

4,393,350

METHOD FOR RAPIDLY DETECTING SUBTERRANEAN TUNNELS BY DETECTING A NON-NUL VALUE OF A RESULTANT HORIZONTAL MAGNETIC FIELD COMPONENT

Peder M. Hansen; John G. Hoffman; Elwin W. Seeley, and Wesley A. Andrew, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

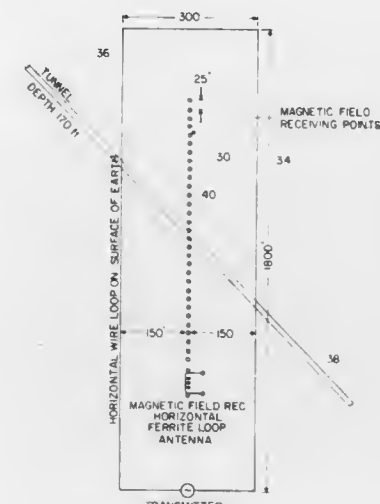
Division of Ser. No. 31,721, Apr. 20, 1979, Pat. No. 4,290,020.

This application May 18, 1981, Ser. No. 264,754

Int. Cl.³ G01V 3/08

U.S. Cl. 324-334

2 Claims



1. A method for rapidly detecting subterranean tunnels using primary magnetic fields generated by electrical conductors placed on the earth's surface in a manner such that the conductors are parallel and the lengths thereof are several times greater than the distance separating them comprising the steps of:

generating two separate ac primary magnetic fields at a predetermined frequency in a manner that the resultant horizontal component of the magnetic fields along a preselected line on the earth's surface is a null when the surrounding region is characterized with homogeneous electromagnetic properties;

measuring said resultant horizontal component of the magnetic fields along said preselected line; and detecting the occurrence of a nonnull measurement as an indication of the location of a subterranean tunnel.

4,393,351

OFFSET COMPENSATION FOR SWITCHED CAPACITOR INTEGRATORS

Roubik Gregorian, Santa Clara, and Glenn Wegner, San Jose, both of Calif., assignors to American Microsystems, Inc., Santa Clara, Calif.

Filed Jul. 27, 1981, Ser. No. 287,387

Int. Cl.³ G06G 7/18; H03K 5/00; H03F 1/02

U.S. Cl. 328-127

6 Claims

1. An integrator containing an integrator input terminal and an integrator output terminal comprising:

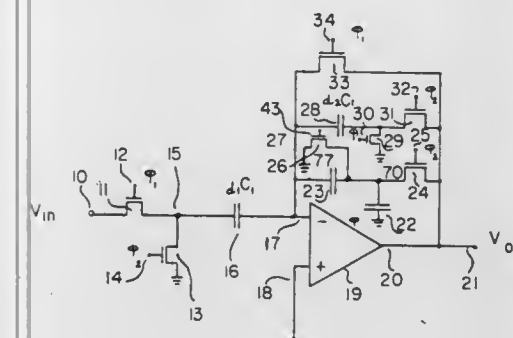
an operational amplifier having an inverting input lead, a non-inverting input lead, and an output lead, said operational amplifier producing an offset voltage on said output lead;

a first switch means responsive to a first phase of a signal having two phases, said first switch means connected between said inverting input lead and said output lead;

a first capacitor, having a capacitance C_1 , having a first and a second plate, said first plate connected to said inverting input lead of said operational amplifier;

a second switch means, responsive to a second phase of said signal having two phases, said second switch means con-

- connected between said second plate of said first capacitor and said output lead of said operational amplifier;
- a second capacitor, having capacitance value $\alpha_2 C_1$, having a first and a second plate, said first plate connected to said inverting input lead of said operational amplifier;
- third switch means, responsive to said second phase, said third switch means connected between said second plate of said second capacitor and said output lead of said operational amplifier;
- a fourth switch means, responsive to said first phase, said fourth switch means connected between said second plate of said second capacitor and a voltage reference; and



- switched capacitor means connected between said inverting input lead and said integrator input terminal, said switched capacitor means serving as a resistor equivalent and including a third capacitor having a first and a second plate, said third capacitor having capacitance $\alpha_1 C_1$;
- whereby the effect of said offset voltage on the integrator output voltage available on said output terminal is eliminated by the simultaneous integration of said input voltage and said offset voltage during the period when said first clock phase is low and said second clock phase is high.

4,393,352

SAMPLE-AND-HOLD HYBRID ACTIVE RC FILTER

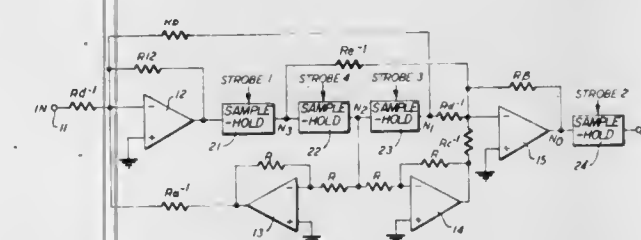
Gerald T. Volpe, Stamford; Leonard S. Laskoski, Bridgeport; Ralph J. Amodeo, Bethel; William J. Swanson, Danbury, and Jerome D. Gottesman, Norwalk, all of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Sep. 18, 1980, Ser. No. 188,429

Int. Cl.³ H03D 1/02

U.S. Cl. 329-50

6 Claims



1. A circuit for eliminating a variable carrier frequency from an input data signal, comprising in combination, filter means automatically tunable to provide a variable frequency reject band comprising first, second, third and fourth sample-and-hold circuits connected in tandem, input means providing said input data signal to said first sample-and-hold circuit,
- first means automatically tuning said filter means to vary the frequency reject band in accordance with variations in the carrier frequency to eliminate the carrier frequency from the input data signal,
- said first means comprising strobe pulse generating means, said strobe pulse generating means including second means causing the period of the strobe pulses to vary proportionately to variations in the carrier frequency,
- third means connecting said strobe pulse generator means to said filter means to cause said first, second, third and

- fourth sample-and-hold circuits to be strobed first, fourth, third and second, respectively.

4,393,353

NEGATIVE FEEDBACK AMPLIFYING CIRCUIT HAVING VOLTAGE NEGATIVE FEEDBACK AND CURRENT NEGATIVE FEEDBACK CIRCUITS

Hiroyasu Minagawa, Yamato, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

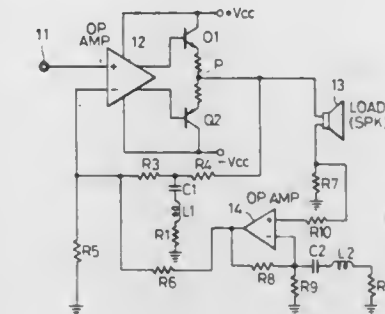
Filed Sep. 26, 1980, Ser. No. 191,355

Claims priority, application Japan, Sep. 28, 1979, 54-134344[U]

Int. Cl.³ H03F 1/32

U.S. Cl. 330-102

6 Claims



1. A negative feedback amplifying circuit comprising:
- (a) an amplifier having positive and negative inputs, the output of said amplifier being coupled to a load comprising a speaker;
- (b) a resistor connected in series with said speaker;
- (c) a voltage negative feedback circuit for feeding back the output voltage of said amplifier to the negative input of said amplifier; and
- (d) a current negative feedback circuit for feeding back a signal, which is a function of the potential difference between both the ends of said resistor, to the negative input of said amplifier, said voltage negative feedback circuit having a frequency selection characteristic having a dip at a specific frequency which is equal to the minimum resonance frequency due to the mechanical impedance of said speaker, and said current negative feedback circuit having a frequency selection characteristic having a peak at said specific frequency.

4,393,354

CROSSOVER CIRCUIT FOR USE IN AUTOMATIC GAIN CONTROL SYSTEMS

Michael McGinn, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 29, 1980, Ser. No. 220,605

Int. Cl.³ H03G 3/30

U.S. Cl. 330-280

18 Claims



1. Circuit for providing output voltages indicative of the level of an applied input signal, comprising:
- first circuit loop means which is responsive to the magnitude

of the input signal being less than that of a reference bias signal supplied to said first circuit loop means for providing an output indicative of the level of the input signal, said first circuit loop means being rendered nonresponsive when the magnitude of the input signal exceeds a threshold level set by said reference bias signal such that the output therefrom remains substantially constant; and second circuit loop means coupled with said first circuit loop means which is rendered responsive by said first circuit loop means becoming nonresponsive for providing an output indicative of the level of the input signal.

4,393,355

OPERATIONAL AMPLIFIER

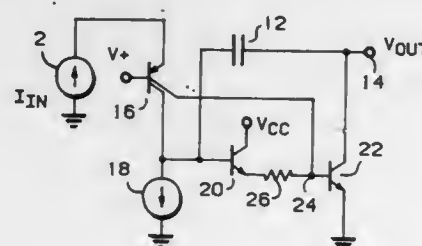
William F. Davis, Tempe, and Stuart B. Shacter, Mesa, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 26, 1981, Ser. No. 315,085

Int. Cl.³ H03F 3/04, 1/34

U.S. Cl. 330—294

3 Claims



1. An operational amplifier having an output stage, said operational amplifier comprising: an input stage for generating a drive signal; first means coupled to said input stage and responsive to said drive signal for generating first and second currents, said first means comprising a transistor having first and second collectors; follower transistor means coupled to said first means and having an input driven by said first current, said follower transistor means having emitter and collector terminals, and having a base terminal coupled to said first collector; a gain transistor coupled to said follower transistor means and responsive to said first and second currents, said gain transistor having base, emitter and collector terminals, said base terminal coupled to the emitter of said follower transistor and to said second collector, said emitter terminal adapted to be coupled to ground and said collector terminal coupled to the input of said output stage; and a capacitor having a first terminal coupled to said first collector and a second terminal coupled to the collector of said gain transistor.

4,393,356

FILTER CIRCUIT FOR ELECTRIC WAVES

Friedrich L. Kuenemund, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 630,932, Nov. 11, 1975, abandoned.

This application May 21, 1980, Ser. No. 151,772

Claims priority, application Fed. Rep. of Germany, Nov. 12, 1974, 2453669

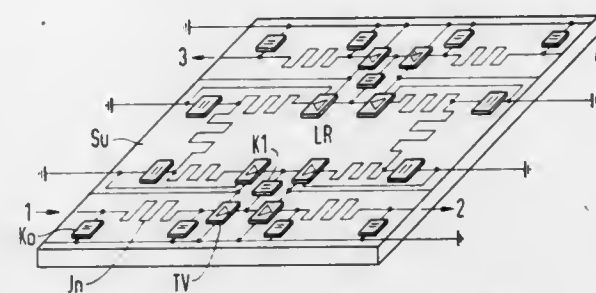
Int. Cl.³ H03H 11/04, 17/00

U.S. Cl. 333—165

6 Claims

1. An electrical filter comprising, input and output lines having pairs of input and output terminals, a first charge coupled device having a plurality of charge storage cells each of a first charge storage capacity with its input connected to one input terminal of said input line and its output connected to the other input terminal of said input line, a pulse generator producing "n" phase related pulse trains at a certain frequency and supplying inputs to said charge storage cells of said first charge coupled device to move charges therethrough, a second

charge coupled device having a plurality of charge storage cells each of said first charge storage capacity with its input connected to one output terminal of said output line and its output connected to the other output terminal of said output line, a pulse generator producing "n" phase related pulse trains at a certain frequency and supplying inputs to said cells of said second charge coupled device to move charges therethrough, a first non-directional coupling element coupled to an intermediate storage cell of said first charge coupled device, a second non-directional coupling element coupled to an intermediate storage cell of said second charge coupled device, a third



charge coupled device having a plurality of charge storage cells of different or the same storage capacity as the storage cells of said first and second charge coupled devices with its output connected to its input, a pulse generator producing "n" phase related pulse trains at a certain frequency and supplying inputs to said cells of said third charge coupled device to move charges therethrough, one of the storage cells of said third charge coupled device coupled to said first non-directional coupling element and another of the storage cells of said third charge coupled device coupled to said second non-directional coupling element.

4,393,357

HIGH SPEED TRANSIENT RECORDER SYSTEMS

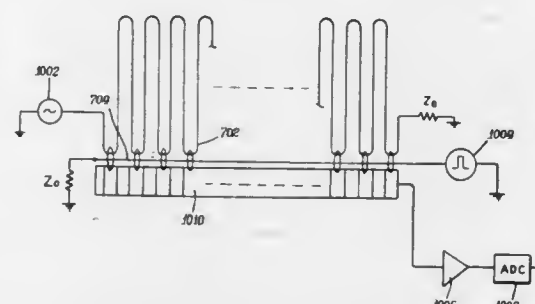
Thomas E. Linnenbrink, Winnetka, and David A. Gradi, Des Plaines, both of Ill., assignors to Q-Dot, Inc., Des Plaines, Ill.

Filed Feb. 4, 1981, Ser. No. 231,292

Int. Cl.³ G11C 27/00; H01L 29/78; G11C 11/40

U.S. Cl. 333—165

12 Claims



1. An integrated circuit device for recording transient data signals comprising, charge transfer channel means for providing a plurality of charge potential wells at a plurality of sampling sites disposed along a charge transfer channel, and for transferring charge carrier packets along said channel, an electrical transient data signal transmission line means disposed at least in part along said transfer channel means at said sampling sites, for receiving an electrical transient data signal to be recorded and for propagating said electrical transient data signal successively to each of said plurality of sampling sites such that said electrical transient data signal propagated thereon is distributed along said transmission line means to apply the electric field of said transient data signal distributed thereon to charge carriers at each respective sampling site, and means for transferring and isolating charge carriers at a

selected sampling time when a transient data signal to be recorded is distributed along said transmission line at each of said charge potential wells in response to the transient data signal potential provided by said transmission line means at each of said respective sampling sites to thereby provide charge packets of charge carriers disposed along said charge transfer channel which record said electrical transient data signal.

4,393,358

SURFACE WAVE ACOUSTIC DEVICE WITH COMPENSATION FOR DIFFRACTION EFFECTS

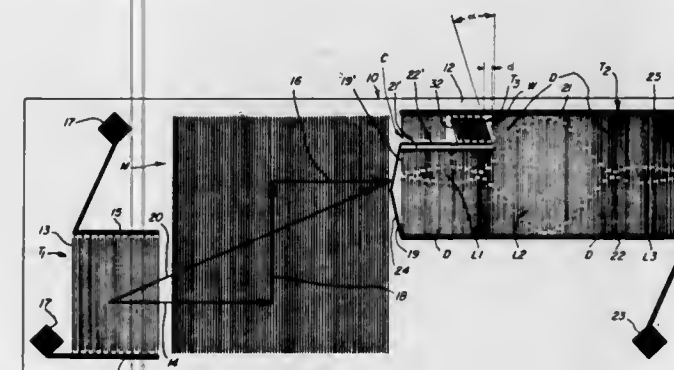
Adrian J. De Vries, Mount Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Nov. 18, 1981, Ser. No. 322,331

Int. Cl.³ H03H 9/145, 9/64, 9/42

U.S. Cl. 333—194

12 Claims



1. A surface wave acoustic device adapted to be employed in an environment where it receives a surface acoustic signal including a desired frequency component having wave fronts substantially parallel to a selected direction and an undesired frequency component having wave fronts at a substantial angle to said selected direction, said device comprising: a primary array and a secondary array of finger pairs, each of said pairs having respective lengths interdigitated with each other whereby to function as respective elemental electro-acoustic transducers; said interdigitated lengths of said finger pairs of said primary array being oriented substantially parallel to said selected direction, and those of said secondary array being oriented substantially parallel to said wave fronts of said undesired frequency component;

and an electrical circuit including means electrically connecting said primary and secondary arrays so that their instantaneous outputs add phasorially; said secondary array being positioned relative to said primary array so as to be substantially in electrical phase opposition thereto whereby the response of said secondary array to said undesired frequency component tends to compensate for the response of said primary array thereto.

4,393,359

ELECTROMAGNETIC RELAY

Gary W. Schreiner, Sterling; Merle L. Kemp, Jr., Prophetstown, both of Ill., and Edward A. Chernoff, Brookville, N.Y., assignors to Products Unlimited Corp., Sterling, Ill.

Filed Nov. 12, 1981, Ser. No. 320,323

Int. Cl.³ H01H 51/08

U.S. Cl. 335—128

5 Claims

1. An electromagnetic relay comprising in combination, an insulating base member, an electromagnetic coil mounted on said base member, an armature means pivotally mounted to said base member with one end portion movable between upper and lower positions in response to the energization and deenergization of said coil, spring means biasing said armature into one of said positions,

a contact carrier post affixed to said one end portion of said armature and extending upwardly therefrom, first and second contacts mounted to said base on opposite sides of said armature, a lower contact carrier blade slidably mounted on said post and carrying a pair of contacts adapted to respectively engage said first and second contacts when said armature is in said lower position, first and second upstanding abutment guide means integral with said base member and respectively disposed on opposite sides of said armature for limiting lateral movement thereof and for limiting rotational movement of said lower contact carrier blade,



- first and second contact carrier brackets mounted to said base and respectively carrying third and fourth contacts in spaced, vertical alignment with said first and second contacts, an upper contact carrier blade slidably mounted on said post and carrying a pair of upper contacts adapted to respectively engage said third and fourth contacts when said armature is in said upper position, and a compression spring compressed between said upper and lower contact carrier blades to urge said blades in mutually spaced apart relationship.

4,393,360

ELECTRICAL SWITCH STRUCTURE

Kaneyasu Arakawa, and Shigeo Mizuno, both of Nagoya, Japan, assignors to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, Aichi, Japan

Filed May 27, 1981, Ser. No. 268,092

Claims priority, application Japan, May 27, 1980, 55-72003[U]

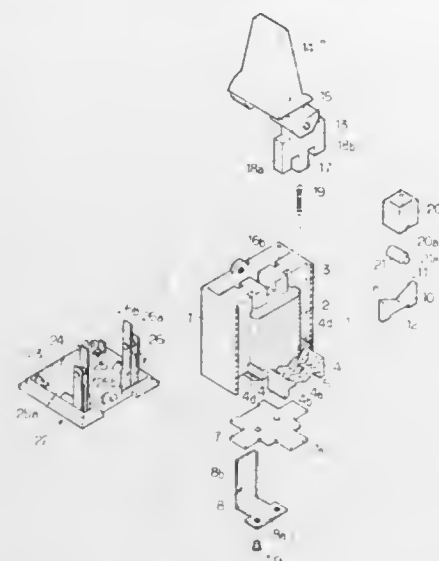
Int. Cl.³ H01H 9/20

U.S. Cl. 335—164

5 Claims

1. An electrical switch comprising: a lever rotatably mounted in a case for movement between a neutral position and an actuated position, a switch member positioned in said case comprising a pair of normally open contacts, means on said lever to close said contacts when said lever moves to said actuated position, latch means to hold said lever in said actuated position comprising a first, central detent portion and at least one other detent portion juxtaposed to said first portion, spring biased roller means carried by said lever to engage said first detent portion when the lever is in said neutral position and to engage said other detent portion when in said actuated position, and

solenoid means to move said latch means to return said lever from said actuated position to said neutral position when



4,393,361

VARIABLE MAGNETICALLY BIASED LINEARITY CONTROL

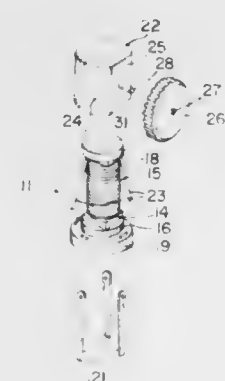
Stanley K. Horton, McHenry, Ill., assignor to Prem Magnetics, Inc., McHenry, Ill.

Filed Sep. 23, 1981, Ser. No. 304,817

Int. Cl.³ H01F 1/00

U.S. Cl. 335—212

5 Claims



1. A variable magnetically biased linearity coil assembly for use such as with a cathode ray tube display device, comprising, in combination, an essentially I-shaped core, a coil wound on said core, a first permanent magnet stationarily mounted adjacent one end of said I-shaped core, a second permanent magnet mounted adjacent the opposite end of said core, said first and second magnets providing a magnetic field having flux lines extending through said core, a non-magnetizable support mounted adjacent said one end of said core, a cylindrically shaped element having a magnetized substantially flat surface thereon mounted on said support in spaced relation to said core and said magnets with said magnetized flat surface facing said core and said magnet, a mounting shaft extending outwardly from said support in a direction transverse to the axis of said I-shaped core for mounting said element in rotatable relation to said core and said magnets, and rotatable adjustment of said element selectively adjusting the magnetic strength of said second magnet to thereby provide an adjustable linearity coil.

4,393,362 ELECTROMAGNETIC INDICATOR HAVING A ROTOR DISPOSABLE IN DISCRETE POSITIONS

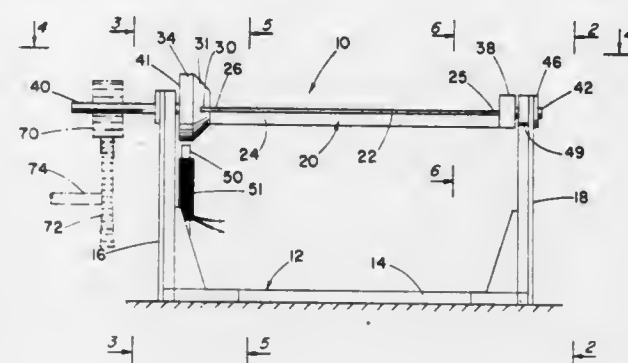
Alfred Skrobisch, Commack, N.Y., assignor to The Staver Company, Inc., Bay Shore, N.Y.

Filed Jan. 18, 1982, Ser. No. 340,309

Int. Cl.³ H01F 7/08, 7/14

U.S. Cl. 335—272

10 Claims



1. An indicator device having two stable positions comprising:

a stator having a stationary elongated reversible polarity permanent magnet core; means for reversing polarity of said permanent magnet core; a rotor carried by said stator and having a magnet disposed adjacent to said core, said rotor being turnable angularly on an axis perpendicular to said elongated core from one of said stable positions to the second of said stable positions upon reversing polarity of said permanent magnet core;

said magnet having two magnetic poles each of which is located on the same side of a diameter of said rotor which diameter passes through said elongated core at each of said stable positions so that reversing polarity of said core will produce reverse turning movements of said magnet; and

stop means carried by said stator and rotor and arranged for selective engagement so that rotation of said rotor is stopped at one of said stable positions in its angular movement where both of said poles are spaced from said core with one of said poles closest to said core attracted magnetically to said core while said stop means prevent rotation and vibratory movements of said rotor.

4,393,363

MAGNET BASE FOR TOOL

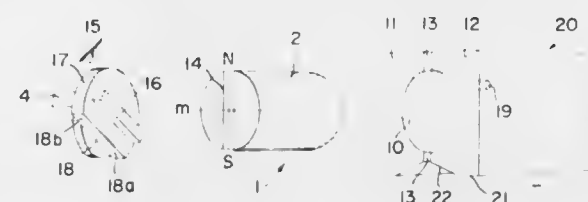
Hiroshi Iwasaki, Tokyo, Japan, assignor to Fujii Jiko Kabushiki Kaisha, Tokyo, Japan

Filed May 18, 1981, Ser. No. 264,442

Int. Cl.³ H01F 7/20

U.S. Cl. 335—288

6 Claims



1. A magnet base for a tool comprising: a cylindrical ferrite magnet having N and S poles respectively on both sides of a plane including the central axis of said magnet; a yoke having a cylindrical hole in which said magnet is rotatably fitted, said yoke being made up of two parts which are respectively positioned on opposite sides of a plane in parallel with the central axis of said hole, said two parts being joined together with a non-magnetic-permeable metal material; and a handle unit engaged with said magnet, said handle unit having a handle on

the outside thereof to turn said magnet, which magnet base comprises:

said cylindrical ferrite magnet having a sectional area substantially filling said cylindrical hole formed by said yoke; said two parts of said yoke being fabricated from a magnetic metal material;

a stopper protruded from the inner surface of said cylindrical hole;

a cut formed in the peripheral portion of said handle unit in such a manner that said cut is engaged with said stopper as said handle unit turns;

said magnet base being placed in "off" state when said cut is engaged with said stopper by turning said handle unit in one direction, and said magnet base being placed in "on" state by turning said handle unit in the opposite direction to engage said cut with said stopper; wherein

said stopper is so positioned that, when said cut is engaged with said stopper by turning said handle unit in said opposite direction, attraction takes place between said yoke and said magnet to push said cut against said stopper.

4,393,364

COIL ELEMENT

Takayuki Suda, Kisakata, and Koichi Yasuda, Nishime, both of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

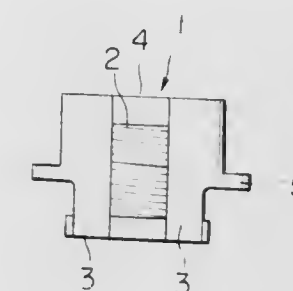
Filed Sep. 8, 1981, Ser. No. 300,456

Claims priority, application Japan, Sep. 19, 1980, 55-132248[U]

Int. Cl.³ H01F 15/02, 15/10

U.S. Cl. 336—65

4 Claims



1. A coil element comprising a drum-shaped ferrite core on which a coil is wound, magnetic members each made of a magnetic and electrically conductive metal and formed so as to fit to the outer surface of said drum-shaped ferrite core and spaced from each other so as to be electrically insulated from each other, and connection terminals forming a part of said magnetic members connected to the ends of said coil.

4,393,365

METHOD AND SYSTEM FOR FORECASTING AND WARNING ON AUTOMOTIVE ABNORMALITIES

Nobuo Kondo, Anjo; Masanori Naganoma; Hitoshi Hibi, both of Kariya; Tetsuo Fujii, Toyohashi, and Kunihiro Suzuki, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 2, 1981, Ser. No. 279,710

Claims priority, application Japan, Jul. 7, 1980, 55-92924

Int. Cl.³ B60Q 5/00

U.S. Cl. 340—57

10 Claims

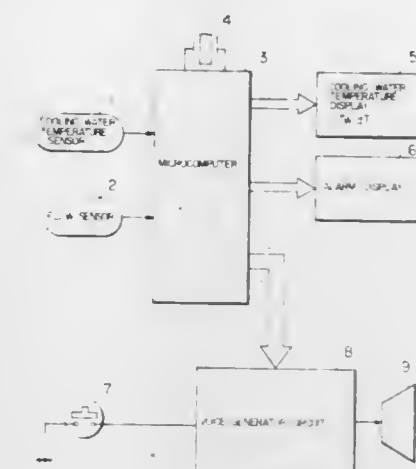
1. An automotive abnormality forecasting and warning method comprising the steps of:

detecting the condition of an inspection item of the automobile and generating a detection signal according to said condition;

generating an alarm display and a voice alarm on said abnormal item in response to a decision that said detection signal has exceeded a predetermined value;

calculating the change rate of said detection signal when said

detection signal is smaller than the predetermined value; and



forecasting an abnormality and displaying an alarm on the basis of the trend of deterioration of the inspection item by the use of said change rate and said detection signal.

4,393,366

ROTATING BEAM OCULAR IDENTIFICATION APPARATUS AND METHOD

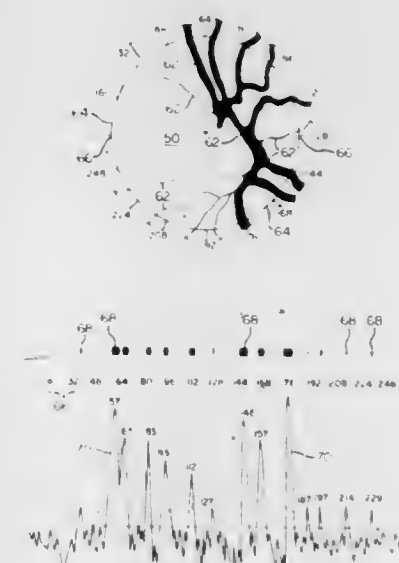
Robert B. Hill, Portland, Oreg., assignor to Eye-D Development II Ltd., Portland, Oreg.

Filed Feb. 17, 1981, Ser. No. 235,150

Int. Cl.³ G06K 9/00; A61B 3/10

U.S. Cl. 382—2

26 Claims



1. Apparatus for recording an identification pattern from the fundus of an eye, comprising:

(a) a light source operable to produce a substantially columnar source beam of light;

(b) beam directing means for directing at least a portion of the source beam into the eye from a plurality of sequential angularly divergent positions, the light substantially focusing on the fundus of the eye and being reflected in part out of the eye forming a reflected beam;

(c) detector means for sequentially sensing the amount of light in the reflected beam at each angularly divergent position of the source beam; and

(d) means for recording the amounts of light thus sensed to form an identification pattern.

4,393,367

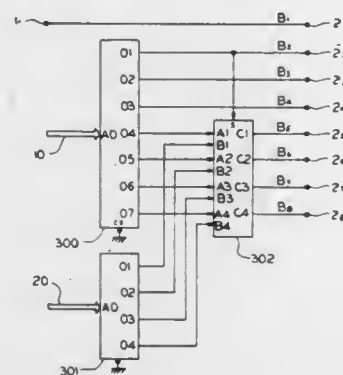
DIGITAL COMPANDOR HAVING NONLINEAR COMPANDING CHARACTERISTICS

Rikio Maruta, and Atsushi Tomozawa, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan
Division of Ser. No. 934,985, Aug. 18, 1978. This application
Aug. 24, 1979, Ser. No. 69,384

Claims priority, application Japan, Aug. 22, 1977, 52-100927
Int. Cl.³ H04L 3/00

U.S. Cl. 340—347 DD

2 Claims



1. A digital compandor for converting linear code signal into a nonlinear code signal, said linear code having a polarity bit which is representative of the polarity of each sample value of the original analog signal and a plurality of absolute value bits which are representative of the absolute value of the sample, said nonlinear code having said polarity bit, a plurality of segment bits which identify one of a predetermined number of segments to which said sample value of the original signal belongs and mantissa bits which are indicative of the position of said sample value in said segment, said compandor comprising: a plurality of input terminal means for receiving said linear code signal; a first read-only memory means addressable by a first bit group including a predetermined plurality of bits among said absolute value bits for memorizing a first segment bit decision rule and a first mantissa bit decision rule by which said plurality of segment bits and said plurality of mantissa bits are respectively determined responsive to said first bit group; a second read-only memory means addressable by a second bit group including another plurality of bits among said absolute bits and having some bits in common with said first bit group for memorizing a second segment bit decision rule and a second mantissa bit decision rule by which said plurality of segment bits and said plurality of mantissa bits are respectively determined responsive to said second bit group; and means for selecting said first or second read-only memory means responsive to selected bits of said first bit group.

4,393,368

MULTITHRESHOLD A/D CONVERTER UTILIZING ERROR AMPLIFIERS

Erling E. Rasmussen, Tempe, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

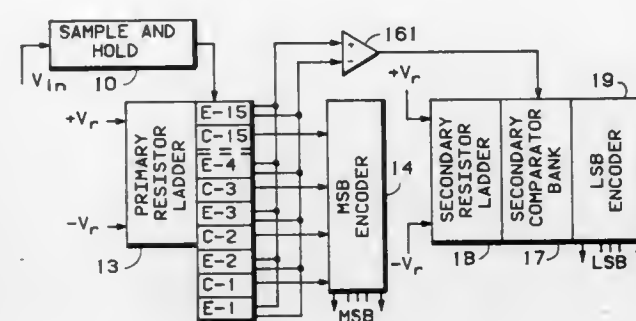
Filed May 16, 1980, Ser. No. 150,502
Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

20 Claims

1. A multithreshold A/D converter comprising: a plurality of primary comparison means each for comparing a selected threshold reference voltage level with a given analog input signal level; and a plurality of error amplifiers each of said error amplifiers coupled to a threshold reference voltage level intermediate those threshold reference levels utilized by adjacent

pairs of said plurality of comparison means, a selected one of said error amplifiers outputting a signal differential of



said intermediate threshold reference voltage level and said given analog input signal level.

4,393,369

FLOATING-POINT A/D AND D/A CONVERTER

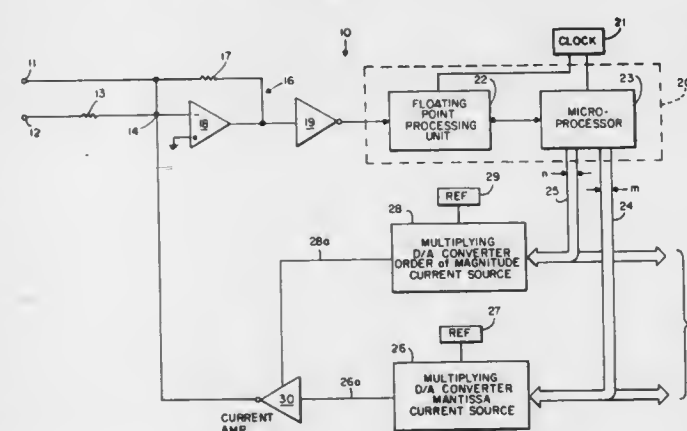
Kirk E. Davies, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 16, 1981, Ser. No. 243,985

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

2 Claims



1. An apparatus for producing digital signals indicative of a floating decimal point representation of widely ranging input analog signals in a delta modulation servo loop comprising: a serially connected resistor coupled to receive the input analog signals for assuring that the input analog signal is an input analog current signal; an operational amplifier having a resistive feedback loop to produce a positive voltage and negative voltage coupled to the serially connected resistor for comparing the analog current signal with a derived reference signal to produce the negative voltage if the analog current signal exceeds the derived reference signal and the positive voltage if the analog current signal is less than the derived reference signal, the derived reference current is subtracted from the input signal current therefore resulting in small currents and voltages for the system to operate on; an inverter circuit coupled to the operational amplifier for generating a logic signal representative of a positive voltage and a logic signal representative of a negative voltage; an interconnected floating point processing unit and microprocessor coupled to the inverter circuit for providing a first group of digital signals indicative of the mantissa and a second group of digital signals indicative of the order of magnitude; a first high speed multiplying digital-to-analog converter coupled to a reference potential source and coupled to the providing means for converting the first group of mantissa digital signals to a mantissa component of the derived reference signal; a second high speed multiplying digital-to-analog converter

coupled to a reference potential source and coupled to the interconnected floating point processing unit and microprocessor for converting the second group of order of magnitude digital signals to an order of magnitude component of the derived reference signal; means coupled to the first and second high speed multiplying digital-to-analog converters for multiplying the mantissa component and the order of magnitude component into the derived reference signal and for feeding the derived reference signal and input analog current signal to the comparing means; means coupled to receive the first and second groups of digital signals for passing them to user components; means for feeding in a current signal to the operational amplifier when the widely ranging input analog signals are current signals; and means for amplifying and inverting the derived reference current coupled between the outputs of the first and second high speed multiplying digital-to-analog converters and operational amplifier.

4,393,371

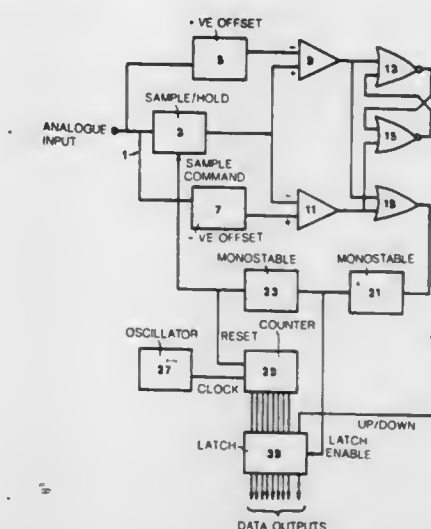
ANALOGUE TO DIGITAL SIGNAL CONVERSION AND STORAGE SYSTEM

Peter J. Morgan-Smith, Hatfield, England, assignor to Morgan-Smith Electronics Ltd., Hatfield Herts., England
Continuation of Ser. No. 45,604, Jun. 5, 1979, abandoned. This application May 18, 1981, Ser. No. 264,232

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

11 Claims



1. An analogue-to-digital signal conversion and storage system including means for sampling the analogue signal at successive time intervals and producing at each sample a digital signal, the interval between successive samples being dependent upon the rate of change of amplitude of the analogue signal during said time interval, timing means for determining the time interval between successive samples, storage means including a data buffer to which data from the system is supplied and from which data is applied to a recording means, the speed at which data is stored in the recording means being variable, and means for producing a control signal for adjusting said speed in response to the amount of data stored in the buffer, said signal being arranged to prevent overload of the buffer.

4,393,370

DIGITAL TO ANALOG CONVERTER USING MATRIX OF CURRENT SOURCES

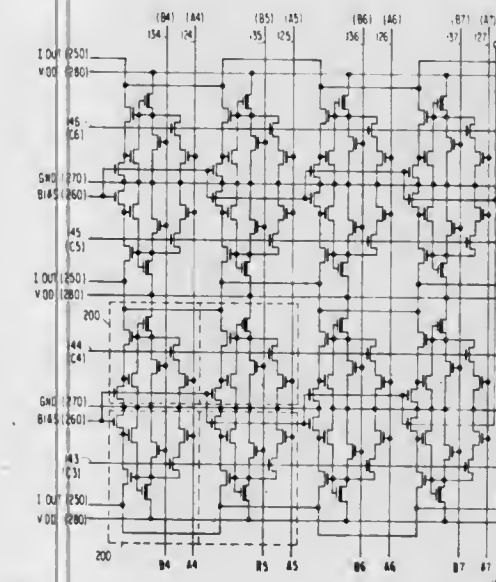
Kyuichi Hareyama, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 29, 1981, Ser. No. 258,711

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

13 Claims



1. A semiconductor circuit comprising an output terminal; a plurality of current switch cells arrayed in a plurality of rows and columns, each of said cells including a current terminal, a current source and switch means coupled between the current terminal and current source and generating a current at the current terminal when selected; means for connecting the current terminals of said cells to said output terminal in common; means for receiving a plurality of digital signals; first means responsive to a first part of said digital signals for selecting a number of rows in accordance with said first part of said digital, and second means responsive to a second part of said digital signals for selecting the columns, whereby a number of cells corresponding to the value of said digital signals are simultaneously selected and currents from the selected cells are derived at said output terminal.

4,393,372

PARALLEL ANALOG-TO-DIGITAL CONVERTER

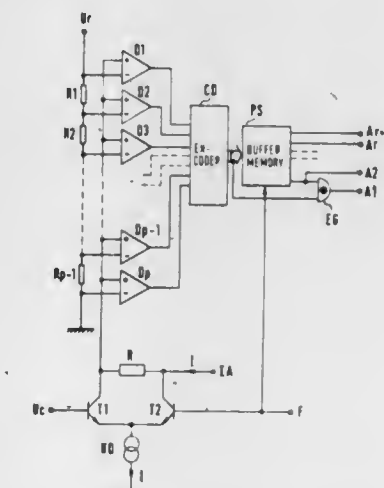
Wolfgang Hoehn, Kirchzarten, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Mar. 8, 1982, Ser. No. 355,295

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

2 Claims



1. In a parallel analog-to-digital converter with $p=2^r-1$ comparators, where r is the number of bits of the $(r+1)$ -bit converter output signal diminished by 1, and the analog signal is applied to either the noninverting or inverting input of each

of new character signal information and display of the next character.

4,393,378

GENERATION OF A LIGHT INTENSITY CONTROL SIGNAL

Petter Danielsen, Schwerte, Fed. Rep. of Germany, and Tor Moen, Oslo, Norway, assignors to Tandberg Data A/S, Norway

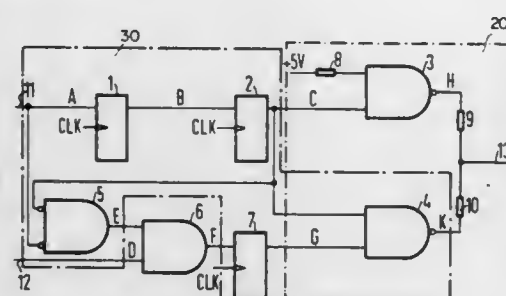
Filed Apr. 13, 1981, Ser. No. 253,372

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1980, 3036737

Int. Cl.³ G06F 3/14

U.S. Cl. 340—744

6 Claims



1. A system for generation of a light intensity control signal for a video amplifier of a data display device connected with a video signal on a video signal line and a pulse generator by which characters are displayed by use of horizontal bright lines, vertical rows of bright points, and also blanks, comprising: a converter means connected with the video signal line and the converter means for identification of a signal sequence associated with a line, a point or a blank; and said detector device means including first delay means for delaying the video signal by two clock pulse periods of clock pulses of said pulse generator, and comparator means for providing to the converter means a signal increasing the light intensity only upon recognition of a portion of the video signal which corresponds to a bright point arranged between two directly adjacent blanks.

4,393,379

NON-MULTIPLEXED LCD DRIVE CIRCUIT

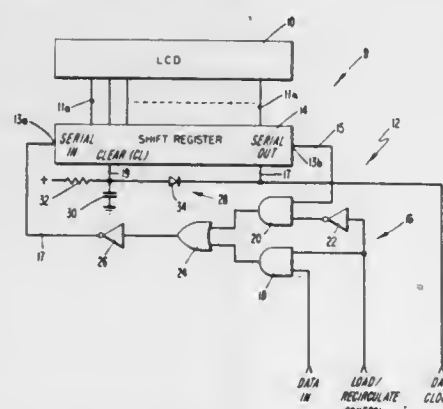
John P. Berting, 13 Fleetwood Rd., Newark, N.J. 07106, and James K. Kroeger, 319 Radel Ter., South Orange, N.J. 07079

Filed Dec. 31, 1980, Ser. No. 243,973

Int. Cl.³ G09G 3/36

U.S. Cl. 340—784

7 Claims



1. A liquid crystal display (LCD) drive circuit using recirculating shift register means for generating bit parallel output data to be applied to an LCD for display as a stationary image by repetitively recirculating a number of bits corresponding to a number of stages of said register means and, upon completion of each recirculation of bits, transferring the contents of said register means to said LCD, the drive circuit comprising dis-

play update means for loading display data into said shift register means, display refresh means including data inversion means for recirculating data stored in said shift register means, switch means for selectively operating said update and refresh means, clock means for shifting data stored in said shift register means and means synchronized to the clock means for transferring the bit parallel data from said shift register to be displayed as a stationary image on said LCD.

4,393,380

LIQUID CRYSTAL DISPLAY SYSTEMS

Minoru Hosokawa; Masayuki Ikeda, and Satoru Yazawa, all of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

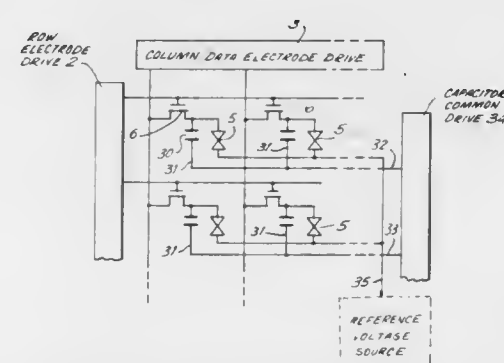
Filed May 28, 1980, Ser. No. 153,973

Claims priority, application Japan, May 28, 1979, 54-65914; May 28, 1979, 54-65915

Int. Cl.³ G09G 3/36

U.S. Cl. 340—805

18 Claims



1. A liquid crystal display circuit comprising:

a plurality of liquid crystal picture elements, said picture elements being arranged in a fixed pattern, each picture element having a picture element electrode and an opposed common electrode, the common electrodes of all said picture elements being connected to a common potential;

means for selecting picture elements for display of an image signal, each said picture element electrode being connected to said means for selecting;

a plurality of capacitors, one capacitor associated with each said picture element, one terminal of each said capacitor being coupled to the picture element electrode of the associated picture element, the other terminal of said capacitor being coupled to one of a plurality of common capacitor electrodes, a plurality of said capacitors being connected to every common capacitor electrode;

voltage means, said voltage means being adapted to output a plurality of voltage levels, said voltage levels changing periodically, said common capacitor electrodes and said commonly connected capacitor terminals being connected periodically to the output of said voltage means, said changing voltage levels at said common capacitor electrodes providing an AC voltage on said picture element electrodes relative to said common picture electrodes at said common potential.

4,393,381

TRANSFER BUS MATRIX

Lewis J. Seiden, Tappan, N.Y., assignor to T-Bar Incorporated, Wilton, Conn.

Filed Jan. 2, 1981, Ser. No. 222,064

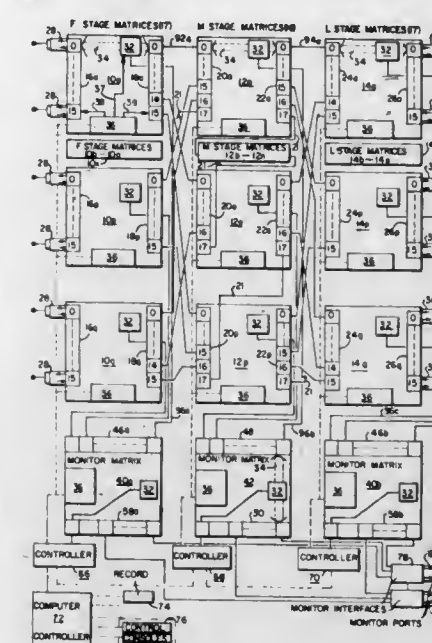
Int. Cl.³ H04J 6/00; H04Q 9/00

U.S. Cl. 340—825.83

20 Claims

1. A transfer bus matrix switching system for connecting selected input ports to selected output ports whereby multiple signals may be sequentially carried by the bus comprising:

a bidirectional transmission line transfer bus providing a common parallel multi-line channel for all signals;
a plurality of input bidirectional channels connected to the bus by individual gate means providing input ports;
a plurality of output bidirectional channels connected to the bus by individual gate means providing output ports; and



control means independent of the bus and input and output ports for selectively activating an input port and at least one output port contemporaneously and sequentially connecting such selected ports via the transfer bus.

4,393,382

DIRECTION FINDING AND RANGING SYSTEM FOR LOCATING SCANNING EMITTERS

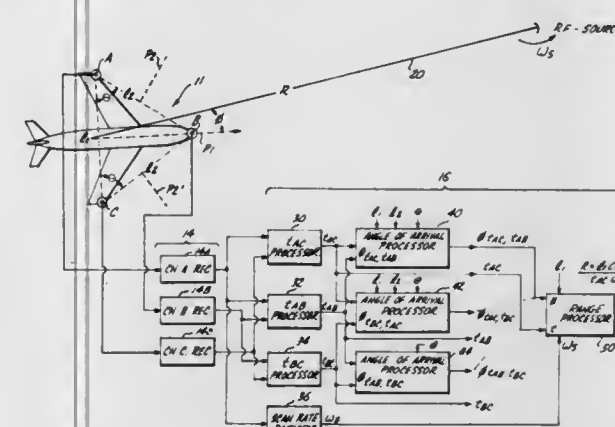
William R. Jones, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Apr. 25, 1980, Ser. No. 144,166

Int. Cl.³ G01S 11/00, 3/48

U.S. Cl. 343—112 D

17 Claims



1. An apparatus for passively locating a distant scanning source of radiant energy transmission, comprising:

first, second and third receiving devices arranged in a spatial array that forms a triangle in which said devices are located at the apexes of said triangle having a side designated AB between said first and second receiving devices, a side AC between said first and third receiving devices and a side BC between said second and third receiving devices, wherein the lengths of said sides are l_{AB} , l_{AC} , l_{BC} , respectively and the interior angles at the apexes are α associated with said first device, β associated with said second device and γ associated with said third device, each of said devices being responsive to the receipt of said radiant energy transmission to produce an electrical signal representative thereof such that when said array is oriented generally coplanar with a scan sweep of said transmission, the resulting electrical signals from at least two

differently constituted pairs of said devices have a measurable time differential;
time differential signal processing means coupled to said devices for producing at least first and second time differential signals representing said measurable time differentials associated with said two differently constituted pairs of devices; and

at least a first angle of arrival processor means having inputs coupled to receive said first and second time differential signals and having an output, said first angle of arrival processor means producing at said output a first signal representing a first angular direction at which said transmission arrives at said array measured as the following function of said first and second time differential signals which are respectively represented by t_{AB} and t_{BC} :

$$\phi_1 (\text{fr. } l_{AB} \text{ } l_{BC}) = \tan^{-1} \frac{l_{AB} l_{BC} \sin \beta}{l_{AB} l_{BC}} - \cot \beta$$

wherein ϕ_1 is an angle referenced to the side of said triangle designated AB and represents said first angular direction.

4,393,383

MOBILE ANTENNA MOUNTING ASSEMBLY

Koji Yamashita, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

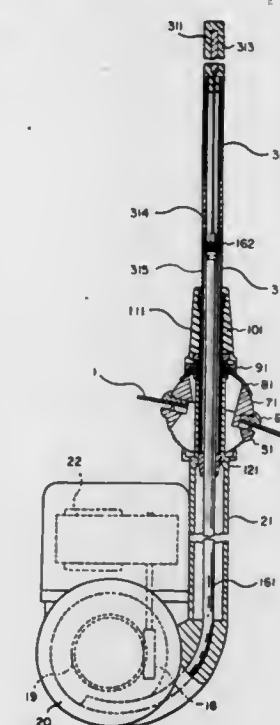
Filed Nov. 12, 1980, Ser. No. 206,062

Claims priority, application Japan, Nov. 16, 1979, 54/159760[U]; Nov. 16, 1979, 54/159761[U]

Int. Cl.³ H01Q 1/32, 1/10

U.S. Cl. 343—903

5 Claims



1. A mobile antenna mount comprising a telescoping antenna means, upper and lower hemispherical bushing means having at least a bottom portion for positioning above and below a body panel for supporting said antenna, a bore extending through said bushing means with sufficient angular clearance to enable an adjustment of said antenna position on said panel, flexible coupling means between said antenna and said bushing means to enable a deflection of said antenna responsive to a mechanical force acting upon said antenna, flexible co-axial cable means free of contact pressure directly extending from the bottom of said telescoping antenna means for conveying signals between said antenna and equipment associated therewith, and an elongated encasing means extending downwardly from said lower hemispherical bushing for receiving said telescoping antenna when in a retracted position, said coaxial cable being movable within said encasing means to enable said an-

tenna to telescope between an extended and a retracted position.

4,393,384

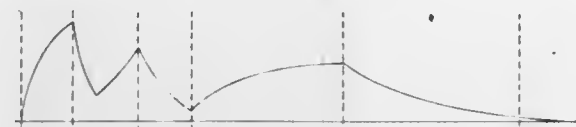
INK PRINthead DROPLET EJECTING TECHNIQUE
Edmond L. Kyser, Portola Valley, Calif., assignor to System Industries Inc., Milpitas, Calif.

Filed Jun. 5, 1981, Ser. No. 271,015

Int. Cl.³ G01D 15/16

U.S. Cl. 346—1.1

2 Claims



1. A method of ejecting a controlled droplet of ink from the nozzle of an ink jet printhead, wherein the nozzle is connected to an enclosed chamber, comprising the steps of:
suddenly reducing the volume in said chamber to accelerate the ink in said nozzle to the desired velocity;
suddenly increasing the volume in said chamber;
immediately reducing the volume in said chamber an amount less than in said first volume reduction step in a manner to maintain said ink at the desired velocity; and
increasing the volume in said chamber to eject a droplet of ink, whereby the volume of ink in said droplet is a function of the duration of said second volume reduction step.

4,393,385

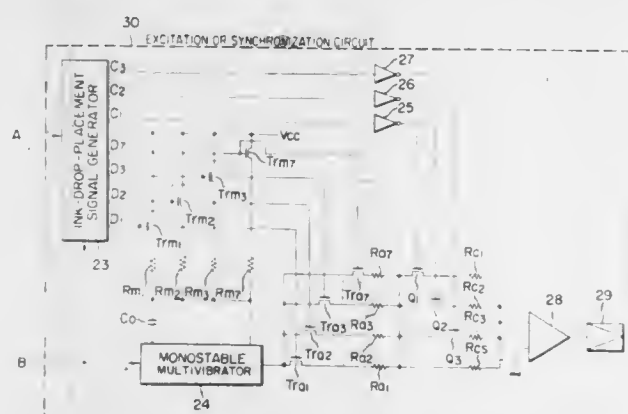
CONTROLLABLE INK DROP VELOCITY TYPE INK-JET PRINTER

Koichiro Jinnai, Kawasaki; Masanori Horike, Yokohama; Kyuhachiro Iwasaki, Fujisawa, and Yutaka Kodama, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 48,170, Jun. 13, 1979, Pat. No. 4,313,123. This application Aug. 27, 1981, Ser. No. 296,630
Claims priority, application Japan, Jun. 21, 1978, 53-74172
The portion of the term of this patent subsequent to Jan. 26, 1999, has been disclaimed.

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

1 Claim



1. A deflection type ink-jet printer, comprising:
an ink drop generator for ejecting a stream of ink drops;
means for supplying ink to said generator;
velocity modulation means mounted on said generator for varying the velocity of ink-drops ejected from said generator in accordance with the pulse width—pulse amplitude product of a pulsed excitation signal;
means for charging the ink drops ejected from said generator;
means for deflecting the ink drops charged by said charging means, the amount of deflection being dependent upon the velocity with which said ink drops are ejected from said generator, the amount of deflection therefore being de-

pendent upon the pulse width—pulse amplitude product of said pulsed excitation signal; and
signal generating means for generating said pulsed excitation signal and for varying the pulse width—pulse amplitude product of said signal, and thus the ink drop velocity, in accordance with the desired ink drop print pattern and with the presence or absence of an immediately preceding ink drop.

4,393,386

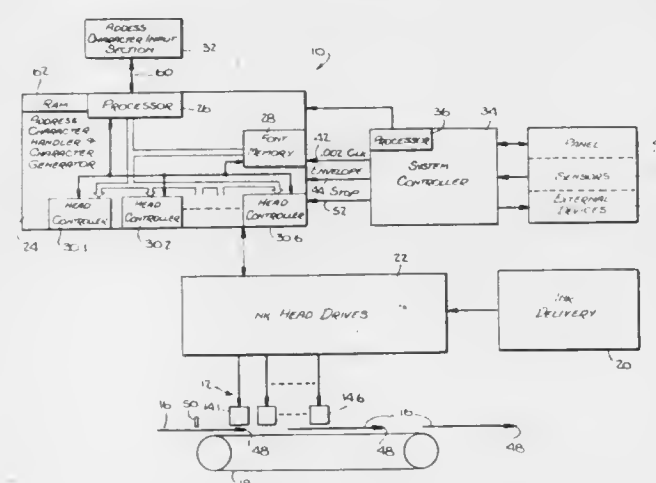
INK JET PRINTING APPARATUS
Peter C. Di Giulio, Fairfield, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Sep. 30, 1981, Ser. No. 307,339

Int. Cl.³ G01D 15/18, 5/26

U.S. Cl. 346—75

10 Claims



1. A computer controlled ink jet apparatus for printing a sequence of sheets with relative movement in a first direction between an ink jet apparatus and the sheets comprising:
an array of ink jet heads disposed to each eject ink drops onto the relatively moving sheets, said ink jet heads each having a plurality of ink ejecting orifices and being positioned along said first direction and displaced laterally relative to one another and to said first direction to print different lines of images on the sheets;
means for generating image signals representative of the ink drops to be ejected by the ink jet heads for the formation of lines of images on the sheets during relative motion between the sheets and the ink jet heads;
storage means for storing image signals for respective ones of said ink jet heads in the array;
means for generating sheet signals, each representative of the arrival of a sheet at a location having a known distance from the ink jet heads in the array; and
means responsive to the sheet signals for applying said stored image signals to respective ink jet heads for their actuation in a predetermined timed relationship selected to print lines of images on each sheet from the array of ink jet heads at desired sheet locations.

4,393,387

BEAM RECORDING APPARATUS EFFECTING THE RECORDING BY A PLURALITY OF BEAMS
Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 4, 1980, Ser. No. 184,146

Claims priority, application Japan, Sep. 14, 1979, 54-118246; Jan. 10, 1980, 55-1571; Jan. 24, 1980, 55-7224; Jan. 24, 1980, 55-7231; Jun. 19, 1980, 55-83064; Jun. 24, 1980, 55-85574

Int. Cl.³ G01D 15/4

U.S. Cl. 346—108

6 Claims

1. Beam recording apparatus for recording with a plurality of beams, said apparatus comprising:
beam generating means for generating a plurality of beams modulated with recording signals;

beam deflecting means for deflecting the beams generated by said beam generating means;
beam irradiated means irradiated with the plurality of beams deflected by said beam deflecting means; and

nably arranged to correspond to a latent magnetic image on a surface of a magnetic medium to a receiving medium, the combination comprising means for establishing at least a first pretransfer force of attraction (f_1) including electrostatic and magnetic field forces between the toner and the magnetic medium and drive means for effecting relatively high speed,

optical means for directing the beams generated by said beam generating means to said beam irradiated means; and
rotating means for rotating said optical means and said beam generating means as a single unit to vary the inclination of the beams with respect to said beam irradiated means.

4,393,388

LIQUID DROPLET PROJECTION APPARATUS
Yasumasa Matsuda, Hitachi; Kyoji Mukumoto, Katsuta; Syoji Sagae, Hitachi, and Masatoshi Kasahara, Hitachi, all of Japan, assignors to Hitachi Koki Co., Ltd. and Hitachi, Ltd., both of Tokyo, Japan

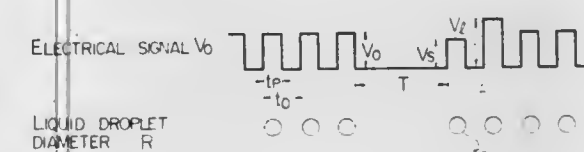
Filed Mar. 10, 1981, Ser. No. 242,185

Claims priority, application Japan, Mar. 10, 1980, 55-29177

Int. Cl.³ G03B 15/18

U.S. Cl. 346—140 R

3 Claims



1. A liquid droplet projection apparatus comprising a liquid droplet ejection nozzle, a liquid supply tank, an electro-mechanical transducer section, interposed between said liquid supply tank and said liquid droplet ejection nozzle, for changing its volume in accordance with an electrical signal applied thereto to cause liquid droplets to be ejected from said liquid droplet ejection nozzle, and liquid droplet diameter corrector means in which when the pattern of said electrical signal applied to said electro-mechanical transducer section has an interruption period longer than a predetermined duration and at least three successive electrical signals are generated following said interruption period, said correction means changes at least selected one of the amplitude and width of the second one of said successive electrical signals to produce a corrected electrical signal which is larger in the selected one of the amplitude and width as compared with the corresponding one of the amplitude and width of the others of said electrical signals.

4,393,389

MAGNETIC TONER TRANSFER METHOD AND APPARATUS

Houshang Rasekhi, Convent Station, N.J., and Alfred M. Nelson, Redondo Beach, Calif., assignors to Wang Laboratories, Inc., Lowell, Mass.

Filed Jan. 26, 1981, Ser. No. 228,526

Int. Cl.³ G01D 15/06; G03G 15/16

U.S. Cl. 346—153.1

17 Claims

10. A relatively high speed magnetic printing apparatus providing letter quality transfer of toner particles predetermi-

generally perpendicular relative approaching and separating, variable movement between the magnetic and receiving mediums according to the relationship that the maximum force (f_2) exerted on the toner particles by air currents created by such movement is less than the force (f_1) for any instantaneous separation between the magnetic and receiving mediums.

4,393,390

ELECTROSTATIC PRINTER
Kenji Aoki; Mitsuhiro Goto, and Teiji Miura, all of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Nagano, Japan

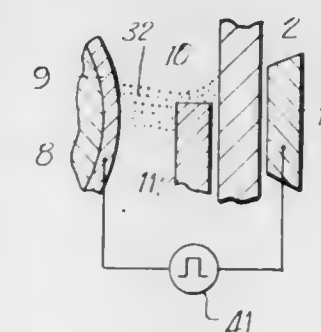
Filed Sep. 24, 1980, Ser. No. 190,149

Claims priority, application Japan, Sep. 28, 1979, 54-126085; Sep. 28, 1979, 54-126086; Sep. 28, 1979, 54-126088

Int. Cl.³ G01D 15/06

U.S. Cl. 346—155

35 Claims



1. An electrostatic printer for printing on an electrostatic recording medium comprising an elongated electrode and a back electrode spaced from said elongated electrode to define a gap therebetween and adapted to permit the passage of said electrostatic recording medium in said gap in a predetermined direction, a gap-reducing member disposed in said gap and extending essentially transverse to the predetermined direction of passage of said recording medium, said gap-reducing member being spaced from said back electrode to permit the passage of said recording medium therebetween, said recording medium and said gap-reducing member being out of contact with said elongated electrode, said gap-reducing member effectively reducing said gap at a point on said elongated electrode, means for displacing said elongated electrode relative to said back electrode so that said point on said elongated elec-

trode then defining said effectively reduced gap is displaced laterally of said direction of passage of said electrostatic recording medium in response to the displacement of said elongated electrode, and means for selectively applying a voltage between said elongated electrode and said back electrode for effecting printing on said electrostatic recording medium in registration with the point on said elongated electrode then defining said effectively reduced gap.

4,393,391

POWER MOS TRANSISTOR WITH A PLURALITY OF LONGITUDINAL GROOVES TO INCREASE CHANNEL CONDUCTING AREA

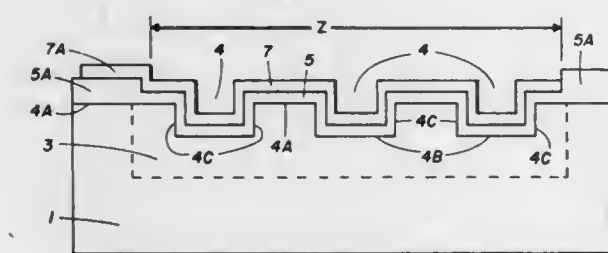
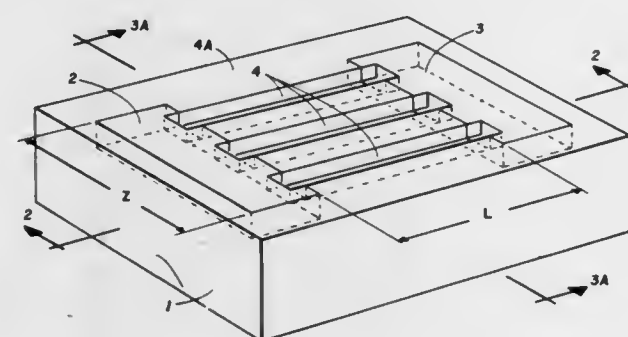
Richard A. Blanchard, Los Altos Hills, Calif., assignor to Super-tex, Inc., Sunnyvale, Calif.

Filed Jun. 16, 1980, Ser. No. 159,778

Int. Cl.³ H01L 29/78

U.S. Cl. 357—23

5 Claims



1. A semiconductor device comprising in combination: a substrate having a substantially plane first major surface; first and second spaced regions of a first conductivity type formed in said surface;
- a third region of a second conductivity type opposite said first conductivity type between said first and said second regions at said surface;
- a plurality of spaced groove regions in said major surface, said groove regions being separated by portions of said substrate coplanar with said first major surface, and said grooves extending into each of said first, second, and third regions;
- a thin insulating layer over said third region both in said grooves and across surface portions coplanar with said first major surface; and
- gate means over said insulating layer for controlling a conductive surface channel between said first and second regions in said grooves and at said first major surface.

4,393,392

HYBRID TRANSISTOR

Raymond L. Hale, Torrance, Calif., assignor to Power Hybrids, Incorporated, Torrance, Calif.

Filed Jun. 23, 1980, Ser. No. 162,124

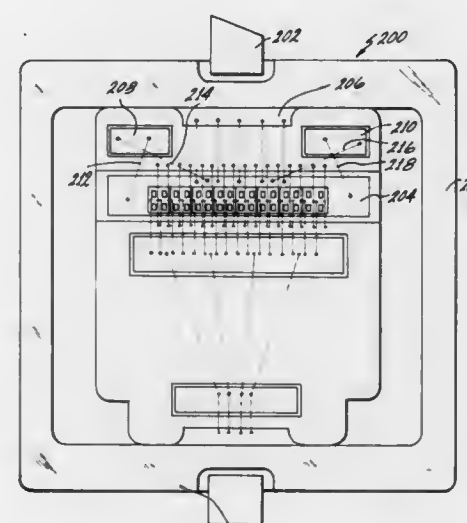
Int. Cl.³ H01L 23/02, 27/02, 23/48

U.S. Cl. 357—74

21 Claims

7. A transistor package having an operating range of frequencies, including:

- a body member;
- a plurality of metallized elements disposed on the body member in spaced relationship to one another and defining terminals including an input terminal, an output pad and a reference area;
- a transistor die disposed on the body member and defining a transistor and having at least one input electrode connected to the input terminal and at least one reference electrode connected to the reference area,
- the transistor die and the metallized elements being constructed and disposed relative to one another on the body member to define an equivalent output circuit having a capacitive reactance;
- first means disposed on the body member in contiguous but spaced relationship to the metallized elements to define a capacitance; and



- second means including a plurality of wires disposed on the body member and connected electrically to the first means and the metallized element defining the output pad to define an inductance in series with the capacitance,
- the first means and the second means being constructed to provide a resonance with the capacitive reactance in the equivalent output circuit at a particular frequency dependent upon the operating range of frequencies,
- the wires in the plurality being connected at one end to the first means and at the other end to the metallized element defining the output pad, the different wires in the plurality being distributed along such metallized element at their connections to such metallized element and being disposed in transverse relationship to one another.

4,393,393

LASER DIODE WITH DOUBLE SIDED HEAT SINK

Louis B. Allen, Jr., Florissant; Herbert G. Koenig, Jr., St. Charles; Robert A. Stacy, Chesterfield, and Danny D. Meyer, St. Louis, all of Mo., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Continuation of Ser. No. 65,918, Aug. 13, 1979, abandoned. This application May 8, 1981, Ser. No. 261,832

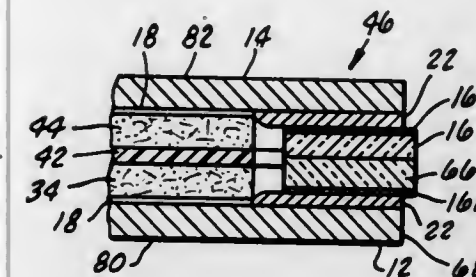
Int. Cl.³ H01L 23/02, 23/48, 29/44

U.S. Cl. 357—81

9 Claims

1. A heat sink mounted laser diode including: first and second flat mounting plates of a predetermined outer shape, each mounting plate having a solder pad of predetermined shape thereon, at least one of said mounting plates being relatively thin;
- a laser diode soldered between said first and second mounting plates to said solder pads; and
- at least one flexible, electrically insulating spacer having heat activated adhesive properties positioned between said mounting plates, a predetermined outer shape similar to said predetermined outer shape of said mounting plates and a cutout adjacent said solder pads so said solder pads are not appreciably covered by said spacer, said adhesive

retaining said spacer to said mounting plates, the thickness of said diode plus said solder connecting solder pads, and



the thickness of said adhesive spacer being equal whereby there is relatively little mechanical strain applied to said diode.

4,393,394

TELEVISION IMAGE POSITIONING AND COMBINING SYSTEM

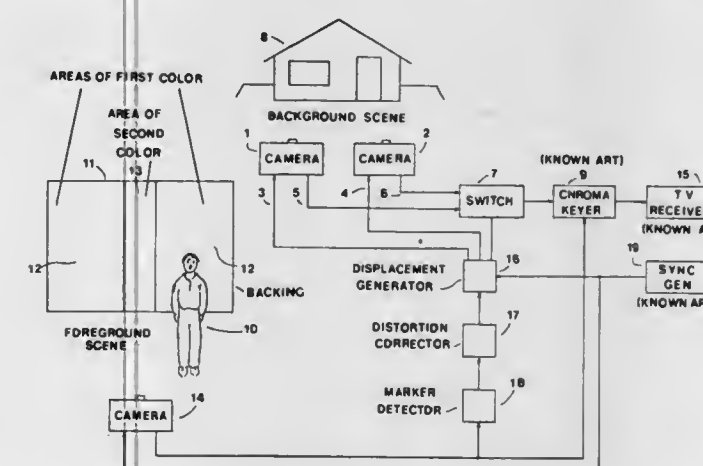
Reginald F.H. McCoy, 1354 NE. 31st Pl., Gainesville, Fla. 32601

Filed Aug. 17, 1981, Ser. No. 293,525

Int. Cl.³ H04N 9/535

U.S. Cl. 358—22

13 Claims



1. Apparatus for use with equipment producing a first television image, originating from a first television camera capable of being pointed in a variable direction so as to view differing parts of a foreground scene, said apparatus having the capability of producing a second television image formed by combination of parts of a pair of further images originating from a pair of further television cameras pointing in fixed directions so as to view different parts of a background scene, with horizontally displaced overlapping fields of view, said second television image moving coincident with, and corresponding to, horizontal motion of said first television image arising from change in the direction of viewing of said first television camera, in such manner that said first television image and said second television image may subsequently be combined, by the method of chroma-key, being known art, to form a combined image, said combined image then having the appearance of having been viewed by said first television camera, the position of objects portrayed in said combined image undergoing displacement in accordance with the horizontal motions of said first television camera, said displacement applying equally to that part of said combined image deriving from said first television camera capable of being pointed in a variable direction, and to that part of said combined image deriving from said second television image itself being derived from said further television cameras pointing in fixed directions, comprising:

- a. means for sensing the direction of viewing of said first television camera, comprising a backing surface placed behind those parts of said foreground scene viewed by said first television camera, said backing surface having areas of a first color and an area of a second color different

- from said first color such as to cause said first television camera to generate two distinct and different values of its electrical output, the boundaries between said areas of said first color and said area of said second color being vertical lines, said boundaries performing the function of markers, the positions of said markers in the image formed by said first television camera being dependent on the direction of viewing of said first television camera,
- b. marker detector means for detecting transitions between said distinct and different values of said electrical output generated by said first television camera when viewing said first color and said second color, thereby detecting said markers,
- c. means for determining the positions within the image originating from said first television camera at which said transitions corresponding to said markers occur, and thereby producing indication of the direction of viewing of said first television camera,
- d. displacement generator means for generating displacements of the positions of said pair of further images originating from said pair of further television cameras, consisting of means for accepting a first reference signal having synchronizing pulses in accordance with standard television practice; means for generating a second reference signal likewise having synchronizing pulses in accordance with standard television practice; and means for effecting a controllable variable time delay between the synchronizing pulses of said second reference signal and the synchronizing pulses of said first reference signal,
- e. means for generating a pair of further reference signals also having synchronizing pulses in accordance with standard television practice,
- f. means for effecting individually changeable time delays between the synchronizing pulses of said pair of further reference signals and the synchronizing pulses of said second reference signal,
- g. means for supplying to each camera of said pair of further television cameras a timing signal, being a distinct one of said pair of further reference signals, in such manner that the timing of the synchronizing pulses of said timing signal controls the time at which said camera generates the electrical output signals corresponding to specific points in the scene viewed by said camera,
- h. means for controlling said controllable variable time delay between the synchronizing pulses of said second reference signal and the synchronizing pulses of said first reference signal by an amount dependent on the direction of viewing of said first television camera derived from the detection of the positions of said markers in the output of said first television camera, said amount being such that the variation in said time delay so produced results in a variation in the timing of the video output signals derived from said pair of further television cameras equal to the variation in the timing of the occurrence of said markers in the video output signal of said first television camera; whereby a displacement in the timing of said markers resulting from a motion of said first television camera will cause an equal displacement in the timing of the video output signals from said pair of further television cameras,
- i. means for setting said individually changeable time delays between the synchronizing pulses of said pair of further reference signals and the synchronizing pulses of said second reference signal such that the timings of each distinct one of said pair of further reference signals supplied to each one of said pair of further television cameras are such that, there being a first object viewed by the first one of said pair of further television cameras, being that camera placed to the left of the second one of said pair of further television cameras, said pair of further television cameras having horizontally overlapping fields of view, said first object being so positioned as to produce a video signal output from said first one of said pair of further television cameras at a time corresponding to the time of scanning of a part of the field of view close to the right

side of the limit of the field of view of said first one of said pair of further television cameras, said first object being viewed by said second one of said pair of further television cameras then producing a video signal output from said second one of said pair of further television cameras at a time coincident with the time of production of the corresponding video signal output due to said first object from the first one of said pair of further television cameras; and conversely a second object being viewed close to the left limit of the field of view of said second one of said pair of further television cameras producing a video signal output coincident in time with the video signal output produced said second object when viewed by said first one of said pair of further television cameras; whereby said pair of further television cameras may have overlapping fields of view and the timings of said timing signals controlling the scanings of each of said pair of further television cameras may be so set that objects simultaneously appearing in the fields of view of both of said pair of further television cameras will produce video signal outputs coincident in time,

j. means for generating a switch control signal so timed as to occur during the time of overlap of the fields of view of said pair of further television cameras such that said switch control signal will occur during the simultaneous presence of the video output signals from said first and second objects, both being viewed by both of said pair of further television cameras, in the video outputs of both of said pair of further television cameras, the timing of said switch control signal being directly related to the timings of said pair of further reference signals, said timings being set by way of said means for setting said individually changeable time delays such as to produce time coincidence of the video output signals from said pair of further television cameras deriving from objects within the overlapping fields of view of said pair of further television cameras, such as said first object and said second object, said switch control signal therefore being derivable from said pair of further reference signals by detection of the time of overlapping of the images of said pair of further television cameras; additionally means being provided to cause said switch control signal to be reset to its initial condition during the synchronizing pulses of said first reference signal; whereby the output of said first one of said pair of further television cameras will be selected following said synchronizing pulses of said first reference signal, being coincident with the start of scanning of a standard television display device on which the output of the system may be viewed, and

k. means for switching between the video signal outputs of said pair of further television cameras controlled by said switch control signal such that only one of said video signal outputs is selected at any one time, the selection being performed at those times at which the video signal outputs from a single object appearing in the fields of view of both of said pair of further television cameras are coincident in time; whereby a single continuous video output signal corresponding to a field of view part of which is derived from one, and the remainder from the other, of said pair of further television cameras, may be derived.

4,393,395

BALANCED MODULATOR WITH FEEDBACK STABILIZATION OF CARRIER BALANCE

Joseph F. Hacke, Blackwood, and Lucas J. Bazin, Vincentown, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Sep. 8, 1981, Ser. No. 300,226

Claims priority, application United Kingdom, Jan. 26, 1981, 8102283

Int. Cl.³ H04N 9/50

U.S. Cl. 358—23

11 Claims

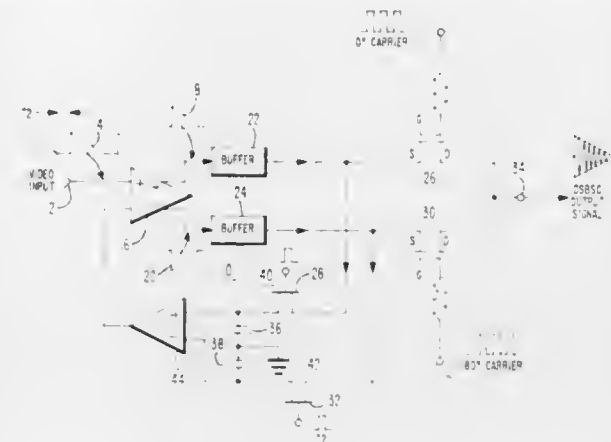
1. An improved suppressed-carrier balanced modulator for a video signal including a black-level interval comprising: a phase splitter coupled to receive the video signal for pro-

ducing first and second relatively inverse-phase output signals;

first and second modulator switches coupled to said phase splitter and to an output terminal of the modulator for alternately coupling said first and second inverse-phase output signals to said output terminal of said modulator at a carrier rate for creating a carrier suppressed by an amount dependent upon the equality of the amplitude of said first and second inverse-phase output signals, whereby inequality during the black level interval reduces said suppression;

wherein the improvement further comprises:

first and second sample-and-hold circuits, each coupled to said phase splitter for sampling one of said first and second



inverse-phase output signals for generating first and second sample signals, respectively, indicative of the value of said first and second inverse-phase signals, respectively, during said black interval;

differential amplifier means coupled to said first and second sample-and-hold circuits and responsive to the difference between said first and second sample signals for generating a control signal indicative of said difference; and coupling means coupled to the output of said differential amplifier means and to said phase splitter for forming a degenerative feedback loop for reducing said difference between said first and second sample signals for improving the equality of the amplitudes of said first and second inverse-phase signals for improving the suppression of said modulator during black intervals.

4,393,396

VIDEO SIGNAL PROCESSING CIRCUIT FOR NOISE REDUCTION

Johannes G. Raven, Eindhoven, and Marinus C. W. Van Buul, Breda, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

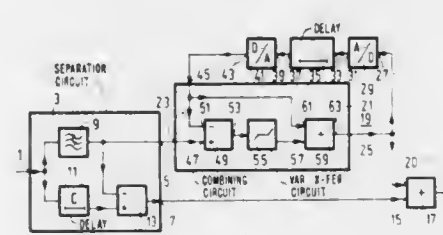
Filed Jul. 27, 1981, Ser. No. 288,250

Claims priority, application Netherlands, Aug. 20, 1980, 8004696; Jan. 27, 1981, 8100361

Int. Cl.³ H04N 5/21, 9/535

U.S. Cl. 358—36

5 Claims



1. A video signal processing circuit comprising a separation circuit having two outputs for providing separately a high-frequency and a low-frequency signal component from an input

video signal to be processed and a noise suppression circuit which operates on one of the separated video signal components received from said separation circuit, characterized in that the noise suppression circuit is coupled to the low-frequency signal component output of said separation circuit and comprises a comb filter having a delay circuit and a combining circuit, an output signal of said delay circuit being added to said low-frequency video signal component in said combining circuit.

2. A video signal processing circuit as claimed in claim 1, characterized in that, for processing video signals containing color information for a color picture to be displayed as a result of the video signal, said video signal processing circuit further comprises means, coupled to the high-frequency signal component output of said separation circuit, for providing the color information contained in the high-frequency signal component of the video signal, and a further noise suppression circuit, having a variable transfer circuit therein, coupled to the output of said color information means, and said noise suppression circuit, coupled to the low-frequency signal component output of said separation circuit, further comprises a movement detector, an output of which is coupled to said variable transfer circuit in said further noise suppression circuit for controlling the transfer factor thereof.

4,393,397

TELEVISION GHOST SIGNAL DETECTOR WITH COLOR BURST PHASE DELAY CONTROL

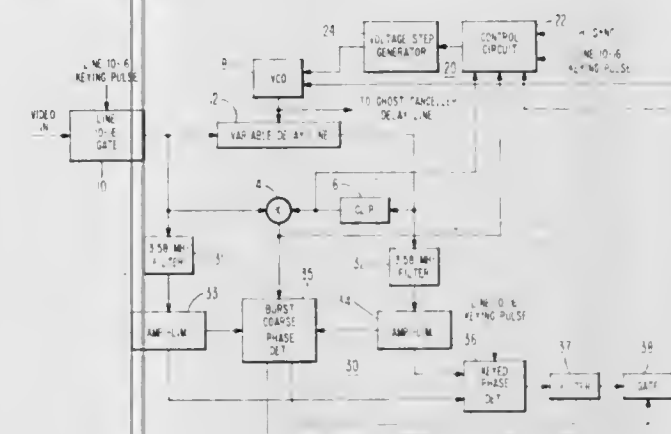
David D. Holmes, Chesterfield, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 5, 1981, Ser. No. 308,838

Int. Cl.³ H04N 5/21

U.S. Cl. 358—36

9 Claims



1. In a television receiver, including a source of video signals subject to contamination by ghost signals, said video signals including a signal interval suitable for use as a training signal interval, including a color burst signal component; a television ghost signal detector system comprising:

a variable delay line having a signal input and a signal output;

means, coupled to said variable delay line, for controlling the signal delay exhibited by said delay line between its input and its output;

means, coupled to said signal input of said variable delay line, for applying said video signals to said delay line input during said training signal interval; and

a tracking circuit having inputs coupled to the input and the output of said variable delay line, and an output coupled to said controlling means, and responsive to the appearance of a delayed burst signal component at the output of said delay line and to the appearance of a ghost of said burst signal component at the input of said delay line when a ghost signal is present, a phase detector means having inputs coupled to the input and output of said delay line for developing a control signal representative of the phase relationship of said delayed burst signal component at the output of said delay line and its ghost signal component at

the input of said delay line, and means for applying said control signal to said controlling means for controlling said variable delay line in response to the phase relationship of said delayed burst signal component and its ghost signal component.

4,393,398

APPARATUS FOR SIMULATING COLOR PRINTING PROCESS

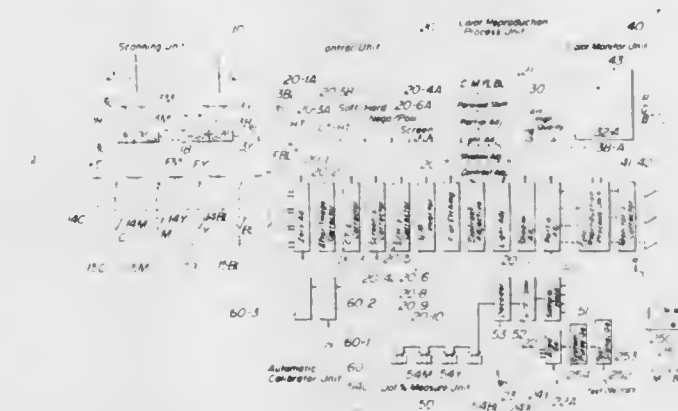
Satoru Horiguchi, Saitama; Takeshi Sasaoka, Kawasaki; Koichi Shimane, Kawasaki; Shigeru Mogi, Kawasaki; Tsuguo Yaguchi, Kawasaki, and Kazuhiko Sano, Kawasaki, all of Japan, assignors to Dai Nippon Printing Co., Ltd. and Ikegami Tsushinki Co., Ltd., both of Tokyo, Japan

Filed May 18, 1981, Ser. No. 264,421

Claims priority, application Japan, May 20, 1980, 55-65933
Int. Cl.³ G03F 3/00; H04N 9/535

U.S. Cl. 358—76

17 Claims



1. An apparatus for simulating a color printing process wherein first, second, third and fourth color separation films formed from a color original are displayed as a color image, comprising:

a scanner unit including

a film setting stage for supporting said first, second, third and fourth color separation films in a side-by-side relation;

a first flying spot scanner tube for said first and second color separation films and a second flying spot scanner tube for said third and fourth color separation films;

a lens system for projecting a raster image of the screen of said first flying spot scanner tube onto said first and second color separation films and a raster image of the screen of said second flying spot scanner tube onto said third and fourth color separation films; and

a photomultiplier for each of said color separation films, each of said photomultipliers generating a signal corresponding to a subtractive primary color signal;

control means coupled to said scanning unit for gamma-correcting said subtractive primary color signals;

color reproduction process means coupled to said control means for converting said gamma-corrected subtractive primary color signals to additive primary color signals; and

a color monitor unit for receiving said displaying said additive primary color signals, said color monitor unit including

a color cathode ray tube having green, blue and red light-emitting phosphor elements for exhibiting a color reproduction characteristic wherein the coordinates of the green-emitting phosphor elements are approximately X=0.2, Y=0.67 on the chromaticity diagram, the red-emitting and blue-emitting phosphor elements cooperating with said green-emitting phosphor elements to substantially completely reproduce the printing colors; and

driving means for driving said color cathode ray tube at a resolution of between approximately 2.1 and 3 lines per millimeter.

tracks in which substantially no eddy currents are generated on rotation of the diaphragm in a magnetic field.

4,393,404

SPECIAL SERVICES TELETXT COMMUNICATIONS SYSTEM

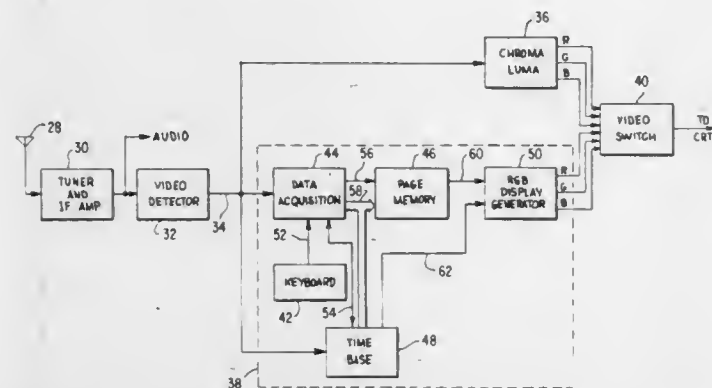
Charles M. Cox, Buffalo Grove, and William L. Thomas, Northbrook, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Feb. 26, 1981, Ser. No. 238,510

Int. Cl.³ H04N 7/00, 7/08

U.S. Cl. 358—147

6 Claims



1. In a teletext communications system including a transmitter cyclically transmitting a plurality of teletext encoded data rows a selected number of which define a data page, the first data row of each data page comprising a page-header data row characterized by a page number address code for enabling acquisition of the remaining data rows of the respective data page by each of a plurality of standard teletext decoders, the improvement comprising:

means cooperating with said teletext transmitter for inserting at least one additional page-header formatted data row in said cyclical transmission, said additional page-header formatted data rows each including selected encoded data and a page number address code adapted for preventing acquisition thereof by said plurality of standard teletext decoders; and

at least one data decoder comprising means adapted for receiving said cyclical transmission, means responsive to the page number address code of a received additional page-header formatted data row for acquiring only said additional page-header formatted data row and means comprising a single data row memory for storing the data encoded in said acquired additional page-header formatted data row.

4,393,405

SYNCHRONIZING CIRCUIT FOR MATRIX TELEVISION SET

Masayuki Ikeda, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

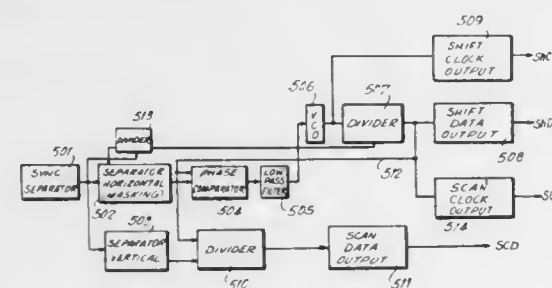
Filed Aug. 21, 1981, Ser. No. 295,192

Claims priority, application Japan, Aug. 22, 1980, 55-116278

Int. Cl.³ H04N 5/04, 5/08

U.S. Cl. 358—153

13 Claims



1. In a synchronizing circuit for a matrix television set hav-

ing display means including picture elements arranged in a matrix of lines and columns, and connected to line driver and column driver circuits respectively so as to be individually selectable in both line and column directions, and wherein display is made by selecting lines and columns successively, the improvement therein comprising:

a voltage controlled oscillator circuit, said oscillator circuit producing a shift clock signal applied to said column driver circuits for selecting individual columns in succession;

first frequency divider means for dividing down an output frequency signal from said oscillator circuit, the output of said first frequency divider means being a clock signal applied to said line driver circuits for selecting individual lines in succession;

phase comparison means, said comparison means determining the difference in phase of a output of said first frequency divider means with the phase of a horizontal synchronizing signal, said horizontal synchronizing signal being a portion of a television signal transmission, an output of said comparison means being fed back to said oscillator circuit, said feedback being in proportion to said phase difference, said oscillator circuit being adapted to adjust the output frequency of oscillation in response to said phase difference signal, said adjustment causing said phase difference to approach zero, said clock signals being synchronized with said horizontal synchronizing signal;

a second frequency divider means, said second frequency divider means further dividing the output signal from said first frequency divider, the output of said second frequency divider means being applied to said line driver circuits so as to provide vertical synchronization of picture frames in said television transmission.

4,393,406

CIRCUIT FOR MODIFYING THE GRADATION OF PICTURES PRODUCED BY VIDEO SIGNALS

Klaus Lehmann, Mühlthal, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

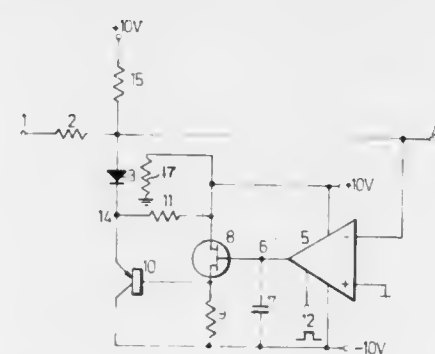
Filed Apr. 15, 1981, Ser. No. 254,447

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1980, 3016242

Int. Cl.³ H04N 5/14

U.S. Cl. 358—160

3 Claims



1. A circuit for modifying the gradation of pictures produced with video signals, comprising:

a first resistance (2) interposed between a source (1) of said video signals and an output terminal (4) for supplying video signals to picture producing apparatus;

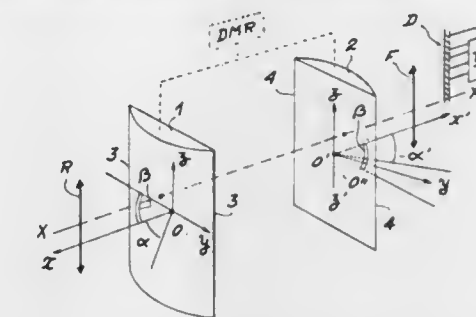
an inverting keyable amplifier (5) having its input connected to said output terminal (4) and its keying input (12) connected so as to enable said amplifier only during blanking intervals of said video signals, said amplifier having a connection to a fixed reference potential and being constituted so as to provide a current at its output (6) of a polarity dependent on whether said potential of said output terminal (4) exceeds or is less than said reference potential; a capacitor (7) connected to said output (6) of said amplifier

(5) for charging or discharging by output current of said amplifier (5) and for storing charge while said amplifier is disabled,

a diode (3) and an impedance converter (8,9,10,11) connected between said output terminal (4) and said output (6) of said amplifier in such a way that said diode is interposed between said output terminal (4) and said impedance converter and is poled so as to be conductive while the portion of said video signal between blanking intervals is provided by said video signal source (1), said impedance converter serving to cause the charging or discharging of said capacitor (7) to continue during video blanking intervals until the potential of said output terminal is substantially the same as said reference potential, and means (15) for assuring that said diode remains conducting even when said output terminal is at said reference potential,

whereby substantially a voltage fraction of said video signals is made available at said output terminal (4) which fraction is determined by the ratio of the forward resistance of said diode to the sum of said diode forward resistance and said first resistance, while the temperature dependence of said diode forward resistance is compensated, at least for the black level of said video signal, during each blanking interval.

videofrequency means for processing the signals delivered by the detectors, wherein the optical elements which are driven in rotation consist of an afocal system comprising at least two cylindrical optical elements driven together in rotation about



an axis which is perpendicular to the plane of their generator-lines and defines the optic axis of the device, and wherein the array of detectors comprises a plurality of detectors extending radially from said perpendicular axis, one of said detectors being centered on said axis.

4,393,409

FOCUSING APPARATUS FOR IMAGE PICKUP DEVICE

Kenji Kimura, Tachikawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

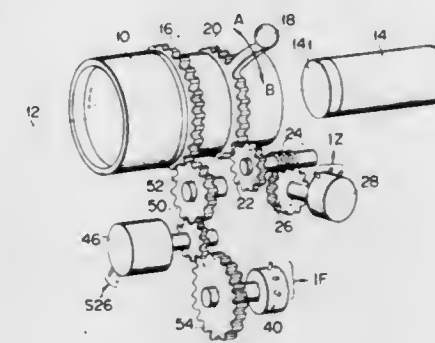
Filed May 12, 1981, Ser. No. 262,917

Claims priority, application Japan, May 30, 1980, 55-71476

Int. Cl.³ H04N 5/26

U.S. Cl. 358—227

12 Claims



4,393,407

CONTOUR CORRECTING APPARATUS FOR VIDEO SIGNALS

Yoshikazu Yokomizo, Kawagoe, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

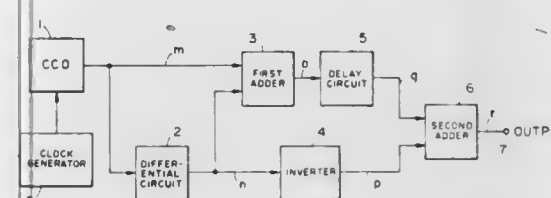
Filed Nov. 3, 1980, Ser. No. 203,445

Claims priority, application Japan, Nov. 7, 1979, 54-143972

Int. Cl.³ H04N 5/14

U.S. Cl. 358—166

35 Claims



1. A contour correcting apparatus for video signals, comprising:

differentiating means for differentiating an input video signal to produce a differentiated waveform;

delay means for delaying said differentiated waveform and said video signal for a predetermined time period to produce a delayed differentiated waveform and delayed video signal;

inverting means for phase inverting said differentiated waveform to produce a phase inverted differentiated waveform; and

combining means for combining said phase inverted differentiated waveform, said delayed differentiated waveform and said delayed video signal.

4,393,408

OPTOELECTRONIC DEVICE FOR ROTARY SCANNING OF VIDEOFREQUENCY IMAGES

Jean L. Beck, Jean F. le Bars, Yves A. Emmanuelli, and Denis Barges, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Oct. 14, 1981, Ser. No. 311,382

Claims priority, application France, Oct. 17, 1980, 80 22275

Int. Cl.³ H04N 3/06, 3/14

U.S. Cl. 358—205

16 Claims

1. An optoelectronic device for scanning videofrequency images comprising optical elements driven in rotation so as to produce an image scan, an optical element for focusing on a detection system comprising at least one array of detectors and

1. A focusing apparatus for an image pickup device comprising:

(a) an image pickup;

(b) focusing means for carrying out focus adjustment for said image pickup;

(c) zooming means coupled to said focusing means for carrying out zoom adjustment for said image pickup;

(d) first detection means coupled to said zooming means for supplying zoom data corresponding to the extent of zoom adjustment carried out by said zooming means;

- (e) drive means for actuating said focusing means in accordance with said zoom data;
said focusing means, zooming means, first detection means and drive means jointly comprising a servo loop for carrying out a prescribed adjustment of the focus in accordance with the extent of zoom adjustment carried out by said zooming means; and
(f) second detection means coupled to said focusing means for providing focus data corresponding to the extent of focus adjustment carried out by said focusing means, said focus data being used as a control target of said servo loop;
said second detection means including a screen which is connected to said focusing means and whose light transmittance varies with the extent of focus adjustment, and a photoelectric converter coupled to said screen for issuing focus data corresponding to the amount of light transmitted through said screen.

4,393,410

MULTIPLE CAMERA AUTOMATIC DIGITIZER AND METHOD

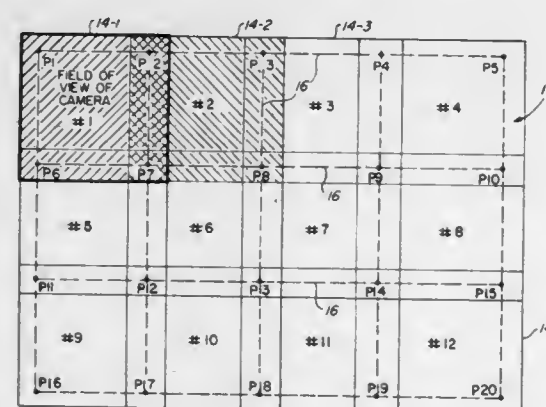
Warren J. Ridge, and Dennis C. Roberts, both of Scottsdale, Ariz., assignors to Wespac, San Diego, Calif.

Filed Nov. 13, 1981, Ser. No. 321,233

Int. Cl.³ H04N 1/10

U.S. Cl. 358—285

32 Claims



1. A method of digitizing an item, said method comprising the steps of:

- operating a first video camera to effect producing camera coordinates of first and second alignment points in the field of view of said first video camera and to effect producing a first plurality of camera coordinates of a third alignment point, said third alignment point also being in the field of view of a second video camera;
- operating said second video camera to effect producing a second group of camera coordinates of said third alignment point, and to effect producing camera coordinates of a fourth alignment point in the field of view of said second video camera;
- computing skew corrected coordinates of said first alignment point from said camera coordinates of said first and second alignment points, said skew corrected coordinates of said first alignment point being referenced to a boundary of a skew corrected camera plane of said first video camera;
- computing a first plurality of skew corrected coordinates of said third alignment point from said camera coordinates of said third alignment point and said skew corrected coordinates of said first alignment point, said skew corrected coordinates of said third alignment point being referenced to said first alignment point;
- computing skew corrected, offset corrected coordinates of said third alignment point from both said skew corrected coordinates of said third alignment point and an offset number representing the distance of a boundary of a document plane to the boundary of said skew corrected camera plane of said first video camera, said skew corrected, offset corrected coordinates of said third alignment point being referenced to the boundary of said document plane;

- computing a second plurality of skew corrected coordinates of said third alignment point from said second group of camera coordinates of said third alignment point and said camera coordinates of said fourth alignment point, said second plurality of skew corrected coordinates of said third alignment point being referenced to a boundary of a skew corrected plane of said second video camera;
- operating said second video camera to effect producing of camera coordinates of a general point in the field of view of said second video camera, said general point being a point of the item to be digitized;
- computing skew corrected coordinates of said general point from said camera coordinates of said general point and said second plurality of skew corrected coordinates of said third alignment point, said skew corrected coordinates of said general point being referenced to said third alignment point;
- computing skew corrected, offset corrected coordinates of said general point from said skew corrected coordinates of said general point and said skew corrected, offset corrected coordinates of said third alignment point, said skew corrected, offset corrected coordinates of said general point being referenced to said boundary of said document plane;
- outputting said skew corrected, offset corrected coordinates of said general point as a digitized value representing the location of said general point on said document.

4,393,411

LASER READ-WRITE SYSTEM FOR THE PRODUCTION OF ENGRAVINGS

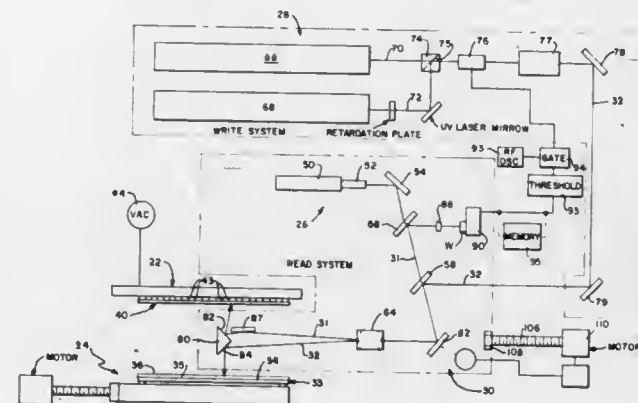
Richard E. Amtower, Laguna Niguel, Calif., assignor to American Hoechst Corporation, Somerville, N.J.

Continuation of Ser. No. 522,103, Nov. 8, 1974, abandoned. This application Jan. 10, 1977, Ser. No. 758,250

Int. Cl.³ H04N 1/42

U.S. Cl. 358—302

3 Claims



1. In a system for forming an image of an object on a writing surface: means for producing a reading beam and a writing beam for scanning of the object and the writing surface respectively, modulator means for varying the intensity of the writing beam, beam combiner means for directing the reading beam and the modulated writing beam generally together with a small divergence along a common path, beam separator means including a deflector positioned between the diverging beams with first and second surfaces for reflecting the respective beams toward the object and the writing surface, a reflector for reflecting one of the diverging beams back toward the other before the beams impinge upon the surfaces of the deflector, scanning means positioned along the common path for diverting the combined beams across a predetermined portion of the path to effect synchronous scanning of the object and the writing surface by the separated beams, and means responsive to energy received from the object as it is scanned by the reading beam for conditioning the modulator means to vary

the intensity of the writing beam to form an image of the object on the writing surface.

4,393,412

AUTOMATIC CHROMA LEVEL CONTROL CIRCUIT FOR COMPENSATING BOTH SLOW AND RAPID CHROMA LEVEL CHANGES

Mitsushige Tatami, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

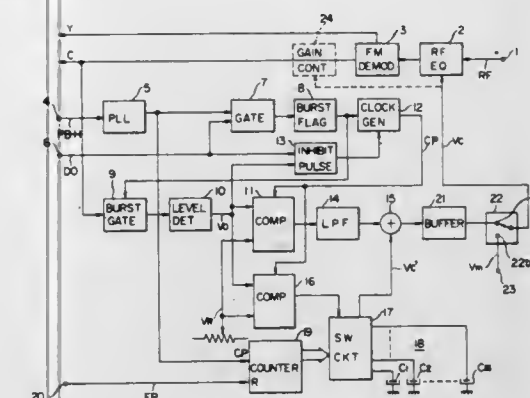
Filed Jul. 23, 1980, Ser. No. 171,452

Claims priority, application Japan, Jul. 25, 1979, 54-94404

Int. Cl.³ H04N 9/49

U.S. Cl. 358—318

9 Claims



1. An automatic chroma control circuit for compensating rapid and slow chroma level changes of chrominance signals reproduced from a video tape recorder, comprising:
means for deriving color burst signals which are representative of levels for said reproduced chrominance signals;
means connected to said color burst signal deriving means for detecting relatively rapid changes in the envelope level of the reproduced chrominance signals;
means connected to said color burst signal deriving means for detecting relatively slow changes in envelope level of the reproduced chrominance signals;
means for generating a chrominance level control signal by combining outputs of said means for detecting rapid level changes and means for detecting slow level changes of the reproduced chrominance signals; and
means for controlling amplitudes of said reproduced chrominance signals in response to said control signal derived from said chrominance level control signal generating means.

4,393,413

VELOCITY ERROR COMPENSATOR FOR TIME BASE ERROR CORRECTIONS OF PERIODIC INFORMATION SIGNALS

Shinji Kaneko, Sagami, Japan, assignor to Sony Corporation, Tokyo, Japan

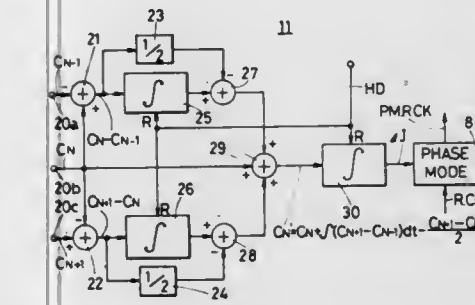
Filed Mar. 16, 1981, Ser. No. 243,855

Claims priority, application Japan, Mar. 18, 1980, 55-34615

Int. Cl.³ H04N 9/44, 9/46; G11B 5/43; H04N 5/78

U.S. Cl. 358—326

17 Claims



1. A velocity error compensator for use in a time base corrector of the type which corrects time base errors in periodic information signals having a main memory for storing plural

periods of said information signals, write-in means for writing individual periods of said information signals into said main memory at a rate synchronized with said periodic information signals, and read-out means for reading out said individual periods of said information signals from said main memory at a reference read-out rate, said velocity error compensator comprising velocity error detecting means for detecting a velocity error in each period of said information signals and for producing a velocity error signal representative thereof; velocity error storage means for storing the velocity error signals associated with a plurality of said periods of information signals; velocity error read-out means for reading out from said velocity error storage means simultaneously the velocity error signal associated with the period of information signals then read out from said main memory and the velocity error signals associated with at least the preceding and next-following periods of information signals read out from said main memory; combining means for combining the simultaneously read out velocity error signals to produce a velocity error-correction signal as a function of the simultaneously read out velocity error signals, said combining means including means for producing a gradient signal representing the gradient between the velocity error signals associated with said preceding and next-following periods of information signals, means for adjusting an offset in said gradient signal, means for summing the offset-adjusted gradient signal and said velocity error signal associated with the period of information signals then read out from said main memory and means for integrating the summed signals to produce said velocity error-correction signal; and means for modulating said reference read-out rate in accordance with said velocity error-correction signal.

4,393,414

HORIZONTAL-RATE PHASE-CHANGE OF TV PIXEL DISTRIBUTION AMONG MULTIPLE RECORDER TRACKS FOR DROPOUT CONCEALMENT

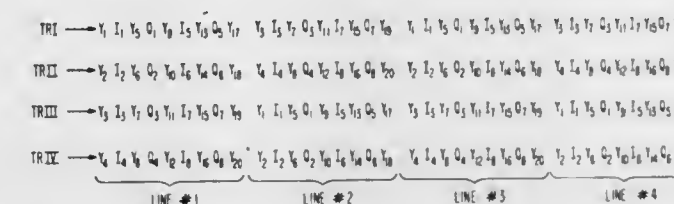
Glenn A. Reitmeier, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 9, 1981, Ser. No. 241,925

Int. Cl.³ H04N 5/92

U.S. Cl. 358—336

7 Claims

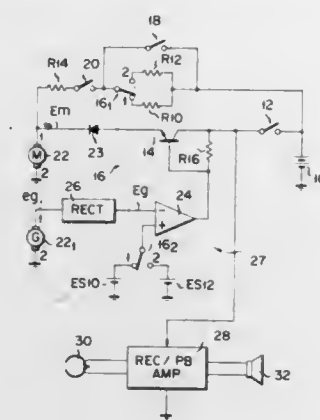


1. A television signal processing apparatus for processing signals for recording time-sampled television signals on a multitrack recording medium, said processing apparatus comprising:

controllable pixel distributing means coupled to the source of television signals and to the multitrack recording medium for distributing pixels among the tracks;
pixel-rate related control signal generating means coupled to said controllable pixel distributing means and to a source of pixel-rate clock signals associated with said source of video signals for generating pixel-rate control signals for controlling said controllable pixel distributing means for distributing time-segmented pixels received in time sequence cyclically to each track in turn whereby a dropout in a single track having a duration of less than one line allows estimation of the value of the dropped-out pixels but a dropout in a single track having a duration greater than one horizontal line drops out sufficient data so estimation from adjacent pixels is no longer possible; and
line-rate-related control signal generating means coupled to a source of line-rate signals associated with said source of television signals and with said controllable pixel distrib-

having recording, playback, cue and review modes of operation, which comprises:

- a motor selectively driveable at a speed conforming to any of at least first and second different tape run speeds for the recording or playback mode of the tape recorder and also selectively driveable at a respective different cue or review tape run speed matching each of said at least first and second tape run speeds of said recording or playback mode during operation in said cue or review mode of the tape recorder, said first and second tape run speeds of said recording or playback mode and said respective different cue or review tape run speeds being all different from each other, said cue or review tape run speeds being higher than said recording or playback tape run speeds, said first and second tape run speeds bearing respective ratios with the cue or review tape run speeds which respectively correspond to said first and second tape run speeds;
- a first settable tape run speed-changing means coupled to said motor for setting any of said different tape run speed for said cue or review mode; and
- a second settable tape run speed-changing means coupled to said motor and to said first tape run speed changing means



for setting either of said first and second tape run speeds for said recording or playback mode different from said tape run speeds for said cue and review modes, and for setting the tape run speed for said recording or playback mode interlockingly with the operation of said first tape run speed-changing means such that said first tape run speed-changing means is responsive to settings of said first second tape run speed-changing means; and

means coupled to said first and second tape run speed-changing means for controlling said motor such that when said second tape run speed-changing means sets said first tape run speed for said recording or playback mode, then said first tape run speed-changing means sets a first tape run speed for said cue or review mode different from said first tape run speed of said recording or playback mode; and when said second tape run speed-changing means sets said second tape run speed for said recording or playback mode, then said first tape run speed-changing means sets a second tape run speed for said cue or review mode different from said first and second tape run speeds of said recording or playback mode and also different from said first tape run speed of said cue or review mode.

4,393,421

RAPID STEPPING OF A MOVING RECORDED MEDIUM
George S. Zorbalas, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

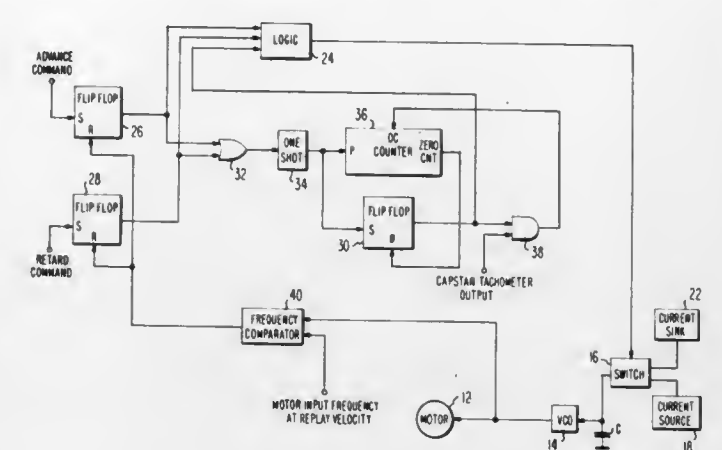
Filed Oct. 27, 1980, Ser. No. 201,055
Int. Cl.³ G11B 19/26

U.S. Cl. 360—73

8 Claims

1. A replay system for use with a recorded medium, said system comprising a medium driving means for initially moving said recorded medium at its normal velocity, input means for receiving an external reference clock, and control means coupled to said driving means and to said input means for receiving an external reference clock for changing the velocity of the recorded medium from the

normal replay velocity during a first interval and immediately thereafter changing the velocity of the recorded medium back to the normal replay velocity during a sec-



ond interval of equal duration with said first interval to thereby temporarily step the velocity of the recorded medium relative the normal playback velocity within specific reference clock and position increments.

4,393,422

DEVICE FOR DRIVING MAGNETIC TAPE

Nobuyoshi Yokobori, Osaka; Masashi Urayama, Neyagawa; Hiroshi Okamoto, Yao, and Yoshiaki Igarashi, Ikomashi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

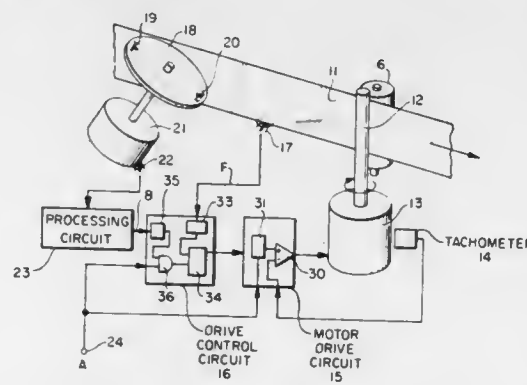
Filed Apr. 2, 1981, Ser. No. 250,296

Claims priority, application Japan, Apr. 2, 1980, 55-43956

Int. Cl.³ G11B 15/52, 19/28

U.S. Cl. 360—73

1 Claim



1. A device for intermittently driving a magnetic tape comprising:
 - a capstan for driving said magnetic tape;
 - a motor directly connected to said capstan for driving the capstan;
 - a tachometer for detecting the rotating speed of said motor and producing an output;
 - a speed control means having a settable speed means for setting a desired motor speed and into which the output from said tachometer is fed back for enabling said speed control means to sense when said motor is rotating at the desired motor speed;
 - an intermittent drive control means for supplying a triggering signal to trigger said settable speed means to cause said settable speed means to operate said speed control means for accelerating said motor to the desired motor speed and driving it at said speed, said intermittent drive control means including means for generating said triggering signal in response to a speed setting signal and a head switch signal; and
 - means for detecting a control signal recorded on said magnetic tape while said motor is being driven at said desired

speed and connected to said intermittent drive control means;

said intermittent drive control means further having means responsive to the detection of said control signal for discontinuing said triggering signal after the passage of a predetermined period of time for causing said settable speed means to decelerate the driving of said motor from said desired motor speed, whereby the position of said magnetic tape relative to the position of the recorded control pulse at the end of the deceleration by said speed control means is constant.

4,393,423

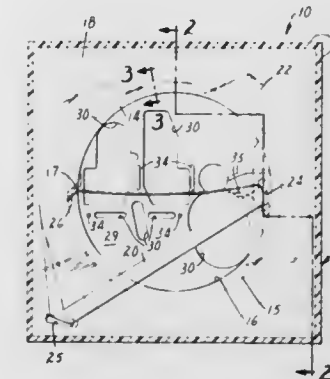
ENDLESS LOOP TAPE MAGAZINE, AND A RECORDING AND/OR PLAYBACK MACHINE UTILIZING THE MAGAZINE

Alfred H. Morris, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 27,312, Apr. 5, 1979, Pat. No. 4,293,882, which is a continuation of Ser. No. 820,250, Jul. 29, 1977, abandoned. This application May 11, 1981, Ser. No. 262,311

Int. Cl.³ G11B 15/00

U.S. Cl. 360—93

2 Claims



1. In combination:

a magazine comprising:

- a housing comprising a cylindrical hub having a central opening and a slot extending axially across the full width of the hub and communicating with said central opening, and first and second spaced opposed flanges extending radially outwardly from said hub; and
- an endless length of strip material having a major portion wrapped about said hub between said flanges and a minor portion extending from the innermost wrap of the coil through said slot, partially across said central opening and around the side surface of the coil to the outermost wrap of the coil;
- said flanges being spaced by a dimension exceeding the width of said strip material in the range of about 0.025 inch to about 0.05 inch to provide a space between the coil and the flanges, which space allows shifting of said coil axially along said hub;

a recording and/or playback machine comprising: means defining a station for releasably receiving said magazine;

- drive means having members within said central opening of the magazine received in said station and in driving engagement with said minor portion of said strip material for pulling said strip material through said slot from said innermost wrap with the edges of said strip material between said drive mechanism and said hub generally coplanar with the edges of said coil;

a transducer positioned within said central opening of the magazine received in said station and said strip material between said drive mechanism and the slot in said hub; and

means within said central opening of the magazine received in said station for guiding said strip material in a precise predetermined path along said transducer; said means for defining a station being adapted to position

said magazine so that the spacing between said flanges will afford axial shifting of said coil to align the edges of said coil with the edges of the strip material along said means for guiding to compensate for misalignment of said magazine with said means for receiving and dimensional irregularities in said magazine.

4,393,424

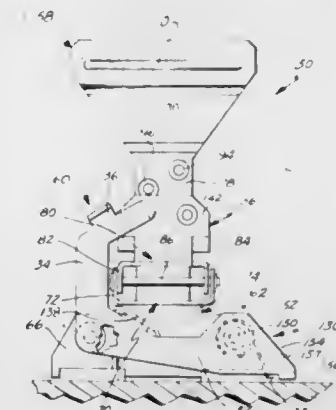
PRESSURE ARM ASSEMBLY FOR DISC RECORDERS Mohan P. Vidwans, Saline, Mich., assignor to Syco, Inc., Ann Arbor, Mich.

Continuation of Ser. No. 50,704, Jun. 21, 1979, abandoned. This application Feb. 18, 1981, Ser. No. 235,587

Int. Cl.³ G11B 5/54, 25/04

U.S. Cl. 360—105

19 Claims



1. A pressure arm assembly adapted for use in a data recorder of the type including a base, a diskette holder pivotally mounted to the base, a head support assembly carrying at least one head thereon and being adjustably mounted on the recorder to move the head into and out of operation contact with a disc medium positioned within the holder, and drive means engaging the head support for translating the head support and hence the head along the disc medium, said pressure arm assembly comprising:

- a bracket adapted to be secured to the base of the data recorder;
- a pressure arm;
- means for pivotally connecting said pressure arm to said bracket and for permitting a portion of said pressure arm to rotate towards and away from the head support assembly;
- resilient mechanical means for biasing the pressure arm towards the head support assembly; and
- a release member carried by the bracket and being movable with respect to said pressure arm, said release member having a first position wherein said release member abuts said pressure arm and holds the pressure arm away from said head support assembly against the bias of said resilient mechanical means, and a second position wherein said release member disengages said pressure arm upon insertion of a diskette into the diskette holder, thereby permitting said resilient mechanical means to move said pressure arm into engagement with the head support assembly and force the head into operative contact with the disc medium.

4,393,425

LINEAR HEAD ACTUATOR

Harold T. Wright, San Carlos, Calif., assignor to Disctron, Inc., Milpitas, Calif.

Filed Mar. 30, 1981, Ser. No. 248,809

Int. Cl.³ G11B 5/54, 21/24

U.S. Cl. 360—105

6 Claims

1. An actuator for translating at least one magnetic head comprising:

- a moveable carriage element carrying said at least one mag-

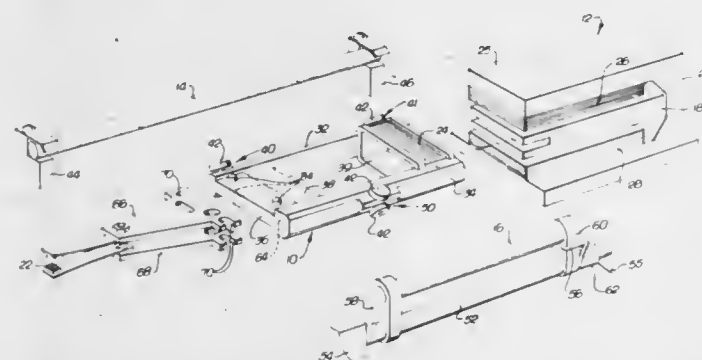
netic head having two parallel sides, a closed end and an open end, said carriage element being generally U-shaped and carrying bearing means located along the outside of each of said two parallel sides;

a stationary first guide rod adjacent and parallel to a first of said two parallel sides of said moveable carriage element cooperating with said bearing means located along said first of said two parallel sides;

a second guide rod adjacent and parallel to the second of said two parallel sides of said moveable carriage element cooperating with said bearing means located along said second of said two parallel sides, said second guide rod being non-moveable in a direction along its length, said carriage element being moveable linearly on said bearing means along said guide rods;

biasing means spaced from said moveable carriage for forcing said second guide rod against said bearing means located along said second of two parallel sides;

an electrical coil mounted across said open end of said moveable carriage element, said coil oriented in a plane gener-



ally perpendicular to the parallel sides of the moveable carriage element; and

a stationary magnet structure positioned between said stationary first guide rod and said second guide rod, said stationary magnet structure having a first member extending within said coil and between said parallel sides of said moveable carriage element, said coil being moveable along almost the entire length of said first member, said stationary magnet structure having at least one other member in addition to said first member extending outside said coil parallel to said first member and connected to said first member at one end, said members defining a magnetic flux path with a magnetic flux gap therebetween in which said coil is located so that when current passes through said coil, magnetic flux crossing said gap will cause said coil to experience a force, said force causing said coil to move along said first member extending within said coil, the direction of movement of said coil depending on the direction of said current in said coil, thereby moving said moveable carriage element along said guide rods.

4,393,426

TAPE RECORDER HEAD ADJUSTING MECHANISM
Yasuyuki Nakanishi, Nagaokakyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed May 6, 1981, Ser. No. 260,989
Claims priority, application Japan, May 16, 1980, 55/65728
Int. Cl.³ G11B 5/54, 21/22

U.S. Cl. 360—105

3 Claims

1. A tape recorder head adjusting mechanism comprising:
a movable pin constrained for reciprocation along a path, means for intersecting a recording tape with said path, a head base including means for moving said head base with said pin,
a head fixed to said head base, whereby said head is movable towards and away from said recording tape along said path,
a cam rotatable about an axis transverse to said path,

means for biasing said pin into contact with a cam surface of said cam,
means for rotating said cam about said axis, whereby rotation of said cam causes said pin, said head base and said head to move along said path,
first and second movable plates reciprocable in a first direction transverse to said path,
means for selectively moving said first plate into intersection with said path at a first position along said path, and



means for selectively moving said second plate into intersection with said path at a second position, spaced from said first position, along said path, whereby either said cam, said first plate or said second plate can selectively restrain said pin in one of three positions along said path, so that said head can be selectively restrained in three positions relative to said tape.

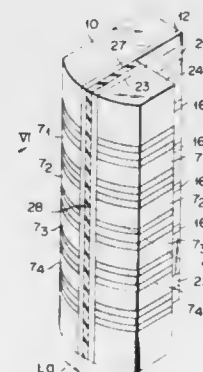
4,393,427

MULTICHANNEL MAGNETIC HEAD

Yoshifumi Sakurai, Minoo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Dec. 23, 1980, Ser. No. 220,197
Claims priority, application Japan, Jan. 18, 1980, 55-4303
Int. Cl.³ G11B 5/38, 5/12, 5/22

U.S. Cl. 360—112

7 Claims



1. A multichannel magnetic head means comprising:
magnetic circuit means including a gap for detecting a magnetic flux and adapted to lead said magnetic flux;
an amorphous magnetic thin film held in said gap and consisting essentially of an alloy containing a rare earth element and a transition metal, said thin film having a single pair of current terminals and a plurality of Hall voltage terminals;
said amorphous thin film being arranged such that its surface is positioned substantially normal to the direction of the magnetic flux to be detected, and the composition ratio of said rare earth element is selected to be within a range of from about 10 to about 40 atomic percent so that said amorphous thin film has a magnetic anisotropy in a direction substantially normal to the surface thereof;
current leading means connected to said single pair of current terminals for leading a biasing current of said thin film along said gap;
the spacing between adjacent ones of said Hall voltage

terminals for outputting said Hall voltage being more than about four times the width of said amorphous thin film so that crosstalk between channels due to domain wall motion is substantially eliminated;

said magnetic circuit means comprising a first ferromagnetic block and a second ferromagnetic block, each of said first and second ferromagnetic blocks having one or more ferromagnetic shielding portions which are sandwiched between non-magnetic portions arranged on said magnetic circuit means, said magnetic circuit means of said first ferromagnetic block being face to face with said magnetic circuit means of said second ferromagnetic block, and said first and second ferromagnetic blocks holding said amorphous magnetic thin film therebetween; and
voltage outputting means connected to said Hall voltage terminals for outputting a Hall voltage for each channel corresponding to said magnetic flux, said voltage outputting means being provided in the corresponding number to the channels of said head and extending parallel to the direction in which said biasing current flows.

4,393,428

MAGNETIC HEAD

Masayuki Fujimura, Chichibu, Japan, assignor to Canon Kabushiki Kaisha, Tokyo and Canon Denshi Kabushiki Kaisha, Saitama, both of Japan

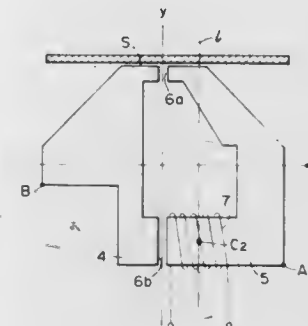
Filed Jan. 30, 1981, Ser. No. 229,934

Claims priority, application Japan, Feb. 12, 1980, 55-16454

Int. Cl.³ G11B 5/20

U.S. Cl. 360—123

5 Claims



1. A magnetic head comprising:
first and second core segments together defining a confronting surface along which a recording medium may travel in confronting relation;
said first core segment being made of a high permeability substance and being formed with a first portion defining a section of said confronting surface and a first end surface facing toward an axis which is perpendicular to said confronting surface, said first core segment further being formed with a second portion disposed remote from said confronting surface and having a second end surface also facing toward said axis, said first core segment forming a part of a magnetic circuit;
a coil wound about said first core segment in the region of said second portion; and
said second core segment being made of a high permeability substance and being disposed substantially in abutting relation with said first core segment to form a magnetic gap having one boundary defined by said first end surface and to form a remote gap having one boundary defined by said second end surface, said second core segment being asymmetrical relative to said first core segment about a line which passes through said magnetic gap and said remote gap and forming another part of said magnetic circuit, said second core segment further being formed with a unitary projecting portion, projecting away from said axis, of shape and size to compensate for said coil wound on said first core segment and thus to provide for a magnetic balance line generated in said magnetic head to be approx-

imately parallel to a line which passes through said magnetic gap and said remote gap.

4,393,429

SUPERCONDUCTIVE COIL SYSTEM WITH PROTECTING DEVICE

Naoki Maki, Tokai; Seiji Numata; Kiyoshi Yamaguchi, both of Ibaraki, and Heroe Yamamoto, Tokai, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

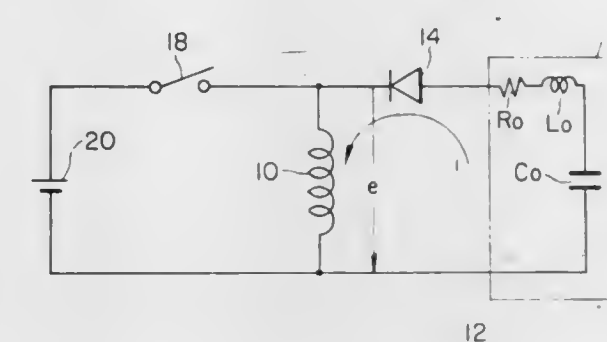
Filed Apr. 24, 1981, Ser. No. 257,375

Claims priority, application Japan, Apr. 24, 1980, 55/53618

Int. Cl.³ H03K 3/38

U.S. Cl. 361—19

7 Claims



1. A superconductive coil system comprising: a superconductive coil adapted to be energized when in a normal running operation by an energizing power source; and a protecting device connected in parallel with said superconductive coil for absorbing a portion of the magnetic energy of said superconductive coil when in the quenching operation of said superconductive coil,

wherein said protecting device includes: a unidirectional current gate device for allowing a coil current to flow only in the same direction as that of the normal running operation when in the quenching operation of said superconductive coil; and a d.c. motor connected in series with said unidirectional current gate device.

4,393,430

MULTI-PHASE FAILURE DETECTOR

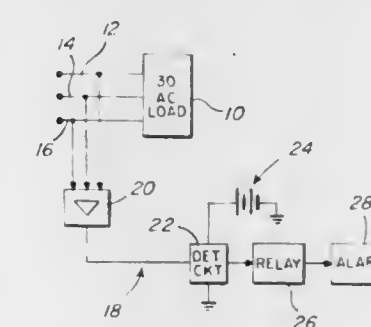
Jack H. Hughes, 4812 Lone Hill Rd., Chattanooga, Tenn. 37416

Filed Jun. 8, 1981, Ser. No. 271,190

Int. Cl.³ H02H 3/24

U.S. Cl. 361—92

11 Claims



1. A protective system for electrical loads connected in delta or wye configuration by a plurality of power phase lines to an AC polyphase power supply, comprising rectifier means coupled to each of said power phase lines for establishing rectified phase currents that are time spaced in response to failure in at least one of the power phase lines, a source of DC voltage, means connecting said source to the rectifier means for insertion of a signal current only between the rectified phase currents that are time spaced and detector means connected to the rectifier means for sensing said inserted signal current between the phase currents that are time spaced reflecting said failure in at least one of the power phase lines.

4,393,431

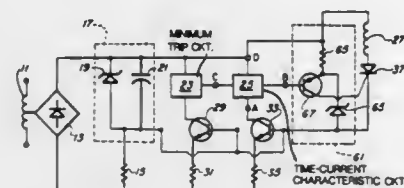
OVERCURRENT RELAY CIRCUIT

Clyde Gilker, S. Milwaukee, Wis., assignor to McGraw-Edison Company, Rolling Meadows, Ill.

Filed Apr. 23, 1980, Ser. No. 142,880
Int. Cl.³ H02H 9/02

U.S. Cl. 361-97

13 Claims



1. An overcurrent relay circuit comprising:
 - a relay trip coil to be energized when the AC current in a line being monitored exceeds a predetermined magnitude;
 - a current transformer to produce a signal proportional to the current in the line being monitored;
 - a rectifier to produce a DC signal from the output of said current transformer;
 - a test resistor across which a voltage indicative of the magnitude of the current in the line being monitored is developed by the output of said rectifier;
 - a minimum trip circuit responsive to the voltage developed across said test resistor to produce an output signal representative of the magnitude of the current in the line being monitored, after the magnitude of such current exceeds a predetermined level;
 - a time-current characteristic circuit responsive to the output signal of said minimum trip circuit to initiate energization of said relay trip coil with a time delay dependent upon the extent to which the magnitude of the current in the line being monitored exceeds the predetermined level including, a first RC timing circuit having a first timing capacitor and a first timing resistor with fixed capacitance and resistance values respectively, a first pair of operational amplifiers connected in an inverse feedback configuration between said first timing capacitor and said first timing resistor, and a first variable resistor connected to permit adjustment of the effective capacitance of said first timing capacitor upon changing the resistance of said first variable resistor; and
 - a power supply circuit in series with said test resistor to provide energizing power for said relay trip coil, said minimum trip circuit and said time-current characteristic circuit from the output of said rectifier.

4,393,432

SAFETY DEVICE FOR A CONDUCTING PATH IN A LOAD DEVICE

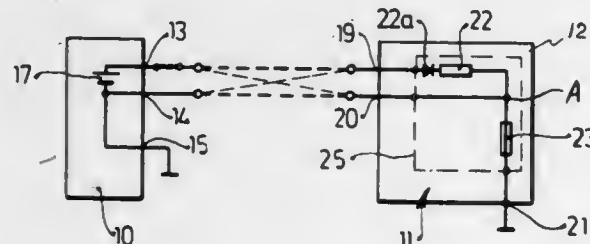
Dieter Neuhaus, Sulzbach; Gerhard Sohner, Remshalden; Walter Ruf, Korntal-Munchingen; Erich Jesse, Marbach, and Helmut Roth, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Continuation of Ser. No. 872,139, Jan. 25, 1978, abandoned. This application Feb. 21, 1980, Ser. No. 123,150

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1977, 2703255; Oct. 27, 1977, 2748267

Int. Cl.³ H02H 3/00, 7/20

U.S. Cl. 361-104

8 Claims



1. In combination with a user device and a current supply

device, each device having at least two terminal connections and a ground connection, one of the terminal connections of the current supply device being connected to its ground connection, one of the terminal connections of the user device being connected to its ground connection, the other terminal connection of the user device being connected to a load element in the user device, a diode means in series with said load element between said other terminal of said user device and said load element; said load element also being connected to the ground connected terminal connection, of the user device said two terminal connections of both devices being engageable to produce a current flow, and a safety device within the user device connected between the ground connected terminal connection of the user device and the ground connection of the user device whereby during correct polarization of said user device, no current flows through said safety device, and during incorrect polarization of said user device said safety device operates to isolate said user device ground connection from said ground connected terminal connection.

4,393,433

OVERVOLTAGE PROTECTOR FOR TELEPHONE LINES

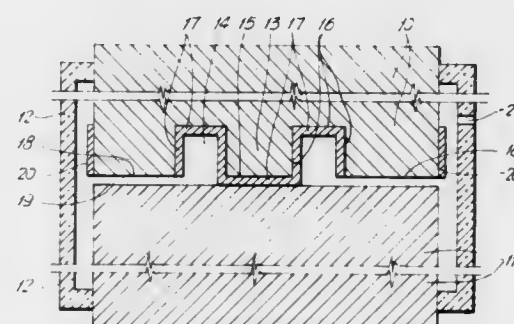
James E. Anderson, Almonte; John D. Lee, Manotick, and Frederick C. Livermore, Stittsville, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Jul. 16, 1981, Ser. No. 284,005

Int. Cl.³ H02H 9/06

U.S. Cl. 361-119

18 Claims



1. An overvoltage protector comprising:
 - a tubular housing of dielectric material;
 - two electrodes in said housing, said electrodes each having an inner end surface, said inner end surfaces being in mutual opposition; said inner end surface of at least one of said electrodes comprising a central portion, an annular groove extending around said central portion, and an outer annular portion extending around said annular groove;
 - a dielectric layer extending across said central portion and at least partly into said annular groove, said dielectric layer being clamped between the juxtaposed central portions of said electrodes;
 - means for making electrical connections to said electrodes, wherein said outer annular portion is spaced from the corresponding opposed inner surface of the other of said electrodes to form a spark gap therebetween, said spark gap being substantially aligned laterally with the plane of said dielectric layer.

4,393,434

CAPACITANCE HUMIDITY SENSOR

Yoshio Imai, No. 3-36-3, Horinouchi, Suginami-Ku, Tokyo; Yoichi Nabeta, Machida, and Tadao Inuzuka, Kawasaki, all of Japan, assignors to Yoshio Imai, Tokyo, Japan

Filed Nov. 20, 1981, Ser. No. 323,586

Claims priority, application Japan, Dec. 16, 1980, 55-176504

Int. Cl.³ H01G 7/00

U.S. Cl. 361-286

5 Claims

1. A capacitance humidity sensor which comprises a non-conductive base plate, electrodes oppositely arranged on the

4,393,436

CHASSIS ASSEMBLY

Shigekata Sugiura, and Susumu Kanno, both of Soma, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

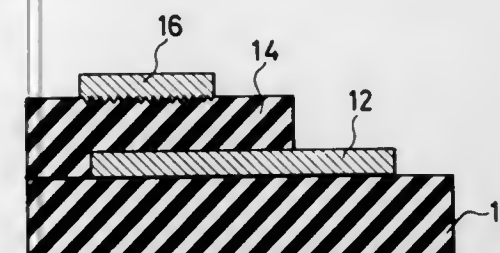
Filed Jul. 31, 1980, Ser. No. 174,225

Claims priority, application Japan, Aug. 4, 1979, 54-107958[U]

Int. Cl.³ H05K 5/04

U.S. Cl. 361-380

6 Claims



being active to the humidity, and a moisture permeable metal skin formed on the roughened surface of the metal compound membrane.

4,393,435

REPAIRABLE FLUORESCENT LAMP BALLAST

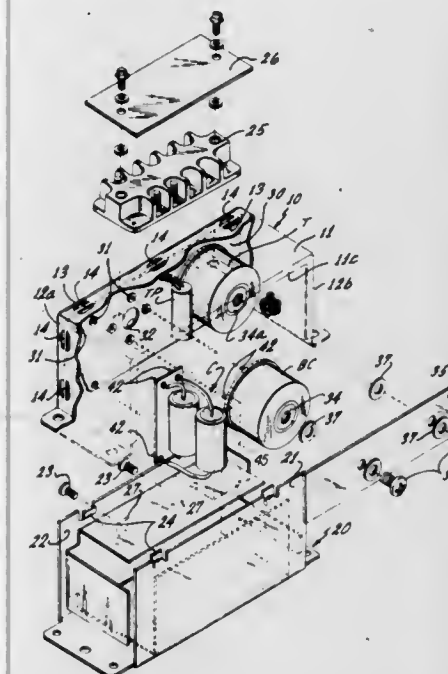
Robert J. Petrina, Anaheim, Calif., assignor to Bruce Industries, Inc., Gardena, Calif.

Filed Jul. 21, 1980, Ser. No. 170,899

Int. Cl.³ H05K 7/20

U.S. Cl. 361-377

14 Claims



1. A repairable ballast for fluorescent lamps, the ballast including at least one transformer, ballast coil means and capacitor means, and a support and mounting structure, comprising:
 - a metal, frame-like housing;
 - a metal cover on the housing and defining therewith a complete enclosure;
 - a printed circuit board having a plurality of sockets, the transformer, the coil means, and the capacitor means being provided with pins and being removably inserted respectively in the sockets of the plurality, the circuit board being mounted to the housing, becoming thereby part of said enclosure;
 - threaded means for additionally releasably securing the transformer and the coil means to the enclosure;
 - supplemental releasable means disposed for holding the capacitor means in place;
 - thermal conduction means in physical engagement with the coil means and the transformer, and in physical and releasable engagement with the surface portion of a metallic part of the enclosure; and
 - the coil means, the capacitor means, and the transformer being directly removable upon release of the threaded means by unplugging them from the board, the enclosure not being filled with any potting material.

1. A chassis assembly for electric components, comprising:
 - a main chassis made of a metallic material and having a plurality of recesses projecting outwardly from the bottom wall thereof, each of said recesses being provided with an aperture formed centrally therein; and
 - a sub-chassis carrying at least one electric part and having means including metallic legs adapted to be inserted into respective ones of said apertures with said legs being projected exteriorly through said apertures of said recesses so that said legs can be soldered to the outside of said main chassis for securing said sub-chassis within said main chassis.

4,393,437

COOLING MEANS FOR CIRCUIT ASSEMBLIES EACH INCLUDING HOLLOW STRUCTURES SPACED APART IN A CONTAINER

Melvyn R. Bell, Crossgates, and Charles D. Thomson, Edinburgh, both of Scotland, assignors to Ferranti Limited, Cheadle, England

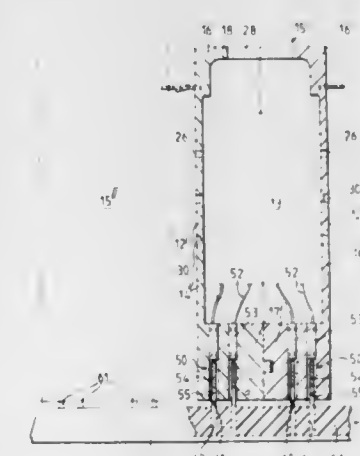
Continuation of Ser. No. 92,454, Nov. 7, 1979, abandoned. This application Jul. 16, 1981, Ser. No. 284,095

Claims priority, application United Kingdom, Nov. 11, 1978, 44145/78

Int. Cl.³ H05K 7/20

U.S. Cl. 361-383

15 Claims



1. A circuit assembly having a plurality of subassembly units, each subassembly unit having a planar substrate, with constituent components of the circuit assembly being mounted on the substrates, the plurality of subassembly units being connected together to complete the required circuit, the circuit assembly also having a plurality of identical, substantially enclosed, hollow structures, the substrate of each subassembly unit considered individually comprising at least part of a wall of a substantially enclosed hollow structure, at least one substrate

being included in each such structure, the constituent plurality of structures being mounted spaced apart from each other within an at least substantially enclosed container, one other wall of each structure providing part of a closure wall for the container, the container closure wall defining passages communicating with the interiors of the structures, the other container walls defining at least one further passage communicating with the regions within the container surrounding the structures, the walls of the structures within the container defining holes communicating with both the interiors of the structures and the regions within the container surrounding the structures, and there being provided a supply of cooling fluid connected to at least one passage defined by a container wall, there being a flow of cooling fluid through the container, between the interiors of the hollow structures and the regions within the container surrounding the structures, the arrangement being such that the holes defined by the walls of the hollow structures within the container cause the cooling fluid to flow directly over said components of the circuit assembly which are spaced from the holes and which generate heat, each of the hollow structures having a plurality of spaced, readily removable portions providing the holes when removed for the flow of cooling fluid between the regions within the container surrounding the hollow structures, and within each hollow structure.

4,393,438

PORCELAIN COATED METAL BOARDS HAVING INTERCONNECTIONS BETWEEN THE FACE AND REVERSE SURFACES THEREOF

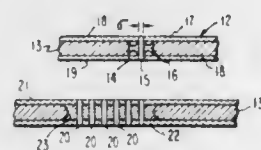
Robert L. Schelhorn, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 133,255, Mar. 24, 1980, Pat. No. 4,328,614. This application Dec. 7, 1981, Ser. No. 328,435

Int. Cl.³ H05K 1/18

U.S. Cl. 361-401

1 Claim



1. A porcelain coated metal board of a given thickness comprised of, in combination, a metal core having defined therein an aperture of a predetermined cross-sectional size, a connector having a length sufficient to extend through at least the entire thickness of said board and having a cross-sectional size less than said predetermined cross-sectional size of the aperture, a glass sealing member and first and second porcelain layers, said metal core being positioned between said porcelain layers, said connector being positioned within said aperture in a spaced apart relationship from the edges of the aperture and being oriented so as to extend through the entire thickness of said board, said glass sealing member being formed in the aperture between the connector and the edges of the aperture thereby holding said connector in said position relative to the metal core and said first and second layers of porcelain being formed about said connector in a flat configuration.

4,393,439

CONVERTIBLE LANTERN AND REFLECTOR THEREFOR

Harry E. James Jr., 75 Forbes Rd., Bedford, Ohio 44146

Filed Jul. 23, 1980, Ser. No. 171,307

Int. Cl.³ F21V 17/00

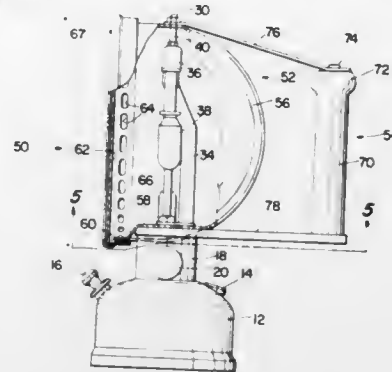
U.S. Cl. 362-182

11 Claims

1. A reflector for use with a portable lantern having a base portion, a light-emitting element positioned above the base portion, and a translucent housing surrounding the light-emitting

element, the reflector adapted to replace the housing and enable the lantern to operate as a spotlight, comprising:

- a shell disposed about the light-emitting element, the shell having a light-reflective inner surface;
- openings in the shell to permit the ingress and egress of cooling air;



- a window secured to the open side of the shell; and
- a handle attached to the lantern by which the lantern can be readily maneuvered, the handle being positioned on that side of the shell opposite the window.

4,393,440

COVER ASSEMBLY FOR AIRPORT GUIDANCE LIGHT

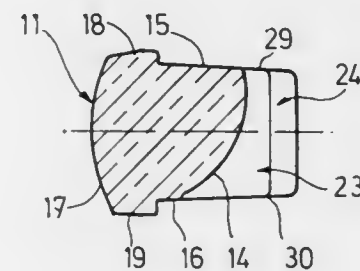
Jacques L. Yperman, Kraainhem, Belgium, assignor to Societe Anonyme des Etablissements Adrien de Backer, Brussels, Belgium

Filed Mar. 15, 1982, Ser. No. 358,278

Int. Cl.³ F21V 7/00

U.S. Cl. 362-309

3 Claims



1. A cover assembly for an airport runway guidance light, comprising a cover having a plurality of holes for securement on top of a light base, said cover having a central top portion formed with at least one window for the exit light beam and an upwardly inclined ramp in front of said at least one aperture; and

optical system means comprising a light source and at least one lens means hermetically mounted in said at least one window for the exit light beam, said lens means having a central refracting portion and two lateral total reflecting portions, the central refracting portion being formed with a first surface with double curvature towards the light source with flat upper and lower faces and a second surface with double curvature on its outer side with flat upper and lower faces, the lateral total reflecting portions being each formed with indentations protruding towards the light source in symmetric relation with respect to the optical axis of the exit light beam, each indentation having a curved face towards the light source, an inclined planar face transversal to the optical axis, and flat upper and lower faces, and each of said lateral portions having each a planar surface extending perpendicular to the optical axis on the outer side of the lens.

4,393,441

HIGH VOLTAGE POWER SUPPLY

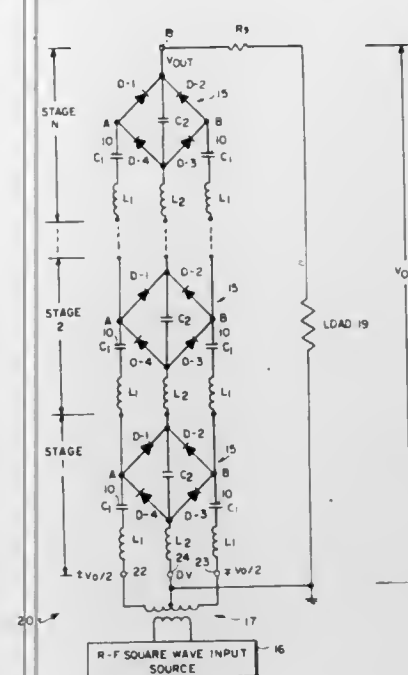
Harald A. Enge, 26 Prince Ave., Winchester, Mass. 01980

Filed Jul. 17, 1981, Ser. No. 284,483

Int. Cl.³ H02M 7/10

U.S. Cl. 363-61

14 Claims



1. A power supply for producing a DC output voltage comprising

- a plurality of serially-connected voltage producing stages including a first stage, a final stage, and intermediate stages therebetween, each of said stages including bridge rectifier means having first and second side-string terminals and first and second center-string terminals; a first circuit having series-connected, side-string capacitance and inductance means; a second circuit having series-connected, side-string capacitance and inductance means; and center-string capacitance means connected between said center-string terminals;
- an AC input voltage source, having a pair of output terminals for supplying an AC voltage having a substantially square wave shape;
- the first circuit of said first stage connected between one of the output terminals of said AC input voltage source and the first side-string terminal of the first stage bridge rectifier means;
- the second circuit of said first stage connected between the other of the output terminals of said AC input voltage source and the second side-string terminal of the first stage bridge rectifier means;
- the first center-string terminal of the bridge rectifier means of said first stage being connected to a first DC output terminal;
- the first circuit of each successive stage connected between the first side-string terminal of its bridge rectifier means and the first side-string terminal of the bridge rectifier means of the preceding stage;
- the second circuit of each successive stage being connected between the second side-string terminal of its bridge rectifier means and the second side-string terminal of the bridge rectifier means of the preceding stage;
- center-string inductance means connected from the first center-string terminal of the bridge rectifier means of each successive stage to the second center-string terminal of the bridge rectifier means of the preceding stage and from the first center-string terminal of said first stage to the first DC output terminal;
- the product of the values of the inductance means and the capacitance means of said first and second circuits of each of said stages and the product of the values of the center-string capacitance means and the center-string inductance

means of each of said stages being selected to be substantially equal; the center-string terminal of the bridge rectifier means of the final stage providing a second DC output terminal.

4,393,442

PROCEDURE AND MEANS FOR MONITORING CURRENT DATA IN A THYRISTOR-CONTROLLED DIRECT CURRENT DRIVE

Matti Kähköpuro, Hyvinkää, Finland, assignor to Elevator GmbH, Barr, Switzerland

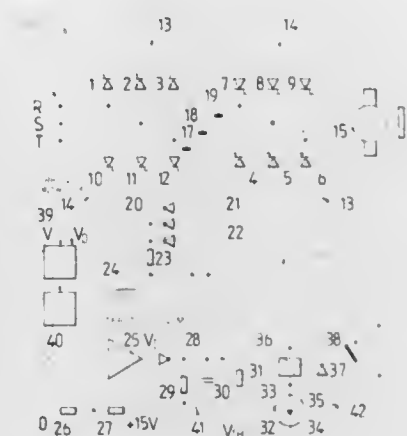
Filed Dec. 22, 1980, Ser. No. 218,767

Claims priority, application Finland, Dec. 28, 1979, 794076

Int. Cl.³ H02M 7/17

U.S. Cl. 363-70

4 Claims



1. A method of monitoring current data in a thyristor controlled direct current drive circuit, comprising the steps of: applying three phase A.C. current to terminals R, S, T connected to inputs of a pair of parallel thyristor bridges; applying a D.C. current output to a D.C. motor electrically in circuit as a load; applying A.C. current to current sensing transformers in parallel relation to thyristor bridge inputs connected to three rectifying diodes and having D.C. output terminated across a resistor; feeding rectified A.C. to a current controller connected to an igniter unit, causing said igniter unit to fire said thyristors in proper timing sequence through action of said igniter unit, whereby the output D.C. current of said thyristor bridges exhibit proper amplitude and polarity, causing said D.C. motor to operate; feeding voltage generated across said resistor to an operational amplifier and feeding its output to a time delay circuit; directing the output voltage of said delay circuit to an emergency stop circuit, employing a relay having associated contacts responsive to said output voltage, whereby, a zero voltage condition in excess of a predetermined time, energizes said relay causing said contacts to close and indicate a stop condition.

4,393,443

MEMORY MAPPING SYSTEM

John Lewis, Tigard, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed May 20, 1980, Ser. No. 151,541

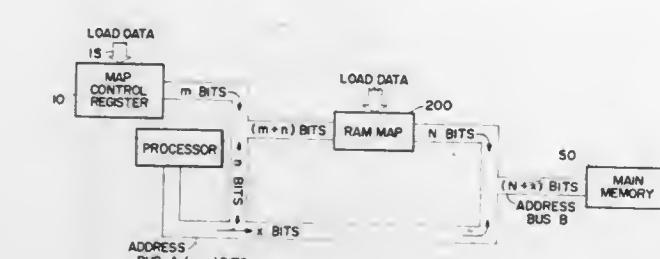
Int. Cl.³ G06F 9/36

U.S. Cl. 364-200

10 Claims

1. A memory mapping system comprising: a first address bus portion having a first set of n lines and a second set of x lines, for receiving logical address information; a second address bus portion for providing physical address information to main memory means of a computer, said second address bus portion having a first set of N lines, where N is greater than n, and a second set of x lines connected to the second set of x lines of the first address bus portion; random access memory means having n input lines con-

connected to the first set of n lines of the first address bus portion and N output lines connected to the first set of N lines of the second address bus portion, said random access memory means having a plurality of memory regions which are individually selectable for connection to said n input lines and to said N output lines, and each memory region being operative, when selected, to transform information provided on said n input into information on said N output lines; and



control register having input means for receiving data and output means at which said data is made available and operatively connected to the random access memory means for utilizing said data to select which one of the plurality of memory regions is connected to said n input lines and to said N output lines.

4,393,444

MEMORY ADDRESSING CIRCUIT FOR CONVERTING SEQUENTIAL INPUT DATA TO INTERLEAVED OUTPUT DATA SEQUENCE USING MULTIPLE MEMORIES

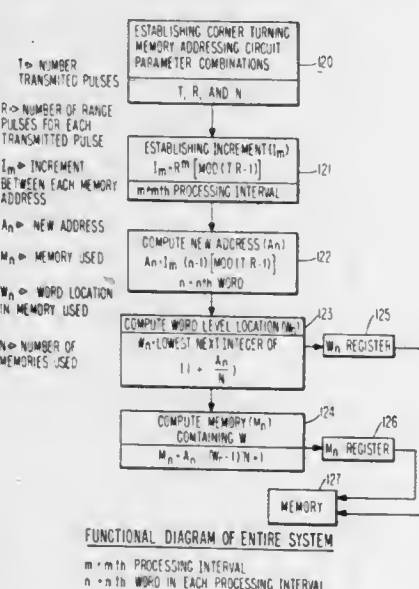
Leonard Weinberg, Haddonfield, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 6, 1980, Ser. No. 204,694

Int. Cl.³ G06F 7/00; G01S 7/44

U.S. Cl. 364—200

8 Claims



1. A system for converting sequentially received data words, in the form of successive groups of data words, into an interleaved output data word sequence, with each group of received data words consisting of T successive series of R data words, said system comprising:

N memories each having W word location levels, where $W \cdot N \geq T \cdot R$;

first logic means for writing successively received data words of any given group of data words into word location levels of successive ones of said N memories in a predetermined sequence such that successive data words are not written into the same memory;

means for reading from said memories every R^{th} data word of said given group of data words written into said memories to leave an available word location level in each instance where a data word was read therefrom; and said first logic means comprising other logic means for

writing successively received data words of the next and each subsequently received group of data words into the successively occurring available word location levels as they occur in the predetermined sequence of N memories, during the concurrent reading therefrom, of the data words of the immediately preceding given group of data words.

4,393,445

INFORMATION-SIGNAL RECORDING APPARATUS EMPLOYING RECORD VOLUME ORIENTED IDENTIFICATION SIGNALS

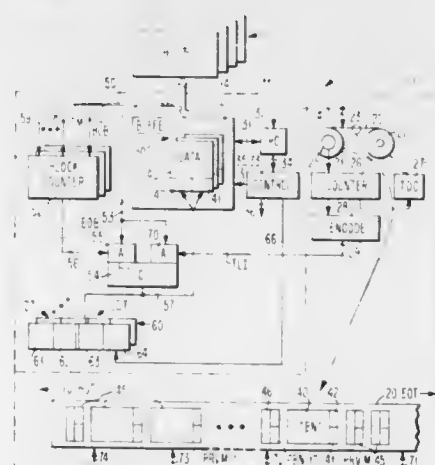
Charles A. Milligan, St. David; Edwin R. Videki, II, and Winston F. Yates, both of Tucson, all of Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 6, 1981, Ser. No. 241,172

Int. Cl.³ G06F 13/04; G11B 15/18

U.S. Cl. 364—200

3 Claims



1. A record storage subsystem having a plurality of addressable signal recorder apparatus, each of said signal recorder apparatus capable of mounting a record volume for transducing operations hereinafter referred to as a mounted record volume, transducing means in each said signal recorder apparatus and being relatively movable with respect to said record volume for enabling transducing operations, a buffer memory connected to all of said signal recorder apparatus for buffering signals to and from said signal recorder apparatus, said buffer memory being connectable to a signal source-sink means,

the improvement comprising:

a channel block counter means for each said signal recorder apparatus for counting block of said signals transferred between said signal source-sink means and said buffer memory,

a device block counter means for all of said signal recorder apparatus for counting blocks of said signals transferred between said buffer memory and said signal recorder apparatus, respectively,

PRV means in each said signal recorder apparatus for indicating present relative physical location of said mounted record volume and said transducing means, and

means connected to said buffer memory for storing the count in a given one of said block counter means and said PRV means in said buffer memory in a predetermined addressable location of said buffer memory such that the stored block of signals is logically contiguous with said predetermined addressable locations, respectively.

4,393,446

ROUTINE TIMER FOR COMPUTER SYSTEMS

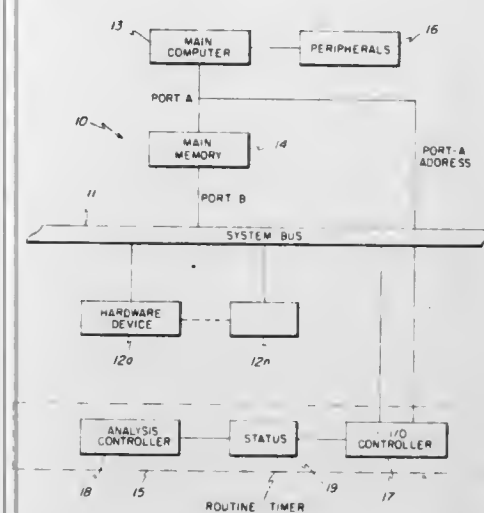
George P. Gurr, Phoenix, Ariz., and Robert M. Hardy, Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 67,996, Aug. 20, 1979, abandoned. This application Apr. 27, 1981, Ser. No. 258,122

Int. Cl.³ G06F 11/30

U.S. Cl. 364—200

26 Claims



14. A computer system for providing real-time servicing to a plurality of hardware devices comprising:

a main computer for processing a plurality of preprogrammed routines for servicing respective ones of said hardware devices;

a main memory coupled to said main computer to exchange data back and forth;

a routine timer located outside said main computer for simultaneously processing event timers called for by said preprogrammed routines run in said main computer simultaneously, said routine timer comprising means for monitoring said main computer during processing of said plurality of routines to detect predetermined memory access associated with said routines being processed;

input/output control means for sequencing the transfer of data containing the length of an event timer called for by a specific routine from said main memory to said input/output control means and for providing signals indicative of event timer termination of a specific event timer to said main memory;

data analysis control means for processing information provided by said input/output control means by decrementing each event timer by a predetermined time segment and informing said input/output control when an event timer has terminated; and

means to control transfer of information between said input/output control means and said data analysis control means.

4,393,447

METHOD AND A CIRCUIT FOR CONTROLLING THE PRESSURE IN WHEEL BRAKE CYLINDERS OF FLUID-OPERATED VEHICULAR BRAKES

Heinz Loreck, Moedling, Austria, assignor to IIT Industries, Inc., New York, N.Y.

Filed Dec. 8, 1980, Ser. No. 214,405

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951756

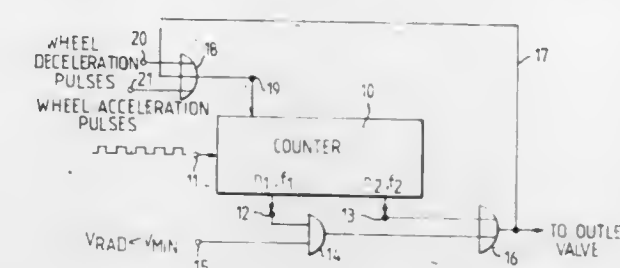
Int. Cl.³ B60T 8/02

U.S. Cl. 364—426

8 Claims

1. In a method for controlling pressure in a wheel brake cylinder by a control pulse train proportional to acceleration or deceleration of an associated wheel controlling an outlet valve coupled to said cylinder, an improvement comprising the steps of:

monitoring said control pulse train during each control cycle; generating at least one opening pulse for coupling to said



outlet valve whenever, after a first predetermined time interval, said pulse train is absent; and stopping the generation of said opening pulse immediately upon re-occurrence of said pulse train.

4,393,448

NAVIGATIONAL PLOTTING SYSTEM

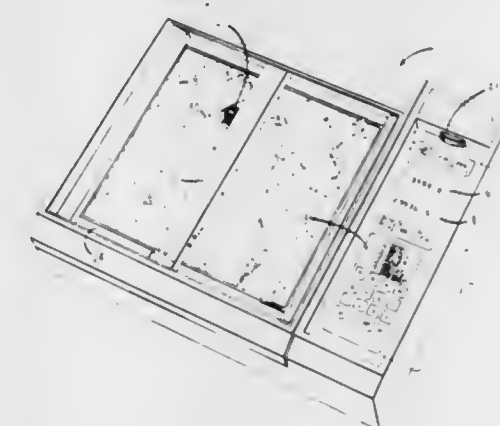
Thomas J. Dunn, Ocean Bluffs; Donald G. Yuniskis, Jr., Arlington; Gabor L. Szakacs, West Roxbury, and Nghia V. Nguyen, Westwood, all of Mass., assignors to Epco Incorporated, Westwood, Mass.

Filed Feb. 15, 1980, Ser. No. 121,651

Int. Cl.³ G06F 15/50; G01S 5/14

U.S. Cl. 364—449

16 Claims



12. A plotting system for use on board a vehicle in which said plotter is provided with navigation signals from a receiver at said vehicle comprising:

means for generating pen positioning signals in accordance with navigation signals from said receiver, said pen positioning signals being in the form of drive pulses;

an X/Y plotter having a moveable pen, a charting surface and stepping motor means coupled to said drive pulses for positioning said pen;

at least one counter coupled to said drive pulses for keeping track of the effective position of said pen by virtue of the count thereof;

means for increasing the rate of said drive pulses to said counter when the position dictated by said pen positioning signals indicate a pen move within the off-chart area; and, means for interrupting the coupling of said drive pulses to said stepping motor means when the effective position of said pen is off-chart, said interrupting means including an off-chart counter, means for coupling said drive pulses to said off-chart counter when said pen reaches a predetermined edge of said charting surface such that when said pen reaches an edge of said charting surface, said pen stops and the drive pulses are diverted to said off-chart counter, and means responsive to a predetermined count of said off-chart counter for controlling said coupling means to remove said drive pulses from said off-chart

counter and to apply said drive pulses to said stepping motor means.

4,393,449

NUMERICALLY CONTROLLED MACHINE TOOL

Koichi Takeda, Takarazuka, and Yoshiro Sasano, Yawata, both of Japan, assignors to Daihatsu Motor Co., Ltd. and Matsushita Electric Industrial Co., Ltd., both of Osaka, Japan

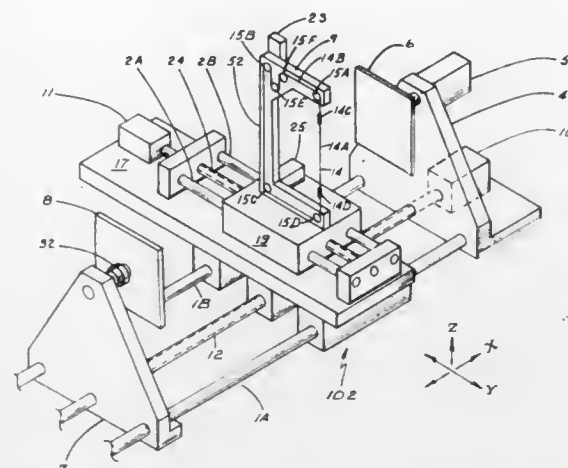
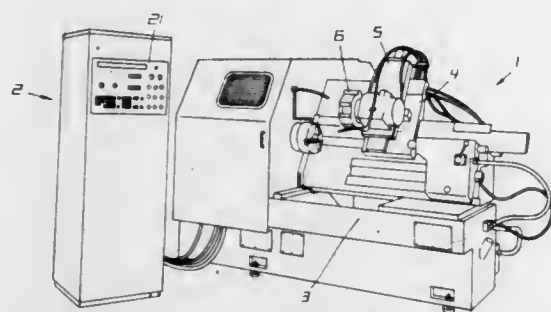
Filed Jun. 5, 1980, Ser. No. 156,654

Claims priority, application Japan, Jun. 14, 1979, 54-75241; Oct. 2, 1979, 54-127594

Int. Cl.³ G05B 19/42

U.S. Cl. 364-474

3 Claims



with the indexing serving to contour the easily-machinable material to form a complex three-dimensional shape.

4,393,451

METHOD AND APPARATUS FOR MEASURING TOTAL LIQUID VOLUME FLOW

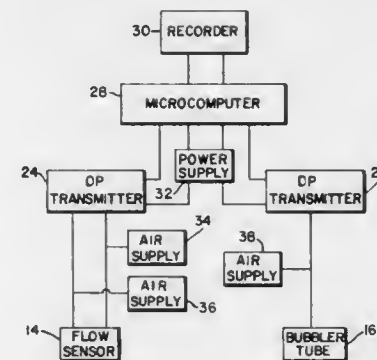
Leland W. Barker, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 17, 1981, Ser. No. 235,386

Int. Cl.³ G01F 7/00

U.S. Cl. 364-510

8 Claims



1. The method of determining total volume flow of a liquid in a partially full cylindrical pipe, the method comprising measuring at a predetermined location along the length of said cylindrical pipe the average fluid velocity of the liquid flowing through said cylindrical pipe by making measurements at intervals transversely across the flow of liquid in the cylindrical pipe and determining therefrom said average fluid velocity and generating an electrical output signal representative of this measurement; measuring the depth of liquid at said predetermined location in said cylindrical pipe and generating an electrical signal representative of this measurement; and feeding the electrical output signals from said average fluid velocity and from said depth of liquid measurements to a programmable digital microcomputer and thereby calculating the total volume flow of said liquid by solving the following equation:

$$\text{Flow} = 1.68 \sqrt{dp} \left\{ \frac{\pi R^2}{2} - \left[(R - D) \sqrt{D(2R - D)} + \right. \right.$$

$$\left. R^2 \left(\frac{R - D}{R} + 0.166 \left(\frac{R - D}{R} \right)^3 + \right. \right.$$

-continued

$$0.075 \left(\frac{R - D}{R} \right)^5 + 0.045 \left(\frac{R - D}{R} \right)^7 \right] \text{ ft.}^3/\text{sec.}$$

wherein the terms are defined as

dp=proportional to the average velocity of flowing fluid

R=radius of pipe

D=depth of the liquid.

4,393,452

METHOD OF REPRODUCING A PICTURE HAVING IMPROVED RESOLUTION

Keiji Sekigawa, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Jun. 2, 1980, Ser. No. 155,179

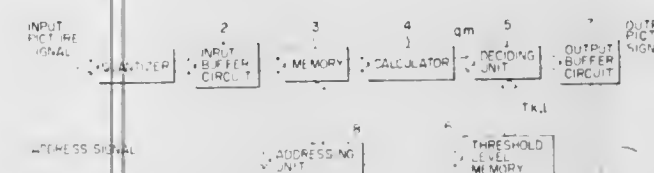
Claims priority, application Japan, Jun. 2, 1979, 54-69040

The portion of the term of this patent subsequent to Apr. 6, 1999, has been disclaimed.

Int. Cl.³ G06F 15/20; H04N 5/14

U.S. Cl. 364-514

1 Claim



1. A method of reproducing a picture including half-tones through estimation with binary outputs, wherein said picture is divided into a predetermined number of picture elements defining a matrix and each picture element within said matrix is assigned a density level, comprising the steps of:

subdividing said matrix of picture elements into plural 2x2 sub-matrices;

converting each 2x2 sub-matrix into a higher resolution 3x3 sub-matrix of picture elements, comprising,

calculating density levels for each of said picture elements in said 3x3 sub-matrix according to predetermined equations including weight factors for each of the density levels of said picture elements in the 2x2 sub-matrix and those of the picture elements surrounding said 2x2 sub-matrix;

comparing the calculated density levels with respective predetermined threshold levels, thereby to determine an output level of each picture element of each of said 3x3 sub-matrices is black or white in dependence on whether or not the calculated density levels exceed the predetermined threshold levels, and

reproducing said picture based on the respective output levels of each of said picture elements of each of said 3x3 matrices determined in said comparing step; in which said predetermined equations are

$$q_1 = a_1 \cdot Q_1 + a_2 \cdot Q_2 + a_3 \cdot Q_3 + a_4 \cdot Q_4$$

$$q_2 = a_5 \cdot Q_5 + a_6 \cdot Q_6 + a_7 \cdot Q_7 + a_8 \cdot Q_8$$

$$q_3 = a_9 \cdot Q_9 + a_{10} \cdot Q_{10} + a_{11} \cdot Q_{11} + a_{12} \cdot Q_{12}$$

$$q_4 = a_{13} \cdot Q_{13} + a_{14} \cdot Q_{14} + a_{15} \cdot Q_{15} + a_{16} \cdot Q_{16}$$

$$q_5 = a_{17} \cdot Q_{17} + a_{18} \cdot Q_{18} + a_{19} \cdot Q_{19} + a_{20} \cdot Q_{20}$$

$$q_6 = a_{21} \cdot Q_{21} + a_{22} \cdot Q_{22} + a_{23} \cdot Q_{23} + a_{24} \cdot Q_{24}$$

$$q_7 = a_{25} \cdot Q_{25} + a_{26} \cdot Q_{26} + a_{27} \cdot Q_{27} + a_{28} \cdot Q_{28}$$

$$q_8 = a_{29} \cdot Q_{29} + a_{30} \cdot Q_{30} + a_{31} \cdot Q_{31} + a_{32} \cdot Q_{32}$$

$$q_9 = a_{33} \cdot Q_{33} + a_{34} \cdot Q_{34} + a_{35} \cdot Q_{35} + a_{36} \cdot Q_{36}$$

where q_1 through q_9 are the calculated density levels of said picture elements of said 3x3 matrix, Q_1 through Q_{16} are the density levels of said picture elements in said 2x2 sub-matrix and of said picture elements surrounding said 2x2 sub-matrix and are expressed in multi-base quantization, and a_1 through a_{36} are the weight factors for said minute picture elements, with $a_1 + 2a_2 + a_3 = 1$, $2a_4 + 2a_5 = 1$ and $4a_6 = 1$.

4,393,453

REGION INFORMATION PROCESSING SYSTEM

Akira Nakano, 13-13, Mita 2-Chome, Meguro-ku, Tokyo-to, Japan

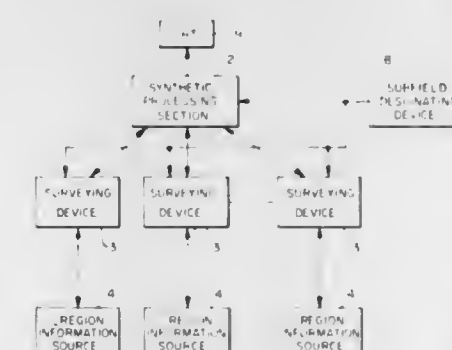
Continuation-in-part of Ser. No. 45,261, Jun. 4, 1979, abandoned, which is a continuation-in-part of Ser. No. 915,185, Jun. 14, 1978, abandoned. This application Apr. 28, 1981, Ser. No. 258,276

Claims priority, application Japan, Jun. 20, 1977, 52-72978

Int. Cl.³ G06F 15/20

U.S. Cl. 364-514

11 Claims



1. A region information processing system for processing information concerning a plurality of objective regions in a field to produce information concerning at least one synthetic region to be formed by combining by synthesis the information concerning each of the objective regions being provided by external region information source means, the region information processing system comprising:

(a) subfield designating means for sequentially designating subfields each constituting part of the field, by providing, one at a time, subfield designating data,

(b) a plurality of surveying means each associated with a corresponding one of the regions and each responsive to the subfield designating data for examining the region information source means to produce local data of the subfield being designated concerning the associated region, the local data including at least region flag data indicating whether or not the subfield is inside the boundary of the associated region, and

(c) synthesizing means responsive to the local data of the subfield concerning the objective regions for producing local data of the synthetic region including at least region flag data indicating whether or not the subfield being designated is inside the synthetic region, said synthesizing means judging whether or not the local data of the subfield concerning the objective regions satisfy a predetermined condition to determine depending on the result of the judgement, the significance of the region flag data of the synthetic region.

4,393,454

ELECTRONIC PARCEL REGISTER

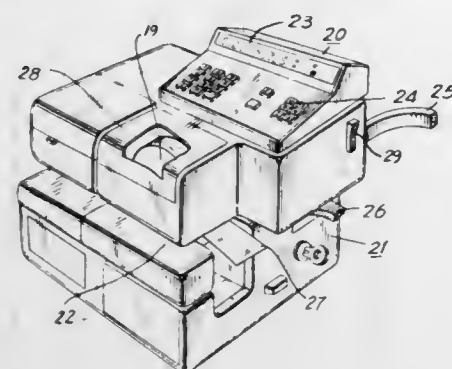
John H. Soderberg, Monroe, N.Y., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jan. 14, 1981, Ser. No. 224,875

Int. Cl.³ G06K 15/00

U.S. Cl. 364-518

19 Claims



1. A parcel register having a data entry and display keyboard, an accounting module, and a printing module, which printing module includes means for controlling a first set of print wheels that are operative to print a value upon a tape and a second set of wheels that has means for printing a series of consecutive numbers of successive tapes, comprising: a first microprocessor for controlling data entry and display of said keyboard, a second microprocessor for controlling arithmetic operations in said accounting module, and a third microprocessor for controlling the operation of said printing module in accordance with instructions from said second microprocessor, said printing module having means responsive to an input into said keyboard for selecting a first value to be printed on a first tape by said first set of print wheels and means for printing a number from sequence of numbers on said first tape by said second set of print wheels and means for selecting a second value for printing upon a second tape and for inhibiting said series sequence means of said second set of print wheels causing said second set of print wheels to print on said second tape the same number from a sequence of numbers as printed on said first tape.

4,393,455

MODULAR ELECTRONIC MEASURING AND PRINTING UNIT

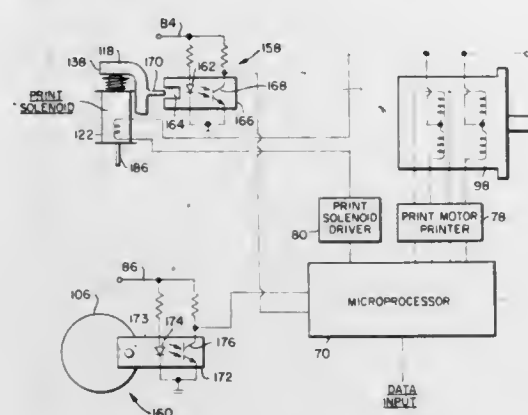
Alec T. Douglas, and James S. Havers, both of St. Johnsbury, Vt., assignors to Colt Industries Operating Corp., New York, N.Y.

Filed Jul. 31, 1980, Ser. No. 174,279

Int. Cl.³ B41J 3/12; G06K 15/10

U.S. Cl. 364-519

28 Claims



1. A moving dot matrix printer for forming alpha and numeric characters on a recording medium comprising support means, elongated mounting means mounted upon said support means, a unitary print assembly means mounted upon said elongated mounting means for movement in a first path along said elongated mounting means between a start and a stop

position, said unitary print assembly means being operative to mark an adjacent record medium, printer drive means operative during the formation of a character to selectively move said unitary print assembly means along said elongated mounting means between spaced points in said first path, said printer drive means including movable cam means mounted to contact said unitary print assembly means, said cam means operating to move said unitary print assembly means in said first path and bias means mounted to engage and bias said unitary print assembly means toward and into engagement with said movable cam means, record medium drive means mounted upon said support means and operative to position a record medium relative to said unitary print assembly means for marking thereby, said record medium drive means operating during the formation of a character to move said record medium in a second path transverse to the first path of movement of said unitary print assembly means.

4,393,456

DIGITAL FILTER BANK

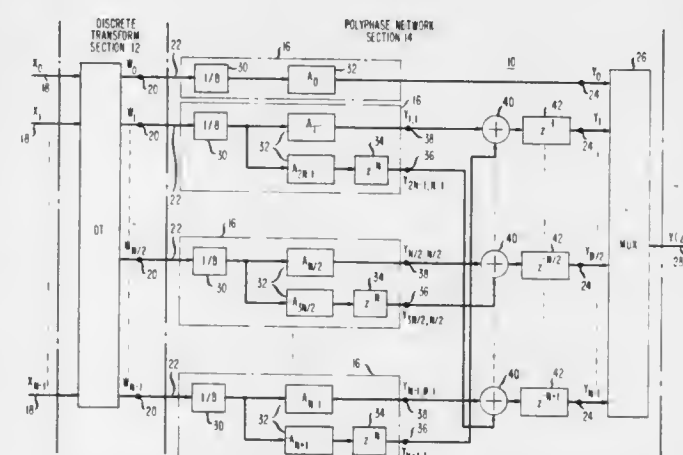
Thomas G. Marshall, Jr., Princeton, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 19, 1981, Ser. No. 245,194

Int. Cl.³ G06F 15/31

U.S. Cl. 364-724

5 Claims



1. A digital filter bank of the type including a discrete transform means connected to a polyphase network comprising at least one complementary pair of first and second digital filters, characterized in that each of said filters comprises:

- a single input which provides a filter input signal during the course of a present sampling period;
- at least a first output which during the present sampling period gives a first output signal value independent of the present sampling period filter input signal and dependent on the filter input signal of a previous sample period;
- a second output which during the present sampling period gives an output signal value dependent in general on the value of the present filter input signal and
- a shift register which for the present sampling period receives a register input signal dependent on the present filter input signal, said shift register including a first set of stages comprising a first stage and every other one of a plurality of successive stages and including a second set of stages comprising a second stage and every other one of said plurality of successive stages, said first filter output being accumulated from weighted values of said first set of stages and said second filter output being accumulated from the weighted value of said register input signal and weighted values of said second set of stages.

4,393,457

METHOD AND APPARATUS FOR SEQUENCING ADDRESSES OF A FAST FOURIER TRANSFORM ARRAY

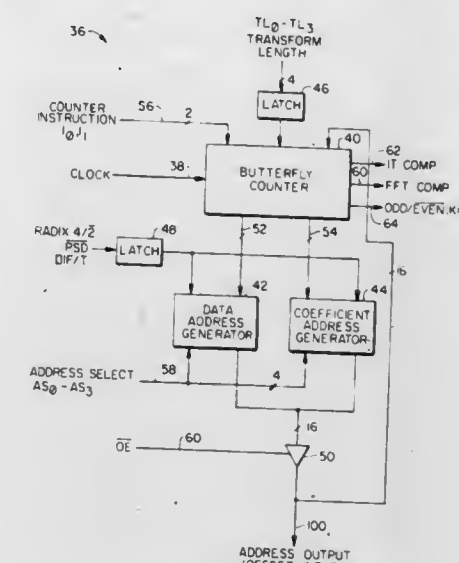
Bernard J. New, Los Gatos, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Mar. 26, 1981, Ser. No. 247,676

Int. Cl.³ G06F 15/34

U.S. Cl. 364-726

13 Claims



1. For use in a digital signal processor, an integrated circuit apparatus operative in response to signals from clock means, said clock means establishing a clock cycle, for generating signals representative of nonconsecutive sequence of output position values for data addresses according to a preselected pattern in order to read and write related data of an array in digital memory means, said apparatus comprising:

- first counting means for sequentially generating consecutive signals representing control values;
- second counting means for sequentially generating consecutive signals representing binary seed values;
- means coupled to said first counting means and to said second counting means for inserting at least one preselected binary value signal in a preselected bit position of each seed value signal at each clock signal, said preselected bit place position determined by a control value signal, in order to generate in a nonconsecutive value sequence said output position value signals.

4,393,458

DATA RECOVERY METHOD AND APPARATUS USING VARIABLE WINDOW

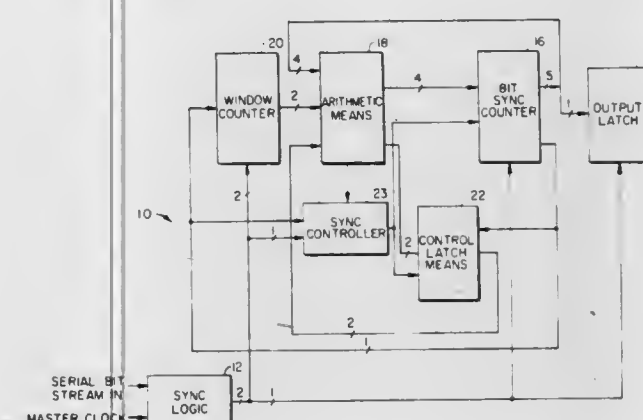
Anthony K. Fung, Fountain Valley, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Feb. 6, 1980, Ser. No. 118,882

Int. Cl.³ G06F 7/28

U.S. Cl. 364-900

13 Claims



1. A method for recovering encoded digital information

from a serialized bit stream wherein an information encoding scheme is employed having transitions indicative of defined state amplitude deviations capable of occurring at two distinguishable positions relative to synchronizable bit cell timing units of nominally constant duration, said method comprising the steps of:

- providing a plurality of transition detection windows of nominally constant duration, said transition detection windows being of first and second types, each of said transition detection windows being nominally synchronized to the center of a corresponding bit cell timing unit; selectively expanding or contracting selected ones of said transition detection windows of said first type relative to the corresponding bit cell timing unit such that said transition detection windows of said first type tend to center at time locations of expected occurrence of state amplitude deviations representing a first value; and
- selectively expanding or contracting said transition detection windows of said second type adjacent to said selected ones of said transition detection windows of said first type such that said transmission detection windows of said second type tend to center at time locations of expected occurrences of state amplitude deviations representing a second value.

4,393,459

STATUS REPORTING WITH ANCILLARY DATA

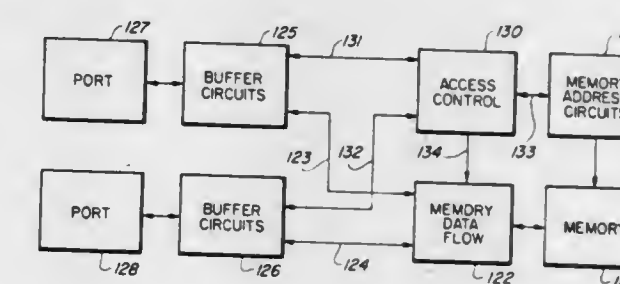
John D. Huntley, and Raymond L. Parsons, both of Tucson, Ariz., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,544

Int. Cl.³ G06F 13/00, 15/16

U.S. Cl. 364-900

1 Claim



1. A data storage control for enabling verifiable controlled access to a data storage unit, comprising:

- (a) a plurality of access port means coupled to said data storage unit for enabling access thereto for the storage and retrieval of data signals;
- (b) an access control coupled to each of said access port means for controlling said access such that one and only one of said access port means accesses the data storage unit at a given instant and said access control having a register for storing a busy access-indicating control signal with access identification signals for indicating which of said access port means has current access rights to said data storage unit when and only when said busy control signal indicates a busy state;
- (c) access means in said access control and coupled to said register for storing and retrieving signals therein and further coupled to all of said access port means for receiving access requests for accessing said data storage unit via the respective access port means and for setting said register in accordance with said received access requests such that said busy control signal is set on a given access request being received, together with an appropriate access identification signal and for denying access to a first access port means supplying an access request whenever said busy access signal indicates a busy state and the access identification signal does not correspond to said first access port means, read status means in said access control and coupled to said register for storing and retrieving

signals therein and to all of said access port means for enabling any of said access port means to read the signal contents of said register for monitoring access status of said data storage unit independent of any of said access requests such that an access port means currently having access to said data storage unit can verify that access and any other access port means not currently having access to said data storage units can monitor another port's access status for ensuring data integrity, read and set means in said access control and being coupled to said register for storing and retrieving signals therefrom and coupled to all of said access port means for receiving a read and set signal from any of said access port means for sensing the busy access signal and access identification signals stored in said register and being responsive to a received read and set signal and to said busy signal indicating a not busy signal to set the busy signal to the busy state and setting an access identification signal in said register corresponding to the access port means supplying such read and set command whereby access to the data storage unit can be established independent of other access requests, reset control means in said access control coupled to said register and to all of said access port means for being responsive to a reset command received from any of said access port means and being responsive to said reset command to reset the contents of said registers to a not busy state and erasing all of said access identification signals irrespective of the current stored signals in said register whereby any of said access port means can reset the access control for facilitating access thereto, and free resource control means in said access control coupled to said register for storing signals therein and retrieving signals in said register and to all of said access port means for receiving a free resource command from any of said access port means and being responsive to said received free resource command to compare the access port means supplying said free resource command with the presently stored access identification signal and if equal to reset the busy signal along with the access identification signal to zero, otherwise indicating an error state; and

(d) means in said access control connected to the register for comparing said busy signal with said access identification signal and indicating an error in said access control whenever any of said access identification signals are indicating which of said access port means has current access rights when said busy control signal is set to a non-busy state.

4,393,460

SIMULTANEOUS ELECTRONIC TRANSLATION DEVICE

Sigeaki Masuzawa, Nara, and Yoshiro Kihara, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 12, 1980, Ser. No. 186,610

Claims priority, application Japan, Sep. 14, 1979, 54-118569

Int. Cl.³ G06F 15/38

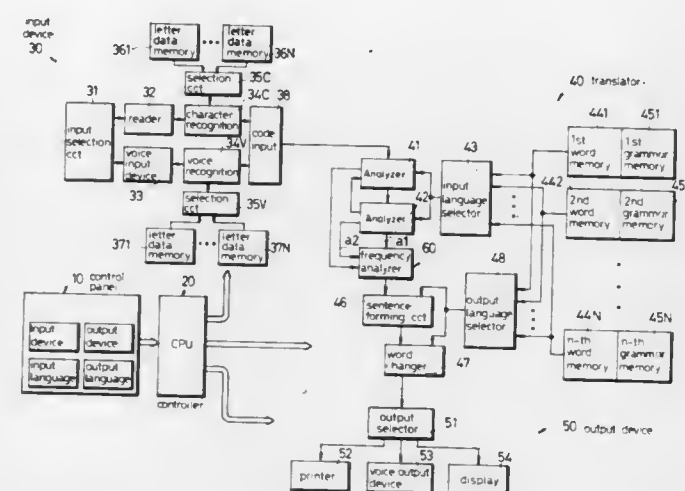
U.S. Cl. 364-900

9 Claims

1. An electronic dictionary and language interpreter device wherein first words represented in a first language selected from a plurality of languages are entered to obtain second words represented in a second language selected from the plurality of languages, said second words being equivalent to the first words, said device comprising:

selection means for selecting the first language and the second language;
reader means for reading the first words and for entering the first words in the first language;
recognizing means responsive to said reader means for recognizing the first words;
translation means responsive to the recognizing means for translating the first words into the second words in the second language;
output means responsive to the translation means for provid-

ing the second words, the output means comprising a plurality of output devices; and



switching means actuated to select at least one of the plurality of output devices within the output means and to permit said output means to develop the second words.

4,393,461

COMMUNICATIONS SUBSYSTEM HAVING A SELF-LATCHING DATA MONITOR AND STORAGE DEVICE

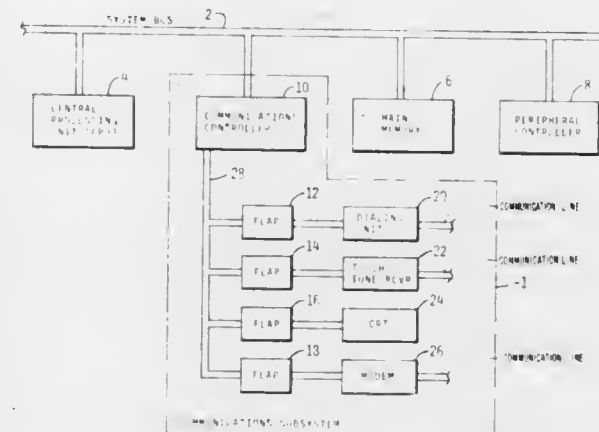
Thomas O. Holtey, Newton; Steven S. Noyes, Boylston, and Daniel G. Peters, Billerica, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Oct. 6, 1980, Ser. No. 194,311

Int. Cl.³ G06F 3/05

U.S. Cl. 364-900

6 Claims



1. In combination with a plurality of communication lines and a data processing system comprising a system bus, at least one central processing unit (CPU), one main memory, one peripheral controller and a communication subsystem, each individually coupled to said system bus, said communication subsystem including a communications controller and further including a modem, a dialing unit, a touch tone receiver, and a cathode ray tube display (CRT), each coupled to said communications controller, said modem, said dialing unit, and said touch tone receiver also coupled to said communication lines, said communications controller comprising:

- (a) an address bus;
- (b) a data bus;
- (c) a microprocessor coupled to said address bus and data bus;
- (d) universal synchronous receive transmit (USRT) means coupled to said data bus for transmitting data to and receiving data from said typical communication devices;
- (e) baud rate generation means coupled to said data bus and said USRT for specifying the baud rate for transmission of said data for each of said typical communication devices directly connected to said communication subsystem and to indicate to said USRT the baud rate for transmission of

said data to each of said typical communication devices which are external to said communication subsystem;

(f) latching register means also coupled to said address bus, said microprocessor, said USRT means and said data bus for storing a plurality of signals received from said microprocessor and generating a direct connect mode signal, a clear to send signal and a bit oriented protocol (BOP) mode signal;

said USRT means being responsive to said direct connect mode signal for selecting a baud rate signal from said baud rate generation means for establishing the transmission rate of said data for said each of said typical communication devices directly connected to said communication subsystem;

said USRT means being responsive to said clear to send mode signal for transmitting said data to a selected one of said typical communication devices; and

said USRT means being responsive to said BOP mode signal for establishing said data transmission between said USRT and said selected one of said typical communication devices in a BOP mode.

4,393,462

ELECTRONIC TRANSLATOR WITH MEANS FOR PRONOUNCING INPUT WORDS AND TRANSLATED WORDS

Akira Tanimoto, Kashiwara; Tosaku Nakanishi, Nara, and Shigenobu Yanagiuchi, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 22, 1980, Ser. No. 199,445

Claims priority, application Japan, Oct. 24, 1979, 54-137922; Oct. 25, 1979, 54-138383

Int. Cl.³ G06F 15/38

U.S. Cl. 364-900

6 Claims



1. An electronic translator device wherein first words represented in a first language are entered to obtain second words represented in a second language equivalent to the first words, comprising:

- input means for entering the first words;
first memory means for storing a plurality of words represented in the first language;
second memory means for storing a plurality of items of verbal information corresponding to the plurality of words stored in said first memory means;
third memory means for storing a plurality of sentences comprised of words stored in said first memory means;
fourth memory means for storing a plurality of items of verbal information related to translated sentences, represented in the second language, corresponding to the plurality of sentences stored in said third memory means;
translation means responsive to entry of the first words by said input means for addressing said first, third and fourth memory means for translating a first sentence comprised of said first words and stored in said third memory means and for retrieving from said fourth memory means verbal

information related to a translated sentence corresponding to said first sentence; and

voice synthesizer means for providing an audible output of said verbal information related to the translated sentence and responsive to entry of each of the first words by the input means for addressing said second memory means for retrieving particular verbal information corresponding to each first word entered and for providing an audible output of each first word entered.

4,393,463

INSERTION OF CHARACTER SET CHANGE CODES IN AN ALTERED TEXT STREAM

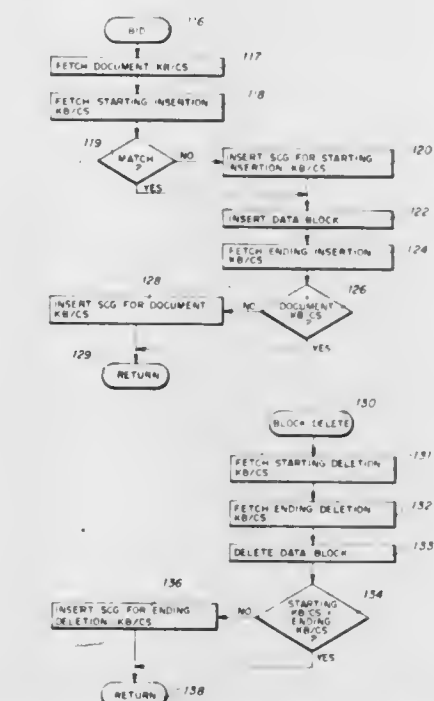
John A. Aiken, Jr., Round Rock, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 20, 1980, Ser. No. 208,784

Int. Cl.³ G06F 7/00

U.S. Cl. 364-900

8 Claims



4,393,474

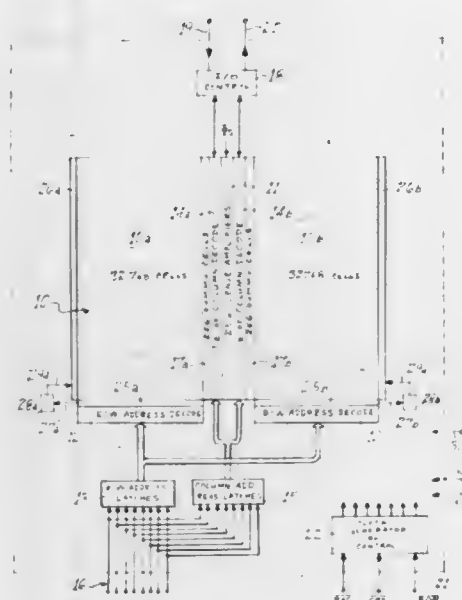
EPROM AND RAM CELL LAYOUT WITH EQUAL PITCH FOR USE IN FAULT TOLERANT MEMORY DEVICE OR THE LIKE

David J. McElroy, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 88,709, Oct. 26, 1979. This application
Feb. 11, 1980, Ser. No. 120,429Int. Cl.³ G11C 11/40

U.S. Cl. 365—200

12 Claims



1. A fault tolerant semiconductor memory device formed in a face of a semiconductor body comprising: a data memory array at said face composed of rows and columns of read/write memory cells, and a plurality of programmable cells laid out at said face in rows of the same pitch as and aligned with said rows of the data memory array, each of the programmable cells being individually programmed to retain indefinitely an indication of a faulty cell present in the aligned row of memory cells, and at least one row of redundant cells for replacing one of said rows of memory cells containing a faulty cell in response to the programmable cell for such row being programmed.

4,393,475

NON-VOLATILE SEMICONDUCTOR MEMORY AND THE TESTING METHOD FOR THE SAME

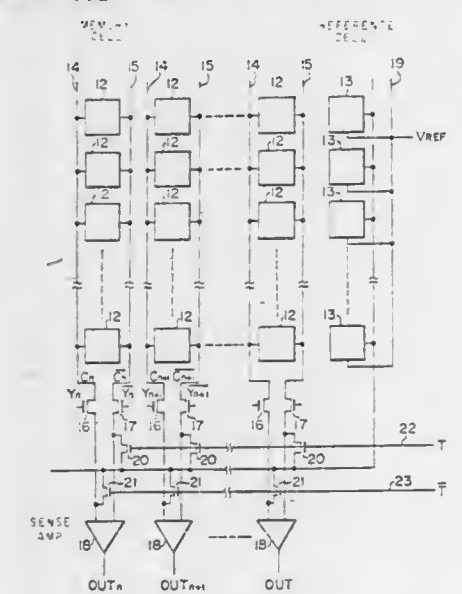
Norihisa Kitagawa, and Eisaburo Iwamoto, both of Tokyo, Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 27, 1981, Ser. No. 229,027

Int. Cl.³ G11C 11/40

U.S. Cl. 365—201

3 Claims



1. A system for determining the storage capability of each

cell in a nonvolatile semiconductor memory device formed of an array of rows and columns of memory cells comprising: one or more reference memory cells; a reference voltage supply connected to said reference memory cells, wherein said reference voltage is greater than the threshold voltage and less than the storage voltage of said memory cells; a plurality of differential sense amplifiers; means for selectively coupling each column of memory cells to one input of a corresponding one of said plurality of differential sense amplifiers; and means for selectively coupling one or more of said reference memory cells to the other input of each of said plurality of differential sense amplifiers, wherein the output of the selected differential sense amplifier is related to the storage capability of a selected memory cell.

4,393,476

RANDOM ACCESS MEMORY DUAL WORD LINE RECOVERY CIRCUITRY

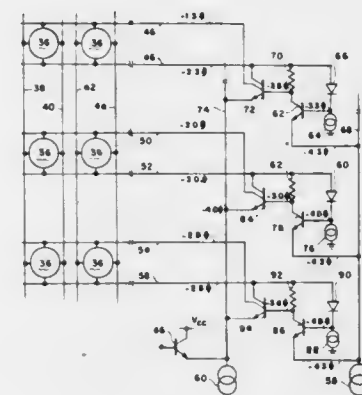
Warren R. Ong, Cupertino, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Jul. 13, 1981, Ser. No. 282,767

Int. Cl.³ G11C 11/40

U.S. Cl. 365—203

7 Claims



1. Discharge circuitry for rapidly discharging each of a plurality of electrical conductors when the voltage thereon drops from a first selected voltage level through a mid-state transition toward a second voltage level, said circuitry comprising:

a plurality of first transistors each coupled in series with a resistance element being one of said plurality of conductors and a first current source conductor common to the emitters of all of said first transistors;

control circuitry coupled to the base of each of said plurality of first transistors and to its respective electrical conductor, said control circuitry applying to said base a voltage of one V_{be} below the voltage on said respective conductor, the particular first transistor of said plurality that receives the highest base voltage from its control circuitry establishing the voltage level on said first current source conductor and the emitter of each of said plurality of first transistors;

a plurality of second transistors each coupled between one of said plurality of conductors and a second current source conductor common to the emitters of all of said second transistors, the base of each of said second transistors being coupled to the collector of a corresponding one of said first transistors, the particular second transistor of said plurality that receives the highest base voltage establishing the voltage level on said second current source conductor and the emitters of each of said plurality of second transistors.

4,393,477

TEMPERATURE RESPONSIVE REFRESH CONTROL CIRCUIT

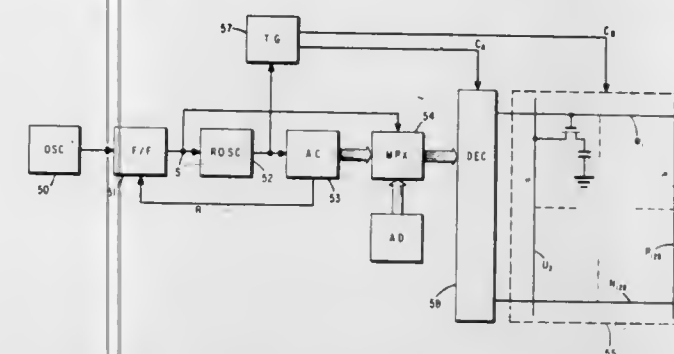
Tatsunori Murotani, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1980, Ser. No. 215,465

Claims priority, application Japan, Dec. 11, 1979, 54-160554
Int. Cl.³ G11C 7/00; H03K 3/282

U.S. Cl. 365—222

6 Claims



1. A memory circuit comprising a memory cell array including a plurality of memory cells, each of said memory cells storing data in a dynamic manner; an oscillator for generating an oscillation signal having a frequency characteristic with a positive temperature coefficient, said oscillator including a first terminal receiving a first potential, a second terminal receiving a second potential, an output terminal from which said oscillation signal is derived, first to third nodes, a first resistor made of polycrystalline silicon and coupled between said first terminal and said first node, a second resistor made of polycrystalline silicon and coupled between said first terminal and said second node, a first capacitor coupled between said first node and said second terminal, a second capacitor coupled between said second node and said second terminal, a first field effect transistor coupled between said first node and said second terminal and having a gate coupled to said first node, a second field effect transistor coupled between said second node and said second terminal and having a gate coupled to said first node, a third field effect transistor coupled between said third node and said second terminal and having a gate coupled to said second node, a fourth field effect transistor coupled between said first terminal and said third node, a third capacitor coupled between said third node and said output terminal, a fifth field effect transistor coupled between said first terminal and the gate of said fourth transistor and having a gate coupled to said first terminal, and means for connecting said third node to said output terminal; and refresh means responsive to said oscillation signal for operatively refreshing at least one of said memory cells.

4,393,478

MONOLITHICALLY INTEGRATED SEMICONDUCTOR MEMORY WITH DUMMY AND CHARGE EQUALIZATION CELLS

Dieter Kantz, Munich, and Eugen Seher, Grafenau, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 20, 1981, Ser. No. 285,344

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1980, 3029108

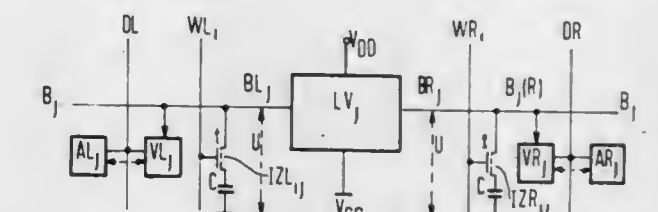
Int. Cl.³ G11C 7/00, 7/06

U.S. Cl. 365—210

6 Claims

1. Monolithically integrated semiconductor memory having a matrix formed of identical information storage cells arranged in rows and columns in the form of single-transistor storage cells, a respective comparator and a dummy cell, likewise provided by a single-transistor storage cell, being operatively associated either with each matrix column or each matrix row, comprising a respective second single-transistor storage cell provided as a charge equalization cell and identical, at least with respect to storage capacity with the dummy cell and operatively associated with each of the dummy cells, each of

said charge equalization cells respectively having a drive balanced relative to the drive of the dummy cell operatively associated therewith so that, in a first phase triggered by the respective dummy cell having been addressed by an addressing signal, the dummy cell storage capacity is charged and the charging state of the storage capacity of the respective charge equalization cell is set so that the charging state in said charge equalization cell corresponds to the signal inverse to said ad-



dresssing signal effecting the charging of the dummy cell, so that, in a second operating phase, the storage capacity of the dummy cell and the storage capacity of said charge equalization cell are connected in parallel for charge equalization, and so that, in a third operating phase, the respective storage capacities of the dummy cell and said charge equalization cell are again separated by driving the comparator from the dummy cell.

4,393,479

METHOD FOR ERASING DATA OF A NON-VOLATILE SEMICONDUCTOR MEMORY INTEGRATED CIRCUIT

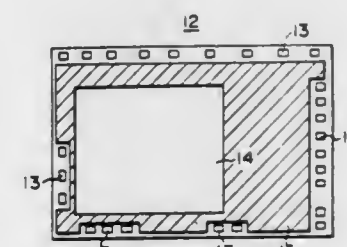
Nguyen T. Du, Hatogaya, and Akihide Asao, Ohita, both of Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 17, 1980, Ser. No. 207,179

Int. Cl.³ G11C 13/00

U.S. Cl. 365—218

3 Claims



1. A method for erasing data of a floating-gate non-volatile semiconductor memory integrated circuit comprising the steps of writing data into memory cells of said memory integrated circuit by selectively charging the floating gates thereof and erasing such data by irradiating an X-ray beam at a wavelength of 0.23 to 10 Å to a dosage of approximately 10^4 to 10^6 Rads to said memory cells through a plastic package.

4,393,480

ADDRESS BUFFER CIRCUIT

Hiroshi Shimada, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 13, 1981, Ser. No. 234,197

Claims priority, application Japan, Feb. 16, 1980, 55-18018

Int. Cl.³ G11C 11/40

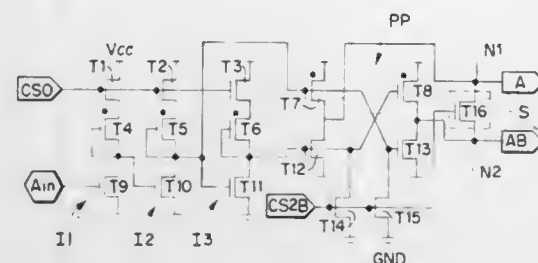
U.S. Cl. 365—227

13 Claims

1. An address buffer circuit, having an active period which has high and low levels and having a standby period, which generates a pair of complementary output signals corresponding to an address input signal, comprising:

buffer circuit means for buffering the address input signal; means, operatively connected to said buffer circuit means, for suspending power consumption by said address buffer

circuit when in the stand-by period responsive to an external signal;
output means, operatively connected to said buffer circuit means, having a pair of output terminals for outputting said pair of complementary output signals; and



short circuit means, operatively connected between said pair of output terminals of said output means, for forcing the potential of said pair of output terminals to a same potential between the high and low levels of said address buffer circuit in the active period by electrically connecting said pair of output terminals in said stand-by period.

4,393,481

NONVOLATILE STATIC RANDOM ACCESS MEMORY SYSTEM

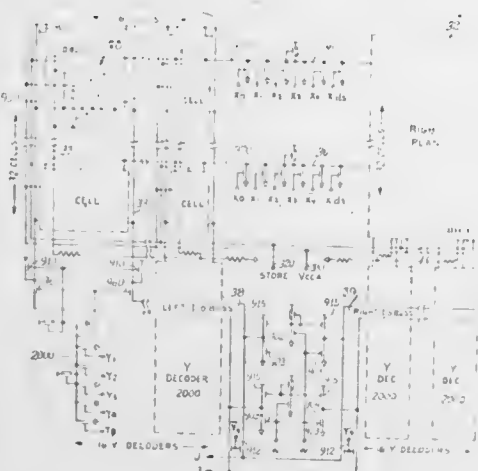
William H. Owen, Mountain View; Richard T. Simko, Los Altos, and Wallace E. Tchou, Sunnyvale, all of Calif., assignors to Xicor, Inc., Milpitas, Calif.

Continuation of Ser. No. 71,499, Aug. 31, 1979, Pat. No. 4,263,644. This application Nov. 21, 1980, Ser. No. 209,131. The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.

Int. Cl.³ G11C 13/00

U.S. Cl. 365-228

10 Claims



1. A nonvolatile electrically-alterable integrated circuit memory device comprising:
means for receiving a low level power supply for powering said device;
memory array means comprising a plurality of volatile memory cells for storing of data in binary form and a plurality of nonvolatile memory cells for nonvolatile storing of data in binary form;
store means responsive to a store command signal for copying the present data state of each said volatile memory cell into a corresponding said nonvolatile memory cell, said store means including high voltage generator means responsive to said store command signal for utilizing said low level power supply for generating a high voltage pulse signal and for coupling said pulse signal to each said nonvolatile memory cell, thereby effecting said copying of data; and
recall means responsive to a recall command signal for

copying data in at least one of said nonvolatile memory cells to its corresponding said volatile cell.

4,393,482

SHIFT REGISTER

Kunihiro Yamada, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

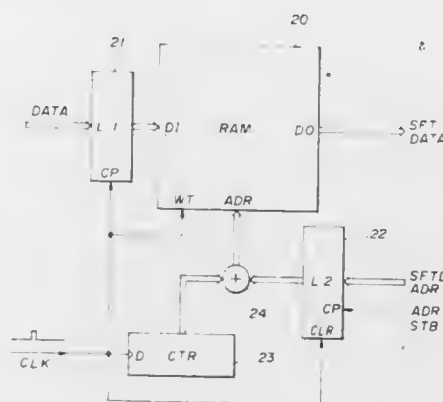
Filed Nov. 7, 1980, Ser. No. 204,923

Claims priority, application Japan, Nov. 8, 1979, 54-144838; Nov. 8, 1979, 54-144839

Int. Cl.³ G11C 8/00

U.S. Cl. 365-236

5 Claims



1. A shift register of the type capable of performing shift operations by changing the access of a random access memory comprising:

a random access memory having a memory capacity of 2^k words, where $2^k \geq n$ and n is the number of steps required for said shift register;

a k-bit counter adapted to perform a counting operation when a clock pulse is input thereof and then to input, via a k-bit operation unit, the count output to said random access memory as an address for writing an input data in said random access memory; and wherein

said k-bit operation unit is adapted to perform an operation with respect to said count output of said k-bit counter and the address of desired shifted data and then to output the operated result as an address for reading said shifted data from said random access memory, whereby high speed reading operation of said shifted data is attained.

4,393,483

TEST SET FOR A DIRECTIONAL COMMAND ACTIVE SONOBUOY SYSTEM (DICASS)

David C. Hammond, Hatboro; Stephen M. Elchenko, Pipersville; John M. Tralies, Norristown; Peter W. Verburg, Perkasie, and Leon R. Robinson, Morrisville, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 7, 1981, Ser. No. 291,000

Int. Cl.³ H04B 17/00

U.S. Cl. 367-13

1 Claim

MICROFICHE APPENDIX INCLUDED (2 Microfiche, 100 Pages)

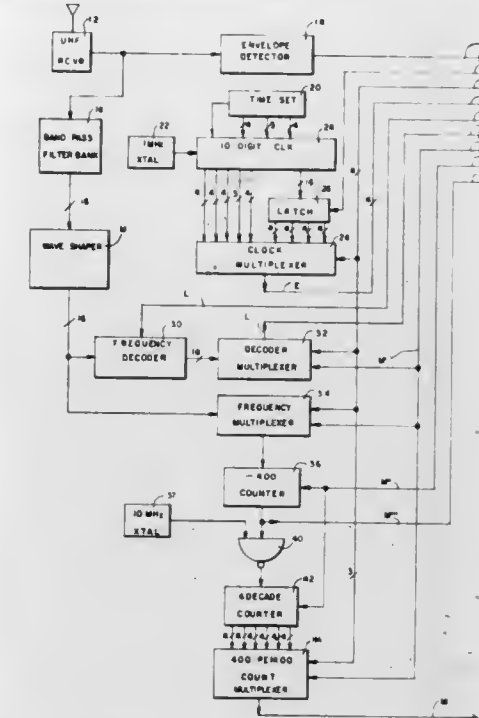
1. An apparatus for testing an active target-detecting sonobuoy system comprising:

downlink means for categorizing the modulation of a first radio frequency carrier signal thereby producing digital data indicative of the frequency and pulse width of the modulation;

uplink means coupled to said downlink means for generating a second radio frequency carrier signal modulated by simulated target and environmental information;

controller means interconnected between said downlink and uplink means and containing a stored program for automatically analyzing said digital data to validate frequency and pulse width of the modulation in accordance with

specified parameters and for producing an output signal indicative of the analysis results;
peripheral input means connected to said controller means for providing instructional information related to operational parameters of the system; and



peripheral output means connected to said controller means for displaying instructional information related to the operation of the system and the output signal of said controller means.

4,393,484

METHOD OF STACKING SEISMIC DATA

David J. Buchanan, Burton-on-Trent; Richard Davis, Ashby-de-la-Zouch, and Peter J. Jackson, Boundary, Nr. Burton-on-Trent, all of England, assignors to Coal Industry (Patents) Limited, London, England

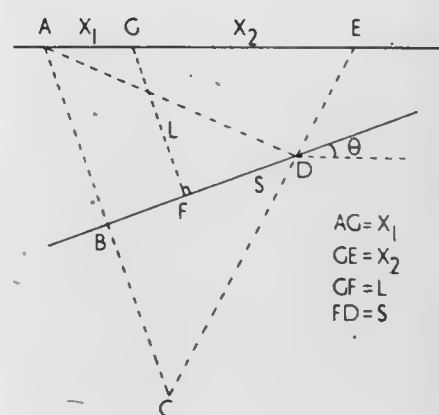
Filed Oct. 2, 1980, Ser. No. 193,321

Claims priority, application United Kingdom, Oct. 19, 1979, 7936413

Int. Cl.³ G01V 1/36, 1/20

U.S. Cl. 367-23

7 Claims



1. A method of stacking seismological data to identify a fault in a geological seam including the steps of arranging shots and detectors in a seam or the surrounding strata, firing the shots sequentially and detecting any reflections thereof with the detectors, and selecting from the seismic traces those having a common reflection point, wherein a target is divided into a number of equal length segments and each trace is assigned to the segment which contains the point at which reflections would occur, traces belonging to the same line segment being stacked after applying a move out correction according to the formula:

$$P^2 = x_1^2 + x_2^2 + 2x_1x_2 \cos 2\theta + 4L^2 + 4L(x_1 - x_2) \sin \theta$$

in which P is the distance travelled by seismic signal emanating at a shot, reflecting at a point on a reflector where specular reflection occurs, and being received at a detector;
 θ is the angle between shot-detector line and the reflector;
 L is the length of a line extending perpendicularly from the reflector to a point of origin on the shot-detector line;
 x_1 is the distance between the shot and the point of origin;
 x_2 is the distance between the detector and the point of origin.

4,393,485

APPARATUS FOR COMPILING AND MONITORING SUBTERRANEAN WELL-TEST DATA

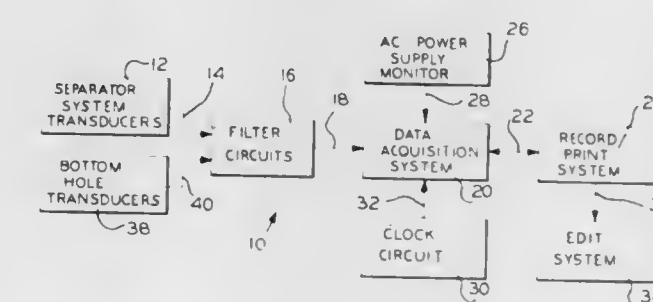
Raymond L. Redden, Sacramento, Calif., assignor to Baker International Corporation, Orange, Calif.

Filed May 2, 1980, Ser. No. 146,734

Int. Cl.³ G01V 1/40, 1/22

U.S. Cl. 367-25

28 Claims



1. An apparatus for compiling and monitoring data during the testing of a subterranean well having a plurality of transducers for generating signals representing production characteristics of the well, including at least one transducer positioned at the surface of the well for generating a surface production characteristic signal representing at least one of well-head pressure, wellhead temperature, gas temperature, oil temperature, gas differential pressure, static separator pressure, oil flow and water flow, comprising: means connected to the transducers for periodically storing values of the transducer signals; means connected to said means for storing for reading said stored value of said one surface transducer signal to generate a value for an additional operating characteristic of the well; means connected to said means for storing and said means for generating said additional operating characteristic value for generating a plurality of output signals representing said stored values and said additional operating characteristic value; a power supply connected to power the transducers; means connected to said power supply for generating a voltage level signal representing the magnitude of the power supply output voltage; and means for comparing said voltage level signal with predetermined upper and lower voltage limits to generate a power fluctuation signal when said voltage level signal is outside said voltage limits.

4,393,486

METHOD FOR INTERPRETING WELL LOG RECORDS TO YIELD INDICATIONS OF GAS/OIL IN AN EARTH FORMATION SUCH AS A SANDSTONE, LIMESTONE, OR DOLOSTONE

Don D. Thompson, Corona Del Mar; Robert J. S. Brown, Fullerton, and Richard J. Runge, Anaheim, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 82,382, Oct. 5, 1979, abandoned. This application Oct. 27, 1980, Ser. No. 200,702

Int. Cl.³ G01V 1/36, 1/30

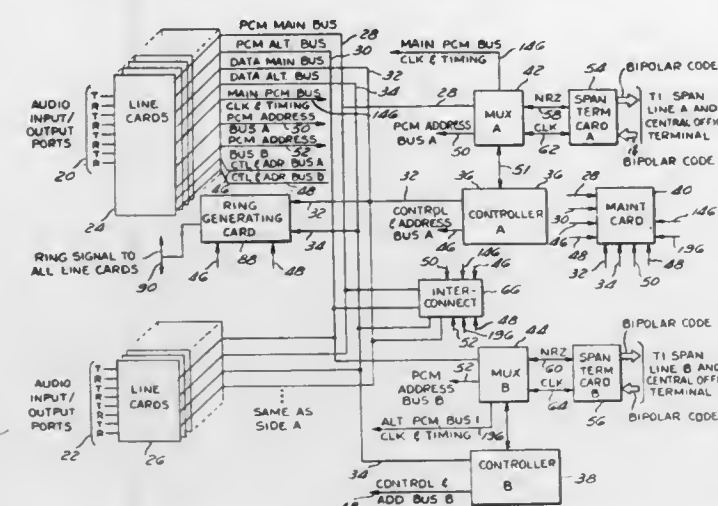
U.S. Cl. 367-73

12 Claims

1. Method for resolving events of an acoustic log of a first

circuit located in said remote terminal to automatically test said line card interface circuits whenever they are idle, comprising:

- a data bus coupled to said line card interface circuits for carrying digital data;
- a generator means coupled to said data bus for generating a plurality of words of digital test data;
- a detector means coupled to said data bus for detecting test data and for generating an output signal; and



means to automatically, continuously determine which said line card interface circuits are idle and for causing said generator means to send said digital test data to said idle line card interface circuits and for causing said detector means to be coupled to said idle line card interface circuits to detect the presence of digital test data after it has been converted to analog form and then back to digital form by said idle line card interface circuits.

4,393,492

DIGITAL SUBSCRIBER CARRIER SYSTEM INCLUDING DROP TERMINALS AND BYPASS AND LOOPBACK MEANS AND ALARM INDICATION MEANS

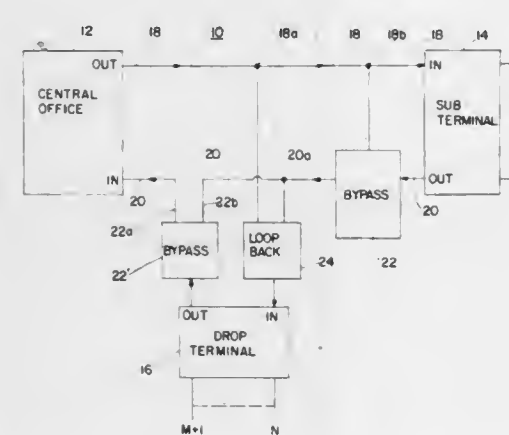
Larry D. Bishop, Colleyville, Tex., assignor to Reliance Electric Co., Cleveland, Ohio

Filed Feb. 17, 1981, Ser. No. 234,797

Int. Cl.³ H04J 3/08, 3/14

U.S. Cl. 370—15

29 Claims



27. In an N channel digital subscriber carrier system having a central office and at least one remote terminal for serving at least one of said subscribers connected thereto by a transmission medium and in which information signals are transmitted on said medium in a first predetermined format which is divided into a predetermined repetitive number of frames each of which is divided into N channels each having a predetermined number of bits, each of said N channels being associated with a respective one of said subscribers, an alarm system comprising:

- (a) central office alarm means including:
 - (i) means for identifying when said signal is in a second predetermined format which is related to said first prede-

termined format a regularly recurring bit in a predetermined one of said frames for at least said channel associated with said at least one subscriber and inserting therein a preselected value; and

- (ii) means responsive to said information signal when said signal is in said second format with said preselected bit value for transmitting said signal in said first format in serial fashion on said medium;
- (b) remote terminal alarm means including:
 - (i) means responsive to said signal in said medium for converting said signal to said second format;
 - (ii) conditioning means having an output responsive to said signal in said second format for changing said value in said regularly recurring bit to a value opposite to said value inserted in said central office alarm means said means operating not to change said value upon the occurrence of at least one of a predetermined fault condition in said system; and
 - (iii) means connected to said conditioning means output for transmitting said signal in said first format in serial fashion; and
- (c) means included in said central office means responsive to said signal in said first format received from said medium for converting said signal to said second format and in response thereto for comparing the value of said received bit to the value of said second format transmitted bit and for generating an alarm signal when said values are the same.

4,393,493

AUTOMATIC PROTECTION APPARATUS FOR SPAN LINES EMPLOYED IN HIGH SPEED DIGITAL SYSTEMS

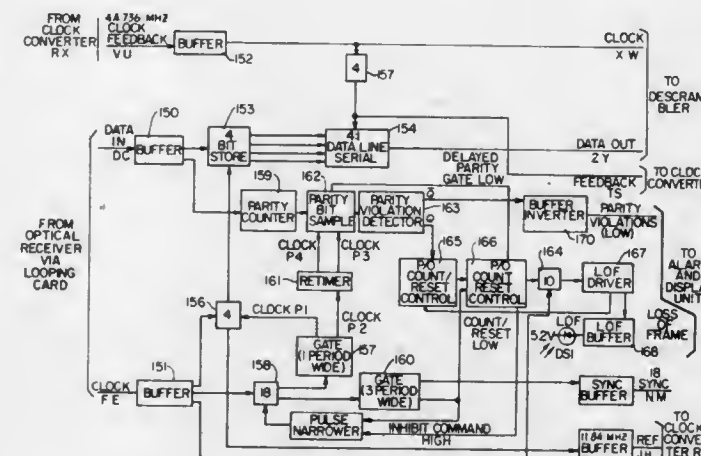
Allan K. Edwards, Raleigh, N.C., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,133

Int. Cl.³ H04J 3/12, 3/14

U.S. Cl. 370—16

24 Claims



22. A method of providing a control code for use in communicating control information from a near end telecommunication location to a far end location which locations are in communication via a digital transmission line, carrying digital data, encompassing a plurality of sequential data frames each having a predetermined number of binary bits, with at least one bit in each frame indicative of a parity bit for conventionally determining whether ones of said data bits in said frame are even in number or odd in number, comprising the steps of: intentionally modifying said parity bit in successive frames to provide cyclical codes each code manifesting a separate control status;

responding to said parity bit as modified to provide said code to enable performing a control function as specified by said code.

4,393,494

TRANSCIVER FOR FULL-DUPLEX TRANSMISSION OF DIGITAL SIGNALS OVER A COMMON LINE

Piero Belforte, Turin, and Renzo Bortignon, Borgara Torinese, both of Italy, assignors to Csele Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Oct. 2, 1980, Ser. No. 193,009

Claims priority, application Italy, Oct. 4, 1979, 68914 A/79

Int. Cl.³ H04B 1/56; H04L 5/14

U.S. Cl. 370—27

7 Claims



1. A transceiver inserted between a signal source and a line with at least one ungrounded conductor designed for two-way transmission of digital signals, said conductor being provided with a terminating impedance having a proximal end and a distal end as seen from said signal source, comprising:

- a first pair of emitter-coupled twin transistors with respective first bases, with an inverting and a noninverting first output connected to respective first collectors thereof and with a first input circuit including a connection from one of said first bases to said conductor at said proximal end for picking up an outgoing signal originating at said signal source;
- a second pair of emitter-coupled twin transistors with respective second bases, with an inverting and a noninverting second output connected to respective second collectors thereof and with a second input circuit including a connection from one of said second bases to said conductor at said distal end for picking up a mixture of said outgoing signal with an incoming signal, said first inverting output being directly connected to said second noninverting output at a first junction, said first noninverting output being directly connected to said second inverting output at a second junction, said first and second pairs having a gain ratio substantially suppressing said outgoing signal at said junctions; and
- a differential amplifier with inputs respectively connected to said junctions and with an output connected to a signal receiver.

4,393,495

MESSAGE TRANSLATION ARRANGEMENT FOR TELEPHONY SYSTEM WITH REMOTE PORT GROUPS

Edgar R. Cray, Altamonte Springs; Russell R. Davis, Seminole County; Maynard K. Knapp, Altamonte Springs; Glenn L. Richards; Bernard H. Root, both of Longwood, and William W. Woodruff, Winter Springs, all of Fla., assignors to Stromberg-Carlson Corporation, Tampa, Fla.

Filed Nov. 5, 1980, Ser. No. 204,114

Int. Cl.³ H04J 3/12; H04Q 3/54

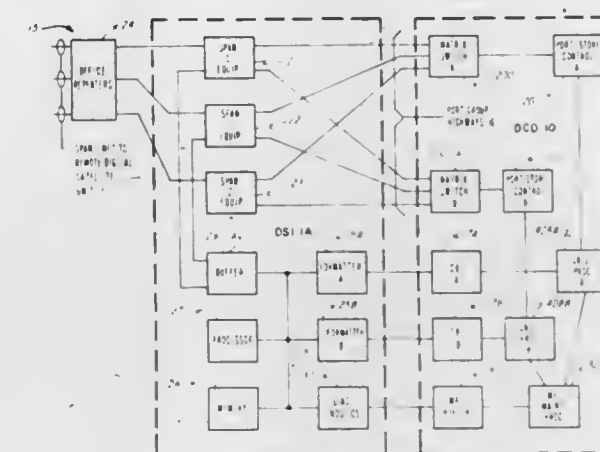
U.S. Cl. 370—56

38 Claims

1. In a telephony system for selectively interconnecting telephone calls among a plurality of telephone lines that includes, at a first location, a plurality of port group highway means for receiving and transmitting signals that represent voice data and signals in a first format that represent supervisory data, and call processing means including a digital data processor and an input/output bus means for selectively interconnecting the plurality of port group highway means in response to certain of a plurality of commands interpreted by the digital data processor, said telephony system including, at a second location that is physically remote from the first loca-

tion, port means for transmitting onto and receiving from certain of the telephone lines first port signals representing voice data and for transmitting and receiving second port signals representing voice data signals and supervisory data signals, the telephony system further comprising communications linkage means connected to the port means for conveying the second port signals in a predetermined format, the improvement of interfacing means comprising:

- A. encoding means connected to the input/output bus means for encoding signals representing supervisory data signals in response to commands from the call processing means,



B. transfer means connected to a selected port group highway means, the communications linkage means and said encoding means for converting signals between the format of the signals at the port group highway means and said encoding means and the format of the signals on the communications linkage means, and

C. message generating means connected to said transfer means and to the input/output bus means for transmitting messages to the call processing means in response to certain signals representing supervisory data signals received in said transfer means from the communications linkage means.

4,393,496

METHOD FOR FEEDING CALL PROGRESS TONES INTO CONFERENCE CONNECTIONS

Rolf Zeiträgg, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 26, 1981, Ser. No. 228,676

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 3005162

Int. Cl.³ H04M 3/56

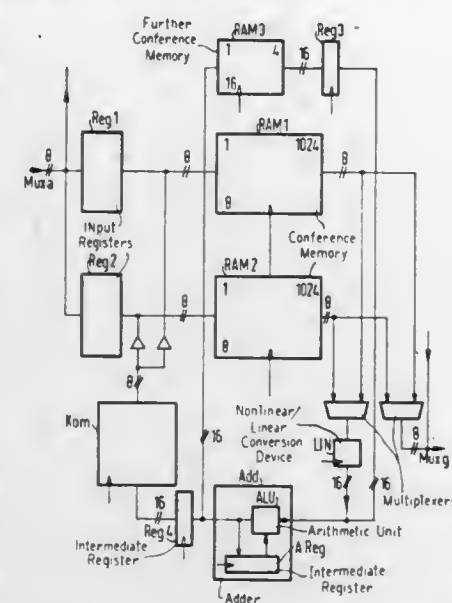
U.S. Cl. 370—62

1 Claim

1. In a method for feeding call progress tones into conference connections in a pulse code modulation (PCM) time-division multiplex switching system, in which PCM code words are repetitively supplied by conference subscribers, sum code words are formed from the PCM code words and said PCM code words are intermediately stored in one half of a first conference memory, in which a plurality of different partial sum code words are formed by subtracting from a sum code word a respective different one of the supplied PCM code words, said partial sum code words being intermediately stored in a second conference memory before transmission of those partial sum code words to each subscriber, such partial sum code word containing only the code words supplied by the other conference subscribers, and in which the above steps are performed for subsequently-arriving PCM words with respect to a second half of the first conference memory and the conference memory halves alternately so perform the above steps at each new receipt of PCM code words, the improvement comprising the steps of:

in addition to forming the sum code words, forming call

progress tone sum code words, by adding code words stored in the memory halves to respective call progress tone code words;
intermediately storing the sum code words and respective call progress tone sum code words; and



selectively forming partial sum code words by subtracting a PCM code word pertaining to a particular subscriber from either the intermediately stored sum code words or the respective call progress tone sum code words on the basis of call progress criteria.

4,393,497

LOOP SWITCHING SYSTEM

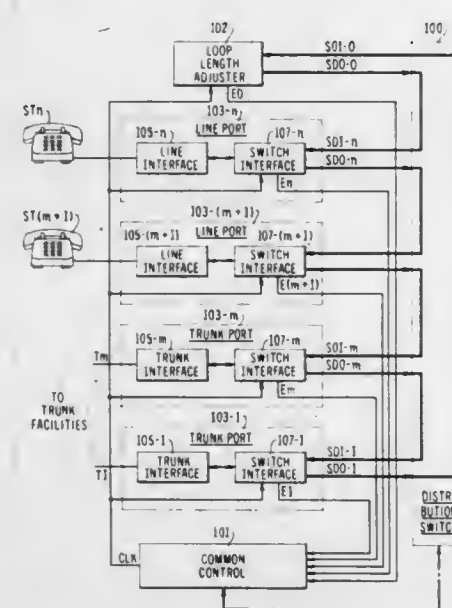
Richard F. Cantwell, Jr., Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 20, 1981, Ser. No. 255,469

Int. Cl.³ H04J 3/08; H04Q 11/04

U.S. Cl. 370—89

15 Claims



1. A communication system for serially interconnecting n communication circuits (T1-Tm, ST(n-m)-STn) comprising: n port means (103-1 to 103-n), each having an input (SDI-i) and an output terminal (SDO-i), associated on a one-to-one basis with said n communication circuits (T1-Tm, ST(n-m)-STn) for interfacing said n communication circuits (T1-Tn, ST(n-m)-STn) to said communication system;
control means (101) for establishing an order of interconnection for all of said n port means; and
interconnection means (100) connected to said input (SDI-i) and said output (SDO-i) terminals of all of said n port means (103-1 to 103-n) and responsive to said control means (101) for carrying data messages from said output

terminal (SDO-(m+1)) of the (m+1)th port means (103-(m+1)) to said input terminal (SDI-m) of the mth port means (103-m) for all n said port means (103-1 to 103-n) according to said order of interconnection.

4,393,498

METHOD AND APPARATUS FOR TESTING SYSTEMS THAT COMMUNICATE OVER DIGITAL BUSES BY TRANSMITTING AND RECEIVING SIGNALS IN THE FORM OF STANDARDIZED MULTI-BIT BINARY ENCODED WORDS

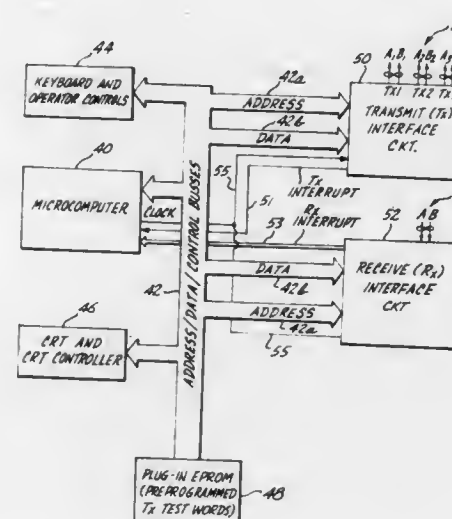
Tee-Squant-Nee Jackson, Seattle; Paul M. Vernon, Redmond, and David A. Schoen, Bothell, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jan. 22, 1981, Ser. No. 227,371

Int. Cl.³ G06F 11/00

U.S. Cl. 371—20

8 Claims



1. A test apparatus for testing systems that communicate by transmission and/or reception of transmit and/or receive words, respectively, in which such words are organized in a predetermined multiple bit format, comprising:

computer means including a memory;
data entry means for entering into the memory of said computer means the content of a first multi-bit transmit word in either engineering notation or in binary encoded notation;

said computer means further including engineering to binary conversion processing means for accepting and converting the content of a transmit word in said memory when entered in said engineering notation, into said binary encoded notation;

a first transmit port;

transmit circuit means responsive to said computer means for formatting and transmitting said first transmit word in binary notation from said first transmit port;

receiving circuit means for receiving a multiple bit receive word in binary notation, said receiving circuit means including means responsive to said computer means for receiving and storing said receive word in binary notation in said memory of said computer means;

said computer means further having binary to engineering conversion processing means for converting the content of said first transmit word to engineering notation when entered into said memory in binary notation, and for converting the receive word, as received in binary notation, to engineering notation;

a display device responsive to display control signals for displaying alphanumeric symbols; and,

said computer means including a first display control processing means for generating display control signals that cause said display device to concurrently display the contents of the first transmit word both in engineering and binary notations, and said computer means including a second display control processing means for generating

display control signals that cause said display device to concurrently display the contents of the received word both in binary and engineering notations.

4,393,499

ADAPTIVE SIGNAL QUALITY MEASUREMENT CIRCUIT FOR PSK AND FSK DEMODULATORS

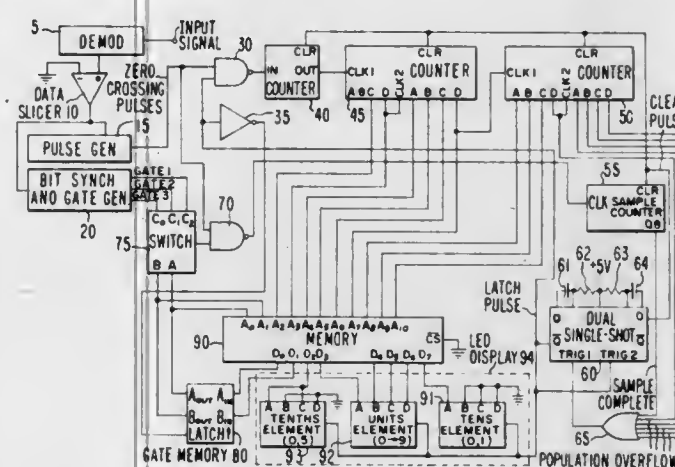
Randall G. Evans, San Jose, Calif., assignor to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed Mar. 11, 1981, Ser. No. 242,800

Int. Cl.³ H04B 17/00; H04L 1/20

U.S. Cl. 371—5

8 Claims



1. A circuit for measuring the signal quality of an antipodal stream of data bits comprising:

connected to said data stream, means for generating, at the same frequency as the bit frequency of said data stream, several different repetitive patterns of pulses, each pattern having a deadband region and an error region;
connected to said data stream and to said generating means, means for combining said stream with one of said patterns so that bits from said stream can be observed to fall within either of said regions by virtue of observing means connected to said combining means.

4,393,500

METHOD OF MODIFYING DATA STORED IN NON-VOLATILE MEMORY AND TESTING FOR POWER FAILURE OCCURRING DURING MODIFICATION

Ryoji Imazeki, Hachioji, and Michiya Inoue, Hino, both of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

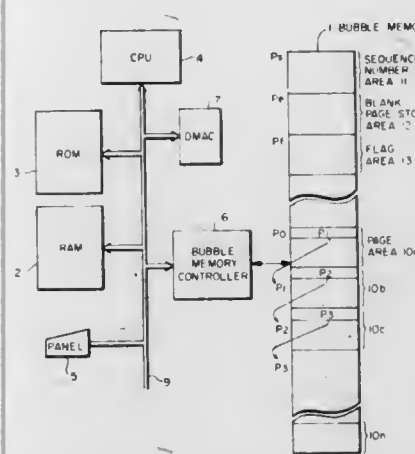
Filed Aug. 20, 1980, Ser. No. 179,840

Claims priority, application Japan, Sep. 4, 1979, 54-113260

Int. Cl.³ G06F 11/10; G11C 29/00

U.S. Cl. 371—13

3 Claims



3. A method of modifying data units and testing for a power failure that occurs during modifications using flag data stored in a bubble memory with a processor, comprising the steps of:

- reading out the flag data for one of the data units from the bubble memory with the processor;
- modifying the flag data for the one of the data units with the processor to indicate that a modification of the one of the data units is underway;
- writing the flag data back into the bubble memory with the processor;
- reading, modifying and writing the one of the data units stored in the bubble memory with the processor;
- reading out the flag data for the one of the data units with the processor;
- modifying the flag data for the one of the data units with the processor to indicate that the modification is completed;
- writing the flag data into the bubble memory with the processor;
- reading out the flag data from the bubble memory for all of the data units with the processor; and
- testing the flag data for all of the data units with the processor to determine if all modifications have been completed, thereby determining if the power failure has occurred during modification of the data units.

4,393,501

LINE PROTOCOL FOR COMMUNICATION SYSTEM

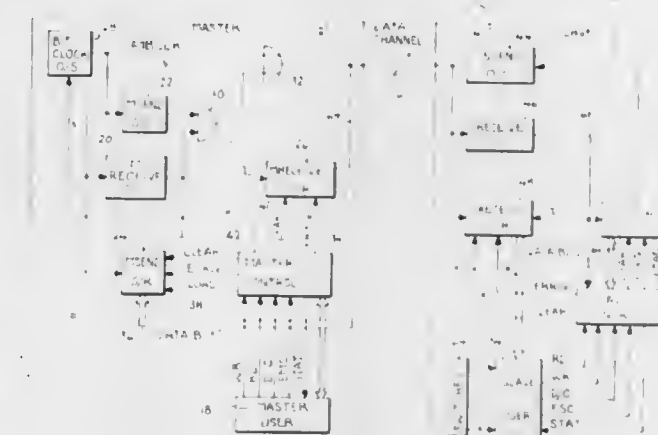
Richard A. Kellogg, Syracuse; John B. May, Liverpool, and Brian C. Johnson, Syracuse, all of N.Y., assignors to General Electric Company, Somersworth, N.H.

Filed Feb. 26, 1981, Ser. No. 238,205

Int. Cl.³ G06F 11/10

U.S. Cl. 371—33

10 Claims



1. A method of serially transferring digital signal information items, between a master processing unit and a slave processing unit, each functioning as a sending unit and a receiving unit, comprising the steps of:

- sending, from said master processing unit and receiving at said slave processing unit, a clock signal having a predetermined bit rate;
- sending from a sending unit and receiving at a receiving unit; a prescribed number of information items in bit serialized form, each information item being preceded by a clock signal, whereby the information items are sent and received at the bit rate of said clock signal; and
- sending from the receiving unit and receiving at the sending unit, after the prescribed number of information items have been received at the receiving unit, an acknowledgment signal representative of the receipt of the prescribed number of information items.

4,393,502

METHOD AND APPARATUS FOR COMMUNICATING DIGITAL INFORMATION WORDS BY ERROR-CORRECTION ENCODING

Masato Tanaka; Shunsuke Furukawa; Ikuo Iwamoto, and To-shitada Doi, all of Sony Corp., 6-7-35, Kitashinagawa, Shinagawa-Ku, Tokyo, Japan

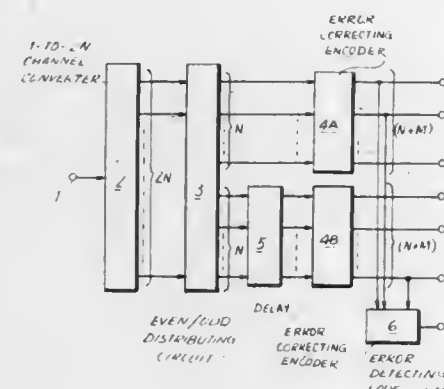
Filed Oct. 9, 1980, Ser. No. 195,625

Claims priority, application Japan, Oct. 9, 1979, 54-130310

Int. Cl.³ G06F 11/10

U.S. Cl. 371—40

43 Claims



1. A method of communicating a sequence of digital information words, comprising the steps of: separating said information words into a sequence of odd information words and a sequence of even information words; time-displacing the separated odd and even information words from each other by a predetermined amount; encoding said odd information words in an error-correcting code; separately encoding said even information words in an error-correcting code; combining said encoded time-displaced odd and even information words into a transmission block; and transmitting said transmission block.

4,393,503

CAVITY LENGTH CONTROL SYSTEM FOR A MULTILINE HEL

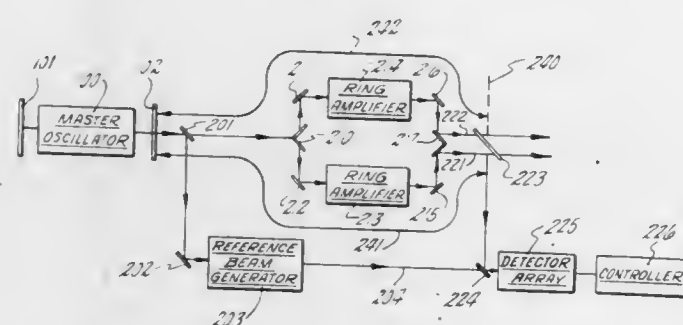
Albert W. Angelbeck, Glastonbury, and Gary E. Palma, Rocky Hills, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Oct. 2, 1980, Ser. No. 193,518

Int. Cl.³ H01S 3/10

U.S. Cl. 372—20

4 Claims



1. An apparatus for controlling the cavity length of an injection locked laser comprising:

- (a) means for generating a master oscillator beam;
- (b) means for generating a frequency-shifted beam therefrom, having at least two lines shifted in frequency from corresponding lines in said master oscillator beam by first and second predetermined frequencies;
- (c) means for transmitting a portion of said master oscillator beam as a reference beam, along a predetermined reference path length;
- (d) a resonant optical cavity comprising a gain medium, means for transporting a portion of said master oscillator beam about a cavity path length passing through said gain

medium, and cavity length means for varying said cavity path length;

- (e) means for coupling said portion of said master oscillator beam into said optical cavity, and for coupling an amplified beam out of said cavity along an amplified beam path, including said cavity path, having a variable length substantially equal to said predetermined reference path length and path length means for varying said variable length;
- (f) path length control means, responsive to said frequency-shifted beam, said reference beam and said amplified beam, for forming a signal for equalizing said predetermined reference path length and said variable length, coupled to said path length means;
- (g) cavity length control means, responsive to said frequency-shifted beam, said reference beam and said amplified beam, for generating a signal for controlling said cavity path length, further comprising:
 - (i) means for generating detected signals, at said first and second frequencies, from a reference detector responsive to said frequency-shifted beam and said reference beam and from an output detector responsive to said frequency-shifted beam to said amplified beam;
 - (ii) means for mixing said detected signals at said first frequency from both said detectors to form a first fine error signal, means for further mixing said signals at said second frequency from both said detectors to form a second fine error signal;
 - (iii) means for homodyning the detected signal from said reference detector to form a reference beat signal, having a beat frequency equal to the difference of said first and second frequencies, means for homodyning the signal from said output detector, to form an output beat signal at said beat frequency;
 - (iv) means for mixing said reference beat signal and said output beat signal to form a coarse error signal; and
 - (v) means for combining said first and second fine error signals with said coarse error signal in a predetermined manner to form a cavity length error signal for controlling said cavity length means.

4,393,504

HIGH POWER SEMICONDUCTOR LASER

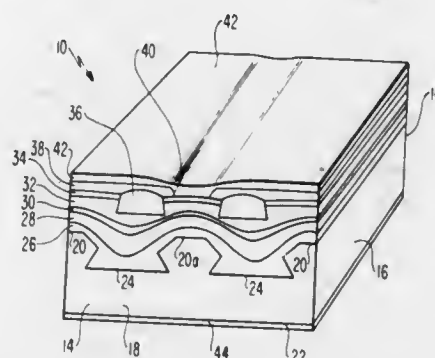
Dan Botez, Mt. Holly, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 24, 1981, Ser. No. 295,511

Int. Cl.³ H01L 3/19

U.S. Cl. 372—45

8 Claims



1. In a semiconductor laser having a pair of end faces at least one of which is partially transparent to light and comprising a substrate having a pair of opposed major surfaces, with a pair of spaced, substantially parallel grooves in a first major surface with a land therebetween; a first confinement layer overlying the first major surface of the substrate and the surfaces of the grooves; an active layer overlying the first confinement layer; a second confinement layer overlying the active layer; and first and second electrical contacts overlying portions of the second confinement layer and the second major surface respectively; wherein the substrate and the first confinement layer are of one

conductivity type and the second confinement layer is of the opposite conductivity type and wherein the index of refraction of the active layer at the wavelength of light emitted by the laser is greater than that of the first and second confinement layers;

the improvement which comprises a pair of spaced, substantially parallel anti-guiding regions on both sides of that portion of the second confinement layer over the land and extending a distance through the second confinement layer from a surface thereof towards, but not intersecting, the active layer, and having an index of refraction at said wavelength which is greater than that of the second confinement layer.

4,393,505

GAS DISCHARGE LASER HAVING A BUFFER GAS OF NEON

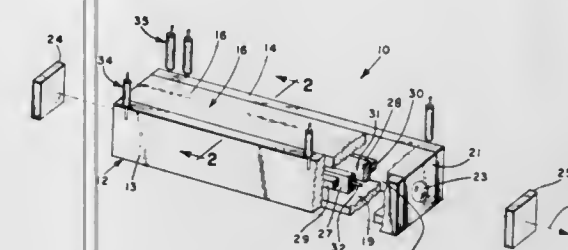
Theodore S. Fahlen, San Jose, Calif., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Continuation of Ser. No. 927,428, Jul. 24, 1978, abandoned. This application Nov. 3, 1981, Ser. No. 371,637

Int. Cl.³ H01S 3/22

U.S. Cl. 372—57

4 Claims



1. In an excimer laser comprising a chamber, spaced electrodes in said chamber defining a discharge zone therebetween, a source of d-c power, energy storage capacitor means electrically connected to said electrodes and to said source and adapted to be charged by the latter, switch means electrically connected between said capacitor means and said electrodes and operable to apply the charge voltage of said capacitor means across said electrodes, a lasing gas mixture in said chamber having a lasing gas selected from the group consisting of Ar and F₂, Xe and F₂, Xe and Br₂, Hg and Br₂, Hg and Cl₂, Xe and Cl₂ and Kr and F₂, said electrodes producing an electric discharge in said gas in said zone when said switch means is actuated whereby to convert said gas mixture to ArF, XeF, XeBr, HgBr, HgCl, XeCl and KrF, respectively, and optical means aligned with said discharge zone defining a laser cavity, the improvement consisting of a buffer gas of Ne in said mixture.

4,393,506

SEALED-OFF RF EXCITED CO₂ LASERS AND METHOD OF MANUFACTURING SUCH LASERS

Peter Laakmann, and Katherine D. Laakmann, both of Laguna Niguel, Calif., assignors to Walwel, Inc., San Juan Capistrano, Calif.

Filed Nov. 17, 1980, Ser. No. 207,576

Int. Cl.³ H01S 3/22, 3/03

U.S. Cl. 372—59

11 Claims

1. A method of constructing a sealed-off RF excited CO₂ waveguide laser comprising the steps of: selecting aluminum structural members suitable for construction of a waveguide laser housing, nickel-plating said aluminum structural members, placing said structural members in a passivation solution until all exposed surfaces are covered by an oxidized coating, and subjecting said structural members to a temperature of at least 100 degrees Centigrade and a vacuum of at least 10⁻⁴ Torr for a period of at least 72 hours.

9. A sealed-off RF excited CO₂ waveguide laser including a

gettering substance in contact with the gas mixture contained within said laser, said substance having high sorbitivity to hydrogen gas at room temperature and decreasing sorbitivity to hydrogen gas with increasing temperature, further comprising a housing consisting of nickel-plated aluminum members, the surfaces thereof being passivated with a nickel oxide coating.

10. In an assembled sealed-off RF excited CO₂ waveguide laser of the type having a gas mixture contained within said laser the improvement comprising cellulose contained within said assembled laser in contact with the gas mixture, said cellulose specially prepared to ensure high sorbitivity to water vapor at room temperature and decreasing sorbitivity to water vapor with increasing temperature to absorb water vapor evolved by the gas mixture.

4,393,507

METHOD AND APPARATUS FOR CHARGING LIME INTO AN ELECTRIC ARC FURNACE

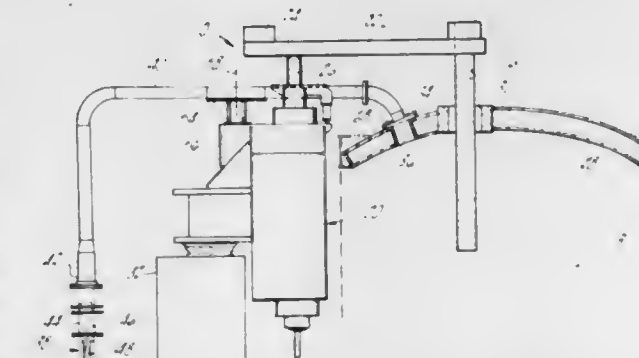
Ronald E. Miller; James E. O'Hara, and Arthur E. Rola, all of Jackson, Mich., assignors to Quanex Corporation, South Lyon, Mich.

Filed Jan. 5, 1981, Ser. No. 222,500

Int. Cl.³ F27D 3/10, 3/16

U.S. Cl. 373—81

14 Claims



11. In an electric arc furnace having a shell with a top having a plurality of electrode ports therein through each of which an electrode projects downwardly into the interior of the shell for drawing an arc with a charge of metal to be melted therein and of the type in which fumes are evacuated from the interior of said shell, the improvement comprising an inlet port through said shell at a location laterally displaced from and outwardly of said electrode ports, a nozzle carried by said furnace and constructed and arranged to be disposed in registry with said inlet port, said nozzle being constructed and arranged for movement to a first position wherein said nozzle is in registration with said inlet port for discharging particulate matter in a gas stream into said shell and to a second position spaced from said first position and wherein said top shields said nozzle from heat within said shell, said nozzle having a cross sectional shape, cross-sectional dimensions, an axial direction and an orientation which are constructed and arranged to direct particulate matter discharged therefrom in a gas stream through said inlet port and generally toward the center of the upper surface of the charge of metal in said shell without any substantial portion of the particulate matter impinging directly on any of the electrodes, and a cover movable to open and closed positions to effectively close said inlet port when said nozzle is in said second position and to open said inlet port when said nozzle is in said first position.

4,393,508

SYSTEM FOR LOCALLY TESTING A MODEM EMPLOYING FREQUENCY SHIFT KEYING

Robert Boudault, Limours, France, assignor to U.S. Philips Corporation, New York, N.Y.

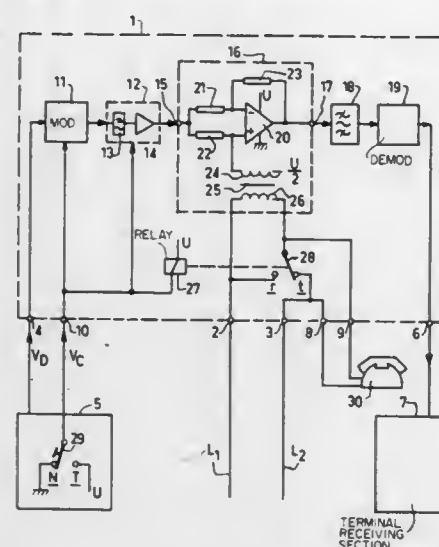
Filed Jun. 23, 1981, Ser. No. 276,580

Claims priority, application France, Jun. 23, 1980, 80 13867

Int. Cl.³ H04B 3/46

U.S. Cl. 375—9

5 Claims



1. A system for locally testing a modem employing frequency shift keying and being coupled to a two-wire transmission line, the two frequencies transmitted by the modem being lower than the two received frequencies and being produced by a modulator, in the form of multivibrator controlled by the data and connected to a transmission filter, the test system comprising means for looping the modem at the transmission line side in response to a test control signal, characterized in that said modulator comprises means for causing said modulator to produce, in response to said test control signal, two test frequencies, said two test frequencies being the respective products of said two frequencies transmitted by said modem multiplied by a multiplying factor, said multiplying factor being substantially equal to the ratio between the average values of said two received frequencies and said two frequencies transmitted by said modem, and said transmission filter comprises means for changing, in response to said test control signal, the transfer characteristics of said transmission filter in order that said two test frequencies may be transmitted there-through.

4,393,509

SOURCE-REGION ELECTROMAGNETIC PULSE SIMULATOR

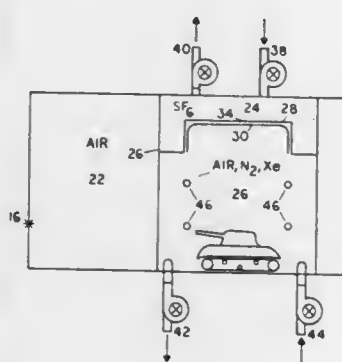
George Merkel, Springfield, Va., and William D. Scharf, Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 10, 1981, Ser. No. 252,737

Int. Cl.³ G21G 3/04

U.S. Cl. 376—156

19 Claims



1. A method of simulating, in conjunction with a source of ionizing radiation, intense pulsed electromagnetic fields and

time varying air conductivity caused by the gamma radiation associated with a nuclear detonation comprising the steps of: enclosing a space, said space including said source of ionizing radiation; dividing said space into a first space, a second space and a third space; separating said first space from said second space by a first gas impermeable, radiation permeable barrier; separating said second space from said third space by a second gas impermeable, radiation permeable barrier; providing a guided wave structure adjacent to said second gas impermeable, radiation permeable barrier; introducing a selected non-ionizing gas into said second space; and pulsing said guided wave structure with a high voltage pulser.

4,393,510

REACTOR FOR PRODUCTION OF U-233

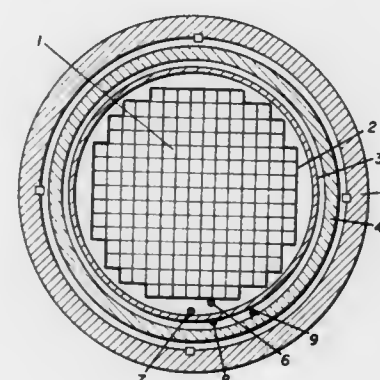
Linton W. Lang, Richland, Wash., and Robert L. Stetson, Moraga, Calif., assignors to Pacific Nuclear Fuels, Inc., Richland, Wash.

Continuation-in-part of Ser. No. 318,039, Jul. 20, 1973, abandoned. This application Jul. 1, 1976, Ser. No. 701,806

Int. Cl.³ G21C 3/22

U.S. Cl. 376—172

2 Claims



1. A light water nuclear power reactor utilizing fertile thorium and fissionable uranium fuel of 2 to 3 percent enrichment in combination in a blanket and core respectively for producing U-233 wherein the U-232 content in the irradiated thorium is minimized and in which said produced U-233 is recycled, comprising:

- a pressure vessel container;
- a central core member positioned in said vessel and comprising a plurality of fuel elements having fissionable uranium fuel positioned therein;
- a core baffle positioned around the periphery of said central core member forming a part thereof and comprising a plurality of fuel elements having fertile thorium fuel positioned therein, said core baffle defining the outer periphery of the core;
- a core barrel fixedly positioned in said vessel and surrounding said core baffle;
- the fuel elements in said central core member and said core baffle each comprising
 - a central section of fissionable uranium oxide pellets,
 - outer sections of hollow thin-walled thorium oxide pellets, plenum sections interposed between said inner and outer sections,
 - spring and spacer means positioned within said plenum sections,
 - a moderating material positioned on at least one side of each of said plenum sections,
 - cladding enclosing said pellets;
 - a first set of fuel elements surrounding said central core member and positioned between said core baffle and said core barrel in spaced relation thereto and having only fertile thorium fuel positioned therein;

4,393,512

HYPER-FILTER-FLUORESCER SPECTROMETER FOR X-RAYS ABOVE 120 KEV

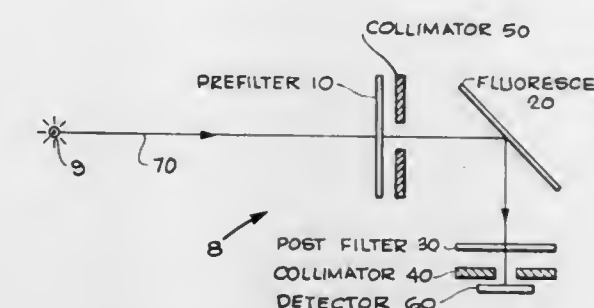
Ching L. Wang, Livermore, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 7, 1981, Ser. No. 281,141

Int. Cl.³ G01N 23/22

U.S. Cl. 378—156

9 Claims



1. In a spectrometer system to provide measurements of x-rays, wherein these x-rays emitted from a source are transmitted through a pre-filter, directed by a first collimator to a fluorescer, re-emitted from the fluorescer as K-fluorescence lines toward a post-filter and directed again by a second collimator to an x-ray detector, the improvement which comprises: said pre-filter for transmitting x-rays, having a predetermined absorption edge; said post-filter for transmitting x-rays to said detector, having a predetermined absorption edge which is more than the absorption edge of said pre-filter; and said fluorescer for emitting K-fluorescence lines toward said post-filter, having a predetermined absorption edge substantially equal to the absorption edge of said post-filter.

4,393,511

OUTER ROTATION BEARING FOR X-RAY TUBE

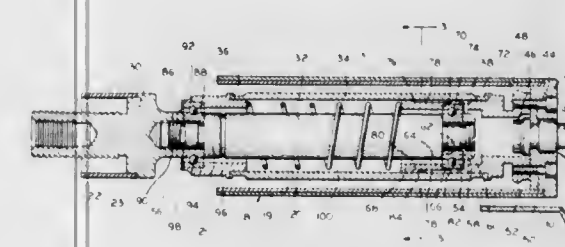
Richard A. Jens, Milwaukee, Wis., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 30, 1981, Ser. No. 335,909

Int. Cl.³ H01J 35/10

U.S. Cl. 378—128

4 Claims



- 1. A rotating anode x-ray tube, comprising:
 - an envelope;
 - a stationary stem member passing through a wall of said envelope and having a first part outside said envelope for receiving an external electrical connection and a second part extending axially into said envelope;
 - a rotatable tubular member within said envelope and coaxial with said stem member second part, said tubular member having first and second axially separated parts disposed about the second part of said stem member;
 - an x-ray target anode supported by an axially disposed stud having a first end fixed to said tubular member second part and a second end fixed to said anode;
 - rotor means for rotating said anode;
 - a front bearing for rotatably supporting the second part of said tubular member on said stem member second part while resisting conduction of heat between them, comprising a first bearing portion fixed to said stem member second part, a second bearing portion nonrotatably fixed within said tubular member second part with clearance between them to reduce thermal conduction, and first ball means between said first and second bearing portions; and
 - a rear bearing separated from said rotor assembly by said front bearing for rotatably supporting the first part of said tubular member on said stem member second part, comprising a third bearing portion fixed to said stem member second part, a fourth bearing portion fixed within said tubular member first part, and second ball means between said third and fourth bearing portions, with good thermal and electrical contact from said tubular member, via said fourth bearing portion, second ball means, and third bearing portion, to said stem member second part;
- whereby heat from said target anode is preferentially conducted between said tubular member and said stem via said rear bearing.

4,393,513

INPUT SIGNAL LEVEL CONTROL DEVICE FOR RECEIVER

Tomohisa Yokogawa, and Shintaro Gomi, both of Saitama, Japan, assignors to Pioneer Electric Corporation, Tokyo, Japan

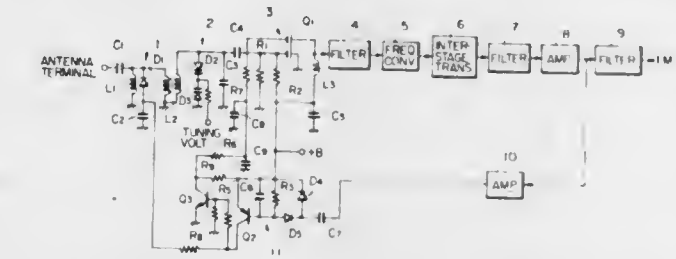
Filed May 14, 1981, Ser. No. 263,543

Claims priority, application Japan, May 19, 1980, 55-68535[U]

Int. Cl.³ H04B 1/16; H03G 3/30

U.S. Cl. 455—243

8 Claims



DESIGN PATENTS

GRANTED JUL. 12, 1983

ERRATA

For
CLASS

See
PATENT NO.

D07-311 269,680

DESIGNS

JULY 12, 1983

269,644
CAKE

Donato De Pascalis, Via Bisalta 7, Turin, Italy
Filed Mar. 27, 1981, Ser. No. 248,114
Term of patent 14 years
Int. Cl. D01—01

U.S. Cl. D1—15



269,645

FORMAL MEN'S SUIT

Jerry L. Cameron, 919 Mason St., LaGrange, Ga. 30240
Filed Jul. 31, 1981, Ser. No. 289,046
Term of patent 14 years
Int. Cl. D2—02

U.S. Cl. D2—29



269,646

LINEN BAG

Beatrice K. Schaer, 41 Wolfpit Ave., P.O. Box 26, Norwalk, Conn. 06851

Filed May 29, 1981, Ser. No. 268,390
Term of patent 14 years
Int. Cl. D3—01

U.S. Cl. D3—71



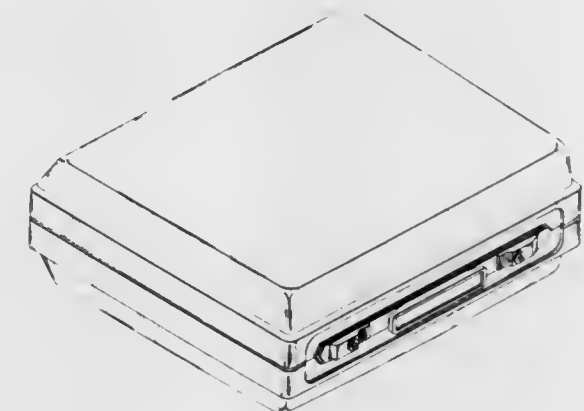
269,647

CASE FOR A TYPEWRITER

Angelo M. La Barbera, Liverpool, N.Y., assignor to SCM Corporation, New York, N.Y.

Filed Oct. 15, 1981, Ser. No. 311,721
Term of patent 14 years
Int. Cl. D3—02

U.S. Cl. D3—72



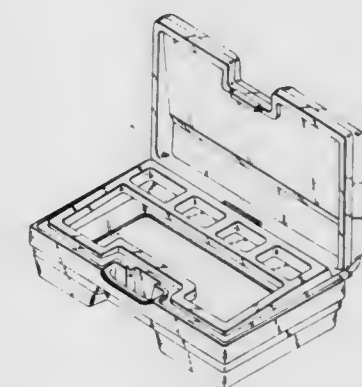
269,648

STORAGE CONTAINER

Donald Wilcox, 165 Pearl St., Seymour, Conn. 06483, and Noble Zambrano, 86 Alps Rd., Branford, Conn. 06405

Filed Nov. 28, 1980, Ser. No. 211,396
Term of patent 14 years
Int. Cl. D3—02

U.S. Cl. D3—73



269,649

BROOM HEAD

David A. Jones, Kettering, Ohio; Yasuhiro Koshido, Bloomington, and Daniel A. Maust, Winfield, both of Ill., assignors to The Drackett Company, Cincinnati, Ohio
 Filed Nov. 28, 1980, Ser. No. 210,893
 Term of patent 14 years
 Int. Cl. D4-01

U.S. Cl. D4-03

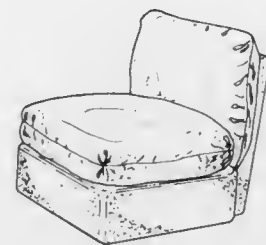


269,651

SEAT

Dorothy L. Blowers, Los Angeles, Calif., assignor to Pacific Furniture Manufacturing Co., Compton, Calif.
 Filed Aug. 4, 1980, Ser. No. 175,154
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-47

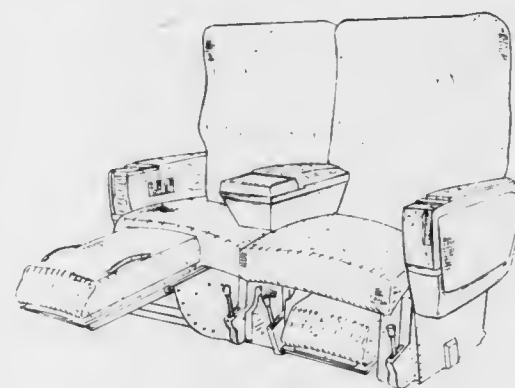


269,652

DUAL AIRCRAFT SEAT

Eric J. McKean, Lugarno, and David P. Downey, Five Dock, both of Australia, assignors to Qantas Airways Limited, Australia
 Filed Mar. 13, 1980, Ser. No. 130,081
 Claims priority, application Australia, Sep. 13, 1979, 78993
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-48

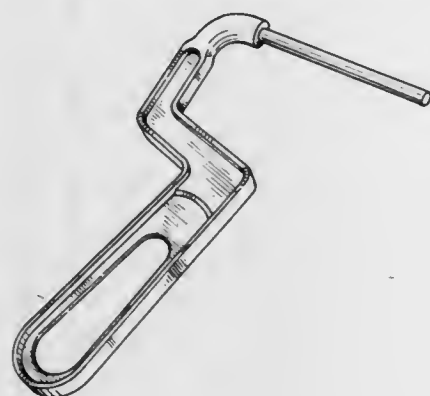


269,650

PAINT ROLLER FRAME

Philip J. Allison, Saint John, Canada, assignor to T. S. Simms & Co. Limited, Saint John, Canada
 Filed Mar. 12, 1981, Ser. No. 242,929
 Claims priority, application Canada, Dec. 29, 1980, 29-12-80-1
 Term of patent 14 years
 Int. Cl. D8-05; D4-04

U.S. Cl. D4-38.1



269,653

ARM CHAIR

Didier Deconinck, Seyssins, France, assignor to Allibert S.A., Grenoble, France
 Filed Feb. 11, 1981, Ser. No. 233,509
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-56

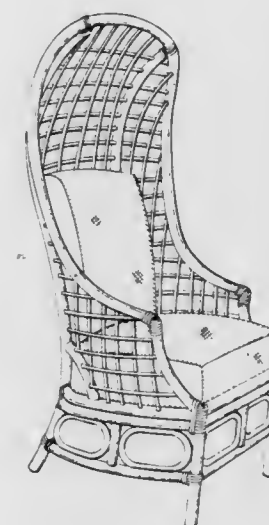


269,654

CHAIR

Mike T. Claman, New York, N.Y., assignor to Lewittes Furniture Enterprises, Inc., New York, N.Y.
 Filed Feb. 20, 1981, Ser. No. 236,443
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-57

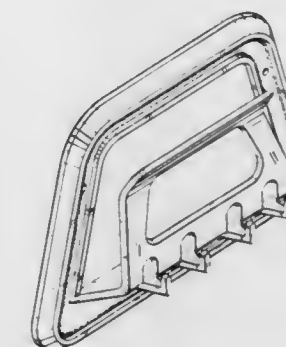


269,656

COMBINED MAIL AND KEY RACK OR THE LIKE

James B. Swett, Altamonte Springs, Fla., and David G. Bragin, Brooklyn, N.Y., assignors to Dart Industries Inc., Northbrook, Ill.
 Filed Jun. 29, 1981, Ser. No. 278,533
 Term of patent 14 years
 Int. Cl. D6-06

U.S. Cl. D6-130

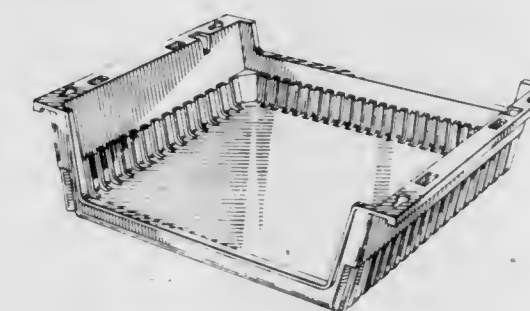


269,657

STORAGE TRAY FOR ATTACHMENT BENEATH A SHELF

William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
 Filed Jun. 26, 1981, Ser. No. 277,926
 Term of patent 14 years
 Int. Cl. D6-06

U.S. Cl. D6-199

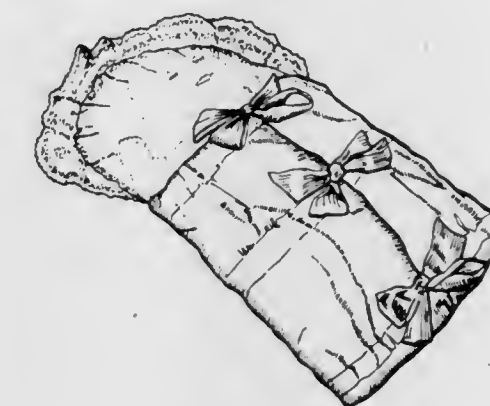


269,658

INFANT WRAPPING BLANKET

Marta Bor, 10521 - 128 St., Edmonton, Alberta, Canada T5N 1W3
 Filed Sep. 15, 1980, Ser. No. 187,187
 Claims priority, application Canada, May 6, 1980, 06-05-80-5
 Term of patent 14 years
 Int. Cl. D6-13

U.S. Cl. D6-267

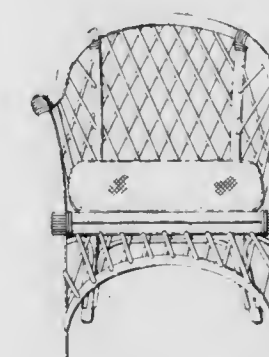


269,655

CHAIR

Mike T. Claman, 475 Park Ave., New York, N.Y. 10022
 Filed Feb. 23, 1981, Ser. No. 237,455
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-57



269,659

COMBINED GOBLET AND DRINKING TUBERichard D. Holloway, 40 Elsham Rd., London, W.14, England
Filed Apr. 2, 1982, Ser. No. 364,773Claims priority, application United Kingdom, Oct. 15, 1981,
1003007Term of patent 14 years
Int. Cl. D07—01

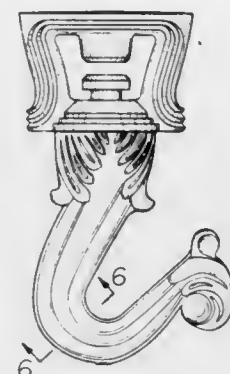
U.S. Cl. D7—11

269,661
HOOKRuediger Einhorn, Katonah, N.Y., assignor to Coats & Clark,
Inc.

Filed Apr. 25, 1980, Ser. No. 143,021

Term of patent 14 years
Int. Cl. D8—08

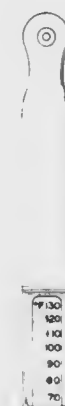
U.S. Cl. D8—367



269,662

YEAST THERMOMETERJames N. Ottaway, 1090 Madison La., Salinas, Calif. 93907
Filed Mar. 20, 1981, Ser. No. 245,847Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—57



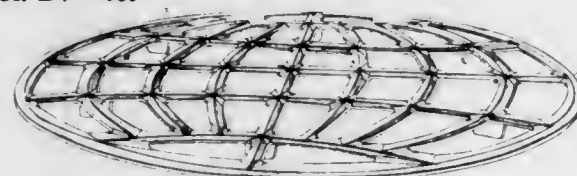
269,660

ROASTING RACKRobert M. Powers, Grand Rapids, Mich., assignor to Amway
Corporation, Ada, Mich.

Filed Apr. 9, 1981, Ser. No. 252,410

Term of patent 14 years
Int. Cl. D07—02

U.S. Cl. D7—409



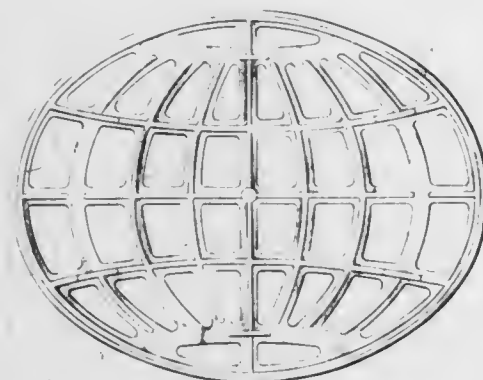
269,663

POLE LEVELGary E. Smith, and Edward D. Parks, both of 21060 Meekland
Ave., Hayward, Calif. 94541

Filed Jan. 30, 1981, Ser. No. 230,353

Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—69



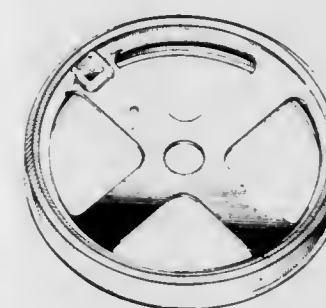
269,664

ELECTRONIC MARKER FOR BURIED UTILITIESBarry M. Marks, Austin, Tex., assignor to A.P.C. Industries,
Inc., Austin, Tex.

Filed Sep. 26, 1980, Ser. No. 191,088

Term of patent 14 years
Int. Cl. D10—05

U.S. Cl. D10—104



269,666

TIRE CHAIN FOR SLIP PREVENTION OF VEHICLE

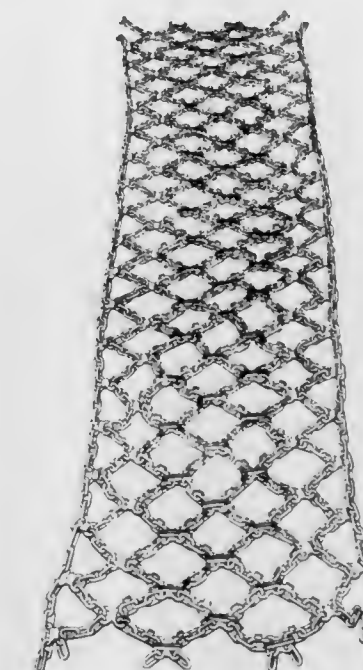
Kare Espedalen, Grenseveien 5, N-3290 Stavem, Norway

Filed Mar. 11, 1980, Ser. No. 129,377

Claims priority, application Norway, Sep. 20, 1979, 60038

Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D12—154



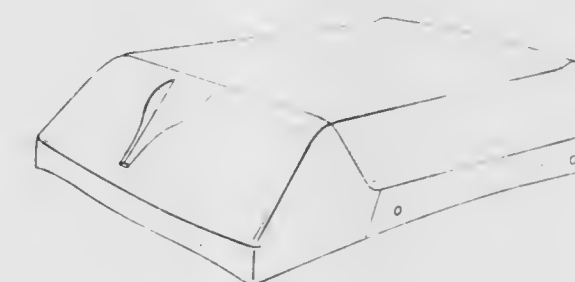
269,667

AUTOMOBILE ROOF TOP CARRIERDon R. Taylor, 1423 Ruffner St., Birmingham, Mich. 48008, and
Edward J. Prentice, 959 Loma Verde, Palo Alto, Calif. 94303

Filed Mar. 6, 1981, Ser. No. 241,219

Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D12—157



269,665

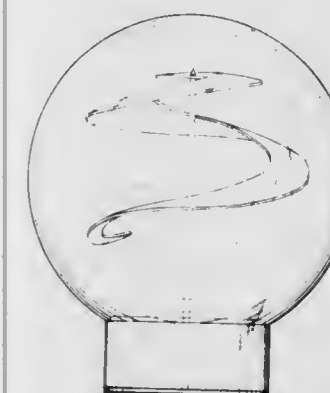
MOBILE

Harold Lehr, 307 E. 92nd St., New York, N.Y. 10028

Filed Mar. 23, 1981, Ser. No. 246,577

Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D11—141



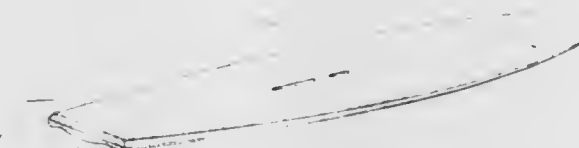
269,668

BOARDSAILING BOARDHenry H. Schweitzer, 317 Beirut, Pacific Palisades, Calif. 90272
Continuation of Ser. No. 730,872, Oct. 8, 1976. This application

Apr. 27, 1979, Ser. No. 34,044

Term of patent 14 years
Int. Cl. D12—06

U.S. Cl. D12—303



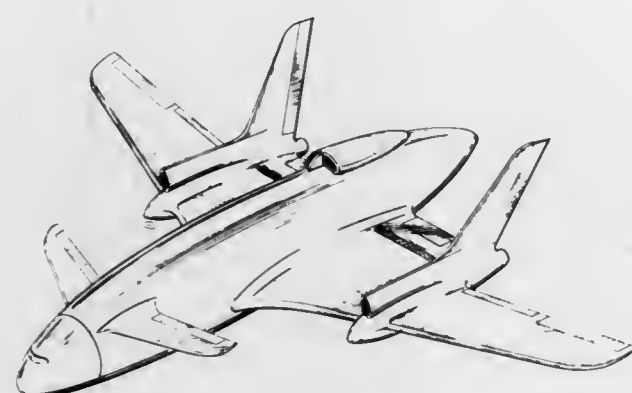
269,669

AIRPLANE

John P. Hancock, Marietta, and Rollo G. Smethers, Jr., Atlanta, both of Ga., assignors to Lockheed Corporation, Burbank, Calif.

Filed Sep. 11, 1980, Ser. No. 186,722
Term of patent 14 years
Int. Cl. D12-07

U.S. Cl. D12-332



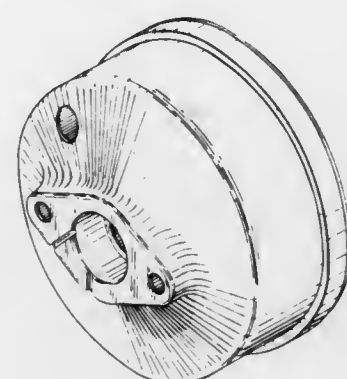
269,671

END FRAME FOR A SERVOMOTOR

John J. Horsting, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 31, 1980, Ser. No. 202,896
Term of patent 14 years
Int. Cl. D13-01

U.S. Cl. D13-1



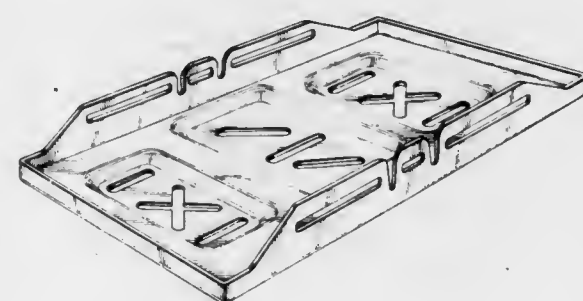
269,672

TRAY FOR A BATTERY

Samuel M. Seltzer, and Saul Dennison, both of Livingston, N.J., assignors to Allison Corporation, Livingston, N.J.

Filed Apr. 6, 1981, Ser. No. 251,510
Term of patent 14 years
Int. Cl. D13-02

U.S. Cl. D13-10



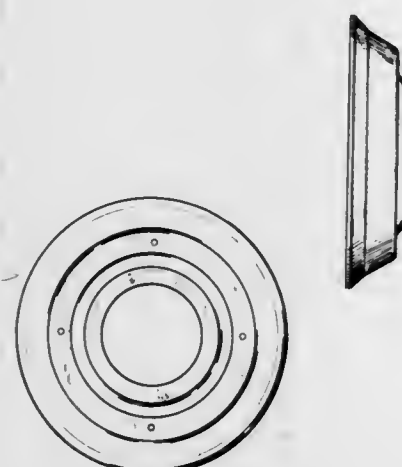
269,670

BACKING PLATE FOR SERVOMOTOR DIAPHRAGM

Keith H. Fulmer, Mishawaka, and Oswald O. Kytta, South Bend, both of Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Aug. 8, 1980, Ser. No. 176,308
Term of patent 14 years
Int. Cl. D13-01

U.S. Cl. D13-1



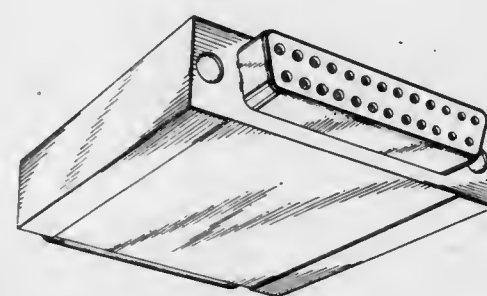
269,673

VARIABLE CABLE CONNECTOR INTERFACE FOR DATA PROCESSING EQUIPMENT

Hans O. Johansson, Lidingö; Hans G. Nilsson, Solna, and Louis Jernberg, Nacka, all of Sweden, assignors to Svea Data Communication & Computer Aktiebolag, Solna, Sweden

Filed Sep. 28, 1979, Ser. No. 79,920
Claims priority, application Sweden, Mar. 28, 1979, 798/79
Term of patent 3 1/2 years
Int. Cl. D13-03; D14-01

U.S. Cl. D13-24



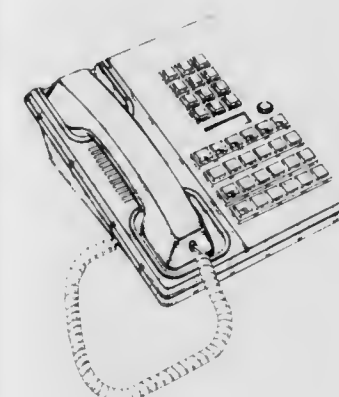
269,674

TELEPHONE

Takeshi Hirota, and Toshihiro Inagi, both of Yokohama, Japan, assignors to Kanda Tsushin Kogyo Co., Ltd., Tokyo, Japan
Filed Jan. 15, 1981, Ser. No. 225,336

Claims priority, application Japan, Sep. 18, 1980, 55-38234
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-53



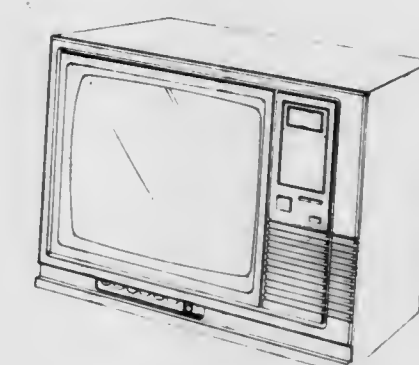
269,676

TELEVISION RECEIVER

Akira Takahashi, Tokyo; Noritaka Segawa, Koganei, and Takeichi Obata, Hino, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 21, 1981, Ser. No. 256,096
Claims priority, application Japan, Jan. 23, 1981, 56-1901
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-80



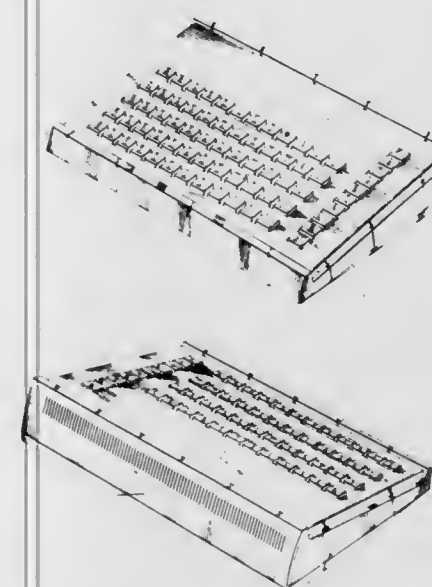
269,675

TELEPHONE BUSY LAMP FIELD CONSOLE

Donald A. Foggia, Ocean, N.J.; Deepak R. Muzumdar, Boca Raton, Fla.; Gerhart F. Klaiber, Boca Raton, Fla., and Rolf E. Schneider, Boca Raton, Fla., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 23, 1980, Ser. No. 199,984
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-58



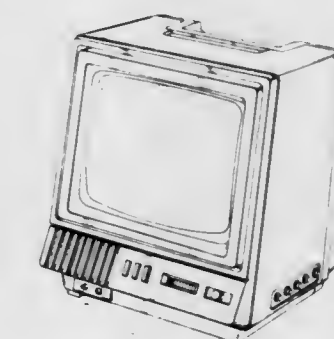
269,677

TELEVISION RECEIVER

Taisuke Kashima; Shigeki Gushiken, both of Tokyo; Kazuyuki Tsuburaya, Kodaira, and Yasusuke Seki, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 21, 1981, Ser. No. 256,097
Claims priority, application Japan, Oct. 27, 1980, 55-44536
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-80



269,678

COMPUTER

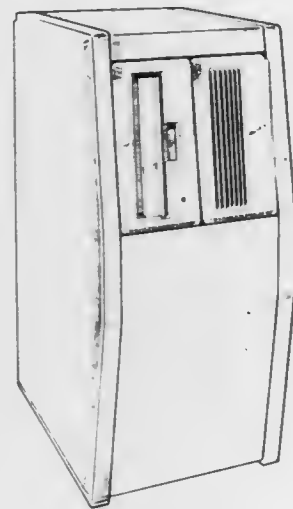
Benjamin F. Cooper, San Francisco, and Paul D. Major, Emeryville, both of Calif., assignors to Micromation, Inc., San Francisco, Calif.

Filed Aug. 7, 1981, Ser. No. 291,183

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D14-102



269,680

BEVERAGE DISPENSER OR SIMILAR ARTICLE

Achille Prandelli, Concesio, Italy, assignor to Ottopran S.r.l., Collebeato, Italy

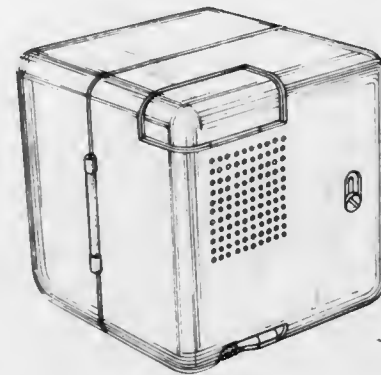
Filed Jun. 8, 1981, Ser. No. 271,075

Claims priority, application Italy, Dec. 23, 1980, 7092/80[U]

Term of patent 14 years

Int. Cl. D15-08

U.S. Cl. D7-311



269,681

ROBOT ARM

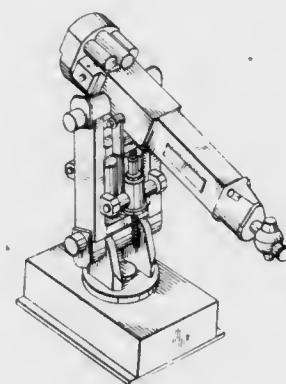
Alfred H. Morser, and Robert C. Watson, both of Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Jan. 12, 1981, Ser. No. 224,304

Term of patent 14 years

Int. Cl. D15-99

U.S. Cl. D15-199



269,679

ELECTRONIC COMPUTER

Shinichi Morooka, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan

Filed Dec. 23, 1980, Ser. No. 219,589

Claims priority, application Japan, Jul. 9, 1980, 55-27761

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D14-106



269,682

FIELD MICROSCOPE

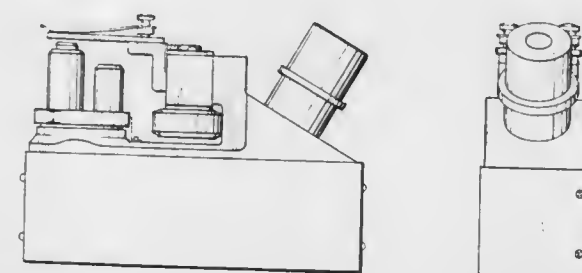
Kenichi Yokota, Tokyo, Japan, assignor to Swift Instruments, Inc., Boston, Mass.

Filed Aug. 1, 1980, Ser. No. 174,636

Term of patent 14 years

Int. Cl. D16-06

U.S. Cl. D16-131



269,683

ELECTRIC SHEET MUSIC PAGE TURNER

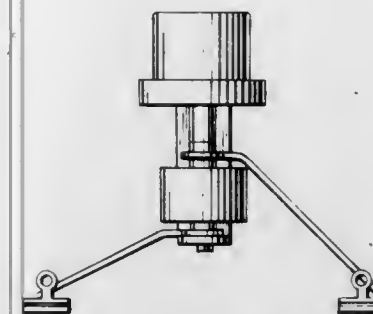
Bruce E. Barbour, 41-37 52nd St., Woodside, N.Y. 11377

Filed Mar. 9, 1981, Ser. No. 242,063

Term of patent 14 years

Int. Cl. D17-99

U.S. Cl. D17-99



269,684

WRITING INSTRUMENT OR SIMILAR ARTICLE

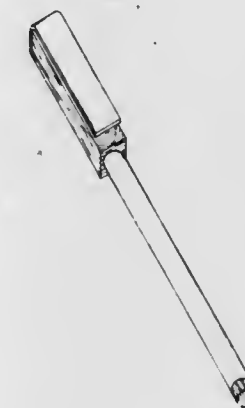
Richard Luntz, P.O. Box 24234, Lyndhurst, Ohio 44924

Filed Jun. 17, 1981, Ser. No. 274,495

Term of patent 14 years

Int. Cl. D19-06

U.S. Cl. D19-47



269,685

DESK NAME PLATE

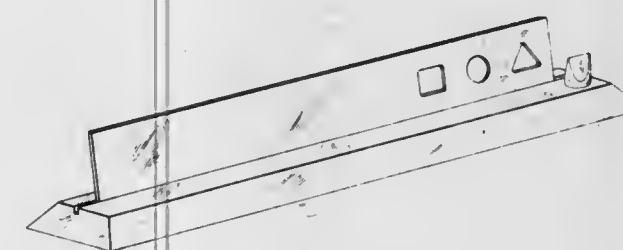
Kenneth R. Lansdowne, 550 Bright St., San Francisco, Calif. 94132

Filed Sep. 30, 1980, Ser. No. 192,298

Term of patent 14 years

Int. Cl. D20-03

U.S. Cl. D20-15



269,686

ELECTRONIC GAME CASING

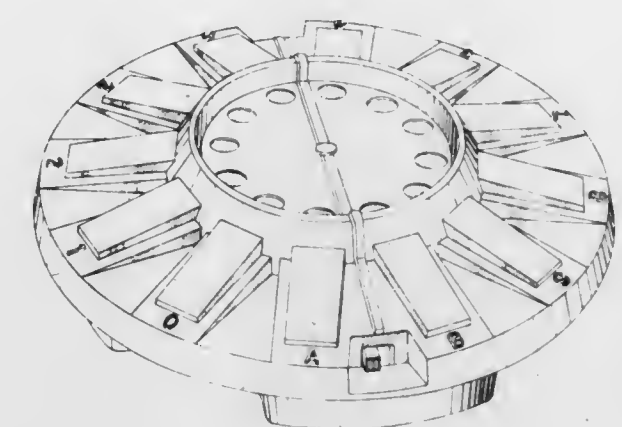
Per O. Hoel, 11 Hesperus Cir., Magnolia, Mass. 01930

Filed Feb. 9, 1981, Ser. No. 232,978

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-13



269,687

ANIMATED FIGURE RING TOY

Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Hiroaki Matsuda, both of Tokyo, all of Japan, assignors to Combi Co., Ltd., Tokyo, Japan

Filed Aug. 5, 1981, Ser. No. 291,641

Claims priority, application Japan, Feb. 17, 1981, 56-6081

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-59



269,688

SPINNING TOY

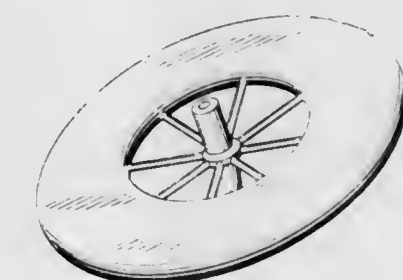
Lester V. Molenaar, P.O. Box 777, Willmar, Minn. 56201

Filed Nov. 18, 1980, Ser. No. 207,760

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-95



269,689

TOY VEHICLE

Tetsuo Ohkado, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Japan

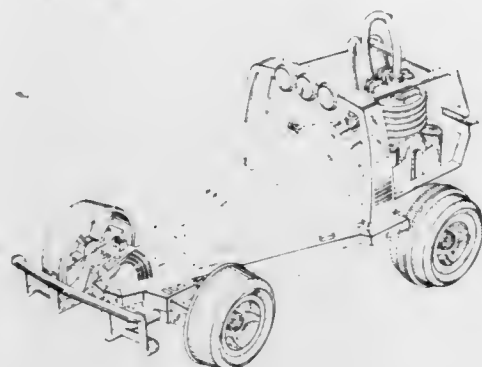
Filed Feb. 25, 1981, Ser. No. 237,885

Claims priority, application Japan, May 15, 1980, 55-19081

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-128



269,690

TOY MASK RESEMBLING A CHICKEN BEAK

Jeff Harris, 1910 Westridge Rd., Los Angeles, Calif. 90049;

Jack Horwitz, 3533 Moore St., Los Angeles, Calif. 90066, and

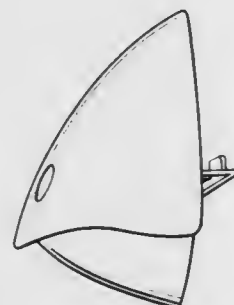
Charles Chambers, 935 N. Rose St., Burbank, Calif. 91505

Filed Feb. 6, 1981, Ser. No. 232,179

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-190



269,691

PORTABLE EXERCISE STAND

Richard Ornstein, 46 Hawthorne Rd., Garden City, N.Y. 11530,

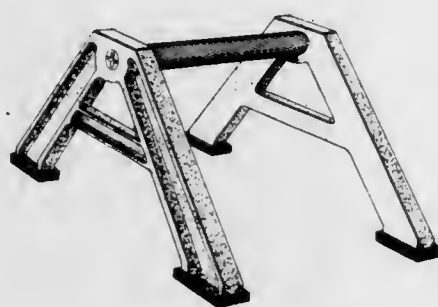
and Jerry Vassiliatos, 214 Ridge Rd., New City, N.Y. 10956

Filed Sep. 29, 1980, Ser. No. 191,485

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-191



269,692

TENNIS PRACTICE NET

Tsugio Hirabayashi, Tokyo, and Michio Nakai, Ebina, both of Japan, assignors to Sony Corporation, Tokyo, Japan

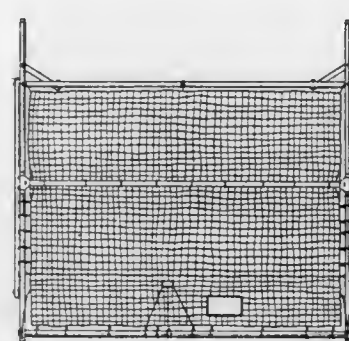
Filed Dec. 15, 1980, Ser. No. 216,184

Claims priority, application Japan, Jun. 19, 1980, 55-24586

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-200



269,693

MORTAR

John J. Dobias, 1212 Sumach Dr., Windsor, Ontario, Canada

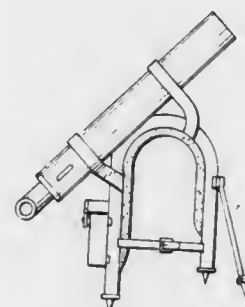
N8S 2S4

Filed Mar. 2, 1981, Ser. No. 239,432

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-3



269,694

REEL FOR FISHING OR THE LIKE

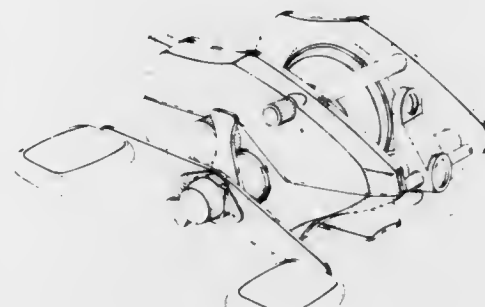
Seiji Myojo, Sakai, Japan, assignor to Shimano Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 30, 1981, Ser. No. 259,028

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-25



269,695

ROOM DEODORIZER DISPENSER

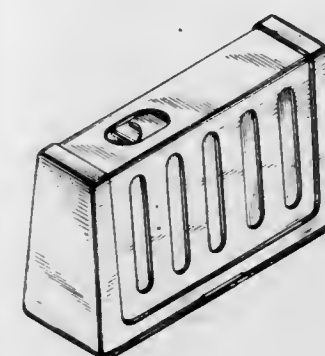
William J. O'Neil, Jr., Cincinnati, Ohio, assignor to The Drackett Company, Cincinnati, Ohio

Filed Jun. 29, 1981, Ser. No. 278,819

Term of patent 14 years

Int. Cl. D23-04

U.S. Cl. D23-150



269,696

CAP FOR A FAUCET HANDLE

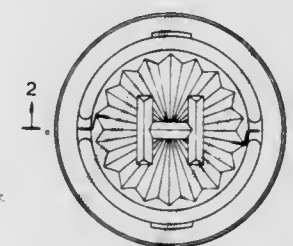
James E. Niemann, Louisville, Ky., assignor to American Standard Inc., New York, N.Y.

Filed Jul. 17, 1980, Ser. No. 169,538

Term of patent 14 years

Int. Cl. D23-01

U.S. Cl. D23-28



269,697

SPRINKLER SYSTEM CONTROL HOUSING

Cleve A. Graham, Port Hueneme; Craig R. Tisserat, Alta Loma, and Enric C. Mendoza, Walnut, all of Calif., assignors to Clemar Manufacturing Corp., Azusa, Calif.

Filed Dec. 3, 1980, Ser. No. 212,404

Term of patent 14 years

Int. Cl. D23-01

U.S. Cl. D23-38



269,698

STOVE

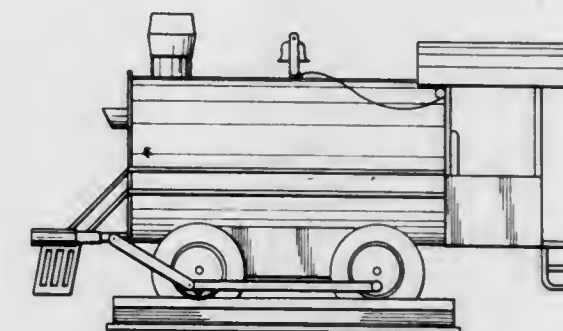
Donald A. Crawford, Box 153, Smelterville, Id. 83868

Filed Mar. 3, 1981, Ser. No. 240,474

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-97



269,699

AIR FRESHENER CONTAINER

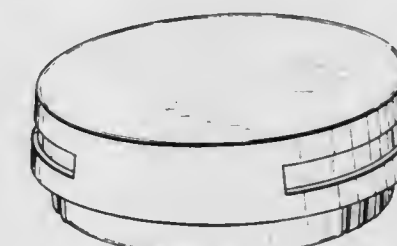
Timothy J. May, Hilbert, and David W. Wendt, Madison, both of Wis., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Jul. 14, 1981, Ser. No. 283,221

Term of patent 14 years

Int. Cl. D23-04

U.S. Cl. D23-150



269,700

VENTILATOR

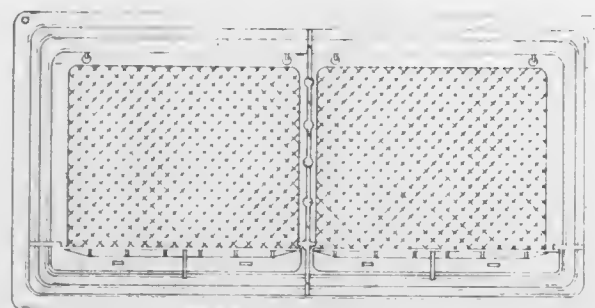
Elwin E. Peirce, 3890 Monroe Ave. Northeast, and Arthur L. Waltz, 4415 - 75th Ave. Southeast, both of Salem, Oreg. 97301

Filed Dec. 4, 1978, Ser. No. 966,137

Term of patent 14 years

Int. Cl. D23-04

U.S. Cl. D23-151



269,702

MICROVETTE ASSEMBLY

Osmo Suovaniemi; Pertti Ekholm, both of Helsinki; Esko Kaukanen, Espoo, and Aarre Kukka, Helsinki, all of Finland, assignors to Kommandiittiyhtio Finnpipe Osmo A. Suovaniemi, Finland

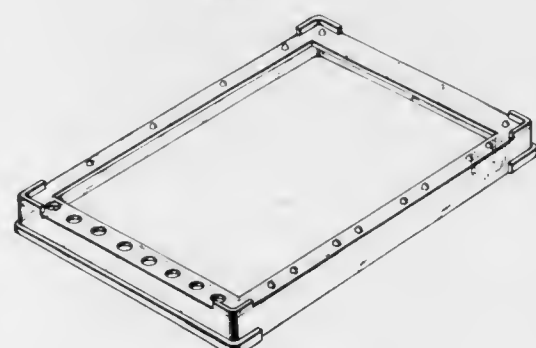
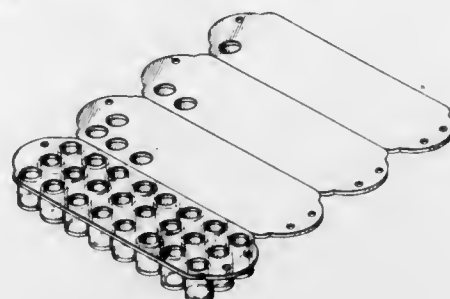
Filed Oct. 27, 1980, Ser. No. 201,327

Claims priority, application Finland, Apr. 28, 1980, 332/80

Term of patent 14 years

Int. Cl. D24-99

U.S. Cl. D24-8



269,703

PIPETTOR

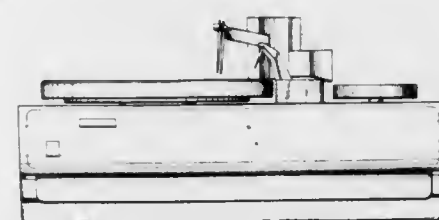
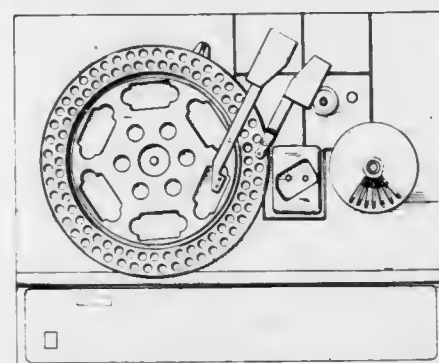
Bernard Parker, Westport, Conn., assignor to Baker Instruments Corp., Bethlehem, Pa.

Filed Mar. 27, 1981, Ser. No. 248,530

Term of patent 14 years

Int. Cl. D24-01, 02

U.S. Cl. D24-8



269,701

FULL BODY WEIGHT TRACTION DEVICE

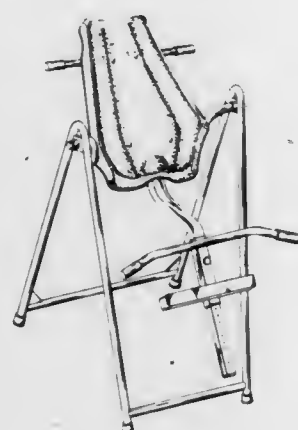
Jack V. Miller, Sierra Madre, Calif., assignor to Gravity Guidance, Inc., Pasadena, Calif.

Filed May 10, 1982, Ser. No. 376,512

Term of patent 14 years

Int. Cl. D24-01

U.S. Cl. D24-03



269,704

BASE FOR A FALSE TOOTH

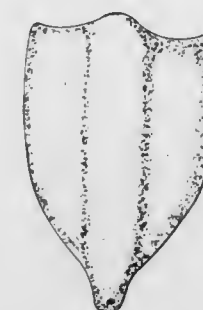
Ehrenfried G. B. Wolf, Rte. 1, Box 143 A, Raymond, Wash. 98577

Filed Jun. 9, 1980, Ser. No. 139,785

Term of patent 14 years

Int. Cl. D24-03

U.S. Cl. D24-33



269,705

FALSE TOOTH

Ehrenfried G. B. Wolf, Rte. 1, Box 143 A, Raymond, Wash. 98577

Filed Jun. 9, 1980, Ser. No. 139,787

Term of patent 14 years

Int. Cl. D24-03

U.S. Cl. D24-33



269,706

DISPENSING CONTAINER FOR PHARMACEUTICAL DILUENTS

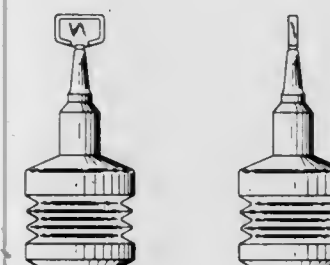
Brian C. Green, Vernon Hills, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Nov. 5, 1980, Ser. No. 203,567

Term of patent 14 years

Int. Cl. D24-02, 04; D9-01

U.S. Cl. D24-63



269,707

DECORATIVE SLAT ASSEMBLY FOR A SUSPENDED CEILING OR THE LIKE

Jacques G. L. Thual, Paris, France, assignor to Hunter Douglas International N.V., Willemstad, Netherlands Antilles

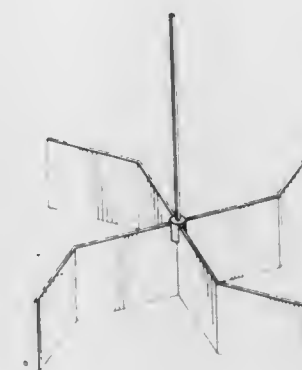
Filed Apr. 22, 1981, Ser. No. 256,300

Claims priority, application France, Oct. 23, 1980, 803288

Term of patent 14 years

Int. Cl. D25-01

U.S. Cl. D25-88



269,708

DECORATIVE SLAT ASSEMBLY FOR A SUSPENDED CEILING OR THE LIKE

Jacques G. L. Thual, Paris, France, assignor to Hunter Douglas International N.V., Curacao, Netherlands Antilles

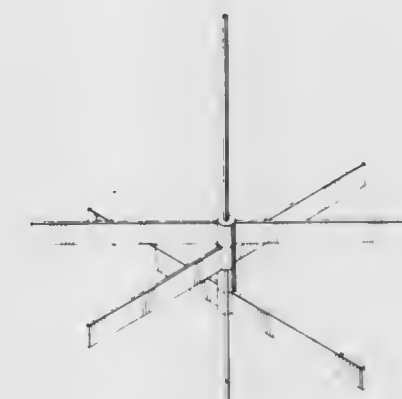
Filed Apr. 22, 1981, Ser. No. 256,301

Claims priority, application France, Oct. 23, 1980, 803288

Term of patent 14 years

Int. Cl. D25-01

U.S. Cl. D25-88



269,709

**DECORATIVE SLAT ASSEMBLY FOR A SUSPENDED
CEILING OR THE LIKE**Jacques G. L. Thual, Paris, France, assignor to Hunter Douglas
International N.V., Curacao, Netherlands Antilles

Filed Apr. 22, 1981, Ser. No. 256,517

Claims priority, application France, Oct. 23, 1980, 803288

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—89



269,711

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

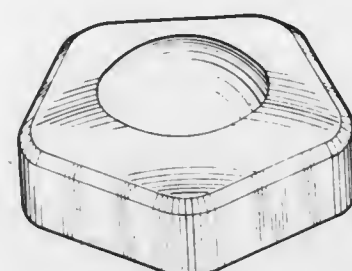
Filed Jun. 3, 1981, Ser. No. 270,033

Claims priority, application United Kingdom, Apr. 28, 1981,
1000024

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,712

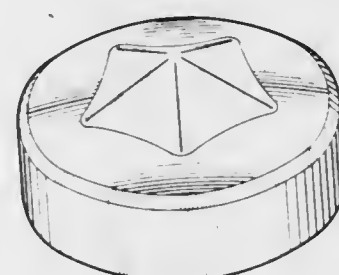
PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

Filed Jun. 3, 1981, Ser. No. 270,057

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,713

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

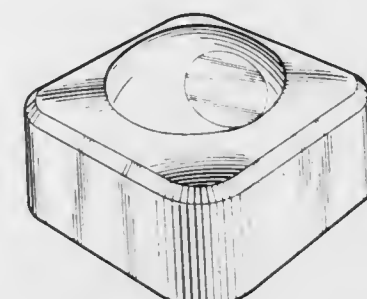
Filed Jun. 3, 1981, Ser. No. 270,156

Claims priority, application United Kingdom, Apr. 28, 1981,
1000198

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,710

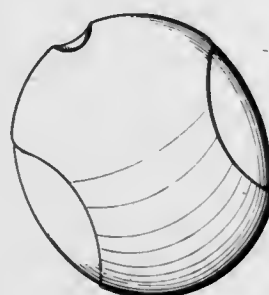
CIGAR AND CIGARETTE FILTER PERFORATORRafael Torreblanca Cervantes, Malaga, Spain, assignor to The
Westbury Foundation, Andorra and Dispositivos Reductores
de Tabaco, S.A. (Sodire), Spain

Filed Jun. 29, 1981, Ser. No. 278,382

Term of patent 14 years

Int. Cl. D27—99

U.S. Cl. D27—51



269,714

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

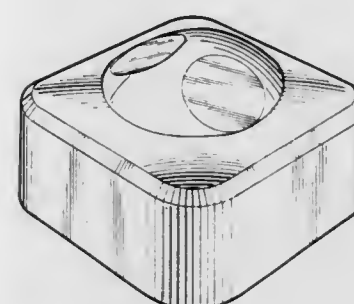
Filed Jun. 3, 1981, Ser. No. 270,157

Claims priority, application United Kingdom, Apr. 28, 1981,
1000199

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,716

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

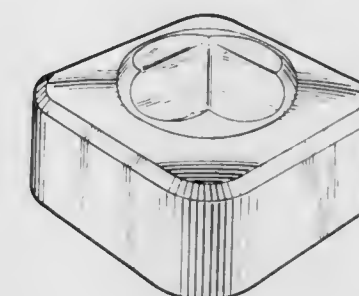
Filed Jun. 3, 1981, Ser. No. 270,189

Claims priority, application United Kingdom, Apr. 28, 1981,
1000201

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,715

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, England, assignor to Smith
Kline & French Laboratories Limited, Welwyn Garden City,
England

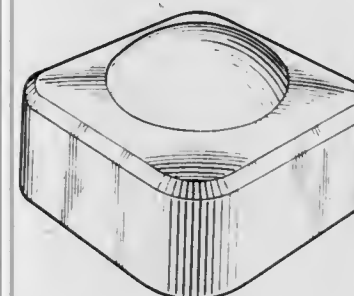
Filed Jun. 3, 1981, Ser. No. 270,158

Claims priority, application United Kingdom, Dec. 4, 1980,
997904

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,717

PHARMACEUTICAL TABLETGeoffrey D. Tovey, Harpenden, Fed. Rep. of Germany, assignor
to Smith Kline & French Laboratories Limited, Welwyn Gar-
den City, England

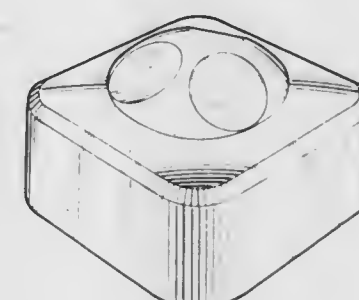
Filed Jun. 3, 1981, Ser. No. 270,190

Claims priority, application United Kingdom, Apr. 28, 1981,
1000200

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D28—2



269,718

PHARMACEUTICAL TABLET

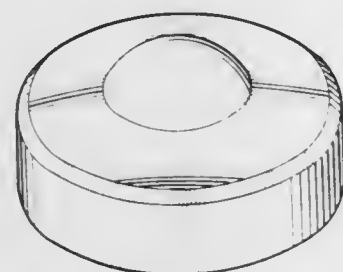
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,191

Claims priority, application United Kingdom, Apr. 28, 1981, 1000202

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



269,720

PHARMACEUTICAL TABLET

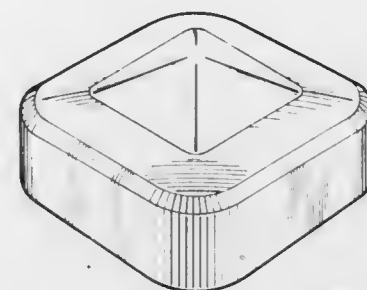
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,193

Claims priority, application United Kingdom, Apr. 28, 1981, 1000205

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



269,721

PHARMACEUTICAL TABLET

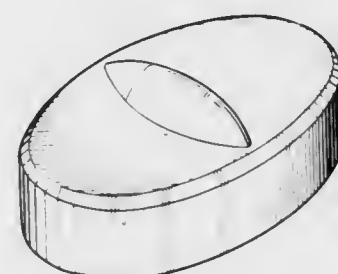
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,194

Claims priority, application United Kingdom, Apr. 28, 1981, 1000206

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



269,719

PHARMACEUTICAL TABLET

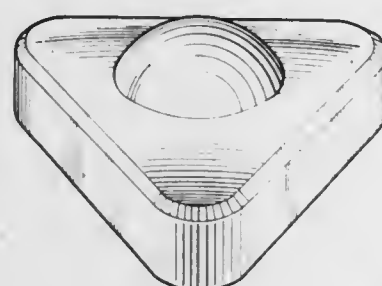
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,192

Claims priority, application United Kingdom, Apr. 28, 1981, 1000203

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



269,722

PHARMACEUTICAL TABLET

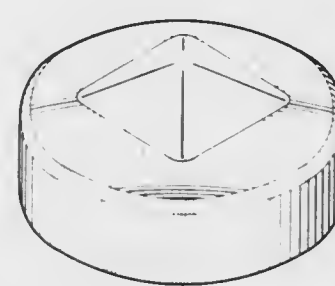
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,195

Claims priority, application United Kingdom, May 28, 1981, 1000715

Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D28—2



269,723

PHARMACEUTICAL TABLET

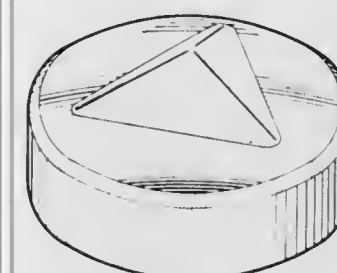
Geoffrey D. Tovey, Harpenden, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Filed Jun. 3, 1981, Ser. No. 270,196

Term of patent 14 years

Int. Cl. D28—01

U.S. Cl. D28—2



269,725

LITTER BIN

Brian G. Cooke, Templestowe, and James R. Burgin, East Brighton, both of Australia, assignors to Overseas Corporation, Australia

Filed Dec. 2, 1980, Ser. No. 212,161

Term of patent 14 years

Int. Cl. D7—05

U.S. Cl. D34—06



269,726

FIREPLACE WOOD CARRIER

Arlen Skille, Hayward, Wis., assignor to Bill Johnson and Gary Rogstad, both of Hayward, Wis.

Filed Oct. 8, 1980, Ser. No. 194,970

Term of patent 14 years

Int. Cl. D12—02

U.S. Cl. D34—24



269,724

TWIN BLADE RAZOR

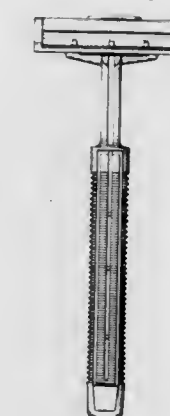
David O. Chase, and Martin Maloney, both of Skaneateles, N.Y., assignors to American Safety Razor Company, Verona, Va.

Filed Jun. 16, 1980, Ser. No. 159,726

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—46



269,727

SHEET OF PLASTIC MATERIAL

Jarl-Erik Jofs, Vaasa, Finland, assignor to Oy Wiik & Höglund Ab, Finland

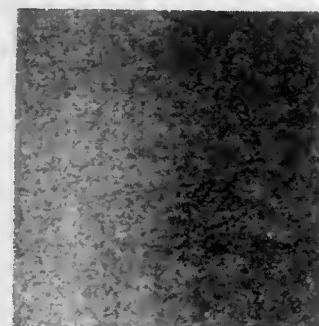
Continuation-in-part of Ser. No. 926,295, Jul. 20, 1978, abandoned. This application Dec. 11, 1980, Ser. No. 215,422

Claims priority, application Finland, Jan. 20, 1978, 44/78

Term of patent 14 years

Int. Cl. D05—06

U.S. Cl. D92—1.1



269,728

BRACKET FOR COIN CHANGE HOLDER

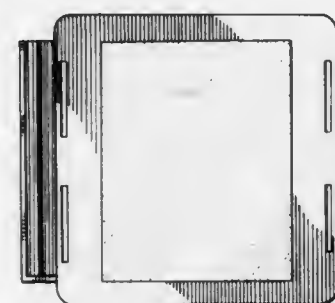
Charles Ohanian, 16 Whites Pl., Watertown, Mass. 02172

Filed Jan. 14, 1981, Ser. No. 225,057

Term of patent 14 years

Int. Cl. D31—00

U.S. Cl. D99—34



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A. T. Ramot Plastics, Ltd.: See—
Kraus, Menahem A.; Frommer, Moshe A.; Nemas, Mara; and Gutman, Rodika, 4,392,960, Cl. 210-651.000.
- AB Bofors Elektronik: See—
Lundborg, Olle G., 4,392,537, Cl. 177-134.000.
- AB Volvo: See—
Backman, Erik, 4,392,605, Cl. 229-19.000.
- Abbott Laboratories: See—
Elias, Allen M.; and Genese, Joseph N., 4,392,850, Cl. 604-82.000.
Elias, Allen M., 4,392,851, Cl. 604-82.000.
- Abe, Kunihiro: See—
Omori, Toshiyuki; and Abe, Kunihiro, 4,392,951, Cl. 209-307.000.
- Abel, Martin L.: See—
Permawick Bearing Corporation. Cartridge bearing assembly, 4,392,753, Cl. 384-136.000.
- Abiko, Toshio: See—
Minakuchi, Yoshikazu; Abiko, Toshio; and Inoue, Hiromitsu, 4,393,514, Cl. 455-336.000.
- ACF Industries, Incorporated: See—
Baker, Thomas B.; and Mandrell, Richard J., 4,392,575, Cl. 213-76.000.
- Action Instruments Co. Inc.: See—
Looper, Norman G., 4,393,347, Cl. 324-126.000.
- Adamczyk, Rudolph A.: See—
Titeflex Corporation. End fittings for flexible hoses, 4,392,678, Cl. 285-256.000.
- Addison, William C.: See—
Hauk, Ernest D.; and Addison, William C., 4,392,527, Cl. 166-55.200.
- Aden, David P.: See—
Knowles, Barbara B.; and Aden, David P., 4,393,133, Cl. 435-6.000.
- Adler, Robert: See—
Extel Corporation. Magnetic dot matrix printing method and apparatus, 4,392,754, Cl. 400-119.000.
- Advanced Card Systems, Ltd.: See—
Hofmann, Rolf L., 4,393,302, Cl. 235-474.000.
- Advanced Micro Devices, Inc.: See—
New, Bernard J., 4,393,457, Cl. 364-726.000.
New, Bernard J., 4,393,468, Cl. 364-736.000.
- Aeroquip Corporation: See—
Crissy, Charles F.; and Holmes, Paul M., 4,392,762, Cl. 410-116.000.
- Agfa-Gevaert Aktiengesellschaft: See—
Schenk, Gunther; Berghaller, Peter; Wolfrum, Gerhard; and Stolzenburg, Rudolf, 4,393,132, Cl. 430-562.000.
- Ahn, Byorg R.: See—
Preliminary heating apparatus for torch lamp, 4,392,819, Cl. 431-231.000.
- Aiba, Yasuaki: See—
Honda Giken Kogyo Kabushiki Kaisha. Device for preventing displacement of an engine in a motorcycle, 4,392,542, Cl. 180-228.000.
- Aiken, John A., Jr.: See—
International Business Machines Corporation. Insertion of character set change codes in an altered text stream, 4,393,463, Cl. 364-900.000.
- Air Products and Chemicals, Inc.: See—
Daniels, Wiley E.; and Nagy, Dennis J., 4,393,173, Cl. 525-329.400.
- Aisin Seiki Kabushiki Kaisha: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, 4,393,467, Cl. 364-424.100.
Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, 4,392,560, Cl. 188-73.340.
- Aisin-Warner Kabushiki Kaisha: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, 4,393,467, Cl. 364-424.100.
- Ajinomoto Company Incorporated: See—
Tsuchida, Takayasu; and Nakamori, Shigeru, 4,393,135, Cl. 435-110.000.
- Akagi, Kazuo: See—
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,267, Cl. 15-88.000.
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,506, Cl. 134-46.000.
- Akiyama, Hiroyuki: See—
Hatakeyama, Hideo; Shimoyashiki, Nobuyoshi; Momose, Yoshiaki; and Imai, Fusao, to Japan Styrene Paper Corporation. Process for producing plate-like polystyrene resin foam, 4,393,016, Cl. 264-53.000.
- Akzo NV: See—
Zengel, Hans-Georg; and Bergfeld, Manfred, 4,393,238, Cl. 564-255.000.
- Alaimo, Robert J.: See—
Norwich Eaton Pharmaceuticals, Inc. 5-Methyl-2-trifluoromethylindolol[2,3-b]quinoxaline, 4,393,208, Cl. 544-343.000.
- Albrecht, Allan J.: See—
Van Ooyen, Richard C., to J. I. Case Company. Boom and dipper stick construction, 4,392,314, Cl. 37-103.000.
- Albright, Jay D.: See—
Dusza, John P.; and Albright, Jay D., 4,393,217, Cl. 548-362.000.
- Alder, Hanspeter; and Schalch, Eugen, to Swiss Aluminium Ltd. Electrode arrangement in a cell for manufacture of aluminum from molten salts, 4,392,925, Cl. 204-67.000.
- Alexander, A. Gordon, to Exxon Research and Engineering Co. Process for continuously manufacturing lubricating grease, 4,392,967, Cl. 252-41.000.
- Allen, Harry R.: See—
Upjohn Company. The Method of treating cardiac arrhythmia, 4,393,054, Cl. 424-180.000.
- Allen, John K.: See—
Lammers, Gerard C., to Standard Oil Company (Indiana). Continuous non-catalytic pyrolysis of aqueous slurry of oxygen-containing derivatives of benzene and toluene, 4,393,264, Cl. 585-469.000.
- Allen, Louis B., Jr.: See—
Koenig, Herbert G., Jr.; Stacy, Robert A.; and Meyer, Danny D., to McDonnell Douglas Corporation. Laser diode with double sided heat sink, 4,393,393, Cl. 357-81.000.
- Allen, Robert P.: See—
Eastman Kodak Company. Hydrocarbon resin and process for preparation, 4,393,261, Cl. 585-422.000.
- Allen, Roy A.: See—
Shell Oil Company. Polyfunctional phenolic-melamine epoxy resin curing agents, 4,393,181, Cl. 525-504.000.
- Allied Corporation: See—
Eisenbaumer, Ronald L.; and Wasserman, Ed., 4,392,978, Cl. 252-182.000.
Reimschuessel, Herbert K.; and DeBona, Bruce T., 4,393,233, Cl. 562-473.000.
Rogic, Milorad M.; and Oxenrider, Bryce C., 4,393,215, Cl. 548-125.000.
Stables, Wilbur L.; Pendlebury, David; Saich, Anthony M.; and Hamlyn, Maxwell C., 4,392,285, Cl. 28-276.000.
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- Almor Corporation: See—
Foster, Stephen W., 4,392,553, Cl. 186-61.000.
- Aloi, Michael J.; and Hancock, Kevin J., II. Built-in solar panel, 4,392,484, Cl. 126-450.000.
- Alpine Research, Inc.: See—
Ramer, Paul C., 4,392,666, Cl. 280-614.000.
- Alps Electric Co., Ltd.: See—
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- Altenschopfer, Theodor; and Schumann, Klaus, to Henkel Kommanditgesellschaft Auf Aktien. Liquid cleaning and maintenance composition especially for dishwashers, 4,392,977, Cl. 252-174.190.
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Eckert, Charles E.; and Miller, Ronald E., 4,392,888, Cl. 75-68.00R.
- Alvey Inc.: See—
Turnbough, Harold L.; and Wernitz, Charles W., 4,392,568, Cl. 198-781.000.
- Amano, Hiroyuki: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, 4,393,467, Cl. 364-424.100.
- American Cyanamid Company: See—
Dusza, John P.; and Albright, Jay D., 4,393,217, Cl. 548-362.000.
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- Nair, Vijay G.; Joseph, Joseph P.; and Bernstein, Seymour, 4,393,055, Cl. 424-180.000.
- Tomculcik, Andrew S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., 4,393,004, Cl. 260-245.500.
- American Hoechst Corporation: See—
Amtower, Richard E., 4,393,411, Cl. 358-302.000.
- American Medical Systems, Inc.: See—
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- American Microsystems, Inc.: See—
Gregorian, Roubik; and Wegner, Glenn, 4,393,351, Cl. 328-127.000.
- American Monitor Corporation: See—
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- American Standard Inc.: See—
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- Amodeo, Ralph J.: See—
Volpe, Gerald T.; Laskoski, Leonard S.; Amodeo, Ralph J.; Swanson, William J.; and Gottesman, Jerome D., 4,393,352, Cl. 329-50.000.
- Amoroso, Michael J. Portable rescue tool, 4,392,263, Cl. 7-100.000.
- AMP Incorporated: See—
Andrews, Howard W., Jr.; Billman, Timothy B.; and Coughlin, Robert F., 4,392,705, Cl. 339-75.0MP.
Baker, Robert W.; Owen, Leonard J.; and Simmons, Reginald J., 4,392,706, Cl. 339-91.00R.
Billman, Timothy B.; and Kautz, Jon F., 4,392,300, Cl. 29-739.000.
Showman, Robert L.; and Weber, Robert N., 4,392,700, Cl. 339-17.00M.
Weidler, Charles H., 4,392,701, Cl. 339-17.00R.

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Anaconda-Ericsson: See—
Ashlock, Robert L.; Gabrielson, Carl E.; Kerr, Douglas P.; Rasmussen, David J.; Stump, Theodore M.; and Thode, Charles W., 4,393,491, Cl. 370-13.000.

Anchor Hocking Corporation: See—
Ochs, Charles S., 4,392,580, Cl. 215-332.000.

Anderson, David N.: See—
Cross, Stephen D.; Frost, Elmer F., Jr.; and Anderson, David N., 4,392,803, Cl. 425-126.00S.

Anderson, Gordon K., to Carrier Corporation. Permanent magnet rotor. 4,393,320, Cl. 310-156.000.

Anderson, James E.; Lee, John D.; and Livermore, Frederick C., to Northern Telecom Limited. Overvoltage protector for telephone lines. 4,393,433, Cl. 361-119.000.

Anderson, Raymond A. Quick release wheel mount. 4,392,690, Cl. 301-121.000.

Anderson, Richard D., to Pako Corporation. Disc film advance assembly. 4,392,743, Cl. 355-75.000.

Anderson, Lars G. High stability trimaran. 4,392,444, Cl. 114-39.000.

Andrew, Wesley A.: See—
Hansen, Peder M.; Hoffman, John G.; Seeley, Elwin W.; and Andrew, Wesley A., 4,393,350, Cl. 324-334.000.

Andrews, Christopher M., to Ciba-Geigy Corporation. Curing agents for epoxide resins and compositions containing them. 4,393,180, Cl. 525-504.000.

Andrews, Howard W., Jr.; Billman, Timothy B.; and Coughlin, Robert F., to AMP Incorporated. Zero insertion force connector system. 4,392,705, Cl. 339-75.00P.

Angelbeck, Albert W.; and Palma, Gary E., to United Technologies Corporation. Cavity length control system for a multiline HEL. 4,393,503, Cl. 372-20.000.

Anger, Klaus; Frosien, Juergen; Lischke, Burkhard; Plies, Erich; and Toner, Klaus, to Siemens Aktiengesellschaft. High current electron source. 4,393,308, Cl. 250-396.00R.

Angersbach, Wolfgang; and Meier, Karl-Heinz, to Quick-Rotan Elektromotoren GmbH. Position adjusting drive unit. 4,393,343, Cl. 318-640.000.

Angus Chemical Company: See—
Eckler, Paul E., 4,393,149, Cl. 521-129.000.

Anic, S.p.A.: See—
Costanzi, Silvestro; Tessarolo, Francesco; and Brunelli, Maurizio, 4,393,218, Cl. 548-530.000.

Anorad Corporation: See—
Chitayat, Anwar, 4,392,642, Cl. 269-73.000.

Anstötz, Helmut; Kubik, Klaus; and Paulussen, Heinz, to Kusters, Eduard. Device for action on webs of material with at least one cylinder. 4,392,288, Cl. 29-116.0AD.

Aoki, Kenji; Goto, Mitsuhiro; and Miura, Teiji, to Kabushiki Kaisha Suwa Seikosha. Electrostatic printer. 4,393,390, Cl. 346-155.000.

Aoyama, Keizo: See—
Shimada, Hiroshi; and Aoyama, Keizo, 4,393,472, Cl. 365-190.000.

Apuzzo, Gennaro, to Merisinter S.p.A. Press for pulverulent materials. 4,392,800, Cl. 425-78.000.

Arai, Katsuhiko: See—
Kaneda, Hiroshi; Arai, Katsuhiko; Suzuki, Akira; and Ohashi, Takashi, 4,393,015, Cl. 264-51.000.

Arai, Takao; Hoshino, Takashi; and Kobayashi, Masaharu, to Hitachi, Ltd. Synchronizing signal detection protective circuit. 4,393,419, Cl. 360-37.100.

Arakawa, Kaneyasu; and Mizuno, Shigeo, to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho. Electrical switch structure. 4,393,360, Cl. 335-164.000.

Aranykalasz Mgtz.: See—
Plesz, Laszlo, 4,392,304, Cl. 30-178.000.

Arbed S.A.: See—
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Arcamone, Federico: See—
Bargiotti, Alberto; Cassinelli, Giuseppe; Penco, Sergio; Arcamone, Federico; and Casazza, Annamaria, 4,393,052, Cl. 424-180.000.

Ark-les Corporation: See—
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Arkwin Industries, Inc.: See—
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Armand, Marcel, to Pechiney Ugine Kuhlmann. Process for controlling the permeability of diaphragms in the preparation of polyvalent metals by electrolysis and an electrolysis cell for carrying out the process. 4,392,924, Cl. 204-64.00T.

Armco Inc.: See—
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Armstrong World Industries, Inc.: See—
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Kaufmann, John C.; and Lenox, Ronald S., 4,392,863, Cl. 8-400.000.

Arneklev, Duane R.: See—
Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., 4,392,884, Cl. 71-100.000.

Arnold, Ann A.: See—
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Arnold, Herbert: See—
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Asahi, Naotatsu: See—
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Du, Nguyen T.; and Asao, Akihide, 4,392,893, Cl. 148-1.500.

Du, Nguyen T.; and Asao, Akihide, 4,393,479, Cl. 365-218.000.

Asayama, Yoshiaki: See—
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,392,385, Cl. 73-861.230.

Ashby, Richard L. Ligature tying instrument. 4,392,494, Cl. 128-326.000.

Ashland Oil, Inc.: See—
Garrett, William R., Jr., 4,393,155, Cl. 524-60.000.

Smith, Norman L., 4,393,034, Cl. 423-450.000.

Ashlock, Robert L.; Gabrielson, Carl E.; Kerr, Douglas P.; Rasmussen, David J.; Stump, Theodore M.; and Thode, Charles W., to Anaconda-Ericsson. Automatic self-test system for a digital multiplexed telecommunication system. 4,393,491, Cl. 370-13.000.

Asonen, Osmo: See—
Niinivaara, Juhani, 4,393,297, Cl. 219-137.00R.

Astro-Steel Grip International, Inc.: See—
Heiman, Robert B., 4,392,335, Cl. 52-309.170.

Atlantic Richfield Company: See—
Sun, Hsiang-ning; Leonard, John J.; and Shalit, Harold, 4,393,038, Cl. 423-584.000.

Auktor, Erich, to Lohr & Bromkamp GmbH. Drive shaft construction. 4,392,839, Cl. 464-183.000.

Audeh, Costandi A.; and Greco, Saverio G., to Mobil Oil Corporation. Integrated refining process. 4,392,947, Cl. 208-229.000.

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Ruf, Max, 4,392,797, Cl. 418-91.000.

Austin, Richard G.: See—
Michaelson, Robert C.; and Austin, Richard G., 4,393,253, Cl. 568-860.000.

Australasian Training Aids Pty. Ltd.: See—
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Automa S.p.A.: See—
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Automatic Rollers Doors Australia Pty., Ltd.: See—
Perisic, Milan; Lumbers, Warwick J.; and Bone, John A., 4,392,392, Cl. 74-626.000.

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Timmons, David R., 4,392,283, Cl. 24-255.0SL.

Avery, Don E. Pump control system for windmills. 4,392,785, Cl. 417-218.000.

Avery International Corporation: See—
Reed, Charles F.; and Morrow, Charles M., 4,392,585, Cl. 221-1.000.

Axel Johnson Engineering AB: See—
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Gaku, Morio; Ikeguchi, Nobuyuki; and Ayano, Satoshi, 4,393,195, Cl. 528-361.000.

B. F. Goodrich Company, The: See—
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Bachman, Wesley J.; and Funk, Robert C., to Dickey-john Corporation. Sprayer control system. 4,392,611, Cl. 239-74.000.

Backman, Erik, to AB Volvo. Package. 4,392,605, Cl. 229-19.000.

Bada, Hajime: See—
Kodaka, Mikio; Morishita, Hitoshi; Bada, Hajime; and Sudo, Fumio, 4,392,886, Cl. 75-52.000.

Bagdal, Karl T.: See—
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Bagdasarian, Alexandr S.; Gulyaev, Jury V.; Fedorets, Vladimir N.; and Kmita, Anatoly M. Surface acoustic wave transducer. 4,393,321, Cl. 310-313.00B.

Bailey, Gary C., to Engineering Development Company. Speaker enclosure and method of producing same. 4,392,548, Cl. 181-156.000.

Bailey, James R.; and Lutzenberger, Kurt, to Switchcraft, Inc. Electrical jack. 4,392,708, Cl. 339-182.00R.

Bailey, Thomas: See—
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Bains, Kuldip: See—
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Baker International Corporation: See—
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Baker, Lawrence K. Hearing aid earmolds. 4,392,547, Cl. 181-135.000.

Baker, Robert W.; Owen, Leonard J.; and Simmons, Reginald J., to AMP Incorporated. Electrical connector with latching means. 4,392,706, Cl. 339-91.00R.

Baker, Thomas B.; and Mandrell, Richard J., to ACF Industries, Incorporated. Swivel assembly for end cock. 4,392,575, Cl. 213-76.000.

Bakos, Peter; Darrow, Russell E.; Funari, Joseph; and Redpath, Diane L., to International Business Machines Corporation. Spray head apparatus. 4,392,617, Cl. 239-290.000.

Bald, Wilfried, to Schloemann-Siemag Aktiengesellschaft. Process and apparatus for the rolling of strip metal. 4,392,367, Cl. 72-12.000.

Baldwin, John J.; and Ponticello, Gerald S., to Merck & Co., Inc. Certain nicotinic acid esters and corresponding nicotinonitriles. 4,393,212, Cl. 546-286.000.

Bandelj, Bojan, to ISKRA-SOZD elektrovinske industrije n.s.o. Low power siren. 4,393,374, Cl. 340-405.000.

Bar, Alfredo, to Necchi Societa per Azioni. Hermetically sealed motor-compressor unit for refrigerators. 4,392,789, Cl. 417-312.000.

Barchard, John, to Spyder Sales & Service, Inc. Vehicle convertible from a tricycle two wheel drive to a four wheel four wheel drive. 4,392,541, Cl. 180-209.000.

Baret, Jean-Luc A. G., to Corning Glass Works. Method for disinfecting immobilized enzymes. 4,393,138, Cl. 435-176.000.

Bargiotti, Alberto; Cassinelli, Giuseppe; Penco, Sergio; Arcamone, Federico; and Casazza, Annamaria, to Farmitalia Carlo Erba S.p.A. Antitumor anthracycline glycosides, their preparation, intermediates therefor, and compositions and use thereof. 4,393,052, Cl. 424-180.000.

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Barker, John C.; and McLaughlin, Ivan P., to J. J. Barker Company Limited. Simulated ceramic tile. 4,393,108, Cl. 428-44.000.

Barker, Leland W., to Eastman Kodak Company. Method and apparatus for measuring total liquid volume flow. 4,393,451, Cl. 364-510.000.

Barker, Robert A.; and Ong, Edith C., to Bell Telephone Laboratories, Incorporated. Integrated circuit device connection process. 4,392,298, Cl. 29-577.00C.

Barnes, Michael F.: See—
Metz, Joseph R.; and Barnes, Michael F., 4,392,281, Cl. 24-230.50R.

Barnes, Walter P.; and Emilio, Carlo, Jr. Beehive clamping and transfer device. 4,392,679, Cl. 294-15.000.

Barnhart, Steven G.: See—
Walters, John P.; and Barnhart, Steven G., 4,393,327, Cl. 315-241.00R.

Barton, Dale S.; and Heck, Richard M., to Riise Engineering Company, Inc. Angle stacking and inverting device. 4,392,765, Cl. 414-30.000.

BASF Aktiengesellschaft: See—
Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, 4,393,251, Cl. 568-811.000.

Davis, Robert E., 4,392,456, Cl. 123-1.00A.

Engelbach, Heinz; Steigleiter, Werner; and Glietenberg, Helmut, 4,392,984, Cl. 252-432.000.

Hoffman, Werner; von Fraunberg, Karl; and Baumann, Manfred, 4,393,245, Cl. 568-375.000.

Hummerich, Rainer; Weiss, Wolfram; Merger, Franz; Immel, Guenter; Kraus, Hans-Joachim; and Peters, Karl-Clemens, 4,393,207, Cl. 544-196.000.

McKee, Graham E.; Haaf, Franz; Hambrecht, Juergen; Benker, Klaus; Stephan, Rudolf; and Breuer, Hans, 4,393,164, Cl. 525-83.000.

Patsch, Manfred; Ruske, Manfred; and Hahn, Erwin, 4,393,005, Cl. 260-245.730.

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BASF Farben & Fasern A.G.: See—
Hoppe, Karl; and Strauss, Udo, 4,393,179, Cl. 525-490.000.

Basotherm GmbH: See—
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Battelle-Institut e.V.: See—
Schlueter, Gert; and Schuster, Wilhelm, 4,393,141, Cl. 436-63.000.

Battista, Orlando A. Ultra high-foam dentifrice. 4,393,042, Cl. 424-49.000.

Bauch, Ludwig. Apparatus for removing a tube core from and inserting same into a heat exchanger. 4,392,524, Cl. 165-76.000.

Bauer Bros. Co., The: See—
Beery, James P., 4,392,950, Cl. 209-211.000.

Bauer, Ludwig, to Daimler-Benz Aktiengesellschaft. Vent cap for a container accommodating hydraulic fluids. 4,392,584, Cl. 220-374.000.

Bauer, Rudolf: See—
Langbein, Adolf; Merz, Herbert; Sobotta, Rainer; Bauer, Rudolf; Jennewein, Hans M.; and Mierau, Joachim, 4,393,069, Cl. 424-265.000.

Bauerle, James E., to Westinghouse Electric Corp. Gas sampler for aerosol atmosphere. 4,392,388, Cl. 73-863.230.

Bauerlen, Hans; Pfendler, Thomas; and Wocher, Berthold, to Robert Bosch GmbH. Distance-frequency transducer. 4,392,383, Cl. 73-724.000.

Bauman, William C.: See—
Lee, John M.; and Bauman, William C., 4,392,961, Cl. 210-679.000.

Lee, John M.; and Bauman, William C., 4,392,979, Cl. 252-184.000.

Lee, John M.; and Bauman, William C., 4,392,980, Cl. 252-184.000.

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Baumli, Peter J. Labelling apparatus. 4,392,913, Cl. 156-584.000.

Bayer Aktiengesellschaft: See—
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Freitag, Dieter; Bottenbruch, Ludwig; and Wulff, Claus, 4,393,009, Cl. 260-544.00K.

Kuhlthau, Hans-Peter, 4,392,998, Cl. 260-146.00R.

Lindner, Christian; Ott, Karl-Heinz; and Pischtschan, Alfred, 4,393,172, Cl. 525-310.000.

Maurer, Fritz, 4,393,232, Cl. 562-419.000.

Reischl, Artur; and Wagner, Kuno, 4,393,166, Cl. 525-27.000.

Riebel, Hans-Jochem; Eue, Ludwig; and Faust, Wilfried, 4,392,882, Cl. 71-92.000.

Schutt, Hermann, 4,393,140, Cl. 435-226.000.

Stadler, Peter; Metzger, Karl G.; Voss, Eckart; Petersen, Uwe; and Zeiler, Hans-Joachim, 4,393,051, Cl. 424-180.000.

Uhrhan, Paul; and Krauthausen, Edmund, 4,393,206, Cl. 544-51.000.

Bayers, Jon. H. Apparatus for and method of suturing tissue. 4,392,495, Cl. 128-334.00R.

Baylis, Francis P.; and Smith, Gary E., to Merck & Co., Inc. Combination of thiopeptin and other related sulfur-containing cyclic polypeptide antibiotics with rumen-active diimides to improve ruminant feed efficiency. 4,393,046, Cl. 424-117.000.

Bazin, Lucas J.: See—
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BBC Brown, Boveri & Company Limited: See—
Schwarzenbach, Alfred, 4,392,354, Cl. 60-727.000.

Bears, John D.; and Emery, Kenneth R. D., to Ener-Tech Heating Systems Inc. Oil burner. 4,392,810, Cl. 431-37.000.

Beck, Jean L.; le Bars, Jean F.; Emmanuelli, Yves A.; and Bargues, Denis, to Thomson-CSF. Optoelectronic device for rotary scanning of videofrequency images. 4,393,408, Cl. 358-205.000.

Beck, Martin H.: See—
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Beecham Group Limited: See—
Cole, William G.; Goudie, Alexander C.; and Rose, Carl J., 4,393,079, Cl. 424-331.000.

Beer, Hans: See—
Perl, Horst; Nussbaumer, Dietmar; Kluver, Horst; and Beer, Hans, 4,392,963, Cl. 210-692.000.

Beer, Herbert, to Steifensand Sitzmobel- und Tischfabrik, Inh. Adjustable office chair. 4,392,686, Cl. 297-376.000.

Beery, James P., to Bauer Bros. Co., The. Centrifugal type cleaner. 4,392,950, Cl. 209-211.000.

Beeson, John M.: See—
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Behnke, Jurgen: See—
Eckstein, Wolfgang; Rabenecker, Horst; and Behnke, Jurgen, 4,392,389, Cl. 73-864.910.

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Belforte, Piero; and Bortignon, Renzo, to Cselet Centro Studi e Laboratori Telecomunicazioni S.p.A. Transceiver for full-duplex transmission of digital signals over a common line. 4,393,494, Cl. 370-27.000.

Bell, Melvyn R.; and Thomson, Charles D., to Ferranti Limited. Cooling means for circuit assemblies each including hollow structures spaced apart in a container. 4,393,437, Cl. 361-383.000.

Bell Telephone Laboratories, Incorporated: See—
Barker, Robert A.; and Ong, Edith C., 4,392,298, Cl. 29-577.00C.

Briley, Bruce E., 4,393,518, Cl. 455-617.000.

Cantwell, Richard F., Jr., 4,393,497, Cl. 370-89.000.

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Klein, Theodore H., 4,393,111, Cl. 428-195.000.

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- Beppu, Norio; and Fujii, Akira, to Minolta Camera Kabushiki Kaisha. Intervals timer for cameras. 4,392,733, Cl. 354-266.000.
- Beran, Anthony V. Tube holder. 4,392,857, Cl. 604-179.000.
- Berger, Norbert: See—
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- Berger, Richard F.; Pardes, Greg; and Gerber, Bernard R., to Reseal Container Corporation of America, The. Multilayered container including a layer of microcrimped metallic foil. 4,392,576, Cl. 215-1.00C.
- Bergeron, Gaetan G. Scaffolding arrangement. 4,392,550, Cl. 182-82.000.
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- Berlie, Elmer M.; and Smart, John D., to Western Research and Development. Waste gas incinerator. 4,392,816, Cl. 431-202.000.
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- Berlivet, Marc A.; and Guineau, Abel A. J., to Hesston Corporation. Crop windrowing machine having double windrow-forming attachment. 4,392,339, Cl. 56-192.000.
- Bernard, Walter. Bicycle storage rack. 4,392,572, Cl. 211-19.000.
- Berner, Godwin; and Kirchmayr, Rudolf, to Ciba-Geigy Corporation. Thermally polymerizable mixtures and processes for the thermally-initiated polymerization of cationically polymerizable compounds. 4,393,185, Cl. 528-27.000.
- Bernsau, Peter: See—
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- Berting, John P.; and Kroeger, James K. Non-multiplexed LCD drive circuit. 4,393,379, Cl. 340-784.000.
- Bertoldo, Giorgio, to Societa Pneumatici Pirelli S.p.A. Process and apparatus for manufacturing vehicle tires. 4,392,899, Cl. 156-127.000.
- Bertsch, Richard: See—
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- Bertschinger, Hans; and Scherler, Alfred, to Locher & Cie. AG; and Cellulose Attisholz AG. Sewage ventilating basin. 4,392,954, Cl. 210-195.300.
- Besen, Peter D.; Shulsinger, Don H.; and Goldberg, Stuart D., to Selectastation, Inc. Remote tuner control system. 4,393,277, Cl. 179-2.00A.
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- Biebuyck, Jean-Jacques E. R. G.: See—
Legras, Roger M. H.; Biebuyck, Jean-Jacques E. R. G.; and Mercier, Jean P., 4,393,178, Cl. 525-437.000.
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- Billeit, Ronald J.; and Viitanen, Veikko K., to FMC Corporation. Apparatus for making pallets. 4,392,600, Cl. 227-50.000.
- Billman, Timothy B.; and Kautz, Jon F., to AMP Incorporated. Applicator tool for loose miniature spring sockets. 4,392,300, Cl. 29-739.000.
- Billman, Timothy B.: See—
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- Bilow, Norman, to United States of America, Air Force. Diethynylbenzene-ethynylpyrene copolymers. 4,393,101, Cl. 427-228.000.
- Binder, Kurt: See—
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- Binks Industries, Inc.: See—
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- Bio Clinic Company: See—
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- Birkle, Siegfried: See—
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- Bishop, Larry D., to Reliance Electric Co. Digital subscriber carrier system including drop terminals and bypass and loopback means and alarm indication means. 4,393,492, Cl. 370-15.000.
- Bittle, Carl E., to Universal Foods Corporation. Root crop harvester. 4,392,533, Cl. 171-14.000.
- Black, Hugh J. Portable heat circulation means. 4,392,478, Cl. 126-84.000.
- Blades, Brian J., to Texas Instruments Incorporated. Thermally responsive fluid and electrical switch and control system. 4,392,608, Cl. 236-48.00R.
- Blanchard, Richard A., to Supertex, Inc. Power MOS transistor with a plurality of longitudinal grooves to increase channel conducting area. 4,393,391, Cl. 357-23.000.
- Blank, Heinz U.; Gabel, Eike; Goldschmidt, Ernst; and Mentzel, Werner, to Bayer Aktiengesellschaft. Process for the preparation of 3-hydroxybenzoic acid. 4,393,234, Cl. 562-475.000.
- Bloemers, James L.; Schiek, James M.; Frazzell, Michael E.; and Karls, Michael A., to Brunswick Corporation. Marine drive water pump. 4,392,779, Cl. 415-141.000.
- Blume, James W., Sr. Game apparatus. 4,392,653, Cl. 273-400.000.
- Blunt, Thomas O., to General Electric Company. Automatic feeding apparatus. 4,392,766, Cl. 414-113.000.
- BMC Products: See—
Weiler, Raywood C., 4,392,436, Cl. 108-81.000.
- Boba, Joseph; and Conger, Robert P., to Congoleum Corporation. Stain resistant, abrasion resistant polyurethane coating composition, substrate coated therewith and production thereof. 4,393,187, Cl. 528-60.000.
- Bock, Gustavus P., to General Motors Corporation. Electric motor powered actuator. 4,393,319, Cl. 310-80.000.
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Schrenk, Jürgen; and Wunderwald, Peter, 4,393,139, Cl. 435-219.000.
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- Jones, William R., 4,393,382, Cl. 343-112.00D.
- McClaffin, John R., 4,392,622, Cl. 244-102.00A.
- Mickelsen, Reid A.; and Chen, Wen S., 4,392,451, Cl. 118-690.000.
- Munsen, Victor A.; and McClaffin, John R., 4,392,623, Cl. 244-102.00R.
- Sears, Stanley L., 4,392,604, Cl. 228-212.000.
- Boguth, Walter; and Hirth, Georges, to Hoffmann-La Roche Inc. Pharmaceutical preparations. 4,393,057, Cl. 424-229.000.
- Boguth, Walter; and Hirth, Georges, to Hoffmann-La Roche Inc. Pharmaceutical preparations. 4,393,073, Cl. 424-284.000.
- Bohen, Joseph M.: See—
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- Bohn, Hans; Stein, Wolfgang; Bernsau, Peter; and Staubitzer, Fred, to Robert Burkle GmbH & Co. Method and device for producing multilayer printed circuit boards. 4,392,909, Cl. 156-306.900.
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- Bonar Horticulture, Ltd.: See—
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- Bone, John A.: See—
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- Bonewitz, Hans-Ulrich; Muhlich, Albert; and Rau, Karlheinz, to Heraeus Quarzschmelze GmbH. Optical fiber. 4,392,715, Cl. 350-96.330.
- Bonifaz, Cristobal, to Du Pont de Nemours, E. I., and Company. Light monoolefins from methanol and/or dimethyl ether. 4,393,265, Cl. 585-639.000.
- Bonny, Weldon D. Cooking and smoking apparatus. 4,392,419, Cl. 99-339.000.
- Booe, James M., Jr. Combination tool for removing and replacing a nut. 4,392,264, Cl. 7-138.000.
- Boothman, Edwin F. Sign letter construction. 4,392,317, Cl. 40-618.000.
- Boppel, Wolfgang: See—
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- Borg-Warner Corporation: See—
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- Boria, Thomas J. Plant shelter. 4,392,326, Cl. 47-28.00R.
- Bormann, Dieter: See—
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- Bortignon, Renzo: See—
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- Bortolotti, Andrea; and Bettucchi, Mauro, to Automa S.p.A. Apparatus for blow molding and conditioning synthetic resin containers. 4,392,802, Cl. 425-107.000.
- Borzyn, John J. Tube cutting apparatus. 4,392,644, Cl. 269-157.000.
- Bosworth, Jack L. Rimmed cartridge magazine loader. 4,392,321, Cl. 42-87.000.
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- Bottenbruch, Ludwig: See—
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- Boudault, Robert, to U.S. Philips Corporation. System for locally testing a modem employing frequency shift keying. 4,393,508, Cl. 375-9.000.
- Bourne, W. John. Applicator for granular material. 4,392,587, Cl. 222-63.000.

- Boute, Raymond T. G., to International Standard Electric Corporation. Process control apparatus. 4,393,469, Cl. 364-900.000.
- Bowden, Charles J., to General Signal Corporation. Gear pump or motor with low pressure bearing lubrication. 4,392,798, Cl. 418-102.000.
- Bowler, Eleanor G.: See—
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- Bowles, David J.; Clancy, Douglas E.; Johnson, Carl F.; and Neal, Danny M., to International Business Machines Corporation. Under-score erase. 4,392,758, Cl. 400-697.100.
- Boyd, Mary G.; and Smith, Donald R., to Dennison Manufacturing Company. Method of transferring designs onto articles. 4,392,905, Cl. 156-235.000.
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- Bracke, William J. I.; and Lanza, Emmanuel, to Labofina, S.A. Process for preparing rubbery polymer reinforced styrenic resins. 4,393,171, Cl. 525-309.000.
- Bradley, John J.: See—
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- Bredo, Guido. Trouser construction. 4,392,259, Cl. 2-227.000.
- Bresing, Karl-Heinz: See—
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- Brent, Albert: See—
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- Breuer, Hans: See—
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- Bridgestone Tire Co., Ltd.: See—
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- Briley, Bruce E., to Bell Telephone Laboratories, Incorporated. Optical communication arrangement. 4,393,518, Cl. 455-617.000.
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- Brittain, David R.; and Wood, Robin, to Imperial Chemical Industries PLC. Pharmaceutical compositions and method for the production of an anti-inflammatory effect. 4,393,062, Cl. 424-250.000.
- Broadhurst, Michael J.; Hassall, Cedric H.; and Thomas, Gareth J., to Hoffmann-La Roche Inc. Process to produce hexahydronaphthacene derivatives. 4,393,221, Cl. 549-39.000.
- Brock, Phillip J.; and Dawson, Daniel J., to Dynapol. Process for the continuous diazotization of water-soluble polymeric amines. 4,393,175, Cl. 525-377.000.
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- Brockington, Francis R. Continuous vapor phase chromatography. 4,392,873, Cl. 55-67.000.
- Brody, Alexander; and Clark, Richard J., to Fisher & Paykel Limited. Method and apparatus for flanging tube ends. 4,392,372, Cl. 72-311.000.
- Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, to BASF Aktiengesellschaft. Preparation of propanediols using a copper-and zinc containing hydrogenation catalyst. 4,393,251, Cl. 568-811.000.
- Broggi, Renato: See—
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- Brokke, Mervin E.: See—
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- Brown, Gerald V., to United States of America, National Aeronautics and Space Administration. Magnetic heat pumping. 4,392,356, Cl. 62-3.000.
- Brown, Harold J., to Reliance Electric Co. Transistor drive circuit. 4,393,316, Cl. 307-270.000.
- Brown, Leon C.; Campbell, Jesse L.; Fitts, Uscoe J.; and Gudge, Willard L., to International Business Machines Corporation. Electro-mechanically operated fuser roll closure. 4,392,739, Cl. 355-3.0FU.
- Brown, Marvin R.: See—
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- Brown, Robert J. S.: See—
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- Brown, Ross K.; Thompson, Raymond D.; Woods, Terrill W.; Wright, Darrell L.; Conner, James M.; Crookes, William E.; and Purcell, William F., to Deere & Company. Suspended operator station. 4,392,546, Cl. 180-326.000.
- Brown, Russell L. Device for use with a toggle bolt. 4,392,763, Cl. 411-342.000.
- Brown & Williamson Tobacco Corporation: See—
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- Bruce Industries, Inc.: See—
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- Brunet, Maurice: See—
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- Brunswick Corporation: See—
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- Brush Switchgear Limited: See—
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- Bschorr, Oskar, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung. Tire with open cell foam insert for reducing noise. 4,392,522, Cl. 152-341.000.
- BSL Corporation: See—
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- Buchanan, David J.; Davis, Richard; and Jackson, Peter J., to Coal Industry (Patents) Limited. Method of stacking seismic data. 4,393,484, Cl. 367-23.000.
- Buckhouse, Norman O.; Stevens, Aaron A.; and Lawrence, Randall K., to Murray Ohio Manufacturing Co., The. Hydrostatic transmission control. 4,392,543, Cl. 180-272.000.
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- Bueno, Victor M. Chalkboard eraser cleaner system. 4,392,268, Cl. 15-91.000.
- Buhr, Terry J., to Rolscreen Company. Casement window. 4,392,330, Cl. 49-381.000.
- Burbank, Max B.; Lomnes, Randy K.; Vrba, Jiri; and Fife, Alistair A., to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence. Asymmetrical SQUID. 4,393,349, Cl. 324-248.000.
- Burdette, George W.: See—
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- Burrell Construction & Supply Co.: See—
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- Burroughs Corporation: See—
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- Burroughs Wellcome Co.: See—
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- Peck, Anthony W., 4,393,078, Cl. 424-330.000.
- Burton, Donald J.; and Flynn, Richard M., to University of Iowa Research Foundation. Method for the preparation of fluorine-containing phosphonates and phosphonic acids. 4,393,011, Cl. 260-970.000.
- Burton, John H.; and Mikulich, Michael A., to American Medical Systems, Inc. Limited bend malleable penile prosthesis. 4,392,562, Cl. 128-79.000.
- Burwell, Maurel R. Method of cleaning a well and apparatus thereof. 4,392,529, Cl. 166-255.000.
- Buryakov, Viktor P.; Ivanov, Gennady M.; Kislik, Mikhail I.; Kur-gansky, Pavel M.; Shmotkin, Mark B.; and Eikhensvald, Eduard V. Dosing device for feeding lubricant to friction couples. 4,392,551, Cl. 184-7.00D.
- Buser, Rudolph G.; Osche, Gregory R.; Nomiyama, Neal T.; and Rohde, Robert S., to United States of America, Army. Pulse code modulation of laser pulse tail. 4,393,517, Cl. 455-608.000.
- Bush Universal, Inc.: See—
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- Bushong, Eugene E.: See—
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- Butterfield Group: See—
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- Butterfield, Ida M., to Butterfield Group. Tamper-alerting hypodermic syringe, 4,392,852, Cl. 604-111.000.
- Butterfield, John L.: See—
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- Butterworth, George A. M.; and Fillwalk, Frank J., to Johnson & Johnson Baby Products Company. Two-ply fibrous facing material, 4,392,861, Cl. 604-366.000.
- Byrne, James C., to Gulf & Western Manufacturing Company. Wind-shield cleaning system, 4,393,341, Cl. 318-443.000.
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- Caines, Michael J., to United States of America, Energy. High temperature pressure coupled ultrasonic waveguide, 4,392,380, Cl. 73-644.000.
- Calderone, Nicholas; Watkins, Hugh; and Yoshida, Takao, to International Flavors & Fragrances Inc. Enhancing or augmenting the aroma of detergents using mixtures including 4-methyl-3-cyclohexene-1-carboxylic acid, 4,392,976, Cl. 252-174.110.
- Calkins, James D.; Bushong, Eugene E.; and Schuck, Lee R., to Binks Industries, Inc. Width detector system, 4,393,313, Cl. 250-560.000.
- Calvert, Harry B., to Calvert Manufacturing, Inc. Knife pitch control for veneer lathe, 4,392,519, Cl. 144-212.000.
- Calvert Manufacturing, Inc.: See—
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- Cameron, Colin H.: See—
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- Campbell, Jesse L.: See—
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- Campeau, Gary P., to Suburban Tool, Inc. Magnetic hold down tool, 4,392,643, Cl. 269-136.000.
- Can-Eng Holdings Limited: See—
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- Fenrick, Walter J.; Chesney, Robert H.; and Mast, Paul A., 4,392,432, Cl. 102-334.000.
- Canadian Skate Contours, Ltd.: See—
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- Caridis, Andrew A.; and Benson, Clark K., to Heat & Control, Inc. Recirculating hot oil cooking apparatus, 4,392,420, Cl. 99-406.000.
- Carl Freudenberg, Firma: See—
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- Carrier Corporation: See—
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- O'Mara, Raymond D.; Smorol, Michael E.; and Tobin, Curtis L., 4,392,525, Cl. 165-125.000.
- Carron, Henry: See—
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- Frantz, John G., Sr., 4,393,298, Cl. 219-137.620.
- Melocik, Kurt B., 4,392,415, Cl. 91-461.000.
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- Cheetham, Peter S. J., to Talres Development (N.A.) N.V. Bacterial ethanol production, 4,393,136, Cl. 435-161.000.
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- Chen, Wen S.: See—
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- Chester, Arthur W.: See—
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- Peterson, Terry M., 4,393,267, Cl. 136-260.000.
- Thompson, Don D.; Brown, Robert J. S.; and Runge, Richard J., 4,393,486, Cl. 367-73.000.
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- Chitayat, Anwar, to Anorad Corporation. Workpiece positioning table with air bearing pads, 4,392,642, Cl. 269-73.000.
- Christmas Club: See—
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- Chu, Yung F.; and Chester, Arthur W., to Mobil Oil Corporation. Zinc-gallium zeolite, 4,392,989, Cl. 252-455.00Z.
- Chubb Fire Security Limited: See—
Evans, John L.; and Bains, Kuldip, 4,392,618, Cl. 239-461.000.
- Churcher, Dale L.: See—
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- Ciba-Geigy Corporation: See—
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- Hathaway, Roderick D.; Irving, Edward; and Waterhouse, John S., 4,392,930, Cl. 204-159.140.
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- Weiss, Jonas; and Seltzer, Raymond, 4,393,002, Cl. 260-239.30R.
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- Circuit Research Labs: See—
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- Clark Equipment Company: See—
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- Clark, Richard J.: See—
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- Clarke, John M., to Caterpillar Tractor Co. Infinitely variable transmission, 4,392,395, Cl. 74-690.000.
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- Cleveland Clinic Foundation, The: See—
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- Clumpner, Joseph A., to Swiss Aluminium Ltd. Apparatus for degassing molten metal, 4,392,636, Cl. 266-218.000.
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- Coal Industry (Patents) Limited: See—
Buchanan, David J.; Davis, Richard; and Jackson, Peter J., 4,393,484, Cl. 367-23.000.
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- Coburn Optical Industries, Inc.: See—
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- Cochrane, Peter; and Kitchen, James A., to Post Office, The. Digital data transmission system having frequency or phase modulated data carrying signals to provide supervisory channel, 4,393,279, Cl. 179-175.31R.
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- Coillet, Dudley W. Process for sterilization and removal of inorganic salts from a water stream, 4,392,959, Cl. 210-638.000.
- Coin Acceptors, Inc.: See—
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- Cole, William G.; Goudie, Alexander C.; and Rose, Carl J., to Beecham Group Limited. Pharmaceutical compositions, 4,393,079, Cl. 424-331.000.
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- Collier, Robert J.; and Thomson, Michael G. R., to Bell Telephone Laboratories, Incorporated. Variable-spot scanning in an electron beam exposure system, 4,393,312, Cl. 250-492.200.
- Colombo, Mario, Jr.: See—
Ennis, Gerald E.; and Colombo, Mario, Jr., 4,392,775, Cl. 414-729.000.
- Colpo Company Limited: See—
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- Colt Industries Operating Corp.: See—
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- Compact Pump Corporation: See—
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- Combustion Engineering, Inc.: See—
Gaines, Albert L., 4,392,918, Cl. 376-133.000.
- Compagnie Internationale pour l'Informatique Cii-Honeywell Bull (Societe Anonyme): See—
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- Concannon, Thomas P., to Du Pont de Nemours, E. I., and Company. Article coated with aqueous dispersion of fluoropolymers in combination with epoxy-type film formers, 4,393,119, Cl. 428-413.000.
- Conger, Robert P.: See—
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- Congoleum Corporation: See—
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- Conner, James M.: See—
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- Conterio, Eugene E. Portable preheating system for internal combustion engines, 4,392,609, Cl. 237-12.30C.
- Continental Can Company, Inc.: See—
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- Continental Group, Inc.: See—
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- Converse Inc.: See—
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- Cook, Paul M., to General Electric Company. Quick disconnect mechanism for shafts, 4,392,759, Cl. 403-11.000.
- Cooper, Eugene R.: See—
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- Cooper Industries, Inc.: See—
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- Cornelius Products Inc.: See—
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- Corning Glass Works: See—
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- Coroneos, James H. Beef product for cooking on a vertical rotisserie, 4,393,090, Cl. 426-646.000.
- Corrugated Drum Systems, Inc.: See—
Perkins, David, Jr., 4,392,607, Cl. 229-39.00R.
- Cosden Technology, Inc.: See—
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- Cosgrove, Delos M.: See—
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- Costigan, Conrad A., to Spreading Machine Exchange, Inc. Spreading machine cutter box and clamp assembly, 4,392,646, Cl. 270-30.000.
- Cottis, Robert A.: See—
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- Couper, Robert A.; Frediani, John K.; and Lillie, Terrance L., to Pitney Bowes Inc. Circuit for controlling information on a display, 4,393,377, Cl. 340-731.000.
- Coury, Arthur J.: See—
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- Cox, Charles M.; and Thomas William L., to Zenith Radio Corporation. Special services teletext communications system, 4,393,404, Cl. 358-147.000.
- Cox, Roger B.; and Steer, David C., to Lever Brothers Company. Microbial heteropolysaccharide, 4,393,089, Cl. 426-573.000.
- Cray, Edgar R.; Davis, Russell R.; Knapp, Maynard K.; Richards, Glenn L.; Root, Bernard H.; and Woodruff, William W., to Stromberg-Carlson Corporation. Message translation arrangement for telephony system with remote port groups, 4,393,495, Cl. 370-56.000.
- Crea, Roberto, to Genentech, Inc. Nucleosidic phosphorylating agent and methods, 4,393,010, Cl. 260-940.000.
- Crissey, Charles F.; and Holmes, Paul M., to Aeroquip Corporation. Locking web fitting with swivel, 4,392,762, Cl. 410-116.000.
- Critikon, Inc.: See—
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- Crocker, William A.; and Hug, Duane L., to Teledyne Industries, Inc. Method of preparing ethyl silicate, 4,393,230, Cl. 556-457.000.
- Crombeen, Jacobus E.; Crooymans, Petrus W. H. M.; and Visser, Jan, to U.S. Philips Corporation. Magnetron cathode sputtering system, 4,392,939, Cl. 204-298.000.
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- Crooymans, Petrus W. H. M.: See—
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- Cross, Stephen D.; Frost, Elmer F., Jr.; and Anderson, David N., to FMC Corporation. Stick confection extraction apparatus, 4,392,803, Cl. 425-126.00S.
- Crossley, Thomas J., to Wyoming Mineral Corporation. Method of removing uranium from a slurry containing molybdenum, 4,393,028, Cl. 423-15.000.
- Crouch, William B.: See—
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- Crowley, Kevin J.; and Souther, Channing, to Converse Inc. Outsole for athletic shoe. 4,392,312, Cl. 36-67.00R.
- Crum, Glen F.; and Paton, Samuel J., to El Paso Products Company. Tertiary-butylstyrene production. 4,393,263, Cl. 585-443.000.
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- Culley, Ernest, to Plessey Company plc, The; and Plessey Company plc, The. Digital telecommunications switches network with in-built fault identification. 4,393,490, Cl. 370-13.000.
- Curatolo, Benedict S.; and Coffey, Gerald P., to Standard Oil Company, The. Crystalline copolymers prepared from N,N'-terephthaloyldi-beta-alanine and a glycol. 4,393,192, Cl. 528-292.000.
- Curry, Roger F. N. Flat bed knitting machine. 4,392,364, Cl. 66-60.00H.
- Curtis, Peter J.; and Wunner, William H., to Wistar Institute, The. DNA Which codes for glycoprotein of era-strain rabies virus. 4,393,201, Cl. 536-27.000.
- D and D Srl: See—
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- Dahms, Francis A., to Emhart Industries, Inc. Glassware forming apparatus with blow mold spray means. 4,392,880, Cl. 65-170.000.
- Dai Nippon Printing Co., Ltd.: See—
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- Daicel Chemical Industries, Ltd.: See—
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- Daikin Kogyo Co., Ltd.: See—
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- Nakagawa, Tsuneo; Hiramatsu, Uji; and Honda, Toshihide, 4,393,257, Cl. 570-145.000.
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- Muller, Manfred, 4,392,277, Cl. 24-196.000.
- Wolters, Gerhard; and Wagner, Wilhelm, 4,392,465, Cl. 123-263.000.
- Dainichi Kogyo Co., Ltd.: See—
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- DallaPiazza, Dennis G.: See—
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- Dallman, Brian L. Mounting system. 4,392,629, Cl. 248-205.00R.
- Damian, Karl: See—
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- Damico, Dennis J.; and Pascarella, Vincent J., to Lord Corporation. Thermoplastic polyurethanes prepared by reacting polyisocyanate, polyester polyol, cycloaliphatic diol and a monofunctional chain-terminating compound. 4,393,186, Cl. 528-49.000.
- Dana Corporation: See—
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- Danchenkov, Yuri V.: See—
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- Daniels, James A., to Imperial Chemical Industries Plc. Telomerization of butadiene and carbon dioxide. 4,393,224, Cl. 549-273.000.
- Daniels, Wiley E.; and Nagy, Dennis J., to Air Products and Chemicals, Inc. Complexes of N-methylolacrylamides with polyalkoxylates and polymerization to ungelled poly(N-methylolacrylamides). 4,393,173, Cl. 525-329.400.
- Daniels, William J. Safety strap for handguns. 4,392,318, Cl. 42-1.0LP.
- Danielsen, Petter; and Moen, Tor, to Tandberg Data A/S. Generation of a light intensity control signal. 4,393,378, Cl. 340-744.000.
- Darby, Vene L., to Rockwell International Corporation. Method of making sandwich structures by superplastic forming and diffusion bonding. 4,392,602, Cl. 228-118.000.
- Darrow, Russell E.: See—
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- Dart Industries Inc.: See—
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- Dartmouth College, Trustees of: See—
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- Davis, Howard K.: See—
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- Davis, Russell R.: See—
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- Dawson, Daniel J.; and Brock, Phillip J., to Dynapol. Base hydrolysis of pendant amide polymers. 4,393,174, Cl. 525-369.000.
- Dawson, Daniel J.: See—
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- Dawsonville Corp., N.V.: See—
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- Dearman, Timothy C. Alignment tool. 4,392,641, Cl. 269-49.000.
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- Ess, Wilfried, to Schelling & Co. Apparatus for staggered cutting of planar workpieces. 4,392,401, Cl. 83-219.000.
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- Ferranti Limited (now Ferranti plc): See—
Morrison, John M., 4,392,718, Cl. 350-336.000.
- Fields, Ellis K.: See—
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- Fife, Alistair A.: See—
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- Fillwalk, Frank J.: See—
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- Fink, Allen H., to UOP Inc. Cogeneration process using augmented Brayton cycle. 4,392,346, Cl. 60-39.040.
- Fink, Helen M., to Fink, Helen M. Table placemat. 4,393,104, Cl. 428-7.000.
- Finkel, Abram R., to KSD Industries, Inc. Track and panel guide for sliding shower doors or the like. 4,392,272, Cl. 16-95.00R.
- Fipp, Bernard E.: See—
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- Firepower, Inc.: See—
Gwinn, Mack W., Jr., 4,392,413, Cl. 89-14.00C.
- Firmenich, SA: See—
Thomas, Alan F.; and Naf, Ferdinand, 4,392,993, Cl. 252-522.00R.
- Firth, Bruce E., to UOP Inc. Alkylated 5,6,7,8-tetrahydronaphthalenols as antioxidants in lubricating oils and greases. 4,392,969, Cl. 252-52.00R.
- Fischer, Herbert; Budnowski, Manfred; and Zeidler, Ulrich, to Henkel Kommanditgesellschaft auf Aktien. Isocyanuric acid derivatives, method of preparation, therapeutic compositions with a cytostatic action and therapeutic method. 4,393,060, Cl. 424-248.500.
- Fisher, Mancil C.: See—
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- Fisher & Paykel Limited: See—
Brodsky, Alexander; and Clark, Richard J., 4,392,372, Cl. 72-311.000.
- Clark, Richard J., 4,392,373, Cl. 72-321.000.
- Fitts, Uscoe J.: See—
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- Fletcher, James D. Bowstring release device. 4,392,475, Cl. 124-35.00A.
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- Flynn, Richard M.: See—
Burton, Donald J.; and Flynn, Richard M., 4,393,011, Cl. 260-970.000.
- FMC Corporation: See—
Billett, Ronald J.; and Viitanen, Veikko K., 4,392,600, Cl. 227-50.000.
- Cross, Stephen D.; Frost, Elmer F., Jr.; and Anderson, David N., 4,392,803, Cl. 425-126.00S.
- Fohl, Artur, to REPA Feinstanzwerk GmbH. Automatic roll-up device for a safety belt. 4,392,619, Cl. 242-107.200.
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- Folkesson, Hans; and Uberg, Ulf, to Saab-Scania Aktiebolag. Arrangement for presses. 4,392,368, Cl. 72-63.000.
- Ford Aerospace & Communications Corporation: See—
Evans, Randall G., 4,393,499, Cl. 371-5.000.
- Ford Motor Company: See—
Garrett, David L., Jr.; and Cassatta, Joseph C., 4,393,094, Cl. 427-44.000.
- Stinson, Wilbur G.; Schwei, Lawrence J.; and Vong, Sandy T. S., 4,393,098, Cl. 427-168.000.
- Fork, Kurt; Kaufhold, Wolfgang; Meusel, Wolfgang; and Waldmann, Hermann, to Siemens Aktiengesellschaft. Circuit for damping hunting by electric machines. 4,393,345, Cl. 322-19.000.
- Forslund, Gosta. Training cart. 4,392,663, Cl. 280-68.000.
- Forster, Karl-Heinz; and John, Hans, to Veb Kombinat Polygraph "Werner Lamberz" Leipzig. Multiplicative adjustment provision at an ink feed remote control device. 4,392,429, Cl. 101-365.000.
- Foster, James I.: See—
Gassaway, Gary S.; Richgels, Henry J.; and Foster, James I., 4,393,488, Cl. 367-75.000.
- Foster, Stephen W., to Almor Corporation. Two hand scanning check-out counter. 4,392,553, Cl. 186-61.000.
- Fox, Austin L., to Molins Limited. Packets and the manufacture thereof. 4,392,338, Cl. 53-462.000.
- Foxcroft, Arthur. Peristaltic pump. 4,392,794, Cl. 417-475.000.
- Foy, Peter S. Theatrical transportation apparatus. 4,392,648, Cl. 272-24.000.
- Frank, Helmut, to ITT Industries, Inc. Mechanical actuating device for a spot-type disc brake. 4,392,557, Cl. 188-71.900.
- Franklin, James L., to Sigma Research, Inc. Direct expansion solar collector-heat pump system. 4,392,359, Cl. 62-235.100.
- Frantz, John G., Sr., to Caterpillar Tractor Co. Liquid cooling for a welding torch. 4,393,298, Cl. 219-137.620.
- Franz, James H., Jr.: See—
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- Franz, Reinhard; and Dittmar, Wilfried, to Franz, Reinhard. Method and apparatus for processing tone signals in electronic musical instruments. 4,392,405, Cl. 84-1.240.
- Frazzelli, Michael E.: See—
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- Fredette, Maurice C. J., to ERCO Industries Limited. Production of mixed sulfuric and hydrochloric acid feed and chlorine dioxide generation therewith. 4,393,036, Cl. 423-478.000.
- Frediani, John K.: See—
Couper, Robert A.; Frediani, John K.; and Lillie, Terrance L., 4,393,377, Cl. 340-731.000.
- Freimiller, Gary L.: See—
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- Freitag, Dieter; Bottenbruch, Ludwig; and Wulff, Claus, to Bayer Aktiengesellschaft. Process for the preparation of aromatic dicarboxylic acid dichlorides. 4,393,009, Cl. 260-544.00K.
- Fremont, Edwin A., to Westvaco Corporation. Pre-banded bulk pack container. 4,392,606, Cl. 229-23.00R.
- Fried, Krupp Huttenwerke AG: See—
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- Friedrich W. Schwing, GmbH: See—
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- Friese, Karl-Hermann: See—
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- Fritz, Gary R., to Kimball International, Inc. Switched capacitor sine wave generator and keyer. 4,392,406, Cl. 84-1.260.
- Frommer, Moshe A.: See—
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- Frosien, Juergen: See—
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- Frost, Elmer F., Jr.: See—
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- Fuji Electric Company, Ltd.: See—
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- Shimizu, Masami; and Monno, Asao, 4,393,305, Cl. 250-358.100.
- Fuji Electrochemical Co., Ltd.: See—
Torii, Michihiro; Hirukawa, Kohei; Urata, Hiroshi; and Suzuki, Shinichi, 4,393,373, Cl. 340-384.00E.
- Fuji Photo Film Co., Ltd.: See—
Honjo, Satoru; Yuyama, Yasuaki; Iwasa, Masakazu; and Imanishi, Kazuo, 4,393,112, Cl. 428-207.000.
- Shiba, Keisuke; Nakao, Sho; and Toyama, Tadao, 4,393,128, Cl. 430-273.000.
- Fuji Xerox Co., Ltd.: See—
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- Fujii, Akira: See—
Beppu, Norio; and Fujii, Akira, 4,392,733, Cl. 354-266.000.
- Fujii, Kunihiro; Hirosaki, Yukihiko; Nishiyama, Yoshihisa; and Sato, Koichiro, to Tokyo Electric Co., Ltd. Zero-point adjusting method for automatic weighing apparatus. 4,392,535, Cl. 177-1.000.
- Fujii, Naoharu; and Iijima, Noboru. Method of treating gastric, mammary, lung and uterus tumors. 4,393,071, Cl. 424-274.000.
- Fujii, Takayuki; and Suda, Hitoshi, to Honda Giken Kogyo Kabushiki Kaisha. Instrument panel with a yieldable meter casing. 4,392,539, Cl. 180-90.000.
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- Fujikawa, Tsuneo; and Takagishi, Haruyoshi, to Nissan Motor Company, Limited. Two-shift automatic assembling apparatus. 4,392,601, Cl. 228-4.100.
- Fujikin International, Inc.: See—
Kita, Toshio, 4,392,634, Cl. 251-129.000.
- Fujimura, Masayuki, to Canon Kabushiki Kaisha; and Canon Denshi Kabushiki Kaisha. Magnetic head. 4,393,428, Cl. 360-123.000.
- Fujinami, Hiroshi; and Yamada, Takashi, to Nippondenso Co., Ltd. Method for selectively displaying a plurality of information. 4,393,271, Cl. 179-1.05M.
- Fujino, Hitoshi; Kanoto, Masanobu; and Ichihashi, Hiroo, to Canon Kabushiki Kaisha. Image transfer device. 4,392,738, Cl. 355-3.0TR.
- Fujisawa, Kiyoji: See—
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- Fujisawa Pharmaceutical Co., Ltd.: See—
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- Takaya, Takao; Takasugi, Hisashi; Tsuji, Kiyoshi; and Chiba, Toshiyuki, 4,393,059, Cl. 424-246.000.
- Fujita, Takashi: See—
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- Fujita, Yutaka: See—
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- Fujitsu Fanuc Limited: See—
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- Fujitsu Limited: See—
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- Fujiu, Takahiro; Nakajima, Masao; and Okano, Shigeru, to Toppan Printing Co., Ltd. Method of modifying the dye affinity of cellulose fiber-containing structure with benzene sulfonfyl chloride, 4,392,265, Cl. 8-120.000.
- Fujiwara, Khosuke: See—
Senda, Shigeo; Katho, Eiichi; Ohtani, Osamu; Miyake, Hidekazu; and Fujiwara, Khosuke, 4,393,210, Cl. 546-141.000.
- Fujizoki Pharmaceutical Co., Ltd.: See—
Yano, Akira; Saito, Yoshitada; and Kasahara, Yasushi, 4,393,134, Cl. 435-29.000.
- Fuji Jiko Kabushiki Kaisha: See—
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- Fukahori, Hidehiko: See—
Iwashita, Tomonori; and Fukahori, Hidehiko, 4,392,730, Cl. 354-173.000.
- Fukami, Teruki: See—
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- Fukube, Nobuyoshi: See—
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- Fukuda, Kazumasa, to TDK Electronics Co., Ltd. Magnetic recording medium, 4,393,110, Cl. 428-173.000.
- Fukui, Masanori: See—
Tomita, Fusao; Tamaoki, Tatsuya; Shirahata, Kunikatsu; Kasai, Masaji; Hirayama, Noriaki; Morimoto, Makoto; and Fukui, Masanori, 4,393,056, Cl. 424-181.000.
- Fulk, James B.; McKeefry, Jerry L.; Schuning, George F.; and Bradley, John J., to Paper Converting Machine Company. Method and apparatus for correcting stack lean in a zig-zag folded web, 4,392,844, Cl. 493-399.000.
- Fultz, Brent T., to United States of America, Energy. Radiation detector, 4,393,306, Cl. 250-374.000.
- Funari, Joseph: See—
Bakos, Peter; Darrow, Russell E.; Funari, Joseph; and Redpath, Diane L., 4,392,617, Cl. 239-290.000.
- Fung, Anthony K., to Sperry Corporation. Data recovery method and apparatus using variable window, 4,393,458, Cl. 364-900.000.
- Funk, Gary L., to Phillips Petroleum Company. Constraint control of a fractional distillation process, 4,392,877, Cl. 62-37.000.
- Funk, Robert C.: See—
Bachman, Wesley J.; and Funk, Robert C., 4,392,611, Cl. 239-74.000.
- Furga, Giulio S. Method of making dresses for dolls and the like and product obtained by this method, 4,392,257, Cl. 2-105.000.
- Furukawa, Shunsuke: See—
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- Furuta, Hiroyuki: See—
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- Fushida, Masao: See—
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- Fussl, Erwin; and Berger, Norbert, to Maerz Ofenbau AG. Calcining furnace with gas-permeable wall structure, 4,392,821, Cl. 432-96.000.
- Futer, Rudolph E., to Futerized Systems, Inc. Surface flow air conveyor with plenum mounted fan wheel, 4,392,760, Cl. 406-88.000.
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- GA Technologies Inc.: See—
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- Gabrielson, Carl E.: See—
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- Gaines, Albert L., to Combustion Engineering, Inc. Toroidal field coil torque structure, 4,392,918, Cl. 376-133.000.
- Gajda, Joseph J., to International Business Machines Corporation. Aluminum-copper alloy evaporated films with low via resistance, 4,393,096, Cl. 427-90.000.
- Gaku, Morio; Ikeguchi, Nobuyuki; and Ayano, Satoshi, to Mitsubishi Gas Chemical Company, Inc. Curable cyanate ester/acrylic epoxy ester composition, 4,393,195, Cl. 528-361.000.
- Gallot, Jacques R.: See—
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- Galow, Manfred; and Joseph, Horst, to Didier Engineering GmbH. Charging apparatus for coke cooling chambers, 4,392,919, Cl. 202-228.000.
- Ganguillet, Claude; Ruedin, Yves; and Sallin, Michel, to Ebauches, S.A. Electrochromic display cell, 4,392,720, Cl. 350-357.000.
- Ganssle, Jack L. Drywall construction and article of manufacture therefor, 4,392,336, Cl. 52-417.000.
- Ganzi, Gary C.; and Paul, Charles T., to Millipore Corporation. Method and structure for sealing tubular filter elements, 4,392,958, Cl. 210-493.200.
- Gardiner, Bayard G.; and Heringes, James A., to Technicare Corporation. Combination vanity screen and patient support couch extension, 4,392,486, Cl. 128-68.000.
- Garrett, David L., Jr.; and Cassatta, Joseph C., to Ford Motor Company. Stabilization of electron beam curable compositions for improved exterior durability, 4,393,094, Cl. 427-44.000.
- Garrett, David M.; and Robin, Wallace R. Method for treatment of herpetic lesions, 4,393,066, Cl. 424-251.000.
- Garrett, William R., Jr., to Ashland Oil, Inc. Enhanced viscosity maintenance and demulsibility in asphalt emulsions, 4,393,155, Cl. 524-60.000.
- Gassaway, Gary S.; Richgels, Henry J.; and Foster, James I., to Chevron Research Company. Exploration system and method of determining elastic parameters and subsurface shape of an earth formation so as to indicate likelihood of the formation being an ore, marker rock, economic mineral or the like, 4,393,488, Cl. 367-75.000.
- Gast, Theodor; and Binder, Kurt, to Robert Bosch GmbH. Electromagnetic valve with a plug member comprising a permanent magnet, 4,392,632, Cl. 251-65.000.
- Gast, Uwe; Hennig, Eberhard; Preuss, Dieter; Taudt, Heinz; and Wellendorf, Klaus, to Dr.-Ing. Rudolf Hell GmbH. Method and apparatus for partial electronic retouching of colors, 4,393,399, Cl. 358-80.000.
- Gaudiana, Russell A.; and Kalyanaraman, Palaiyur S., to Polaroid Corporation. Substituted-quaterylene polyamide, 4,393,194, Cl. 528-348.000.
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- Gauvain, Roger; and Kueny, Michel, to Societe Alsacienne de Constructions Mecaniques de Mulhouse. Fiber separator for feeding a freed-fiber spinning unit, 4,392,276, Cl. 19-97.000.
- Gavagan, James A., to Irvin Industries, Inc. Clevis safety belt buckle, 4,392,280, Cl. 24-230.00A.
- Gearhart Industries, Inc.: See—
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- Geary, Carl H., Jr., to Elliott Turbomachinery Co., Inc. Bypass control system, 4,392,345, Cl. 60-39.020.
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- Gebruder Weiss KG: See—
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- Gehmann, Walter. Aiming device, 4,392,723, Cl. 350-407.000.
- Gehring, Johann: See—
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- Geimer, Robert L., to United States of America, Agriculture. Method of pressing reconstituted lignocellulosic materials, 4,393,019, Cl. 264-83.000.
- Geis, Hans P.; and Helber, Holger, to U.S. Philips Corporation. Rotating diaphragm for a dynamic pick-up device having a pyroelectric layer, 4,393,403, Cl. 358-113.000.
- Geiss, Vernon L.: See—
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- Genentech, Inc.: See—
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- General Electric Company: See—
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- General Motors Corporation: See—
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- General Signal Corporation: See—
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- Geosource Inc.: See—
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- Gerber, Bernard R.: See—
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- Gesellschaft für Biotechnologische Forschung: See—
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- Gessler, Donald A. Process for erecting a rotor assembly for a rotary extractor and apparatus therefor, 4,393,027, Cl. 422-269.000.
- Ghaussy, Rahmat U. Erythrocyte sedimentation rate apparatus and method, 4,392,497, Cl. 128-637.000.
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- Giannone, Victor S. Simplified adjustable tire chain, 4,392,521, Cl. 152-218.000.
- Gidge, Kenneth N.; and Richard, Henry J., to BSL Corporation. Strip curtain for display type refrigerators, 4,392,360, Cl. 62-249.000.
- Gielis, Gerardus C. M.: See—
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- Giffen, William M., Jr.: See—
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- Giglia, Robert D.; and Haacke, Gottfried, to American Cyanamid Company. Electrochromic cell having a mixed solid ion-conducting layer, 4,392,721, Cl. 350-357.000.
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- Gilker, Clyde, to McGraw-Edison Company. Overcurrent relay circuit, 4,393,431, Cl. 361-97.000.
- Gill, Graham P., to Motorola, Inc. Method for controlling the conductivity of polyimide films and improved devices utilizing the method, 4,393,092, Cl. 427-38.000.
- Gillespie, Ralph, to Milliken Research Corporation. Meat packaging material, 4,393,114, Cl. 428-252.000.
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Altenschopfer, Theodor; and Schumann, Klaus, 4,392,977, Cl. 252-174.190.
- Fischer, Herbert; Budnowski, Manfred; and Zeidler, Ulrich, 4,393,060, Cl. 424-248.500.
- Hachmann, Klaus, 4,392,974, Cl. 252-99.000.
- Hennig, Eberhard: See—
Gast, Uwe; Hennig, Eberhard; Preuss, Dieter; Taudt, Heinz; and Wellendorf, Klaus, 4,393,399, Cl. 358-80.000.
- Hepp, Leonard R., to General Electric Company. Impact modified glass/mineral reinforced polyester blends. 4,393,153, Cl. 523-201.000.
- Heraeus Elektroden GmbH: See—
Fabian, Peter; and Muller, Theo, 4,392,927, Cl. 204-98.000.
- Heraeus Quarzschmelze GmbH: See—
Bonewitz, Hans-Ulrich; Muhlich, Albert; and Rau, Karlheinz, 4,392,715, Cl. 350-96.330.
- Herbstman, Sheldon: See—
Estes, John H.; and Herbstman, Sheldon, 4,392,946, Cl. 208-217.000.
- Herchenbach, Horst: See—
Brachthausen, Kunibert; and Herchenbach, Horst, 4,392,822, Cl. 432-106.000.
- Heringes, James A.: See—
Gardiner, Bayard G.; and Heringes, James A., 4,392,486, Cl. 128-68.000.
- Herold, Wolf-Dietrich, to ESPE Fabrik Pharmazeutischer Prepare GmbH. Multiple-tube dispenser. 4,392,589, Cl. 222-137.000.
- Herrera, Jose E.: See—
Laine, Norman R.; and Herrera, Jose E., 4,392,987, Cl. 252-448.000.
- Herriau, Paul, to Societe SOGEFINA, Societe de Gestion Financiere Armoricaine. Pneumatic transport device particularly for single-seed drill. 4,392,439, Cl. 111-34.000.
- Herrington, Fox J., to Mobil Oil Corporation. Manufacturing process for channel seal. 4,392,897, Cl. 156-66.000.
- Hess, John M., to General Electric Company. Double flow reheat diaphragm. 4,392,778, Cl. 415-139.000.
- Hesston Corporation: See—
Berlivet, Marc A.; and Guerineau, Abel A. J., 4,392,339, Cl. 56-192.000.
- Heuvelsland, Albert; Jann, Fritz F. F.; and de Block-Martens, Greet, to Dow Chemical Company, The. Process for removing alkynes from C₄ hydrocarbon mixtures. 4,393,249, Cl. 568-688.000.
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Hibi, Hitoshi: See—
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Hicks, Frederick E., to General Electric Company. Apparatus and method of detecting failure in a refrigerator defrost system. 4,392,358, Cl. 62-155.000.

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Lagus, Peter L.; Peterson, Edward W.; and Hicks, William O., 4,392,376, Cl. 73-155.000.

Higaki, Yuzo: See—
Takada, Atsunobu; and Higaki, Yuzo, 4,393,044, Cl. 424-59.000.

Highlander, Sarah K.: See—
Manis, Jack J.; and Highlander, Sarah K., 4,393,137, Cl. 435-172.000.

Higuchi, Chojiro: See—
Mita, Ryuichi; Higuchi, Chojiro; Kato, Toshio; Kawashima, Nobuyuki; Yamaguchi, Akihiro; Nagai, Shosuke; and Takano, Takao, 4,393,000, Cl. 260-239.00E.

Hill, Phillip D.: See—
Tusinski, Joseph; and Hill, Phillip D., 4,392,334, Cl. 51-263.000.

Hill, Robert B., to Eye-D Development II Ltd. Rotating beam ocular identification apparatus and method. 4,393,366, Cl. 382-2.000.

Hillberg, Robert L.; and Stevens, Frederick F. Trigger retaining and stabilizing means. 4,392,320, Cl. 42-69.00R.

Hiltbrandt, Siegfried, to Richard Wolf GmbH. Endoscope. 4,392,485, Cl. 128-6.000.

Hilton, Carl W., to Return on Investment Corporation. Tennis training aid. 4,392,650, Cl. 273-29.00A.

Hirai, Ayahiro: See—
Okuma, Kiwamu; Haga, Tsunehiro; Kizara, Masao; Otaki, Keiji; and Hirai, Ayahiro, 4,392,878, Cl. 65-6.000.

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Hiramatsu, Uji: See—
Nakagawa, Tsuneo; Hiramatsu, Uji; and Honda, Toshihide, 4,393,257, Cl. 570-145.000.

Hiramoto, Shinji: See—
Maekawa, Hideyuki; Hiramoto, Shinji; Itaya, Kozo; Sato, Kokichi; and Nishida, Hirotaka, 4,392,577, Cl. 215-32.000.

Hirashima, Tsuneaki; Miyata, Toshiyuki; Yamamoto, Yoshikazu; and Kato, Mitsuyuki, to Showa Chemical Co., Ltd.; and Osaka Municipal Government. Method of producing aminobenzimidazolones. 4,393,216, Cl. 548-305.000.

Hirata, Sadao: See—
Maruhashi, Yoshitsugu; Tanikawa, Isao; Hirata, Sadao; Yazaki, Jinichi; and Sakano, Kozaburo, 4,393,106, Cl. 428-35.000.

Hirata, Shinji; and Ina, Hirohiko, to West Electric Co., Ltd. Electronic flash device. 4,393,335, Cl. 315-241.00P.

Hirayama, Noriaki: See—
Tomita, Fusao; Tamaoki, Tatsuya; Shirahata, Kunikatsu; Kasai, Masaji; Hirayama, Noriaki; Morimoto, Makoto; and Fukui, Masanori, 4,393,056, Cl. 424-181.000.

Hirosaki, Yukihiro: See—
Fujii, Kunihiko; Hirosaki, Yukihiro; Nishiyama, Yoshihisa; and Sato, Koichiro, 4,392,535, Cl. 177-1.000.

Hirth, Georges: See—
Boguth, Walter; and Hirth, Georges, 4,393,057, Cl. 424-229.000.

Boguth, Walter; and Hirth, Georges, 4,393,073, Cl. 424-284.000.

Hirukawa, Kohei: See—
Torii, Michihiro; Hirukawa, Kohei; Urata, Hiroshi; and Suzuki, Shinichi, 4,393,373, Cl. 340-384.00E.

Hisaka Works, Ltd.: See—
Miyamoto, Mitsuyasu; Ishimaru, Osamu; and Fukube, Nobuyoshi, 4,392,365, Cl. 68-19.000.

Hisamitsu Pharmaceutical Co., Inc.: See—
Noda, Kanji; Nakagawa, Akira; Yamagata, Tetsuya; and Ide, Hiroyuki, 4,393,076, Cl. 424-317.000.

Hitachi Chemical Company, Ltd.: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirosada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.

Hitachi Koki Co., Ltd.: See—
Matsuda, Yasumasa; Mukumoto, Kyoji; Sagae, Syoji; and Kasahara, Masatoshi, 4,393,388, Cl. 346-140.00R.

Nakajima, Isao; Tagusari, Koji; Okuna, Kenji; Hayama, Toru; Takahashi, Kazue; Watanabe, Michihiro; and Kotani, Sumihisa, 4,392,423, Cl. 101-93.480.

Hitachi, Ltd.: See—
Arai, Takao; Hoshino, Takashi; and Kobayashi, Masaharu, 4,393,419, Cl. 360-37.100.

Ida, Michiaki; Hagiwara, Noriaki; Yamago, Naoyoshi; Yoshioka, Masahiro; and Kikuchi, Katsuaki, 4,392,751, Cl. 384-99.000.

Ishii, Takeo; Ogata, Masatsugu; and Narahara, Toshikazu, 4,393,177, Cl. 525-422.000.

Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; Asahi, Naotatsu; and Hagino, Mitsuo, 4,392,296, Cl. 29-520.000.

Kumada, Akio; Ihochi, Takahiko; Homma, Makoto; and Tanaka, Masashi, 4,392,747, Cl. 368-88.000.

Maki, Naoki; Numata, Seiji; Yamaguchi, Kiyoshi; and Yamamoto, Heroe, 4,393,429, Cl. 361-19.000.

Matsuda, Yasumasa; Mukumoto, Kyoji; Sagae, Syoji; and Kasahara, Masatoshi, 4,393,388, Cl. 346-140.00R.

Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Yamachi, Koji; and Suzuki, Mitsuo, 4,393,342, Cl. 318-467.000.

Nakajima, Isao; Tagusari, Koji; Okuna, Kenji; Hayama, Toru; Takahashi, Kazue; Watanabe, Michihiro; and Kotani, Sumihisa, 4,392,423, Cl. 101-93.480.

Sakudo, Noriyuki; Tokiuchi, Katsumi; Koike, Hidemi; Kanomata, Ichiro; and Nakashima, Humihiko, 4,393,333, Cl. 315-111.810.

Shibuya, Yoshimichi; and Takahashi, Masami, 4,392,717, Cl. 350-334.000.

Tsutsui, Mitsukuni; and Yoshinari, Takashi, 4,392,473, Cl. 123-635.000.

Ho, Nelson; and Kratochvil, Jiri, to Critikon, Inc. System for encapsulation of semiconductor chips. 4,393,130, Cl. 430-313.000.

Hobart Corporation: See—
Meyers, Theodore F., 4,392,891, Cl. 134-10.000.

Hoechst Aktiengesellschaft: See—
Lehr, Klaus; Heymer, Gero; May, Christian; and Klein, Hermann, 4,392,962, Cl. 210-688.000.

Merkel, Wulf; Bormann, Dieter; Mania, Dieter; and Muschaweck, Roman, 4,393,072, Cl. 424-275.000.

Metzger, Adolf; Konrad, Rolf; and Graser, Reinhold, 4,393,033, Cl. 423-388.000.

Moraw, Roland; and Schadlich, Gunther, 4,392,711, Cl. 350-361.000.

Hoefs, Edwin G.: See—
Kuhn, Andrew, III; and Hoefs, Edwin G., 4,392,782, Cl. 417-36.000.

Hoehn, Wolfgang, to ITT Industries, Inc. Parallel analog-to-digital converter. 4,393,372, Cl. 340-347.0AD.

Hofbauer, Peter; Scholz, Romanus; Heidemeyer, Paulus; and Zimmermann, Frank, to Volkswagenwerk Aktiengesellschaft. Engine-gear arrangement for vehicles, in particular passenger cars. 4,392,394, Cl. 74-689.000.

Hoffman, Jerzy. Wire trimmer. 4,392,398, Cl. 81-9.510.

Hoffman, John G.: See—
Hansen, Peder M.; Hoffman, John G.; Seeley, Elwin W.; and Andrew, Wesley A., 4,393,350, Cl. 324-334.000.

Hoffman, Werner; von Fraunberg, Karl; and Baumann, Manfred, to BASF Aktiengesellschaft. Musk-like scents and their manufacture. 4,393,245, Cl. 568-375.000.

Hoffmann, Dietrich: See—
Mittelbach, Gunter; Horstmann, Gunter; Heiss, Werner; Hoffmann, Dietrich; Siebrecht, Gunter; Kriechbaum, Karl; and Rapp, Gunter, 4,393,290, Cl. 200-148.00A.

Hoffmann-La Roche Inc.: See—
Boguth, Walter; and Hirth, Georges, 4,393,057, Cl. 424-229.000.

Boguth, Walter; and Hirth, Georges, 4,393,073, Cl. 424-284.000.

Broadhurst, Michael J.; Hassall, Cedric H.; and Thomas, Gareth J., 4,393,221, Cl. 549-39.000.

Keith, Dennis D.; Tengi, John P.; and Weigle, Manfred, 4,393,003, Cl. 260-245.20R.

Lohri, Bruno, 4,393,243, Cl. 568-344.000.

Hofmann-Igl, Ernest, to Basotherm GmbH. Eye drop dispensing bottle. 4,392,590, Cl. 222-174.000.

Hofmann, Rolf L., to Advanced Card Systems, Ltd. Apparatus and method for reading punched cards. 4,393,302, Cl. 235-474.000.

Hoglinger, Norbert. Device for facilitating particularly the loading and unloading of containers etc. from vehicles etc. 4,392,662, Cl. 280-43.230.

Hohman, Charles M.; Propster, Mark A.; and Seng, Stephen, to Owens-Corning Fiberglass Corporation. Drying apparatus. 4,392,310, Cl. 34-172.000.

Hokkaido University, President of: See—
Nishiyama, Masashi; Kobayashi, Yoshinari; Tokura, Seiichi; and Nishi, Norio, 4,392,916, Cl. 162-157.100.

Holce, Thomas J.; and Huckins, Charles M., to Sontrol, Inc. Take-off connector for security circuit. 4,392,707, Cl. 339-125.00R.

Holcomb, Dysart E.: See—
Drechsel, Erhart K.; Holcomb, Dysart E.; and Sardisco, John B., 4,393,032, Cl. 423-320.000.

Sardisco, John B.; and Holcomb, Dysart E., 4,393,030, Cl. 423-167.000.

Holman, Lee. Brake mechanism for material handling system. 4,392,563, Cl. 193-10.000.

Holmes, David D., to RCA Corporation. Television ghost signal detector with color burst phase delay control. 4,393,397, Cl. 358-36.000.

Holmes, Paul A.; Willmouth, Frank M.; and Newton, Alan B., to Imperial Chemical Industries PLC. Polymer blends containing polymer of β -hydroxybutyric acid and chlorine or nitrile group containing polymer. 4,393,167, Cl. 525-64.000.

Holmes, Paul M.: See—
Crissy, Charles F.; and Holmes, Paul M., 4,392,762, Cl. 410-116.000.

Holley, Thomas O.; Noyes, Steven S.; and Peters, Daniel G., to Honeywell Information Systems Inc. Communications subsystem having a self-latching data monitor and storage device. 4,393,461, Cl. 364-900.000.

Homma, Makoto: See—
Kumada, Akio; Ihochi, Takahiko; Homma, Makoto; and Tanaka, Masashi, 4,392,747, Cl. 368-88.000.

Honda Giken Kogyo Kaisha: See—
Aiba, Yasuaki, 4,392,542, Cl. 180-228.000.

Fujii, Takayuki; and Suda, Hitoshi, 4,392,539, Cl. 180-90.000.

Iwai, Kazuhiro; Enomoto, Hiroshi; Enokimoto, Akito; and Kato, Yoshitaka, 4,392,536, Cl. 180-217.000.

Sasagawa, Masaru; Umeda, Tatsuo; and Kushima, Mamoru, 4,392,400, Cl. 83-185.000.

Honda, Toshihide: See—
Nakagawa, Tsuneo; Hiramatsu, Uji; and Honda, Toshihide, 4,393,257, Cl. 570-145.000.

Honeywell Information Systems Inc.: See—
Holley, Thomas O.; Noyes, Steven S.; and Peters, Daniel G., 4,393,461, Cl. 364-900.000.

Hong, Enrique: See—
Schut, Robert N.; Safdy, Max E.; and Hong, Enrique, 4,393,081, Cl. 424-274.000.

Honjo, Satoru; Yuyama, Yasuaki; Iwasa, Masakazu; and Imanishi, Kazuo, to Fuji Photo Film Co., Ltd. Transfer powder marking method using a core-shell powder comprising a pigment, solvent-insoluble polyester resin and a volatile halogenated hydrocarbon insoluble ingredient. 4,393,112, Cl. 428-207.000.

Hoover, Lonnie D.: See—
House, Roy F.; and Hoover, Lonnie D., 4,392,964, Cl. 252-8.50C.

Hoppe, Karl; and Strauss, Udo, to BASF Farben & Fasern A.G. Synthetic resin. 4,393,179, Cl. 525-490.000.

Horbelt, Michael: See—
Gunther, Dieter; Bertsch, Richard; Bottcher, Siegfried; Arnold, Herbert; Schnurle, Hans; and Horbelt, Michael, 4,392,470, Cl. 123-440.000.

Horiba, Ltd.: See—
Ishida, Kozo; and Kohsaka, Hiroji, 4,393,304, Cl. 250-343.000.

Horiguchi, Satoru; Sasaoka, Takeshi; Shimane, Koichi; Mogi, Shigeru; Yaguchi, Tsuguo; and Sano, Kazuhiko, to Dai Nippon Printing Co., Ltd.; and Ikegami Tsushinki Co., Ltd. Apparatus for simulating color printing process. 4,393,398, Cl. 358-76.000.

Horike, Masanori: See—
Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,393,385, Cl. 346-75.000.

Horner, Joseph L.; and Ludman, Jacques E., to United States of America, Air Force. Method of manufacturing holographic elements for fiber and integrated optic systems. 4,392,709, Cl. 350-3.830.

Horrobin, David F., to Efamol Limited. Treatment for obesity. 4,393,049, Cl. 424-145.000.

Horsley, John K., to Molins Limited. Bobbin changer for joining successive reels of web of the cigarette industry. 4,392,912, Cl. 156-504.000.

Horstmann, Aloys; Eckholt, Heinz; and Veltel, Reinhard, to Volkmann GmbH & Co. Yarn monitor for two-yarn cabling or twisting machine. 4,392,340, Cl. 57-83.000.

Horstmann, Gunter: See—
Mittelbach, Gunter; Horstmann, Gunter; Heiss, Werner; Hoffmann, Dietrich; Siebrecht, Gunter; Kriechbaum, Karl; and Rapp, Gunter, 4,393,290, Cl. 200-148.00A.

Horton, Stanley K., to Prem Magnetics, Inc. Variable magnetically biased linearity control. 4,393,361, Cl. 335-212.000.

Horwitz, Jack M.: See—
Harris, Jeff; Chambers, Charles A.; and Horwitz, Jack M., 4,392,324, Cl. 46-1.00F.

Hoshino, Takashi: See—
Arai, Takao; Hoshino, Takashi; and Kobayashi, Masaharu, 4,393,419, Cl. 360-37.100.

Hoshiyama, Hidetoshi: See—
Tokuno, Masateru; Ishii, Yoshinori; and Hoshiyama, Hidetoshi, 4,392,910, Cl. 156-361.000.

Hosiden Electronics Co., Ltd.: See—
Masuda, Toru, 4,393,283, Cl. 200-51.090.

Hosoi, Fumio: See—
Sasaki, Takashi; Hagiwara, Miyuki; Hosoi, Fumio; and Takagi, Tohru, 4,393,165, Cl. 525-10.000.

Hosokawa, Minoru; Ikeda, Masayuki; and Yazawa, Satoru, to Kabushiki Kaisha Suwa Seikosha. Liquid crystal display systems. 4,393,380, Cl. 340-805.000.

Hosomizu, Hiroshi: See—
Sahara, Masayoshi; Nakai, Masaaki; Ishida, Tokuji; and Hosomizu, Hiroshi, 4,392,727, Cl. 354-43.000.

Hotta, Hisashi: See—
Kitamura, Yoichi; and Hotta, Hisashi, 4,392,582, Cl. 220-75.000.

Houle, Howard E. Grain combine with improved straw walker. 4,392,500, Cl. 130-26.000.

Houle, Laurent. Ejecting ice-cream scoop. 4,392,806, Cl. 425-286.000.

House, Roy F.; and Hoover, Lonnie D., to NL Industries, Inc. Compositions and method for thickening aqueous brines. 4,392,964, Cl. 252-8.50C.

Howaldtwerke - Deutsche Werft Aktiengesellschaft Hamburg und Kiel: See—
Kaps, Hermann, 4,392,447, Cl. 114-230.000.

Howard, Kent A.; and Goetsch, Duane A., to Exxon Research and Engineering Co. Two-stage hydrotreating process. 4,392,945, Cl. 208-210.000.

Howley, Joseph P.: See—
Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., 4,393,085, Cl. 426-28.000.

Howmedica, Inc.: See—
Huck, Charles M.; Studer, John E.; and Sauer, Philip H., 4,392,860, Cl. 604-212.000.

Hoya Lens Corporation: See—
Tarumi, Niro; Komiya, Shigeo; and Sugimura, Mitsuo, 4,393,184, Cl. 526-261.000.

Hoyle, Charles E.; and Lenox, Ronald S., to Armstrong World Industries, Inc. Diazidosulfonyl-N-substituted aniline. 4,393,006, Cl. 260-349.000.

Huang, I-Der: See—
Yang, Tai-Cheng; Rao, Krishna K.; and Huang, I-Der, 4,392,986, Cl. 252-435.000.

Hubner, Fritz, to Plascore, Inc. Fluorescent lamp shield. 4,393,323, Cl. 313-110.000.

Huck, Charles M.; Studer, John E.; and Sauer, Philip H., to Howmedica, Inc. Disposable wound drainage device. 4,392,860, Cl. 604-212.000.

Huckins, Charles M.: See—
Holce, Thomas J.; and Huckins, Charles M., 4,392,707, Cl. 339-125.00R.

Hudson, Alice P.: See—
Woodward, Fred E.; and Hudson, Alice P., 4,392,965, Cl. 252-8.800.

Hug, Duane L.: See—
Crocker, William A.; and Hug, Duane L., 4,393,230, Cl. 556-457.000.

Hughes, David W.: See—
Paulson, Wayne M.; and Hughes, David W., 4,392,992, Cl. 252-512.000.

Hughes, Jack H. Multi-phase failure detector. 4,393,430, Cl. 361-92.000.

Hultholm, Stig E.: See—
Heimala, Seppo O.; Hultholm, Stig E.; and Tuovinen, Frans H., 4,393,029, Cl. 423-55.000.

Hummerich, Rainer; Weiss, Wolfram; Merger, Franz; Immel, Guenther; Kraus, Hans-Joachim; and Peters, Karl-Clemens, to BASF Aktiengesellschaft. Alkoxyalkylaminotriazine trans-etherification products. 4,393,207, Cl. 544-196.000.

Huntley, John D.; and Parsons, Raymond L., to International Business Machines Corp. Status reporting with ancillary data. 4,393,459, Cl. 364-900.000.

Hupfer, Leopold: See—
Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, 4,393,251, Cl. 568-811.000.

Hurst, Robert N., to RCA Corporation. Time changing system for VTR. 4,393,415, Cl. 360-9.100.

Husain, Syed A., to National Semiconductor Corporation. Distributed force indexing system. 4,392,935, Cl. 204-206.000.

Hutlin, Herbert. Pump or blower, in particular for heating and air-conditioning systems. 4,392,777, Cl. 415-131.000.

Hydro Quebec: See—
Roberge, Gerald; and Doyon, Andre, 4,393,157, Cl. 323-355.000.

Iai, Kenichiro, to Yoshida Kogyo K. K. Method for assembling slide fastener stringers. 4,392,291, Cl. 29-408.000.

Ibach, Bernhard. Device for fixing catheters or the like. 4,392,854, Cl. 604-174.000.

Ichihashi, Hiroo: See—
Fujino, Hitoshi; Kanoto, Masanobu; and Ichihashi, Hiroo, 4,392,738, Cl. 355-3.0TR.

Ichikawa, Masaru, to Sagami Chemical Research Center. Method for producing methanol. 4,393,144, Cl. 518-715.000.

Ichikawa, Shigeru: See—
Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, 4,392,560, Cl. 188-73.340.

Ida, Michiaki; Hagiwara, Noriaki; Yamago, Naoyoshi; Yoshioka, Masahiro; and Kikuchi, Katsuaki, to Hitachi, Ltd. Damped bearing device. 4,392,751, Cl. 384-99.000.

Ide, Hiroyuki: See—
Noda, Kanji; Nakagawa, Akira; Yamagata, Tetsuya; and Ide, Hiroyuki, 4,393,076, Cl. 424-317.000.

Igarashi, Yoshiaki: See—
Yokobori, Nobuyoshi; Urayama, Masashi; Okamoto, Hiroshi; and Igarashi, Yoshiaki, 4,393,422, Cl. 360-73.000.

Ihara, Tomomi: See—
Shibuya, Kyoichi; and Ihara, Tomomi, 4,392,353, Cl. 60-657.000.

Ihochi, Takahiko: See—
Kumada, Akio; Ihochi, Takahiko; Homma, Makoto; and Tanaka, Masashi, 4,392,747, Cl. 368-88.000.

Iida, Seiichi: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.00EC.

Iijima, Noboru: See—
Fujii, Naoharu; and Iijima, Noboru, 4,393,071, Cl. 424-274.000.

Iijima, Takashi: See—
Nakamura, Kenichi; Nankai, Shiro; and Iijima, Takashi, 4,392,933, Cl. 204-403.000.

Iino, Umetarou: See—
Nakamura, Teruo; and Iino, Umetarou, 4,392,788, Cl. 417-269.000.

Ikeda, Masayuki, to Kabushiki Kaisha Suwa Seikosha. Synchronizing circuit for matrix television set. 4,393,405, Cl. 358-153.000.

Ikeda, Masayuki: See—
Hosokawa, Minoru; Ikeda, Masayuki; and Yazawa, Satoru, 4,393,380, Cl. 340-805.000.

Ikeda, Mitsuo: See—
Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, 4,392,560, Cl. 188-73.340.

Ikegami Tsushinki Co., Ltd.: See—
Horiguchi, Satoru; Sasaoka, Takeshi; Shimane, Koichi; Mogi, Shigeru; Yaguchi, Tsuguo; and Sano, Kazuhiko, 4,393,398, Cl. 358-76.000.

Ikeguchi, Nobuyuki: See—
Gaku, Morio; Ikeguchi, Nobuyuki; and Ayano, Satoshi, 4,393,195, Cl. 528-361.000.

Ikushima, Hiroshi; Baba, Takaaki; Sagishima, Takayuki; and Tanaka, Masanobu, to Matsushita Electric Industrial Co., Ltd. 3-D TV Systems. 4,393,400, Cl. 358-92.000.

Illinois Tool Works Inc.: See—
Muggleston, Peter R., 4,392,278, Cl. 24-213.00R.

Imai, Fusao: See—
Akiyama, Hiroyuki; Hatakeyama, Hideo; Shimoyashiki, Nobuyoshi; Momose, Yoshiaki; and Imai, Fusao, 4,393,016, Cl. 264-53.000.

Imai, Yoshikazu: See—
Suzuki, Ichiro; Yasumatsu, Jun; Imai, Yoshikazu; and Motonami, Masanao, 4,392,673, Cl. 280-804.000.

Imai, Yoshio; Nabeta, Yoichi; and Inuzuka, Tadao, to Imai, Yoshio. Capacitance humidity sensor. 4,393,434, Cl. 361-286.000.

Imanishi, Kazuo: See—
Honjo, Satoru; Yuyama, Yasuaki; Iwasa, Masakazu; and Imanishi, Kazuo, 4,393,112, Cl. 428-207.000.

Imazeki, Ryoji; and Inoue, Michiya, to Fujitsu Fanuc Limited. Method of modifying data stored in non-volatile memory and testing for power failure occurring during modification. 4,393,500, Cl. 371-13.000.

Immel, Guenther: See—
Hummerich, Rainer; Weiss, Wolfram; Merger, Franz; Immel, Guenther; Kraus, Hans-Joachim; and Peters, Karl-Clemens, 4,393,207, Cl. 544-196.000.

Imperial Chemical Industries PLC: See—
Brittain, David R.; and Wood, Robin, 4,393,062, Cl. 424-250.000.

Daniels, James A., 4,393,224, Cl. 549-273.000.

Hartshorn, Angus J.; and Jones, Eric, 4,392,983, Cl. 252-429.00B.

Holmes, Paul A.; Willmouth, Frank M.; and Newton, Alan B., 4,393,167, Cl. 525-64.000.

Legras, Roger M. H.; Biebuyck, Jean-Jacques E. R. G.; and Mercier, Jean P., 4,393,178, Cl. 525-437.000.

Mitchell, Alan; and Bailey, Thomas, 4,393,235, Cl. 562-478.000.

Roberts, Norman L.; and Whitaker, Graham, 4,393,214, Cl. 546-345.000.

Ina, Hirohiko: See—
Hirata, Shinji; and Ina, Hirohiko, 4,393,335, Cl. 315-241.00P.

Indian Explosives Limited: See—
Bhaduri, Sumit; and Mahandru, Madan M., 4,393,244, Cl. 568-360.000.

Industrial Holographics, Inc.: See—
Wright, Forrest S.; and Zimmerman, Ted R., 4,392,745, Cl. 356-348.000.

Ing. Rudolf Hell GmbH: See—
Beisswenger, Siegfried; Boppel, Wolfgang; and Grieger, Dieter, 4,393,295, Cl. 219-121.0EJ.

Ingram, Gary L., to Spencer Wright Industries, Inc. Multi-stitch cam needle bar shifter for tufting machines. 4,392,440, Cl. 112-79.00A.

Inoue, Hiromitsu: See—
Minakuchi, Yoshikazu; Abiko, Toshio; and Inoue, Hiromitsu, 4,393,514, Cl. 455-336.000.

Inoue-Japax Research Incorporated: See—
Inoue, Kiyoshi, 4,393,292, Cl. 219-69.00M.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Method of and apparatus for electrical discharge machining a small and deep hole into or through a workpiece. 4,393,292, Cl. 219-69.00M.

Inoue, Koji; Sato, Nobukatsu; and Tamura, Takashi, to Maruishi Pharmaceutical Co., Ltd. Salt of chlorhexidine. 4,393,219, Cl. 548-534.000.

Inoue, Michiya: See—
Imazeki, Ryoji; and Inoue, Michiya, 4,393,500, Cl. 371-13.000.

Inoue, Nobuyoshi; and Kishi, Tomomi, to Toyota Jidosha Kabushiki Kaisha. Resistance welding machine. 4,393,293, Cl. 219-90.000.

Inoue, Shojiro: See—
Tanaka, Eiichi; Ishibasi, Noboru; and Inoue, Shojiro, 4,392,813, Cl. 431-76.000.

Institut Francais du Pétrole: See—
Dawans, Francois; Binet, Daniel; Kohler, Norbert; and Dang Vu, Quang, 4,393,151, Cl. 523-130.000.

Euzen, Jean-Paul; Jacquin, Yves; and Van Landeghem, Hugo, deceased, 4,392,943, Cl. 208-152.000.

Institute for Industrial Research & Standards: See—
O'Connell, Denis, 4,392,687, Cl. 298-5.000.

Instytut Chemii Nieorganicznej: See—
Wrobel, Stanislaw; and Wegrzyn, Ryszard, 4,392,549, Cl. 181-239.000.

International Business Machines Corporation: See—
Aiken, John A., Jr., 4,393,463, Cl. 364-900.000.

Bakos, Peter; Darrow, Russell E.; Funari, Joseph; and Redpath, Diane L., 4,392,617, Cl. 239-290.000.

Bowles, David J.; Clancy, Douglas E.; Johnson, Carl F.; and Neal, Danny M., 4,392,758, Cl. 400-697.100.

Brown, Leon C.; Campbell, Jesse L.; Fitts, Uscoe J.; and Gudel, Willard L., 4,392,739, Cl. 355-3.0FU.

Denny, Clifford M.; and Wampler, Charles W., II, 4,392,757, Cl. 400-328.000.

Gajda, Joseph J., 4,393,096, Cl. 427-90.000.

Greschner, Johann; Kraus, Georg; and Schmid, Gerhard E., 4,393,127, Cl. 430-5.000.

Huntley, John D.; and Parsons, Raymond L., 4,393,459, Cl. 364-900.000.

Konheim, Alan G.; Matyas, Stephen M.; and Meyer, Carl H., 4,393,269, Cl. 178-22.080.

Milligan, Charles A.; Vedei, Edwin R., II; and Yates, Winston F., 4,393,445, Cl. 364-200.000.

International Coal Refining Company: See—
Tao, John C., 4,392,940, Cl. 208-8.0LE.

International Flavors & Fragrances Inc.: See—
Calderone, Nicholas; Watkins, Hugh; and Yoshida, Takao, 4,392,976, Cl. 252-174.110.

Sprecker, Mark A., 4,393,247, Cl. 568-665.000.

International Minerals & Chemical Corp.: See—
Brown, Ross G.; Bright, David R.; and Williams, Robert D., 4,393,041, Cl. 424-19.000.

Brown, Ross G.; Bright, David R.; and Williams, Robert D., 4,393,041, Cl. 424-19.000.

International Minerals & Chemicals Corp.: See—
Seeney, Charles E.; Kraemer, John F.; and Varnum, Nancy C., 4,393,152, Cl. 523-139.000.

International Remote Imaging Systems: See—
Deindoerfer, Fred H.; DeForest, Sherman E.; and Bolz, Gunner, 4,393,466, Cl. 364-415.000.

International Standard Electric Corporation: See—
Boute, Raymond T. G., 4,393,469, Cl. 364-900.000.

International Telephone and Telegraph Corporation: See—
Edwards, Allan K., 4,393,493, Cl. 370-16.000.

Inuzuka, Tadao: See—
Imai, Yoshio; Nabeta, Yoichi; and Inuzuka, Tadao, 4,393,434, Cl. 361-286.000.

Inuzuka, Tsuneki; Murakami, Koichi; Kurita, Kenji; and Sakamaki, Hisashi, to Canon Kabushiki Kaisha. Image forming apparatus. 4,392,741, Cl. 355-14.00R.

Iori, Shinichi; Kajiura, Ikuo; and Jikihara, Kazuo, to Kumiai Chemical Industry Co. Ltd. Herbicidal composition and process. 4,392,883, Cl. 71-93.000.

Ippolito, Joe J. Earth storage structural energy system and process for constructing a thermal storage well. 4,392,531, Cl. 166-278.000.

Irons, Ian B., to Johnson, Matthey & Co., Limited. Forming process. 4,392,292, Cl. 29-421.00R.

Irvin Industries, Inc.: See—
Gavagan, James A., 4,392,280, Cl. 24-230.00A.

Irving, Edward: See—
Hathaway, Roderick D.; Irving, Edward; and Waterhouse, John S., 4,392,930, Cl. 204-159.140.

Irving, William A.; and Thornton, Robert E., Jr., to Standard Knitting Mills, Inc. Destruction and dye resistant tag; tagged textile article and method of identifying textiles subject to a dyeing and finishing process. 4,392,315, Cl. 40-27.000.

Ischebeck, Klaus. Storage apparatus including conveyor means. 4,392,767, Cl. 414-136.000.

Ishibasi, Noboru: See—
Tanaka, Eiichi; Ishibasi, Noboru; and Inoue, Shojiro, 4,392,813, Cl. 431-76.000.

Ishida, Kozo; and Kohsaka, Hiroji, to Horiba, Ltd. Gas analyzer of the fluid modulation type. 4,393,304, Cl. 250-343.000.

Ishida, Noboru; and Watanabe, Harumichi, to Nippon Oil Company, Limited. Metal deactivator and composition containing same. 4,392,968, Cl. 252-51.50R.

Ishida, Tokuji: See—
Sahara, Masayoshi; Nakai, Masaaki; Ishida, Tokuji; and Hosomizu, Hiroshi, 4,392,727, Cl. 354-43.000.

Ishida, Torao: See—
Hayashi, Hiroshi; Shimojima, Yukiji; Shirai, Takashi; Ishida, Torao; and Shibukawa, Mitsuru, 4,393,225, Cl. 549-289.000.

Ishii, Shigeru: See—
Ozawa, Kiyomi; and Ishii, Shigeru, 4,393,213, Cl. 546-298.000.

Ishii, Takeo; Ogata, Masatsugu; and Narahara, Toshikazu, to Hitachi, Ltd. Thermosetting resin composition, process for preparation thereof and cured product thereof. 4,393,177, Cl. 525-422.000.

Ishii, Yoshinori: See—
Tokuno, Masateru; Ishii, Yoshinori; and Hoshiyama, Hidetoshi, 4,392,910, Cl. 156-361.000.

Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
Shimizu, Masami; and Yasunobe, Junji, 4,392,752, Cl. 384-135.000.

Ishimaru, Osamu: See—
Miyamoto, Mitsuyasu; Ishimaru, Osamu; and Fukube, Nobuyoshi, 4,392,365, Cl. 68-19.000.

Ishiyama, Jiro: See—
Watanabe, Masazumi; Uehara, Mikio; Shimazu, Yoshimi; Ishiyama, Jiro; and Kato, Motohiko, 4,393,083, Cl. 426-15.000.

Ishizuka, Yutaka, to Diesel Kiki Co., Ltd. Swash-plate type compressor having low noise thrust bearings. 4,392,416, Cl. 92-71.000.

ISKRA-SOZD elektrovinske industrije n.s.l.o.: See—
Bandelj, Bojan, 4,393,374, Cl. 340-405.000.

Itakura, Fumitada; and Sugamura, Noboru, to Nippon Telegraph and Telephone Public Corporation. Sound synthesizer. 4,393,272, Cl. 179-1.0SA.

Itani, Abdallah M., to Electric Power Research Institute, Inc. Data transmission system and method. 4,393,516, Cl. 455-608.000.

Itaya, Kozo: See—
Maekawa, Hideyuki; Hiramoto, Shinji; Itaya, Kozo; Sato, Kokichi; and Nishida, Hirotaka, 4,392,577, Cl. 215-32.000.

Ito, Masazumi; and Shibasaki, Kenji, to Minolta Camera Kabushiki Kaisha. Paper transport control device for use in mechanical arrangement including manual paper feeding mechanism. 4,392,740, Cl. 355-14.0SH.

Ito, Takao, to Dainichi Kogyo Co., Ltd. Gasifying device for liquid fuel burner. 4,392,811, Cl. 431-37.000.

Itoh, Hiroshi: See—
Kobashi, Mamoru; and Itoh, Hiroshi, 4,392,468, Cl. 123-339.000.

Itsubo, Junichi; Mori, Fumio; and Sato, Hideki, to Japan Crown Cork Co. Ltd. Container closure having a liner and method for its production. 4,392,581, Cl. 215-348.000.

ITT Industries, Inc.: See—
Franke, Helmut, 4,392,557, Cl. 188-71.900.

Hoehn, Wolfgang, 4,393,372, Cl. 340-347.0AD.

Loreck, Heinz, 4,393,447, Cl. 364-426.000.

Schopper, Bernd, 4,392,511, Cl. 137-493.200.

Schopper, Bernd; Lowe, Derek; Reinartz, Hans-Dieter; and Tandler, Peter, 4,392,691, Cl. 303-6.00C.

ITW Fastex Italia S.p.A.: See—
Bassi, Alberto, 4,392,683, Cl. 296-37.900.

Ivanov, Gennady M.: See—
Buryakov, Viktor P.; Ivanov, Gennady M.; Kislik, Mikhail I.; Kurgansky, Pavel M.; Shmotkin, Mark B.; and Eikhenvald, Eduard V., 4,392,551, Cl. 184-7.00D.

Ivory, Loretta C.; and Hartmann, Frederick D., to Ivory, Loretta C. Baby cradle. 4,392,261, Cl. 5-101.000.

Iwai, Kazuhiro; Enomoto, Hiroshi; Enokimoto, Akito; and Kato, Yoshitaka, to Honda Giken Kogyo Kabushiki Kaisha. Vehicle. 4,392,536, Cl. 180-217.000.

Iwamoto, Eisaburo: See—
Kitagawa, Norihisa; and Iwamoto, Eisaburo, 4,393,475, Cl. 365-201.000.

Iwamoto, Ikuo: See—
Tanaka, Masato; Furukawa, Shunsuke; Iwamoto, Ikuo; and Doi, Toshitada, 4,393,502, Cl. 371-40.000.

Iwasa, Masakazu: See—
Honjo, Satoru; Yuyama, Yasuaki; Iwasa, Masakazu; and Imanishi, Kazuo, 4,393,112, Cl. 428-207.000.

Iwasaki, Hiroshi, to Fuji Jiko Kabushiki Kaisha. Magnet base for tool. 4,393,363, Cl. 335-288.000.

Iwasaki, Kyuhachiro: See—
Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,393,385, Cl. 346-75.000.

Iwasama, Teruo; and Tojiki, Hitomi, to Olympus Optical Company Limited. Motor speed control device. 4,393,340, Cl. 318-301.000.

Iwashita, Tomonori; and Fukahori, Hidehiko, to Canon Kabushiki Kaisha. Motor driven rewind device for camera. 4,392,730, Cl. 354-173.000.

Iwata, Masayoshi; and Douke, Harumi, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Electrical switching arrangement. 4,393,280, Cl. 200-4.000.

Izumi, Naoto, to NGK Insulators, Ltd. Sampling device for analyzing gas with high dust content. 4,392,387, Cl. 73-863.210.

J. C. Schumacher Company: See—
McMenamin, Joseph C., 4,393,013, Cl. 261-64.00B.

J. I. Case Company: See—
Albrecht, Allan J.; and Van Ooyen, Richard C., 4,392,314, Cl. 37-103.000.

J. J. Barker Company Limited: See—
Barker, John C.; and McLaughlin, Ivan P., 4,393,108, Cl. 428-44.000.

Jackson, Peter J.: See—
Buchanan, David J.; Davis, Richard; and Jackson, Peter J., 4,393,484, Cl. 367-23.000.

Jackson, Tee-Squant-Nee; Vernon, Paul M.; and Schoen, David A., to Boeing Company, The. Method and apparatus for testing systems that communicate over digital buses by transmitting and receiving signals in the form of standardized multi-bit binary encoded words. 4,393,498, Cl. 371-20.000.

Jacquin, Yves: See—
Euzen, Jean-Paul; Jacquin, Yves; and Van Landeghem, Hugo, deceased, 4,392,943, Cl. 208-152.000.

Jaedicke, Hagen: See—
Tonne, Peter; and Jaedicke, Hagen, 4,393,211, Cl. 546-153.000.

Jahn-Held, Wilhelm: See—
Wagner, Fritz; Lindorfer, Walter; Jahn-Held, Wilhelm; and Schulz, Walther, 4,392,892, Cl. 134-25.100.

James Jr., Harry E. Convertible lantern and reflector therefor. 4,393,439, Cl. 362-182.000.

Jameson, James J.; and Beeson, John M., to Cooper Industries, Inc. Multispeed reversible power shift transmission. 4,392,391, Cl. 74-333.000.

Jann, Fritz F. F.: See—
Heuvelsland, Albert; Jann, Fritz F. F.; and de Block-Martens, Greet, 4,393,249, Cl. 568-688.000.

Janome Sewing Machine Co. Ltd.: See—
Eguchi, Yasukata, 4,392,441, Cl. 112-158.00B.

Sano, Yasuro, 4,392,442, Cl. 112-275.000.

Japan Atomic Energy Research Institute: See—
Sasaki, Takashi; Hagiwara, Miyuki; Hosoi, Fumio; and Takagi, Tohru, 4,393,165, Cl. 525-10.000.

Japan Bano'k Co., Ltd.: See—
Hara, Saburo, 4,392,906, Cl. 156-250.000.

Japan Crown Cork Co. Ltd.: See—
Itsubo, Junichi; Mori, Fumio; and Sato, Hideki, 4,392,581, Cl. 215-348.000.

Japan Styrene Paper Corporation: See—
Akiyama, Hiroyuki; Hatakeyama, Hideo; Shimoyashiki, Nobuyoshi; Momose, Yoshiaki; and Imai, Fusao, 4,393,016, Cl. 264-53.000.

Jarrett, Boaz A.: See—
Mowbray, Dorian F.; and Jarrett, Boaz A., 4,392,777, Cl. 123-299.000.

Jarvis, Raymond C. Heat-sink water heater. 4,392,455, Cl. 123-299.00A.

Jasys, Vytautas J., to Pfizer Inc. Intermediates for production of 1,1-dioxopenicillanoyloxymethyl 6-(2-amino-2-phenylacetamido)penicillanates. 4,393,001, Cl. 260-239.100.

Jeannotte, Raymond V.: See—
Redmond, Harry W.; and Jeannotte, Raymond V., 4,392,658, Cl. 280-11.180.

Jenkins, William A., to Monarch Marking Systems, Inc. Composite label web. 4,393,107, Cl. 428-42.000.

Jennwein, Hans M.: See—
Langbein, Adolf; Merz, Herbert; Sobotta, Rainer; Bauer, Rudolf; Jennwein, Hans M.; and Mierau, Joachim, 4,393,069, Cl. 424-265.000.

Jens, Richard A., to General Electric Company. Outer rotation bearing for x-ray tube. 4,393,511, Cl. 378-128.000.

JEOL Ltd.: See—
Norioka, Setsuo, 4,393,309, Cl. 250-396.00R.

Jerard, Robert B., to Dartmouth College, Trustees of. Three-dimensional model-making system. 4,393,450, Cl. 364-474.000.

Jesse, Erich: See—
Neuhaus, Dieter; Sohner, Gerhard; Ruf, Walter; Jesse, Erich; and Roth, Helmut, 4,393,432, Cl. 361-104.000.

Jewell, John N.: See—
Newton, Richard P.; Harper, Patrick H.; Geiss, Vernon L.; and Jewell, John N., 4,392,501, Cl. 131-300.000.

Jikihara, Kazuo: See—
Iori, Shinichi; Kajiura, Ikuo; and Jikihara, Kazuo, 4,392,883, Cl. 71-93.000.

Jimenez, James A., to Electra Food Machinery, Inc. Cooking apparatus. 4,392,418, Cl. 99-330.000.

Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, to Ricoh Co., Ltd. Controllable ink drop velocity type ink-jet printer. 4,393,385, Cl. 346-75.000.

JLG Industries Inc.: See—
Mellott, Lex A., 4,392,698, Cl. 339-10.000.

Johannsen, James R., to McQuay-Perfex Inc. Variable dead band pressure control system. 4,392,417, Cl. 98-1.500.

Johannson, Richard J., to Towmotor Corporation. Carriage assembly with shiftable forks. 4,392,773, Cl. 414-667.000.

Johanning, John B.: See—
Hall, Charles P.; and Johanning, John B., 4,392,872, Cl. 55-36.000.

Johne, Hans: See—
Forster, Karl-Heinz; and Johne, Hans, 4,392,429, Cl. 101-365.000.

Johnson, Avery A., Jr.: See—
Mason, Arthur D., Jr.; Johnson, Avery A., Jr.; Walker, Harrel L.; Bowler, Eleanor G.; and Ritchey, Charles R., 4,393,048, Cl. 424-132.000.

Johnson, Brian C.: See—
Kellogg, Richard A.; May, John B.; and Johnson, Brian C., 4,393,501, Cl. 371-33.000.

Johnson, Carl F.: See—
Bowles, David J.; Clancy, Douglas E.; Johnson, Carl F.; and Neal, Danny M., 4,392,758, Cl. 400-697.100.

Johnson, Fred L., Jr.; and Watts, Lewis W., Jr., to Texaco Inc. Process for the production of alkylene glycols. 4,393,254, Cl. 568-867.000.

Johnson, James C., to Duff-Norton Company. Shielding apparatus for linear actuator. 4,392,390, Cl. 74-89.150.

Johnson & Johnson Baby Products Company: See—
Butterworth, George A. M.; and Fillwalk, Frank J., 4,392,861, Cl. 604-366.000.

Johnson, Lewis H.: See—
Capezzuto, John P.; and Johnson, Lewis H., 4,392,425, Cl. 101-327.000.

Johnson, Matthey & Co., Limited: See—
Irons, Ian B., 4,392,292, Cl. 29-421.00R.

Johnstone, George A. Letterguide. 4,392,306, Cl. 33-174.00B.

Jones, Eric: See—
Hartshorn, Angus J.; and Jones, Eric, 4,392,983, Cl. 252-429.00B.

Jones, John F.: See—
Li, George S.; Jones, John F.; and Giffen, William M., Jr., 4,393,020, Cl. 264-108.000.

Jones, Robert T.; and Harrison, Martin B., to Goodall Rubber Company. Hose handling device. 4,392,676, Cl. 285-61.000.

Jones, Ronald R., to Circuit Research Labs. Voltage controlled resistor. 4,393,346, Cl. 323-280.000.

Jones, Stanley W.; and Franz, James H., Jr., to Westinghouse Electric Corp. Vehicle propulsion motor control apparatus. 4,393,338, Cl. 318-86.000.

Jones, William R., to Boeing Company, The. Direction finding and ranging system for locating scanning emitters. 4,393,382, Cl. 343-112.00D.

Joseph, Horst: See—
Galow, Manfred; and Joseph, Horst, 4,392,919, Cl. 202-228.000.

Joseph, Joseph P.: See—
Nair, Vijay G.; Joseph, Joseph P.; and Bernstein, Seymour, 4,393,055, Cl. 424-180.000.

Joy Manufacturing Company: See—
Novoselac, John; and Churcher, Dale L., 4,392,846, Cl. 494-40.000.

Jozepaitis, Charles M., to Nash Engineering Company, The. Liquid ring pump employing discharged pumping liquid for discharge port control. 4,392,783, Cl. 417-68.000.

Jung, Hubert: See—
Fechter, Leonhard; and Jung, Hubert, 4,392,952, Cl. 210-159.000.

Junker, Otto: See—
Hage, Manfred; Demuth, Hans; and Junker, Otto, 4,392,526, Cl. 165-154.000.

- Juy, Henri, to Le Simplex. Guide sprocket wheel, more particularly for the gear shift devices of bicycles and the like. 4,392,841, Cl. 474-156.000.
- Kabushiki Kaisha Fujikoshi: See—
Shikano, Michio; and Kitagawa, Shuzi, 4,392,799, Cl. 418-169.000.
- Kabushiki Kaisha Kobe Seiko Sho: See—
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,267, Cl. 15-88.000.
- Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,506, Cl. 134-46.000.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Sato, Yoshito; and Takahashi, Tomoyuki, 4,392,396, Cl. 74-785.000.
- Kabushiki Kaisha Nippon Coinco: See—
Hayashi, Yukichi, 4,392,564, Cl. 194-1.00N.
- Kabushiki Kaisha Sunpack: See—
Nishiyama, Masanobu; Kanazawa, Fusao; Tanaka, Hisaji; and Nishimura, Tatsuo, 4,392,269, Cl. 15-145.000.
- Kabushiki Kaisha Suwa Seikosha: See—
Aoki, Kenji; Goto, Mitsuhiro; and Miura, Teiji, 4,393,390, Cl. 346-155.000.
- Hosokawa, Minoru; Ikeda, Masayuki; and Yazawa, Satoru, 4,393,380, Cl. 340-805.000.
- Ikeda, Masayuki, 4,393,405, Cl. 358-153.000.
- Yoshino, Masahito, 4,392,748, Cl. 368-88.000.
- Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho: See—
Arakawa, Kaneyasu; and Mizuno, Shigeo, 4,393,360, Cl. 335-164.000.
- Iwata, Masayoshi; and Douke, Harumi, 4,393,280, Cl. 200-4.000.
- Yamamoto, Toshimasa; Mori, Mamoru; and Kinaga, Eiichi, 4,392,672, Cl. 280-803.000.
- Kabuto, Masami: See—
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,392,385, Cl. 73-861.230.
- Kaeding, Warren W., to Mobil Oil Corporation. Production of isopropylbenzene. 4,393,262, Cl. 585-467.000.
- Kaeschmayer, Jakob: See—
Schwarzenberg, Norbert; Ueberwolf, Heinz; and Kaeschmayer, Jakob, 4,392,404, Cl. 83-886.000.
- Kahkipuro, Matti, to Elevator GmbH. Procedure and means for monitoring current data in a thyristor-controlled direct current drive. 4,393,442, Cl. 363-70.000.
- Kahl, George D.: See—
Schmidt, Edward M.; and Kahl, George D., 4,392,412, Cl. 89-14.00D.
- Kai, Junjiro: See—
Kimura, Hiroshi; and Kai, Junjiro, 4,392,971, Cl. 252-70.000.
- Kajiwara, Ikuo: See—
Iori, Shinichi; Kajiwara, Ikuo; and Jikihara, Kazuo, 4,392,883, Cl. 71-93.000.
- Kajiwara, Kazuo: See—
Sasai, Mitsuo; Tomikawa, Kiyozu; and Kajiwara, Kazuo, 4,392,295, Cl. 29-509.000.
- Kakimoto, Toshihiko, to Nissan Motor Co., Ltd. Vibration absorber for an automotive vehicle. 4,392,640, Cl. 267-141.200.
- Kallay, Tamas: See—
Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, 4,393,008, Cl. 260-465.00D.
- Kalyanaraman, Palaiyur S.: See—
Gaudiana, Russell A.; and Kalyanaraman, Palaiyur S., 4,393,194, Cl. 528-348.000.
- Kamatics Corporation: See—
Wirth, Charles J., 4,392,837, Cl. 464-69.000.
- Kamegaya, Takeo; and Watanabe, Satoshi, to Okaya Electric Industries Co., Ltd. DC Plasma display panel. 4,393,326, Cl. 313-582.000.
- Kamens, Ernest R., to Pennwalt Corporation. Reaction of t-alkylhydrazinium salts and organic peroxides to foam unsaturated polyester resins. 4,393,148, Cl. 521-93.000.
- Kamohara, Eiji: See—
Takenaka, Shigeo; Kamohara, Eiji; and Seino, Kazuyuki, 4,392,914, Cl. 156-633.000.
- Kanamaru, Hisanobu; Tokkairin, Akira; Tatsumi, Hideo; Asahi, Naotatsu; and Haginoya, Mitsuo, to Hitachi, Ltd. Method of joining two metal members. 4,392,296, Cl. 29-520.000.
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- Kaneko, Shinji, to Sony Corporation. Velocity error compensator for time base error corrections of periodic information signals. 4,393,413, Cl. 358-326.000.
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- Kanomata, Ichiro: See—
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- Kanoto, Masanobu: See—
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- Kanto Seiki Co., Ltd.: See—
Sugawara, Noboru, 4,392,836, Cl. 464-52.000.
- Kantz, Dieter; and Seher, Eugen, to Siemens Aktiengesellschaft. Monolithically integrated semiconductor memory with dummy and charge equalization cells. 4,393,478, Cl. 365-210.000.
- Kao Soap Co. Ltd.: See—
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- Kaplan, George: See—
Gresser, Herbert D.; Kaplan, George; and Nussenbaum, Joseph, 4,392,476, Cl. 125-30.00R.
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- Karls, Michael A.: See—
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- Kasahara, Yasushi: See—
Yano, Akira; Saito, Yoshitada; and Kasahara, Yasushi, 4,393,134, Cl. 435-29.000.
- Kasai, Masaji: See—
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Okumura, Taketo; Tsukahara, Taiji; Mikuriya, Takashi; Watanabe, Hideki; and Katada, Katsutoshi, 4,392,371, Cl. 72-231.000.
- Katho, Eiichi: See—
Senda, Shigeo; Katho, Eiichi; Ohtani, Osamu; Miyake, Hidekazu; and Fujiwara, Khosuke, 4,393,210, Cl. 546-141.000.
- Kato, Akira: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.0EC.
- Kato, Mitsuyuki: See—
Hirashima, Tsuneaki; Miyata, Toshiyuki; Yamamoto, Yoshikazu; and Kato, Mitsuyuki, 4,393,216, Cl. 548-305.000.
- Kato, Motohiko: See—
Watanabe, Masazumi; Uehara, Mikio; Shimazu, Yoshimi; Ishiyama, Jiro; and Kato, Motohiko, 4,393,083, Cl. 426-15.000.
- Kato, Takashi; and Hayakawa, Masaharu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Temperature-responsive control device for carburetor. 4,393,012, Cl. 261-39.00A.
- Kato, Tetsuo; and Makita, Naoki, to Tokico Ltd. Vehicle suspension device. 4,392,638, Cl. 267-64.240.
- Kato, Toshio: See—
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- Kato, Yoshitaka: See—
Iwai, Kazuhiro; Enomoto, Hiroshi; Enokimoto, Akito; and Kato, Yoshitaka, 4,392,536, Cl. 180-217.000.
- Katsuragawa, Kanzi: See—
Kubo, Masashige; Yoshimitsu, Mitsuki; and Katsuragawa, Kanzi, 4,393,246, Cl. 568-639.000.
- Kaufhold, Wolfgang: See—
Fork, Kurt; Kaufhold, Wolfgang; Meusel, Wolfgang; and Waldmann, Hermann, 4,393,345, Cl. 322-19.000.
- Kaufmann, John C.; and Lenox, Ronald S., to Armstrong World Industries, Inc. Method of uniformly dyeing high temperature heat set polyester yarn. 4,392,863, Cl. 8-400.000.
- Kaufmann, Karl-Ernst: See—
Durwald, Dierk; and Kaufmann, Karl-Ernst, 4,392,434, Cl. 104-70.000.
- Kautz, Jon F.: See—
Billman, Timothy B.; and Kautz, Jon F., 4,392,300, Cl. 29-739.000.
- Kaveloski, Robert J. Disposable fly trap. 4,392,322, Cl. 43-118.000.
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Watai, Haruhisa; Furuta, Hiroyuki; and Kawamoto, Akira, 4,393,120, Cl. 428-457.000.
- Kawamoto, Mutsumi: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, 4,393,467, Cl. 364-424.100.
- Kawamura, Gengiro: See—
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- Kawasaki Steel Corporation: See—
Kodaka, Mikio; Morishita, Hitoshi; Bada, Hajime; and Sudo, Fumio, 4,392,886, Cl. 75-52.000.
- Matsuzaki, Minoru; Kawauchi, Toshie; Murakami, Tsugio; and Kishira, Hideo, 4,392,815, Cl. 431-175.000.
- Okumura, Taketo; Tsukahara, Taiji; Mikuriya, Takashi; Watanabe, Hideki; and Katada, Katsutoshi, 4,392,371, Cl. 72-231.000.
- Kawashima, Nobuyuki: See—
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- Kawauchi, Toshie: See—
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- Kear, Bernard H.: See—
Pearson, David D.; Lemkey, Frank D.; and Kear, Bernard H., 4,392,894, Cl. 148-2.000.
- Keith, Dennis D.; Tengi, John P.; and Weigle, Manfred, to Hoffmann-La Roche Inc. β -Lactamase inhibitors. 4,393,003, Cl. 260-245.20R.
- Kellogg, Richard A.; May, John B.; and Johnson, Brian C., to General Electric Company. Line protocol for communication system. 4,393,501, Cl. 371-33.000.
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Schreiner, Gary W.; Kemp, Merle L., Jr.; and Chernoff, Edward A., 4,393,359, Cl. 335-128.000.
- Kenmartin Development, Inc.: See—
Grout, Kenneth M., 4,392,889, Cl. 75-97.00A.
- Kerr, Douglas P.: See—
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- Kessler, Gerald. Extruded fin-type weatherstrip. 4,393,109, Cl. 428-119.000.
- Keyes, Gary S.; Georges, Jean-Pierre J.; and DallaPiazza, Dennis G., to General Electric Company. Subtraction fluoroscopy method and apparatus. 4,393,402, Cl. 358-111.000.
- Khukhry, Sergei A.: See—
Glebov, Vladimir P.; Krivtsov, Georgy V.; Danchenkov, Jury V.; Khukhry, Sergei A.; and Schepotin, Sergei G., 4,392,567, Cl. 198-544.000.
- Kihara, Shiso: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.0EC.
- Kihara, Yoshiro: See—
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- Kikkoman Corporation: See—
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- Kikuchi, Katsuaki: See—
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Martin, Robert W., 4,392,381, Cl. 73-663.000.
- Kimball International, Inc.: See—
Fritz, Gary R., 4,392,406, Cl. 84-1.260.
- Kimoto, Tatsuzi: See—
Yoshinaka, Satoru; Fushida, Masao; and Kimoto, Tatsuzi, 4,393,143, Cl. 501-89.000.
- Kimura, Hiroshi; and Kai, Junjiro, to Mitsubishi Denki Kabushiki Kaisha. Heat storage material. 4,392,971, Cl. 252-70.000.
- Kimura, Kaoru; and Sugiura, Kyoji, to Toagosei Chemical Industry Co., Ltd. 2-Cyanoacrylate adhesive composition. 4,393,183, Cl. 526-245.000.
- Kimura, Kenji, to Olympus Optical Co., Ltd. Automatic focus control system for video camera with improved position detecting apparatus. 4,392,726, Cl. 354-25.000.
- Kimura, Kenji, to Olympus Optical Co., Ltd. Motor apparatus. 4,393,339, Cl. 318-254.000.
- Kimura, Kenji, to Olympus Optical Co., Ltd. Focusing apparatus for image pickup device. 4,393,409, Cl. 358-227.000.
- Kimura, Kenji, to Olympus Optical Company Limited. Time base error correction system. 4,393,418, Cl. 360-22.000.
- Kinaga, Eiichi: See—
Yamamoto, Toshimasa; Mori, Mamoru; and Kinaga, Eiichi, 4,392,672, Cl. 280-803.000.
- Kinoshita, Yoshio: See—
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- Kinsey, Brian D.; and Smock, Steven W., to Emhart Industries, Inc. Method and means controlling defrost cycles of a cooling unit. 4,392,357, Cl. 62-153.000.
- Kirchmayr, Rudolf: See—
Berner, Godwin; and Kirchmayr, Rudolf, 4,393,185, Cl. 528-27.000.
- Kirner, Kuno: See—
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- Kishi, Tomomi: See—
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- Kishira, Hideo: See—
Matsuzaki, Minoru; Kawauchi, Toshie; Murakami, Tsugio; and Kishira, Hideo, 4,392,815, Cl. 431-175.000.
- Kislik, Mikhail I.: See—
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- Kiss, Pal: See—
Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, 4,393,008, Cl. 260-465.00D.
- Kita, Toshio, to Fujikin International, Inc. Electromagnetic valve. 4,392,634, Cl. 251-129.000.
- Kitagawa, Norihisa; and Iwamoto, Eisaburo, to Texas Instruments Incorporated. Non-volatile semiconductor memory and the testing method for the same. 4,393,475, Cl. 365-201.000.
- Kitagawa, Shuzi: See—
Shikano, Michio; and Kitagawa, Shuzi, 4,392,799, Cl. 418-169.000.
- Kitamura, Takashi, to Canon Kabushiki Kaisha. Beam recording apparatus effecting the recording by a plurality of beams. 4,393,387, Cl. 346-108.000.
- Kitamura, Yoichi; and Hotta, Hisashi, to Toyo Seikan Kaisha Limited. Retortable bonded can. 4,392,582, Cl. 220-75.000.
- Kitamura, Yukio: See—
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- Kitchen, James A.: See—
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- Kiwi Coders Corporation: See—
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- Kizara, Masao: See—
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- Klein, Hermann: See—
Lehr, Klaus; Heymer, Gero; May, Christian; and Klein, Hermann, 4,392,962, Cl. 210-688.000.
- Klein, Lutz: See—
Dobruskin, Alexander; Klein, Lutz; and Woizan, Gunter, 4,393,331, Cl. 313-489.000.
- Klein, Theodore H., to Bell Telephone Laboratories, Incorporated. Fabrication of conductor-clad composites using molding compounds and techniques. 4,393,111, Cl. 428-195.000.
- Klockner-Humboldt-Deutz AG: See—
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- Klosa, Joseph. Production of nonhygroscopic salts of 4-hydroxybutyric acid. 4,393,236, Cl. 562-579.000.
- Kluver, Horst: See—
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- Kmita, Anatoly M.: See—
Bagdasarian, Alexandr S.; Gulyaev, Jury V.; Fedorets, Vladimir N.; and Kmita, Anatoly M., 4,393,321, Cl. 310-313.00B.
- Knapp, George W.; and Spaulding, Bernard B., to NCR Corporation. Chip topography for integrated circuit communication controller. 4,393,464, Cl. 364-900.000.
- Knapp, Maynard K.: See—
Cray, Edgar R.; Davis, Russell R.; Knapp, Maynard K.; Richards, Glenn L.; Root, Bernard H.; and Woodruff, William W., 4,393,495, Cl. 370-56.000.
- Knauf, Walter: See—
Ramdohr, Detlef; Knauf, Walter; Brensing, Karl-Heinz; and Kummerling, Rolf, 4,392,369, Cl. 72-96.000.
- Kneer, Franz, to Gebrüder Weiss KG. Process for composting decaying material of organic waste and/or sewage sludge in two processing steps. 4,392,881, Cl. 71-9.000.
- Knetsch, Manfred; and Romann, Peter, to Robert Bosch GmbH. Flow rate meter. 4,392,386, Cl. 73-861.760.
- Knight, Lindsay C.; and Cottis, Robert A., to Australasian Training Aids Pty. Ltd. Target comprising a resilient material coated with thermoluminescent material. 4,392,652, Cl. 273-358.000.
- Knight, Richard W., Jr.: See—
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- Knowles, Barbara B.; and Aden, David P., to Wistar Institute of Anatomy and Biology. The human hepatoma derived cell line, process for preparation thereof, and uses therefor. 4,393,133, Cl. 435-6.000.
- Kobashi, Mamoru; and Itoh, Hiroshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method and apparatus for controlling the idling speed of an engine. 4,392,468, Cl. 123-339.000.
- Kobayashi, Masaaki; Takeuchi, Akihiro; and Fujisawa, Kiyoji, to Matsushita Electric Industrial Co., Ltd. Tracking system. 4,393,417, Cl. 360-10.300.
- Kobayashi, Masaaki: See—
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- Kobayashi, Masaharu: See—
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- Kobayashi, Yoshinari: See—
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- Koch, Gary: See—
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- Kodaka, Mikio; Morishita, Hitoshi; Bada, Hajime; and Sudo, Fumio, to Kawasaki Steel Corporation. Method of recovering CO-rich exhaust gas in refining of metal. 4,392,886, Cl. 75-52.000.
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- Koenig & Bauer AG: See—
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- Wieland, Erich G., 4,392,428, Cl. 101-365.000.
- Wieland, Erich G., 4,392,431, Cl. 101-426.000.
- Koenig, Herbert G., Jr.: See—
Allen, Louis B., Jr.; Koenig, Herbert G., Jr.; Stacy, Robert A.; and Meyer, Danny D., 4,393,393, Cl. 357-81.000.
- Koenig, Robert H. Solar collector means. 4,392,483, Cl. 126-450.000.

- Kohler, Norbert: *See—*
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- Kohsaka, Hiroji: *See—*
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- Koike, Hidemi: *See—*
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- Kojima, Chiaki; Hasegawa, Kayoko; and Miyahara, Kosuke, to Sony Corporation. Method for manufacturing in-line hologram lens, 4,393,126, Cl. 430-2.000.
- Kollar, John, to Redox Technologies, Inc. Process for producing ethylene glycol, 4,393,252, Cl. 568-852.000.
- Komatsu, Yasuhiro: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,393,209, Cl. 544-404.000.
- Komatsu, Yukihiro: *See—*
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- Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH: *See—*
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- Komiya, Shigeo: *See—*
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- Kondo, Nobuo; Naganoma, Masanori; Hibi, Hitoshi; Fujii, Tetsuo; and Suzuki, Kunihiko, to Nippondenso Co., Ltd. Method and system for forecasting and warning on automotive abnormalities, 4,393,365, Cl. 340-57.000.
- Konheim, Alan G.; Matyas, Stephen M.; and Meyer, Carl H., to International Business Machines Corporation. Method and apparatus incorporating a one-way sequence for transaction and identity verification, 4,393,269, Cl. 178-22.080.
- Konishi, Keizo, to Tokai Rubber Industries Ltd. Damper support for engine mounts, 4,392,639, Cl. 267-140.100.
- Konrad, Rolf: *See—*
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- Korbonits, Dezso: *See—*
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- Korf-Stahl AG: *See—*
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- Kotani, Sumihisa: *See—*
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- Koulbanis, Constantin; Zabotto, Arlette; Griat, Jacqueline; and Charrier, Jean, to Societe Anonyme dite L'Oreal. Solutions containing at least one essential fatty acid and vegetable oil, and cosmetic compositions containing these solutions, 4,393,043, Cl. 424-59.000.
- Kousens, William L. Drawer stop, 4,392,697, Cl. 312-348.000.
- Koyama, Hiroyasu: *See—*
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- Koyama, Yoshiyuki: *See—*
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- Kraemer, John F.: *See—*
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- Krahn, Friedrich: *See—*
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- Kratochvil, Jiri: *See—*
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- Kraus, Georg: *See—*
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- Kraus, Hans-Joachim: *See—*
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- Kraus, Joseph S.: *See—*
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- Kraus, Menahem A.; Frommer, Moshe A.; Nemas, Mara; and Gutman, Rodika, to A. T. Ramot Plastics, Ltd. Process for the removal of urea from aqueous solutions, 4,392,960, Cl. 210-651.000.
- Krauthausen, Edmund: *See—*
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- Kreeley, Bruce K., to Singer Company, The. Relief valve, 4,392,512, Cl. 137-496.000.
- Kreisman, Wallace S., to Spire Corporation. Method of fabricating a thermal pane window and product, 4,393,105, Cl. 428-34.000.
- Kresner, Stanley. Adhesive bandage material, 4,393,150, Cl. 523-111.000.
- Kriechbaum, Karl: *See—*
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- Krishnakumar, Suppayan M.: *See—*
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- Krivtsov, Georgy V.: *See—*
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- Kroeger, James K.: *See—*
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- Krupa, Andrew S.: *See—*
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- Kruger, Jan. Conditioning drum for slurries and emulsions, 4,392,949, Cl. 209-5.000.
- Krzepkowski, Andrzej J., to GTE Automatic Electric Incorporated. Apparatus separating hybrid substrate, 4,392,290, Cl. 29-239.000.
- KSD Industries, Inc.: *See—*
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Mackawa, Hideyuki; Hiramoto, Shinji; Itaya, Kozo; Sato, Kokichi; and Nishida, Hirotsuka, to Shionogi & Co., Ltd.; and Taisei Kako Co., Ltd. Glass vial with diagonal cut line. 4,392,577, Cl. 215-32.000.
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Marion, Charles P.; Brent, Albert; Richter, George N.; Crouch, William B.; Child, Edward T.; and Reynolds, Blake, to Texaco Inc. High turndown partial oxidation process. 4,392,869, Cl. 48-197.00R.
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Marshall, Thomas G., Jr., to Bell Telephone Laboratories, Incorporated. Digital filter bank. 4,393,456, Cl. 364-724.000.
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Martin, Howard. Self-contained root canal heated condenser dental instrument. 4,392,827, Cl. 433-32.000.
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Martin, Robert P., Jr. Cab for lift truck with swing out windshield. 4,392,669, Cl. 280-775.000.
Martin, Robert W., to Kimball Industries, Inc. Driver bar assembly. 4,392,381, Cl. 73-663.000.
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Fenrick, Walter J.; Chesney, Robert H.; and Mast, Paul A., 4,392,432, Cl. 102-334.000.
Master Craft Boat Company: See—
Shirley, Robert L., 4,392,448, Cl. 114-271.000.
Masuda, Toru, to Hosiden Electronics Co., Ltd. Jack with plug actuated slide switch. 4,393,283, Cl. 200-51.090.
Masuyama, Yoshinari. Dietary product containing glucomannan powder and method for preparing. 4,393,086, Cl. 426-74.000.
Masuzawa, Sigeki; and Kihara, Yoshiro, to Sharp Kabushiki Kaisha. Simultaneous electronic translation device. 4,393,460, Cl. 364-900.000.
Matsu Kyu Kabushiki Kaisha: See—
Ohmori, Hiroyuki; Uchimura, Hiroshi; and Mikage, Yuzo, 4,393,281, Cl. 200-16.00D.
Matsuda, Yasumasa; Mukumoto, Kyoji; Sagae, Syoji; and Kasahara, Masatoshi, to Hitachi Koki Co., Ltd.; and Hitachi, Ltd. Liquid drop-let projection apparatus. 4,393,388, Cl. 346-140.00R.
Matsuda, Yoshio, to Yoshida Kogyo K. K. Slide fastener stringer with vent holes. 4,392,363, Cl. 66-193.000.
Matsumura, Naotake: See—
Misaki, Susumu; Suefujii, Masahiro; Mitote, Tamio; and Matsumura, Naotake, 4,393,231, Cl. 560-73.000.
Matsuo, Masami: See—
Tsuchiya, Takayoshi; and Matsuo, Masami, 4,392,664, Cl. 280-276.000.
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Yamauchi, Koji; and Suzuki, Mitsuo, to Hitachi, Ltd. Door operation control apparatus. 4,393,342, Cl. 318-467.000.
Matsusaka, Osamu, to Mitsubishi Monsanto Chemical Company. Sterilizing process for foods by applying microwaves thereto. 4,393,088, Cl. 426-234.000.
Matsushita Electric Industrial Co., Ltd.: See—
Ikushima, Hiroshi; Baba, Takaaki; Sagishima, Takayuki; and Tanaka, Masanobu, 4,393,400, Cl. 358-92.000.
Kobayashi, Masaaki; Takeuchi, Akihiro; and Fujisawa, Kiyoji, 4,393,417, Cl. 360-10.300.
Nakamura, Kenichi; Nankai, Shiro; and Iijima, Takashi, 4,392,933, Cl. 204-403.000.
Ouchi, Hiromu; Nishida, Masamitsu; and Numata, Kazunori, 4,392,970, Cl. 252-62.900.
Shinohara, Koichi; and Fujita, Takashi, 4,393,091, Cl. 427-13.000.
Takeda, Koichi; and Sasano, Yoshiro, 4,393,449, Cl. 364-474.000.
Takeuchi, Akihiro; Kobayashi, Masaaki; and Fujisawa, Kiyoji, 4,393,416, Cl. 360-10.200.
Tanaka, Eiichi; Ishibashi, Noboru; and Inoue, Shojiro, 4,392,813, Cl. 431-76.000.
Yokobori, Nobuyoshi; Urayama, Masashi; Okamoto, Hiroshi; and Igarashi, Yoshiaki, 4,393,422, Cl. 360-73.000.
Matsushita Electric Works, Ltd.: See—
Minakuchi, Yoshikazu; Abiko, Toshio; and Inoue, Hiromitsu, 4,393,514, Cl. 455-336.000.
Nakano, Kunimitsu, 4,393,287, Cl. 200-144.00R.
Matsushita, Takeshi: See—
Nagai, Tamiji; and Matsushita, Takeshi, 4,393,337, Cl. 315-408.000.
Matsuzaki, Minoru; Kawauchi, Toshiei; Murakami, Tsugio; and Kishira, Hideo, to Kawasaki Steel Corporation. Burner for bottom fired furnace. 4,392,815, Cl. 431-175.000.
Mattel, Inc.: See—
Schwager, Frederic A., 4,392,279, Cl. 24-221.00R.
Mattingly, Glen R.; and Quintanares, Joseph A. Multiple outlet connecting means for self-contained positive pressure or demand regulated breathing apparatus. 4,392,490, Cl. 128-202.270.
Matulewicz, William N.: See—
Mohr, Paul H.; and Matulewicz, William N., 4,392,972, Cl. 252-75.000.
Matyas, Stephen M.: See—
Konheim, Alan G.; Matyas, Stephen M.; and Meyer, Carl H., 4,393,269, Cl. 178-22.080.
Maurer, Fritz, to Bayer Aktiengesellschaft. Preparation of 3-bromo-4-fluoro-benzoic acid. 4,393,232, Cl. 562-419.000.
May, Christian: See—
Lehr, Klaus; Heymer, Gero; May, Christian; and Klein, Hermann, 4,392,962, Cl. 210-688.000.
May, John B.: See—
Kellogg, Richard A.; May, John B.; and Johnson, Brian C., 4,393,501, Cl. 371-33.000.
McCall, John M.: See—
DeGeeter, Melvin J.; McCall, John M.; and Teagarden, Dirk L., 4,393,065, Cl. 424-251.000.
McClafflin, John R., to Boeing Company, The. Combined beam support for landing gear. 4,392,622, Cl. 244-102.00A.
McClafflin, John R.: See—
Munsen, Victor A.; and McClafflin, John R., 4,392,623, Cl. 244-102.00R.
McGoy, Reginald F.H. Television image positioning and combining system. 4,393,394, Cl. 358-22.000.
McDonald, Glen E., to United States of America, National Aeronautics and Space Administration. Method of forming oxide coatings. 4,392,920, Cl. 204-37.00R.

McDonnell Douglas Corporation: See—
Allen, Louis B., Jr.; Koenig, Herbert G., Jr.; Stacy, Robert A.; and Meyer, Danny D., 4,393,393, Cl. 357-81.000.
McElroy, David J., to Texas Instruments Incorporated. EPROM and RAM cell layout with equal pitch for use in fault tolerant memory device or the like. 4,393,474, Cl. 365-200.000.
McElroy, Marvin R.: See—
Hadfield, Frederick C.; and McElroy, Marvin R., 4,392,628, Cl. 248-202.100.
McEntee, Harry R.: See—
Ritzer, Alan; Hajjar, Abraham L.; McEntee, Harry R.; and Shade, Ray W., 4,393,229, Cl. 556-430.000.
McGinn, Michael, to Motorola, Inc. Crossover circuit for use in automatic gain control systems. 4,393,354, Cl. 330-280.000.
McGraw-Edison Company: See—
Gilker, Clyde, 4,393,431, Cl. 361-97.000.
McIntyre, James A. E. S. Crop or product carrier. 4,392,688, Cl. 298-22.00R.
McKee, Graham E.; Haaf, Franz; Hambrecht, Juergen; Benker, Klaus; Stephan, Rudolf; and Breuer, Hans, to BASF Aktiengesellschaft. Transparent impact-resistant molding material. 4,393,164, Cl. 525-83.000.
McKeeffry, Jerry L.: See—
Fulk, James B.; McKeeffry, Jerry L.; Schuning, George F.; and Bradley, John J., 4,392,844, Cl. 493-399.000.
McLaughlin, Ivan P.: See—
Barker, John C.; and McLaughlin, Ivan P., 4,393,108, Cl. 428-44.000.
McMenamin, Joseph C., to J. C. Schumacher Company. Vapor mass flow control system. 4,393,013, Cl. 261-64.00B.
McQuay-Perfex Inc.: See—
Johannsen, James R., 4,392,417, Cl. 98-1.500.
McWilliams, Joseph A., to Micropore International Limited. Electric radiant heater unit for a glass ceramic top cooker. 4,393,299, Cl. 219-446.000.
Mechanical Technology Incorporation: See—
Marks, David T., 4,392,350, Cl. 60-518.000.
Medtronic, Inc.: See—
Skarstad, Paul M.; Coury, Arthur J.; and Untereker, Darrel F., 4,393,125, Cl. 429-105.000.
Stanton, David J., 4,392,496, Cl. 128-423.00W.
Mehrotra, Gopi N., to RCA Corporation. Audio processor for single, channel, matrixed two-channel and un-matrixed two-channel signals. 4,393,489, Cl. 369-86.000.
Meier, Karl-Heinz: See—
Angersbach, Wolfgang; and Meier, Karl-Heinz, 4,393,343, Cl. 318-640.000.
Meijer, Johan F. R., to N.K.F. Groep B.V. Cable stranding apparatus and method of operating it. 4,392,342, Cl. 57-264.000.
Meiji Seika Kaisha, Ltd.: See—
Makabe, Osamu; Murai, Yasushi; Okonogi, Tuneo; Onodera, Masahiro; Koyama, Yoshiyuki; and Yoshida, Takashi, 4,393,058, Cl. 424-246.000.
Mellott, Lex A., to JLG Industries Inc. Industrial crane with rotary electrical connector. 4,392,698, Cl. 339-10.000.
Melocik, Kurt B., to Caterpillar Tractor Co. Control for dead engine lower. 4,392,415, Cl. 91-461.000.
Mentzel, Werner: See—
Blank, Heinz U.; Gabel, Eike; Goldschmitt, Ernst; and Mentzel, Werner, 4,393,234, Cl. 562-475.000.
Mercier, Jean P.: See—
Legras, Roger M. H.; Biebuyck, Jean-Jacques E. R. G.; and Mercier, Jean P., 4,393,178, Cl. 525-437.000.
Merck & Co., Inc.: See—
Baldwin, John J.; and Ponticello, Gerald S., 4,393,212, Cl. 546-286.000.
Baylis, Francis P.; and Smith, Gary E., 4,393,046, Cl. 424-117.000.
Slettinger, Meyer, 4,393,242, Cl. 568-322.000.
Merenkov, Jury F.; Egorov, Vladimir D.; Stepanov, Valentin G.; and Popkov, Igor V. Electromagnetic induction pump. 4,392,786, Cl. 417-50.000.
Merger, Franz: See—
Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, 4,393,251, Cl. 568-811.000.
Hummerich, Rainer; Weiss, Wolfram; Merger, Franz; Immel, Guenter; Kraus, Hans-Joachim; and Peters, Karl-Clemens, 4,393,207, Cl. 544-196.000.
Merisinter S.p.A.: See—
Apuzzo, Gennaro, 4,392,800, Cl. 425-78.000.
Merkel, George; and Scharf, William D., to United States of America, Army. Source-region electromagnetic pulse simulator. 4,393,509, Cl. 376-156.000.
Merkel, Wulf; Bormann, Dieter; Mania, Dieter; and Muschaweck, Roman, to Hoechst Aktiengesellschaft. Thienylbenzoic acid derivatives. 4,393,072, Cl. 424-275.000.
Merritt, Robert C.; and Terwilliger, Gerald L., to Eaton Corporation. Induction system for supercharged engine. 4,392,472, Cl. 123-564.000.
Merz, Herbert: See—
Langbein, Adolf; Merz, Herbert; Sobotta, Rainer; Bauer, Rudolf; Jennewein, Hans M.; and Mierau, Joachim, 4,393,069, Cl. 424-265.000.
Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: See—
Bschorr, Oskar, 4,392,522, Cl. 152-341.000.

Metallurgie Hoboken-Overpelt: See—
Dompas, John M. A., 4,393,296, Cl. 219-121.0PC.
Viellefant, Jean F.; and Dierckxens, Robert P. L., 4,392,934, Cl. 204-198.000.
Mettler, Eduard, to Revue Thommen AG. Clock with rotatable ring. 4,392,750, Cl. 368-228.000.
Metz, Joseph R.; and Barnes, Michael F., to Norco, Inc. Releasable fastener. 4,392,281, Cl. 24-230.50R.
Metzger, Adolf; Konrad, Rolf; and Graser, Reinhold, to Hoechst Aktiengesellschaft. Process for the preparation of ammonium sulfamate. 4,393,033, Cl. 423-388.000.
Metzger, Karl G.: See—
Stadler, Peter; Metzger, Karl G.; Voss, Eckart; Petersen, Uwe; and Zeiler, Hans-Joachim, 4,393,051, Cl. 424-180.000.
Meusel, Wolfgang: See—
Fork, Kurt; Kauffhold, Wolfgang; Meusel, Wolfgang; and Waldmann, Hermann, 4,393,345, Cl. 322-19.000.
Meyer, Carl H.: See—
Konheim, Alan G.; Matyas, Stephen M.; and Meyer, Carl H., 4,393,269, Cl. 178-22.080.
Meyer, Danny D.: See—
Allen, Louis B., Jr.; Koenig, Herbert G., Jr.; Stacy, Robert A.; and Meyer, Danny D., 4,393,393, Cl. 357-81.000.
Meyer, Matthew. Apparatus for manufacturing cheese product. 4,392,801, Cl. 425-71.000.
Meyers, Gary W.: See—
Reed, Russell, Jr.; Burdette, George W.; Meyers, Gary W.; and Vuono, William R., 4,392,895, Cl. 149-19.300.
Meyers, Theodore F., to Hobart Corporation. Dishwasher soil collecting circuit. 4,392,891, Cl. 134-10.000.
Miard, Pierre V. L., to Compagnie Internationale pour l'Informatique Cii-Honeywell Bull (Societe Anonyme). Method and device for the counting and management of asynchronous events emitted by peripheral devices in a data processing system. 4,393,470, Cl. 364-200.000.
Michaelson, Robert C.; and Austin, Richard G., to Exxon Research & Engineering Co. Hydroxylation of olefins. 4,393,253, Cl. 568-860.000.
Michaud, Franck, to Charles Hoffer of America, Inc. Manufacture of jewelry by casting with preset gems. 4,392,289, Cl. 29-160.600.
Michio, Abe; and Naoyuki, Maeda, to Tokai TRW & Co., Ltd. Power steering device for a vehicle. 4,392,540, Cl. 180-142.000.
Mickelsen, Reid A.; and Chen, Wen S., to Boeing Company, The. Apparatus for forming thin-film heterojunction solar cells employing materials selected from the class of I-III-VI₂ chalcopyrite compounds. 4,392,451, Cl. 118-690.000.
Microbiochemical Research Foundation: See—
Umezawa, Hamao; Takeuchi, Tomio; and Nakano, Hiroshi, 4,393,047, Cl. 424-118.000.
Micropore International Limited: See—
McWilliams, Joseph A., 4,393,299, Cl. 219-446.000.
Middleton, William J., to Du Pont de Nemours, E. I., and Company. Fluorinated carbamate insecticides. 4,393,074, Cl. 424-285.000.
Mierau, Joachim: See—
Langbein, Adolf; Merz, Herbert; Sobotta, Rainer; Bauer, Rudolf; Jennewein, Hans M.; and Mierau, Joachim, 4,393,069, Cl. 424-265.000.
Miesen, Ernest: See—
Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, 4,393,251, Cl. 568-811.000.
Miida, Eishiro, to Tsukamoto Seiki Co., Ltd. Composite nozzle for earth boring and bore enlarging bits. 4,392,534, Cl. 175-340.000.
Mikage, Yuzo: See—
Ohmori, Hiroyuki; Uchimura, Hiroshi; and Mikage, Yuzo, 4,393,281, Cl. 200-16.00D.
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, to Aisin-Warner Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Lockup controlling system for variable speed, automatic transmission. 4,393,467, Cl. 364-424.100.
Mikulich, Michael A.: See—
Burton, John H.; and Mikulich, Michael A., 4,392,562, Cl. 128-79.000.
Mikuriya, Takashi: See—
Okumura, Taketo; Tsukahara, Taiji; Mikuriya, Takashi; Watanabe, Hideki; and Katada, Katsutoshi, 4,392,371, Cl. 72-231.000.
Miles Laboratories, Inc.: See—
Helfrich, Elaine A.; and Yip, Kin F., 4,392,864, Cl. 8-506.000.
Schut, Robert N.; Safdy, Max E.; and Hong, Enrique, 4,393,081, Cl. 424-274.000.
Miller, James A.: See—
Miller, Toby D.; and Miller, James A., 4,392,665, Cl. 280-414.200.
Miller, Kenneth F., to General Electric Company. Hydrolytically stable polyester-carbonate compositions. 4,393,156, Cl. 524-114.000.
Miller, Kenneth F., to General Electric Company. Hydrolytically stable polycarbonate compositions. 4,393,158, Cl. 524-114.000.
Miller, Larry E.: See—
Mao, Mark H. K.; Miller, Larry E.; and Weeman, John M., 4,393,203, Cl. 536-124.000.
Miller Manufacturing Company: See—
Miller, Maurice E., 4,392,695, Cl. 308-187.200.
Miller, Maurice E., to Miller Manufacturing Company. Bearing. 4,392,695, Cl. 308-187.200.
Miller, Ronald E.; O'Hara, James E.; and Rolä, Arthur E., to Quanex Corporation. Method and apparatus for charging lime into an electric arc furnace. 4,393,507, Cl. 373-81.000.
Miller, Ronald E.: See—
Eckert, Charles E.; and Miller, Ronald E., 4,392,888, Cl. 75-68.00R.

Miller, Toby D.; and Miller, James A. Boat dolly. 4,392,665, Cl. 280-414.200.
Milligan, Charles A.; Videki, Edwin R., II; and Yates, Winston F., to International Business Machines Corporation. Information-signal recording apparatus employing record volume oriented identification signals. 4,393,445, Cl. 364-200.000.
Milligan, Orley J. Solid fuel burning stove. 4,392,477, Cl. 126-77.000.
Milliken Research Corporation: See—
Gillespie, Ralph, 4,393,114, Cl. 428-252.000.
Godfrey, Thomas E., 4,392,366, Cl. 68-205.00R.
Millipore Corporation: See—
Ganzi, Gary C.; and Paul, Charles T., 4,392,958, Cl. 210-493.200.
Millman, William S., to Union Oil Company of California. Hydrocarbon conversion catalyst and method of preparation. 4,392,985, Cl. 252-435.000.
Minagawa, Hiroyasu, to Victor Company of Japan, Ltd. Negative feedback amplifying circuit having voltage negative feedback and current negative feedback circuits. 4,393,353, Cl. 330-102.000.
Minakuchi, Yoshikazu; Abiko, Toshio; and Inoue, Hiromitsu, to Matsushita Electric Works, Ltd. Superregenerative receiver. 4,393,514, Cl. 455-336.000.
Minami, Masaharu: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.0EC.
Minkey Farms Partnership: See—
Harris, Jeff; Chambers, Charles A.; and Horwitz, Jack M., 4,392,324, Cl. 46-1.00F.
Minkler, Bernd, to Dornier GmbH. Launch for carrying and launching flying bodies, in particular for aircraft. 4,392,411, Cl. 89-1.819.
Minner, Willy, to Licentia Patent-Verwaltungs-GmbH. Electronic ignition system. 4,392,474, Cl. 123-644.000.
Minnesota Mining and Manufacturing Company: See—
Moris, Alfred H., 4,393,423, Cl. 360-93.000.
Minolta Camera Co., Ltd.: See—
Sugiura, Masamichi; and Shibazaki, Kenji, 4,393,375, Cl. 340-700.000.
Minolta Camera Kabushiki Kaisha: See—
Beppu, Norio; and Fujii, Akira, 4,392,733, Cl. 354-266.000.
Ito, Masazumi; and Shibazaki, Kenji, 4,392,740, Cl. 355-14.0SH.
Oka, Tateki, 4,392,735, Cl. 355-3.0DD.
Sahara, Masayoshi; Nakai, Masaaki; Ishida, Tokuji; and Hosomizu, Hiroshi, 4,392,727, Cl. 354-43.000.
Misaki, Susumu; Suefuji, Masahiro; Mitote, Tamio; and Matsumura, Naotake, to Daikin Kogyo Co., Ltd. Fluorine-containing phenyl benzoate compounds, and their production and use. 4,393,231, Cl. 560-73.000.
Miscioscio, Kathleen B.; and Smith, Paul T., to Occidental Chemical Corporation. Composition and process for electroplating white palladium. 4,392,921, Cl. 204-47.000.
Miskel, John J., Jr.: See—
Lipowski, Stanley A.; and Miskel, John J., Jr., 4,392,917, Cl. 162-168.100.
Mita, Ryuichi; Higuchi, Chojiro; Kato, Toshio; Kawashima, Nobuyuki; Yamaguchi, Akihiro; Nagai, Shosuke; and Takano, Takao, to Mitsui Toatsu Chemicals, Inc. Cyclization process for producing aziridine-2-carboxylic acid or its salts. 4,393,000, Cl. 260-239.00E.
Mitchell, Alan; and Bailey, Thomas, to Imperial Chemical Industries PLC. Process for producing p-hydroxyphenyl/acetate acid. 4,393,235, Cl. 562-478.000.
Mitchell, Thomas O.; and Whitehurst, Darrell D., to Mobil Oil Corporation. Catalytic conversion. 4,393,255, Cl. 568-902.000.
Mitote, Tamio: See—
Misaki, Susumu; Suefuji, Masahiro; Mitote, Tamio; and Matsumura, Naotake, 4,393,231, Cl. 560-73.000.
Mitsubishi Denki Kabushiki Kaisha: See—
Kimura, Hiroshi; and Kai, Junjiro, 4,392,971, Cl. 252-70.000.
Nakanishi, Yasuyuki, 4,393,426, Cl. 360-105.000.
Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, 4,392,385, Cl. 73-861.230.
Mitsubishi Gas Chemical Company, Inc.: See—
Gaku, Morio; Ikeguchi, Nobuyuki; and Ayano, Satoshi, 4,393,195, Cl. 528-361.000.
Mitsubishi Jukogyo Kabushiki Kaisha: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.0EC.
Mitsubishi Monsanto Chemical Company: See—
Matsusaka, Osamu, 4,393,088, Cl. 426-234.000.
Mitsui Toatsu Chemicals, Inc.: See—
Mita, Ryuichi; Higuchi, Chojiro; Kato, Toshio; Kawashima, Nobuyuki; Yamaguchi, Akihiro; Nagai, Shosuke; and Takano, Takao, 4,393,000, Cl. 260-239.00E.
Mittelbach, Gunter; Horstmann, Gunter; Heiss, Werner; Hoffmann, Dietrich; Siebrecht, Gunter; Kriechbaum, Karl; and Rapp, Gunter, to Licentia Patent-Verwaltungs-GmbH. Puffer-type gas blast switch. 4,393,290, Cl. 200-148.00A.
Miura, Teiji: See—
Aoki, Kenji; Goto, Mitsuhiro; and Miura, Teiji, 4,393,390, Cl. 346-155.000.
Miyagi, Hideo; Suematsu, Toshio; Nakano, Jiro; and Ono, Hironobu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method for operating fuel injector in a computer controlled fuel injection type internal combustion engine. 4,392,467, Cl. 123-325.000.

Miyagi, Hideo; and Nakano, Jiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method and apparatus for controlling the air-fuel ratio in an internal combustion engine. 4,392,471, Cl. 123-489.000.
Miyahara, Kosuke: See—
Kojima, Chiaki; Hasegawa, Kayoko; and Miyahara, Kosuke, 4,393,126, Cl. 430-2.000.
Miyake, Hidekazu: See—
Senda, Shigeo; Katho, Eiichi; Ohtani, Osamu; Miyake, Hidekazu; and Fujiwara, Khosuke, 4,393,210, Cl. 546-141.000.
Miyamoto, Mitsuyasu; Ishimaru, Osamu; and Fukube, Nobuyoshi, to Hisaka Works, Ltd. Apparatus for treating textile material for continuous length. 4,392,365, Cl. 68-19.000.
Miyamoto, Yukihiko, to Trio Kabushiki Kaisha. AM Stereo receiver. 4,393,274, Cl. 179-1.0GS.
Miyashita, Akira; Okada, Kenzo; and Kuramoto, Takashi, to Maruzen Kasei Kabushiki Kaisha. 18 α -Glycyrhizic acid and salt thereof. 4,393,200, Cl. 536-18.100.
Miyata, Toshiyuki: See—
Hirashima, Tsuneaki; Miyata, Toshiyuki; Yamamoto, Yoshikazu; and Kato, Mitsuyuki, 4,393,216, Cl. 548-305.000.
Miyoshi, Allan M. Telephone security system. 4,393,278, Cl. 179-84.00C.
Mizuno, Shigeo: See—
Arakawa, Kaneyasu; and Mizuno, Shigeo, 4,393,360, Cl. 335-164.000.
Mizuno, Yutaka: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirotsada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.
Moberg, Carl E. Steering and propulsion system for marine use. 4,392,832, Cl. 440-49.000.
Mobil Oil Corporation: See—
Audeh, Costandi A.; and Greco, Saverio G., 4,392,947, Cl. 208-229.000.
Chu, Yung F.; and Chester, Arthur W., 4,392,989, Cl. 252-455.00Z.
Herrington, Fox J., 4,392,897, Cl. 156-66.000.
Kaeding, Warren W., 4,393,262, Cl. 585-467.000.
Mitchell, Thomas O.; and Whitehurst, Darrell D., 4,393,255, Cl. 568-902.000.
Odeh, Aziz S.; and Dotson, Billy J., 4,392,530, Cl. 166-269.000.
Tobias, Michael A.; and Lynch, Conrad L., 4,393,121, Cl. 428-458.000.
Moen, Tor: See—
Danielsen, Petter; and Moen, Tor, 4,393,378, Cl. 340-744.000.
Moessinger, Albert. Weaving loom with a waving shed having an improved frame. 4,392,515, Cl. 139-55.100.
Mogi, Shigeru: See—
Horiguchi, Satoru; Sasaoka, Takeshi; Shimane, Koichi; Mogi, Shigeru; Yaguchi, Tsuguo; and Sano, Kazuhiko, 4,393,398, Cl. 358-76.000.
Mohr, Paul H.; and Matulewicz, William N., to Union Carbide Corporation. Aluminum-corrosion inhibitive heat transfer fluid. 4,392,972, Cl. 252-75.000.
Molina, Orlando G., to Rockwell International Corporation. Extended biodegradable dye penetrant composition. 4,392,982, Cl. 252-408.100.
Molins Limited: See—
Fox, Austin L., 4,392,338, Cl. 53-462.000.
Horsley, John K., 4,392,912, Cl. 156-504.000.
Momose, Yoshiaki: See—
Akiyama, Hiroyuki; Hatakeyama, Hideo; Shimoyashiki, Nobuyoshi; Momose, Yoshiaki; and Imai, Fusao, 4,393,016, Cl. 264-53.000.
Monarch Marking Systems, Inc.: See—
Jenkins, William A., 4,393,107, Cl. 428-42.000.
Moncada, Salvador E., to Burroughs Wellcome Co. Treatment for gastric lesions. 4,393,063, Cl. 424-251.000.
Monno, Asao: See—
Shimizu, Masami; and Monno, Asao, 4,393,305, Cl. 250-358.100.
Mons, Claude M.: See—
Tirole, Jacques P. H.; Mons, Claude M.; and Spinat, Roland R., 4,392,656, Cl. 277-53.000.
Monterey Manufacturing, Inc.: See—
Hall, Charles P., and Johnenning, John B., 4,392,872, Cl. 55-36.000.
Montgomery, Loren N., to General Motors Corporation. Dual engine drive. 4,392,393, Cl. 74-661.000.
Monzer, Pierre: See—
Rivollet, Marc; and Monzer, Pierre, 4,393,284, Cl. 200-60.000.
Moody, Brian R.; Lowe, Duncan B.; and Lowe, Derek W., to United Kingdom Atomic Energy Authority. Transport apparatus. 4,392,435, Cl. 104-284.000.
Moontasir, Hussain A. Soap holders. 4,392,630, Cl. 248-309.00R.
Moore, Anthony J.; and Silver, Howard B., to British Petroleum Company Limited. The Method for transmitting power by traction utilizing borate esters as traction fluids and a device for using the method. 4,392,973, Cl. 252-78.100.
Moore, Robert H.; and Engels, Larry O. Pavement milling apparatus. 4,392,689, Cl. 299-39.000.
Moore, Stanley W., to United States of America, Energy. Solar collector apparatus having increased energy rejection during stagnation. 4,392,481, Cl. 126-418.000.
Moraw, Roland; and Schadlich, Gunther, to Hoechst Aktiengesellschaft. Process and apparatus for rendering visible charge images. 4,392,711, Cl. 350-361.000.
Morgan, Chester S.: See—
Lauf, Robert J.; and Morgan, Chester S., 4,393,124, Cl. 429-104.000.

Morgan, Jeffrey D.: See—
Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., 4,393,085, Cl. 426-28.000.
Morgan-Smith Electronics Ltd.: See—
Morgan-Smith, Peter J., 4,393,371, Cl. 340-347.0AD.
Morgan-Smith, Peter J., to Morgan-Smith Electronics Ltd. Analogue to digital signal conversion and storage system. 4,393,371, Cl. 340-347.0AD.
Mori, Fumio: See—
Itsubo, Junichi; Mori, Fumio; and Sato, Hideki, 4,392,581, Cl. 215-348.000.
Mori, Mamoru: See—
Yamamoto, Toshimasa; Mori, Mamoru; and Kinaga, Eiichi, 4,392,672, Cl. 280-803.000.
Morimoto, Makoto: See—
Tomita, Fusao; Tamaoki, Tatsuya; Shirahata, Kunikatsu; Kasai, Masaji; Hirayama, Noriaki; Morimoto, Makoto; and Fukui, Masanori, 4,393,056, Cl. 424-181.000.
Morimoto, Shigeo: See—
Sawada, Jiro; Hanada, Kazunori; Tamai, Masaharu; Morimoto, Shigeo; and Omura, Sadafumi, 4,393,228, Cl. 549-549.000.
Moris, Alfred H., to Minnesota Mining and Manufacturing Company. Endless loop tape magazine, and a recording and/or playback machine utilizing the magazine. 4,393,423, Cl. 360-93.000.
Morishita, Hirotsada: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirotsada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.
Morishita, Hitoshi: See—
Kodaka, Mikio; Morishita, Hitoshi; Bada, Hajime; and Sudo, Fumio, 4,392,886, Cl. 75-52.000.
Moriwaki, Takeshi; and Tokuhara, Shinji, to Daicel Chemical Industries, Ltd. Moldable resin compositions containing polycarbonate styrene polymer and three phase graft polymer. 4,393,169, Cl. 525-67.000.
Moroi, Hayato: See—
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,267, Cl. 15-88.000.
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,506, Cl. 134-46.000.
Morrison, John M., to Ferranti Limited (now Ferranti plc). Resistive electrode LCD and voltage supply means. 4,392,718, Cl. 350-336.000.
Morrow, Charles M.: See—
Reed, Charles F.; and Morrow, Charles M., 4,392,585, Cl. 221-1.000.
Moskal, John F. Heat scavenger. 4,392,610, Cl. 237-5.00S.
Motonomi, Masanao: See—
Suzuki, Ichiro; Yasumatsu, Jun; Imai, Yoshikazu; and Motonomi, Masanao, 4,392,673, Cl. 280-804.000.
Motorola, Inc.: See—
Davis, William F.; and Shacter, Stuart B., 4,393,355, Cl. 330-294.000.
Gill, Graham P., 4,393,092, Cl. 427-38.000.
McGinn, Michael, 4,393,354, Cl. 330-280.000.
Myers, Donald O., 4,392,382, Cl. 73-708.000.
Paulson, Wayne M.; and Hughes, David W., 4,392,992, Cl. 252-512.000.
Rasmussen, Erling E., 4,393,368, Cl. 340-347.0AD.
Whalin, Jeffery A.; Shanley, Charles W.; Scansaroli, Michael N.; and Dworsky, Lawrence N., 4,393,131, Cl. 430-320.000.
Mouille, Rene L.; Gallot, Jacques R.; and Pouradier, Jean-Marc E., to Societe Nationale Industrielle Aerospatiale. High performance blade for helicopter rotor. 4,392,781, Cl. 416-223.00R.
Mowbray, Dorian F.; and Jarrett, Boaz A., to Lucas Industries Limited. Fuel system for engines. 4,392,466, Cl. 123-299.000.
Mowbray, Dorian F., to Lucas Industries Limited. Fuel pumping apparatus. 4,392,793, Cl. 417-462.000.
Muessel, Dan C.; and Hagopian, Nubar, to Rule Industries, Inc. Rotary power coupling and planetary gear winch. 4,392,635, Cl. 254-344.000.
Muggelstone, Peter R., to Illinois Tool Works Inc. Fastener. 4,392,278, Cl. 24-213.00R.
Muhlich, Albert: See—
Bonewitz, Hans-Ulrich; Muhlich, Albert; and Rau, Karlheinz, 4,392,715, Cl. 350-96.330.
Mukumoto, Kyoji: See—
Matsuda, Yasumasa; Mukumoto, Kyoji; Sagae, Syoji; and Kasahara, Masatoshi, 4,393,388, Cl. 346-140.00R.
Mulholland, Lawrence K. Shock-absorbing wheel suspension assembly. 4,392,668, Cl. 280-721.000.
Muller, Manfred, to Daimler-Benz Aktiengesellschaft. Lock tongue for safety belts. 4,392,277, Cl. 24-196.000.
Muller, Paul: See—
Muller, Rolf; Roueche, Armand; Muller, Paul; and Ronco, Karl, 4,392,999, Cl. 260-157.000.
Muller, Rolf; Roueche, Armand; Muller, Paul; and Ronco, Karl, to Ciba-Geigy Corporation. Monoazo pigments containing hydroxynaphthylamino benzimidazolone radical. 4,392,999, Cl. 260-157.000.
Muller, Theo: See—
Fabian, Peter; and Muller, Theo, 4,392,927, Cl. 204-98.000.
Munsen, Victor A.; and McClafflin, John R., to Boeing Company, The. Fused connection adapted to fail under different overloads acting in different directions. 4,392,623, Cl. 244-102.00R.

- Murai, Yasushi: *See—*
Makabe, Osamu; Murai, Yasushi; Okonogi, Tunes; Onodera, Masahiro; Koyama, Yoshiyuki; and Yoshida, Takashi, 4,393,058, Cl. 424-246.000.
- Murakami, Koichi: *See—*
Inuzuka, Tsuneki; Murakami, Koichi; Kurita, Kenji; and Sakamaki, Hisashi, 4,392,741, Cl. 355-14.00R.
- Murakami, Masatsugi: *See—*
Yoshii, Toshiya; Nakura, Satoru; and Murakami, Masatsugi, 4,393,115, Cl. 428-323.000.
- Murakami, Tsugio: *See—*
Matsuzaki, Minoru; Kawauchi, Toshiie; Murakami, Tsugio; and Kishira, Hideo, 4,392,815, Cl. 431-175.000.
- Murotani, Tatsunori, to Nippon Electric Co., Ltd. Temperature responsive refresh control circuit, 4,393,477, Cl. 365-222.000.
- Murray Ohio Manufacturing Co., The: *See—*
Buckhouse, Norman O.; Stevens, Aaron A.; and Lawrence, Randall K., 4,392,543, Cl. 180-272.000.
- Murray, Robert M. S.: *See—*
Pitches, Brian E.; Murray, Robert M. S.; and Rogers, Douglas J., 4,392,378, Cl. 73-304.00C.
- Muschaweck, Roman: *See—*
Merkel, Wulf; Bormann, Dieter; Mania, Dieter; and Muschaweck, Roman, 4,393,072, Cl. 424-275.000.
- Muto, Rudolph. Sterile assembly for protecting and fastening an indwelling device, 4,392,853, Cl. 604-171.000.
- Myer, Robert J., to United States of America, Air Force. Implanted boundary layer trip, 4,392,624, Cl. 244-158.00A.
- Myers, Donald O., to Motorola Inc. Linearized electronic capacitive pressure transducer, 4,392,382, Cl. 73-708.000.
- N.K.F. Groep B.V.: *See—*
Meijer, Johan F. R., 4,392,342, Cl. 57-264.000.
- Nabeta, Yoichi: *See—*
Imai, Yoshio; Nabeta, Yoichi; and Inuzuka, Tadao, 4,393,434, Cl. 361-286.000.
- Nabisco Brands, Inc.: *See—*
Pomper, Seymour; and LaBaw, Glenn D., 4,393,084, Cl. 426-19.000.
- Naf, Ferdinand: *See—*
Thomas, Alan F.; and Naf, Ferdinand, 4,392,993, Cl. 252-522.00R.
- Nagai, Shosuke: *See—*
Mita, Ryuichi; Higuchi, Chojiro; Kato, Toshiro; Kawashima, Nobuyuki; Yamaguchi, Akihiro; Nagai, Shosuke; and Takano, Takao, 4,393,000, Cl. 260-239.00E.
- Nagai, Tamiji, and Matsushita, Takeshi, to Sony Corporation. Switching circuit, 4,393,337, Cl. 315-408.000.
- Naganoma, Masanori: *See—*
Kondo, Nobuo; Naganoma, Masanori; Hibi, Hitoshi; Fujii, Tetsuo; and Suzuki, Kunihiko, 4,393,365, Cl. 340-57.000.
- Nagl, Michael: *See—*
Weber, Ralph; Rollinger, Berni; Nagl, Michael; and Rinner, Bernhard, 4,392,637, Cl. 266-265.000.
- Nagy, Dennis J.: *See—*
Daniels, Wiley E.; and Nagy, Dennis J., 4,393,173, Cl. 525-329.400.
- Nair, Vijay G.; Joseph, Joseph P.; and Bernstein, Seymour, to American Cyanamid Company. Hydroxyalkyl ether derivatives of rutin poly(H)-sulfate and method of use, 4,393,055, Cl. 424-180.000.
- Nakagawa, Akira: *See—*
Noda, Kanji; Nakagawa, Akira; Yamagata, Tetsuya; and Ide, Hiroyuki, 4,393,076, Cl. 424-317.000.
- Nakagawa, Tsuneo; Hiramatsu, Uji; and Honda, Toshihide, to Daikin Kogyo Co., Ltd. Process for preparing benzotrifluoride and its derivatives, 4,393,257, Cl. 570-145.000.
- Nakai, Masaaki: *See—*
Sahara, Masayoshi; Nakai, Masaaki; Ishida, Tokuji; and Hosomizu, Hiroshi, 4,392,727, Cl. 354-43.000.
- Nakajima, Isao; Tagusari, Koji; Okuna, Kenji; Hayama, Toru; Takahashi, Kazuo; Watanabe, Michihiro; and Kotani, Sumihisa, to Hitachi, Ltd.; and Hitachi Koki Co., Ltd. Printing hammer driving apparatus, 4,392,423, Cl. 101-93.480.
- Nakajima, Masao: *See—*
Fuji, Takahiro; Nakajima, Masao; and Okano, Shigeru, 4,392,265, Cl. 8-120.000.
- Nakamine, Chosin, to Tokyo Shibaura Denki Kabushiki Kaisha. Electronic copying apparatus for forming multiple images on a single sheet, 4,392,736, Cl. 355-3.00R.
- Nakamori, Shigeru: *See—*
Tsuchida, Takayasu; and Nakamori, Shigeru, 4,393,135, Cl. 435-110.000.
- Nakamura, Kenichi; Nankai, Shiro; and Iijima, Takashi, to Matsushita Electric Industrial Co., Ltd. Electrochemical measuring apparatus comprising enzyme electrode, 4,392,933, Cl. 204-403.000.
- Nakamura, Teruo; and Iino, Umatarou, to Diesel Kiki Co., Ltd. Swash-plate type compressor having oil separating function, 4,392,788, Cl. 417-269.000.
- Nakanishi, Tosaku: *See—*
Tanimoto, Akira; Nakanishi, Tosaku; and Yanagiuchi, Shigenobu, 4,393,462, Cl. 364-900.000.
- Nakanishi, Yasuyuki, to Mitsubishi Denki Kabushiki Kaisha. Tape recorder head adjusting mechanism, 4,393,426, Cl. 360-105.000.
- Nakano, Akira. Region information processing system, 4,393,453, Cl. 364-514.000.
- Nakano, Hiroshi: *See—*
Umezawa, Hamao; Takeuchi, Tomio; and Nakano, Hiroshi, 4,393,047, Cl. 424-118.000.
- Nakano, Jiro: *See—*
Miyagi, Hideo; Suematsu, Toshio; Nakano, Jiro; and Ono, Hironobu, 4,392,467, Cl. 123-325.000.
- Miyagi, Hideo; and Nakano, Jiro, 4,392,471, Cl. 123-489.000.
- Nakano, Kunimitsu, to Matsushita Electric Works, Ltd. Arc suppressing means for current limiting circuit breakers, 4,393,287, Cl. 200-144.00R.
- Nakao, Sho: *See—*
Shiba, Keisuke; Nakao, Sho; and Toyama, Tadao, 4,393,128, Cl. 430-273.000.
- Nakashima, Humihiko: *See—*
Sakudo, Noriyuki; Tokiuchi, Katsumi; Koike, Hidemi; Kanomata, Ichiro; and Nakashima, Humihiko, 4,393,333, Cl. 315-111.810.
- Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Disc brake with a caliper supported by slide pins, 4,392,560, Cl. 188-73.340.
- Nakayama, Mituhito: *See—*
Shibata, Tomoyuki; Nakayama, Mituhito; and Ouchi, Kiyoshi, 4,392,790, Cl. 417-360.000.
- Nakazawa, Mitsuaki: *See—*
Yano, Noriyuki; Yahashi, Satoru; Shimazaki, Kanzo; Nakazawa, Mitsuaki; and Yamamoto, Takashi, 4,392,421, Cl. 99-524.000.
- Nakura, Satoru: *See—*
Yoshii, Toshiya; Nakura, Satoru; and Murakami, Masatsugi, 4,393,115, Cl. 428-323.000.
- Nankai, Shiro: *See—*
Nakamura, Kenichi; Nankai, Shiro; and Iijima, Takashi, 4,392,933, Cl. 204-403.000.
- Naoyuki, Maeda: *See—*
Michio, Abe; and Naoyuki, Maeda, 4,392,540, Cl. 180-142.000.
- Narahara, Toshikazu: *See—*
Ishii, Takeo; Ogata, Masatsugu; and Narahara, Toshikazu, 4,393,177, Cl. 525-422.000.
- Nash Engineering Company, The: *See—*
Jozepaitis, Charles M., 4,392,783, Cl. 417-68.000.
- National Semiconductor Corporation: *See—*
Husain, Syed A., 4,392,935, Cl. 204-206.000.
- National Starch and Chemical Corporation: *See—*
Breuninger, William F., 4,393,202, Cl. 536-102.000.
- National Union Electric Corporation: *See—*
Sepke, Arnold L., 4,392,271, Cl. 15-339.000.
- Nawroth, Werner: *See—*
Heckmann, Horst; and Nawroth, Werner, 4,392,510, Cl. 137-454.200.
- NCR Corporation: *See—*
Knapp, George W.; and Spaulding, Bernard B., 4,393,464, Cl. 364-900.000.
- Porter, Warren W., 4,392,704, Cl. 339-75.00MP.
- Neal, Danny M.: *See—*
Bowles, David J.; Clancy, Douglas E.; Johnson, Carl F.; and Neal, Danny M., 4,392,758, Cl. 400-697.100.
- Necchi Societa per Azioni: *See—*
Bar, Alfredo, 4,392,789, Cl. 417-312.000.
- Nehmey, Sam D.: *See—*
Kim, Hueng T.; and Nehmey, Sam D., 4,393,017, Cl. 264-53.000.
- Nelson, Alfred M.: *See—*
Rasekhi, Houshang; and Nelson, Alfred M., 4,393,389, Cl. 346-153.100.
- Nemas, Mara: *See—*
Kraus, Menahem A.; Frommer, Moshe A.; Nemas, Mara; and Gutman, Rodika, 4,392,960, Cl. 210-651.000.
- Neu, Hans: *See—*
Grunwald, Werner; Zehender, Ernst; Friese, Karl-Hermann; Schmatz, Jurgen; Neu, Hans; Kirner, Kuno; and Schumacher, Bernd, 4,393,282, Cl. 200-19.00R.
- Neuhaus, Dieter; Sohner, Gerhard; Ruf, Walter; Jesse, Erich; and Roth, Helmut, to Robert Bosch GmbH. Safety device for a conducting path in a load device, 4,393,432, Cl. 361-104.000.
- Neutrik Aktiengesellschaft: *See—*
Weingartner, Bernhard, 4,392,699, Cl. 339-14.00P.
- New, Bernard J., to Advanced Micro Devices, Inc. Method and apparatus for sequencing addresses of a fast Fourier transform array, 4,393,457, Cl. 364-726.000.
- New, Bernard J., to Advanced Micro Devices, Inc. Bit slice microprogrammable processor for signal processing applications, 4,393,468, Cl. 364-736.000.
- Newton, Alan B.: *See—*
Holmes, Paul A.; Willmouth, Frank M.; and Newton, Alan B., 4,393,167, Cl. 525-64.000.
- Newton, Richard P.; Harper, Patrick H.; Geiss, Vernon L.; and Jewell, John N., to Brown & Williamson Tobacco Corporation. Method of processing fresh tobacco leaves, 4,392,501, Cl. 131-300.000.
- NGK Insulators, Ltd.: *See—*
Izumi, Naoto, 4,392,387, Cl. 73-863.210.
- NGK Spark Plug Co.: *See—*
Nishio, Kanemitsu; Takagi, Shunichi; and Suzuki, Yasuhiko, 4,393,324, Cl. 313-133.000.
- Nguyen, Nghia V.: *See—*
Dunn, Thomas J.; Yuniskis, Donald G., Jr.; Szakacs, Gabor L.; and Nguyen, Nghia V., 4,393,448, Cl. 364-449.000.
- Niederholtmeyer, Werner G. Process and apparatus for utilizing waste oil, 4,392,820, Cl. 431-284.000.
- Niemeijer, Halbe J., to Dawsonville Corp., N.V. Tattooing apparatus, 4,392,493, Cl. 128-316.000.

- Nifco, Inc.: *See—*
Hara, Kunio, 4,392,337, Cl. 53-48.000.
- Nihon Tokushu Noyaku Seizo K.K.: *See—*
Saito, Junichi; and Kume, Toyohiko, 4,392,929, Cl. 204-158.0HA.
- Niinivaara, Juhani, to Asonen, Osmo. Method for the arc cutting of metal, 4,393,297, Cl. 219-137.000.
- Nimry, Tayseer S.; and Fields, Ellis K., to Standard Oil Company (Indiana). Tricyclo[6.4.0.0^{2,7}]dodecane-3,6-diphenyl-1,8,4,5-tetracarboxylic acid dianhydrides, 4,393,222, Cl. 549-234.000.
- Nippon Electric Co., Ltd.: *See—*
Hareyama, Kyuichi, 4,393,370, Cl. 340-347.0DA.
- Maruta, Rikio; and Tomozawa, Atsushi, 4,393,367, Cl. 340-347.0DD.
- Murotani, Tatsunori, 4,393,477, Cl. 365-222.000.
- Yamashita, Koji, 4,393,383, Cl. 343-903.000.
- Nippon Elumin Sash Co., Ltd.: *See—*
Suzuki, Jyuiji, 4,392,329, Cl. 49-356.000.
- Nippon Hoso Kyokai: *See—*
Taketoshi, Kazuhisa; and Ogusu, Chihaya, 4,392,452, Cl. 118-723.000.
- Nippon Kogaku K.K.: *See—*
Hamanishi, Yoshinari, 4,392,724, Cl. 350-163.000.
- Nippon Oil Company, Limited: *See—*
Ishida, Noboru; and Watanabe, Harumichi, 4,392,968, Cl. 252-51.50R.
- Nippon Telegraph and Telephone Public Corporation: *See—*
Itakura, Fumitada; and Sugamura, Noboru, 4,393,272, Cl. 179-1.0SA.
- Nippondenso Co., Ltd.: *See—*
Eguchi, Osamu; Hattori, Mitsutoshi; and Hanaoka, Takatsugu, 4,392,375, Cl. 73-118.000.
- Fujinami, Hiroshi; and Yamada, Takashi, 4,393,271, Cl. 179-1.0SM.
- Kondo, Nobuo; Naganoma, Masanori; Hibi, Hitoshi; Fujii, Tetsuo; and Suzuki, Kunihiko, 4,393,365, Cl. 340-57.000.
- Nishi, Norio: *See—*
Nishiyama, Masashi; Kobayashi, Yoshinari; Tokura, Seiichi; and Nishi, Norio, 4,392,916, Cl. 162-157.100.
- Nishida, Hirotaka: *See—*
Maekawa, Hideyuki; Hiramoto, Shinji; Itaya, Kozo; Sato, Kokichi; and Nishida, Hirotaka, 4,392,577, Cl. 215-32.000.
- Nishida, Masamitsu: *See—*
Ouchi, Hiromu; Nishida, Masamitsu; and Numata, Kazunori, 4,392,970, Cl. 252-62.900.
- Nishikawa, Masaji, to Olympus Optical Co. Ltd. Electrophotographic copying apparatus, 4,392,737, Cl. 355-3.00R.
- Nishimura, Tadashi: *See—*
Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,267, Cl. 15-88.000.
- Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiko; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, 4,392,506, Cl. 134-46.000.
- Nishimura, Tatsuo: *See—*
Nishiyama, Masanobu; Kanazawa, Fusao; Tanaka, Hisaji; and Nishimura, Tatsuo, 4,392,269, Cl. 15-145.000.
- Nishimura, Yukuo: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,392,907, Cl. 156-252.000.
- Nishio, Kanemitsu; Takagi, Shunichi; and Suzuki, Yasuhiko, to NGK Spark Plug Co. Spark plug with a sphere-like metal center electrode and manufacturing process thereof, 4,393,324, Cl. 313-133.000.
- Nishiyama, Masanobu; Kanazawa, Fusao; Tanaka, Hisaji; and Nishimura, Tatsuo, to Duskon Franchise Kabushiki Kaisha; and Kabushiki Kaisha Sunpack. Mop carrier, 4,392,269, Cl. 15-145.000.
- Nishiyama, Masashi; Kobayashi, Yoshinari; Tokura, Seiichi; and Nishi, Norio, to Director-General of the Agency of Industrial Science and Technology; and Hokkaido University, President of. Paper-making process with regenerated chitin fibers, 4,392,916, Cl. 162-157.100.
- Nishiyama, Yoshihisa: *See—*
Fujii, Kunihiko; Hiroaki, Yukihiko; Nishiyama, Yoshihisa; and Sato, Koichiro, 4,392,535, Cl. 177-1.000.
- Nissan Chemical Industries, Ltd.: *See—*
Ozawa, Kiyomi; and Ishii, Shigeru, 4,393,213, Cl. 546-298.000.
- Nissan Motor Company, Limited: *See—*
Fujikawa, Tsuneo; and Takagishi, Haruyoshi, 4,392,601, Cl. 228-4.100.
- Hiraiwa, Kazuyoshi; and Yamasaki, Saburo, 4,393,285, Cl. 200-61.880.
- Kakimoto, Toshihiko, 4,392,640, Cl. 267-141.200.
- Takahashi, Takao, 4,392,517, Cl. 139-435.000.
- Yasuhara, Seishi, 4,392,463, Cl. 123-196.00M.
- Yoshitsugu, Seikichi; and Shimatsu, Minoru, 4,392,684, Cl. 296-185.000.
- Nisshin Flour Milling Co., Ltd.: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,393,209, Cl. 544-404.000.
- Nisshin Oil Mills Limited, The: *See—*
Takada, Atsunobu; and Higaki, Yuzo, 4,393,044, Cl. 424-59.000.
- Nittetsu Steel Drum Co., Ltd.: *See—*
Sasai, Mitsuo; Tomikawa, Kiyoz; and Kajiwara, Kazuo, 4,392,295, Cl. 29-509.000.
- Nitto Boseki Co., Ltd.: *See—*
Okuma, Kiyamu; Haga, Tsunehiro; Kizara, Masao; Otaki, Keiji; and Hirai, Ayahiro, 4,392,878, Cl. 65-6.000.
- Nitto Chemical Industry, Co., Ltd.: *See—*
Kanda, Shoichi; and Kawamura, Gengiro, 4,393,163, Cl. 524-608.000.
- Nix, Hans; and Szary, Herbert, to Elektro-Physik Hans Nix & Dr. Ing. E. Steingroever, K.G. Pencil shaped magnetic coating thickness gauge, 4,392,305, Cl. 33-169.00F.
- NL Industries, Inc.: *See—*
House, Roy F.; and Hoover, Lonnie D., 4,392,964, Cl. 252-8.50C.
- Noblit, William D., III: *See—*
Gorenflo, Donald L.; and Noblit, William D., III, 4,393,401, Cl. 358-107.000.
- Noda, Kanji; Nakagawa, Akira; Yamagata, Tetsuya; and Ide, Hiroyuki, to Hisamitsu Pharmaceutical Co., Inc. Anti-inflammatory and analgesic gel composition, 4,393,076, Cl. 424-317.000.
- Nokami, Junzo: *See—*
Torii, Sigeru; Tanaka, Hideo; Nokami, Junzo; Sasaoka, Michio; Saito, Norio; and Shiroy, Takashi, 4,392,923, Cl. 204-59.00R.
- Nolting, Karl-Heinz: *See—*
Bruggendieck, Siegfried; Nolting, Karl-Heinz; Krahn, Friedrich; and Olejak, Gerhard, 4,392,714, Cl. 350-96.230.
- Nomiya, Neal T.: *See—*
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- Norco, Inc.: *See—*
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- Norjay Services, Ltd.: *See—*
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- Norkus, Kasper, Jr. Expandable and retractable vehicle body, 4,392,682, Cl. 296-26.000.
- Noroy, Terje. Apparatus for pulling-off the skin of sheep carcasses in slaughtering, 4,392,274, Cl. 17-21.000.
- North American Philips Electric Corp.: *See—*
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- Northern Telecom Limited: *See—*
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- Maniv, Shmuel; and Westwood, William D., 4,392,931, Cl. 204-192.00R.
- Northwestern University: *See—*
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- Norwich Eaton Pharmaceuticals, Inc.: *See—*
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- Pelosi, Stanford S., Jr., 4,393,204, Cl. 542-420.000.
- Notta, Adolf, to Wetrol Inc. Diaphragm pump, 4,392,787, Cl. 417-269.000.
- Novoselac, John; and Churcher, Dale L., to Joy Manufacturing Company. Centrifuge apparatus, 4,392,846, Cl. 494-40.000.
- Noyes, Steven S.: *See—*
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- Numata, Kazunori: *See—*
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- Numata, Seiji: *See—*
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- Nussbaumer, Dietmar: *See—*
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- Nussenbaum, Joseph: *See—*
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- Nyland, Clifford A., to Railroad Service, Inc. Railway maintenance machine, 4,392,433, Cl. 104-9.000.
- Occidental Chemical Corporation: *See—*
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- Tomaszewski, Thaddeus W., 4,392,922, Cl. 204-51.000.
- Ochs, Charles S., to Anchor Hocking Corporation. Closure cap, 4,392,580, Cl. 215-332.000.
- O'Connell, Denis, to Institute for Industrial Research & Standards. Lifting and tilting trailer, 4,392,687, Cl. 298-5.000.
- Odeh, Aziz S.; and Dotson, Billy J., to Mobil Oil Corporation. Method of improved oil recovery by simultaneous injection of steam and water, 4,392,530, Cl. 166-269.000.
- Ogata, Masatsugu: *See—*
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- Ogusu, Chihaya: *See—*
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- O'Hara, James E.: *See—*
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- Ohashi, Takashi: *See—*
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- Ohata, Michinobu: *See—*
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- Ohlrogge, Alvin J.: *See—*
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- Ohmori, Hiroyuki; Uchimura, Hiroshi; and Mikage, Yuzo, to Matsuyama Kabushiki Kaisha. Dip switch, 4,393,281, Cl. 200-16.00D.
- Ohnishi, Hiroyuki: *See—*
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- Ohta, Teruto; and Kinoshita, Yoshio, to Showa Aluminum Industries K.K. Process and apparatus for production of aluminum, 4,392,926, Cl. 204-67.000.
- Ohtani, Osamu: *See—*
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- Oka, Tateki, to Minolta Camera Kabushiki Kaisha. Magnetic brush developing apparatus, 4,392,735, Cl. 355-3.0DD.
- Okabe, Masao: *See—*
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- Okada, Kenzo: *See—*
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- Okamoto, Hiroshi: *See—*
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- Okano, Shigeru: *See—*
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- Okaya Electric Industries Co., Ltd.: *See—*
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- Okonogi, Tuneso: *See—*
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- Okuda, Kuniteru; Fukami, Teruki; Asayama, Yoshiaki; Wada, Shunichi; and Kabuto, Masami, to Oval Engineering Co., Ltd.; and Mitsubishi Denki Kabushiki Kaisha. Flow meter utilizing Karman vortex street, 4,392,385, Cl. 73-861.230.
- Okuma, Kiwamu; Haga, Tsunehiro; Kizara, Masao; Otaki, Keiji; and Hirai, Ayahiro, to Nitto Boseki Co., Ltd. Glass fiber forming unit, 4,392,878, Cl. 65-6.000.
- Okumura Corporation: *See—*
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- Okumura, Taketo; Tsukahara, Taiji; Mikuriya, Takashi; Watanabe, Hideki; and Katada, Katsutoshi, to Kawasaki Steel Corporation. Method of plate rolling and equipment therefor, 4,392,371, Cl. 72-231.000.
- Okuna, Kenji: *See—*
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- Okuyama, Ajoshio: *See—*
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- Olejak, Gerhard: *See—*
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- Olsen, John H.; and Pritchard, Robert S., to Flow Industries, Inc. High-pressure seal with controlled deflection under pressure, 4,392,655, Cl. 277-1.000.
- Olson, Allan R.: *See—*
Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., 4,393,085, Cl. 426-28.000.
- Olson, Donald O. Self-perforating drip irrigation device, 4,392,616, Cl. 239-271.000.
- Olympus Optical Company Limited: *See—*
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- Kimura, Kenji, 4,392,726, Cl. 354-25.000.
- Kimura, Kenji, 4,393,339, Cl. 318-254.000.
- Kimura, Kenji, 4,393,409, Cl. 358-227.000.
- Kimura, Kenji, 4,393,418, Cl. 360-22.000.
- Nishikawa, Masaji, 4,392,737, Cl. 355-3.00R.
- Sakurai, Yoshifumi, 4,393,427, Cl. 360-112.000.
- Shimizu, Tsutomu, 4,392,716, Cl. 350-145.000.
- Tomizawa, Yoshio, 4,393,420, Cl. 360-73.000.
- Tsunefuji, Katsuhiko, 4,392,729, Cl. 354-152.000.
- O'Mara, Raymond D.; Smorol, Michael E.; and Tobin, Curtis L., to Carrier Corporation. Apparatus for securing a wire to a grille, 4,392,525, Cl. 165-125.000.
- Omori, Toshiyuki; and Abe, Kunihiko, to Kao Soap Co. Ltd. Screen filter, 4,392,951, Cl. 209-307.000.
- Omura, Sadafumi: *See—*
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- O'Neill, Michael H. Shade shirt, 4,392,258, Cl. 2-209.100.
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- Ong, Warren R., to Fairchild Camera & Instrument Corp. Random access memory dual word line recovery circuitry, 4,393,476, Cl. 365-203.000.
- Ono, Hironobu: *See—*
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- Onodera, Masahiro: *See—*
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- Op Het Veld, Adriaan J. G.: *See—*
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- Oreopoulos, Dimitrios G.; and Zellerman, Gabor. Catheter, 4,392,855, Cl. 604-175.000.
- Orthobond Company, Inc.: *See—*
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- Osaka Municipal Government: *See—*
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- Osche, Gregory R.: *See—*
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- Oshima, Harumi, to Tokico Ltd. Disc brake having slidably mounted caliper with friction pad supporting member provided thereon, 4,392,559, Cl. 188-73.320.
- Otaki, Keiji: *See—*
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- Otsuka Kagaku Yakuhin Kabushiki Kaisha: *See—*
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- Ott, Karl-Heinz: *See—*
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- Ottolini, Leonardo, to Luigi Franchi S.p.A. Safety device for the trigger mechanism of a shot-gun of the gas-pump type, 4,392,319, Cl. 42-69.00B.
- Ouchi, Hiromu; Nishida, Masamitsu; and Numata, Kazunori, to Matsushita Electric Industrial Co., Ltd. Piezoelectric ceramics, 4,392,970, Cl. 252-62.900.
- Ouchi, Kiyoshi: *See—*
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- Oude Alink, Bernardus A.: *See—*
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- Outlaw, Benjamin T.: *See—*
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- Outokumpu Oy: *See—*
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- Lilja, Launo L.; and Makitalo, Valto J., 4,392,885, Cl. 75-26.000.
- Oval Engineering Co., Ltd.: *See—*
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- Owen, Leonard J.: *See—*
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- Owen, William H.; Simko, Richard T.; and Tchou, Wallace E., to Xicor, Inc. Nonvolatile static random access memory system, 4,393,481, Cl. 365-228.000.
- Owens-Corning Fiberglass Corporation: *See—*
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- Takeuchi, Kunthiko; and Belt, James S., 4,392,879, Cl. 65-6.000.
- Owens-Illinois, Inc.: *See—*
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- Oxenrider, Bryce C.: *See—*
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- Ozawa, Kiyomi; and Ishii, Shigeru, to Nissan Chemical Industries, Ltd. Process for producing 6-phenoxyphenol aldehydes, 4,393,213, Cl. 546-298.000.
- Ozeki, Takeshi, to Tokyo Shibaura Electric Co., Ltd. Light distributor, 4,392,712, Cl. 350-96.160.
- Pacific Nuclear Fuels, Inc.: *See—*
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- Paetsch, Juergen: *See—*
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- Painter, James D. Hosiery trimming apparatus, 4,392,596, Cl. 223-43.000.
- Pako Corporation: *See—*
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- Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., to Stauffer Chemical Company. Herbicide compositions, 4,392,884, Cl. 71-100.000.
- Palluel, Pierre: *See—*
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- Palma, Gary E.: *See—*
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- Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, to Chinoi Gyogyszer Es

- Vegyeszeti Termek Gyara Rt. 2-Cyano-2-(3-phenoxy-phenyl)-propionic acid amide and preparation thereof, 4,393,008, Cl. 260-465.00D.
- Pampaloni, Thomas R., to RCA Corporation. Aqueous developable poly(olefin sulfone) terpolymers, 4,393,160, Cl. 524-360.000.
- Paper Converting Machine Company: *See—*
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- Pardes, Greg: *See—*
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- Parker, Alan; Farnhill, William M.; and Clough, Douglas O. Friction spinning apparatus, 4,392,343, Cl. 57-401.000.
- Parrish, Reuel C. Quick disconnect safety coupling, 4,392,513, Cl. 137-614.010.
- Parsons, Raymond L.: *See—*
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- Partridge, Joshua. Drain pan for radiators and cooling systems, 4,392,552, Cl. 184-106.000.
- Pascarella, Vincent J.: *See—*
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- Paschke, Edward E.; and Petty-Weeks, C. Bruce, to Standard Oil Company (Indiana). Polyamides and copolyamides comprising -1,2-di(p-aminophenoxy) ethane moieties, 4,393,162, Cl. 524-606.000.
- Pascoe, Robert D., to American Standard Inc. Vital protection arrangement for railroad track circuits, 4,392,626, Cl. 246-34.00R.
- Passavant-Werke Michelbacher Huette: *See—*
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- Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen mbH: *See—*
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- Paton, Samuel J.: *See—*
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- Patsch, Manfred; Ruske, Manfred; and Hahn, Erwin, to BASF Aktiengesellschaft. Cationic phthalocyanine dyes, 4,393,005, Cl. 260-245.730.
- Paul, Charles T.: *See—*
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- Paulson, Robert C. Swabbing cup construction for swabbing an oil well pipe, 4,392,528, Cl. 166-153.000.
- Paulson, Wayne M.; and Hughes, David W., to Motorola, Inc. Chromium-silicon-nitrogen resistor material, 4,392,992, Cl. 252-512.000.
- Paulussen, Heinz: *See—*
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- Pawelchak, John M.; Chen, James L.; Cryan, John G.; and LaVia, Anthony L., to E. R. Squibb & Sons, Inc. Adhesive compositions, 4,393,080, Cl. 428-355.000.
- Pearson, David D.; Lemkey, Frank D.; and Kear, Bernard H., to United Technologies Corporation. Superalloy properties through stress modified gamma prime morphology, 4,392,894, Cl. 148-2.000.
- Pechau, Gerhard: *See—*
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- Pechiney Ugine Kuhlmann: *See—*
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- Peck, Anthony W., to Burroughs Wellcome Co. Bupropion and ethanol, 4,393,078, Cl. 424-330.000.
- Peck, John H.: *See—*
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- Pelosi, Stanford S., Jr., to Norwich Pharmaceuticals, Inc. 3-[(5-(4-Chlorophenyl)furfurylidene)amino]-5-(substituted)-2-oxazolidinones, 4,393,204, Cl. 542-420.000.
- Penco, Sergio: *See—*
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- Pendlebury, David: *See—*
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- Pennwalt Corporation: *See—*
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- Sandler, Stanley R.; and Bohon, Joseph M., 4,393,248, Cl. 568-676.000.
- Sprout, Oliver S., Jr., 4,393,093, Cl. 427-40.000.
- Pennzoil Company: *See—*
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- Sardisco, John B.; and Holcomb, Dysart E., 4,393,030, Cl. 423-167.000.
- Perisic, Milan; Lumbers, Warwick J.; and Bone, John A., to Automatic Rollers Doors Australia Pty., Ltd. Electrically-operated roller door operating mechanism, 4,392,392, Cl. 74-626.000.
- Perkin-Elmer Corporation: *See—*
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- Perkins, David, Jr., to Corrugated Drum Systems, Inc. Carton with integral closures, 4,392,607, Cl. 229-39.00R.
- Perl, Horst; Nussbaumer, Dietmar; Kluer, Horst; and Beer, Hans, to Sartorius GmbH. Resorcinol or phloroglucinol condensation product for aqueous mixture purification, 4,392,963, Cl. 210-692.000.
- Permawick Bearing Corporation: *See—*
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- Pernicano, Vincent S.; and Wright, Michael R. Reflective garment and method of manufacturing same, 4,392,901, Cl. 156-155.000.
- Peters, Daniel G.: *See—*
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- Peters, Karl-Clemens: *See—*
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- Peters, Roswell D. M., to United States of America, Army. Quartz resonator processing system, 4,392,287, Cl. 29-25.350.
- Petersen, Uwe: *See—*
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- Peterson, Edward W.: *See—*
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- Peterson, Terry M., to Chevron Research Company. Method for improving the efficiency of a solar cell and an improved cadmium sulfide/copper sulfide photovoltaic cell, 4,393,267, Cl. 136-260.000.
- Petre, John H.; and Cosgrove, Delos M., to Cleveland Clinic Foundation, The. Infusion pump controller, 4,392,849, Cl. 604-66.000.
- Petrina, Robert J., to Bruce Industries, Inc. Repairable fluorescent lamp ballast, 4,393,435, Cl. 361-377.000.
- Petrolite Corporation: *See—*
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- Petty-Weeks, C. Bruce: *See—*
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- Pfendler, Thomas: *See—*
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- Pfizer Inc.: *See—*
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- Phillips, Bobby M., to Eastman Kodak Company. Spinneret orifice cross-sections, 4,392,808, Cl. 425-464.000.
- Phillips Petroleum Company: *See—*
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- Funk, Gary L., 4,392,877, Cl. 62-37.000.
- Haws, John R., 4,393,170, Cl. 525-89.000.
- Witt, Donald R., 4,392,990, Cl. 252-458.000.
- Photon Chroma, Inc.: *See—*
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- Pick, Ernest, to Purdue Frederick Company, The. Apparatus for storing and dispensing liquid douche, 4,392,492, Cl. 604-82.000.
- Pierre, Joseph F.: *See—*
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- Pilkington P. E. Limited: *See—*
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- Pioneer Electric Corporation: *See—*
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- Pipe Systems, Incorporated: *See—*
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- Pischtschan, Alfred: *See—*
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- Pitches, Brian E.; Murray, Robert M. S.; and Rogers, Douglas J., to 501 Ferranti Limited. Capacitance measuring apparatus, 4,392,378, Cl. 73-304.00C.
- Piter, Hans; and Serapins, Klaus, to Felten & Guillaume Carlswerk AG. Arrangement for alignedly coupling two coated light-conductive fibers, 4,392,713, Cl. 350-96.210.
- Pithouse, Kenneth B.; and Swinburn, Christopher J., to Raychem Limited. Device for enclosing objects, 4,392,898, Cl. 156-85.000.
- Pitney Bowes Inc.: *See—*
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- Di Giulio, Peter C., 4,393,386, Cl. 346-75.000.
- Soderberg, John H., 4,393,454, Cl. 364-518.000.
- Pizzuti, Donato F., to Polaroid Corporation. Folding camera with viewfinder having independently mounted optical elements, 4,392,732, Cl. 354-187.000.
- Plascore, Inc.: *See—*
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- Plastic Forming Company, Inc.: *See—*
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- Plesa, Laszlo, to Aranykalasz Mgtz. Universal manual grafting device, 4,392,304, Cl. 30-178.000.
- Plessey Company plc, The: *See—*
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- Culley, Ernest, 4,393,490, Cl. 370-13.000.
- Plies, Erich: *See—*
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- Plumadore, John D., to Photon Chroma, Inc. Electrophotographic camera, 4,392,734, Cl. 355-3.00R.
- Polaroid Corporation: *See—*
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- Rogers, Howard G.; Gaudiana, Russell A.; Manello, Jeannette S.; and Sahatjian, Ronald A., 4,393,196, Cl. 528-363.000.

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Pomper, Seymour; and LaBaw, Glenn D., to Nabisco Brands, Inc. Bread mix and process. 4,393,084, Cl. 426-19.000.
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- Sakurai, Yoshifumi, to Olympus Optical Co., Ltd. Multichannel magnetic head. 4,393,427, Cl. 360-112.000.
- Salk Institute for Biological Studies, The: See—
Vale, Wylie W., Jr.; Rivier, Jean E. F.; and Brown, Marvin R., 4,393,050, Cl. 424-177.000.
- Sallin, Michel: See—
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- Sanders, Bernard, to Bonar Horticulture, Ltd. Plant growing unit, method and system. 4,392,327, Cl. 47-59.000.
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- Sano, Yasuro, to Janome Sewing Machine Co., Ltd. Sewing machine with a cyclic pattern stitching device. 4,392,442, Cl. 112-275.000.
- Sapp, John B., Jr.: See—
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- Sardisco, John B.; and Holcomb, Dysart E., to Pennzoil Company. Upgrading of phosphate ore. 4,393,030, Cl. 423-167.000.
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- Sasaki, Takashi; Hagiwara, Miyuki; Hosoi, Fumio; and Takagi, Tohru, to Japan Atomic Energy Research Institute. Polymer compositions. 4,393,165, Cl. 525-10.000.
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- Sato, Nobukatsu: See—
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- Sauer, Philip H.: See—
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- Saurer-Allma GmbH: See—
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- Savin Corporation: See—
Landa, Ben Zion, 4,392,742, Cl. 355-15.000.
- Sawada, Jiro; Hanada, Kazunori; Tamai, Masaharu; Morimoto, Shigeo; and Omura, Sadafumi, to Taisho Pharmaceutical Co., Ltd. Epoxysuccinic acid derivatives. 4,393,228, Cl. 549-549.000.
- Scalera, Frank T., to Rowe International, Inc. Nozzle assembly for cold drink merchandiser. 4,392,588, Cl. 222-129.400.
- Scansaroli, Michael N.: See—
Whalin, Jeffery A.; Shanley, Charles W.; Scansaroli, Michael N.; and Dworsky, Lawrence N., 4,393,131, Cl. 430-320.000.
- Schadlich, Gunther: See—
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- Schalch, Eugen: See—
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- Schellhorn, Robert L., to RCA Corporation. Porcelain coated metal boards having interconnections between the face and reverse surfaces thereof. 4,393,438, Cl. 361-401.000.
- Schelling & Co.: See—
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- recording material with arylazocyanooacetic ester dye releasers. 4,393,132, Cl. 430-562.000.
- Schepotin, Sergei G.: See—
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- Scherler, Alfred: See—
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- Scheuermann, Rolf: See—
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- Schmitz, Gunter; and Reiche, Horst. Clampable apparatus for grinding spherical surfaces. 4,392,331, Cl. 51-55.000.
- Schlicht, Raymond C., to Texaco Inc. Molybdenum-zinc dialkylidithiophosphates as lubricant additives. 4,392,966, Cl. 252-32.70E.
- Schloemann-Siemag Aktiengesellschaft: See—
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- Schlueter, Gert; and Schuster, Wilhelm, to Battelle-Institut e.V. Method and device for examining urine for particulate constituents. 4,393,141, Cl. 436-63.000.
- Schmatz, Jurgen: See—
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- Schmidt, Gerhard E.: See—
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- Schmidt, Edward M.; and Kahl, George D., to United States of America, Army. Gaseous blast reducer. 4,392,412, Cl. 89-14.00D.
- Schmidt, Johan M.: See—
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- Schmidt, Klaus, to Carl Freudenberg, Firma. Filter packing. 4,392,876, Cl. 55-524.000.
- Schmidt, Robert J., to UOP Inc. Hydration of olefins. 4,393,256, Cl. 568-907.000.
- Schmidt, Terrance C., to Electrohome Limited. Regulation of the EHT voltage of a CRT. 4,393,336, Cl. 315-387.000.
- Schmitt, Helmut; Strewe, Wolfgang; and Schurig, Helmut, to Uhde GmbH. Electrolysis cell. 4,392,937, Cl. 204-269.000.
- Schnurle, Hans: See—
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- Schoen, David A.: See—
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- Scholz, Romanus: See—
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- Schoonheijm, Harry B.: See—
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- Schopper, Bernd, to ITT Industries, Inc. Pressure regulator. 4,392,511, Cl. 137-493.200.
- Schopper, Bernd; Lowe, Derek; Reinartz, Hans-Dieter; and Tandler, Peter, to ITT Industries, Inc. Dual-circuit pressure control valves. 4,392,691, Cl. 303-6.00C.
- Schrader, Alfons; and Schreiner, Waldemar, to Babcock Textilmaschinen GmbH. Apparatus for heat treating a continuously moving web. 4,392,309, Cl. 34-54.000.
- Schreiner, Gary W.; Kemp, Merle L., Jr.; and Chernoff, Edward A., to Products Unlimited Corp. Electromagnetic relay. 4,393,359, Cl. 335-128.000.
- Schreiner, Waldemar: See—
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- Schrenk, Jurgen; and Wunderwald, Peter, to Boehringer Mannheim GmbH. Process for the selective separation of endoproteases. 4,393,139, Cl. 435-219.000.
- Schrotz, Kurt; and Schwobel, Richard, to Esselte Pendaflax Corporation. Belt printing mechanism having improved catch mechanism for detenting positioning wheel. 4,392,424, Cl. 101-111.000.
- Schubert, Fritz; Orrery, 4,392,831, Cl. 434-291.000.
- Schuck, Lee R.: See—
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- Schulz, Walther: See—
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- Schumacher, Bernd: See—
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- Schumann, Klaus: See—
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- Schuning, George F.: See—
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- Schurig, Helmut: See—
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- Schurman, Peter T., to Plastic Forming Company, Inc. The Method for preparing a parison and transferring it to a molding machine. 4,393,023, Cl. 264-150.000.
- Schuster, Wilhelm: See—
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- Schut, Robert N.; Safdy, Max E.; and Hong, Enrique, to Miles Laboratories, Inc. Methyl 3-acetamido-2-(5-methoxy-indol-3-yl) propanoate and hypotensive use thereof. 4,393,081, Cl. 424-274.000.
- Schutt, Hermann, to Bayer Aktiengesellschaft. Process for the preparation of the highly pure enzyme kallikrein from swine pancreas extracts. 4,393,140, Cl. 435-226.000.
- Schwager, Frederic A., to Mattel, Inc. Self-locking two-part fastener. 4,392,279, Cl. 24-221.00R.
- Schwartz, Alan R.: See—
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- Schwarz, Richard A., to Cosden Technology, Inc. Expandable polymeric styrene particles. 4,393,147, Cl. 521-60.000.
- Schwarzenbach, Alfred, to BBC Brown, Boveri & Company Limited. Constant pressure air storage installation with water supply for gas turbine power plants. 4,392,354, Cl. 60-727.000.
- Schwarzenberg, Norbert; Ueberwolf, Heinz; and Kaesmacher, Jakob, to Saint-Gobain Vitrage. Cutting head for glass cutting machine. 4,392,404, Cl. 83-886.000.
- Schwei, Lawrence J.: See—
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- Schwobel, Richard: See—
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- Sears, Stanley L., to Boeing Company, The. Panel welding system. 4,392,604, Cl. 228-212.000.
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- Seeney, Charles E.; Kraemer, John F.; and Varnum, Nancy C., to International Minerals & Chemicals Corp. Oxidatively coupled cold-set binders. 4,393,152, Cl. 523-139.000.
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- Seiden, Lewis J., to T-Bar Incorporated. Transfer bus matrix. 4,393,381, Cl. 340-825.830.
- Seino, Kazuyuki: See—
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- Seiyaku Co., Ltd.: See—
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- Sekigawa, Keiji, to Ricoh Co., Ltd. Method of reproducing a picture having improved resolution. 4,393,452, Cl. 364-514.000.
- Sekimoto, Sohichi, to Fuji Xerox Co., Ltd. Image forming method and apparatus. 4,392,719, Cl. 350-342.000.
- Selectastation, Inc.: See—
Besen, Peter D.; Shulsinger, Don H.; and Goldberg, Stuart D., 4,393,277, Cl. 179-2.00A.
- Selner, Allen J.; and Selner, Marc D. Method and apparatus for foot stabilization. 4,392,487, Cl. 128-80.00H.
- Selner, Marc D.: See—
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- Seltzer, Raymond: See—
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- Seng, Stephen: See—
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- Sengenberger, Charles G.: See—
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- Sentoku, Hideshi, to Laurel Bank Machine Co., Ltd. Stacking cylinder for use in a coin handling machine. 4,392,504, Cl. 133-1.00A.
- Sentrol, Inc.: See—
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- Sepke, Arnold L., to National Union Electric Corporation. Electric vacuum cleaner with window for viewing belt. 4,392,271, Cl. 15-339.000.
- Serapins, Klaus: See—
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- Shade, Ray W.: See—
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- Shanley, Charles W.: See—
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- Tanimoto, Akira; Nakanishi, Tosaku; and Yanagiuchi, Shigenobu, 4,393,462, Cl. 364-900.000.
- Shaw, Joseph M., to RCA Corporation. Method of manufacturing low resistance gates and interconnections. 4,392,299, Cl. 29-590.000.
- Sheingorn, Larry A. Device for blind spot delineation. 4,392,725, Cl. 351-224.000.
- Shell Oil Company: See—
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- Goodall, Brian L.; van der Nat, Adrianus A.; and Sjaardijn, Willem, 4,393,182, Cl. 526-125.000.
- Sherman, Allan, to United States of America, National Aeronautics and Space Administration. Cooling by conversion of para to ortho-hydrogen. 4,393,039, Cl. 423-648.00R.
- Sherwin-Williams Company, The: See—
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- Sherwood Medical Company: See—
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- Shiba, Keisuke; Nakao, Sho; and Toyama, Tadao, to Fuji Photo Film Co., Ltd. Light-sensitive lithographic printing plate precursor. 4,393,128, Cl. 430-273.000.
- Shibata, Kazuhiko: See—
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- Shibata, Tomoyuki; Nakayama, Mituhito; and Ouchi, Kiyoshi, to Ebara Corporation. Coupling system for submersible pump. 4,392,790, Cl. 417-360.000.
- Shibazaki, Kenji: See—
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- Sugiura, Masamichi; and Shibazaki, Kenji, 4,393,375, Cl. 340-700.000.
- Shibukawa, Mitsuru: See—
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- Shibuya, Kyoichi; and Ihara, Tomomi, to Sumitomo Semento Kabushiki Kaisha. Method of recovering exhaust gas from boiler in electrical power generating device using combustible material as fuel and apparatus for performing such method. 4,392,353, Cl. 60-657.000.
- Shibuya, Yoshimichi; and Takahashi, Masami, to Hitachi, Ltd. Liquid crystal display device. 4,392,717, Cl. 350-334.000.
- Shikano, Michio; and Kitagawa, Shuzi, to Kabushiki Kaisha Fujikoshi. Internal gear pump motor. 4,392,799, Cl. 418-169.000.
- Shima, Michitsune; Iida, Seichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Electron beam working apparatus for cylindrical members. 4,393,294, Cl. 219-121.0EC.
- Shimada, Hiroshi; and Aoyama, Keizo, to Fujitsu Limited. Semiconductor memory circuit. 4,393,472, Cl. 365-190.000.
- Shimada, Hiroshi, to Fujitsu Limited. Address buffer circuit. 4,393,480, Cl. 365-227.000.
- Shimane, Koichi: See—
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- Shimazaki, Kanzo: See—
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- Shimazu, Yoshimi: See—
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- Shimizu, Masami; and Yasunobe, Junji, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Oil seal for bearings of turbocharger. 4,392,752, Cl. 384-135.000.
- Shimizu, Masami; and Monno, Asao, to Fuji Electric Company, Ltd. Method of tube wall thickness measurement. 4,393,305, Cl. 250-358.100.
- Shimizu, Tsutomu, to Olympus Optical Co., Ltd. Mechanism to maintain constant body tube length of binocular microscope. 4,392,716, Cl. 350-145.000.
- Shimoyama, Yukiji: See—
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- Shimoyama, Toshikazu: See—
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- Shimoyashiki, Nobuyoshi: See—
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- Shinohara, Koichi; and Fujita, Takashi, to Matsushita Electric Industrial Co., Ltd. Method of vacuum depositing a layer on a plastic film substrate. 4,393,091, Cl. 427-13.000.
- Shionogi & Co., Ltd.: See—
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- Shirahata, Kunikatsu: See—
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- Shitamatsu, Ryujiro: See—
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- Showa Manufacturing Co., Ltd.: See—
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- Shows, Everett W., to General Motors Corporation. Gas turbine engine fuel system. 4,392,347, Cl. 60-39.270.
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- Shum, Lanson Y., to Westinghouse Electric Corp. Robotic manipulator structure. 4,392,776, Cl. 414-744.00R.
- Sid Harvey, Inc.: See—
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- Sidchrome (S.E. Asia) Limited: See—
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- Siddall, Michael, to Sidchrome (S.E. Asia) Limited. Furnace valve. 4,392,509, Cl. 137-340.000.
- Siddiqui, Ehtisham U. A.; Wenzel, James L.; and Butterfield, John L., to General Electric Company. Slicer disconnect. 4,392,835, Cl. 464-32.000.
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- Sigma Research, Inc.: See—
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- Simmons, Reginald J.: See—
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- Sirotnak, Francis M.: See—
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- Skwirut, Henry; and Young, Robert G., to North American Philips Electric Corp. Method for effectively contacting manganese-activated zinc silicate phosphor with antimony oxide during phosphor coating, and resulting lamp. 4,393,330, Cl. 313-487.000.
- Slettinger, Meyer, to Merck & Co., Inc. Process for preparing methyl-vinyl ketone from isoeugenol. 4,393,242, Cl. 568-322.000.
- Sloan Kettering Institute for Cancer Research: See—
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- Smalley, Raymond L., to REB Manufacturing, Inc. Lift safety switch system. 4,392,771, Cl. 414-455.000.
- Smart, John D.: See—
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- Smit, Geoffrey N., to Borg-Warner Corporation. Metal belt. 4,392,843, Cl. 474-245.000.
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- Smith, Edgar M., to R. A. Corporation. Method for aging a cathode of a cathode-ray tube. 4,392,834, Cl. 445-6.000.
- Smith, Gary E.: See—
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- Smith, Larry C., to Rexnord Inc. Wear resistant rotor slots for vane-type pumps or motors. 4,392,795, Cl. 418-31.000.
- Smith, Norman L., to Ashland Oil, Inc. Energy efficient process for the production of carbon black. 4,393,034, Cl. 423-450.000.
- Smith, Paul T.: See—
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- Smock, Steven W.: See—
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- Societe Alsacienne de Constructions Mecaniques de Mulhouse: See—
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- Societe Nationale Industrielle Aerospatiale: See—
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- Mouille, Rene' L.; Gallot, Jacques R.; and Pouradier, Jean-Marc E., 4,392,781, Cl. 416-223.00R.
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- Spars, Byron G.: See—
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- Spaulding, Bernard B.: See—
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- Spencer Wright Industries, Inc.: See—
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- Sperry Corporation: See—
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- Spinat, Roland R.: See—
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- Spinhirne, James M., to United Technologies Corporation. Intracavity phase front and power control. 4,393,303, Cl. 250-201.000.
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- Spradlin, Joseph E.; Morgan, Jeffrey D.; Olson, Allan R.; and Howley, Joseph P., to General Foods Corporation. Enzyme digestion for a dog food of improved palatability. 4,393,085, Cl. 426-28.000.
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- Sprecker, Mark A., to International Flavors & Fragrances Inc. Norbornyl ethers. 4,393,247, Cl. 568-665.000.
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- Spyder Sales & Service, Inc.: See—
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- SRI International: See—
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- Stanadyne, Inc.: See—
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- Standard Knitting Mills, Inc.: See—
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- Standard Oil Company, The: See—
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- Li, George S.; Jones, John F.; and Giffen, William M., Jr., 4,393,020, Cl. 264-108.000.
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- Stanforth, Eric, to Sisis Equipment (Macclesfield) Limited. Apparatus for dispensing particulate material. 4,392,595, Cl. 222-619.000.
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- Stant, Ivan H. Fence wire winder. 4,392,518, Cl. 140-119.000.

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- Staver Company, Inc.: See—
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- Stavo Industries, Inc.: See—
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- Sternberger, Ludwig A., to University of Rochester, The. Process for the preparation of biologically active peptide analogues. 4,392,996, Cl. 260-112.00R.
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- Stevens, Frederick F.: See—
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- Stickler, Johann R. Apparatus for breeding queen honeybees. 4,392,262, Cl. 6-9.000.
- Stiefel Laboratories, Inc.: See—
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- Stille, John K. Optically active phosphines. 4,393,240, Cl. 568-13.000.
- Stinson, Wilbur G.; Schwei, Lawrence J.; and Vong, Sandy T. S., to Ford Motor Company. Process for developing a coating film on a heated glass sheet. 4,393,098, Cl. 427-168.000.
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- Strandell, Per-Olof. Two-high rolling stand for bar and/or wire rolling mill. 4,392,370, Cl. 72-201.000.
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- Strauss, Udo: See—
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- Stringer, Carl Thomas: See—
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- Studer, John E.: See—
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- Stumpp, Gerhard; and Wessel, Wolf, to Robert Bosch GmbH. Apparatus for regulating turbochargers and internal combustion engines associated therewith. 4,392,352, Cl. 60-602.000.
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- Suda, Hitoshi: See—
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- Sugawara, Noboru, to Kanto Seiki Co., Ltd. Device for connecting speedometer to flexible shaft. 4,392,836, Cl. 464-52.000.
- Sugie, Kiyoshi; Yamada, Takeyoshi; and Yamaji, Teizo, to Teitin Limited. Novel silicon-containing copolymer, ultrathin solid membrane composed of said copolymer, use of said solid membrane for concentrating a specified gas in a gaseous mixture, and process for producing said solid membrane. 4,393,113, Cl. 428-220.000.
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- Sugiura, Kyoji: See—
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- Sullivan, Norman D. Food dispensing gun. 4,392,592, Cl. 222-288.000.
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- Suncor, Inc.: See—
Roit, Robert B.; and Seitzer, Walter H., 4,392,941, Cl. 208-11.0LE.
- Sung, Rodney L.; Sidote, George J.; and Sweeney, William M., to Texaco Inc. Etheramine corrosion inhibitor for alcohols. 4,392,866, Cl. 44-53.000.
- Sung, Rodney L.; and Sweeney, William M., to Texaco Inc. Amino corrosion inhibitor for alcohols. 4,392,867, Cl. 44-53.000.
- Supertex, Inc.: See—
Blanchard, Richard A., 4,393,391, Cl. 357-23.000.
- Suzuki, Akira: See—
Kaneda, Hiroshi; Arai, Katsuhiko; Suzuki, Akira; and Ohashi, Takashi, 4,393,015, Cl. 264-51.000.
- Suzuki, Hirotugu: See—
Endo, Tadakazu; Suzuki, Hirotugu; and Takahashi, Masanori, 4,392,903, Cl. 156-167.000.
- Suzuki, Ichiro; Yasumatsu, Jun; Imai, Yoshikazu; and Motonami, Masanao, to Toyota Jidosha Kogyo Kabushiki Kaisha. Seatbelt system. 4,392,673, Cl. 280-804.000.
- Suzuki, Jyuji, to Nippon Elumin Sash Co., Ltd. Pivotal window moved between locked and opened positions by means of a single operating handle. 4,392,329, Cl. 49-356.000.
- Suzuki, Kunihiko: See—
Kondo, Nobuo; Naganoma, Masanori; Hibi, Hitoshi; Fujii, Tetsuo; and Suzuki, Kunihiko, 4,393,365, Cl. 340-57.000.

- Suzuki, Manji. Recorder training device. 4,392,408, Cl. 84-380.00C.
- Suzuki, Mitsuo: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Yamachi, Koji; and Suzuki, Mitsuo, 4,393,342, Cl. 318-467.000.
- Suzuki, Shinichi: See—
Torii, Michihiro; Hirukawa, Kohei; Urata, Hiroshi; and Suzuki, Shinichi, 4,393,373, Cl. 340-384.00E.
- Suzuki, Yasuhiko: See—
Nishio, Kanemitsu; Takagi, Shunichi; and Suzuki, Yasuhiko, 4,393,324, Cl. 313-133.000.
- Svensen, Gordon D., to Ampex Corporation. Serial-to-parallel converter. 4,393,301, Cl. 377-56.000.
- Swanson, William J.: See—
Volpe, Gerald T.; Laskoski, Leonard S.; Amodeo, Ralph J.; Swanson, William J.; and Gottesman, Jerome D., 4,393,352, Cl. 329-50.000.
- Sweeney, William M.: See—
Sung, Rodney L.; Sidote, George J.; and Sweeney, William M., 4,392,866, Cl. 44-53.000.
- Sung, Rodney L.; and Sweeney, William M., 4,392,867, Cl. 44-53.000.
- Swett, James B.; and Arnold, Ann A., to Dart Industries Inc. Watering can. 4,392,594, Cl. 222-530.000.
- Swinmurn, Christopher J.: See—
Pithouse, Kenneth B.; and Swinmurn, Christopher J., 4,392,898, Cl. 156-85.000.
- Swiss Aluminium Ltd.: See—
Alder, Hanspeter; and Schalch, Eugen, 4,392,925, Cl. 204-67.000.
- Clumpner, Joseph A., 4,392,636, Cl. 266-218.000.
- Switall, Thomas G., to Ryco Graphic Manufacturing, Inc. Proportional mixing system with water motor drive. 4,392,508, Cl. 137-99.000.
- Switchcraft, Inc.: See—
Bailey, James R.; and Lutzenberger, Kurt, 4,392,708, Cl. 339-182.00R.
- Sycor, Inc.: See—
Vidwans, Mohan P., 4,393,424, Cl. 360-105.000.
- Symons, Robert S., to Varian Associates, Inc. Gyrotron transverse energy equalizer. 4,393,332, Cl. 315-4.000.
- System Industries Inc.: See—
Kyser, Edmond L., 4,393,384, Cl. 346-1.100.
- Szabo, Gabor: See—
Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, 4,393,008, Cl. 260-465.00D.
- Szakacs, Gabor L.: See—
Dunn, Thomas J.; Yuniskis, Donald G., Jr.; Szakacs, Gabor L.; and Nguyen, Nghia V., 4,393,448, Cl. 364-449.000.
- Szary, Herbert: See—
Nix, Hans; and Szary, Herbert, 4,392,305, Cl. 33-169.00F.
- Szomor, Maria: See—
Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, 4,393,008, Cl. 260-465.00D.
- Szostak, Daniel J.: See—
Goldstein, Bernard; Dresner, Joseph; and Szostak, Daniel J., 4,393,348, Cl. 324-158.00R.
- Szvoboda, Ida: See—
Palosi, Endre; Heja, Gergely; Korbonits, Dezso; Kiss, Pal; Gucci, Csaba; Cser, Judit; Szvoboda, Ida; Szabo, Gabor; Kallay, Tamas; Ledniczky, Laszlo; and Szomor, Maria, 4,393,008, Cl. 260-465.00D.
- T-Bar Incorporated: See—
Seiden, Lewis J., 4,393,381, Cl. 340-825.830.
- Tada, Ritsuro: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirosada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.
- Taft, John R. Wind powering of turbine having variable pitch vanes. 4,392,780, Cl. 416-17.000.
- Tagusari, Koji: See—
Nakajima, Isao; Tagusari, Koji; Okuna, Kenji; Hayama, Toru; Takahashi, Kazue; Watanabe, Michihiro; and Kotani, Sumihisa, 4,392,423, Cl. 101-93.480.
- Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, to Nishin Flour Milling Co., Ltd. Decaprenylamine derivatives. 4,393,209, Cl. 544-404.000.
- Tai, Ichiro: See—
Nozaki, Shinichi; Tai, Ichiro; and Shirayama, Shimpey, 4,393,307, Cl. 250-390.000.
- Taiho Pharmaceutical Co., Ltd.: See—
Senda, Shigeo; Katho, Eiichi; Ohtani, Osamu; Miyake, Hidekazu; and Fujiwara, Khosuke, 4,393,210, Cl. 546-141.000.
- Taisei Kako Co., Ltd.: See—
Maekawa, Hideyuki; Hiramoto, Shinji; Itaya, Kozo; Sato, Kokichi; and Nishida, Hirotaka, 4,392,577, Cl. 215-32.000.
- Taisho Pharmaceutical Co., Ltd.: See—
Sawada, Jiro; Hanada, Kazunori; Tamai, Masaharu; Morimoto, Shigeo; and Omura, Sadafumi, 4,393,228, Cl. 549-549.000.
- Takada, Atsunobu; and Higaki, Yuzo, to Nishin Oil Mills Limited, The. Steroid ester, and cosmetics and ointments containing the same. 4,393,044, Cl. 424-59.000.
- Takada, Juichiro. Emergency locking retractor for a vehicle occupant restraint belt. 4,392,620, Cl. 242-107.40A.
- Takagi, Kunihiko, to Tokyo Shibaura Denki Kabushiki Kaisha. Vacuum circuit breakers. 4,393,286, Cl. 200-144.00B.
- Takagi, Shunichi: See—
Nishio, Kanemitsu; Takagi, Shunichi; and Suzuki, Yasuhiko, 4,393,324, Cl. 313-133.000.
- Takagi, Tohru: See—
Sasaki, Takashi; Hagiwara, Miyuki; Hosoi, Fumio; and Takagi, Tohru, 4,393,165, Cl. 525-10.000.
- Takagishi, Haruyoshi: See—
Fujikawa, Tsuneo; and Takagishi, Haruyoshi, 4,392,601, Cl. 228-4.100.
- Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirosada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, to Hitachi Chemical Company, Ltd. Thermosetting prepolymer from polyfunctional maleimide and bis maleimide. 4,393,188, Cl. 528-88.000.
- Takahashi, Kazue: See—
Nakajima, Isao; Tagusari, Koji; Okuna, Kenji; Hayama, Toru; Takahashi, Kazue; Watanabe, Michihiro; and Kotani, Sumihisa, 4,392,423, Cl. 101-93.480.
- Takahashi, Masami: See—
Shibuya, Yoshimichi; and Takahashi, Masami, 4,392,717, Cl. 350-334.000.
- Takahashi, Masanori: See—
Endo, Tadakazu; Suzuki, Hirotugu; and Takahashi, Masanori, 4,392,903, Cl. 156-167.000.
- Takahashi, Masayuki; Goto, Kunihiko; Tanaka, Hisami; and Ohhata, Michinobu, to Fujitsu Limited. Sample and hold circuit. 4,393,318, Cl. 307-353.000.
- Takahashi, Michiko: See—
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,392,907, Cl. 156-252.000.
- Takahashi, Takao, to Nissan Motor Co., Ltd. Weft picking method and device for carrying out same. 4,392,517, Cl. 139-435.000.
- Takahashi, Tomoyuki: See—
Sato, Yoshito; and Takahashi, Tomoyuki, 4,392,396, Cl. 74-785.000.
- Takahashi, Toshihiro: See—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,393,209, Cl. 544-404.000.
- Takano, Genta: See—
Shima, Michitsune; Iida, Seiichi; Kihara, Shiso; Minami, Masaharu; Shimoyama, Toshikazu; Takano, Genta; and Kato, Akira, 4,393,294, Cl. 219-121.00E.
- Takano, Takao: See—
Mita, Ryuichi; Higuchi, Chojiro; Kato, Toshio; Kawashima, Nobuyuki; Yamaguchi, Akihiro; Nagai, Shosuke; and Takano, Takao, 4,393,000, Cl. 260-239.00E.
- Takasugi, Hisashi: See—
Takaya, Takao; Takasugi, Hisashi; Tsuji, Kiyoshi; and Chiba, Toshiyuki, 4,393,059, Cl. 424-246.000.
- Takasugi, Mitsuo; and Okuyama, Ajoshio, to Colpo Company Limited. Injector. 4,392,491, Cl. 604-202.000.
- Takatori, Yasushi: See—
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,392,907, Cl. 156-252.000.
- Takatsu, Haruyoshi: See—
Sato, Hisato; Takatsu, Haruyoshi; Fujita, Yutaka; Tazume, Masayuki; Takeuchi, Kiyohumi; and Ohnishi, Hiroyuki, 4,393,258, Cl. 585-25.000.
- Takaya, Takao; Takasugi, Hisashi; Tsuji, Kiyoshi; and Chiba, Toshiyuki, to Fujisawa Pharmaceutical Company, Limited. Cephem compounds. 4,393,059, Cl. 424-246.000.
- Takayasu, Akira. Clad steel plates. 4,393,122, Cl. 428-594.000.
- Takeda Chemical Industries, Ltd.: See—
Terao, Shinji; Shiraiishi, Mitsuru; and Maki, Yoshitaka, 4,393,075, Cl. 424-304.000.
- Takeda, Koichi; and Sasano, Yoshiro, to Daihatsu Motor Co., Ltd.; and Matsushita Electric Industrial Co., Ltd. Numerically controlled machine tool. 4,393,449, Cl. 364-474.000.
- Takenaka, Shigeo; Kamohara, Eiji; and Seino, Kazuyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for manufacturing mask for color CRT. 4,392,914, Cl. 156-633.000.
- Taketoshi, Kazuhisa; and Ogusu, Chihaya, to Nippon Hoso Kyokai. Evaporation device. 4,392,452, Cl. 118-723.000.
- Takeuchi, Akihiro; Kobayashi, Masaaki; and Fujisawa, Kiyoji, to Matsushita Electric Industrial Co., Ltd. Tracking system for a videotape recorder. 4,393,416, Cl. 360-10.200.
- Takeuchi, Akihiro: See—
Kobayashi, Masaaki; Takeuchi, Akihiro; and Fujisawa, Kiyoji, 4,393,417, Cl. 360-10.300.
- Takeuchi, Kiyohumi: See—
Sato, Hisato; Takatsu, Haruyoshi; Fujita, Yutaka; Tazume, Masayuki; Takeuchi, Kiyohumi; and Ohnishi, Hiroyuki, 4,393,258, Cl. 585-25.000.
- Takeuchi, Kunihiko; and Belt, James S., to Owens-Corning Fiberglass Corporation. Method of forming glass fibers while monitoring a process condition in a spinner. 4,392,879, Cl. 65-6.000.
- Takeuchi, Tomio: See—
Umezawa, Hamao; Takeuchi, Tomio; and Nakano, Hiroshi, 4,393,047, Cl. 424-118.000.
- Talres Development (N.A.) N.V.: See—
Cheetham, Peter S. J., 4,393,136, Cl. 435-161.000.
- Tamai, Masaharu: See—
Sawada, Jiro; Hanada, Kazunori; Tamai, Masaharu; Morimoto, Shigeo; and Omura, Sadafumi, 4,393,228, Cl. 549-549.000.

- Tamaoki, Tatsuya: See—
Tomita, Fusao; Tamaoki, Tatsuya; Shirahata, Kunikatsu; Kasai, Masaji; Hirayama, Noriaki; Morimoto, Makoto; and Fukui, Masanori, 4,393,056, Cl. 424-181.000.
- Tamura, Takashi: See—
Inoue, Koji; Sato, Nobukatsu; and Tamura, Takashi, 4,393,219, Cl. 548-534.000.
- Tanaka, Asami: Metal-porcelain dental restoration and method of making, 4,392,829, Cl. 433-222.000.
- Tanaka, Eiichi; Ishibashi, Noboru; and Inoue, Shojiro, to Matsushita Electric Industrial Co., Ltd. Combustion appliance with safety device, 4,392,813, Cl. 431-76.000.
- Tanaka, Hideo: See—
Torii, Sigeru; Tanaka, Hideo; Nokami, Junzo; Sasaoka, Michio; Saito, Norio; and Shiroy, Takashi, 4,392,923, Cl. 204-59.00R.
- Tanaka, Hisaji: See—
Nishiyama, Masanobu; Kanazawa, Fusao; Tanaka, Hisaji; and Nishimura, Tatsuo, 4,392,269, Cl. 15-145.000.
- Tanaka, Hisami: See—
Takahashi, Masayuki; Goto, Kunihiko; Tanaka, Hisami; and Oh-hata, Michinobu, 4,393,318, Cl. 307-353.000.
- Tanaka, Masanobu: See—
Ikushima, Hiroshi; Baba, Takaaki; Sagishima, Takayuki; and Tanaka, Masanobu, 4,393,400, Cl. 358-92.000.
- Tanaka, Masashi: See—
Kumada, Akio; Ihochi, Takahiko; Homma, Makoto; and Tanaka, Masashi, 4,392,747, Cl. 368-88.000.
- Tanaka, Masato; Furukawa, Shunsuke; Iwamoto, Ikuo; and Doi, Toshitada. Method and apparatus for communicating digital information words by error-correction encoding, 4,393,502, Cl. 371-40.000.
- Tanaka, Toshihiko: See—
Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, 4,392,560, Cl. 188-73.340.
- Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiro; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, to Kabushiki Kaisha Kobe Seiko Sho. Apparatus for continuously pickling the outer surfaces of tubular materials, 4,392,267, Cl. 15-88.000.
- Tanaka, Yoshiro; Moroi, Hayato; Komatsu, Yukihiro; Akagi, Kazuo; Shitamatsu, Ryujiro; and Nishimura, Tadashi, to Kabushiki Kaisha Kobe Seiko Sho. Apparatus for conveying tubular materials in pickling facilities of the same, 4,392,506, Cl. 134-46.000.
- Tandberg Data A/S: See—
Danielsen, Pette; and Moen, Tor, 4,393,378, Cl. 340-744.000.
- Tandler, Peter: See—
Schopper, Bernd; Lowe, Derek; Reinartz, Hans-Dieter; and Tandler, Peter, 4,392,691, Cl. 303-6.00C.
- Tanikawa, Isao: See—
Maruhashi, Yoshitsugu; Tanikawa, Isao; Hirata, Sadao; Yazaki, Jinichi; and Sakano, Kozaburo, 4,393,106, Cl. 428-35.000.
- Tanimoto, Akira; Nakanishi, Tosaku; and Yanagiuchi, Shigenobu, to Sharp Kabushiki Kaisha. Electronic translator with means for pronouncing input words and translated words, 4,393,462, Cl. 364-900.000.
- Tao, John C., to International Coal Refining Company. Coal-oil slurry preparation, 4,392,940, Cl. 208-8.0LE.
- Tarumi, Niro; Komiya, Shigeo; and Sugimura, Mitsuo, to Hoya Lens Corporation. Lens having a high refractive index with a low dispersion, 4,393,184, Cl. 526-261.000.
- Tatami, Mitsushige, to Sony Corporation. Automatic chroma level control circuit for compensating both slow and rapid chroma level changes, 4,393,412, Cl. 358-318.000.
- Tatsuhamu, Tetsuro; and Okabe, Masao, to Okumura Corporation. Method of and apparatus for determining angular and transversal displacements of shield machine and succeeding pipe, 4,392,744, Cl. 356-153.000.
- Tatsumi, Hideo: See—
Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; Asahi, Naotatsu; and Haginoya, Mitsuo, 4,392,296, Cl. 29-520.000.
- Taudt, Heinz: See—
Gast, Uwe; Hennig, Eberhard; Preuss, Dieter; Taudt, Heinz; and Wellendorf, Klaus, 4,393,399, Cl. 358-80.000.
- Taylor, Derek P., to Fastbac Research Limited. Shaped materials, 4,393,116, Cl. 428-343.000.
- Tazume, Masayuki: See—
Sato, Hisato; Takatsu, Haruyoshi; Fujita, Yutaka; Tazume, Masayuki; Takeuchi, Kiyohumi; and Ohnishi, Hiroyuki, 4,393,258, Cl. 585-25.000.
- Tchon, Wallace E.: See—
Owen, William H.; Simko, Richard T.; and Tchon, Wallace E., 4,393,481, Cl. 365-228.000.
- TDK Electronics Co., Ltd.: See—
Fukuda, Kazumasa, 4,393,110, Cl. 428-173.000.
- Suda, Takayuki; and Yasuda, Koichi, 4,393,364, Cl. 336-65.000.
- Teagarden, Dirk L.: See—
DeGeeter, Melvin J.; McCall, John M.; and Teagarden, Dirk L., 4,393,065, Cl. 424-251.000.
- Technicare Corporation: See—
Gardiner, Bayard G.; and Heringes, James A., 4,392,486, Cl. 128-68.000.
- Teckmeyer, Fred W.; and Dorn, George K. Gasoline fuel extender formulation, 4,392,868, Cl. 44-56.000.
- Teijin Limited: See—
Yakushiji, Satoshi; Yamamoto, Atsushi; Kitamura, Yukio; and Yoshioka, Nobuo, 4,392,286, Cl. 28-289.000.
- Teitin Limited: See—
Sugie, Kiyoshi; Yamada, Takeyoshi; and Yamaji, Teizo, 4,393,113, Cl. 428-220.000.
- Tektronix, Inc.: See—
Lewis, John, 4,393,443, Cl. 364-200.000.
- Teledyne Industries, Inc.: See—
Crocker, William A.; and Hug, Duane L., 4,393,230, Cl. 556-457.000.
- Tengi, John P.: See—
Keith, Dennis D.; Teng, John P.; and Weigle, Manfred, 4,393,003, Cl. 260-245.20R.
- Teraji, Tsutomu: See—
Sato, Yoshinari; and Teraji, Tsutomu, 4,393,070, Cl. 424-266.000.
- Terao, Shinji; Shiraiishi, Mitsuru; and Maki, Yoshitaka, to Takeda Chemical Industries, Ltd. Quinone compounds and their use in suppressing the production of SRS-A in mammals, 4,393,075, Cl. 424-304.000.
- Terwilliger, Gerald L.: See—
Merritt, Robert C.; and Terwilliger, Gerald L., 4,392,472, Cl. 123-564.000.
- Tessarolo, Francesco: See—
Costanzi, Silvestro; Tessarolo, Francesco; and Brunelli, Maurizio, 4,393,218, Cl. 548-530.000.
- Teumer, Karl H.: See—
Stricker, George O.; Teumer, Karl H.; and Groenendal, Ronald C., 4,393,117, Cl. 428-352.000.
- Texaco Inc.: See—
Corbeels, Roger J.; and Sengenberger, Charles G., 4,392,981, Cl. 252-373.000.
- Estes, John H.; and Herbstman, Sheldon, 4,392,946, Cl. 208-217.000.
- Johnson, Fred L., Jr.; and Watts, Lewis W., Jr., 4,393,254, Cl. 568-867.000.
- Marion, Charles P.; Brent, Albert; Richter, George N.; Crouch, William B.; Child, Edward T.; and Reynolds, Blake, 4,392,869, Cl. 48-197.00R.
- Schlicht, Raymond C., 4,392,966, Cl. 252-32.70E.
- Smolin, William, 4,393,266, Cl. 585-828.00R.
- Sung, Rodney L.; Sidote, George J.; and Sweeney, William M., 4,392,866, Cl. 44-53.000.
- Sung, Rodney L.; and Sweeney, William M., 4,392,867, Cl. 44-53.000.
- Yeakey, Ernest L.; and Watts, Lewis W., Jr., 4,393,237, Cl. 564-153.000.
- Texas Instruments Incorporated: See—
Blades, Brian J., 4,392,608, Cl. 236-48.00R.
- Du, Nguyen T.; and Asao, Akihide, 4,392,893, Cl. 148-1.500.
- Du, Nguyen T.; and Asao, Akihide, 4,393,479, Cl. 365-218.000.
- Grenier, Aime J., 4,393,289, Cl. 200-147.00R.
- Kitagawa, Norihisa; and Iwamoto, Eisaburo, 4,393,475, Cl. 365-201.000.
- McElroy, David J., 4,393,474, Cl. 365-200.000.
- Theyskens, Karel H. A. Tower crane, 4,392,574, Cl. 212-225.000.
- Thode, Charles W.: See—
Ashlock, Robert L.; Gabrielson, Carl E.; Kerr, Douglas P.; Rasmussen, David J.; Stump, Theodore M.; and Thode, Charles W., 4,393,491, Cl. 370-13.000.
- Thoman, James J.: See—
Vander Eyken, Gerardus H.; and Thoman, James J., 4,392,446, Cl. 114-144.00R.
- Thomas, Alan F.; and Naf, Ferdinand, to Firmenich, SA. Alicyclic unsaturated compounds, their preparation and use of same as perfume ingredients, 4,392,993, Cl. 252-522.00R.
- Thomas, Dolphus W., Jr. Clam bucket attachment, 4,392,774, Cl. 414-726.000.
- Thomas, Gareth J.: See—
Broadhurst, Michael J.; Hassall, Cedric H.; and Thomas, Gareth J., 4,393,221, Cl. 549-39.000.
- Thomas, Paul D. Ceiling suspended product display, 4,392,316, Cl. 40-617.000.
- Thomas, William L., to Zenith Radio Corporation. Teletext interface for digital storage medium having synthetic video generator, 4,393,376, Cl. 340-717.000.
- Thomas William L.: See—
Cox, Charles M.; and Thomas William L., 4,393,404, Cl. 358-147.000.
- Thompson, Don D.; Brown, Robert J. S.; and Runge, Richard J., to Chevron Research Company. Method for interpreting well log records to yield indications of gas/oil in an earth formation such as a sandstone, limestone, or dolomite, 4,393,486, Cl. 367-73.000.
- Thompson, Neil E. S.; Redmore, Derek; Oude Alink, Bernardus A.; and Outlaw, Benjamin T., to Petrolite Corporation. Compounds containing sulfur and amino groups, 4,393,026, Cl. 422-12.000.
- Thompson, Raymond D.: See—
Brown, Ross K.; Thompson, Raymond D.; Woods, Terrill W.; Wright, Darrell L.; Conner, James M.; Crookes, William E.; and Purcell, William F., 4,392,546, Cl. 180-326.000.
- Thomson, Charles D.: See—
Bell, Melvyn R.; and Thomson, Charles D., 4,393,437, Cl. 361-383.000.
- Thomson-CSF: See—
Beck, Jean L.; le Bars, Jean F.; Emmanuelli, Yves A.; and Bargues, Denis, 4,393,408, Cl. 358-205.000.
- Guedj, Richard; Dieulesaint, Eugene; and Royer, Daniel, 4,393,268, Cl. 178-18.000.
- Shroff, Arvind; and Palluel, Pierre, 4,393,328, Cl. 313-346.00R.

- Thomson, Michael G. R.: See—
Collier, Robert J.; and Thomson, Michael G. R., 4,393,312, Cl. 250-492.200.
- Thornton, Robert E., Jr.: See—
Irving, William A.; and Thornton, Robert E., Jr., 4,392,315, Cl. 40-27.000.
- Tieberg, Lars A.; and Carlqvist, Stig G. Method and plant for recovering heat from smoke gases, 4,392,809, Cl. 431-11.000.
- Tif Instruments, Inc.: See—
Liebermann, Leonard N., 4,392,374, Cl. 73-19.000.
- Timex Corporation: See—
LePage, Joseph R., 4,392,284, Cl. 24-265.00B.
- Timmons, David R., to Automation Industries, Inc. Grommet clip, 4,392,283, Cl. 24-255.0SL.
- Tirole, Jacques P. H.; Mons, Claude M.; and Spinat, Roland R., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.". Air-cooled sealing rings for the wheels of gas turbines, 4,392,656, Cl. 277-53.000.
- Titeflex Corporation: See—
Adamczyk, Rudolph A., 4,392,678, Cl. 285-256.000.
- Toagosei Chemical Industry Co., Ltd.: See—
Kimura, Kaoru; and Sugiura, Kyoji, 4,393,183, Cl. 526-245.000.
- Tobias, Michael A.; and Lynch, Conrad L., to Mobil Oil Corporation. Polyester coil coating, 4,393,121, Cl. 428-458.000.
- Tobin, Curtis L.: See—
O'Mara, Raymond D.; Smorol, Michael E.; and Tobin, Curtis L., 4,392,525, Cl. 165-125.000.
- Tohkairin, Akira: See—
Kanamaru, Hisanobu; Tohkairin, Akira; Tatsumi, Hideo; Asahi, Naotatsu; and Haginoya, Mitsuo, 4,392,296, Cl. 29-520.000.
- Tojiki, Hitomi: See—
Iwasama, Teruo; and Tojiki, Hitomi, 4,393,340, Cl. 318-301.000.
- Tokai Rubber Industries Ltd.: See—
Konishi, Keizo, 4,392,639, Cl. 267-140.100.
- Tokai TRW & Co., Ltd.: See—
Michio, Abe; and Naoyuki, Maeda, 4,392,540, Cl. 180-142.000.
- Tokico Ltd.: See—
Kato, Tetsuo; and Makita, Naoki, 4,392,638, Cl. 267-64.240.
- Oshima, Harumi, 4,392,559, Cl. 188-73.320.
- Yamaguchi, Kiyoshi; and Makita, Naoki, 4,392,293, Cl. 29-436.000.
- Tokichichi, Katsumi: See—
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- Tokuhara, Shinji: See—
Moriwaki, Takeshi; and Tokuhara, Shinji, 4,393,169, Cl. 525-67.000.
- Tokunaga, Takeshi: See—
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- Tokuno, Masateru; Ishii, Yoshinori; and Hoshiyama, Hidetoshi, to Rengo Co., Ltd. Web aligning process and apparatus, 4,392,910, Cl. 156-361.000.
- Tokura, Seiichi: See—
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- Tokyo Electric Co., Ltd.: See—
Fujii, Kunihiko; Hirosaki, Yukihiro; Nishiyama, Yoshihisa; and Sato, Koichiro, 4,392,535, Cl. 177-1.000.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
Nakamine, Chosin, 4,392,736, Cl. 355-3.00R.
- Nozaki, Shinichi; Tai, Ichiro; and Shirayama, Shimpey, 4,393,307, Cl. 250-390.000.
- Takagi, Kunihiko, 4,393,286, Cl. 200-144.00B.
- Takenaka, Shigeo; Kamohara, Eiji; and Seino, Kazuyuki, 4,392,914, Cl. 156-633.000.
- Tokyo Shibaura Electric Co., Ltd.: See—
Ozeki, Takeshi, 4,392,712, Cl. 350-96.160.
- Tolk, Norman H.: See—
Feldman, Leonard C.; Kraus, Joseph S.; Tolk, Norman H.; Traum, Morton M.; and Tully, John C., 4,393,311, Cl. 250-459.100.
- Tomaszewski, Thaddeus W., to Occidental Chemical Corporation. Trivalent chromium electrolyte and process employing vanadium reducing agent, 4,392,922, Cl. 204-51.000.
- Tomcufcik, Andrew S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., to American Cyanamid Company. 3-[(α -Substituted-benzyl)-2,3-dihydrothiazolo[3,2-a][1,3]diazacyclen-3-ol derivatives, 4,393,004, Cl. 260-245.500.
- Tomikawa, Kiyozo: See—
Sasai, Mitsuo; Tomikawa, Kiyozo; and Kajiwaru, Kazuo, 4,392,295, Cl. 29-509.000.
- Tomita, Fusao; Tamaoki, Tatsuya; Shirahata, Kunikatsu; Kasai, Masaji; Hirayama, Noriaki; Morimoto, Makoto; and Fukui, Masanori, to Kyowa Hakko Kogyo Co., Ltd. Antibiotics tetronolide compounds and process for production thereof, 4,393,056, Cl. 424-181.000.
- Tomizawa, Yoshio, to Olympus Optical Co., Ltd. Tape run speed-changing circuit, 4,393,420, Cl. 360-73.000.
- Tomozawa, Atsushi: See—
Maruta, Rikio; and Tomozawa, Atsushi, 4,393,367, Cl. 340-347.0DD.
- Tonar, Klaus: See—
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- Tonne, Peter; and Jaedicke, Hagen, to BASF Aktiengesellschaft. Preparation of aromatic sulfohalides, 4,393,211, Cl. 546-153.000.
- Toppan Printing Co., Ltd.: See—
Fujiu, Takahiro; Nakajima, Masao; and Okano, Shigeru, 4,392,265, Cl. 8-120.000.
- Toray Industries: See—
Yoshii, Toshiya; Nakura, Satoru; and Murakami, Masatsugi, 4,393,115, Cl. 428-323.000.
- Toray Industries, Inc.: See—
Endo, Tadakazu; Suzuki, Hirotosugu; and Takahashi, Masanori, 4,392,903, Cl. 156-167.000.
- Torii, Michihiro; Hirukawa, Kohei; Urata, Hiroshi; and Suzuki, Shinichi, to Fuji Electrochemical Co., Ltd. Piezoelectric audible sound generator, 4,393,373, Cl. 340-384.00E.
- Torii, Sigeru; Tanaka, Hideo; Nokami, Junzo; Sasaoka, Michio; Saito, Norio; and Shiroy, Takashi, to Otsuka Kagaku Yakuhin Kabushiki Kaisha. Process for preparing thiazolinozolidinone derivatives, 4,392,923, Cl. 204-59.00R.
- Toska Co., Ltd.: See—
Hara, Saburo, 4,392,906, Cl. 156-250.000.
- Tourdout, Jacques; and Carron, Henry, to L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procédes. Activating composition for bleaching with peroxide products, 4,392,975, Cl. 252-99.000.
- Towmotor Corporation: See—
Johannson, Richard J., 4,392,773, Cl. 414-667.000.
- Reeves, Jerry L., 4,392,772, Cl. 414-667.000.
- Russey, James W., 4,392,554, Cl. 187-9.00E.
- Towse, Eric R. Adaptor for facilitating blood sampling procedures, 4,392,499, Cl. 128-764.000.
- Toy, Madeline S.; and Stringham, Roger S., to United States of America, Air Force. Copolymers from octafluoronaphthalene, 4,393,198, Cl. 528-397.000.
- Toyama, Tadao: See—
Shiba, Keisuke; Nakao, Sho; and Toyama, Tadao, 4,393,128, Cl. 430-273.000.
- Toyo Kogyo Co., Ltd.: See—
Harasaki, Hayathugu; and Tsutagawa, Wataru, 4,392,545, Cl. 180-294.000.
- Toyo Seikan Kaisha Limited: See—
Kitamura, Yoichi; and Hotta, Hisashi, 4,392,582, Cl. 220-75.000.
- Maruhashi, Yoshitsugu; Tanikawa, Isao; Hirata, Sadao; Yazaki, Jinichi; and Sakano, Kozaburo, 4,393,106, Cl. 428-35.000.
- Toyo Soda Manufacturing Co., Ltd.: See—
Kubo, Masahige; Yoshimitsu, Mitsuo; and Katsuragawa, Kanzi, 4,393,246, Cl. 568-639.000.
- Toyota Jidosha Kabushiki Kaisha: See—
Inoue, Nobuyoshi; and Kishi, Tomomi, 4,393,293, Cl. 219-90.000.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Kato, Takashi; and Hayakawa, Masaharu, 4,393,012, Cl. 261-39.00A.
- Kobashi, Mamoru; and Itoh, Hiroshi, 4,392,468, Cl. 123-339.000.
- Miyagi, Hideo; Suematsu, Toshio; Nakano, Jiro; and Ono, Hironobu, 4,392,467, Cl. 123-325.000.
- Miyagi, Hideo; and Nakano, Jiro, 4,392,471, Cl. 123-489.000.
- Nakasu, Kei; Ichikawa, Shigeru; Tanaka, Toshihiko; and Ikeda, Mitsuo, 4,392,560, Cl. 188-73.340.
- Suzuki, Ichiro; Yasumatsu, Jun; Imai, Yoshikazu; and Motonami, Masanao, 4,392,673, Cl. 280-804.000.
- Yamamoto, Toshimasa; Mori, Mamoru; and Kinaga, Eiichi, 4,392,672, Cl. 280-803.000.
- Tralies, John M.: See—
Hammond, David C.; Elchenko, Stephen M.; Tralies, John M.; Verburg, Peter W.; and Robinson, Leon R., 4,393,483, Cl. 367-13.000.
- Traugh, Hubert L. Bicycle rack, 4,392,597, Cl. 224-42.130.
- Traum, Morton M.: See—
Feldman, Leonard C.; Kraus, Joseph S.; Tolk, Norman H.; Traum, Morton M.; and Tully, John C., 4,393,311, Cl. 250-459.100.
- Trio Kabushiki Kaisha: See—
Miyamoto, Yukihiro, 4,393,274, Cl. 179-1.0GS.
- Trukenbrod, Karl: See—
Rigler, Josef K.; Wienhofer, Ekkehard; Leithauser, Horst; and Trukenbrod, Karl, 4,393,146, Cl. 521-56.000.
- Trutzschler GmbH & Co. KG: See—
Leifeld, Ferdinand; Marx, Hans-Jurgen; and Scheuermann, Rolf, 4,392,275, Cl. 19-81.000.
- Tschantz, William H., to Quadracast, Inc. Bulk material handling and reclaiming equipment, 4,392,566, Cl. 198-509.000.
- Tsuchida, Takayasu; and Nakamori, Shigeru, to Ajinomoto Company Incorporated. Method for producing L-glutamic acid by fermentation, 4,393,135, Cl. 435-110.000.
- Tsuchiya, Takayoshi; and Matsuo, Masami, to Showa Manufacturing Co., Ltd. Front fork of motorcycle, 4,392,664, Cl. 280-276.000.
- Tsuji, Kiyoshi: See—
Takaya, Takao; Takasugi, Hisashi; Tsuji, Kiyoshi; and Chiba, Toshiyuki, 4,393,059, Cl. 424-246.000.
- Tsukahara, Taiji: See—
Okumura, Taketo; Tsukahara, Taiji; Mikuriya, Takashi; Watanabe, Hideki; and Katada, Katsutoshi, 4,392,371, Cl. 72-231.000.
- Tsukamoto Seiki Co., Ltd.: See—
Miida, Eihiro, 4,392,534, Cl. 175-340.000.
- Tsukanishi, Kenji: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirosada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.
- Tsunefuji, Katsuhiko, to Olympus Optical Company Ltd. Movable reflecting mirror for single lens reflex camera, 4,392,729, Cl. 354-152.000.

- Tsurumi Synthetic Refractories Co., Ltd.: See—
Yoshinaka, Satoru; Fushida, Masao; and Kimoto, Tatsuzi, 4,393,143, Cl. 501-89.000.
- Tsutagawa, Wataru: See—
Harasaki, Hayathugu; and Tsutagawa, Wataru, 4,392,545, Cl. 180-294.000.
- Tsutsui, Mitsukuni; and Yoshinari, Takashi, to Hitachi, Ltd. Ignition coil for an internal combustion engine. 4,392,473, Cl. 123-635.000.
- Tully, John C.: See—
Feldman, Leonard C.; Kraus, Joseph S.; Tolk, Norman H.; Traum, Morton M.; and Tully, John C., 4,393,311, Cl. 250-459.100.
- Tuovinen, Frans H.: See—
Heimala, Seppo O.; Hultholm, Stig E.; and Tuovinen, Frans H., 4,393,029, Cl. 423-55.000.
- Turnbough, Harold L.; and Wernitz, Charles W., to Alvey Inc. Live roller conveyor. 4,392,568, Cl. 198-781.000.
- Turner, Frederick T.: See—
Harra, David J.; and Turner, Frederick T., 4,392,938, Cl. 204-298.000.
- Tusinski, Joseph; and Hill, Phillip D., to Coburn Optical Industries, Inc. Fluid dispersing apparatus for use in producing ophthalmic lenses. 4,392,334, Cl. 51-263.000.
- Tyler, Keith A.; and Fix, Sidney R., to Goodyear Tire & Rubber Company, The. Curable long fiber loaded rubber composition and method of making same. 4,393,154, Cl. 524-12.000.
- Tyrell, John A.; and Freimiller, Gary L., to General Electric Company. Carbonate copolymers prepared from imide reactants. 4,393,190, Cl. 528-170.000.
- Uberg, Ulf: See—
Folkesson, Hans; and Uberg, Ulf, 4,392,368, Cl. 72-63.000.
- Uchimura, Hiroshi: See—
Ohmori, Hiroyuki; Uchimura, Hiroshi; and Mikage, Yuzo, 4,393,281, Cl. 200-16.000.
- Ueberwolf, Heinz: See—
Schwarzenberg, Norbert; Ueberwolf, Heinz; and Kaesmacher, Jakob, 4,392,404, Cl. 83-886.000.
- Uehara, Mikio: See—
Watanabe, Masazumi; Uehara, Mikio; Shimazu, Yoshimi; Ishiyama, Jiro; and Kato, Motohiko, 4,393,083, Cl. 426-15.000.
- Ude GmbH: See—
Schmitt, Helmut; Strew, Wolfgang; and Schurig, Helmut, 4,392,937, Cl. 204-269.000.
- Uhlig, Albert R.; and Chang, Long F., to Owens-Illinois, Inc. Closure with domed portion. 4,392,579, Cl. 215-253.000.
- Uhrhan, Paul; and Krauthausen, Edmund, to Bayer Aktiengesellschaft. Process for the production of 2,3-Dihydro-4H-1,4-benzothiazines. 4,393,206, Cl. 544-51.000.
- Ulrich, Lawrence W.; and Walker, Connie W., to Durable Packaging Corporation. Apparatus for sealing cartons. 4,392,911, Cl. 156-468.000.
- Umeda, Tatsuo: See—
Sasagawa, Masaru; Umeda, Tatsuo; and Kushima, Mamoru, 4,392,400, Cl. 83-185.000.
- Umezawa, Hamao; Takeuchi, Tomio; and Nakano, Hiroshi, to Microbiological Research Foundation. Antibiotic cytophagin and a process for producing the same. 4,393,047, Cl. 424-118.000.
- Union Carbide Corporation: See—
Mohr, Paul H.; and Matulewicz, William N., 4,392,972, Cl. 252-75.000.
- Union Oil Company of California: See—
Delaney, Dennis D.; and Fenton, Donald M., 4,393,037, Cl. 423-573.000.
- Millman, William S., 4,392,985, Cl. 252-435.000.
- Uniroyal, Inc.: See—
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- United Kingdom Atomic Energy Authority: See—
Moody, Brian R.; Lowe, Duncan B.; and Lowe, Derek W., 4,392,435, Cl. 104-284.000.
- United States of America
Agriculture: See—
Geimer, Robert L., 4,393,019, Cl. 264-83.000.
- Air Force: See—
Bilow, Norman, 4,393,101, Cl. 427-228.000.
- Ennis, Gerald E.; and Colombo, Mario, Jr., 4,392,775, Cl. 414-729.000.
- Horner, Joseph L.; and Ludman, Jacques E., 4,392,709, Cl. 350-3.830.
- Myer, Robert J., 4,392,624, Cl. 244-158.00A.
- Toy, Madeline S.; and Stringham, Roger S., 4,393,198, Cl. 528-397.000.
- Army: See—
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- LaFever, Clifford E.; and Peck, John H., 4,392,407, Cl. 89-33.00B.
- Mason, Arthur D., Jr.; Johnson, Avery A., Jr.; Walker, Harrel L.; Bowler, Eleanor G.; and Ritchey, Charles R., 4,393,048, Cl. 424-132.000.
- Merkel, George; and Scharf, William D., 4,393,509, Cl. 376-156.000.
- Peters, Roswell D. M., 4,392,287, Cl. 29-25.350.
- Schmidt, Edward M.; and Kahl, George D., 4,392,412, Cl. 89-14.00D.
- Wesson, Jerry J., 4,392,348, Cl. 60-229.000.
- Ziegler, George E., 4,393,014, Cl. 264-3.00R.
- Energy: See—
Caines, Michael J., 4,392,380, Cl. 73-644.000.
- Fultz, Brent T., 4,393,306, Cl. 250-374.000.
- Heckman, Richard A., 4,392,995, Cl. 252-627.000.
- Lauf, Robert J.; and Morgan, Chester S., 4,393,124, Cl. 429-104.000.
- Moore, Stanley W., 4,392,481, Cl. 126-418.000.
- Wang, Ching L., 4,393,512, Cl. 378-156.000.
- Yang, Chiang Y.; and Rapp, Robert A., 4,392,928, Cl. 204-130.000.
- National Aeronautics and Space Administration: See—
Brown, Gerald V., 4,392,356, Cl. 62-3.000.
- Clemmons, James I., Jr., 4,392,749, Cl. 368-118.000.
- McDonald, Glen E., 4,392,920, Cl. 204-37.00R.
- Sherman, Allan, 4,393,039, Cl. 423-648.00R.
- Yamauchi, Samuel T., 4,392,874, Cl. 55-194.000.
- Navy: See—
Davies, Kirk E., 4,393,369, Cl. 340-347.0AD.
- De Marco, Michael, 4,392,443, Cl. 114-20.00R.
- Durrell, Robert R., 4,392,410, Cl. 86-1.00R.
- Hammond, David C.; Elchenko, Stephen M.; Tralies, John M.; Verburt, Peter W.; and Robinson, Leon R., 4,393,483, Cl. 367-13.000.
- Hansen, Peder M.; Hoffman, John G.; Seeley, Elwin W.; and Andrew, Wesley A., 4,393,350, Cl. 324-334.000.
- Reed, Russell, Jr.; Burdette, George W.; Meyers, Gary W.; and Vuono, William R., 4,392,895, Cl. 149-19.300.
- U.S. Philips Corporation: See—
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- Bruggendieck, Siegfried; Nolting, Karl-Heinz; Krahn, Friedrich; and Olejak, Gerhard, 4,392,714, Cl. 350-96.230.
- Claasen, Theodoor A. C. M.; Gielis, Gerardus C. M.; Schmidt, Johan M.; and Schoonheijm, Harry B., 4,393,403, Cl. 358-113.000.
- Crombeen, Jacobus E.; Crooymans, Petrus W. H. M.; and Visser, Jan, 4,392,939, Cl. 204-298.000.
- Engelfriet, Adrianus R. C.; Op Het Veld, Adriaan J. G.; and Van Vucht, Theodorus J. P., 4,392,397, Cl. 76-107.00A.
- Geis, Hans P.; and Helber, Holger, 4,393,273, Cl. 179-1.0GD.
- Hart, Cornelis M.; and Lohstroh, Jan, 4,393,471, Cl. 365-154.000.
- Kunze, Dieter, 4,393,314, Cl. 307-228.000.
- Radziwill, Wolfgang; Doring, Gunter; and Steinbusch, Hans, 4,393,317, Cl. 307-309.000.
- Raven, Johannes G.; and Van Buul, Marinus C. W., 4,393,396, Cl. 358-36.000.
- van der Kooi, Auke G., 4,393,325, Cl. 313-552.000.
- United Technologies Corporation: See—
Angelbeck, Albert W.; and Palma, Gary E., 4,393,503, Cl. 372-20.000.
- Madden, William M., 4,392,615, Cl. 239-265.370.
- Pearson, David D.; Lemkey, Frank D.; and Kear, Bernard H., 4,392,894, Cl. 148-2.000.
- Spinhrne, James M., 4,393,303, Cl. 250-201.000.
- Universal Foods Corporation: See—
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- University of Iowa Research Foundation: See—
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- University of Rochester, The: See—
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- Untereker, Darrel F.: See—
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- UOP Inc.: See—
Fink, Allen H., 4,392,346, Cl. 60-39.040.
- Firth, Bruce E., 4,392,969, Cl. 252-52.00R.
- Schmidt, Robert J., 4,393,256, Cl. 568-907.000.
- Ward, Dennis J.; and Vora, Bipin V., 4,393,259, Cl. 585-315.000.
- Upjohn Company, The: See—
Allen, Harry R., 4,393,054, Cl. 424-180.000.
- DeGeeter, Melvin J.; McCall, John M.; and Teagarden, Dirk L., 4,393,065, Cl. 424-251.000.
- Manis, Jack J.; and Highlander, Sarah K., 4,393,137, Cl. 435-172.000.
- Urata, Hiroshi: See—
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- Urayama, Masashi: See—
Yokobori, Nobuyoshi; Urayama, Masashi; Okamoto, Hiroshi; and Igarashi, Yoshiaki, 4,393,422, Cl. 360-73.000.
- Vale, Wylie W., Jr.; Rivier, Jean E. F.; and Brown, Marvin R., to Salk Institute for Biological Studies, The. Analogs of extended N-terminal somatostatin. 4,393,050, Cl. 424-177.000.
- Van Abeelen, Petrus C. A. M.; and de Munck, Hans, to General Electric Company. High impact, high modulus reinforced aromatic carbonate polymeric mixtures. 4,393,161, Cl. 524-506.000.
- Van Buul, Marinus C. W.: See—
Raven, Johannes G.; and Van Buul, Marinus C. W., 4,393,396, Cl. 358-36.000.
- Van Capelleveen, Pieter, to Gebr. van Capelleveen B.V. Intermediate storage baking tins. 4,392,768, Cl. 414-278.000.
- van den Berg, Johannes C. M. Controlling perceived sound source direction. 4,393,270, Cl. 179-1.00D.
- van den Broek, Frederik H. Dismantleable boat cradle. 4,392,627, Cl. 248-176.000.
- Vander Eyken, Gerardus H.; and Thoman, James J., to Cinkel Industries, Ltd. Pedestal mount autopilot. 4,392,446, Cl. 114-144.00R.

- van der Kooi, Auke G., to U.S. Philips Corporation. Low-pressure mercury vapor discharge lamp with mercury amalgam. 4,393,325, Cl. 313-552.000.
- van der Nat, Adrianus A.: See—
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- Van Heyningen, Roger S., to Eastman Kodak Company. Photographic film cartridge assemblies with removable filters. 4,392,731, Cl. 354-180.000.
- Van Landeghem-Heynderickx, Renate, executor: See—
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- Van Landeghem, Hugo, deceased: See—
Euzen, Jean-Paul; Jacquin, Yves; and Van Landeghem, Hugo, deceased, 4,392,943, Cl. 208-152.000.
- Van Ooyen, Richard C.: See—
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- Van Pelt, Gregory A. Sculptured lamp base. 4,392,904, Cl. 156-194.000.
- Van Vucht, Theodorus J. P.: See—
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- Van Winkle, Denzal W. Valve structure having inovable seat means. 4,392,633, Cl. 251-122.000.
- Varian Associates, Inc.: See—
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- Harra, David J.; and Turner, Frederick T., 4,392,938, Cl. 204-298.000.
- Luscher, Paul E., 4,392,453, Cl. 118-726.000.
- Symons, Robert S., 4,393,332, Cl. 315-4.000.
- Varnum, Nancy C.: See—
Seeney, Charles E.; Kraemer, John F.; and Varnum, Nancy C., 4,393,152, Cl. 523-139.000.
- Vautrin, Wayne. Heat storage and delivery apparatus. 4,392,480, Cl. 126-400.000.
- Veb Kombinat Polygraph "Werner Lamberz" Leipzig: See—
Forster, Karl-Heinz; and Johnne, Hans, 4,392,429, Cl. 101-365.000.
- Wege, Regina, 4,392,426, Cl. 101-363.000.
- VEB Schwermaschinen-Kombinat "ERNST THALMANN" Magdeburg: See—
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- Veba Oel AG: See—
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- Velenyi, Louis J.; Dolhyj, Serge R.; and Krupa, Andrew S., to Standard Oil Company, The. Preparation of cyclohexenyl compounds. 4,393,260, Cl. 585-357.000.
- Veltel, Reinhard: See—
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- Verburt, Peter W.: See—
Hammond, David C.; Elchenko, Stephen M.; Tralies, John M.; Verburt, Peter W.; and Robinson, Leon R., 4,393,483, Cl. 367-13.000.
- Verdouw, Albert J., to General Motors Corporation. Combustion liner. 4,392,355, Cl. 60-752.000.
- Vereinigte Schmirgel und Maschinen-Fabriken AG: See—
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- Vernon, Paul M.: See—
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- Victor Company of Japan, Ltd.: See—
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- Videki, Edwin R., II: See—
Milligan, Charles A.; Videki, Edwin R., II; and Yates, Winston F., 4,393,445, Cl. 364-200.000.
- Vidwans, Mohan P., to Sycor, Inc. Pressure arm assembly for disc recorders. 4,393,424, Cl. 360-105.000.
- Viellefont, Jean F.; and Dierckxens, Robert P. L., to Metallurgie Hoboken-Overpelt. Process and apparatus for replacing cathodes. 4,392,934, Cl. 204-198.000.
- Viets, Hermann. Directional control of engine exhaust thrust vector in a STOL-type aircraft. 4,392,621, Cl. 244-12.500.
- Viitanen, Veikko K.: See—
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- Vikoma International Limited: See—
Webb, Michael G., 4,392,957, Cl. 210-241.000.
- Visser, Jan: See—
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- Voest-Alpine AG: See—
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- Vogel, George P., to Stavo Industries, Inc. Encapsulated frame type filter press. 4,392,956, Cl. 210-224.000.
- Vogel, Ignaz. Seat support slide track structure. 4,392,692, Cl. 308-6.00R.
- Vogel, John D.: See—
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- Vogt, Carl L.: See—
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- Volkmann GmbH & Co.: See—
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- Volkswagenwerk Aktiengesellschaft: See—
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- Volpe, Gerald T.; Laskoski, Leonard S.; Amodeo, Ralph J.; Swanson, William J.; and Gottesman, Jerome D., to Perkin-Elmer Corporation, The. Sample-and-hold hybrid active RC filter. 4,393,352, Cl. 329-50.000.
- von Fraunberg, Karl: See—
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- Vong, Sandy T. S.: See—
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- Vora, Bipin V.: See—
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- Voss, Eckart: See—
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- Vrba, Jiri: See—
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- Vuono, William R.: See—
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- Wagner, Bill L., Sr., to Bio Clinic Company. Abduction pillow. 4,392,489, Cl. 128-80.00A.
- Wagner, Fritz; Lindorfer, Walter; Jahn-Held, Wilhelm; and Schulz, Walther, to Wintershall Aktiengesellschaft; and Gesellschaft fur Biotechnologische Forschung. Process for separating hydrocarbons from particulate solids. 4,392,892, Cl. 134-25.100.
- Wagner, Kuno: See—
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- Wagner, Wilhelm: See—
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- Wajima, Motoyo: See—
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- Waldmann, Hermann: See—
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- Walker, Connie W.: See—
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- Walker, Fred L. Cellular moist film plant culture system. 4,392,328, Cl. 47-62.000.
- Walker, Harrel L.: See—
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- Walkup, William B., to Ark-les Corporation. Shorting jumper. 4,392,702, Cl. 339-19.000.
- Wallace, John D. Foldable table with foldable support frame. 4,392,437, Cl. 108-112.000.
- Wallman, P. Henrik; and Spars, Byron G., to Chevron Research Company. Modified staged turbulent bed process for retorting carbon containing solids. 4,392,942, Cl. 208-11.00R.
- Walter, John: See—
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- Walters, John P.; and Barnhart, Steven G., to Wisconsin Alumni Research Foundation. Electric spark type light source for producing light for spectroscopic analysis. 4,393,327, Cl. 315-241.00R.
- Walwel, Inc.: See—
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- Wampler, Charles W., II: See—
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- Wang, Ching L., to United States of America. Energy. Hyper-filter-fluorescer spectrometer for x-rays above 120 keV. 4,393,512, Cl. 378-156.000.
- Wang Laboratories, Inc.: See—
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- Ward, Dennis J.; and Vora, Bipin V., to UOP Inc. Process for conversion of propane or butane to gasoline. 4,393,259, Cl. 585-315.000.
- Warner-Lambert Company: See—
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- Warner Lambert Technologies, Inc.: See—
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- Wasserman, Ed: See—
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Watanabe, Michihiro: See—
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Weinberg, Leonard, to RCA Corporation. Memory addressing circuit for converting sequential input data to interleaved output data sequence using multiple memories. 4,393,444, Cl. 364-200.000.

Weingartner, Bernhard, to Neutrik Aktiengesellschaft. Electrical connector. 4,392,699, Cl. 339-14.00P.

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Weston, Paul, to Lucas Industries Limited. Internal combustion engine throttle control. 4,392,502, Cl. 123-342.000.

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Wieland, Erich G., to Koenig & Bauer AG. Ink fountain for printing machines. 4,392,428, Cl. 101-365.000.

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Witak, Donald T.; and Rahwan, Ralf G., to Ohio State University Research Foundation. The Compounds and methods for changing calcium metabolism within the cells of a mammal. 4,393,226, Cl. 549-433.000.

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Yamasaki, Saburo: See—
Hiraiwa, Kazuyoshi; and Yamasaki, Saburo, 4,393,285, Cl. 200-61.880.

Yamashita, Koji, to Nippon Electric Co., Ltd. Mobile antenna mounting assembly. 4,393,383, Cl. 343-903.000.

Yamauchi, Koji: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Yamauchi, Koji; and Suzuki, Mitsuo, 4,393,342, Cl. 318-467.000.

Yamauchi, Samuel T., to United States of America, National Aeronautics and Space Administration. Degassing and mixing apparatus for liquids. 4,392,874, Cl. 55-194.000.

Yanagiuchi, Shigenobu: See—
Tanimoto, Akira; Nakanishi, Tosaku; and Yanagiuchi, Shigenobu, 4,393,462, Cl. 364-900.000.

Yang, Chiang Y.; and Rapp, Robert A., to United States of America, Energy. Method of doping a semiconductor. 4,392,928, Cl. 204-130.000.

Yang, Tai-Cheng; Rao, Krishna K.; and Huang, I-Der, to Exxon Research & Engineering Co. Catalyst for carboxylic anhydride production. 4,392,986, Cl. 252-435.000.

Yanma Agricultural Equipment Company Limited: See—
Yano, Noriyuki; Yahashi, Satoru; Shimazaki, Kanzo; Nakazawa, Mitsuaki; and Yamamoto, Takashi, 4,392,421, Cl. 99-524.000.

Yannopoulos, Lymprios N.; and Pierre, Joseph F., to Westinghouse Electric Corp. Method of making α -hematite catalyst. 4,392,991, Cl. 252-466.00J.

Yano, Akira; Saito, Yoshitada; and Kasahara, Yasushi, to Fujizoki Pharmaceutical Co., Ltd. Standard blood filter paper for use in diagnosis of histidinemia. 4,393,134, Cl. 435-29.000.

- Yano, Noriyuki; Yahashi, Satoru; Shimazaki, Kanzo; Nakazawa, Mitsuki; and Yamamoto, Takashi, to Seirei Industry Company Limited; and Yanma Agricultural Equipment Company Limited. Rice hulling and sorting device. 4,392,421, Cl. 99-524.000.
- Yasuda, Koichi: See—
Suda, Takayuki; and Yasuda, Koichi, 4,393,364, Cl. 336-65.000.
- Yasuhara, Seishi, to Nissan Motor Co., Ltd. Diesel engine having a dual lubrication system. 4,392,463, Cl. 123-196.00M.
- Yasumatsu, Jun: See—
Suzuki, Ichiro; Yasumatsu, Jun; Imai, Yoshikazu; and Motonami, Masanao, 4,392,673, Cl. 280-804.000.
- Yasunobe, Junji: See—
Shimizu, Masami; and Yasunobe, Junji, 4,392,752, Cl. 384-135.000.
- Yates, Winston F.: See—
Milligan, Charles A.; Videki, Edwin R., II; and Yates, Winston F., 4,393,445, Cl. 364-200.000.
- Yazaki, Jinichi: See—
Maruhashi, Yoshitsugu; Tanikawa, Isao; Hirata, Sadao; Yazaki, Jinichi; and Sakano, Kozaburo, 4,393,106, Cl. 428-35.000.
- Yazawa, Satoru: See—
Hosokawa, Minoru; Ikeda, Masayuki; and Yazawa, Satoru, 4,393,380, Cl. 340-805.000.
- Yeakey, Ernest L.; and Watts, Lewis W., Jr., to Texaco Inc. Polyox-yalkylenepolyacrylamides. 4,393,237, Cl. 564-153.000.
- Yip, Kin F.: See—
Helfrich, Elaine A.; and Yip, Kin F., 4,392,864, Cl. 8-506.000.
- Yokobori, Nobuyoshi; Urayama, Masashi; Okamoto, Hiroshi; and Igarashi, Yoshiaki, to Matsushita Electric Industrial Co., Ltd. Device for driving magnetic tape. 4,393,422, Cl. 360-73.000.
- Yokogawa Electric Works: See—
Yamaguchi, Keiki, 4,392,379, Cl. 73-626.000.
- Yokogawa, Tomoshisa; and Gomi, Shintaro, to Pioneer Electric Corporation. Input signal level control device for receiver. 4,393,513, Cl. 455-243.000.
- Yokomizo, Yoshikazu, to Canon Kabushiki Kaisha. Contour correcting apparatus for video signals. 4,393,407, Cl. 358-166.000.
- Yokozawa, Shunya: See—
Takahashi, Akio; Wajima, Motoyo; Tada, Ritsuro; Morishita, Hirosada; Mizuno, Yutaka; Yokozawa, Shunya; and Tsukanishi, Kenji, 4,393,188, Cl. 528-88.000.
- Yonekura, Seiji: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Yamauchi, Koji; and Suzuki, Mitsuo, 4,393,342, Cl. 318-467.000.
- Yoshida Industry Co., Ltd.: See—
Watanabe, Nobuhisa, 4,392,503, Cl. 132-83.00R.
- Yoshida Kogyo K. K.: See—
Iai, Kenichiro, 4,392,291, Cl. 29-408.000.
Matsuda, Yoshio, 4,392,363, Cl. 66-193.000.
- Yoshida, Muneaki. Camera with focal-plane shutter having contrast control. 4,392,728, Cl. 354-49.000.
- Yoshida, Takao: See—
Calderone, Nicholas; Watkins, Hugh; and Yoshida, Takao, 4,392,976, Cl. 252-174.110.
- Yoshida, Takashi: See—
Makabe, Osamu; Murai, Yasushi; Okonogi, Tuneo; Onodera, Masahiro; Koyama, Yoshiyuki; and Yoshida, Takashi, 4,393,058, Cl. 424-246.000.
- Yoshida, Tsuyoshi: See—
Miki, Nobuaki; Kawamoto, Mutsumi; Shibata, Kazuhiko; Yoshida, Tsuyoshi; and Amano, Hiroyuki, 4,393,467, Cl. 364-424.100.
- Yoshii, Hisao, to Dainichi Kogyo Co., Ltd. Control circuit for gasified liquid fuel combustion apparatus. 4,392,812, Cl. 431-73.000.
- Yoshii, Toshiya; Nakura, Satoru; and Murakami, Masatsugi, to Toray Industries. Multilayered polypropylene film. 4,393,115, Cl. 428-323.000.
- Yoshimitsu, Mitsuaki: See—
Kubo, Masashige; Yoshimitsu, Mitsuaki; and Katsuragawa, Kanzi, 4,393,246, Cl. 568-639.000.
- Yoshimoto, Koichi, to Hanshin Sogyo Co., Ltd. Two-wheeled roller skate. 4,392,659, Cl. 280-11.230.
- Yoshinaka, Satoru; Fushida, Masao; and Kimoto, Tatsuzi, to Tsurumi Synthetic Refractories Co., Ltd. Amorphous refractory settable at low temperatures. 4,393,143, Cl. 501-89.000.
- Yoshinari, Takashi: See—
Tsutsui, Mitsukuni; and Yoshinari, Takashi, 4,392,473, Cl. 123-635.000.
- Yoshino, Masahito, to Kabushiki Kaisha Suwa Seikosha. Quartz crystal watch. 4,392,748, Cl. 368-88.000.
- Yoshioka, Masahiro: See—
Ida, Michiaki; Hagiwara, Noriaki; Yamago, Naoyoshi; Yoshioka, Masahiro; and Kikuchi, Katsuaki, 4,392,751, Cl. 384-99.000.
- Yoshioka, Nobuo: See—
Yakushiji, Satoshi; Yamamoto, Atsushi; Kitamura, Yukio; and Yoshioka, Nobuo, 4,392,286, Cl. 28-289.000.
- Yoshitsugu, Seikichi; and Shimatsu, Minoru, to Nissan Motor Company Limited. Vehicle body structure. 4,392,684, Cl. 296-185.000.
- You, Chin-San. Method of producing a racket frame. 4,393,024, Cl. 264-162.000.
- Young, Robert G.: See—
Skwirut, Henry; and Young, Robert G., 4,393,330, Cl. 313-487.000.
- Yperman, Jacques L., to Societe Anonyme des Etablissements Adrien de Backer. Cover assembly for airport guidance light. 4,393,440, Cl. 362-309.000.
- Yquel, Jean-Pierre, to L'Oreal. Measuring instrument with automatic loading and an automatic cycle, for studying the tensile characteristics of fibres. 4,392,384, Cl. 73-830.000.
- Yu, Cheng-Sein, to Stiefel Laboratories, Inc. Anesthetic-antipruritic morpholine compounds, compositions and use. 4,393,061, Cl. 424-248.580.
- Yuken Industry Co., Ltd.: See—
Watai, Haruhisa; Furuta, Hiroyuki; and Kawamoto, Akira, 4,393,120, Cl. 428-457.000.
- Yuniskis, Donald G., Jr.: See—
Dunn, Thomas J.; Yuniskis, Donald G., Jr.; Szakacs, Gabor L.; and Nguyen, Nghia V., 4,393,448, Cl. 364-449.000.
- Yuyama, Yasuaki: See—
Honjo, Satoru; Yuyama, Yasuaki; Iwasa, Masakazu; and Imanishi, Kazuo, 4,393,112, Cl. 428-207.000.
- Zabotto, Arlette: See—
Koulbanis, Constantin; Zabotto, Arlette; Griat, Jacqueline; and Charrier, Jean, 4,393,043, Cl. 424-59.000.
- Zajac, John, to Eaton Corporation. Wafer support system. 4,392,915, Cl. 156-643.000.
- Zehender, Ernst: See—
Grunwald, Werner; Zehender, Ernst; Friese, Karl-Hermann; Schmatz, Jurgen; Neu, Hans; Kirner, Kuno; and Schumacher, Bernd, 4,393,282, Cl. 200-19.00R.
- Zeidler, Ulrich: See—
Fischer, Herbert; Budnowski, Manfred; and Zeidler, Ulrich, 4,393,060, Cl. 424-248.500.
- Zeiger, Terry L.: See—
Woodward, Kenneth E.; and Zeiger, Terry L., 4,392,464, Cl. 123-196.00R.
- Zeiler, Hans-Joachim: See—
Stadler, Peter; Metzger, Karl G.; Voss, Eckart; Petersen, Uwe; and Zeiler, Hans-Joachim, 4,393,051, Cl. 424-180.000.
- Zeitraeg, Rolf, to Siemens Aktiengesellschaft. Method for feeding call progress tones into conference connections. 4,393,496, Cl. 370-62.000.
- Zelensky, Michael J.: See—
Berlie, Elmer M.; Smart, John D.; and Zelensky, Michael J., 4,392,817, Cl. 431-202.000.
- Zellerman, Gabor: See—
Oreopoulos, Dimitrios G.; and Zellerman, Gabor, 4,392,855, Cl. 604-175.000.
- Zemp, Hans N., to Etablissement Texcontor. Anionic ion exchange resins with cholesterol-decreasing properties. 4,393,145, Cl. 521-38.000.
- Zengel, Hans-Georg; and Bergfeld, Manfred, to Akzo NV. Method for the production of blocked isocyanates. 4,393,238, Cl. 564-255.000.
- Zenith Radio Corporation: See—
Cox, Charles M.; and Thomas William L., 4,393,404, Cl. 358-147.000.
- De Vries, Adrian J., 4,393,358, Cl. 333-194.000.
- Lehnert, Stanley E., 4,393,329, Cl. 313-477.00R.
- Thomas, William L., 4,393,376, Cl. 340-717.000.
- Ziegler, George E., to United States of America, Army. Method of casting explosive charge with high solids content. 4,393,014, Cl. 264-3.00R.
- Zimmerman, Ted R.: See—
Wright, Forrest S.; and Zimmerman, Ted R., 4,392,745, Cl. 356-348.000.
- Zimmermann, Frank: See—
Hofbauer, Peter; Scholz, Romanus; Heidemeyer, Paulus; and Zimmermann, Frank, 4,392,394, Cl. 74-689.000.
- Zirker, Guenter: See—
Broecker, Franz J.; Hupfer, Leopold; Merger, Franz; Miesen, Ernest; Paetsch, Juergen; and Zirker, Guenter, 4,393,251, Cl. 568-811.000.
- Zorbalas, George S., to RCA Corporation. Rapid stepping of a moving recorded medium. 4,393,421, Cl. 360-73.000.
- 501 Ferranti Limited: See—
Pitches, Brian E.; Murray, Robert M. S.; and Rogers, Douglas J., 4,392,378, Cl. 73-304.00C.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name.
(in accordance with city and telephone directory practice).

- Ampex Corporation: See—
Miller, Jerry W., Re. 31,311, Cl. 360-40.000.
- Antonelli, Joseph A.; Kelly, Renee J.; and McLaughlin, Joseph E., to Du Pont de Nemours, E. I., and Company. High solids ambient temperature curing coatings of acrylic-fatty acid drying oil resins. Re. 31,309, Cl. 523-459.000.
- Armco Inc.: See—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,306, Cl. 148-12.00F.
- Dow Chemical Company, The: See—
Najvar, Daniel J., Re. 31,310, Cl. 525-531.000.
- Du Pont de Nemours, E. I., and Company: See—
Antonelli, Joseph A.; Kelly, Renee J.; and McLaughlin, Joseph E., Re. 31,309, Cl. 523-459.000.
- Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,306, Cl. 148-12.00F.
- Elias, June G., executrix: See—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,306, Cl. 148-12.00F.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Tsukiji, Yoshihiro, Re. 31,304, Cl. 29-27.00C.
- Kelly, Renee J.: See—
Antonelli, Joseph A.; Kelly, Renee J.; and McLaughlin, Joseph E., Re. 31,309, Cl. 523-459.000.
- MacKenzie, Kenneth A.; and Verhoeff, Abraham, to Shell Internationale Research Maatschap, IJ B.V. Method for preparing clay-based grease compositions. Re. 31,307, Cl. 252-28.000.
- McLaughlin, Joseph E.: See—
Antonelli, Joseph A.; Kelly, Renee J.; and McLaughlin, Joseph E., Re. 31,309, Cl. 523-459.000.
- Miller, Jerry W., to Ampex Corporation. DC Free encoding for data transmission system. Re. 31,311, Cl. 360-40.000.
- Moran, Harold J., to Switlik Parachute Company, Inc. Life preserver of the encapsulated type. Re. 31,305, Cl. 441-123.000.
- Najvar, Daniel J., to Dow Chemical Company, The. Impact resistant vinyl ester resin and process for making same. Re. 31,310, Cl. 525-531.000.
- Newby, John R.: See—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,306, Cl. 148-12.00F.
- Pierson, Marvin B.: See—
Elias, James A., deceased; Newby, John R.; and Pierson, Marvin B., Re. 31,306, Cl. 148-12.00F.
- Shell Internationale Research Maatschap, IJ B.V.: See—
MacKenzie, Kenneth A.; and Verhoeff, Abraham, Re. 31,307, Cl. 252-28.000.
- Switlik Parachute Company, Inc.: See—
Moran, Harold J., Re. 31,305, Cl. 441-123.000.
- Tsukiji, Yoshihiro, to Kabushiki Kaisha Komatsu Seisakusho. Machine for drilling holes in right-angular work surfaces. Re. 31,304, Cl. 29-27.00C.
- Verhoeff, Abraham: See—
MacKenzie, Kenneth A.; and Verhoeff, Abraham, Re. 31,307, Cl. 252-28.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

- Hanson, Alden W., Method of generating snow. B1 2,968,164, Cl. 62-74.
- Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., to Minnesota Mining and Manufacturing Company. Wire-splicing apparatus and method. B1 3,708,779, Cl. 339-99 R.
- Minnesota Mining and Manufacturing Company: See—
Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., B1 3,708,779, Cl. 339-99 R.
- Palenchar, Daniel P.; Lehker, Wayne H.; and Lock, David P., to Kardex Systems, Inc. Universal motor control. B1 3,866,100, Cl. 318-257.
- Kardex Systems, Inc.: See—
Palenchar, Daniel P.; Lehker, Wayne H.; and Lock, David P.

LIST OF DESIGN PATENTEES

- A.P.C. Industries, Inc.: See—
Marks, Barry M., 269,664, Cl. D10-104.000.
- Allibert S.A.: See—
Deconinck, Didier, 269,653, Cl. D6-56.000.
- Allison Corporation: See—
Seltzer, Samuel M.; and Dennison, Saul, 269,672, Cl. D13-10.000.
- Allison, Philip J., to T. S. Simms & Co. Limited. Paint roller frame. 269,650, 7-12-83, Cl. D4-38.100.
- American Safety Razor Company: See—
Chase, David O.; and Maloney, Martin, 269,724, Cl. D28-46.000.
- American Standard Inc.: See—
Niemann, James E., 269,696, Cl. D23-28.000.
- Amway Corporation: See—
Powers, Robert M., 269,660, Cl. D7-409.000.
- Baker Instruments Corp.: See—
Parker, Bernard, 269,703, Cl. D24-8.000.
- Barbour, Bruce E. Electric sheet music page turner. 269,683, 7-12-83, Cl. D17-99.000.
- Baxter Travenol Laboratories, Inc.: See—
Green, Brian C., 269,706, Cl. D24-63.000.
- Bendix Corporation, The: See—
Fulmer, Keith H.; and Kytta, Oswald O., 269,670, Cl. D13-1.000.
- Horsting, John J., 269,671, Cl. D13-1.000.
- Blowers, Dorothy L., to Pacific Furniture Manufacturing Co. Seat. 269,651, 7-12-83, Cl. D6-47.000.
- Bor, Marta. Infant wrapping blanket. 269,658, 7-12-83, Cl. D6-267.000.
- Bragin, David G.: See—
Swett, James B.; and Bragin, David G., 269,656, Cl. D6-130.000.

- Burgin, James R.: See—
Cooke, Brian G.; and Burgin, James R., 269,725, Cl. D34-06.000.
Cameron, Jerry L. Formal men's suit. 269,645, 7-12-83, Cl. D2-29.000.
Chambers, Charles: See—
Harris, Jeff; Horwitz, Jack; and Chambers, Charles, 269,690, Cl. D21-190.000.
Chase, David O.; and Maloney, Martin, to American Safety Razor Company. Twin blade razor. 269,724, 7-12-83, Cl. D28-46.000.
Cincinnati Milacron Inc.: See—
Morser, Alfred H.; and Watson, Robert C., 269,681, Cl. D15-199.000.
Claman, Mike T., to Lewittes Furniture Enterprises, Inc. Chair. 269,654, 7-12-83, Cl. D6-57.000.
Claman, Mike T. Chair. 269,655, 7-12-83, Cl. D6-57.000.
Clemar Manufacturing Corp.: See—
Graham, Cleve A.; Tisserat, Craig R.; and Mendoza, Enric C., 269,697, Cl. D23-38.000.
Coats & Clark, Inc.: See—
Einhorn, Ruediger, 269,661, Cl. D8-367.000.
Coca-Cola Company, The: See—
May, Timothy J.; and Wendt, David W., 269,699, Cl. D23-150.000.
Combi Co., Ltd.: See—
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 269,687, Cl. D21-59.000.
Cooke, Brian G.; and Burgin, James R., to Overseas Corporation. Litter bin. 269,725, 7-12-83, Cl. D34-06.000.
Cooper, Benjamin F.; and Major, Paul D., to Micromation, Inc. Computer. 269,678, 7-12-83, Cl. D14-102.000.
Crawford, Donald A. Stove. 269,698, 7-12-83, Cl. D23-97.000.
Dart Industries Inc.: See—
Swett, James B.; and Bragin, David G., 269,656, Cl. D6-130.000.
Deconinck, Didier, to Allibert S.A. Arm chair. 269,653, 7-12-83, Cl. D6-56.000.
Dennison, Saul: See—
Seltzer, Samuel M.; and Dennison, Saul, 269,672, Cl. D13-10.000.
De Pascalis, Donato. Cake. 269,644, 7-12-83, Cl. D1-15.000.
Dispositivos Reductores de Tabaco, S.A. (Sodire): See—
Torreblanca Cervantes, Rafael, 269,710, Cl. D27-51.000.
Dobias, John J. Mortar. 269,693, 7-12-83, Cl. D22-3.000.
Downey, David P.: See—
McKean, Eric J.; and Downey, David P., 269,652, Cl. D6-48.000.
Drackett Company, The: See—
Jones, David A.; Koshido, Yasuhiro; and Maust, Daniel A., 269,649, Cl. D4-03.000.
O'Neil, William J., Jr., 269,695, Cl. D23-150.000.
Einhorn, Ruediger, to Coats & Clark, Inc. Hook. 269,661, 7-12-83, Cl. D8-367.000.
Ekholm, Pertti: See—
Suovaniemi, Osmo; Ekholm, Pertti; Kaukanen, Esko; and Kukka, Aarre, 269,702, Cl. D24-8.000.
Espedalen, Kare. Tire chain for slip prevention of vehicle. 269,666, 7-12-83, Cl. D12-154.000.
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., to Siemens Corporation. Telephone busy lamp field console. 269,675, 7-12-83, Cl. D14-58.000.
Fulmer, Keith H.; and Kyttä, Oswald O., to Bendix Corporation, The. Backing plate for servomotor diaphragm. 269,670, 7-12-83, Cl. D13-1.000.
Graham, Cleve A.; Tisserat, Craig R.; and Mendoza, Enric C., to Clemar Manufacturing Corp. Sprinkler system control housing. 269,697, 7-12-83, Cl. D23-38.000.
Gravity Guidance, Inc.: See—
Miller, Jack V., 269,701, Cl. D24-03.000.
Green, Brian C., to Baxter Travenol Laboratories, Inc. Dispensing container for pharmaceutical diluents. 269,706, 7-12-83, Cl. D24-63.000.
Gushiken, Shigeki: See—
Kashima, Taisuke; Gushiken, Shigeki; Tsuburaya, Kazuyuki; and Seki, Yasusuke, 269,677, Cl. D14-80.000.
Hancock, John P.; and Smethers, Rollo G., Jr., to Lockheed Corporation. Airplane. 269,669, 7-12-83, Cl. D12-332.000.
Harris, Jeff; Horwitz, Jack; and Chambers, Charles. Toy mask resembling a chicken beak. 269,690, 7-12-83, Cl. D21-190.000.
Hirabayashi, Tsugio; and Nakai, Michio, to Sony Corporation. Tennis practice net. 269,692, 7-12-83, Cl. D21-200.000.
Hirota, Takeshi; and Inagi, Toshihiro, to Kanda Tsushin Kogyo Co., Ltd. Telephone. 269,674, 7-12-83, Cl. D14-53.000.
Hitachi, Ltd.: See—
Kashima, Taisuke; Gushiken, Shigeki; Tsuburaya, Kazuyuki; and Seki, Yasusuke, 269,677, Cl. D14-80.000.
Takahashi, Akira; Segawa, Noritaka; and Obata, Takeichi, 269,676, Cl. D14-80.000.
Hoel, Per O. Electronic game casing. 269,686, 7-12-83, Cl. D21-13.000.
Holloway, Richard D. Combined goblet and drinking tube. 269,659, 7-12-83, Cl. D7-11.000.
Horsting, John J., to Bendix Corporation, The. End frame for a servomotor. 269,671, 7-12-83, Cl. D13-1.000.
Horwitz, Jack: See—
Harris, Jeff; Horwitz, Jack; and Chambers, Charles, 269,690, Cl. D21-190.000.
Hunter Douglas International N.V.: See—
Thual, Jacques G. L., 269,707, Cl. D25-88.000.
Thual, Jacques G. L., 269,708, Cl. D25-88.000.
Thual, Jacques G. L., 269,709, Cl. D25-89.000.
Inagi, Toshihiro: See—
Hirota, Takeshi; and Inagi, Toshihiro, 269,674, Cl. D14-53.000.
Ishii, Yoshiyasu: See—
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 269,687, Cl. D21-59.000.
Jernberg, Louis: See—
Johansson, Hans O.; Nilsson, Hans G.; and Jernberg, Louis, 269,673, Cl. D13-24.000.
Jofs, Jarl-Erik, to Oy Wiik & Hoglund Ab. Sheet of plastic material. 269,727, 7-12-83, Cl. D92-1.100.
Johansson, Hans O.; Nilsson, Hans G.; and Jernberg, Louis, to Svea Data Communication & Computer Aktiebolag. Variable cable connector interface for data processing equipment. 269,673, 7-12-83, Cl. D13-24.000.
Johnson, Bill: See—
Skille, Arlen, 269,726, Cl. D34-24.000.
Jones, David A.; Koshido, Yasuhiro; and Maust, Daniel A., to Drackett Company, The. Broom head. 269,649, 7-12-83, Cl. D4-03.000.
Kanda Tsushin Kogyo Co., Ltd.: See—
Hirota, Takeshi; and Inagi, Toshihiro, 269,674, Cl. D14-53.000.
Kashima, Taisuke; Gushiken, Shigeki; Tsuburaya, Kazuyuki; and Seki, Yasusuke, to Hitachi, Ltd. Television receiver. 269,677, 7-12-83, Cl. D14-80.000.
Kaukanen, Esko: See—
Suovaniemi, Osmo; Ekholm, Pertti; Kaukanen, Esko; and Kukka, Aarre, 269,702, Cl. D24-8.000.
Klaiber, Gerhart F.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,675, Cl. D14-58.000.
Kommandittiyhtiö Finnpiipette Osmo A. Suovaniemi: See—
Suovaniemi, Osmo; Ekholm, Pertti; Kaukanen, Esko; and Kukka, Aarre, 269,702, Cl. D24-8.000.
Koshido, Yasuhiro: See—
Jones, David A.; Koshido, Yasuhiro; and Maust, Daniel A., 269,649, Cl. D4-03.000.
Kukka, Aarre: See—
Suovaniemi, Osmo; Ekholm, Pertti; Kaukanen, Esko; and Kukka, Aarre, 269,702, Cl. D24-8.000.
Kyttä, Oswald O.: See—
Fulmer, Keith H.; and Kyttä, Oswald O., 269,670, Cl. D13-1.000.
La Barbera, Angelo M., to SCM Corporation. Case for a typewriter. 269,647, 7-12-83, Cl. D3-72.000.
Lansdowne, Kenneth R. Desk name plate. 269,685, 7-12-83, Cl. D20-15.000.
Lehr, Harold. Mobile. 269,665, 7-12-83, Cl. D11-141.000.
Lewittes Furniture Enterprises, Inc.: See—
Claman, Mike T., 269,654, Cl. D6-57.000.
Lockheed Corporation: See—
Hancock, John P.; and Smethers, Rollo G., Jr., 269,669, Cl. D12-332.000.
Luntz, Richard. Writing instrument or similar article. 269,684, 7-12-83, Cl. D19-47.000.
Major, Paul D.: See—
Cooper, Benjamin F.; and Major, Paul D., 269,678, Cl. D14-102.000.
Maloney, Martin: See—
Chase, David O.; and Maloney, Martin, 269,724, Cl. D28-46.000.
Marks, Barry M., to A.P.C. Industries, Inc. Electronic marker for buried utilities. 269,664, 7-12-83, Cl. D10-104.000.
Matsuda, Hiroaki: See—
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 269,687, Cl. D21-59.000.
Maust, Daniel A.: See—
Jones, David A.; Koshido, Yasuhiro; and Maust, Daniel A., 269,649, Cl. D4-03.000.
May, Timothy J.; and Wendt, David W., to Coca-Cola Company, The. Air freshener container. 269,699, 7-12-83, Cl. D23-150.000.
McKean, Eric J.; and Downey, David P., to Qantas Airways Limited. Dual aircraft seat. 269,652, 7-12-83, Cl. D6-48.000.
Mendoza, Enric C.: See—
Graham, Cleve A.; Tisserat, Craig R.; and Mendoza, Enric C., 269,697, Cl. D23-38.000.
Micromation, Inc.: See—
Cooper, Benjamin F.; and Major, Paul D., 269,678, Cl. D14-102.000.
Miller, Jack V., to Gravity Guidance, Inc. Full body weight traction device. 269,701, 7-12-83, Cl. D24-03.000.
Molenaar, Lester V. Spinning toy. 269,688, 7-12-83, Cl. D21-95.000.
Morooka, Shinichi, to Sharp Corporation. Electronic computer. 269,679, 7-12-83, Cl. D14-106.000.
Morser, Alfred H.; and Watson, Robert C., to Cincinnati Milacron Inc. Robot arm. 269,681, 7-12-83, Cl. D15-199.000.
Muzumdar, Deepak R.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,675, Cl. D14-58.000.
Myojo, Seiji, to Shimano Kogyo Kabushiki Kaisha. Reel for fishing or the like. 269,694, 7-12-83, Cl. D22-25.000.
Nakai, Michio: See—
Hirabayashi, Tsugio; and Nakai, Michio, 269,692, Cl. D21-200.000.
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsuda, Hiroaki, to Combi Co., Ltd. Animated figure ring toy. 269,687, 7-12-83, Cl. D21-59.000.
Niemann, James E., to American Standard Inc. Cap for a faucet handle. 269,696, 7-12-83, Cl. D23-28.000.

- Nilsson, Hans G.: See—
Johansson, Hans O.; Nilsson, Hans G.; and Jernberg, Louis, 269,673, Cl. D13-24.000.
Obata, Takeichi: See—
Takahashi, Akira; Segawa, Noritaka; and Obata, Takeichi, 269,676, Cl. D14-80.000.
Ohanian, Charles. Bracket for coin change holder. 269,728, 7-12-83, Cl. D99-34.000.
Ohkado, Tetsuo, to Tomy Kogyo Co., Inc. Toy vehicle. 269,689, 7-12-83, Cl. D21-128.000.
O'Neil, William J., Jr., to Drackett Company, The. Room deodorizer dispenser. 269,695, 7-12-83, Cl. D23-150.000.
Ornstein, Richard; and Vassilatos, Jerry. Portable exercise stand. 269,691, 7-12-83, Cl. D21-191.000.
Ottaway, James N. Yeast thermometer. 269,662, 7-12-83, Cl. D10-57.000.
Ottopran S.r.l.: See—
Prandelli, Achille, 269,680, Cl. D7-311.000.
Overseas Corporation: See—
Cooke, Brian G.; and Burgin, James R., 269,725, Cl. D34-06.000.
Oy Wiik & Hoglund Ab: See—
Jofs, Jarl-Erik, 269,727, Cl. D92-1.100.
Pacific Furniture Manufacturing Co.: See—
Blowers, Dorothy L., 269,651, Cl. D6-47.000.
Parker, Bernard, to Baker Instruments Corp. Pipettor. 269,703, 7-12-83, Cl. D24-8.000.
Parks, Edward D.: See—
Smith, Gary E.; and Parks, Edward D., 269,663, Cl. D10-69.000.
Peirce, Elwin E.; and Waltz, Arthur L. Ventilator. 269,700, 7-12-83, Cl. D23-151.000.
Powers, Robert M., to Amway Corporation. Roasting rack. 269,660, 7-12-83, Cl. D7-409.000.
Prandelli, Achille, to Ottopran S.r.l. Beverage dispenser or similar article. 269,680, 7-12-83, Cl. D7-311.000.
Prentice, Edward J.: See—
Taylor, Don R.; and Prentice, Edward J., 269,667, Cl. D12-157.000.
Qantas Airways Limited: See—
McKean, Eric J.; and Downey, David P., 269,652, Cl. D6-48.000.
Rogstad, Gary: See—
Skille, Arlen, 269,726, Cl. D34-24.000.
Rubbermaid Incorporated: See—
Taylor, William D., 269,657, Cl. D6-199.000.
Schaer, Beatrice K. Linen bag. 269,646, 7-12-83, Cl. D3-71.000.
Schneider, Rolf E.: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,675, Cl. D14-58.000.
Schweitzer, Henry H. Boardsailing board. 269,668, 7-12-83, Cl. D12-303.000.
SCM Corporation: See—
La Barbera, Angelo M., 269,647, Cl. D3-72.000.
Segawa, Noritaka: See—
Takahashi, Akira; Segawa, Noritaka; and Obata, Takeichi, 269,676, Cl. D14-80.000.
Seki, Yasusuke: See—
Kashima, Taisuke; Gushiken, Shigeki; Tsuburaya, Kazuyuki; and Seki, Yasusuke, 269,677, Cl. D14-80.000.
Seltzer, Samuel M.; and Dennison, Saul, to Allison Corporation. Tray for a battery. 269,672, 7-12-83, Cl. D13-10.000.
Sharp Corporation: See—
Morooka, Shinichi, 269,679, Cl. D14-106.000.
Shimano Kogyo Kabushiki Kaisha: See—
Myojo, Seiji, 269,694, Cl. D22-25.000.
Siemens Corporation: See—
Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., 269,675, Cl. D14-58.000.
Skille, Arlen, to Johnson, Bill; and Rogstad, Gary. Fireplace wood carrier. 269,726, 7-12-83, Cl. D34-24.000.
Smethers, Rollo G., Jr.: See—
Hancock, John P.; and Smethers, Rollo G., Jr., 269,669, Cl. D12-332.000.
Smith, Gary E.; and Parks, Edward D. Pole level. 269,663, 7-12-83, Cl. D10-69.000.
Smith Kline & French Laboratories Limited: See—
Tovey, Geoffrey D., 269,711, Cl. D28-2.000.
Tovey, Geoffrey D., 269,712, Cl. D28-2.000.
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ISSUED JULY 12, 1983

105	CLASS 2	4,392,257	117	4,392,313	249	4,392,360	35 R	4,392,414	564	4,392,472	153	4,392,900	
209.1		4,392,258	CLASS 37	4,392,314	343	4,392,361	CLASS 91	4,392,415	635	4,392,473	155	4,392,901	
227		4,392,259	103	4,392,314	514 R	4,392,362	461	4,392,415	644	4,392,474	161	4,392,902	
324	CLASS 4	4,392,260	CLASS 40		6	4,392,878	CLASS 92		CLASS 124	35 A	4,392,475	167	4,392,903
			27	4,392,315		4,392,879	71	4,392,416				194	4,392,904
101	CLASS 5	4,392,261	617	4,392,316	170	4,392,880	CLASS 98		CLASS 125	30 R	4,392,476	235	4,392,905
			618	4,392,317	CLASS 66		1.5	4,392,417				250	4,392,906
9	CLASS 6	4,392,262	CLASS 42		60 H	4,392,364	CLASS 99		CLASS 126			306.9	4,392,907
			1 LP	4,392,318	193	4,392,363	330	4,392,418				361	4,392,910
100	CLASS 7	4,392,263	69 B	4,392,319	CLASS 68		339	4,392,419				468	4,392,911
138		4,392,264	69 R	4,392,320	19	4,392,365	406	4,392,420				504	4,392,912
			87	4,392,321	205 R	4,392,366	524	4,392,421				584	4,392,913
120	CLASS 8	4,392,265	CLASS 43		CLASS 71		118	4,392,422				643	4,392,915
400		4,392,266	118	4,392,322	9	4,392,881	CLASS 100		CLASS 128			157.1	4,392,916
506		4,392,267	CLASS 44		92	4,392,882	CLASS 101					168.1	4,392,917
			51	4,392,865	93	4,392,883	93.48	4,392,423				453	4,392,923
146 S	CLASS 12	4,392,266	53	4,392,866	100	4,392,884	111	4,392,424					4,392,924
			56	4,392,867	CLASS 72		327	4,392,425					4,392,925
88	CLASS 15	4,392,267	1 F	4,392,324	12	4,392,367	363	4,392,426					4,392,926
91		4,392,268	1 R	4,392,323	63	4,392,368	365	4,392,427					4,392,927
145		4,392,269	179	4,392,325	96	4,392,369	381	4,392,428					4,392,928
322		4,392,270	CLASS 47		201	4,392,370	426	4,392,429					4,392,929
339		4,392,271	28 R	4,392,326	231	4,392,371	CLASS 102						4,392,930
			59	4,392,327	311	4,392,372	CLASS 104						4,392,931
			62	4,392,328	321	4,392,373	334	4,392,432					4,392,932
95 R	CLASS 16	4,392,272	CLASS 48		19	4,392,374	9	4,392,433					4,392,933
			197 R	4,392,869	118	4,392,375	70	4,392,434					4,392,934
12	CLASS 17	4,392,273	CLASS 49		155	4,392,376	284	4,392,435					4,392,935
21		4,392,274	356	4,392,329	304 C	4,392,377	CLASS 106						4,392,936
			381	4,392,330	626	4,392,378	100	4,392,890					4,392,937
81	CLASS 19	4,392,275	CLASS 51		644	4,392,380	CLASS 108						4,392,938
97		4,392,276	55	4,392,331	663	4,392,381	81	4,392,436					4,392,939
			92 BS	4,392,332	708	4,392,382	112	4,392,437					4,392,940
196	CLASS 24	4,392,27											

67	4,392,556	348	4,392,581	CLASS 251	400	4,392,653	443	4,393,341	CLASS 351
71.9	4,392,557				423	4,392,654	467	4,393,342	4,392,725
72.7	4,392,558	CLASS 219	58	4,392,631	CLASS 277		640	4,393,343	
73.32	4,392,559	69 M	4,393,292	65	4,392,632		759	4,393,344	
73.34	4,392,560	90	4,393,293	122	4,392,633				
73.36	4,392,561	121 EC	4,393,294	129	4,392,634				
		121 EJ	4,393,295			CLASS 322	25	4,392,726	
CLASS 193		121 PC	4,393,296	8.5 C	4,392,964	19	43	4,392,727	
10	4,392,563	137 R	4,393,297	8.8	4,392,965		49	4,392,728	
CLASS 194		137.62	4,393,298	28	Re.31,307	CLASS 323	152	4,392,729	
1 N	4,392,564	446	4,393,299	32.7 E	4,392,966		173	4,392,730	
CLASS 198		497	4,393,300	41	4,392,967	CLASS 324	180	4,392,731	
378	4,392,565			51.5 R	4,392,968		187	4,392,732	
509	4,392,566	75	4,392,582	52 R	4,392,969	CLASS 325	266	4,392,733	
544	4,392,567	202	4,392,583	62.9	4,392,970				
781	4,392,568	374	4,392,584	70	4,392,971	CLASS 328			
				75	4,392,972				
CLASS 200		CLASS 221		78.1	4,392,973	CLASS 329			
4	4,393,280	1	4,392,585	99	4,392,974				
16 D	4,393,281	210	4,392,586		4,392,975	CLASS 330			
19 R	4,393,282			174.11	4,392,976				
51.09	4,393,283	CLASS 222		174.19	4,392,977	CLASS 331			
60	4,393,284	63	4,392,587	182	4,392,978				
61.88	4,393,285	129.4	4,392,588	184	4,392,979	CLASS 332			
144 B	4,393,286	137	4,392,589	373	4,392,980				
144 R	4,393,287	174	4,392,590	408.1	4,392,981	CLASS 333			
	4,393,288	227	4,392,591	429 B	4,392,982				
147 R	4,393,289	288	4,392,592	432	4,392,983	CLASS 334			
148 A	4,393,290	305	4,392,593	435	4,392,984				
148 R	4,393,291	530	4,392,594	448	4,392,985	CLASS 335			
CLASS 202		619	4,392,595	455 R	4,392,986				
228	4,392,919	CLASS 223		455 Z	4,392,987	CLASS 336			
CLASS 204		43	4,392,596	458	4,392,988				
37 R	4,392,920	CLASS 224		466 J	4,392,989	CLASS 337			
47	4,392,921	42.13	4,392,597	512	4,392,990				
51	4,392,922	155	4,392,598	522 R	4,392,991	CLASS 338			
59 R	4,392,923	CLASS 227		602	4,392,992				
64 T	4,392,924	40	4,392,599	627	4,392,993	CLASS 339			
67	4,392,925	50	4,392,600	CLASS 254	4,392,994				
98	4,392,926	CLASS 228		344	4,392,995	CLASS 340			
130	4,392,927	4.1	4,392,601	CLASS 260					
158 HA	4,392,928	118	4,392,602	112 R	4,392,996	CLASS 297			
159.14	4,392,929	196	4,392,603	112.5 R	4,392,997				
192 E	4,392,930	212	4,392,604	146 R	4,392,998	CLASS 298			
192 R	4,392,931	CLASS 229		157	4,392,999				
198	4,392,932	19	4,392,605	239 E	4,393,000	CLASS 299			
206	4,392,933	23 R	4,392,606	239.1	4,393,001				
213	4,392,934	39 R	4,392,607	239.3 R	4,393,002	CLASS 300			
269	4,392,935	CLASS 235		245.2 R	4,393,003				
298	4,392,936	474	4,393,302	245.5	4,393,004	CLASS 301			
403	4,392,937	CLASS 236		245.73	4,393,005				
CLASS 206		48 R	4,392,608	349	4,393,006	CLASS 302			
5.1	4,392,569	CLASS 237		378	4,393,007				
231	4,392,570	5 S	4,392,610	465 D	4,393,008	CLASS 303			
557	4,392,571	12.3 C	4,392,609	544 K	4,393,009				
CLASS 208		CLASS 239		940	4,393,010	CLASS 304			
8 LE	4,392,940	74	4,392,611	970	4,393,011				
11 LE	4,392,941	88	4,392,612	CLASS 261		CLASS 307			
11 R	4,392,942	115	4,392,613	39 A	4,393,012				
152	4,392,943	215	4,392,614	64 B	4,393,013	CLASS 308			
188	4,392,944	265.37	4,392,615	CLASS 264					
210	4,392,945	271	4,392,616	3 R	4,393,014	CLASS 309			
217	4,392,946	290	4,392,617	51	4,393,015				
229	4,392,947	461	4,392,618	53	4,393,016	CLASS 310			
254 R	4,392,948	CLASS 242		82	4,393,017				
CLASS 209		107.2	4,392,619	83	4,393,018	CLASS 311			
5	4,392,949	107.4 A	4,392,620	108	4,393,019				
211	4,392,950	CLASS 244		143	4,393,020	CLASS 312			
307	4,392,951	12.5	4,392,621	148	4,393,021				
CLASS 210		102 A	4,392,622	150	4,393,022	CLASS 313			
159	4,392,952	102 R	4,392,623	152	4,393,023				
169	4,392,953	158 A	4,392,624	162	4,393,024	CLASS 314			
195.3	4,392,954	CLASS 246		CLASS 266					
195.4	4,392,955	64.24	4,392,625	218	4,392,636	CLASS 315			
224	4,392,956	140.1	4,392,626	265	4,392,637				
241	4,392,957	141.2	4,392,627	CLASS 267		CLASS 316			
493.2	4,392,958	34 CT	4,392,628	110	4,392,638				
638	4,392,959	34 R	4,392,629	133	4,392,639	CLASS 317			
651	4,392,960	CLASS 248		136	4,392,640				
679	4,392,961	176	4,392,627	140.1	4,392,641	CLASS 318			
688	4,392,962	202.1	4,392,628	141.2	4,392,642				
692	4,392,963	205 R	4,392,629	142	4,392,643	CLASS 319			
CLASS 211		309 R	4,392,630	157	4,392,644				
19	4,392,572	CLASS 250		328	4,392,645	CLASS 320			
CLASS 212		201	4,393,303	CLASS 270					
225	4,392,574	343	4,393,304	30	4,392,646	CLASS 321			
230	4,392,573	358.1	4,393,305	CLASS 272					
CLASS 213		374	4,393,306	3	4,392,647	CLASS 322			
76	4,392,575	390	4,393,307	24	4,392,648				
CLASS 215		396 R	4,393,308	67	4,392,649	CLASS 323			
1 C	4,392,576			CLASS 273					
32	4,392,577	398	4,393,310	29 A	4,392,650	CLASS 324			
231	4,392,578	459.1	4,393,311	153 R	4,392,651				
253	4,392,579	492.2	4,393,312	358	4,392,652	CLASS 325			
332	4,392,580	560	4,393,313						

510	4,393,450	135	4,392,752	95	4,393,044	458	4,393,121	CLASS 494	CLASS 546
514	4,393,451	136	4,392,753	117	4,393,045	594	4,393,122		
	4,393,452	CLASS 400		118	4,393,046	CLASS 429		1	4,392,845
518	4,393,453	119	4,392,754	132	4,393,047	24	4,393,123	40	4,392,846
519	4,393,454	144.2	4,392,755	145	4,393,048	104	4,393,124	89	4,393,143
524	4,393,455	328	4,392,756	177	4,393,049	105	4,393,125		
726	4,393,456	697.1	4,392,757	180	4,393,050	CLASS 430			
736	4,393,457		4,392,758		4,393,051	2	4,393,126	715	4,393,144
900	4,393,458	CLASS 403			4,393,052	5	4,393,127		
	4,393,459	11	4,392,759		4,393,053	273	4,393,128	38	4,393,145
	4,393,460	CLASS 406			4,393,054	296	4,393,129	56	4,393,146
	4,393,461	88	4,392,760		4,393,055	313	4,393,130	60	4,393,147
	4,393,462	CLASS 408			4,393,056	562	4,393,131	93	4,393,148
	4,393,463	59	4,392,761		4,393,057	CLASS 431		129	4,393,149
	4,393,464	CLASS 410			4,393,058	11	4,392,809	CLASS 523	
	4,393,465	116	4,392,762		4,393,059	37	4,392,810	111	4,393,150
	4,393,466	CLASS 411			4,393,060	73	4,392,811	130	4,393,151
	4,393,467	342	4,392,763		4,393,061	76	4,392,812	139	4,393,152
	4,393,468	CLASS 413			4,393,062	170	4,392,813	201	4,393,153
	4,393,469	69	4,392,764		4,393,063	175	4,392,814	459	Re.31,309
		CLASS 414			4,393,064	202	4,392,815	CLASS 524	
		30	4,392,765		4,393,065	215	4,392,816	12	4,393,154
		113	4,392,766		4,393,066	231	4,392,817	60	4,393,155
		136	4,392,767		4,393,067	284	4,392,818	114	4,393,156
		178	4,392,768		4,393,068	284	4,392,819	243	4,393,157
		397	4,392,769		4,393,069	96	4,392,820	360	4,393,158
		432	4,392,770		4,393,070	106	4,392,821	506	4,393,159
		545	4,392,771		4,393,071	114	4,392,822	606	4,393,160
		667	4,392,772		4,393,072	180	4,392,823	608	4,393,161
		726	4,392,773		4,393,073	CLASS 432			
		729	4,392,774		4,393,074	258	4,392,824	CLASS 433	
		744 R	4,392,775		4,393,075	5	4,392,825	10	4,393,165
		CLASS 415			4,393,076	7	4,392,826	27	4,393,166
		131	4,392,777		4,393,077	32	4,392,827	64	4,393,167
		139	4,392,778		4,393,078	107	4,392,828	66	4,393,168
		141	4,392,779		4,393,079	126 S	4,392,829	67	4,393,169
		CLASS 416			4,393,080	174.8 E	4,392,830	83	4,393,170
		17	4,392,780		4,393,081	206	4,392,831	89	4,393,171</

CLASSIFICATION OF DESIGNS

D1—	15	269,644	D7—	11	269,659		10	269,672		59	269,687	D24—	8	269,702		269,715
D2—	29	269,645		311	269,680		24	269,673		95	269,688		03	269,703		269,716
D3—	71	269,646		409	269,660	D14—	53	269,674		128	269,689		33	269,704		269,717
	72	269,647	D8—	367	269,661		58	269,675		190	269,690			269,705		269,718
D4—	03	269,648	D10—	57	269,662		80	269,676		191	269,691		63	269,706		269,719
	38.1	269,649		69	269,663			269,677		200	269,692		88	269,707		269,720
D6—	47	269,650		104	269,664		102	269,678	D22—	3	269,693			269,708		269,721
	48	269,651	D11—	141	269,665		106	269,679		25	269,694		89	269,709		269,722
	56	269,652	D12—	154	269,666	D15—	199	269,681	D23—	28	269,696		51	269,710		269,723
	57	269,653		157	269,667	D16—	131	269,682		38	269,697	D27—	2	269,711	D34—	46
		269,654		303	269,668	D17—	99	269,683		97	269,698	D28—		269,712		269,724
	130	269,655		332	269,669	D19—	47	269,684		150	269,695			269,713		269,725
	199	269,656	D13—	1	269,670	D20—	15	269,685			269,699			269,714	D92—	24
	267	269,657			269,671	D21—	13	269,686		151	269,700					269,726
		269,658													D99—	34
																269,727
																269,728

CLASSIFICATION OF PLANTS

P.—	11	5,067	69	5,068					
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GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

04 :	4,392,464	4,392,603	4,393,411	4,392,445	4,393,256	4,392,631
	4,392,490	4,392,616	4,393,425	4,392,454	4,393,259	4,392,770
	4,392,569	4,392,624	4,393,435	4,392,519	4,393,264	4,392,774
	4,392,992	4,392,668	4,393,457	4,392,594	4,393,275	4,392,945
	4,393,092	4,392,689	4,393,458	4,392,615	4,393,298	4,393,030
	4,393,346	4,392,697	4,393,465	4,392,803	4,393,313	4,393,031
	4,393,354	4,392,704	4,393,466	4,392,965	4,393,329	4,393,045
	4,393,355	4,392,760	4,393,468	4,393,131	4,393,334	4,392,413
	4,393,368	4,392,791	4,393,473	4,393,150	4,393,357	4,392,792
	4,393,410	4,392,843	4,393,476	4,393,303	4,393,358	4,392,311
	4,393,445	4,392,844	4,393,481	4,393,394	4,393,359	4,392,410
	4,393,446	4,392,852	4,393,485	4,393,495	4,393,361	4,392,412
	4,393,459	4,392,857	4,393,486	4,392,273	4,393,376	4,392,610
06 :	Re.311,311	4,392,872	4,393,488	4,392,679	4,393,404	4,392,827
	4,392,258	4,392,884	4,393,491	4,392,847	4,393,518	4,392,830
	4,392,279	4,392,895	4,393,499	4,392,785	4,392,264	4,392,987
	4,392,283	4,392,915	4,393,505	4,392,263	4,392,355	4,393,025
	4,392,290	4,392,932	4,393,506	4,392,271	4,392,357	4,393,039
	4,392,307	4,392,935	4,393,512	4,392,301	4,392,393	4,393,090
	4,392,324	4,392,938	4,392,261	4,392,346	4,392,406	4,392,266
	4,392,325	4,392,942	4,392,666	4,392,380	4,392,507	4,392,297
	4,392,328	4,392,982	4,392,739	4,392,382	4,392,518	4,392,312
	4,392,335	4,392,985	4,392,846	4,392,395	4,392,665	4,392,326
	4,392,336	4,392,988	4,393,028	4,392,415	4,392,820	4,392,425
	4,392,362	4,392,995	4,393,497	4,392,430	4,392,864	4,392,455
	4,392,374	4,393,010	4,392,281	4,392,450	4,392,900	4,392,608
	4,392,376	4,393,013	4,392,284	4,392,456	4,393,041	4,392,635
	4,392,381	4,393,037	4,392,303	4,392,462	4,393,082	4,392,678
	4,392,398	4,393,040	4,392,308	4,392,508	4,393,142	4,392,702
	4,392,407	4,393,050	4,392,320	4,392,538	4,393,149	4,392,709
	4,392,409	4,393,064	4,392,492	4,392,541	4,393,152	4,392,732
	4,392,418	4,393,068	4,392,764	4,392,572	4,393,153	4,392,734
	4,392,420	4,393,101	4,392,783	4,392,609	4,393,156	4,392,780
	4,392,436	4,393,159	4,392,837	4,392,611	4,393,158	4,392,853
	4,392,438	4,393,174	4,392,842	4,392,657	4,393,190	4,392,905
	4,392,453	4,393,175	4,392,880	4,392,682	4,393,202	4,392,958
	4,392,475	4,393,176	4,392,894	4,392,708	4,393,300	4,392,959
	4,392,482	4,393,198	4,392,918	4,392,754	4,393,487	4,393,104
	4,392,484	4,393,199	4,393,001	4,392,755	4,393,489	4,393,105
	4,392,487	4,393,267	4,393,023	4,392,826	4,392,330	4,393,168
	4,392,489	4,393,278	4,393,084	4,392,829	4,392,546	4,393,196
	4,392,494	4,393,301	4,393,123	4,392,850	4,392,607	4,393,277
	4,392,495	4,393,306	4,393,322	4,392,851	4,393,011	4,393,289
	4,392,527	4,393,320	4,393,352	4,392,861	4,392,391	4,393,441
	4,392,533	4,393,332	4,393,386	4,392,904	4,392,358	4,393,448
	4,392,548	4,393,347	4,393,503	4,392,911	4,392,501	4,393,461
	4,392,552	4,393,350	4,392,555	4,392,969	4,392,670	4,392,280
	4,392,563	4,393,351	4,392,870	4,392,994	4,392,757	4,392,322
	4,392,578	4,393,369	4,392,725	4,392,997	4,392,758	4,392,332
	4,392,592	4,393,377	4,392,874	4,393,085	4,392,766	4,392,347
	4,392,598	4,393,384	4,392,272	4,393,117	4,393,155	4,392,350
	4,392,600	4,393,391	4,392,348	4,393,162	4,392,268	4,392,497
	4,392,602	4,393,392	4,392,419	4,393,222	4,392,349	4,392,544

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

4,392,583	34 : Re.31,305	4,392,476	4,392,566	4,392,645	4,392,377
4,392,597	Re.31,309	4,392,483	4,392,579	4,392,647	4,392,530
4,392,612	4,392,298	4,392,499	4,392,580	4,392,675	4,392,531
4,392,643	4,392,299	4,392,521	4,392,585	4,392,676	4,392,532
4,392,644	4,392,437	4,392,525	4,392,613	4,392,680	4,392,591
4,392,650	4,392,478	4,392,553	4,392,614	4,392,698	4,392,628
4,392,654	4,392,486	4,392,556	4,392,669	4,392,700	4,392,633
4,392,667	4,392,570	4,392,576	4,392,694	4,392,701	4,392,641
4,392,690	4,392,588	4,392,617	4,392,705	4,392,705	4,392,651
4,392,745	4,392,807	4,392,642	4,392,776	4,392,776	4,392,775
4,392,753	4,392,856	4,392,646	4,392,833	4,392,834	4,392,961
4,392,762	4,392,860	4,392,703	4,392,840	4,392,835	4,392,964
4,392,798	4,392,917	4,392,721	4,392,848	4,392,863	4,392,979
4,392,901	4,392,947	4,392,731	4,392,849	4,392,865	4,392,980
4,392,922	4,392,955	4,392,778	4,392,862	4,392,868	4,393,032
4,393,054	4,392,978	4,392,787	4,392,879	4,392,888	4,393,042
4,393,065	4,392,986	4,392,796	4,392,891	4,392,940	4,393,048
4,393,081	4,392,989	4,392,866	4,392,920	4,392,941	4,393,066
4,393,094	4,393,003	4,392,867	4,392,950	4,392,991	4,393,147
4,393,098	4,393,004	4,392,869	4,393,017	4,393,006	4,393,181
4,393,125	4,393,014	4,392,897	4,393,020	4,393,018	4,393,237
4,393,137	4,393,046	4,392,921	4,393,034	4,393,027	4,393,254
4,393,271	4,393,080	4,392,928	4,393,100	4,393,038	4,393,261
4,393,323	4,393,102	4,392,946	4,393,107	4,393,074	4,393,263
4,393,341	4,393,111	4,392,956	4,393,109	4,393,077	4,393,463
4,393,424	4,393,121	4,392,966	4,393,192	4,393,093	4,393,474
4,393,507	4,393,160	4,392,972	4,393,203	4,393,095	4,393,492
4,392,417	4,393,187	4,392,976	4,393,223	4,393,103	4,393,130
4,392,433	4,393,191	4,392,981	4,393,226	4,393,118	4,392,759
4,392,461	4,392,215	4,392,996	4,393,260	4,393,119	4,393,455
4,392,480	4,393,233	4,393,002	4,393,316	4,393,133	4,392,285
4,392,496	4,393,241	4,393,055	4,393,319	4,393,173	4,392,287
4,392,500	4,393,242	4,393,096	4,393,401	4,393,186	4,392,547
4,392,562	4,393,247	4,393,148	4,393,439	4,393,189	4,392,749
4,392,743	4,393,252	4,393,204	4,393,464	4,393,201	4,392,769
4,392,782	4,393,253	4,393,208	4,392,334	4,393,212	4,393,509
4,392,953	4,393,255	4,393,217	4,392,479	4,393,227	4,392,359
4,393,423	4,393,262	4,393,229	4,392,513	4,393,248	4,392,451
4,392,294	4,393,276	4,393,240	4,392,528	4,393,265	4,392,604
4,392,318	4,393,311	4,393,266	4,392,649	4,393,315	4,392,622
4,392,505	4,393,312	4,393,269	4,392,763	4,393,338	4,392,623
4,392,568	4,393,330	4,393,362	4,392,877	4,393,483	4,392,655
4,392,575	4,393,348	4,393,381	4,392,990	4,393,288	4,392,832
4,392,636	4,393,379	4,393,454	4,393,170	4,392,443	4,393,382
4,392,653	4,393,389	4,393,501	4,393,197	4,392,366	4,393,498
4,392,825	4,393,395	4,393,516	4,392,477	4,392,586	4,393,510
4,392,858	4,393,397	4,392,390	4,392,707	4,392,873	4,392,621
4,393,026	4,393,414	4,392,516	4,392,772	4,393,114	4,392,314
4,393,087	4,393,415	4,392,660	4,392,773	4,392,315	4,392,543
4,393,393	4,393,421	4,393,493	4,393,230	4,392,440	4,392,599
4,392,695	4,393,438	Re.31,306	4,393,366	4,392,448	4,392,629
4,393,154	4,393,444	4,392,310	4,393,443	4,392,596	4,392,779
4,392,260	4,393,456	4,392,321	4,392,300	4,392,606	4,392,795
4,392,648	4,393,504	4,392,356	4,392,344	4,392,808	4,392,801
4,392,360	4,393,517	4,392,403	4,392,345	4,393,124	4,393,019
4,392,449	35 : 4,392,458	4,392,457	4,392,388	4,393,430	4,393,327
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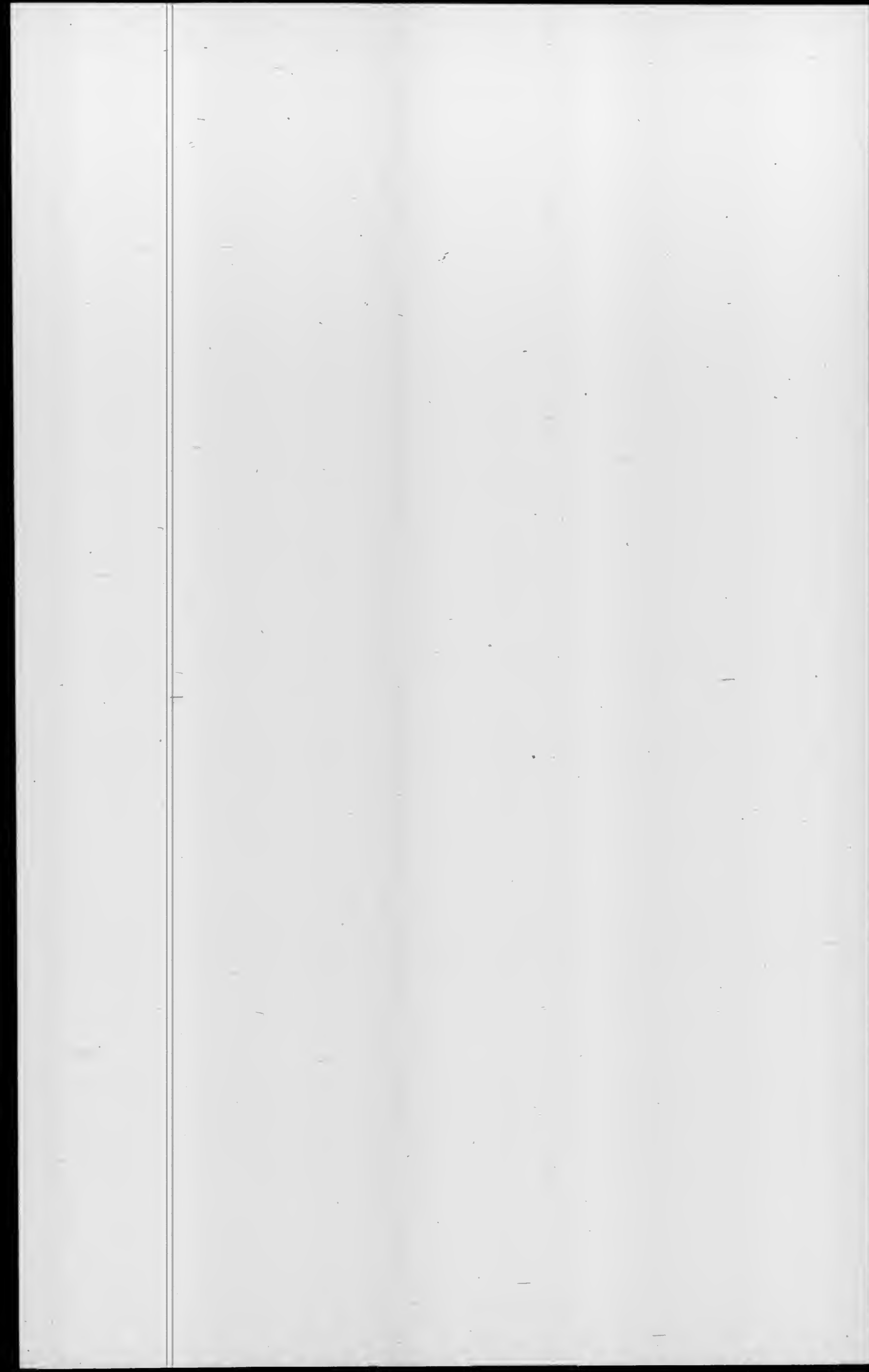
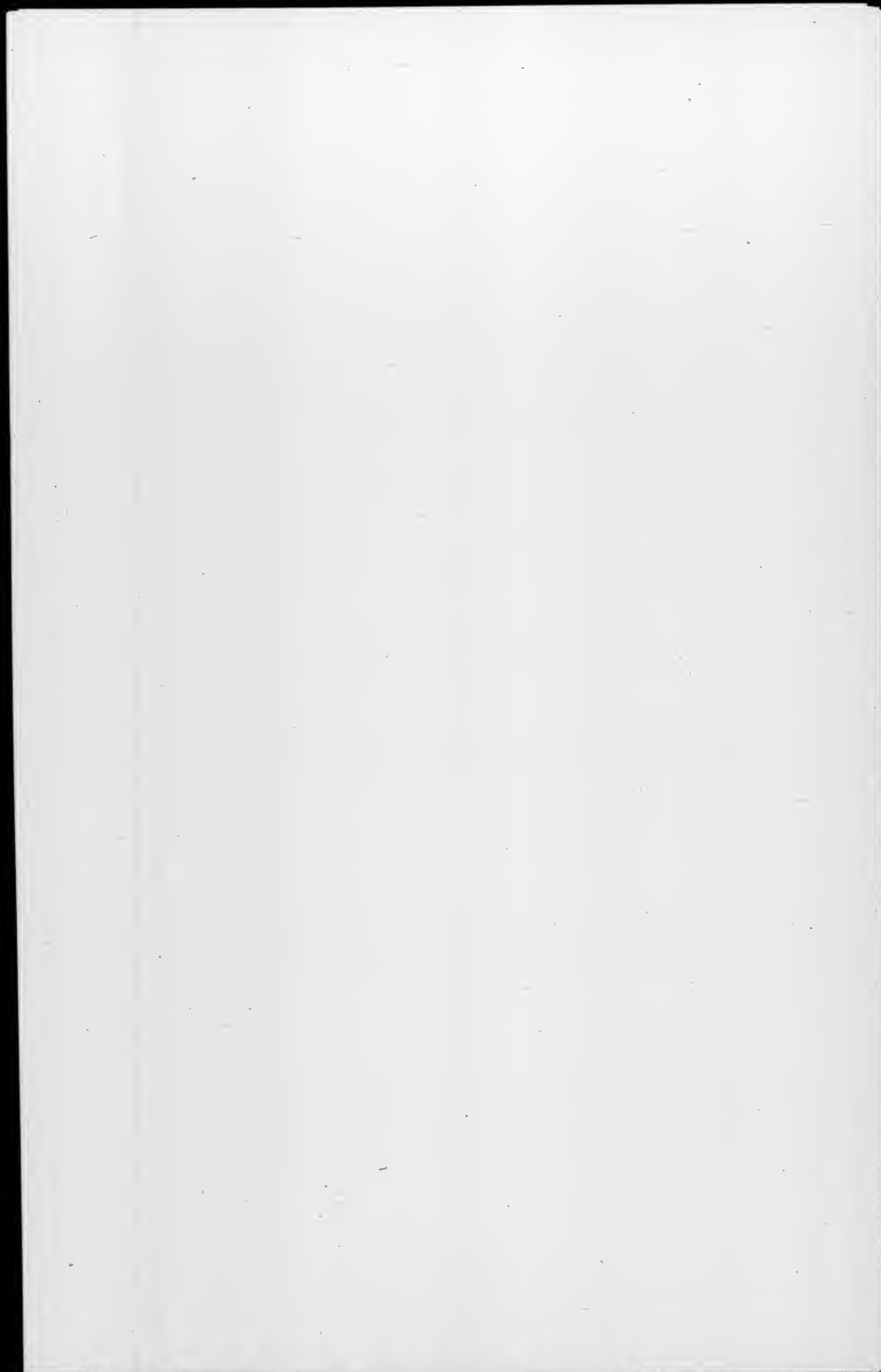
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

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Dec. 3, 1982. **GERALD J. MOSSINGHOFF,**
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REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,152,598, Re. S.N. 498,509, Filed May 26, 1983, Cl. 250/391, LUBRICANT DISTRIBUTION DETERMINATION BY NEUTRON RADIOGRAPHY, Peter A. E. Stewart, Owner of Record: *Rolls-Royce Ltd., London, England*, Attorney or Agent: Roger W. Parkhurst, Ex. Gp.: 256

4,269,543, Re. S.N. 498,574, Filed May 26, 1983, Cl. 405/198, MOBILE, OFFSHORE, SELF-ELEVATING (JACK-UP) UNIT LEG/HULL RIGIDIFICATION SYSTEM, Jerome L. Goldman, et al., Owner of Record: *Friede and Goldman, Ltd., New Orleans, La.*, Attorney or Agent: C. Emmett Pugh, et al., Ex. Gp.: 356

4,303,748, Re. S.N. 476,344, Filed Mar. 17, 1983, Cl. 429/192, ELECTROCHEMICAL GENERATORS FOR PRODUCING CURRENT AND NEW MATERIALS FOR THEIR MANUFACTURE, Michel B. Armand, et al., Owner of Record: *Agence Nationale de Valorisation de la Recherche (Anvar), Neuilly-sur-Seine, France*, Attorney or Agent: Gerard J. Weiser, et al., Ex. Gp.: 111

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

Re. 30,926, Reexam. No. 90/000,389, Requested: June 2, 1983, Cl. 73/638, ULTRASONIC INSPECTION, Benjamin J. Ross, et al., Owner of Record: *Republic Steel Corp., Cleveland, Ohio*, Attorney or Agent: Watts, Hoffman, et al., Ex. Gp.: 244, Requester: Owner

3,742,723, Reexam. No. 90/000,398, Requested: June 8, 1983, Cl. 137/315, PIPE FREEZING DEVICE, Frederick G. J. Grise, Owner of Record: *Inventor*, Attorney or Agent: Charles R. Fay, Ex. Gp.: 341, Requester: Sandler & Greenblum, Arlington, Va.

4,301,259, Reexam. No. 90/000,404, Requested: June 13, 1983, Cl. 525/333.1, LINEAR ORGANO CARBONATE COUPLING FOR LIVING POLYMERS OF CONJUGATED DIENES, Joginder Lal, et al., Owner of Record: *Goodyear Tire & Rubber Co., Akron, Ohio*, Attorney or Agent: J. Y. Clowney, Ex. Gp.: 144, Requester: Michelin & Cie, Ferrand Cedex, France

4,332,536, Reexam. No. 90/000,391, Requested: June 3, 1983, Cl. 425/033, HYDRAULIC TIRE PRESS, Anand P. Singh, et al., Owner of Record: *NRM Corp., Akron, Ohio*, Attorney or Agent: Maky, Renner, et al., Ex. Gp.: 147, Requester: c/o Joseph Spivak, Washington, D.C.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

3,122,474, Hoffman-La Roche, Inc., CHLORDI-AZEPOXIDE AND CLIDINIUM HALIDE COMPOSITION AND METHOD OF USING SAME, filed Feb. 18, 1982, D.C.N.J. (Newark), Doc. 82-483, *Hoffman-La Roche, Inc., et al. v. Bolar Pharmaceutical Co., Inc., et al.* Consent order for preliminary injunction and terminating action administratively filed Mar. 17, 1982.

3,365,800, Richard F. Carella, ARCHERY BOW SIGHT ASSEMBLY; **4,328,625**, same, ARCHERY BOWSIGHT (BETWEEN RANGE), filed Mar. 30, 1983, D.C., E.D. Mich. (Bay City), Doc. 83 CV 9036 PH, *Richard F. Carella v. Target Sales, Co., et al.*

3,409,579, Ashland Oil, Inc., FOUNDRY BINDER COMPOSITION COMPRISING BENZYLIC ETHER RESIN, POLYISOCYANATE, AND TERTIARY AMINE; **3,676,392**, same, RESIN COMPOSITIONS, filed Mar. 4, 1983, D.C., E.D. Mich. (Detroit), Doc. 83CV0806DT, *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*

3,425,779, Paul C. Fisher, PRESSURIZED MARKING INSTRUMENT, filed Apr. 19, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 2456, *Paul C. Fisher v. Sears Roebuck and Co.*

3,430,221, Barringer Research Ltd., PROXIMITY DETECTOR, filed July 9, 1980, D.C., W.D. Pa. (Pittsburgh), Doc. 80-925, *Federal Laboratories, Inc. v. Barringer Research Ltd., et al.* Defendant is the owner of

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Pat. No. 3,430,221 which is valid and subsisting. Consent Decree filed May 2, 1983.

3,465,441, Leonard I. Linkow, RING-TYPE IMPLANT FOR ARTIFICIAL TEETH, filed Apr. 11, 1983, D.C.N.J. (Newark), Doc. 83-1242 L, *Oratronics, Inc. v. Leonard I. Linkow*.

3,479,840, Dana Corp., TRUNNION SEAL FOR CARDAN-TYPE UNIVERSAL JOINT, filed Mar. 30, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 2248, *Dana Corp. v. Precision Universal Joint Corp.*

3,480,504, Good and Morgan, AUTOMATIC APPARATUS FOR APPLYING COVERS TO BIOLOGICAL SLIDES, filed Jan. 10, 1983, D.C. Minn. (Minneapolis), Doc. 4-83 Civil 35, *Rose M. Morgan and Dorothy I. Good v. Gibbco Scientific, Inc., et al.* Stipulation and Order of Dismissal without prejudice dated Mar. 30, 1983.

3,501,611, Paul Opprecht, ELECTRODE ROLL FOR WELDING MACHINES; **3,743,813**, same, METHOD FOR AUTOMATIC MANUFACTURE OF METAL CONTAINER BODIES, AND WELDING MACHINES FOR APPLICATION THEREOF; **3,745,295**, same, METHOD FOR AUTOMATIC MANUFACTURE OF METAL CONTAINER BODIES, AND WELDING MACHINE FOR APPLICATION THEREOF; **4,160,892**, same, METHOD AND APPARATUS FOR SEAM WELDING OVERLAPPED EDGES, filed May 11, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 2938, *Paul Opprecht v. Fuji Kogyosha Co.*

3,620,650, Robert F. Shaw, GAS-DISABLED LIQUID PUMPING APPARATUS, filed Mar. 15, 1983, D.C., N.D. Calif. (San Francisco), Doc. C83 1252 WAI, *Oximetrix, Inc. v. Robert F. Shaw, et al.*

3,659,112, Caterpillar Tractor Co., MASTER LINK FOR CUSHIONED TRACK, filed Mar. 18, 1983, D.C., C.D. Ill. (Peoria), Doc. 83-1066, *Caterpillar Tractor Co. v. Intertractor, Viehmann & Co.*

3,676,392. (See 3,409,579.)

3,702,484, Aqua Therm Products Corp., LIGHT-WEIGHT, MINIMUM-VOLUME WATER PAD, filed Feb. 16, 1982, D.C., N.D.N.Y. (Utica), Doc. 82-CV-161, *Aqua Therm Products Corp. v. Akros Mfg., Inc., et al.* Stipulated Order of Dismissal of Action under Rule 41(a)(1)(ii) filed Apr. 18, 1983.

3,712,357, Belts, Bolts, Cups, Corp., BOLT FOR ATTACHING ELEVATOR BUCKETS TO BELTS, AND METHOD OF MAKING SAME, filed Mar. 3, 1983, D.C., N.D. Ga. (Atlanta), Doc. C83-593A, *Belts, Bolts, Cups, Corp. v. Maxi-Lift, Inc.*

3,743,813. (See 3,501,611.)

3,745,295. (See 3,501,611.)

3,748,997, Tempmaster Corp., ACOUSTICAL INSULATED FAN AND TEMPERATURE CONDITIONING PENTHOUSE UNIT, filed May 4, 1983, D.C. Ak. (Anchorage), Doc. A83-237, *Tempmaster Corp. v. Mark Hot, Inc., et al.*

3,754,309, Kennametal, Inc., CUTTING INSERT AND CLAMPING ARRANGEMENT THEREFOR, filed Feb. 8, 1980, D.C., W.D. Mich. (Grand Rapids), Doc. G80-91 CA1, *Kennametal, Inc. v. Spec Tool Co., Inc.* Plaintiff is the owner of Pat. No. 3,754,309, which is good and valid at law. Defendant is permanently enjoined from further infringing Plaintiff's patent. Final Judgment filed Apr. 27, 1983.

3,782,708, Kuhlman Corp., SPRING ASSEMBLY AND METHODS AND MACHINES FOR THE MANUFACTURE THEREOF; **3,866,287**, same, METHODS FOR THE MANUFACTURE OF SPRING ASSEMBLIES, filed Apr. 13, 1983, D.C., E.D. Mich. (Detroit), Doc. 83CV134D9T, *Kuhlman Corp. v. Peterson American Corp.*

3,825,129, Don D. Beck, PIPE HANDLING APPARATUS; **4,099,630**, same, filed June 30, 1980, D.C., W.D. Okla. (Oklahoma City), Doc. C-80-773-T, *Don D. Beck v. Briscoe Black Gold, Inc., et al.* Plaintiff is the owner of Pat. Nos. 3,825,129 and 4,099,630 which are good and valid. Judgment against defendant filed Mar. 2, 1983.

3,825,229, Construction Specialties, Inc., COMBINATION HANDRAIL AND WALL PROTECTOR; **3,861,110**, same, BUMPER GUARD; **4,196,552**, same, CRASH RAIL; **4,200,261**, same, HANDRAIL AND CRASH RAIL, filed Jan. 5, 1982, D.C. Kans. (Wichita), Doc. 82-1013, *Construction Specialties, Inc. v. Balco, Inc.*

3,861,110. (See 3,825,229.)

3,865,452, Industrial Electronic Hardware Corp., SPARK GAP PROTECTION IN CATHODE RAY TUBE SOCKETS, filed Feb. 1, 1978, D.C., N.D. Ill. (Chicago), Doc. 78 C 361, *Industrial Electronic Hardware Corp. v. American Plasticraft Co.* On Stipulation, complaint and counterclaim dismissed with prejudice, per Order dated Feb. 14, 1979.

3,866,287. (See 3,782,708.)

3,875,719, Troy Steel Corp., METAL SUPPORT FOR WOOD STRUCTURAL ELEMENTS, filed Nov. 17, 1978, D.C. Minn. (St. Paul), Doc. 2-78-435, *Troy Steel Corp. v. United Steel Products Co.* Same, filed July 27, 1979, D.C., E.D. Mich. (Detroit), Doc. 972982, *Troy Steel Corp. v. Gordon Machinery Co.*

3,876,579, Rexnord, Inc., COMPOSITION TO BE APPLIED TO A SURFACE TO INCREASE ITS WEAR RESISTANCE, filed Aug. 8, 1980, D.C., N.D., Ill. (Chicago), Doc. 80 C 4229, *Rexnord, Inc. v. Polygem, Inc.* Consent Decree permanently enjoining and restraining defendants from further infringing Pat. No. 3,876,579 filed May 4, 1983.

3,879,825, B & J Mfg. Co., TIRE BUFFING MACHINE BLADES, filed Apr. 22, 1983, D.C., N.D. Ohio (Cleveland), Doc. C83-1731, *B & J Mfg. Co. v. D. A. Frost Industries, Inc., et al.*

3,890,975, Ethicon, Inc., CONTROLLED RELEASE SUTURE, filed May 21, 1976, D.C., S.D.N.Y., Doc. 76-CIV-2301, *American Cyanamid Co. v. Ethicon, Inc.* Defendant has judgment against Plaintiff, dismissing the complaint, per judgment filed June 17, 1977.

3,895,312, Systron Donner Corp., LOW NOISE HIGH SPECTRAL PURITY MICROWAVE FREQUENCY SYNTHESIZER, filed Mar. 23, 1983, D.C., N.D. Calif. (San Francisco), Doc. 83-1396 WAI, *Systron Donner Corp., et al. v. Gigatronics, Inc., et al.*

3,920,075, Texas Iron Works, Inc., METHOD FOR POSITIONING A LINER ON A TUBULAR MEMBER IN A WELL BORE WITH A RETRIEVABLE PACK OFF BUSHING THEREBETWEEN, filed Mar. 20, 1979, D.C., S.D. Tex. (Houston), Doc. H-79-581, *Texas Iron Works, Inc. v. Brown Oil Tools, Inc.*

3,923,301, Dwight L. Myers, AMUSEMENT WATER SLIDE AND METHOD, filed Dec. 21, 1978, D.C., M.D.N.C. (Greensboro), Doc. C-78-659-S, *United States of America v. Dwight L. Myers*. Action voluntarily dismissed without prejudice by Plaintiff on Feb. 15, 1979.

3,944,760, CTS CORP., SWITCH ASSEMBLY HAVING SLIDER ACTUATOR INSULATING PLATE INSERTED BETWEEN NORMALLY CLOSED CONTACTS, filed Apr. 28, 1982, D.C., N.D. Calif. (San Jose), Doc. 82-1850, *CTS Corp. v. Stanford Applied Engineering, Inc.* Case dismissed without prejudice and without costs on Mar. 25, 1983.

3,969,780, James M. Henderson, CONTINUOUS CARPET DYEING PROCESS, filed Nov. 9, 1979, D.C., N.D. Ga. (Rome), Doc. C79-236R, *United Merchants and Manufacturers, Inc. v. James M. Henderson*.

3,978,531, Bengt Erland Ilon, LIFTING DEVICE, filed Feb. 15, 1977, D.C. District of Columbia (Wash. D.C.), Doc. 77-0281, *Labarge, Inc. v. Bengt Erland Ilon, et al.* Stipulation and Order dismissing action, including without limitation all claims with prejudice, filed May 18, 1978.

3,995,498, Nortron Corp., WHEEL MOUNTING ASSEMBLY FOR TIRE BALANCING MACHINE; **4,352,291**, same, BALANCING MACHINE, filed Apr. 26, 1983, D.C., N.D. Calif. (San Francisco), Doc. C-83-2096 TEH, *Nortron Corp. v. Dynabal Corp., et al.*

4,024,734, Trip-Lite Ltd., YARN FAULT DETECTORS; **D. 246,292**, same, YARN FAULT DETECTOR, filed Aug. 9, 1982, D.C., N.D.N.Y. (Utica), Doc. 82-CV-825, *Trip-Lite Ltd., et al. v. Kencap Products, Inc.* Final Judgment on Consent filed Feb. 8, 1983.

4,048,573, McIntosh Laboratory, Inc., AMPLIFIER IMPROVEMENTS FOR LIMITING CLIPPING, filed Apr. 13, 1983, D.C., W.D. Wash. (Seattle), Doc. C83-508M, *McIntosh Laboratory, Inc. v. Carver Corp.*

4,052,775, Irvin Industries, Inc., SAFETY SEAT BELT BUCKLE, filed Nov. 18, 1977, D.C. Del. (Wilmington), Doc. 77-453, *Irvin Industries, Inc. v. Gateway Industries, Inc.* Stipulation and Order dismissing case with prejudice filed July 2, 1979.

4,061,788, Malcolm R. Wommack, WORM DETECTION PROCESS, filed Nov. 7, 1979, D.C., N.D. Tex. (Fort Worth), Doc. CA4-79-391K, *Malcolm R. Wommack v. Durham Pecan Co., Inc.*

4,072,230, L. K. Van Keuren Co., Inc., ASSEMBLY FOR SUPPORTING DELICATE EQUIPMENT DURING SHIPPING, filed Sept. 14, 1981, D.C., N.D.N.Y. (Utica), Doc. 81-CV-977, *L. K. Van Keuren Co., Inc. v. Central Packaging Supply, Inc.* Case dismissed at call of dismissal calendar on Mar. 25, 1983.

4,072,309, Jerry Lee Wilson, MULTI-PURPOSE EXERCISE DEVICE, filed July 21, 1982, D.C., N.D. Ohio (Cleveland), Doc. C82-1883A, *Jerry Lee Wilson, et al. v. Contractor Equipment Mfg., Inc., et al.*

4,099,630. (See 3,825,129.)

4,099,658, John A. Bott, ARTICLE CARRIER FOR AUTOMOTIVE VEHICLES, filed May 8, 1979, D.C., E.D. Mich. (Detroit), Doc. 79-71438, *John A. Bott v. Four Star Corp.* Defendant is permanently enjoined from further infringing Plaintiff's patent. Judgment filed Apr. 27, 1983.

4,105,017, Electro-Biology, Inc., MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUE AND CELLS BY SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT; **4,266,532**, same, MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT; **4,266,533**, same, MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY A SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT; **4,315,503**, same, MODIFICATION OF THE GROWTH, REPAIR AND MAINTENANCE BEHAVIOR OF LIVING TISSUES AND CELLS BY SPECIFIC AND SELECTIVE CHANGE IN ELECTRICAL ENVIRONMENT, filed Apr. 8, 1983, D.C., S.D.N.Y., Doc. 83-CIV-2718, *Telectronics Proprietary Ltd. v. Electro-Biology, Inc.*

4,111,477, Paul D. Rigali, WINDOW GUARD RELEASE, filed May 24, 1982, D.C., C.D. Calif. (Los Angeles), Doc. CV-82-2559, *Paul D. Rigali v. Los Alimitos Ornamental Castings, Inc.* Court dismissed action for failure to comply with pretrial rules and for failure to appear on Mar. 31, 1983.

4,138,186, Everett/Charles, Inc., TEST APPARATUS, filed May 8, 1981, D.C., W.D. Va. (Harrisonburg), Doc. 81-0066 (H), *Everett/Charles, Inc., et al. v. World Enterprises, Inc.* Stipulation of Dismissal with prejudice filed Apr. 6, 1983.

4,160,336, Query and Query, METHOD FOR TREATING FIREANTS, filed Apr. 15, 1983, D.C.S.C. (Charleston), Doc. 83-0917-1, *Grady W. Query and O. Grady Query v. Whitmire Research Labs, Inc., et al.*

4,160,892. (See 3,501,611.)

4,181,409, American Optical Corp., ASPHERIC LENS SERIES, filed July 24, 1981, D.C., M.D. Fla. (Tampa), Doc. 81-700 Civ T H, *American Optical Corp. v. Essilor International (Compagnie Generale D'Optique) S.A., et al.*

4,196,552. (See 3,825,229.)

4,200,261. (See 3,825,229.)

4,212,335, Anthony J. Bova, WATERBED FILLING UNIT, filed Apr. 7, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83 2206, *Anthony J. Bova v. Waterworth.*

4,214,658, Simple Pleasures, Inc., SMOKING SYSTEM, filed Apr. 5, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 2372, *Simple Pleasures, Inc., et al. v. Paul Singh, doing business as Peacock.*

4,217,473, W. H. Brady Co., CONNECTING FLEXIBLE SWITCH; **4,218,600**, same, filed Jan. 3, 1983, D.C., N.D. Ill. (Chicago), Doc. 83C0020, *W. H. Brady Co. v. Carl Gorr Printing Co.* Plaintiff is the owner of Pat. Nos. 4,217,473 and 4,218,600 which are valid and have been infringed by defendant. Defendant is enjoined from further infringing Plaintiff's patents. Filed Apr. 25, 1983.

4,218,600. (See 4,217,473.)

4,254,452, Gary P. Switala, LIGHTED TRAY APPARATUS, filed Apr. 5, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 2359, *Laminite Plastics Corp. v. Gary P. Switala, doing business as G.P.S. Manufacturer.*

4,264,892, Lincoln M. Zonn, ALARM DEVICE, filed Dec. 15, 1982, D.C., N.D. Calif. (San Francisco), Doc. C82 6789 EFL, *Lincoln M. Zonn and Brian P. Lewis v. Tandy Corp., et al.* Stipulation and Order for Dismissal with prejudice filed Apr. 20, 1983.

4,266,532. (See 4,105,017.)

4,266,533. (See 4,105,017.)

4,267,751, Lynn J. Ziegelmeyer, SAW CHAIN DEPTH-GRINDING APPARATUS, filed Mar. 24, 1983, D.C. Ore. (Portland), Doc. 83-444, *Lynn J. Ziegelmeyer v. Elmer R. Silvey, et al., doing business as Silvey Precision Chain Grinders.*

4,287,993, Vito Licari, ADJUSTABLE RACK FOR HANGING ARTICLES, filed May 7, 1982, D.C.N.J. (Newark), Doc. 82-1449, *Basic Line, Inc. v. K-Del Corp.* Order of Dismissal of action filed Mar. 24, 1983.

4,300,287, Larry T. Tibbs, CUTTING TOOL, filed Apr. 7, 1983, D.C., N.D. Ill. (Chicago), Doc. 83 C 2413, *Larry T. Tibbs, et al. v. Gerald Wivins, doing business as Wivco Tool Design Ltd., et al.*

4,313,485, BSL Corp., TRANSPARENT ACCESS CURTAIN FOR COOLERS AND THE LIKE, filed May 27, 1982, D.C., W.D.N.Y. (Buffalo), Doc. 82-462E, *BSL Corp. v. Fredrick's Equipment Service, Inc. Same, filed Mar. 24, 1983, D.C., N.D. Calif. (San Francisco), Doc. 83-1400 WAI, BSL Corp. v. Necor Corp.*

4,315,503. (See 4,105,017.)

4,321,038, Van R Dental Products, Inc., BRAIDED GINGIVAL RETRACTION CORD, filed Apr. 26, 1983, D.C., W.D. Wash. (Seattle), Doc. C83-573M, *Van R Dental Products, Inc. v. Pascal Co., Inc.*

4,322,827, Lowrance Electronics, Inc., RANGE EXPANDER FOR SONAR SYSTEM, filed Mar. 29, 1983, D.C., N.D. Okla. (Tulsa), Doc. 83-C-272-E, *Lowrance Electronics, Inc. v. Techsonics, Inc.*

4,328,625. (See 3,365,800.)

4,343,032, Cable Electric Products, Inc., LIGHT SENSITIVE ELECTRICAL DEVICE, filed Mar. 7, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83 1357, *Cable Electric Products, Inc. v. Home Equipment Mfg. Co.*

4,348,158, Smith & Loveless, Inc., SEWAGE PUMP-ING STATION, filed Apr. 29, 1983, D.C., W.D. Wis. (Madison), Doc. 83-C-410-C, *Smith & Loveless, Inc. v. Usemco, Inc.*

4,352,291. (See 3,995,498.)

4,355,210, Midian Electronics, Inc., SUB-MINIATURE TONE ENCODER WITH AUTOMATIC NUMBER IDENTIFICATION, filed Oct. 19, 1982, D.C., N.D. Calif. (San Francisco), Doc. C-82-5772-RFP, *Midian Electronics, Inc. v. Norcomm Corp.* Stipulation to dismiss with prejudice filed May 10, 1983.

4,369,959, William M. Hornbuckle, SHEET FEED MACHINE, filed Apr. 7, 1983, D.C., N.D. Okla. (Tulsa), Doc. 83-C-307-E, *William M. Hornbuckle v. Sandco, Inc.*

4,372,593, David A. Kesselman, TAMPER INDICATOR, filed Apr. 6, 1983, D.C.N.J. (Newark), Doc. 83-1221, *David A. Kesselman v. E. J. Brooks Co., Inc.*

Re. 29,114, James H. McQuestion, BURIAL VAULT, filed June 19, 1978, D.C., E.D. Ill. (Danville), Doc. 78-0087-D, *James H. McQuestion v. David L. Darby, et al., doing business as Greenland Plastics Co.*

Re. 29,487, Cabot Corp., EARPLUGS, filed Mar. 3, 1983, D.C., C.D. Calif. (Los Angeles), Doc. 83 1289, *Moldex/Metric Products, Inc. v. Cabot Corp.*

Re. 30,613, Matsuzaka Iron Works, Inc., SHEARING TOOL FOR SYNTHETIC RESIN TUBES; **D. 252,666**, same, VINYL PIPE CUTTER, filed Mar. 28, 1983, D.C., N.D. Ohio (Youngstown), Doc. C83-1328Y, *Wheeler Mfg. Corp. v. Matsuzaka Iron Works, Inc.*

D. 246,292. (See 4,024,734.)

D. 252,666. (See Re. 30,613.)

D. 253,752, Cincinnati Microwave, Inc., RADAR WARNING RECEIVER, filed Feb. 15, 1983, D.C., S.D. Ohio (Dayton), Doc. C-3-83-139, *Cincinnati Microwave, Inc. v. Larrick's, Inc.* Case transferred to the N.D. Ill. on May 13, 1983.

D. 254,186, The Colber Corp., RESISTOR HOUSING, filed Oct. 4, 1982, D.C., E.D. Tenn. (Chattanooga), Doc. Civ-1-82-447, *The Colber Corp. v. D. M. Steward Mfg. Co.* Plaintiff is the owner of D. 254,186. Defendant is permanently enjoined against further infringing Plaintiff's patent. Filed Apr. 28, 1983.

D. 256,802, Cagles, Inc., EVISCERATOR TOOL, filed Feb. 12, 1982, D.C., N.D. Ga. (Gainesville), Doc. C82-027G, *Cagles, Inc. v. Centennial Machine Co., Inc.* Consent stipulation of dismissal filed Jan. 18, 1983.

D. 260,624, John J. Madison Co., Inc., FIGURINE OF AN ANTELOPE; **D. 261,375**, same, FIGURINE OF A OKAPI; **D. 261,490**, same, FIGURINE OF A BASSET HOUND; **D. 262,007**, same, FIGURINE OF A DUCK, filed Apr. 18, 1983, D.C., S.D.N.Y., Doc. 83-CIV-2955, *John J. Madison Co., Inc. v. Benrose Lamp Co., Inc.*

D. 261,096, Petersen Mfg. Co., Inc., HAND TOOL, filed Nov. 2, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5667, *Petersen Mfg. Co., Inc. v. Central Purchasing, Inc., doing business as Harbor Freight Salvage Co., et al.* Plaintiff's D. 261,096 is invalid and unenforceable, per order filed Apr. 18, 1983.

D. 261,375. (See D. 260,624.)

D. 261,490. (See D. 260,624.)

D. 262,007. (See D. 260,624.)

D. 263,465, Franzus Co., Inc., VOLTAGE CONVERTER OR SIMILAR ARTICLE, filed Mar. 28, 1983, D.C., S.D.N.Y., Doc. 83-CIV-2368, *Franzus Co., Inc. v. Zurich Electric Industrial Corp.*

PP 3,130, Arthur Bright, ALMOND TREE, filed May 2, 1983, D.C., E.D. Calif. (Fresno), Doc. CV-F-83-180-REC, *Arthur Bright v. Berenda Mesa Farming, et al.*

PATENT NOTICES

Certificates of Correction for the Week of July 19, 1983

Re. 31,176	4,341,776	4,370,256	4,377,870
Des. 267,431	4,346,171	4,371,184	4,378,361
4,179,747	4,346,914	4,371,408	4,378,503
4,204,928	4,348,346	4,371,606	4,378,530
4,256,459	4,349,826	4,372,618	4,378,555
4,268,299	4,350,084	4,372,827	4,378,598
4,268,693	4,352,178	4,373,442	4,378,827
4,269,673	4,354,381	4,373,901	4,378,855
4,276,101	4,354,488	4,373,932	4,380,540
4,286,240	4,355,815	4,373,948	4,380,628
4,294,376	4,356,739	4,374,140	4,381,081
4,296,256	4,357,268	4,375,562	4,381,396
4,298,395	4,358,420	4,376,088	4,381,472
4,307,238	4,359,584	4,376,262	4,381,711
4,307,256	4,360,741	4,376,319	4,381,862
4,311,703	4,361,169	4,376,476	4,381,933
4,311,925	4,361,997	4,376,953	4,382,246
4,321,918	4,363,541	4,377,488	4,382,767
4,325,881	4,366,305	4,377,525	4,383,016
4,326,265	4,369,232	4,377,611	4,383,389
4,336,572	4,369,436	4,377,673	4,383,735
4,339,576	4,370,008	4,377,860	4,385,155

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Disclaimers

4,206,910.—*William M. Biesemeyer*, Phoenix, Ariz. TABLE SAW FENCE SYSTEM. Patent dated June 10, 1980. Disclaimer filed June 6, 1983, by the inventor.

Hereby enters this disclaimer to claims 1 through 7 of said patent.

4,316,116.—*James A. Graves*, Highland Hts. and *Gilbert H. Reilings*, Chardon, Ohio. TRIPLE-COIL INCANDESCENT FILAMENT. Patent dated Feb. 16, 1982. Disclaimer filed May 27, 1983, by the assignee, *General Electric Co.*

Hereby enters this disclaimer to claims 1 through 5 of said patent.

4,360,510.—*Julian W. Proctor*, Pittsburgh, Pa. METHOD FOR SCREENING ANTI-TUMOR AGENTS OF THE RETICULO-ENDOTHELIAL STIMULANT CLASS. Patent dated Nov. 23, 1982. Disclaimer filed May 31, 1983, by the inventor.

Hereby enters this disclaimer to claim 4 of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
	Denver Public Library	(303) 571-2122
	Newark: University of Delaware	(302) 738-2238
Colorado	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Delaware	Chicago Public Library	(312) 269-2865
Georgia	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Illinois	Boston Public Library	(617) 536-5400 Ext. 265
Louisiana	Detroit Public Library	(313) 833-1450
Massachusetts	Minneapolis Public Library & Information Center	(612) 372-6552
Michigan	Kansas City: Linda Hall Library	(816) 363-4600
Minnesota	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Missouri	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
Nebraska	Durham: University of New Hampshire Library	(603) 862-1777
New Hampshire	Newark Public Library	(201) 733-7814
New Jersey	Albany: New York State Library	(518) 474-5125
New York	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 749-4176
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

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*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

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PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF April 2, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-1-82
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Thereof; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	3-09-82
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director	1-12-82
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufac- ture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-22-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-30-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Op- tics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	1-05-81
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director	5-12-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	8-25-80
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	1-30-81
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-18-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—STEPHEN G. KUNIN, Director	7-27-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director	8-27-82
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Gener- ation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director	9-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1983, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

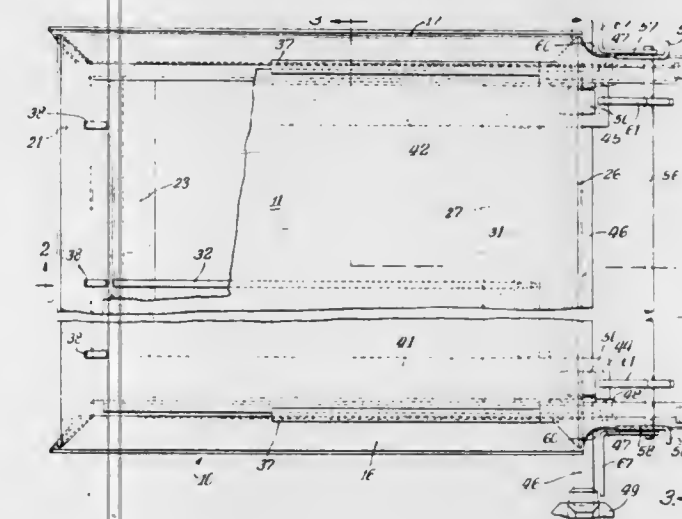
Patents Numbers 3,243,822 to 3,248,737, inclusive
Plant Patents Numbers 2,616 to 2,627 inclusive

REEXAMINATIONS

JULY 19, 1983

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 3,707,126 (107th)
HOPPER GATE LATCHING MECHANISM
Francis M. Nester, Mechanicsburg, Pa., assignor to K.S. Industries, Inc., Lombard, Ill.
Reexamination Request No. 90/000,167, Feb. 24, 1982.
Reexamination Certificate for Patent No. 3,707,126, issued Dec. 26, 1972, Ser. No. 54,245, Jul. 13, 1970.
U.S. Cl. 105/282 P Int. Cl.³ B61D 7/20; E05 65/14



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim 1 is confirmed.

Claim 4, having been finally determined to be unpatentable, is cancelled.

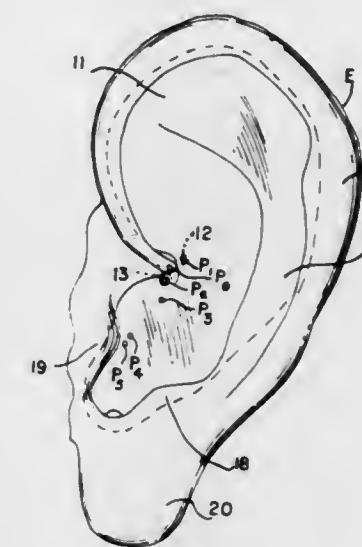
Claim 2 is determined to be patentable as amended:

Claim 3, dependent on an amended claim, is determined to be patentable.

2. A discharge gate and lock assembly for a hopper car having a discharge opening on the underside thereof, said assembly comprising a frame adapted to be attached to said car at said opening, a plate mounted on said frame for generally horizontal movement between a closed position where it covers said opening and an open position where it uncovers said opening, a latch rod pivotally mounted on said frame and extending generally transversely of the direction of movement of said plate, a handle on each end of said latch rod adjacent a side of said frame, and an elongated latch on said rod adjacent said plate, said latch being rotatable by turning either one of said handles between an engaged position in which one end portion of said latch engages and holds said plate in said closed position and a disengaged position in which the one end portion extends upwardly from the rod and permits opening movement of said plate and the opposite end portion of said latch extends downwardly from the rod in the path of movement of a portion of said plate and movement of said plate toward its open position resulting in said portion of said plate striking said opposite end portion and tripping said latch from said disengaged position toward said engaged position, said latch being positioned on said rod relative to said handles to be pulled by the weight of said handles and said one end portion into said engaged position after the tripping of said latch when said plate is returned to closed position, said opposite end portion of said latch when in said disengaged position extending downwardly into said path of movement of said portion of said plate to be struck and rotated to

a tripped position upon movement of said plate toward said open position, said one end portion of said latch resting on the upper surface of said plate when in said tripped position and in position for subsequent automatic movement into said engaged position when said plate moves into said closed position.

B1 4,073,296 (108th)
APPARATUS FOR ACUPRESSURE TREATMENT
Francis J. McCall, Box 236, Lansing, Ill. 60438
Reexamination Request No. 90/000,195, May 4, 1982.
Reexamination Certificate for Patent No. 4,073,296, issued Feb. 14, 1978, Ser. No. 646,003, Jan. 2, 1976.
Int. Cl.³ A61B 17/00; A61H 39/04 U.S. Cl. 128/303 R



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-3 is confirmed.

New claims 4 and 5 are added and determined to be patentable.

4. An acupressure treatment device comprising:
a plastic mold closely conforming to a human external ear, said plastic mold to be locatable in a predetermined position and only in this said predetermined position within the external ear;
said mold to be removably retained within said external ear in said predetermined position, said mold to be located directly adjacent acupuncture points located within said external ear which are to influence corresponding specific body functions to be treated; and
nodule means imbedded within said plastic mold, said nodule means to contact said external ear, said nodule means not less than about one millimeter in diameter, said nodule means positioned on said mold to depress at least one of said acupuncture points and thereby treat as least one said corresponding specific body function when said mold is retained in said predetermined position in said ear.

**B1 4,054,937 (109th)
CAPACITOR**

Lyon Mandelcorn, Pittsburgh; Robert L. Miller, Murrysville, both of Pa.; George E. Mercier; John H. Pickett, both of Bloomington, Ind.; Thomas W. Dakin, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

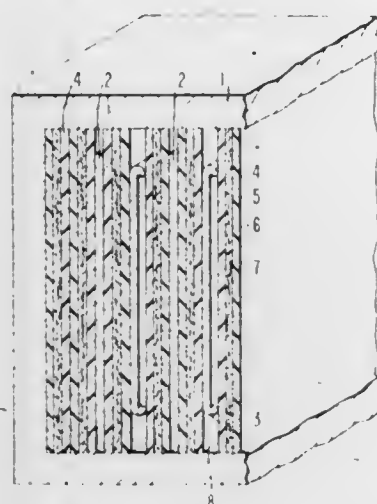
Reexamination Request No. 90/000,138, Jan. 18, 1982.

Reexamination Certificate for Patent No. 4,054,937,

issued Oct. 18, 1977, Ser. No. 681,292, Apr. 28, 1976.

U.S. Cl. 361/315

Int. Cl.³ H01G 4/22; H01B 3/00



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 1 is determined to be patentable as amended:

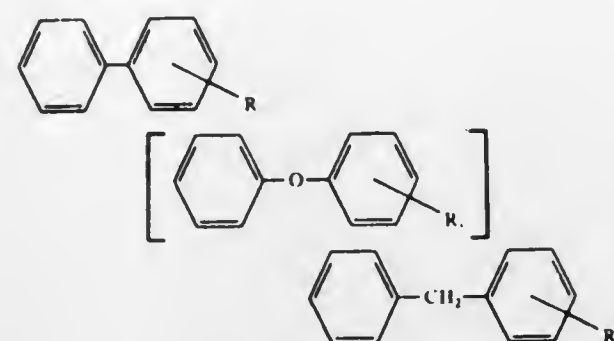
Claims 2-15, dependent on an amended claim, are determined to be patentable.

New claims 16-22 are added and determined to be patentable.

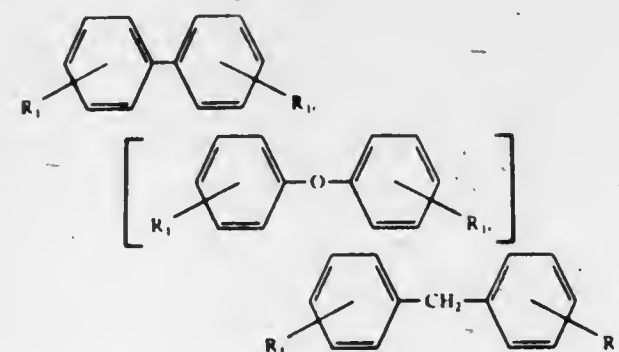
1. A capacitor comprising layers of metal foil alternat-

ing with a dielectric spacer impregnated with a dielectric fluid which comprises:

(a) about 80 to about 99% by weight of a compound having the general formula



or mixtures thereof, where each R is independently selected from alkyl from C₂ to C₄; and
(b) about 1 to about 20% by weight of a compound having the general formula



or mixtures thereof, where each R₁ is independently selected from alkyl from C₂ to C₄.

REISSUES

JULY 19, 1983

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

**Re. 31,312
TENSION MONITOR MEANS**

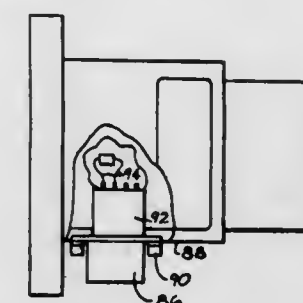
Gerald R. Eddens, St. Louis, Mo., assignor to W. J. Industries, Inc., Fenton, Mo.

Original No. 4,130,014, dated Dec. 19, 1978, Ser. No. 840,646, Oct. 11, 1977. Application for reissue Aug. 21, 1981, Ser. No. 295,225

Int. Cl.³ G01L 5/10

U.S. Cl. 73-862.48

19 Claims



1. Apparatus for measuring the tension in a continuously moving web comprising in combination, two spaced frame members, a shaft extending between the frame members and having web engaging means rotatably mounted thereon, coupling members connecting opposite ends of the shaft to the respective frame members, each of the coupling members having substantially planar members arranged to be intersected at intermediate locations by and to be substantially normal to the axis of the shaft, and two spaced opposed two spaced deflectable portions located respectively on opposite sides of the axis of the shaft, each of said deflectable portions including a member which is relatively deflectable in a preselected plane only and each having spaced end edges integrally connected with the respective spaced planar members whereby the deflectable portions and the planar members form an enclosed structure such that when pressure is applied to the shaft by the web in a direction to cause one of the planar members to move relative to the other the deflectable portions will deflect so as to maintain the planar members in essentially parallel relation, means for holding the web in engagement with the rotatably mounted means for producing a web tension load component on the shaft with web tension load components deflecting the shaft and straining the deflectable portions while maintaining the spaced substantially planar members in an essentially parallel relation, and strain sensing transducing means located on at least one of the deflectable portions for conveying therefrom a signal derived from said straining and therefore representative of the tension in the web.

Re. 31,313

METHOD AND SYSTEM FOR WELL TESTING

John V. Fredd, and Phillip S. Sizer, both of Dallas, Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Original No. 4,274,485, dated Jun. 23, 1981, Ser. No. 78,712, Sep. 25, 1979. Application for reissue Oct. 15, 1981, Ser. No. 311,638

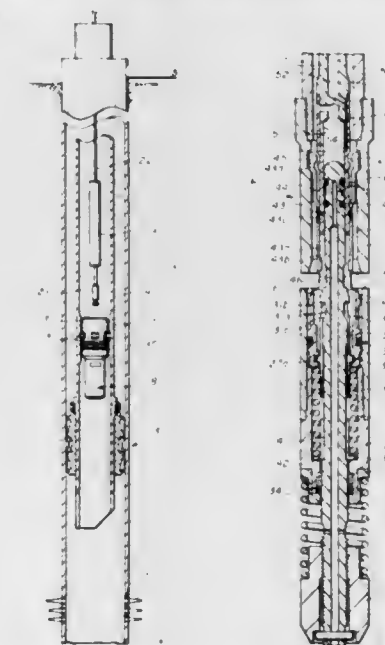
Int. Cl.³ E21B 34/14, 43/12, 47/00; F16K 31/44

U.S. Cl. 166-250

17 Claims

1. A valve comprising, a valve body having a seat therein, a valve member cooperable with said seat and controlling flow through the valve body, first resilient means urging said valve member to one of open and closed positions, a plunger connected to said valve member and moving with the valve member between open and closed positions, said connection between the plunger and valve member

providing for movement of said plunger relative to the valve member after the valve member reaches the other of said open and closed positions, second resilient means opposing relative movement between the plunger and valve member, pulling means releasably latching onto said plunger, and latch release means releasing said pulling means from said plunger upon movement of said plunger a selected distance in a direction toward said other position after said valve member has moved to said other position.



15. The method of testing a well having a tubing with a landing nipple and a by-pass valve in said landing nipple comprising, running a transducer probe into the tubing and landing the probe in the by-pass valve, alternately flowing the well and shutting in the well by raising and lowering said probe after it is landed in the valve, determining well conditions while said well is shut-in and flowing.

Re. 31,314

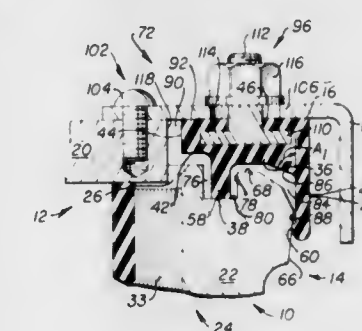
BRAKE DRUM SEAL WITH DUAL ELASTOMERIC LEGS
James G. Blaha, Painesville, Ohio, assignor to Towmotor Corporation, Mentor, Ohio

Original No. 4,243,234, dated Jan. 6, 1981, Ser. No. 12,162, Jan. 18, 1979. Application for reissue Feb. 23, 1981, Ser. No. 236,953

Int. Cl.³ F16J 15/32, 15/34

U.S. Cl. 277-84

22 Claims



1. A seal assembly (10), comprising: a first member (12); a second member (14) having an outer surface (66), a face (68) and a central axis (70), said outer surface (66) being

oriented generally along said central axis (70), said face (68) having an annular opening (76) and extending inwardly from said outer surface (66) in a direction toward said central axis (70), said annular opening (76) having sidewalls (78) and a bottom surface (80), said first and second members (12,14) being rotatable one relative to the other;

first means (28) for supporting said first and second members (12,14) in rotation one relative to the other;

a body (36) having first and second end portions (50,52) and a first side (42) and being positioned adjacent and about said annular opening (26);

a first leg (38) having a sealing surface (58) and being connected to the [second end portion (52)] first end portion (50) of the body (36) and extending outwardly from the first side (42) of the body (36) into said annular opening (76), said sealing surface [56] 58 being in sealing, slidable contact with the face (68) of the second member (14) in said annular opening (76);

a second leg (40) having a sealing surface (60) and being connected to the second end portion (52) of the body (36) and extending outwardly from the first side (42) of the body (36), said sealing surface (60) being in sealing, slidable contact with the second member (14) radially relative to said central axis (70) at the outer surface (66) of said second member (14); and

second means (72) for sealably connecting said body (36) to said first member (12).

Re. 31,315

APPARATUS FOR CONVERTING A PUMP TO A CONTROLLER

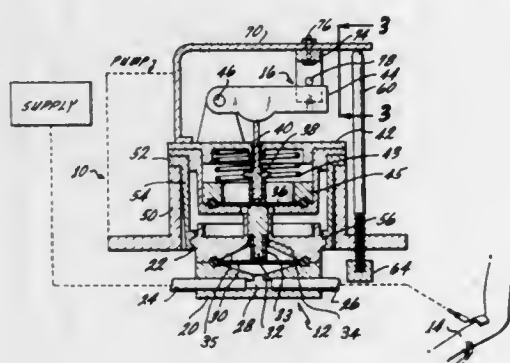
Jon A. Jenkins, Rancho Santa Fe, and Raymond E. Cannon, San Diego, both of Calif., assignors to Imed Corporation, San Diego, Calif.

Original No. 4,277,227, dated Jul. 7, 1981, Ser. No. 53,981, Jul. 2, 1979. Application for reissue Nov. 13, 1981, Ser. No. 321,192

Int. Cl.³ B04B 21/00; A61M 5/20

U.S. Cl. 417—63

40 Claims



1. In combination for use with a pump for introducing fluid to a receiver and for controlling the pressure of the fluid introduced by the pump to the receiver, the pump having detent means,

an output line for passing the fluid from the pump to the receiver,

a resilient diaphragm connected in the output line for constraint in accordance with the pressure of the fluid in the line,

means movable with the diaphragm for obtaining the production of an output indication when the pressure of the fluid in the output line has reached a particular level,

a housing holding the output line, the diaphragm and the movable means, and

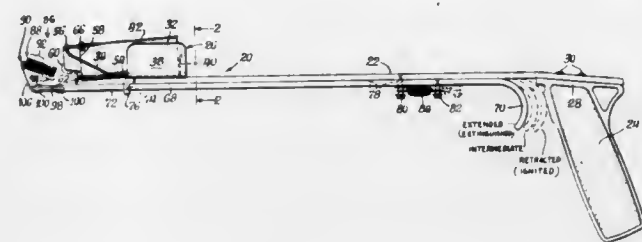
detent means on the housing for co-operating with the detent means on the pump for releasably holding the housing in a particular fixed relationship with the pump.

Re. 31,316
ELONGATED IGNITING DEVICE
Robert W. Moore, 449 E. Altgeld Ave., Glendale Heights, Ill. 60137
Original No. 4,315,731, dated Feb. 16, 1982, Ser. No. 242,362, Mar. 10, 1981. Application for reissue Apr. 12, 1982, Ser. No. 367,381

Int. Cl.³ F23Q 1/04

U.S. Cl. 431—254

15 Claims



13. An elongated igniting device for a conventional cigarette lighter having a head end with a rotatable fling wheel adjacent a movable valve actuator controlling flow of fuel through a valve to an outlet port, said device comprising:

an elongated shank;

a handgrip on one end portion of said shank;

holding means on the opposite end portion of said shank for releasably retaining the cigarette lighter with the head end facing away from the hand grip;

an actuator rod guided for reciprocable movement parallel to said shank, said rod having an outer extension beyond the head end of the lighter and being movable between extended and retracted mode conditions relative to the lighter head end;

trigger means adjacent the hand grip and connected to the actuator rod, effective in response to pull on the trigger, to move said actuator rod to said retracted mode condition; and igniting means supported on said outer extension in position to engage and rotate the rim of said flint wheel and depress said valve actuator to ignite the lighter in response to movement of the actuator rod to its said retracted mode condition.

Re. 31,317

RARE EARTH-COBALT SYSTEM PERMANENT MAGNETIC ALLOYS AND METHOD OF PREPARING SAME

Nobuo Imaizumi, and Kazuo Wakana, both of Tokyo, Japan, assignors to Namiki Precision Jewel Co., Ltd., Tokyo, Japan
Original No. 4,221,613, dated Sep. 9, 1980, Ser. No. 6,024, Jan. 24, 1979. Application for reissue Nov. 24, 1980, Ser. No. 209,664

Claims priority, application Japan, Feb. 3, 1978, 53-015518
Int. Cl.³ H01F 1/02

U.S. Cl. 148—103

7 Claims

1. Permanent magnetic alloys comprising 11.5–12.5% rare earth components of which 6.3–12% is samarium and 0.5–6.2% in yttrium; 0.2–2.5% hafnium, [19.5–26.5%] 10.5–26.5% iron, 7–10.5% copper, and 52–[70.7%] 70.8% cobalt, the ranges of the aforesaid components being in atomic ratios.

2. A method of preparing the alloys of claim 1 comprising the steps of melting raw material containing said components, solidifying the resulting melt, pulverizing the resulting ingot into powders having a grain size of 1–50 μ m, compacting the powders after magnetic field orientation thereof, sintering said compacted powders at 1160°–1220° C. for 1–10 hours, cooling the sintered body at a rate of at least 1° C./second at least until the temperature is about 900° C., and then annealing the resulting bulk at 750°–900° C.

Re. 31,318

AUTOMATIC MODULAR MEMORY ADDRESS ALLOCATION SYSTEM

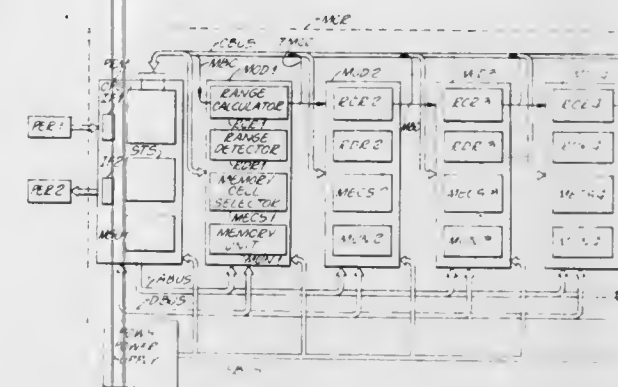
Phillip A. Kaufman, Saratoga, Calif.; Kenneth C. Gorman, Boulder, Colo.; George C. Henry, Mission Viejo, and Roy Blacksher, Cupertino, both of Calif., assignors to Computer Automation, Inc., Irvine, Calif.

Original No. 4,025,903, dated May 24, 1977, Ser. No. 395,548, Sep. 10, 1973. Application for reissue May 23, 1979, Ser. No. 41,746

Int. Cl.³ G06F 13/06; G11C 5/06, 7/00, 9/00

U.S. Cl. 364—200

51 Claims



7. In a digital computer having a processing unit and a system for selectively addressing individual memory cells for a memory bank having a plurality of separate memory units, each said memory unit being replaceable by memory units containing a different number of memory cells, for storing information in or for reading information from such cells in accordance with a corresponding selectable absolute address signal generated by said processing unit to represent an absolute address, the combination of:

a plurality of memory capacity signal sources [associated with] located on said memory units on a one-to-one basis, each signal source supplying a signal representing the memory cell capacity of the memory unit with respect to which said last mentioned signal source is associated;

an auxiliary signal source for establishing an initial digital starting address;

range setting means controlled by said plurality of said signal sources for establishing a unique fixed digital starting address for each individual memory unit

and for establishing a unique fixed ending address for each individual memory unit in accordance with said unique starting address and the memory capacity of said each individual memory unit, and for generating signals representing said starting and ending addresses respectively;

and a plurality of range detectors associated with said memory units on a one-to-one basis, each such range detector being controlled in accordance with a selected absolute

address signal and in accordance with the starting and ending address signals of the associated memory unit, for enabling said individual memory unit to select a memory cell therein corresponding to said selected absolute address only when said selected absolute address lies within the local range of the associated memory unit.

Re. 31,319

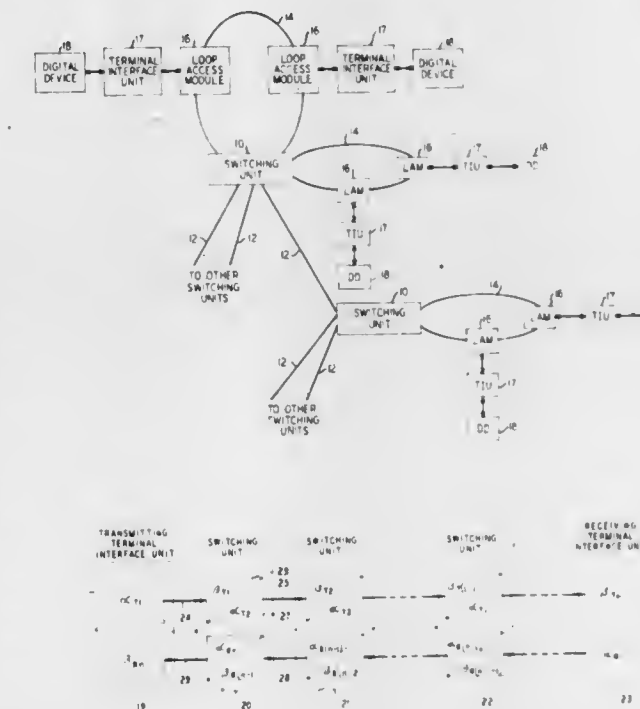
DIGITAL DATA COMMUNICATION SYSTEM

Alexander G. Fraser, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Original No. 3,749,845, dated Jul. 31, 1983, Ser. No. 175,678, Aug. 27, 1971. Application for reissue Feb. 25, 1980, Ser. No. 123,970

Int. Cl.³ H04J 3/16

U.S. Cl. 370—80

19 Claims



1. A data transmission system for supporting data cells among a plurality of digital devices, a data call being comprised of randomly occurring bursts of data with intervening pauses, comprising means for virtually allocating transmission paths upon request preparatory to establishing data calls from any of said digital devices to any other of said digital [device] devices by assigning to each call a description of transmission resources to convey the data and means for activating said virtually allocated transmission for [paths] path in accordance with the assigned description-only [when] upon determination that a data burst of the call is actually transmitted.

PLANT PATENTS

GRANTED JULY 19, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,069

MINIATURE ROSE PLANT

Cecilia L. D. Bennett, 489 Minot Ave., Chula Vista, Calif. 92010
Filed Jan. 25, 1982, Ser. No. 342,711

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—9

1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, much branched habit, substantially as illustrated and described, characterized by buds and flowers similar in coloring to the variety Tiffany a hybrid tea.

5,070

MINIATURE ROSE PLANT

Cecilia L. D. Bennett, 489 Minot Ave., Chula Vista, Calif. 92010
Filed Feb. 1, 1982, Ser. No. 344,538

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—9

1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, much branched habit, substantially as illustrated and described, characterized by buds and flowers similar in coloring to the variety Perfume Delight a hybrid tea; and further characterized by a low growing; compact plant of miniature proportions.

5,071

STRAWBERRY PLANT

Harold A. Johnson, Jr., Watsonville, Calif., assignor to Driscoll Strawberry Associates, Inc., Watsonville, Calif.
Filed Jan. 11, 1982, Ser. No. 338,774

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—48

1 Claim

1. The new and distinct strawberry plant herein described and illustrated, and identified by the characteristics enumerated above.

5,072

CALLISTEMON 'BOYETTE'

John A. Blaser, 7605 N. Tuttle Ave., and Robert J. Boyette, 2340 Tallevast Rd., both of Sarasota, Fla. 33581
Filed Nov. 24, 1981, Ser. No. 324,676

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—54

1 Claim

1. The new and distinct variety of *Callistemon viminalis*, substantially as herein shown and described, characterized particularly as to novelty by an extreme weeping habit and persistent year-round blooming.

PATENTS

GRANTED JUL. 19, 1983

ERRATA

For CLASS	See PATENT NO.
604-115	4,393,870
604-055	4,393,871
604-151	4,393,872
604-151	4,393,873
135-109	4,393,887
192-099	4,393,907
104-069	4,394,173
585-667	4,394,255
264-004	4,394,287
524-776	4,394,307
377-105	4,394,587
315-280	4,394,605

PATENTS

GRANTED JULY 19, 1983

GENERAL AND MECHANICAL

4,393,519

COMBINATION VISOR AND SWEATBAND

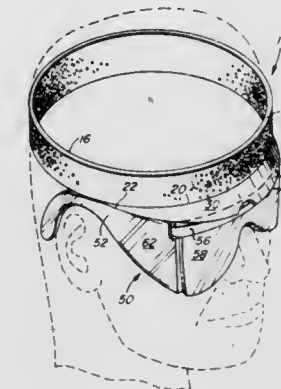
Norman J. Nicastro, 6210 E. Jenan, Scottsdale, Ariz. 85254

Filed Mar. 16, 1981, Ser. No. 243,793

Int. Cl.³ A61F 9/04

U.S. Cl. 2—12

8 Claims



1. Headgear adapted for use with an eyeshield of the type including eye protecting lenses supported on a lens frame worn by a user, said headgear comprising:

- (a) a head band adapted to encircle the head of the user and positionable in retained relationship thereon on a person's head, at least a portion of said head band being constructed of a material which is elasticized and stretchable and moisture absorbent said portion forming a section adapted to bear on and closely conform to the forehead of the user;
- (b) a flexible visor attached to said head band at said section and extending along its entire length from the head band forwardly therefrom, said visor having an outer edge;
- (c) fastener means on said visor adapted to engage the said lens frame whereby said visor is extendable and securable between the head band and said frame to form a protective shield fully extending in the peri-ocular area between the forehead of the user and the frame, with said eye protecting lenses held in a position whereby moisture accumulation on the lenses is minimized and the entire peri-ocular area is substantially shielded from solar rays.

4,393,520

ELBOW PILLOW

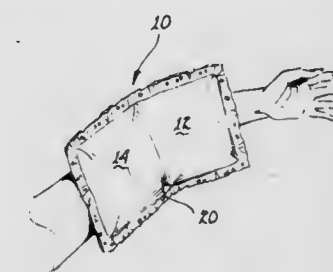
Coral A. Koch, 2067 W. Rainbow Ridge, Tucson, Ariz. 85745

Filed Feb. 1, 1982, Ser. No. 345,026

Int. Cl.³ A41D 13/08

U.S. Cl. 2—16

5 Claims



1. Apparatus for distributing loads in the crook of a user's arm to avoid impeding blood circulation on placement of a load at the crook of the arm and without restricting elbow movement, said apparatus comprising in combination:

- (a) a first sheet of flexible material;
- (b) a second sheet of flexible material;
- (c) stuffing disposed intermediate said first and second sheets

of material, said stuffing being divided into two segregated divisions;

- (d) means extending about the perimeter of said first and second sheets of material for enclosing the two divisions of said stuffing therebetween;
- (e) means for securing said first and second sheets of material against one another intermediate the divisions of said stuffing and transverse to said apparatus to form two parts of said apparatus flexibly juxtaposed with one another by said two sheets of material;
- (f) first strap means attached to one of the parts of said apparatus for encircling the user's forearm; and
- (g) second strap means attached to another of the parts of said apparatus for encircling the user's upper arm, said first and second strap means operating in concert to maintain continually during use of said apparatus and securing means positionally coincident with the crook of the arm to permit flexing of said apparatus commensurate with bending of the arm;

whereby, said apparatus is retainable adjacent the crook of a user's arm by said first and second straps to cushion the crook of the arm and distribute any loads placed thereon and without impeding blood circulation or restricting elbow movement.

4,393,521

DISPOSABLE GARMENT SHIELD AND METHOD OF MANUFACTURE

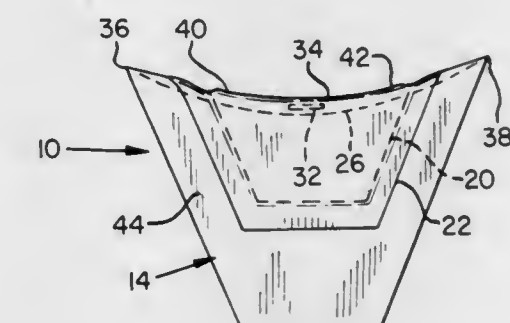
Carolyn R. Jones, 2818 S. Poplar Way, Lake Oswego, Oreg. 97304

Filed Apr. 6, 1981, Ser. No. 250,918

Int. Cl.³ A41D 27/12; D05B 97/00

U.S. Cl. 2—56

28 Claims



1. A disposable garment shield for positioning under the arm of the user in the sleeve area of a garment being worn, said shield having a first side adapted to be secured to the garment being worn and a second moisture absorbent side, said shield having a transverse fold line thereacross, said shield being folded toward said second side from said fold line up to a location longitudinally removed from said fold line, and reversely folded beyond said location exposing said second side and causing said shield to be depressed between lateral ends of said fold line forming a concavity adapting said shield to fit the underarm of the user.

4,393,522

ANKLE GARTER WITH FOOT STIRRUP

Diane M. Calabrese, 9710 Roosevelt Blvd., Philadelphia, Pa. 19115

Filed Dec. 4, 1981, Ser. No. 327,275

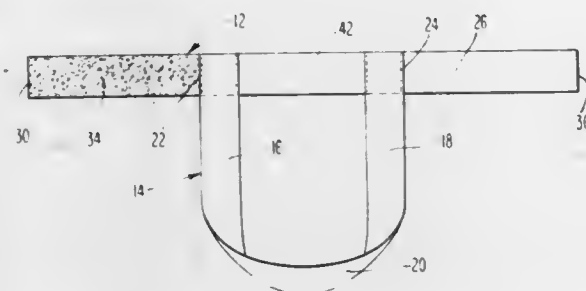
Int. Cl.³ A41F 1/00; A41D 1/06

U.S. Cl. 2—336

4 Claims

1. An article to hold a pants leg in place on the foot for ease of insertion into a sock, boot or the like comprising an open ended garter band adapted to adjustably wrap around the

bottom of the pants adjacent the ankle of the foot, a U-shaped longitudinally elastic stirrup having legs affixed to said garter band inwardly of the free ends of said garter band, the length of said garter band between the points on connection of said stirrup legs to said garter band being longitudinally elastic, and means at the opposite faces of said garter band adjacent its free



ends mating by finger pressure to releasably close said garter band, said means including a fuzz portion on the inner face of said garter band adjacent one free end thereof and a mating hook portion on the outer face of said garter band adjacent its other end whereby when said ends are overlapped and pressed together said fuzz and hook portions will releasably interengage.

4,393,523

TUB FILLING AND SHOWER VALVE

Werner Nolden, Wittlich, Fed. Rep. of Germany, assignor to American Standard Inc., New York, N.Y.

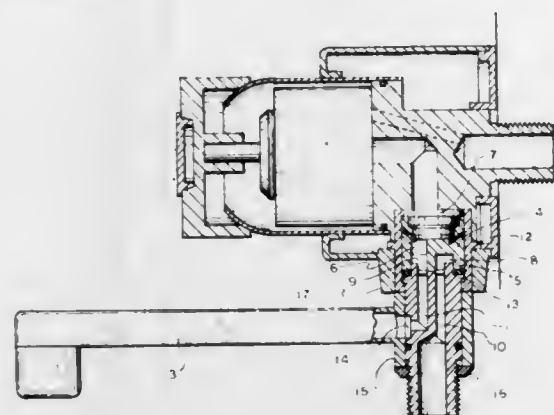
Filed Mar. 30, 1982, Ser. No. 363,695

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1981, 3113615

Int. Cl.³ E03C 1/04

U.S. Cl. 4-192

2 Claims



1. Tub filling and shower valve comprising a pivotable tub inlet assembly including a change-over valve means for directing the flow of water from a tub mode to a shower mode, said change-over valve means having a pair of superimposed control discs, one of which is a seating disc having a throughput opening coupled to a water discharge mixing chamber and the other control disc being rotatably mounted on said seating disc and having two throughput openings which are adapted to be aligned with said throughput opening of said seating disc, a control bushing rotatably mounted in a housing of said valve and having a pair of conduits, one end of which is coupled to said throughput openings of said rotatable disc with the opposite end being coupled to a shower outlet by one of said conduits of said control bushing and said other conduit being coupled to said pivotable tub inlet means of a lateral discharge opening in said control bushing.

4,393,524
SELF-CONTAINED SEWAGE WASTE DISPOSAL SYSTEM

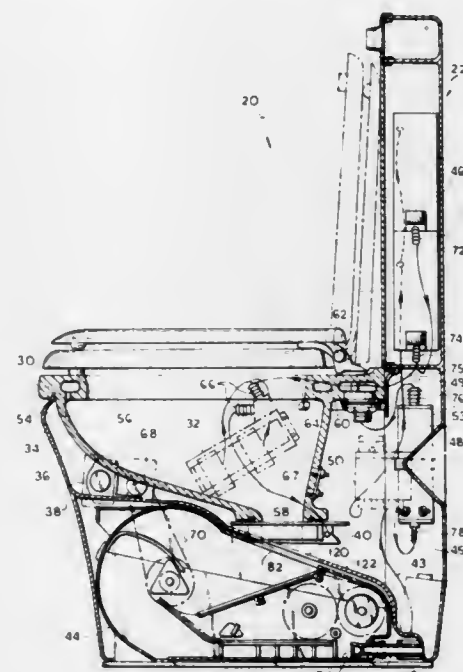
Clifton F. Briner, Lafayette, Ind.; William R. Bocchini, Wyckoff, and Brian Wilcockson, Long Beach Island, both of N.J., assignors to American Standard, Inc., New York, N.Y.

Filed Nov. 12, 1981, Ser. No. 320,595

Int. Cl.³ E03D 5/016

U.S. Cl. 4-317

19 Claims



1. A self-contained sewage waste disposal system comprising: a housing structure, a toilet bowl adapted to receive human waste and fluid for diluting the waste, transporting the waste and rinsing the bowl, a removable filter cassette in the housing in communication with the toilet bowl, means for flushing the bowl and dumping the contents into the filter cassette and for subsequent refilling of the bowl, filter means in the cassette for separating the coarse and fine particles of solid material from the fluid received from the bowl, storage means in the cassette to store the solid material in a compact manner for subsequent disposal upon removal of the cassette, pump means including interconnected conduits in the housing to transport fluid from the interior of the system to fill the bowl after a flush, to transport filtered fluid from the filter cassette to a position for recirculation, and control means to pass the fluid through the system to facilitate the collection and disposal of sewage waste within the system in a predetermined sequence.

4,393,525

HEAT-CONTROLLED SANITARY BATHING DEVICE

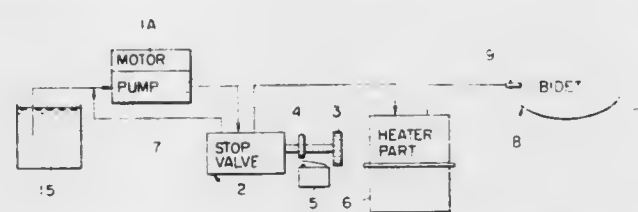
Kenshi Kondo, Tokyo, Japan, assignor to Nihon Den-Nitsu Keiki Co., Ltd., Tokyo, Japan

Filed Dec. 15, 1981, Ser. No. 330,950

Int. Cl.³ A47K 3/20

U.S. Cl. 4-420.2

5 Claims



1. In a water-closet apparatus with a heat-controlled bathing system, including a heater for heating feed water to a predetermined temperature, a bidet portion having nozzle means adapted for spraying heated water supplied from said heater, a pump for feeding water to said heater and nozzle means, and a valve means for controlling the flow rate of water to said heater, the improvement which comprises:

said control valve means comprising a tubular valve casing defining axially contiguously aligned discharge, supply and recirculating chambers therein; an inlet port provided in said valve casing at a location so that feed water from said pump may be supplied to said supply chamber there-through; a discharge port provided in said valve casing at a location so that feed water in said discharge chamber may be fed to said heater therethrough; a recirculating port provided in said valve casing at a location so that the feed water in said recirculating chamber may be recirculated to the suction side of said pump; main and auxiliary valve seats provided in said valve casing at positions between said discharge and supply chambers and between said supply and recirculating chambers, respectively; a valve plug axially movably accommodated in said supply chamber and having main and auxiliary valve faces cooperable with said main and auxiliary valve seats, respectively, for controlling the rate of water flowing there-through, said valve plug being constantly urged to engage said main valve face with said main valve seat; and a valve stem threaded into said valve casing for axial movements and having a portion adapted for abutting engagement with said valve plug for displacing said valve plug so that, by turning said valve stem, feed water supplied to said supply chamber from said pump may be admitted into either one or both of said discharge and recirculating chambers; and

said heater comprising an outer vessel; an inner vessel defining a primary chamber therein and placed inside of said outer vessel to define a secondary chamber therebetween; a water feed pipe extending between said primary chamber and said outlet port of said water control valve; an opening provided in an upper portion of said primary chamber so that said primary chamber is in fluid communication with said secondary chamber; first and second heating means for heating water in said primary and secondary chambers to predetermined temperature levels, respectively; a heated water feed means extending between said secondary chamber and said nozzle means; and means for stopping operation of said pump when the water temperature in said secondary chamber exceeds said predetermined temperature level.

4,393,526

POOL CLEANING APPARATUS

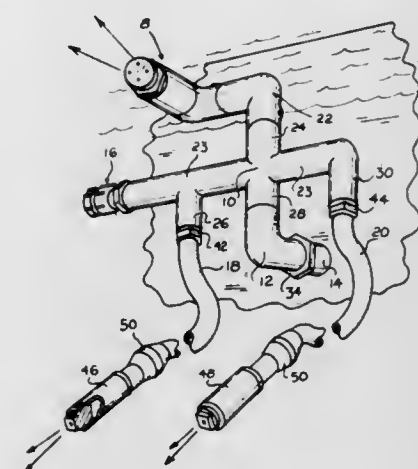
Paul B. Miller, 6513 Temba Dr., and Tony C. R. Miller, 6484 DuSault Dr., both of San Jose, Calif. 95119

Filed Nov. 23, 1981, Ser. No. 323,928

Int. Cl.³ B08B 9/08; E04H 3/16

U.S. Cl. 4-490

11 Claims



1. A pool cleaning apparatus for attachment to a pressurized inlet of a swimming pool, the apparatus comprising:
(a) a main body portion provided with a chamber;
(b) first means coupling said main body portion to said inlet

such that pressurized water may flow from said inlet into said chamber;

- (c) a pressure relief valve coupled to said main body portion for selectively venting said pressurized water within said chamber;
- (d) an elongated, flexible primary cleaning hose having a first end coupled to said main body portion and opening on said chamber, whereby pressurized water from said chamber may flow out a second end of said hose;
- (e) a nozzle submerged below the surface of the water contained by said swimming pool to direct a flow of water towards said water surface; and
- (f) second means coupling said nozzle to said main body such that pressurized water from said chamber may flow out of said nozzle, wherein said second means is adjustable to permit the angle and direction of the flow of water from said nozzle to be varied.

4,393,527

METHOD OF CONTROLLING NON-SOLAR SWIMMING POOL HEATER

Robert M. Ramey, North Hollywood, Calif., assignor to Tele-dyne Industries, Inc., Los Angeles, Calif.

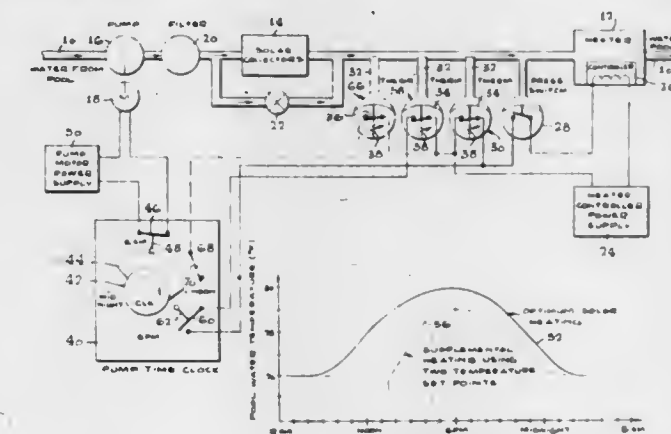
Division of Ser. No. 220,377, Dec. 29, 1980, Pat. No. 4,368,549.

This application Sep. 15, 1982, Ser. No. 418,516

Int. Cl.³ E04H 3/16, 3/18

U.S. Cl. 4-493

1 Claim



1. A method of controlling a non-solar heater to provide supplemental heating for a solar-collector heated swimming pool, comprising the steps of:
providing solar collectors;
connecting the solar collectors to heat the water in the swimming pool, whereby the collectors establish an optimum daily water temperature vs. time profile when full solar energy is available;
connecting the non-solar heater to heat the water in the swimming pool;
providing a non-solar heater temperature vs. time profile which closely approximates the optimum profile; and
controlling the non-solar heater to heat the pool water in accordance with the non-solar heater temperature vs. time profile, whereby the non-solar heater acts to supplement the solar collectors to that the water temperature closely approximates the optimum temperature profile when full solar energy is not available.

4,393,528

ADJUSTABLE TRAMPOLINE TYPE POOL AND HOT TUB COVER

Trent W. West, P.O. Box 956, Aptos, Calif. 95003

Filed May 1, 1981, Ser. No. 259,414

Int. Cl.³ E04H 3/16

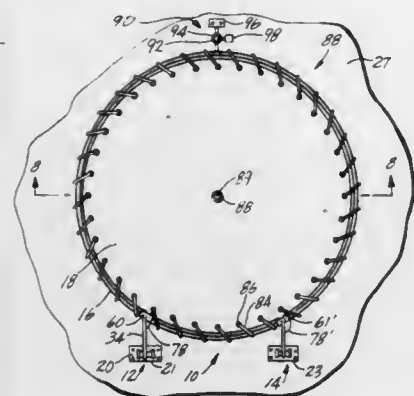
U.S. Cl. 4-498

17 Claims

1. A cover for covering pools comprising:
at least one hinge for mounting to a rigid support adjacent the pool;
a hinge arm pivotally mounted in such a hinge for pivoting

between open and cover pool positions, the arm having an axis and first and second ends, the arm being pivotable at the first end thereof about a pivot axis defined in the hinge, the arm being capable of movement through a predetermined angle of rotation away from a plane that is substantially normal to the pivot axis;

a clamp at the second end of the arm, the clamp having an axis oriented at a predetermined clamp angle relative to the axis of the arm;



a hoop having a perimetral shape conforming to and circumscribing the pool, said hoop secured in the clamp, an interior hoop area being defined by the perimeter of the hoop; and

a panel for covering the pool and secured to the hoop and spanning the interior hoop area thereof, the clamp angle and the angle of rotation of said hinge arm in combination allowing for adjustment of the hoop in the clamp in accordance with the shape of said hoop such that when the panel covers the pool the hoop lies in a horizontal plane.

4,393,529

INVALID CHAIR

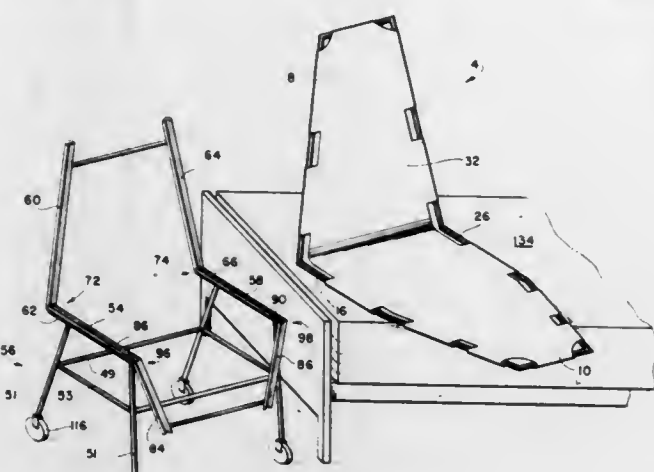
Elizabeth Britz, 2303 First Street, New Port Richey, Fla. 33552

Filed Sep. 24, 1980, Ser. No. 190,468

Int. Cl.³ A61G 1/02, 1/04, 7/02

U.S. Cl. 5—81 R

5 Claims



1. A two-part invalid chair, comprising:

an elongated, tubular frame having an open inner area bounded by a U-shaped, tubular, head-supporting portion on a first end and a U-shaped, tubular, foot-supporting portion on a second end with a first leg of said head portion connected to a first end of a first tubular, flank-supporting portion whose second end is connected to a first leg of said foot-supporting portion and with a second leg of said head portion connected to a first end of a second, tubular, flank-supporting portion whose second end is connected to a second leg of said foot-supporting portion;

portion, said flank-supporting portions and said U-shaped foot-supporting portion;

a first horizontal trough mounted to a support base, having a semi-circular cross section which conforms to the shape of said first tubular, flank-supporting portion of said frame and a second horizontal trough mounted to said support base, having a semi-circular cross section which conforms to the shape of said second tubular, flank-supporting portion of said frame, for removably mounting said flank-supporting portions to said support base;

said first and second flank-supporting portions of said frame being in a substantially, mutually parallel relationship at a predetermined separation distance;

said first and second horizontal troughs being mounted to said support base in a substantially, mutually parallel relationship at said predetermined separation distance for removably mounting said respective flank-supporting portions thereto;

a first clamp mounted to said first horizontal trough of said base, for clamping said first flank-supporting portion of said frame thereto;

a second clamp mounted to said second horizontal trough of said base, for clamping said second flank-supporting portion of said frame thereto;

a first upper trough mounted to a first end of said first horizontal trough, having a semi-circular cross section which conforms to the shape of said first leg of said U-shaped, tubular, head-supporting portion of said frame and a second upper trough mounted to a first end of said second horizontal trough, having a semi-circular cross section which conforms to the shape of said second leg of said U-shaped, tubular, head-supporting portion of said frame, for removably mounting said head-supporting portion thereto;

said first and second upper troughs being mounted to said respective first and second horizontal troughs in a mutually spaced relationship for removably mounting the tubular contours of said respective first and second legs of said head-supporting portion of said frame into said semi-circular contours of said respective upper troughs;

a first clamp mounted to said first upper trough of said base, for clamping said first leg of said head-supporting portion of said frame thereto;

a second clamp mounted to said second upper trough of said base, for clamping said second leg of said head-supporting portion of said frame thereto;

said first leg of said U-shaped head-supporting portion of said frame being hingedly mounted to said first end of said first flank-supporting portion and said second leg of said U-shaped head-supporting portion of said frame being hingedly mounted to said first end of said second flank-supporting portion;

said first upper trough of said base being hingedly mounted to said first end of said first horizontal trough and said second upper trough of said base being hingedly mounted to said first end of said second horizontal trough;

a first lower trough mounted to a second end of said first horizontal trough, having a semi-circular cross section which conforms to the shape of said first leg of said U-shaped, tubular, foot-supporting portion of said frame and a second lower trough mounted to a second end of said second horizontal trough, having a semi-circular cross section which conforms to the shape of said second leg of said U-shaped, tubular, foot-supporting portion of said frame, for removably mounting said foot-supporting portion thereto;

said first and second lower troughs being mounted to said respective first and second horizontal troughs in a mutually spaced relationship for removably mounting the tubular contours of said respective first and second legs of said foot-supporting portion of said frame into said semi-circular contours of said respective lower troughs;

a first clamp mounted to said first lower trough of said base,

for clamping said first leg of said foot-supporting portion of said frame thereto; and
a second clamp mounted to said second lower trough of said base, for clamping said second leg of said foot-supporting portion of said frame thereto.

4,393,530
PILLOW

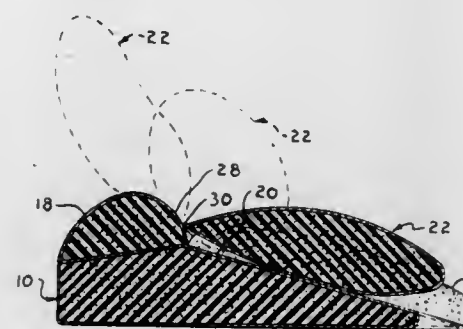
Lucille Stark, Pine Village II, Box 127, Hobart, Ind. 46342

Filed Nov. 17, 1981, Ser. No. 322,300

Int. Cl.³ A47G 9/00

U.S. Cl. 5—437

1 Claim



1. A pillow comprising:

a pillow body having elevated opposed end parts, an elevated side part extending laterally between said end parts, said end parts and side part defining a generally "U" shaped frame and a depressed center part extending between said end parts and said side part;

a second pillow body fitted in said depressed center part of said pillow body providing a top surface substantially even in elevation with said side part and said end parts; and

said second pillow body being connected to the side of said side part proximate to said depressed part for pivotal movement of said second pillow body out of said depressed center part against said elevated side part for support thereby in a position elevated above said end parts and side part.

4,393,531

LINER FOR A WATER BED

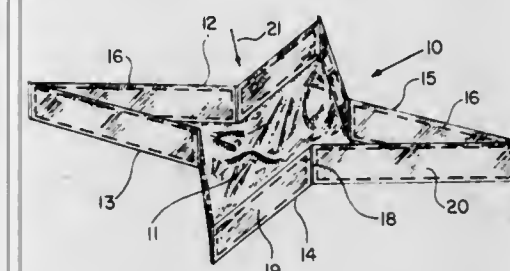
Eugenio D. Hodel, 71 Upper Toyon, Kentfield, Calif. 94904

Filed Nov. 24, 1980, Ser. No. 209,388

Int. Cl.³ B65D 5/36; A47C 27/08

U.S. Cl. 5—451

5 Claims



1. In a waterbed which comprises a liquid containing mattress disposed in a frame, the improvement comprising a liner for a waterbed, the liner being adapted to be installed in the frame prior to installing the mattress therein, the liner comprising:

a planar bottom panel of a flexible water tight material; a plurality of upstanding side walls secured to the periphery of said bottom panel thereby forming a container for containing therein a mattress, said side walls being adapted to encircle said mattress; and

each of said upstanding side walls having two equal sections, defined by rigid panels completely enclosed by a waterproof sheet, the two equal sections of each of said side

walls being separated by a seam that permits folding of the structure, said water-tight material of all of said side walls being secured to said bottom panel in a fluid tight manner.

4,393,532

METHOD FOR CONTINUOUS DELUSTERING HIGH TEMPERATURE TREATMENT OF A TEXTILE PRODUCT AND AN APPARATUS THEREFOR

Yoshikazu Sando, and Hiroshi Ishidoshiro, both of Wakayama, Japan, assignors to Sando Iron Works Co., Ltd., Wakayama, Japan

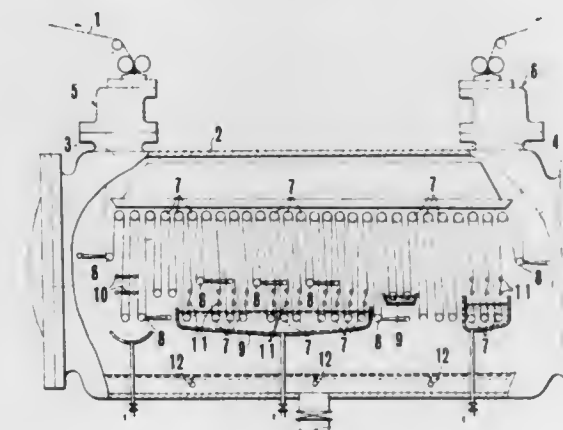
Filed Apr. 15, 1981, Ser. No. 254,427

Claims priority, application Japan, Apr. 15, 1980, 55-49292; Apr. 15, 1980, 55-50632[U]

Int. Cl.³ D06B 3/12

U.S. Cl. 8—149.1

9 Claims



1. A method for continuous delustering high temperature treatment of a textile product comprising subjecting a textile product such as yarns, a strip and a cloth to be treated to steaming while transporting the textile product continuously through a steamer body maintained with a high temperature wet heat under an elevated pressure, guiding the textile product over a plurality of cloth guide rolls provided in the steamer body, and maintaining a water film between each of the guide rolls and the textile product guided therewith for preventing that the surface of the textile product is lustered.

2. An apparatus for the continuous delustering high temperature treatment of a textile product comprising a high pressure steamer, a plurality of axially extending cloth guide rolls located within said steamer and arranged to transport the textile product continuously through the steamer body, said cloth guide rolls arranged to move the textile product in an up and down zigzag path through said steamer with the textile product passing around and in contact with said cloth guide rolls, means for maintaining a high temperature wet heat within said steamer, means for supplying heated water to at least certain of said cloth guide rolls, and said cloth guide rolls each including means for maintaining a water film between each said cloth guide roll and the textile product guided thereover.

4,393,533

DEVICE FOR LAP-JOINT ENGAGEMENT OF TWO BRIDGE ELEMENTS ON INTRADOS OR EXTRADOS AND BRIDGE ELEMENT COMPRISING IT

Michel E. Terrien, and Claude Bouvet, both of Angers, France, assignors to Etat Francais, Paris, France

Filed Aug. 3, 1981, Ser. No. 289,782

Claims priority, application France, Aug. 21, 1980, 80 18257

Int. Cl.³ E01D 15/14

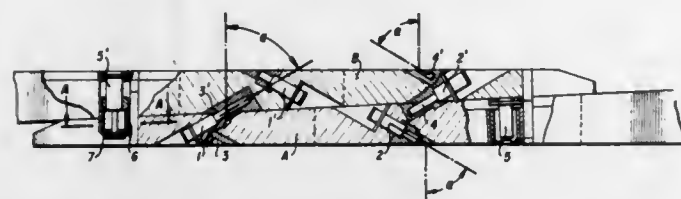
U.S. Cl. 14—2.6

12 Claims

1. A device for permitting the lap joint connection of two bridge elements, a lower bridge element and an upper bridge element, on intrados or extrados, the lower bridge element being capable of becoming the upper bridge element and vice versa, comprising:

a means for centering the two bridge elements with respect to each other when they assume an overlapping configuration; and

a means for connecting the two bridge elements, the connecting means comprising at least two retractable studs belonging to the first bridge element and located on axes



oblique with respect to the surface of the first bridge element, the tow studs being adapted to cooperate with at least two recesses in a second bridge element, the recesses having the same inclination with respect to the surface of the second bridge element as the studs have with respect to the surface of the first bridge element.

4,393,534

FLOOR CLEANING AND POLISHING MACHINE

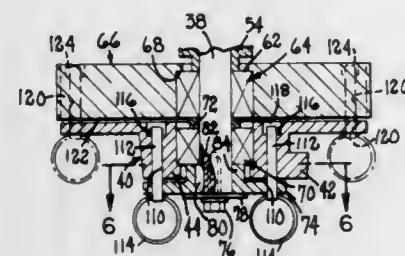
Jeffrey A. Lee, Crystal, and Mike J. Todd, Eagan, both of Minn., assignors to H. B. Fuller Company, Saint Paul, Minn.

Filed Oct. 9, 1981, Ser. No. 310,000

Int. Cl.³ A47L 11/162

U.S. Cl. 15—98

15 Claims



1. Apparatus for mechanically varying the speed of a disk driven rotationally about an axis by a power source, comprising:

- means for supporting the disk relative to the axis, said supporting means being rotatably disposed about the axis;
- means for imparting rotational motion to said supporting means directly from the power source and at a fixed speed;
- a variant speed element mounted for rotation about the axis and geared from the power source to a different speed;
- means for selectively keying said supporting means to one of said direct rotational motion imparting means and said variant speed element.

4,393,535

ADJUSTABLE BRUSH

Paul Kunz, Bern, Id. 83220

Filed Mar. 17, 1981, Ser. No. 244,748

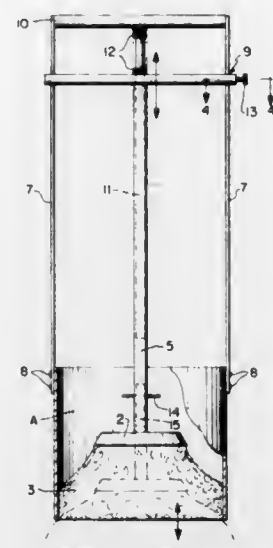
Int. Cl.³ A46B 9/10

U.S. Cl. 15—169

15 Claims

15. A circular brush having an adjustable effective working diameter comprising brush means having radially projecting flexible bristles and annular sleeve means having a diameter less than the diameter of said radially projecting bristles, said sleeve means being selectively, axially movable between a first position in which said sleeve means is retracted away from the bristles of said brush means whereby said bristles project freely in the radial direction to establish a maximum effective working diameter for said brush means, and a second position in which said sleeve means is extended to at least partially surround said brush means whereby said bristles are at least par-

tially compressed to establish an effective working diameter for said brush means which is less than said maximum effective working diameter, and guide means for maintaining the alignment of said brush means and said sleeve means, said guide means comprising a central guide rod on said sleeve means, a guide tube aligned with said guide rod mounted on said brush



4,393,536

DUAL MODE VACUUM CLEANER

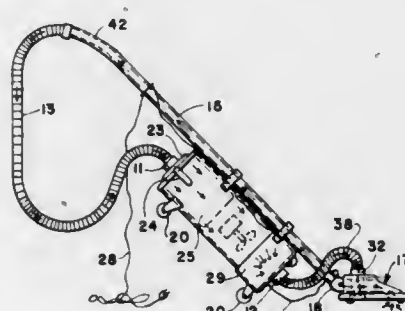
Ruel W. Tapp, P.O. Box 449, Tomball, Tex. 77375

Filed Jan. 25, 1982, Ser. No. 342,515

Int. Cl.³ A47L 5/14

U.S. Cl. 15—327 C

4 Claims



1. A vacuum cleaner apparatus comprising

- an elongated canister which confines an electric motor, air-moving means driven by said motor, and filtration means adapted to remove particulate material from air moved through said canister by said air-moving means,
- front and rear closure means associated with each end of said canister,
- a vacuum port positioned within said front closure means,
- an exhaust port positioned within said rear closure means,
- said vacuum and exhaust ports communicating with the interior of said canister and adapted to permit facile connection thereto of conduits,
- means associated with the underside of said canister to facilitate movement over a horizontal surface,
- means associated with the upper side of said canister for releasable attachment to a tubular member,
- a rigid tubular member having first and second extremities,
- a first flexible conduit adapted to communicate between

said vacuum port and the first extremity of said tubular member,

- a floor-cleaning device comprised of a housing which encloses a second electric motor and rotary brushes driven by said motor, means associated with the lowermost surface of said housing to facilitate movement over a horizontal surface, an inlet port positioned in the uppermost surface of said housing and communicating with a conduit which extends to an opening adjacent the lowermost surface of said housing, and an exit port positioned in a side surface of said housing, said exit port serving to engage the second extremity of said tubular member,
- a second flexible conduit, shorter than said first flexible conduit, adapted to attach at one end to said exhaust port and at its opposite end to said inlet port when said canister is attached to said rigid tubular member in a manner such that said front closure means is upwardly directed.

4,393,537

POWER BROOM WITH AUGER AND VACUUM DEBRIS CONVEYOR

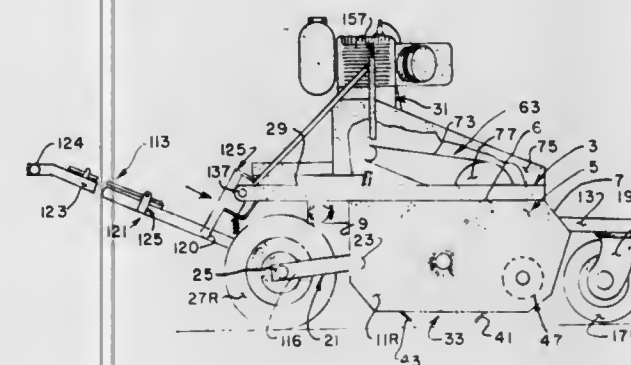
Layton J. Repogle, and Truman B. Repogle, both of St. Louis County, Mo., assignors to All Temp Engineering Inc., St. Louis, Mo.

Filed Jul. 13, 1981, Ser. No. 282,812

Int. Cl.³ E01H 1/04

U.S. Cl. 15—348

8 Claims



1. A power broom for removal of debris from a surface comprising a housing, a rotary brush mounted within said housing for rotation about a horizontal axis, said housing substantially enclosing said brush with the lower portion of said brush being exposed for brushing engagement with said surface, said brush being driven in such direction as to propel debris from said surface upwardly within said housing, the latter including a portion thereof adjacent said brush for receiving and collecting said debris picked up and propelled by said brush within said housing, an outlet for said debris within said housing, an auger positioned within said housing and extending generally transversely thereof for positively conveying said debris to said outlet, vacuum means in communication with said outlet for vacuum conveying said debris from said outlet, a plurality of wheels for rollingly supporting said power broom, means for driving said brush, said auger, and certain of said wheels, a handle connected to the rear of said housing and extending rearwardly therefrom, means operable in response to movement of said handle relative to said housing between first and second positions to cause said housing to be moved relative to said rear wheels and relative to said surface between an inoperative mode in which the rear wheels are not driven and in which said brush is lifted clear of said surface, an operative mode in which the rear wheels are driven in forward direction and in which said brush operatively engages said surface.

4,393,538

SCRUBBER WITH FOAM AND SPRAY SUPPRESSOR

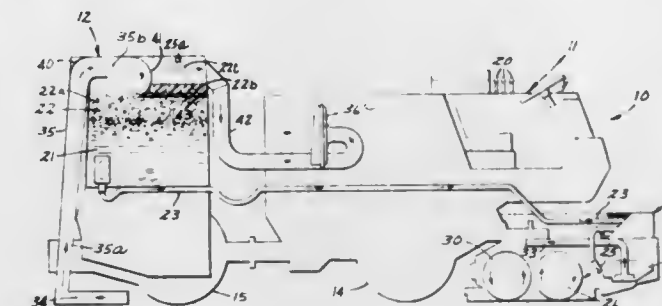
Donald L. Olson, Minneapolis, Minn., assignor to Tennant Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 72,826, Sep. 6, 1979, abandoned. This application Sep. 9, 1980, Ser. No. 185,651

Int. Cl.³ A47L 11/204

U.S. Cl. 15—320

19 Claims



1. A scrubbing machine comprising:

- a body;
- wheels rotatably affixed to said body;
- tank means for containing scrubbing solution, said tank means comprising a single recovery tank;
- means for conveying said solution from said tank means to the surface to be scrubbed;
- means for working the solution on the surface;
- vacuum squeegee means for recovering said solution from the scrubbed surface;
- means for conveying said solution from said squeegee means to said tank means; said conveying means including a vacuum fan and duct means, said vacuum fan providing sufficiently high velocity to pick up said solution from the surface, said velocity being sufficiently great that substantial foaming would occur in said tank means if said velocity were maintained throughout said duct means; said duct means having an entrance cross section area to an exit cross sectional area ratio sufficient to substantially reduce the necessary high velocity of the solution at the squeegee means to a critical lower velocity which minimizes foaming and spraying, wherein at least a portion of said duct means has a substantially uniformly increasing cross sectional area whereby said solution velocity is reduced sufficiently to avoid development of foam and spray as said recovered solution is conveyed to said tank means.

4,393,539

OVERHANDLE FOR ENCLOSING A DENTAL TOOL HANDLE OR SHANK

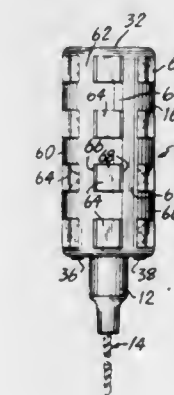
Bernard Weissman, New York, N.Y., assignor to Ipco Corporation, White Plains, N.Y.

Filed Dec. 9, 1980, Ser. No. 214,664

Int. Cl.³ B25G 3/38

U.S. Cl. 16—114 R

15 Claims



1. An overhandle for enclosing a cylindrical end portion of a rotatable dental tool, comprising:

two mating semi-cylindrical elongated first and second sections having respective first and second forward end faces, said forward end faces being confrontingly opposed to each other in an opened condition of said overhandle, and said forward end faces being in a single plane in an assembled closed condition of said overhandle with said sections disposed against each other to define an elongated cylindrical body capable of being rotated;

a pair of hinges interconnecting said forward end faces to provide a one piece construction and to permit said sections to pivot from said opened condition to said closed condition;

an elongated channel respectively provided in each of said sections to define first and second channels, each of said channels extending respectively through said first and second forward end faces, said channels being in axial alignment with each other in said opened condition, said channels matingly confronting each other in said assembled closed condition to define an internal chamber with a forward end having an opening therethrough, said chamber receiving the cylindrical end portion of the tool therein with a remaining portion of the tool axially extending through said chamber opening in said forward end; said hinges being spaced apart with one of said hinges being disposed on one side of said chamber opening and the other hinge being disposed on an opposite side of said chamber opening to permit the remaining portion of the tool to extend between said hinges without any interference therefrom;

first means in at least one of said sections for preventing axial extraction of the end portion of the tool from said chamber;

second means in at least one of said sections for rotating the end portion of the tool when said overhandle is rotated; releasable coupling means for retaining said sections together in said assembled closed condition to enclose the end portion of the tool therein and for permitting said sections to be pivoted into said opened condition to remove the end portion of the tool therefrom;

said sections having respective first and second rear end portions including rear end faces remote from said forward end faces to provide said overhandle with a rear end when in said assembled closed condition; and

said coupling means including at least one locking member extending outwardly from said first rear end portion, and at least one recess located in a corresponding position in said second rear end portion for receiving said locking member in said assembled closed condition.

4,393,540

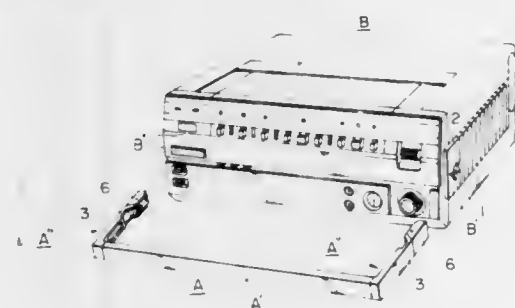
DETACHABLE HANDLE HAVING A PIVOTAL PART
Toshiharu Yamamoto; Manabu Sato, both of Yokohama; Katsuya Akiba, Abiko, and Koreyoshi Abe, Matsudo, all of Japan, assignors to Victor Company of Japan, Limited, Tokyo, Japan
Filed Jul. 15, 1981, Ser. No. 283,552

Claims priority, application Japan, Jul. 16, 1980, 55-100335[U]

Int. Cl.³ B25G 3/18

U.S. Cl. 16—114 R

4 Claims



1. A detachable carrying handle comprising a web section and a pair of parallel limb sections extending in a longitudinal direction for carrying a portable equipment, said portable

equipment having on each side thereof facing each of said limb sections a recess and a projection, the projection on one side is aligned along an axis with the projection on the other side, each of said limb sections including a first part connected at one end to said web section and a separate second part pivotally connected to the other end of said first part, said first part including a pin for transversely releasably engaging into said recess of said equipment and a longitudinally extending recess, said projection being inserted into the longitudinal recess and then slidably moved in the longitudinal direction in the longitudinal recess when said handle is moved in a direction parallel to the longitudinal direction to thereby maintain said handle in an upright position conjointly with said pin while allowing said handle to pivotally rotate about the axis when said pin is disengaged from said equipment recess, and means for urging the portion of said second part adjacent to said first part toward said equipment, said second part being engageable with said projection after said projection is inserted and slidably moved in the longitudinal direction in said longitudinal recess to prevent said handle from detaching from said equipment recess if said handle is moved in a direction opposite to the longitudinal direction and disengageable from said projection when pivotally rotated about a pivot against said urging means to allow said handle to be detached from said equipment by being moved in a direction opposite to the longitudinal direction.

4,393,541

HINGE FOR DEPLOYABLE STRUCTURES SELF LOCKING HINGE

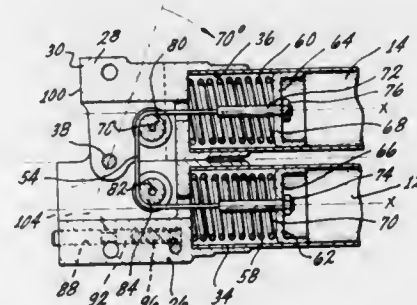
Edward J. Hujsak, La Jolla, and Hans M. Stocker, San Diego, both of Calif., assignors to General Dynamics Corporation/Convair Div., San Diego, Calif.

Filed Feb. 19, 1980, Ser. No. 122,752

Int. Cl.³ E05F 1/12

U.S. Cl. 16—297

11 Claims



1. A hinge having structural members attached thereto for positioning said structural members in a folded, back-to-back position and in an aligned deployed position comprising,

a pair of hinge members pivotally connected together, said hinge members form a bifurcated hinge construction,

biasing means connecting hinge members together and biasing said hinge members in both a folded and an unfolded position, said biasing means is located on the center line of said structural members and wherein said pivotal connection is offset said center line and located to allow said hinge members to fold to a position where said hinge members are back-to-back,

a trigger mechanism and a locking mechanism on said hinge members,

said trigger mechanism holding said locking member in an inoperative position when said hinge is in all but its unfolded position and triggering said locking mechanism to lock said hinge members together when said hinge is in its unfolded position.

4,393,542

POLYCENTRIC HINGE FOR CAST-BRACES

Gonzalo Martinez, P.O. Box 12304, Bogotá, Colombia
Filed Jul. 21, 1980, Ser. No. 170,485

Int. Cl.³ E05D 7/00

U.S. Cl. 16—369

3 Claims



1. A hinge for a knee brace including an elongated element attachable to a leg above the knee and a further elongated element attachable to the leg below the knee, said element being interconnected by a multi-flexible linkage comprising individual links pivotally interconnected in zig-zag manner and a cable anchored at one end to one of said elongated elements and threaded through the zig-zag links.

4,393,543

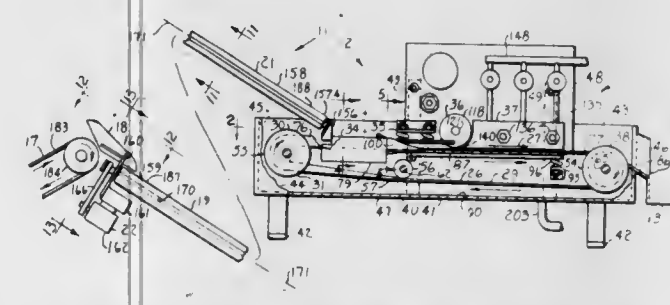
SHRIMP PROCESSING AND HANDLING APPARATUS

Roger C. Martin, 1392 Lenora Dr., Merritt Island, Fla. 32952
Filed Jun. 12, 1981, Ser. No. 272,901

Int. Cl.³ A22C 29/00

U.S. Cl. 17—72

19 Claims



1. A mechanism for orienting shell bearing curled shrimp body parts and for successively discharging the oriented body parts therefrom comprising a pair of elongated inclined cylindrical rolls that are laterally spaced apart and arranged in parallel to define a channel in which the body parts are received and supported during the orientation thereof, said channel being inclined and having an upper end at which the body parts are received, and a lower end from which the body parts are discharged, each of said cylindrical rolls having a smooth cylindrical surface, means for rotatably driving said rolls in opposite directions that provide for the upward passage of the cylindrical surfaces thereof at the space between said rolls, means for feeding randomly arranged shell bearing curled shrimp body parts into the channel at said upper end, at least one of said cylindrical rolls having an elongated narrow groove in its cylindrical surface; said elongated groove being arranged in parallel with the axis of rotation of said one roll and during each revolution thereof to facially confront at the space between the rolls a portion of the smooth cylindrical surface of the other of said rolls, said one roll having a ledge forming surface that projects generally radially inwardly of the smooth cylindrical surface thereof and defines the trailing side of said groove; said ledge being arranged when said rolls are being driven to encounter the lower side edge of the shell of a shrimp body part that is supported on the rolls with its ventral side confronting said space therebetween and to flip the encountered body part over onto its dorsal side in the channel defined by said rolls.

4,393,544

KRILL PEELING MACHINE

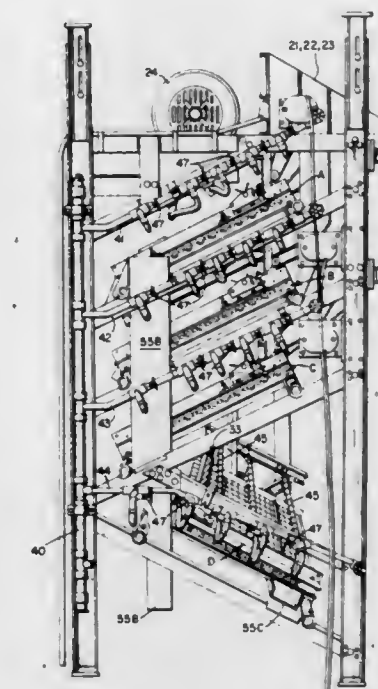
James M. Lapeyre, New Orleans, La.; Noel A. Svendsen, Marblehead; Raymond J. Carroll, Jr., Pinehurst, both of Mass.; Henry H. Long, River Ridge, La., and Richard S. Lindberg, Shrewsbury, Mass., assignors to The Laitram Corporation, New Orleans, La.

Filed Feb. 2, 1981, Ser. No. 230,709

Int. Cl.³ A22C 29/02

U.S. Cl. 17—73

10 Claims



1. A krill peeling machine comprising: a bank of pairs of peeling rolls having peeling nips therebetween with their major axes transverse to the path of flow of a supply of krill to be peeled, means for oscillating said peeling rolls causing said nips to engage and peel krill, said banks of peeling rolls being at a declination from the horizontal of from 20° to 30° and having a loading and discharge end, leveling means at the loading end of said peeling bank for distributing the krill substantially evenly across the peeling nips of the rollers to provide a layer of krill in contact with the peeling nips, krill longitudinal guide means spaced transversely along the major axes of the peeling rolls to maintain a uniform distribution of krill transversely of the axes of the peeling rolls, and water means positioned to supply water means so that the water acts as a peeling lubricant between the krill and peeling nips and also as a conveyor to promote progress of the krill down the bank of peeling rolls as a fluid conveyor bed the speed of progress of which can be varied depending on the size and age of the krill.

4,393,545

PROCESSING OF SEA URCHINS

Brian F. O'Donnell, 4 Nerissa St., Burwood, 31325, Victoria, Australia

Filed Dec. 2, 1980, Ser. No. 212,330

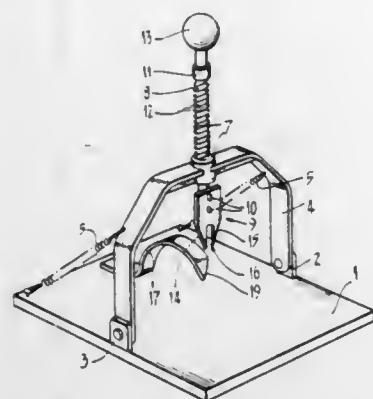
Claims priority, application Australia, Dec. 4, 1979, PE1598
Int. Cl.³ A22C 29/04

U.S. Cl. 17—76

8 Claims

1. A tool for cracking the shells of sea urchins and like shelled creatures, characterised by a blade formed with a central recess which enables the blade to penetrate the shell of the

sea urchin in the region of the mouth thereof without causing significant damage to the internal organs or roe of said sea



urchin, said blade having cutting edges extending upwardly and outwardly from either side of said recess.

4,393,546

OYSTER SPLITTER

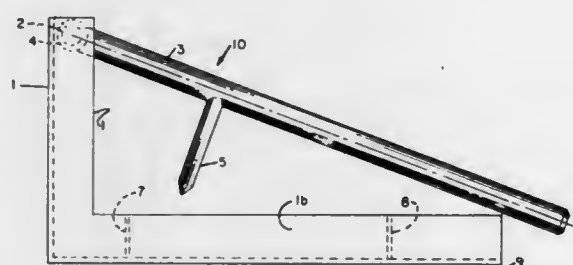
Jorge M. Ruiz, Rte. 1, Box 30, Fletcher La., Walker, La. 70785

Filed Sep. 18, 1981, Ser. No. 303,401

Int. Cl.³ A22C 29/04

U.S. Cl. 17-76

1 Claim



1. A device for splitting oyster and clam shells, comprising: (a) a support, which includes a base and a frame, the base further including an enclosure for positioning the oyster or clam; and

(b) shell-splitting means including a first bar pivotally connected to the frame, and a second bar substantially perpendicular to the first bar, one end of the second bar fastened to the first bar, the second bar including at its other end a hard, substantially conical edge; the first bar fastened to and substantially perpendicular to a third bar which is coaxial with a bearing fastened to the frame, whereby the first bar is capable of free rotation about the axis of the third bar.

4,393,547

METHOD AND APPARATUS FOR THE OUTPUT CONTROL IN A CARDING MACHINE

Fritz Hosel, Monchengladbach, Fed. Rep. of Germany

Filed Nov. 3, 1980, Ser. No. 203,677

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1979, 2944428

Int. Cl.³ D01G 15/40, 15/48; D01H 5/42

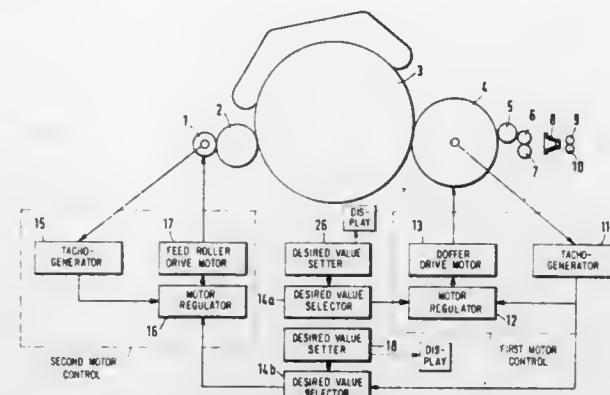
U.S. Cl. 19-105

8 Claims

1. In a carding machine including a doffer, a first motor for driving said doffer, a feed roller and a second motor for driving said feed roller; the improvement comprising an apparatus for controlling the output and the sliver density in said carding machine; said apparatus having

- (a) a first motor regulator connected to said first motor;
- (b) a second motor regulator connected to said second motor;
- (c) a first desired value setter for said doffer, connected to said first motor regulator;

- (d) a second desired value setter for said feed roller, connected to said second motor regulator;
- (e) a memory connected to said first and second desired value setters for feeding setting signals therefrom into said memory;



- (f) a first switch having first and second positions for selectively connecting said first motor regulator to said first value setter or to said memory; and
- (g) a second switch having first and second positions for selectively connecting said second motor regulator to said second value setter or to said memory.

4,393,548

FOLDED HEAD CABLE TIE AND METHODS FOR MAKING AND USING THE SAME

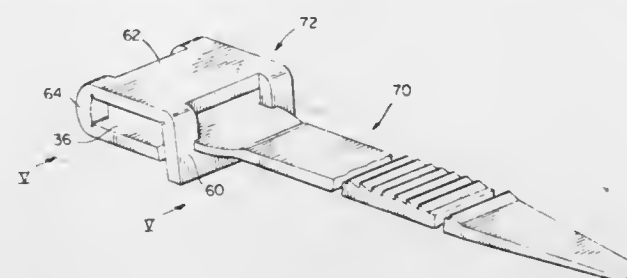
Philip J. Herb, Somerville, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Aug. 4, 1980, Ser. No. 175,263

Int. Cl.³ B65D 63/00

U.S. Cl. 24-16 PB

16 Claims



1. A self-latching tie comprised of a resilient elongate member having an end extent of folded walls defining a box-like head, said member having a body extent extending integrally and continuously with one wall of said head through an opening in another wall of said head and defining a tail, said head having a longitudinal passage therethrough bounded on opposed sides by walls of said member end extent inclusive of said one wall for receiving said tail, said head and said tail having respective complementary engagement means for securing said tail in such head passage.

4,393,549

SUPPORT CLIP FOR A DROPWIRE OR THE LIKE

Ignazio Leonardo, Mountainside, N.J., assignor to Diamond Communication Products, Inc., Garwood, N.J.

Filed Sep. 29, 1981, Ser. No. 306,857

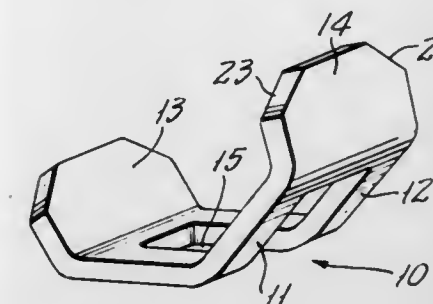
Int. Cl.³ F16G 11/02

U.S. Cl. 24-115 A

6 Claims

1. As an article of manufacture, a support clip for a dropwire or the like, comprising a formed unitary blank of ductile metal sheet, the planiform of the blank being a peripherally continuous elongate rectangular frame surrounding a central open rectangular window region, said frame comprising two elongate parallel legs and two short end legs integrally connecting the longitudinal ends of said elongate legs, the length of said elongate legs along the length of said window region being at

least twice the length of said short end legs along the width of said window region, like longitudinally central obtuse-angle bends in each of said elongate legs, whereby the span between end legs is less than the length of said elongate legs but is nevertheless greater than the length of said short end legs, the width of said window being sized for accommodation of the width of dropwire to be secured to a support and said span between end legs being greater than the combined double



thickness of the dropwire, whereby a loop of the dropwire may be inserted through the window within said span with portions of the dropwire on both sides of the loop in adjacency to the combined extent of double the dropwire thickness, further whereby the clip may then be secured by crimping said end legs toward each other to reduce said span and in compressed squeezing engagement with said dropwire portions to permanently retain the loop, with said longitudinally central bends permanently reduced from said obtuse angle.

4,393,550

SAFETY CLASP FOR THE STRING OF FOOTWEAR

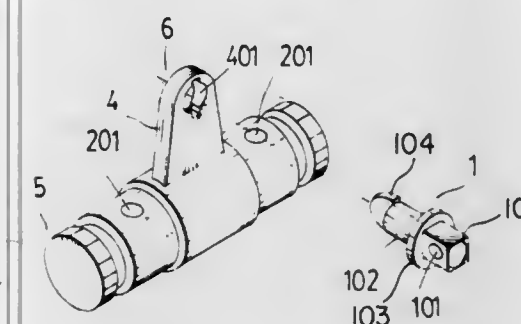
James Yang, and James M. F. Chen, both of No. 206, Li Hsing Rd., Taichung City, Taiwan

Filed Apr. 20, 1981, Ser. No. 255,369

Int. Cl.³ F16G 11/00

U.S. Cl. 24-117

2 Claims



1. A safety clasp for the string of footwear comprising a fastening member and a knot member, said knot member having a lower portion transversely perforated with a hole, an extending rod portion, and a flat protruding head the height of which is larger than the diameter of said extending rod portion, said extending rod portion being between said lower portion and said flat protruding head; said fastening member comprising a tube having two bores, a compression spring within said tube, a pin at each end of said tube biased by said spring, and each pin having a bore substantially corresponding in size to said bore of said tube, and a mount perpendicular to said tube, said mount having a shaped perforation corresponding in size to the thickness of said flat protruding head and to the diameter of said extending rod portion so as to receive said flat protruding head and extending rod portion of said knot member therethrough as in the form of a keyed rod, whereby a knot is obtained by passing the opposite ends of said string of the footwear through the aligned bores of said tube and said pins upon said pins being depressed in said tube and further passing said ends in an opposite direction through the perforation in said lower portion of said knot member, and still further inserting said head of said knot member through the perfora-

tion of said mount; and said knot member being detachable from said mount by adjusting said flat protruding head in alignment with said shaped perforation of said mount.

4,393,551

ROTATABLY ENGAGING HEAD FOR FASTENER

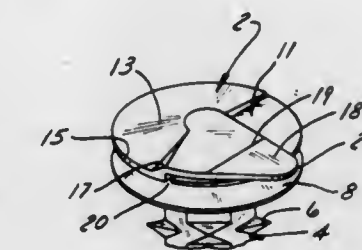
Burnell J. Wollar, Barrington, Ill., and Richard J. Schwind, Akron, Ohio, assignors to Phillips Plastics Corp., Phillips, Wis.

Filed Aug. 25, 1980, Ser. No. 181,139

Int. Cl.³ A44B 17/00

U.S. Cl. 24-213 R

5 Claims



1. In a resilient fastener for attaching a complementary panel member to a support member, said panel member and said support member each including an aperture, said fastener comprising: a head of larger diameter than said panel member aperture, said head including an upperside, an underside and a circumferential edge; a shank extending from said underside of said head; said head having a slit extending radially inwardly from said circumferential edge of said head; and a lead-in tongue spaced above and generally parallel to said upperside of said head, said lead-in tongue being connected to said upperside of said head along one side of said slit for the introduction of said head into and through said panel member aperture as said fastener is rotated relative to said panel member aperture, said lead-in tongue circumferentially overlapping and substantially covering said slit for its entire length and overlapping a portion of said upperside of said head.

4,393,552

JEWELRY CLASP RETAINING MEMBER

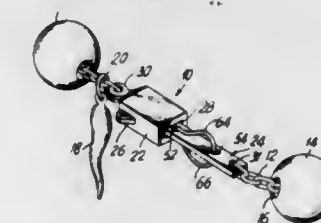
Charles Frankel, Brooklyn, N.Y., assignor to Laurel Enterprises, Rahway, N.J.

Filed Jan. 5, 1981, Ser. No. 222,531

Int. Cl.³ A44B 11/25; A44C 5/18

U.S. Cl. 24-213 C

9 Claims



1. In a jewelry clasp having a female housing, a male member for insertion into said housing, and locking means for releasably locking said male member within said housing, an improvement comprising:

retaining means mounted on said male member for effecting unidirectional passage of said male member through a jewelry mounting aperture associated with an article of jewelry so that the article of jewelry is retained on a chain connected to said male member; said retaining means including a resilient clip; and said clip including outwardly bowed resilient sections laterally extending from opposing sides of said male member.

4,393,553

LOCKING DEVICE FOR A SAFETY BELT

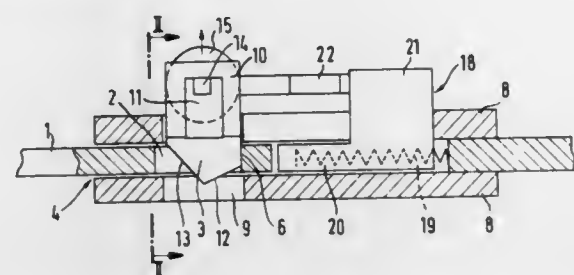
Franz Wier, Göggingen, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alldorf, Fed. Rep. of Germany
Filed Feb. 25, 1981, Ser. No. 237,921

Claims priority, application Fed. Rep. of Germany, Feb. 25, 1980, 3006939

Int. Cl.³ A44B 11/25

U.S. Cl. 24—230 AL

5 Claims



1. Locking device for a safety belt comprising a belt lock having two spaced plates defining an insertion path, a plug-in tongue attached to a belt for insertion in the insertion path, a latch movable transversely to the direction of the insertion of the plug-in tongue to detent the inserted tongue, a pressure element movable manually against the force of a spring to move the latch transversely out of the detent position, a spring-activated sliding ejector disposed in the insertion path ahead of the tongue, a stop connected with the pressure element to halt the ejector from contacting the tongue when in the detent position, said stop movable with the pressure element and concurrently moves away from blocking said ejector when said pressure element moves said latch out of the detent position.

4,393,554

LOCKING DEVICE FOR SAFETY BELTS

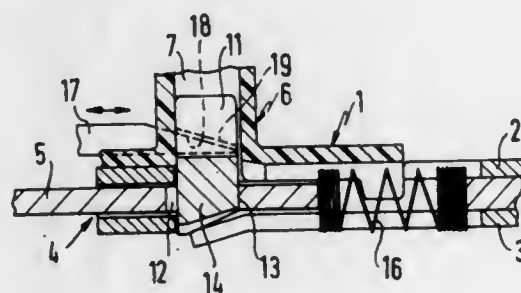
Franz Wier, Göggingen, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alldorf, Fed. Rep. of Germany
Filed Feb. 25, 1981, Ser. No. 237,922

Claims priority, application Fed. Rep. of Germany, Feb. 25, 1980, 3006972

Int. Cl.³ A44B 11/26

U.S. Cl. 24—230 AL

3 Claims



1. Locking device for a safety belt comprising a belt lock having two spaced plates defining an insertion path, a plug-in tongue attached to a belt for insertion in the insertion path, a latching bolt having an engagement surface movable transversely to the plug-in direction of the plug-in tongue to block withdrawal of the tongue by contact of said engagement surface with a straight edge surface of said plug-in tongue, said straight edge surface changing its shape upon the belt being subjected to a load and said engagement surface of said latch contoured to complement the shape of said edge surface under load to thereby provide increased contact area between said latching bolt and said plug-in tongue under load conditions.

4,393,555

BELT LOCK FOR A SAFETY BELT

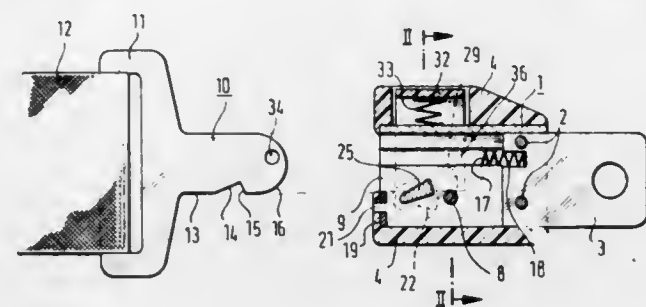
Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alldorf, Fed. Rep. of Germany
Filed Apr. 1, 1981, Ser. No. 250,039

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012939

Int. Cl.³ A44B 11/26

U.S. Cl. 24—230 A

6 Claims



1. Lock for a safety belt comprising a belt lock having a lock-housing with an insertion path, a plug-in tongue with an engagement detent only at one side at a longitudinal edge for insertion in the insertion path of the lock-housing, a latch mechanism having a latch for engaging the detent of the plug-in tongue inserted in the insertion path, said tongue having a guide-profile at its forward end, seen in the profile direction, said insertion path having a mating surface which fits the guide-profile of said tongue only when correctly inserted, a pressure element movable against the force of a spring to move said latch out of engagement with said tongue to permit withdrawal of the tongue from the belt lock, and wherein the plug-in tongue is provided with a wart-like, stamped projection which is raised above the tongue's flat side, and which is guided loosely with play in a groove-like bulge in the housing.

4,393,556

PLASTIC BUCKLE

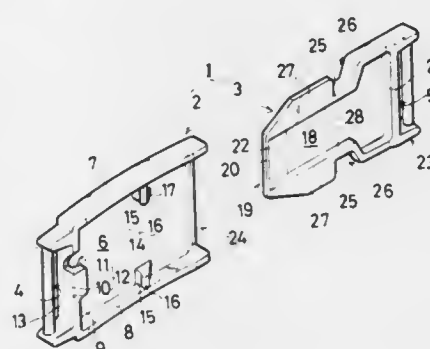
Takuo Yuda, Yokohama, and Akira Mizusawa, Fujisawa, both of Japan, assignors to Nifco, Inc., Tokyo, Japan
Filed Apr. 13, 1981, Ser. No. 253,325

Claims priority, application Japan, Apr. 18, 1980, 55-51812[U]

Int. Cl.³ B65D 63/00

U.S. Cl. 24—230 R

6 Claims



1. A plastic buckle comprising two discrete, totally separable half buckle members each having a longitudinal dimension and a lateral dimension, a first half buckle member having a belt-insertion slit along one lateral edge thereof and a second buckle member having another belt-insertion slit along one lateral edge thereof opposite said one lateral edge of said first buckle member, said first buckle member including a first snap engaging means and a fulcrum creating upstanding wall region formed near one lateral edge thereof including a retention ledge located at an uppermost extremity of the fulcrum creating upstanding wall region, said second buckle member includ-

ing a second snap engaging means adapted for snapping engagement with said first snap engaging means and fulcrum engaging portion formed near a lateral edge wherein said fulcrum engaging portion is adapted to be caught by said retention ledge, whereby the two buckle members are assembled into one complete buckle by positioning the fulcrum engaging portion of the second buckle member adjacent the fulcrum creating upstanding wall region with the first buckle member angularly disposed relative to the second buckle member, then rotating the two buckle members toward each other with the point of contact of the two buckle members serving as the fulcrum of rotation and snapping the two buckle members into fast union by resiliently engaging the first snap engaging means of the first buckle member with the second snap engaging means of the second buckle member.

4,393,557

SAFETY BELT BUCKLE

Yves Schmidt, Audincourt, France, assignor to Aciers et Outillage Peugeot, Audincourt, France

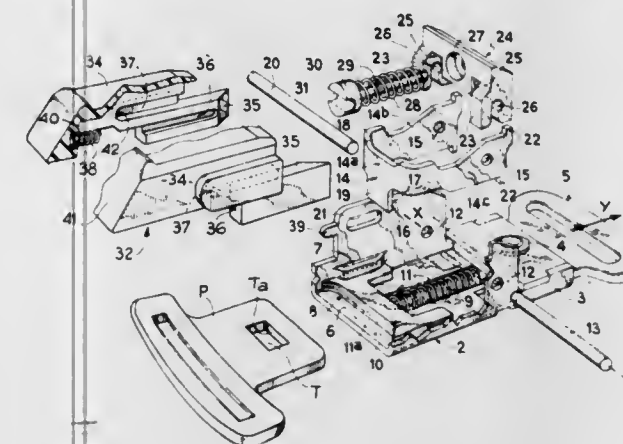
Filed May 13, 1981, Ser. No. 263,383

Claims priority, application France, May 14, 1980, 80 10826

Int. Cl.³ A44B 11/25

U.S. Cl. 24—230 A

5 Claims



1. In a safety belt buckle for attaching a portion of a safety belt to retaining means through a tongue member constituting a latch, said buckle comprising a case, a support for fixing to the retaining means and disposed in the case, the support having two spaced-apart walls, locking means for the latch, the locking means being disposed between said walls, articulation means mounting the locking means on said walls of the support so that the locking means are pivotable on said walls of the support about an axis, stop means movably mounted on the support, the locking means defining a first abutment surface cooperative with the latch to retain the latch in a locked position, the locking means defining a second abutment surface adapted to bear against the stop means, a control knob cooperative with the stop means for withdrawing the stop means and releasing the locking means, the support defining a complementary abutment surface, the locking means defining a third abutment surface adapted to be applied, in a locked position of the buckle, against said complementary abutment surface when a tensile force exceeding a predetermined value is exerted on the latch in a direction for extracting the latch; the improvement wherein said locking means define a predetermined space therebetween and each of said walls of the support, said articulation means project from opposite sides of the locking means and extend through said spaces and into said walls of the support whereby a force for shifting the locking means relative to said walls of the support in a direction perpendicular to said axis would elastically deform said articulation means on opposite sides of the locking means, spacer means being provided for maintaining said spaces between the locking means and said walls of the support so that, when said tensile force is exerted, said third abutment surface and said complementary abutment

surface come in contact with each other by elastic deformation of said articulation means.

4,393,558

FASTENER FOR SHEET MATERIAL

Karl J. Herwegh, and Rutger Modderkolk, both of Eerbeek, Netherlands, assignors to Nederlandse Pillo-Pak Maatschappij B.V., Eerbeek, Netherlands

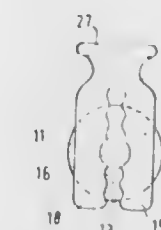
Filed Jun. 15, 1981, Ser. No. 273,334

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1980, 3024471

Int. Cl.³ A44B 19/00

U.S. Cl. 24—230 R

7 Claims



1. In a device for the detachable mounting of flexible sheets, comprising a plurality of molded members of synthetic resin, connectible in pairs with each other, clamping the sheet between them, wherein one molded member is adapted to be attached as the base part to a substrate and the other molded member can be detachably mounted on the base part, and wherein a spike for passing through the sheet extends from a base plate of the base part; the improvement in which the spike has a cylindrical spike body and an annular flange carrying a conical spike tip, and the other molded member is a slip-on member comprising a two-legged clamping fork, the fork legs of which are secured together at one end and spaced apart at the other end and have a least spacing from each other which is somewhat less than the outer diameter of the spike body, the inner lateral surfaces of said fork legs having at least one recess wherein the spike body locks into place when the legs of the clamping fork are slid lengthwise between said flange and said base plate with said legs straddling said spike body.

4,393,559

U-BOLT CLAMP WITH TUBULAR REINFORCING MEANS

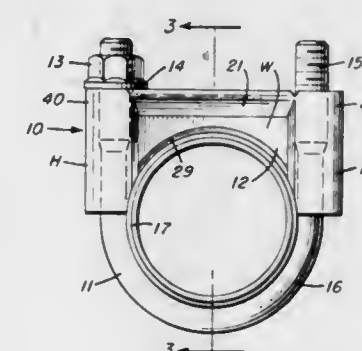
John E. Heckethorn, Dyersburg, and Danny J. Whittle, Newbern, both of Tenn., assignors to Heckethorn Manufacturing Company, Dyersburg, Tenn.

Filed Jul. 14, 1981, Ser. No. 283,237

Int. Cl.³ B65D 63/00

U.S. Cl. 24—277

7 Claims



1. A U-bolt clamp saddle body formed from a single folded blank of sheet metal, including a pair of spaced parallel U-bolt leg receiving housings, a central web section having an arcuate lower edge extending between said housing, and an integral tubular reinforcing rib extending from one said housing to the

other on said web and forming the top face thereof, said reinforcing rib being of triangular cross section and having a planar top face between two of the vertices defined by said triangular cross section, the third vertex defined by said triangular cross section of said rib being located between the top face and said arcuate lower edge.

4,393,560

CLIP FOR RETAINING A WINDSHIELD MOLDING IN AN AUTOMOBILE

Yoshinori Kato, Aichi, Japan, assignor to Kabushiki Kaisha Togo Seisakusho, Japan

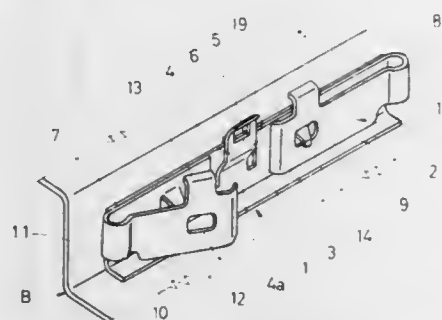
Filed Jun. 10, 1981, Ser. No. 272,225

Claims priority, application Japan, Jun. 28, 1980; 55-91203[U]; Apr. 15, 1981, 56-54910[U]

Int. Cl.³ B60J 1/00; E06B 3/58

U.S. Cl. 24—295

10 Claims



1. A clip for retaining a molding to a predetermined inside face of a window glass receiving frame in an automotive body comprising

- a band-like support plate formed of an elastic material;
 - a flexible hook member formed integrally with said support plate for defining a space for insertion of said molding between said window glass receiving frame and said hook member, said hook member being elastically engageable with said molding;
 - a pair of wing plates formed at the outermost ends of said support plate, said wing plates being flexible relative to the center of said support plate;
 - means for releasably retaining said wing plates substantially parallel with the center portion of said support plate; and
 - means for disengaging said wing retaining means upon insertion of said molding into said space between said window glass receiving means and said hook member;
- said wing clips having at least equal spring force as that of said hook member.

4,393,561

RADIATOR GRILLE FIXING STRUCTURE

Takuo Yuda, Yokohama, Japan, assignor to Nifco, Inc., Yokohama, Japan

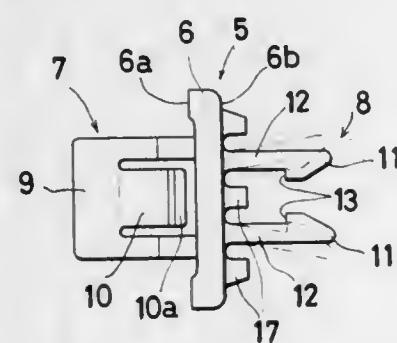
Filed Jul. 2, 1980, Ser. No. 164,506

Claims priority, application Japan, Jul. 5, 1979, 54-91897[U]

Int. Cl.³ E04B 1/38

U.S. Cl. 24—297

3 Claims



1. A fixing structure for fastening a radiator grille to an automobile body, comprising in combination a fastener composed of a base plate portion, at least one automobile body

fastening means formed on one side of said base plate portion and adapted for snap engagement with the automobile body, at least one radiator grille fastening means formed on the other side of the base plate portion and adapted for snap engagement with the radiator grille, and three ribs comprising a first rib disposed diametrically of said recess and a pair of ribs spaced on either side of said first rib, each of said pair of ribs having an arcuate outer lateral surface and positioned surrounding said radiator grille fastening means, and a fastening attachment point formed on the radiator grille and provided with an opening formed opposite the radiator grille fastening means of the fastener and adapted to admit into snap engagement therewith said radiator grille fastening means, said radiator grille fastening attachment point having an annular recess adapted to admit the rib of the fastener into intimate contact therewith.

4,393,562

APPARATUS FOR IMPARTING VISUAL SURFACE EFFECTS TO RELATIVELY MOVING MATERIALS

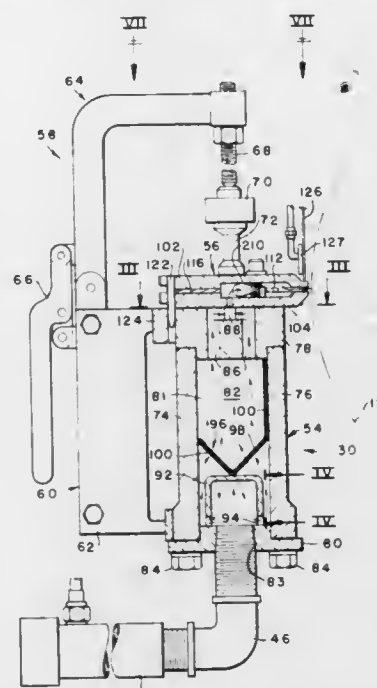
Jimmy L. Stokes, Moore, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Jan. 23, 1981, Ser. No. 227,828

Int. Cl.³ D06C 23/00

U.S. Cl. 26—2 R

13 Claims



1. In apparatus for pressurized heated fluid stream treatment of a relatively moving substrate material to impart a change in the appearance thereof and including an elongate fluid distributing manifold assembly disposed across the path of relative movement of the material and closely adjacent the surface thereof for discharging at least one discrete stream of heated pressurized fluid against the surface of the material; the improvement wherein said manifold assembly comprises first and second elongate manifold housings defining corresponding first and second fluid-receiving compartments extending across the path of relative movement of the material;

said first housing including inlet means for introducing pressurized heated fluid into said first compartment generally uniformly along its elongate length, outlet means located remotely from said inlet means for discharging heated fluid from the compartment generally uniformly along its elongate length, said first housing inlet and outlet means defining a flow path through said housing which is generally perpendicular to its length, the axis of fluid flow introduced into said first compartment by said inlet means and the axis of fluid flow discharged from said first compartment by said outlet means being substantially parallel; said second manifold housing including inlet means for receiving pressurized heated fluid into said second com-

4,393,564

METHOD AND APPARATUS FOR REPAIRING HEAT EXCHANGERS

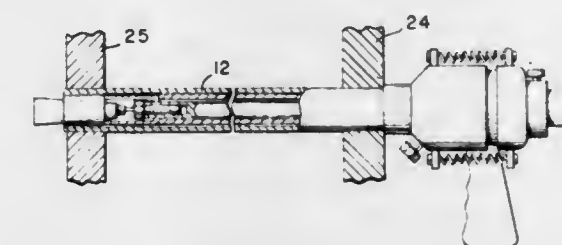
John E. Martin, Penllyn Pike, Springhouse, Pa. 19477

Filed Dec. 8, 1980, Ser. No. 214,189

Int. Cl.³ B23P 15/26

U.S. Cl. 29—157.3 C

15 Claims



1. Apparatus for use in plugging a tube in a heat exchanger having a bundle of tubes mounted at opposite ends in spaced tube sheets comprising:

- a plug assembly adapted to be installed inside one end of the tube in the zone of one of said tube sheets, said plug assembly including an expandable ring and a wedge mounted in the ring and slidable relative thereto to expand the ring radially outward against the inside of the tube;
 - breakaway means connected to said wedge and projecting into said tube;
 - pull rod means connected at one end to said breakaway means and extending lengthwise of said tube beyond the other of said tube sheets;
 - compression tube means engaged at one end with said ring and surrounding said pull rod means inside said heat exchanger tube and extending therealong from said ring into proximity with the other tube sheet;
 - ram means disposed adjacent said other tube sheet for applying tension to said pull rod means and compression to said compression tube means while maintaining said plug assembly aligned with its tube sheet;
- whereby upon application of tension and compression the wedge is drawn into the ring until a predetermined outward pressure is reached causing the breakaway means to separate for affording withdrawal of the compression tube means and pull rod means from inside the heat exchanger tube.

4,393,563

COLD FORCED SINTERED POWDER METAL ANNULAR BEARING RING BLANKS

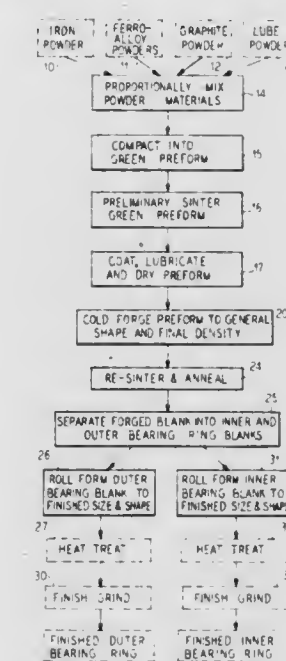
David T. Smith, 2619 W. Pratt Blvd., Chicago, Ill. 60645

Filed May 26, 1981, Ser. No. 266,931

Int. Cl.³ B21K 1/04

U.S. Cl. 29—149.5 DP

13 Claims



1. A method for the manufacture of improved bearing elements, without high temperature forming which comprises the following steps:

- (1) combining (a) powders consisting substantially of iron with (b) ferro-alloy powders each containing a maximum of 80% by weight iron and the balance of each alloying powder being either manganese, nickel, chromium, molybdenum, or vanadium, (c) graphite powder, and (d) a lubricant,
- (2) mixing the resulting combination,
- (3) compacting the resulting mixture to produce a preform,
- (4) pre-sintering the preform,
- (5) coating the sintered preform with a stop-off coating and lubricant,
- (6) cold forging the coated and lubricated preform to achieve a plastic deformation of at least 50%, through a combination of lateral and vertical flow and produce an article being at least 98% dense and approximating the shape of the finished article,
- (7) resintering the cold forged shape,
- (8) annealing the resintered shape, and
- (9) roll forming the annealed and resintered shape into substantially final dimensions.

4,393,565

METHOD OF MAKING A WATER-COOLED ELECTRODE HOLDER

James G. Wilson, II, Huntington, and P. Fred Hammers, Barboursville, both of W. Va., assignors to Wilson Welding Company, Inc., Huntington, W. Va.

Division of Ser. No. 148,290, May 9, 1980, Pat. No. 4,342,878.

This application Jun. 12, 1981, Ser. No. 272,888

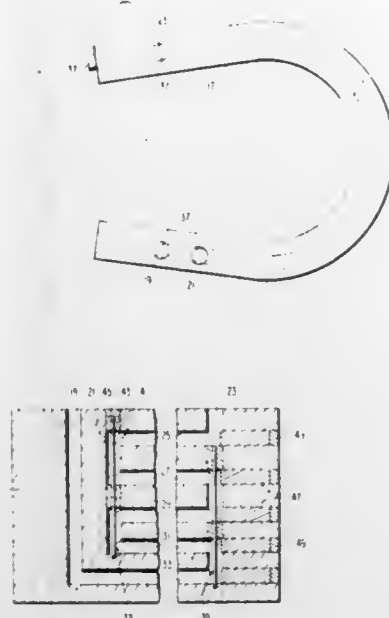
Int. Cl.³ B23P 15/26; H05B 7/105

U.S. Cl. 29—157.3 R

4 Claims

1. A method of making an electrode holder of the type comprising a U-shaped slab of metal with a circuitous passageway therethrough for the flow of cooling water, comprising blind drilling a plurality of straight holes at right angles to each other through two adjacent edges of a flat slab of metal with a plurality of said holes intersecting each other, bending said flat slab to U-shape in a direction such that the holes extending in one direction are bent to U-shape but the holes at right angles thereto remain straight and to an extent such that the legs of the U-shaped slab remain flat so that portions of the holes bent in a U-shape form straight passages, plugging the ends of said straight passages, and plugging certain of said holes that re-

main straight intermediate their length between certain adjacent U-shaped holes, in such a pattern as to leave a single



circuitous passageway through the slab having an inlet end and an outlet end opening edgewise through the slab.

4,393,566

PROCESSING OF COPPER TUBING

Otto Uhlmann, Burgdorf, and Klaus-Peter Uhlmann, Bad Iburg, both of Fed. Rep. of Germany, assignors to Kabel-und Metallwerke Gutehoffnungshütte AG, Hanover, Fed. Rep. of Germany

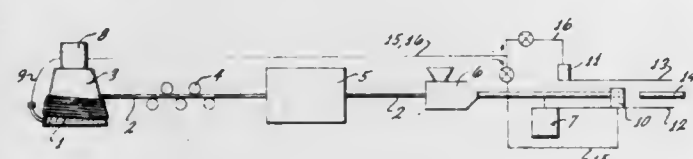
Filed Dec. 30, 1980, Ser. No. 221,297

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1980, 30036

Int. Cl.³ B23P 17/00; B21B 9/00

U.S. Cl. 29—417

26 Claims



15. A method for processing copper tubing following sizing under utilization of a drawing oil, comprising the steps of passing copper tubing through a furnace for annealing, whereby drawing oil deposits evaporate; applying suction to the trailing end of the tubing so that evaporated oil deposits are removed through said trailing end; providing another such tubing having a front and a trailing end; connecting the front end to the trailing end of the first-mentioned tubing under utilization of a hollow plug in order to obtain a string of tubing; applying suction to the trailing end of the other tubing so that vapors can be removed through the latter's end; continuing the annealing during the connecting step, and repeating the providing, connecting, and applying steps to obtain a continuous process on a continuous string of tubing; and cutting the resulting, continuous string of tubing into shorter lengths.

4,393,567

METHOD AND APPARATUS FOR THE ASSEMBLY OF LONG OBJECTS ON A ROTATING SHAFT

Lennart Disborg, Linköping, Sweden, assignor to FFV Industri-produkter AB, Eskilstuna, Sweden

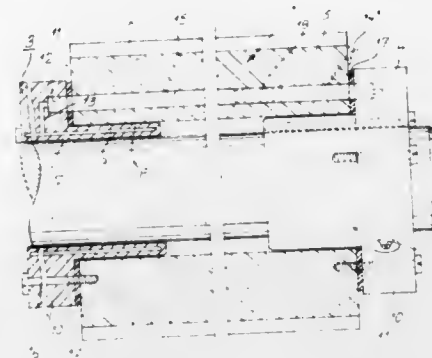
Filed Sep. 15, 1981, Ser. No. 302,276

Claims priority, application Sweden, Oct. 17, 1980, 8007313

Int. Cl.³ B23P 17/00, 11/02; F16D 19/00

U.S. Cl. 29—421 R

14 Claims



1. Method for the assembly of long objects on a rotating shaft by using two expander bushings of the kind made up of a sealed body with an inner collar and an outer collar which form a pressure cavity between them filled with a pressure medium, and which has a means for pressurizing the pressure medium in the pressure cavity, and where the expander bushings each have a flange arranged to lie against each end surface of the long object which shall be assembled, characterized by that an axial hole is recessed partially into the flange of each expander bushing from the surface directed towards the collars, the hole being connected to a channel leading to the pressure cavity, and a corresponding axial hole is led through the long object which shall be assembled, and the expander bushings are first assembled to the end surfaces of the long object so that the expander bushings axial hole coincides with the axial hole through the long object, the axial holes and channels being filled with the same pressure medium as in the pressure cavity, whereby a hydraulic system is established between the unit comprising the expander bushings and the long object which shall be assembled.

4,393,568

METHOD FOR ATTACHING WOODEN FORMS TO A CONCRETE SURFACE

Ramon Navarro, 10138 E. Rush St., South El Monte, Calif. 91733

Division of Ser. No. 30,071, Apr. 16, 1979, abandoned. This application Jun. 1, 1981, Ser. No. 268,755

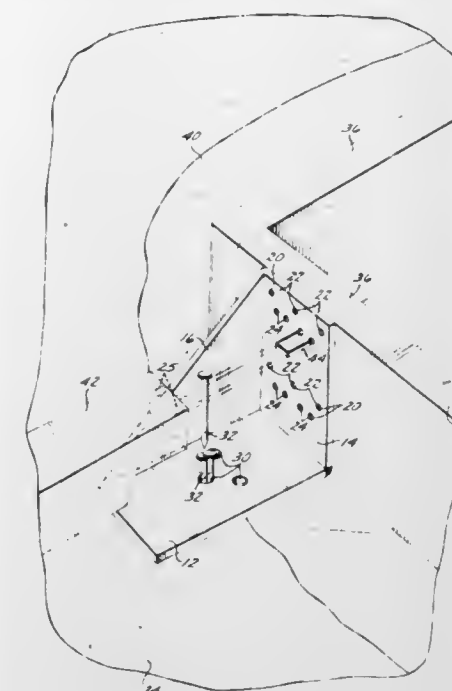
Int. Cl.³ B23P 11/00

U.S. Cl. 29—432

4 Claims

1. A method of forming a tilt-up concrete wall panel comprising: aligning wooden form members on a horizontal slab of set concrete to define a length and width of a tilt-up concrete panel, placing a plurality of brackets in abutment with the exterior surfaces of the wooden form members, each of the brackets having a vertical side plate abutting the outer surface of the adjacent wooden form member and a horizontal base plate perpendicularly disposed relative to the side plate and extending outwardly from the adjacent wooden member in abutment with the top surface of the horizontal slab, said vertical side plate having a first pair of alignment apertures and a second pair of staple receiving apertures, driving a fastener through an aperture in the base plate to attach the base plate to the horizontal slab, positioning a pair of alignment probes of a

staple gun into said first pair of apertures to align a staple with said second pair of apertures, and driving said staple through



4,393,569

METHOD OF INSTALLING DEFRACTORY CERAMIC FIBER MODULE

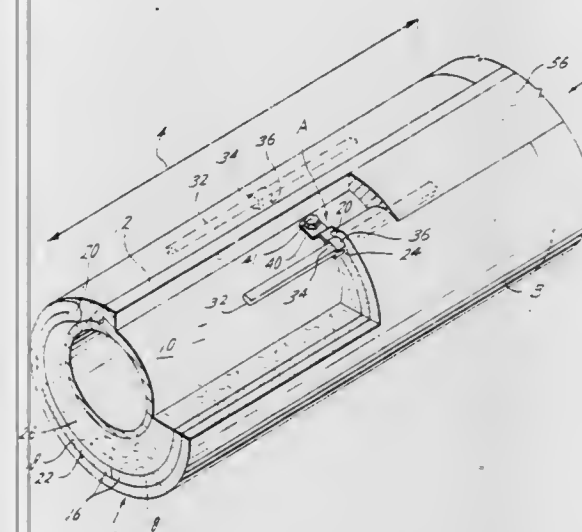
Carlisle O. Byrd, Jr., Houston, Tex., assignor to J T Thorpe Company, Houston, Tex.

Division of Ser. No. 146,116, May 2, 1980, abandoned. This application Jun. 26, 1981, Ser. No. 277,877

Int. Cl.³ B23P 3/00, 19/04

U.S. Cl. 29—460

13 Claims



1. A method of installing refractory ceramic fiber module, composed of a folded blanket of refractory ceramic fiber extending between two end folds and having attachment members extending outwardly from said folds, to a support tube which supports a metal member during movement of the member in a furnace comprising the steps of:

- wrapping the blanket of the module about the tube; and
- attaching the attachment members to the tube.

4,393,570

METHOD OF AND APPARATUS FOR CUTTING STRIPS FROM LONG PLATES

Georg Frick, Günzburg; Harro Reiff, Leipzig, and Alois Kirsch, Günzburg, all of Fed. Rep. of Germany, assignors to Karl Mengele & Söhne Maschinenfabrik und Eisengiesserei GmbH & Co., Günzburg, Fed. Rep. of Germany

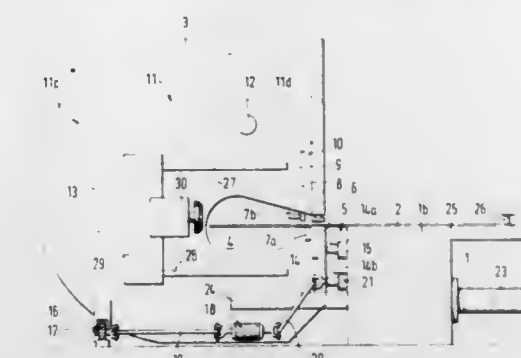
Filed Dec. 12, 1980, Ser. No. 215,643

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950555

Int. Cl.³ B26D 11/00; B23D 15/04

U.S. Cl. 29—560

14 Claims



1. Method for cutting strips from long plates such as sheet metal plates including supporting a plate to be cut at a cutting station on an elongated stationary support surface, forming a cutting line along the length of the plate extending along an edge of the support surface, movably positioning a shear stand along the length of the plate in the cutting station adjacent the side of the plate from which a cut strip is to be cut and along the edge of the stationary support surface, providing a movable cutter and a stationary cutter on the shear stand with the movable cutter having a length which is relatively short compared to the length of the support surface so that the length of the support surface is a multiple of the length of the movable cutter, arranging the shear stand at one end of the cutting line and displacing the movable cutter toward the stationary cutter to effect a first cut, moving the movable cutter away from the stationary cutter and then moving the shear stand for the dimension corresponding to the length of the movable cutter for making the next cut, moving the movable cutter toward the stationary cutter to effect a second cut continuing from the first cut and repeating the steps of moving the shear stand and then moving the movable cutter toward the stationary cutter until a length of plate has been completely cut, releasably holding the portion of said plate to be cut adjacent to and outwardly from the edge of the support surface as the movable cutter is moved toward the stationary cutter and releasing the cut portion after the cutting action has been completed, clamping the opposite side of the plate from the side being cut and holding the plate during the continuation of the cutting operation, and supporting the portion of the plate already cut during the continuation of the step-wise cutting operation along the length of the plate to be cut.

4,393,571

APPARATUS FOR PRODUCING AN ARC WELDED SLEEVE

Werner Sturm, Allerheiligenstr. 624, Hägendorf, Switzerland
PCT No. PCT/CH79/00079, § 371 Date Jan. 29, 1980, § 102(e)
Date Jan. 10, 1980, PCT Pub. No. WO79/01140, PCT Pub.
Date Dec. 27, 1979

PCT Filed May 29, 1979, Ser. No. 192,526

Claims priority, application Switzerland, May 29, 1978, 5858/78

Int. Cl.³ B23P 22/00

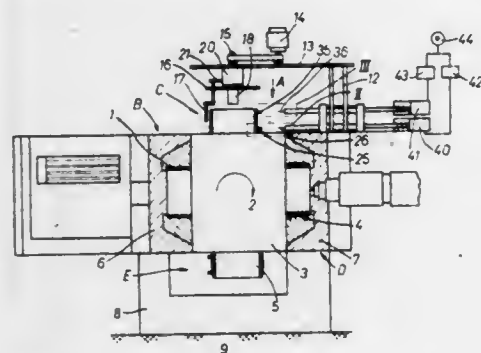
U.S. Cl. 29—564.6

7 Claims

1. An apparatus for forming a welding sleeve of the type having a coil of electrical resistance heating wire in spaced, juxtaposed turns embedded in the inner wall of a thermoplastic

sleeve member and surrounding a cylindrical coil former, comprising

- means at opposite ends of the coil former defining first and second clamp members;
- means for winding the coil of wire around the former so that the windings extend from said first clamp member to said second clamp member;
- first and second clamping bodies;
- means for supporting said clamping bodies for movement toward and away from said first and second clamp mem-



bers, respectively, so that said first clamping body can be moved to engage said first clamp member after the wire has been placed on said first member to attach the wire thereto, and said second clamping body can be moved to engage said second clamp member after the wire has been placed on said second member to attach said wire thereto; and means operatively associated with said second clamping body for severing said wire after attachment thereof to said second clamp member.

4,393,572

METHOD OF MAKING LOW LEAKAGE N-CHANNEL SOS TRANSISTORS UTILIZING POSITIVE PHOTORESIST MASKING TECHNIQUES

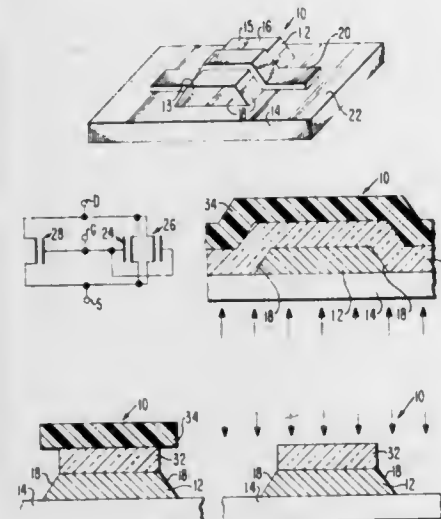
Steven G. Policastro, Readington Township, Hunterdon County, and Dae-Shik Woo, Hillsborough Township, Somerset County, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed May 29, 1980, Ser. No. 154,601

Int. Cl.³ H01L 21/86, 21/20

U.S. Cl. 29—571

8 Claims



1. An improved method for forming an SOS FET device having source and drain regions of a given conductivity type, comprising the steps of:

- (i) epitaxially growing a silicon layer on the top side of a sapphire substrate;
- (ii) forming a masking layer on the surface of the silicon layer, the masking layer covering the area of the silicon

- layer where at least one island which will be used for forming a transistor is located; and
- (iii) removing the portions of the epitaxial silicon layer which are not under the masking layer in order to leave the islands on the top side of the sapphire substrate; wherein the improvement comprises:
 - (a) forming a transparent masking layer over the surface of the silicon island and the exposed portions of the sapphire substrate between the islands;
 - (b) applying a positive photoresist layer over the top surface of the transparent masking layer;
 - (c) exposing the photoresist layer from the underside of the substrate, whereby only those portions of the photoresist layer which overlie the edges of the islands and those portions of the photoresist layer which lie between the islands will be exposed, but only those portions of the photoresist layer which overlie the top surface of the islands will not be exposed through the islands;
 - (d) developing the photoresist layer;
 - (e) removing only those portions of the transparent masking layer which are on the sides of and between the islands that are exposed when the photoresist layer is developed;
 - (f) removing the photoresist layer remaining on the unremoved portions of the transparent masking layer; and
 - (g) implanting conductivity modifying ions of a type opposite to that of the source and drain regions into the exposed edges of the islands.

4,393,573

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE PROVIDED WITH COMPLEMENTARY SEMICONDUCTOR ELEMENTS

Kotaro Kato, Chofu, and Tetsuma Sakurai, Hachioji, both of Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

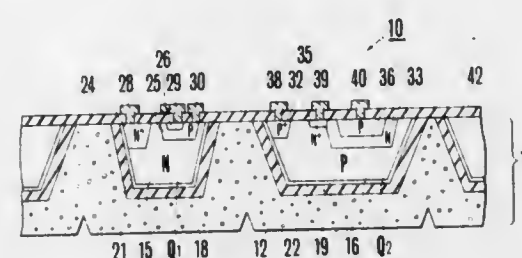
Filed Aug. 26, 1980, Ser. No. 181,357

Claims priority, application Japan, Sep. 17, 1979, 54/117873; Mar. 4, 1980, 55/26177; Apr. 14, 1980, 55/48555

Int. Cl.³ H01L 21/223

U.S. Cl. 29—571

5 Claims



1. A method of manufacturing a compound semiconductor device comprising the steps of:

- applying a first mask layer onto one major surface of a semiconductor substrate except a first local region, said first mask layer having an upper layer and a lower layer of the same material and an intermediate layer of a different material having a first etching speed;
- forming a first semiconductor layer of a first conductivity type on the entire surface of said substrate by an epitaxial growth process, said first semiconductor layer including a single crystalline layer grown from said first local region of said semiconductor substrate, and a polycrystalline layer grown from said first mask layer;
- forming a second mask layer of said same material on a portion of said first semiconductor layer corresponding to said first local region, said second mask layer being etchable by a solution which barely etches said intermediate layer and being substantially thicker than said lower layer of said first mask layer;
- etching said first semiconductor layer by using said second mask layer so as to leave only said single crystalline layer

- having inclined surfaces determined by a crystal structure of said single crystalline layer;
- removing said second mask layer;
- forming a layer containing an impurity of the first conductivity type at a high concentration over the entire outer surface of said single crystalline layer;
- forming a first insulating layer on said single crystalline layer;
- removing said first mask layer;
- forming a second semiconductor layer of a second conductivity type over the entire surface of the substrate by epitaxial growth process, said second semiconductor layer including a polycrystalline layer grown from said first insulating layer and a single crystalline layer grown from said semiconductor substrate;
- selectively forming a third mask layer on the single crystalline layer of the second semiconductor layer;
- etching said second semiconductor layer by using said third mask layer so as to leave a single crystalline layer of the second semiconductor layer on a second local region of the semiconductor substrate thereby forming inclined surfaces determined by crystal structure of said semiconductor substrate;
- removing said third mask layer;
- forming a layer containing at a high concentration an impurity of the second conductivity type on the entire outer surface of the remaining single crystalline layer of said second semiconductor layer and exposed surface of said substrate;
- forming a second insulating layer on a surface containing the remaining single crystalline layer of said second semiconductor layer and exposed surface of said substrate;
- forming a polycrystalline semiconductor layer on said surfaces of said first and second insulating layers;
- removing said semiconductor substrate; and
- forming semiconductor elements having complementary characteristics in respective exposed single crystalline layers by utilizing a surface formed by polishing as a major plane.

4,393,574

METHOD FOR FABRICATING INTEGRATED CIRCUITS

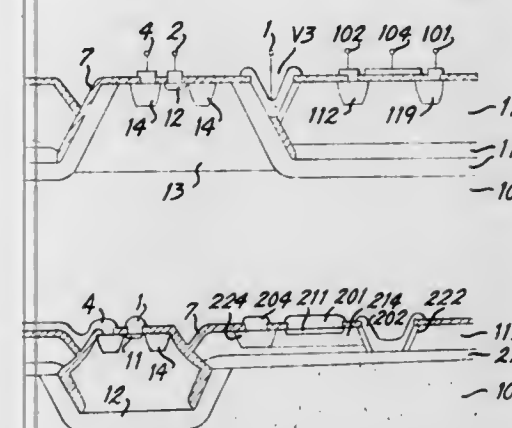
Masafumi Shimbo, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Dec. 5, 1980, Ser. No. 213,617

Int. Cl.³ H01L 21/205, 21/208

U.S. Cl. 29—571

5 Claims



1. A method for fabricating integrated circuits comprising the steps of:

- forming a concave portion having bottom and side faces on a semiconductor single-crystal substrate;
- forming an insulating film on the faces of said concave portion except for at least one portion of the bottom face of said concave portion;
- forming a first semiconductor growth layer on the bottom face of said concave portion which is free of the insulating film by chemical vapor deposition using a mixture gas containing semiconductor chloride and hydrogen such

that the top surface of the growth layer is at the same level as the upper face of the substrate in the region adjoining said concave portion; and, fabricating semiconductor devices in said substrate and said growth layer.

4,393,575

PROCESS FOR MANUFACTURING A JFET WITH AN ION IMPLANTED STABILIZATION LAYER

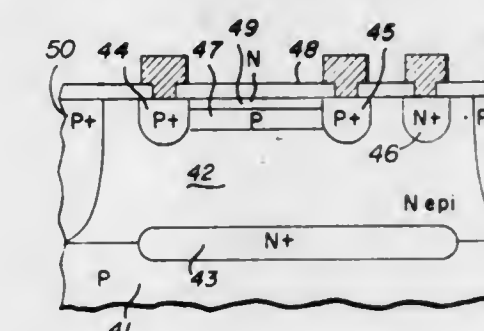
James L. Dunkley, Santa Clara, and Robert C. Dobkin, Atherton, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 19,135, Mar. 9, 1979, abandoned, which is a continuation of Ser. No. 716,049, Aug. 20, 1976, abandoned, which is a continuation of Ser. No. 575,418, May 7, 1975, abandoned, which is a continuation of Ser. No. 377,611, Jul. 9, 1973, abandoned. This application Jul. 20, 1981, Ser. No. 284,664

Int. Cl.³ H01L 21/265

U.S. Cl. 29—571

8 Claims



1. The method of stabilizing the surface of a junction field effect transistor having a gate region of a first conductivity type material in a semiconductor body, a source region and a drain region of a second conductivity type material in said semiconductor body, and channel region of said second conductivity type in said gate region and between said source region and said drain region comprising the step of forming a stabilization region over said channel region by ion implantation of a shallow layer material of said first conductivity type.

4,393,576

METHOD OF PRODUCING ELECTRICAL CONTACTS ON A SILICON SOLAR CELL

Reinhard Dahlberg, Flein, Fed. Rep. of Germany, assignor to Licenta Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

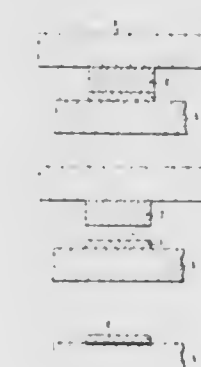
Filed Sep. 2, 1981, Ser. No. 298,927

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1980, 3036260

Int. Cl.³ H01L 31/18

U.S. Cl. 29—572

7 Claims



1. A method of producing electrical contacts on a silicon solar cell, comprising: stamping out a metal film or foil adhering to one side of a carrier together with the carrier in the shape of the contacts; and applying the stamped contact film or

foil to the silicon so as to be detached from the carrier and to adhere to the silicon surface.

4,393,577

SEMICONDUCTOR DEVICES AND METHOD OF MANUFACTURING THE SAME

Kazuo Imai, Tokyo, Japan, assignor to Nippon Telegraph & Telephone Public Corp., Japan

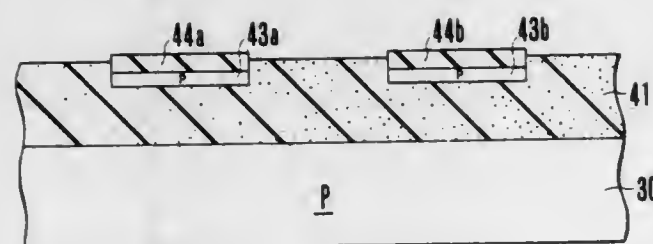
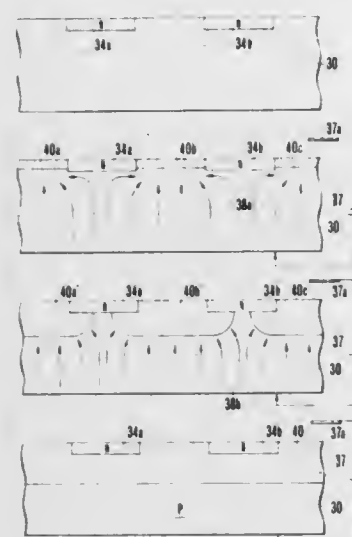
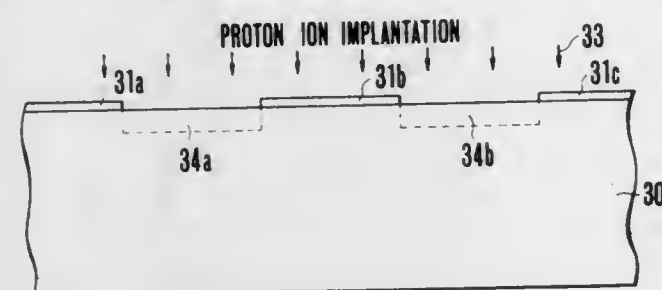
Division of Ser. No. 84,627, Oct. 12, 1979, abandoned. This application Dec. 11, 1981, Ser. No. 329,759

Claims priority, application Japan, Oct. 27, 1978, 53-132253; Oct. 27, 1978, 53-132254; May 24, 1979, 54-63252; Jun. 4, 1979, 54-69001

Int. Cl.³ H01L 21/263; C25F 3/00

U.S. Cl. 29-576 B

11 Claims



1. A method of manufacturing a semiconductor device comprising the steps of selectively implanting proton ions into a principal surface of a P type monocrystalline silicon substrate; heating said silicon substrate to form an N type monocrystalline silicon region; anodizing said substrate to form a porous silicon region extending in a thickness direction from the major surface of said P type monocrystalline substrate except said N type silicon region, said porous silicon region being formed to contact with all side surfaces and at least a portion of a bottom surface of said N type silicon region; and thermally oxidizing said porous silicon region for converting the same into a porous silicon oxide region while at the same time converting said N type silicon region into a P type silicon region.

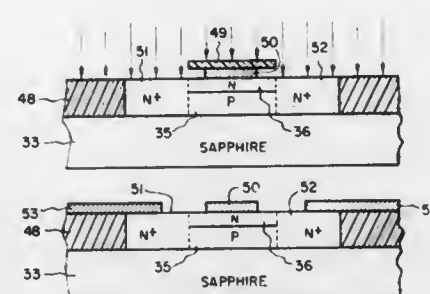
4,393,578
METHOD OF MAKING SILICON-ON-SAPPHIRE FET
William R. Cady, Scotia; SePuan Yu, and John R. Eshbach, both of Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 109,174, Jan. 2, 1980, abandoned. This application Mar. 22, 1982, Ser. No. 360,548

Int. Cl.³ H01L 21/225, 21/308

U.S. Cl. 29-576 B

3 Claims



1. The method of making a silicon-on-sapphire junction field effect transistor structure comprising the steps of: forming on a sapphire substrate lower and upper opposite conductivity type silicon layers having given area dimensions, said lower layer being lightly doped and said upper layer moderately doped; depositing on said upper silicon layer a layer of doped polycrystalline silicon and fabricating thereon a patterning layer; etching said polycrystalline silicon to undercut beneath said patterning layer and define a gate conductor; implanting impurity ions into exposed areas of said silicon layers using said patterning layer as a mask, and removing the latter; annealing to activate said implanted impurity ions and result in heavily doped source and drain regions which are self-aligned with said gate conductor and have a channel region therebetween, said annealing further diffusing impurity atoms from said polycrystalline silicon gate conductor to create a gate region of opposite conductivity type as said channel region; and depositing conductor metallizations on said source and drain regions.

4,393,579
DEVICE FOR MOUNTING CHIP-TYPE ELECTRONIC COMPONENTS ON A SUBSTRATE

Godwin J. O. G. Van Hooreweder, Brugge, Belgium, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Feb. 19, 1981, Ser. No. 235,802

Claims priority, application Netherlands, Feb. 25, 1980, 8001114

Int. Cl.³ B23P 19/00

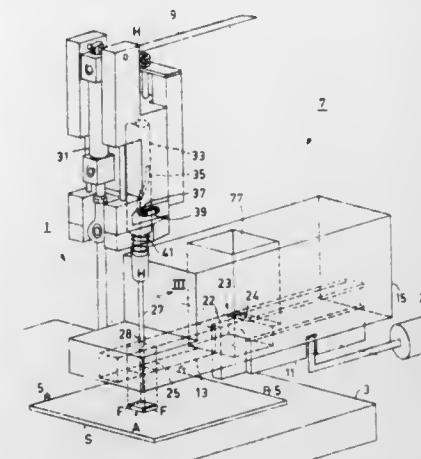
U.S. Cl. 29-740

4 Claims

1. A device for mounting chip-type electronic components on a substrate, comprising a table, a mounting head fixed to the table, and means for positioning a substrate with respect to the mounting head, characterized in that the mounting head comprises:

a guide fixed in position with respect to the table, defining a single horizontal channel said guide having a vertical passage therethrough;
a slide displaceably mounted in said guide for movement along said channel only between a loading position and an unloading position, and having a recess for accommodating and transporting a component, said recess having a horizontal supporting surface and a vertical abutment face for engaging a component being transported in the recess;
a suction device moveably mounted to be displaceable in a vertical direction only, through said passage, and means for displacing said suction device upward to pick up a component from the slide when the slide is in the unloading position.

ing position; and then when the slide is moved from the unloading position, downward to move the component



through said passage to position the picked up component onto a substrate positioned underneath the guide.

4,393,580

ONE STEP APPLICATOR TOOL

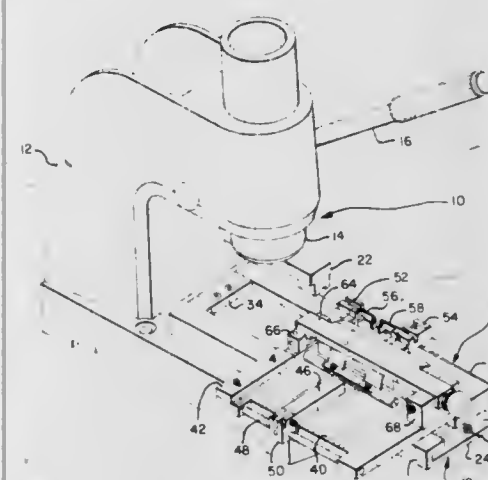
Leslie C. Hall, Jr., Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 5, 1981, Ser. No. 231,714

Int. Cl.³ H01R 43/04

U.S. Cl. 29-749

5 Claims



1. In an applicator tool for applying a connector having a plurality of insulating piercing electrical terminals onto a multi-conductor flat cable with each terminal engaging a respective conductor, said tool having a frame having integral spaced upper and lower arms, ram means mounted in said upper arm for vertical movement, an upper tooling member mounted on a free lower end of said ram means, means to actuate said ram means, guide rail means mounted on said lower arm extending from a point beneath said ram means in cantilever fashion, and a lower tooling assembly including a sliding base mounted on said guide rail means for sliding motion between a point remote from said ram to said point beneath said ram, a base plate assembly fixed to said sliding base and including a base plate, cable guide means mounted on the base plate, cable clamp means for securing a cable to said base plate, connector receiving means, and cable stop means selectively positionable to about the free end of a cable and to allow through feed of said cable whereby a connector can be applied intermediate the ends of the cable, said cable clamp means comprising: a first fixture secured to one edge of said base plate, a locking fixture secured to the opposite edge of said base plate, a clamping arm having one end pivotally attached to said first fixture and locking means on the opposite free end engageable with said locking fixture, first cable engaging means supported on said clamping arm

by first spring means so as to apply constant force to a cable, and second cable engaging means supported on said clamping arm by second spring means so as to apply increased force to a cable upon locking of said clamping arm in said locking feature.

4,393,581

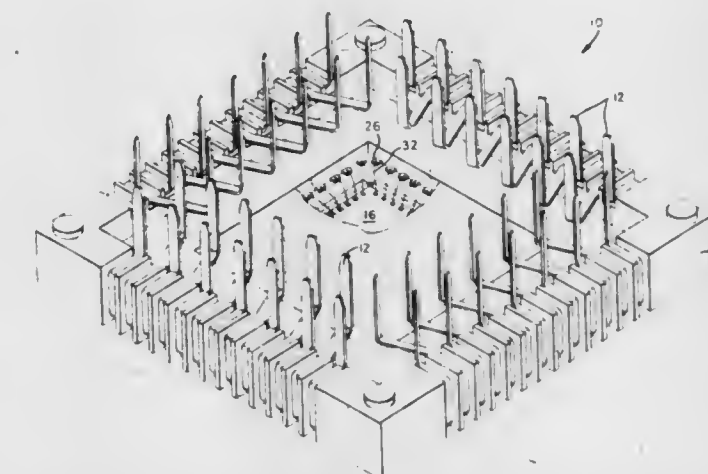
METHOD OF FORMING LEADS ON A LEAD FRAME
Gabriel B. Cherian, York, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 114,451, Jan. 22, 1980, abandoned. This application Oct. 5, 1981, Ser. No. 308,221

Int. Cl.³ H01R 43/00

U.S. Cl. 29-827

3 Claims



1. A method of forming a lead frame comprising the steps of: a. stamping out a flat lead frame having a center pad and a plurality of leads extending outwardly from one or more sides thereof, every other lead consisting of an inner end adjacent the center pad; a long outer end and a midsection intermediate the inner and outer ends and the leads in between the every other lead consisting of an inner end adjacent the center pad, a short outer end and a midsection intermediate the inner and outer ends, further said outer ends of all leads being stamped out to extend obliquely away from the midsection; b. forming one row of legs along a first side of the center pad by perpendicularly bending the short outer ends where the midsections and outer ends join; and c. forming a second row of legs spaced from and parallel to the first row of legs by perpendicularly bending the long outer ends at a predetermined distance outwardly from where the midsection and outer ends join.

4,393,582

METHODS OF AND APPARATUS FOR FORMING A CABLE CORE HAVING AN INTERNAL CABLE SHIELD
William S. Arnold, Jr., and Joseph C. Tulloss, both of Baltimore, Md., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Nov. 6, 1980, Ser. No. 204,429

Int. Cl.³ H01B 13/20; B23P 23/00

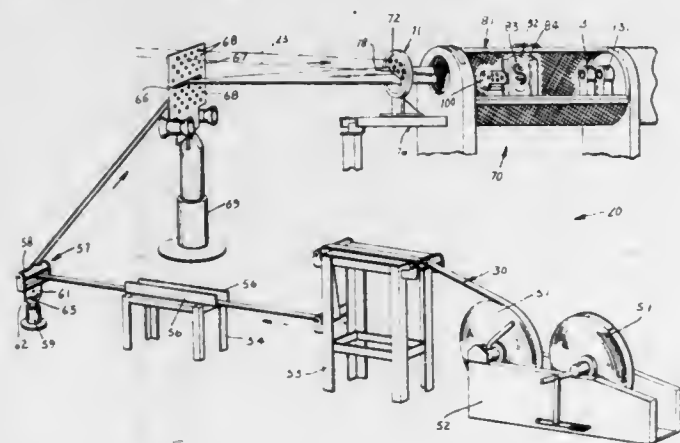
U.S. Cl. 29-828

7 Claims

1. A method of assembling a plurality of units of insulated conductor pairs and a metallic strip into a cable core in which the units are separated into groups by the metallic strip, said method comprising the steps of:

moving each of a plurality of units of a first group of units of insulated conductor pairs along a path of travel through an associated individual opening in a first faceplate, through an associated individual opening in a guide plate and then through an opening in a second faceplate which is common to all the units in said first group; moving each of a plurality of a second group of units of

insulated conductor pairs along a path of travel through an associated individual opening in the first faceplate and then through an opening in the second faceplate which is common to all the units in said second group; causing a metallic strip to be formed into a screen which has a generally central portion that is disposed between the groups of units and an arcuate portion that is attached to each end of the central portion with each arcuate portion enclosing at least a portion of an associated group of the units, said step of causing the metallic strip to be formed including the steps of moving the strip through a slotted opening in the first faceplate which is disposed between the groups of openings and moving the metallic strip through a slotted opening in the second faceplate which is disposed between the common openings, the slotted opening in the second faceplate having a central portion between the common openings and an arcuate portion that is attached to each end of the central portion; while engaging at least a portion of the strip which is adjacent to the first group of units as the units of the first group are being moved through the openings in the guide plate between the two faceplates to cause one arcuate portion to be disposed in a predetermined manner about the units of the first group without inadvertent deformation of the strip, the steps of moving each of the units of said first group through an individual opening in the guide plate being effective to cause the units of said first group to be maintained in a predetermined position as the metallic strip is being formed about the units of the first and second groups.



3. Apparatus for forming a cable core having an internally disposed shield which separates groups of stranded conductor units that are in a predetermined arrangement, said apparatus comprising:

- a first faceplate having a plurality of openings formed therethrough in two groups, each of said openings of one group being adapted to permit passage of a stranded cable unit of a first group of units and each of said openings of the other group being adapted to permit passage of a stranded cable unit of a second group of units, said first faceplate also including a slot which is disposed between the groups of openings and which is adapted to permit passage of a metallic strip therethrough;
- a second faceplate spaced from said first faceplate, said second faceplate including a first opening for passing a first group of the units, a second opening for passing a second group of the units, and a slot having an arcuate portion depending from each end thereof;
- means for advancing each of a plurality of stranded conductor units along a path of travel through an opening in the first and then through one of the openings in the second faceplate and for advancing a metallic strip along a path of travel which is interposed between the groups of the units and through said slots in said faceplates to cause said strip to be formed into a configuration having arcuate free end portions each of which encloses at least a portion of one of the groups of units; and
- plate means interposed between said first and second faceplates and cooperating with said slot in said second face-

plate for causing said strip to be formed into a screen of a predetermined configuration while preventing buckling of the strip as it is advanced between said faceplates and for controlling the formation of the arcuately disposed portion of the strip that is to enclose the first group of units, said plate means including an arcuately configured edge surface which engages the strip as it is advanced between said first and second faceplates and a plurality of openings in an arrangement which corresponds to that of the units in the first group of the cable units.

4,393,583

ANTI-TORQUE CONNECTION APPARATUS AND METHOD FOR USING

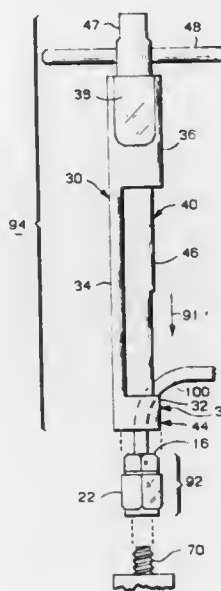
Henry J. Zwald, Mesa, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Mar. 17, 1981, Ser. No. 244,583

Int. Cl.³ H01R 43/00; B25B 13/00

U.S. Cl. 29—857

2 Claims



1. A method of tightening a cable connector which is inelastically coupled to a cable, the connector being adapted to couple the cable to a mating device, said method comprising the steps of:

- providing the cable connector having at least a cable adaptor and a nut, said cable adaptor being adapted to be firmly engaged by a tool, said tool having an adaptor engagement portion with a slot said adaptor engagement portion being adapted to firmly engage said cable adaptor without interfering with said cable;
 - furnishing a nut driver having a nut engagement portion rotatably disposed around said adaptor engagement portion of said tool and having a cutaway cylindrical portion capable of being aligned with said slot in said tool;
 - engaging said nut with said nut engagement portion;
 - passing said cable through said slot in said adaptor engagement portion, and through said cutaway cylindrical portion;
 - restraining said cable adaptor from rotation about said cable with said tool; and
 - rotating said nut driver and thereby rotating said nut to tighten said cable connector to the mating device.
2. An apparatus for tightening a cable connector to a mating device, said cable connector having at least a cable adaptor and a nut, said cable adaptor being inelastically coupled to said cable, said cable adaptor being adapted to be firmly engaged by a tool, said apparatus comprising in combination:
- a tool having a portion adapted for firmly engaging and for preventing rotation of the cable adaptor, said tool having a cylindrical portion with a slot for allowing clearance for the cable; and
 - a nut driver rotatably disposable around said tool for firmly tightening the nut, said nut driver having an engagement portion shaped to allow said nut driver to firmly engage

and to turn the nut, said engagement portion being capable of coaxial rotation around said portion of said tool, said nut driver having a cut away cylindrical portion coaxially arranged around and capable of being aligned with said slot in said cylindrical portion of said tool to form an aperture larger than the cable, said aperture allowing said nut driver to be axially fed and rotated around said tool while providing clearance for the cable.

4,393,584

METHOD OF MANUFACTURE OF ELECTRODE CONSTRUCTION

Rex O. Bare, and Earl F. Robinson, both of Lawrence, Kans., assignors to C. R. Bard, Inc., Murray Hill, N.J.

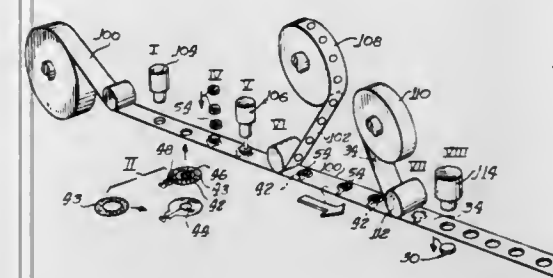
Division of Ser. No. 100,904, Dec. 6, 1979, Pat. No. 4,365,634.

This application Oct. 9, 1981, Ser. No. 310,119

Int. Cl.³ H01R 43/00

U.S. Cl. 29—877

6 Claims



1. A method of fabricating a disposable medical electrode assembly including a cover, said method comprising the steps of: providing a strip including, a first layer of material having an adhesively coated surface, which layer will provide the support layer for the electrode assembly, and a second layer in the form of a first release liner covering and engaged with said adhesively coated surface; forming an opening in said strip extending through said first layer and said first release liner; mounting a terminal member and a porous matrix with respect to said opening; removing said first release liner to expose the adhesively coated side of said strip, while leaving said porous matrix and said terminal means in place; applying a second release liner to the exposed adhesively coated surface of said strip, which liner is aperture free and overlies and protects said matrix and said adhesively coated surface of the support layer, said second release liner thereby providing a cover for said electrode assembly; severing the completed electrode assembly from said strip.

4,393,585

DRY-SHAVING APPARATUS WITH HAIR-TRIMMING MEANS

Petrus J. J. Nagelkerke, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

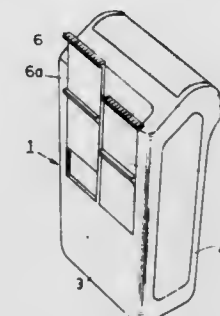
Filed May 11, 1981, Ser. No. 262,235

Claims priority, application Netherlands, Jun. 25, 1980, 8003670

Int. Cl.³ B26B 19/20

U.S. Cl. 30—34.1

5 Claims



1. A dry-shaving apparatus provided with hair-trimming means comprising a first pair of cooperating toothed cutters, one being reciprocatory and the other being stationary in

operation, said first pair of cutters forming a first hair trimmer and being adjustable between different positions; and a second pair of cooperating toothed cutters, one being reciprocatory and the other being stationary in operation, said second pair of cutters being arranged for operation in line and in juxtaposition with the first pair of cutters in at least one of said positions thereof so as to form with the first pair of cutters a second hair trimmer of greater length than the first hair trimmer measured in the direction of reciprocation of the reciprocatory cutters, or said second pair of cutters having a greater length than the first pair of cutters measured in the direction of reciprocation of the reciprocatory cutter of each pair of cutters and being arranged to form independently of the first pair of cutters a second hair trimmer of greater length than the first hair trimmer.

4,393,586

SHAVING BLADE ASSEMBLY FOR ROTARY TYPE ELECTRIC SHAVER

Tetsuo Hamashima, and Fumihiko Kumano, both of Hikone, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

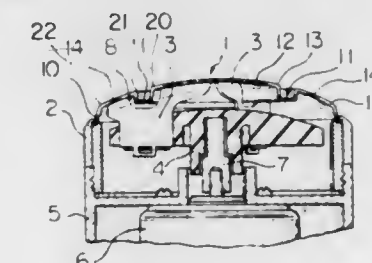
Filed Jul. 29, 1980, Ser. No. 173,427

Claims priority, application Japan, Aug. 7, 1979, 54-108789[U]

Int. Cl.³ B26B 19/14

U.S. Cl. 30—43.6

3 Claims



1. A shaving blade assembly for a rotary type electric shaver, comprising:

- an outer blade including a dome-shaped flexible steel foil including inner and outer surfaces, and having a plurality of hair-introducing apertures provided in a substantially spherical central area thereof,
- said outer blade being provided with a groove recessed longitudinally inwardly from said outer surface thereof and extending concentrically relative to a longitudinal axis of said outer blade which passes through said central area, said groove located radially inwardly of an outer periphery of said outer blade to separate said central area of said outer blade from an outer area thereof, said groove including radially inner and outer side walls and a base interconnecting said side walls, said radially inner side wall forming with said outer surface of said outer blade a first edge, said radially outer side wall forming with said outer surface a second edge, said first edge extending longitudinally outwardly to a greater extent than said second edge, a plurality of first hair-introducing slits extending from within said central area and along said radially inner side wall toward said base, and a plurality of second hair-introducing slits extending from within said outer area and along said radially outer side wall toward said base, and
- an inner blade member beneath said outer blade and including:
- a plurality of inner blades, each inner blade having a shearing edge corresponding to said inner surface of said outer blade and extending generally radially along a substantial portion thereof, including a substantial portion of said central area to support said outer blade, and
- a substantially disk-shaped inner blade frame supporting

said inner blades in radial direction bringing said shearing edges into resilient and slidable contact with said inner surface of said outer blade and having an axial hole for receiving a rotary driving shaft of a motor of said shaver to rotate said inner blade member about a longitudinal axis of rotation,

each of said inner blades having an incision in a position corresponding to said groove of said outer blade, and said incision having edge parts spaced from said inner and outer side walls of said groove to define therebetween a gap for allowing relatively long hair to be introduced into the gap through said first and second slits in said side walls.

4,393,587

SPRING SHIELDED SAFETY KNIFE

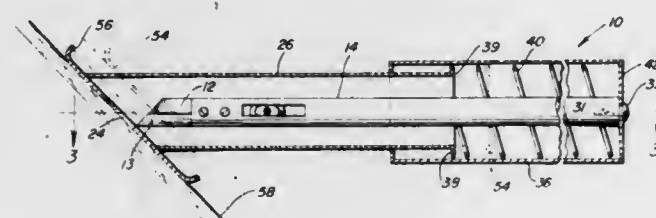
William A. Kloosterman, 6553 Hearne Rd. - 1107, Cincinnati, Ohio 45211

Filed Apr. 23, 1981, Ser. No. 256,775

Int. Cl.³ B26B 1/08

U.S. Cl. 30—162

6 Claims



1. A spring shielded safety knife, said knife including handle means for permitting a user to operably grip said knife, said handle means having a hollow interior portion, blade cutting means fixedly secured to said handle means and extending outwardly therefrom, blade shield means normally positionable over said blade cutting means and being slidably retractable into said hollow interior portion of said handle means, spring means contained in said hollow interior portion biasing said blade shield means into blade shielding position, said blade shield means being retained in position over said blade cutting means by a compression force provided by said spring means, said blade cutting means being detachably securable to a longitudinally extending blade shaft, said blade shaft being in concentric alignment with said hollow interior portion of said handle means and being fixedly secured to a remote end of said handle means, said blade shaft having a travel slide means operably associated therewith, said travel slide means serving to regulate a depth of cut of said blade cutting means by limiting a movement of said blade shield means into said hollow interior portion of said handle means, said travel slide means including a travel slide operably positionable in a slot on said blade shaft and further including a screw means threadably securable thereto, said screw means passing through said slot means in said blade shaft and being securable to an aperture contained on said blade shield means.

4,393,588

FOOD MINCER

Eugene Kowalski, South Orange, N.J., assignor to Elpo Industries, Inc., Paramus, N.J.

Filed Mar. 9, 1981, Ser. No. 241,662

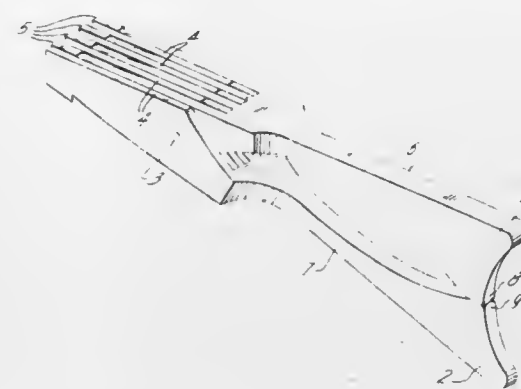
Int. Cl.³ A47J 19/04

U.S. Cl. 30—196

6 Claims

1. An implement for mincing comprising: a pair of pivoted members each having a handle portion and a portion having a plurality of blade-like members with nonreentrant cutting edges; the pivoted members being interchangeable; the blade-like members on one pivoted member being adapted to interleave with a complementary set of blade-

like members on a like portion of the other pivoted member; each of the portions having the blade-like members being



notched at their ends remote from the pivot for securely grasping and holding an article between the blade-like members to enable the blade-like members to shear through an article as the blade-like members are pivoted.

4,393,589

CONSTRUCTION FOR A MOTOR-DRIVEN CHAIN SAW

Bengt A. Barkhult, Hovas, Sweden, assignor to Emab Electrolux Motor Aktiebolag, Huskvarna, Sweden

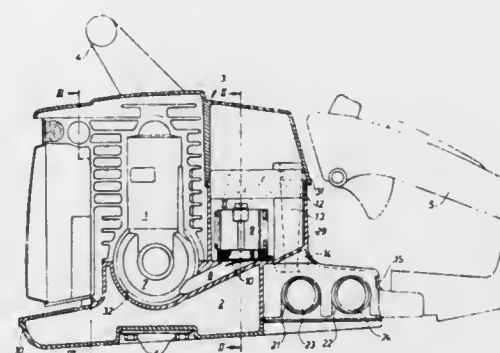
Filed Jun. 5, 1981, Ser. No. 270,793

Claims priority, application Sweden, Jun. 9, 1980, 8004300

Int. Cl.³ B27B 17/00

U.S. Cl. 30—381

6 Claims



1. A chain saw having an oil pump and a carburetor comprising: a plurality of units including an engine-saw unit, a casing, a fuel tank, a fuel filter for said fuel tank forming a filter-tank unit, said filter-tank unit including a top portion and a bottom portion restricting spacings for oil and fuel, respectively, and enclosing said filter, a plurality of pipes molded and permanently mounted in said top portion for oil and fuel from the respective tanks to said oil pump and carburetor, said carburetor which is located on said top portion and is provided with an air filter, and a permanently formed and molded holder in said top portion for holding said filter.

4,393,590

SAW GUIDE BAR

Glenn G. E. Pantzar, Arsunda, Sweden, assignor to Santrade Ltd., Lucerne, Switzerland

Filed Sep. 17, 1981, Ser. No. 303,041

Claims priority, application Sweden, Oct. 3, 1980, 8006930

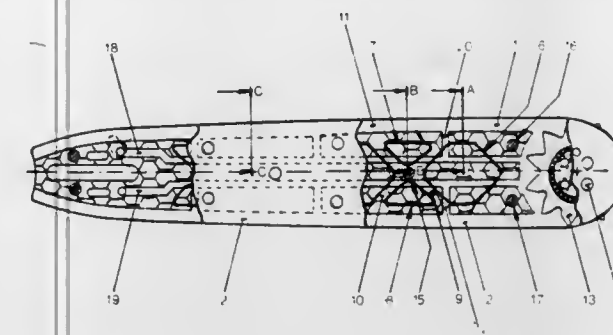
Int. Cl.³ B27B 17/02

U.S. Cl. 30—387

12 Claims

1. A chain saw guide bar comprising two side plates and an intermediate layer, each of said side plates comprising an outer layer of fiber-reinforced plastic material and an inner layer of

metal which is glued to said outer layer, said intermediate layer being of less height than said inner layers such that said inner



layers and said intermediate layers form a guide track for a saw chain.

4,393,591

OPTICAL TRANSDUCER

Renato Conta, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Italy

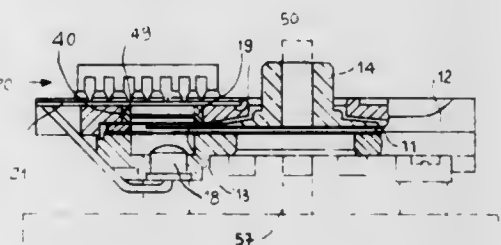
Filed Nov. 13, 1981, Ser. No. 320,875

Claims priority, application Italy, Nov. 17, 1980, 68755 A/80

Int. Cl.³ G01B 11/00, 11/26

U.S. Cl. 33—1 L

6 Claims



1. An optical transducer for determining the angular position of a rotatable member relative to a fixed structure, comprising a disc connected to said rotatable member and provided with a plurality of radial light transmitting elements alternate to light non-transmitting elements, a housing connected to said fixed structure and inside which said disc is lodged, a light emitting element mounted on said housing for illuminating said radial elements, a plurality of photocells arranged on said housing to detect the passage of light through said light transmitting elements, and an electronic circuit connected to said photocells for generating output signals indicative of the angular position of said rotatable disc with respect to said housing, wherein said circuit comprises active and passive components, electrical interconnections between said components, at least one trimming resistor for regulating said output signals within predetermined limits, a ceramic plate mounted on said housing and having an external flat surface on which said electrical interconnections and said trimming resistor are deposited, and an edge reference element deposited on said ceramic plate at a predetermined and exact distance from said trimming resistor, for causing the trimming of said trimming resistor to be operated by means of a calibrating apparatus including a laser beam automatically founding said edge reference element and automatically positionable on said trimming resistor starting from said edge reference element.

4,393,592

GAUGE FOR CHECKING LINEAR DIMENSIONS OF MECHANICAL PIECES

Carlo Dall'Aglia, Volta Reno di Argelato, Italy, assignor to Finike Italiana Marposs, S.p.A., S. Marino di Bentivoglio, Italy

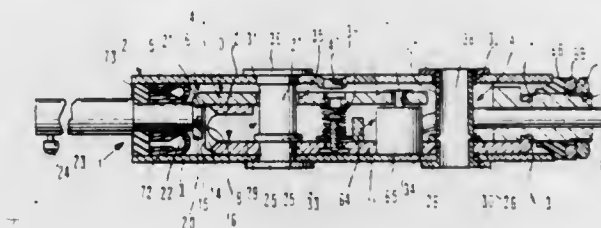
Filed Jul. 16, 1981, Ser. No. 283,875

Claims priority, application Italy, Jul. 22, 1980, 2477 A/80

Int. Cl.³ G01B 5/02, 7/02

U.S. Cl. 33—172 B

9 Claims



1. A gauge for the dimensional checking of mechanical pieces, including supporting means; a gauging arm; means for connecting the arm to the support means adapted to enable movement of the arm; a feeler, fixed to the movable arm to contact the surface of the piece to be checked; a spring including coils defining a geometrical axis, the spring having a first end cooperating with the gauging arm; and an adjustment device with a movable element cooperating with a second end of the spring, for adjusting the force applied by the spring to the gauging arm, wherein said adjustment device includes a control device, coupling means to couple the control device to the support means while allowing the rotation of the control device about said axis, the control device being coaxial with the spring and arranged substantially inside the coils of the spring, the adjustment device further including a member fixed to the support means and that cooperates with the movable element in order to prevent it from rotating while permitting its axial translation along said axis, the control device being coupled to the movable element to control said axial translation.

4,393,593

REGISTER-PIN-LOCATING DEVICE

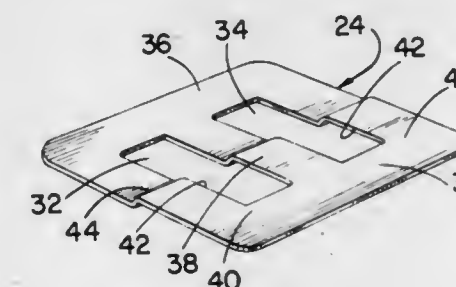
Robert P. Abbott, 7241 Garden Grove Blvd., Ste. E, Garden Grove, Calif. 92640

Filed Sep. 28, 1981, Ser. No. 305,926

Int. Cl.³ B41B 1/00

U.S. Cl. 33—184.5

7 Claims



1. A register-pin-locating device, comprising: a substantially flat rectangular plate having a longitudinal bend formed therein, defining first and second half sections wherein said first and second half sections are horizontally offset from each other; and at least one elongated slot formed in said plate transversely to said bend, said slot being equally disposed in each of said half sections.

4,393,594

COLLAPSIBLE SCRIBER ASSEMBLY

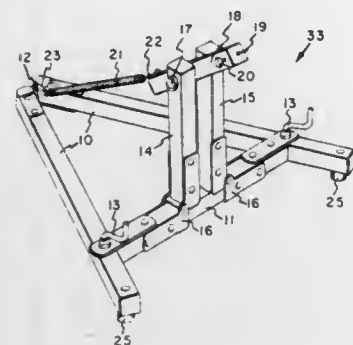
Ronald E. Hoffman, Uniontown, Ohio, and William K. Freed, Memphis, Tenn., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 6, 1982, Ser. No. 337,557

Int. Cl.³ G01B 5/255

U.S. Cl. 33—203.16

5 Claims



1. A collapsible scriber assembly for checking the radial and lateral runout of a wheel and tire assembly and for marking a reference line on a tire, comprising:

- a horizontal base assembly comprising at least two straight bar members, at least one of said straight bar members being hinged at the center of its length, and all of said straight bar members connected to each other at or near their ends by means for attaching and detaching;
- at least one straight vertical member, having first and second ends, the first end attached hingably to one of the straight bar members of said horizontal base assembly in such a manner that when it is in its operative position said straight vertical member is perpendicular to said horizontal base assembly and extends vertically upward therefrom;
- a pivot mechanism held in place perpendicular to said straight vertical member by means for attachment at or near the second end of said straight vertical member;
- a pivot bar, with first and second ends, having a bore through it near the center of its length, a well in the first end and an eyelet attached to the second end, said pivot mechanism passing through the bore in the pivot bar so that said pivot bar may pivot in a vertical plane;
- a scribe, used for providing a reference point and for making a reference line, inserted lengthwise in the well in the first end of said pivot bar and held in place by means for securing such as a set screw; and
- a coil spring, having first and second ends, the first end of said coil spring affixed to the eyelet at the second end of said pivot bar, and the second end of said coil spring affixed to said horizontal base assembly, providing a stabilizing tension on the pivot bar.

4,393,595

TUBE ADJUSTMENT GASKET AND RIFLE SCOPE EMPLOYING SAME

Dale E. Gibson, Salem, Oreg., assignor to Leupold & Stevens, Inc., Beaverton, Oreg.

Filed Jul. 20, 1981, Ser. No. 284,966

Int. Cl.³ F41G 1/38

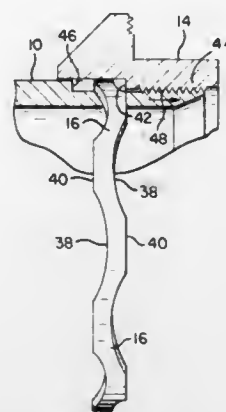
U.S. Cl. 33—245

23 Claims

1. An adjustment gasket of synthetic plastic material, comprising:

- a resilient ring member;
- a plurality of resilient locking means provided on the ring member at positions spaced about the longitudinal axis of said ring member, including a plurality of concave curved surface portions of substantially the same shape spaced about the periphery of said ring member; and
- a plurality of flat surface portions spaced between said concave portions about the periphery of said ring member and positioned longitudinally outward of said arcuate portions

so that a first set of alternating flat portions and arcuate portions are provided on at least one side of said ring



member substantially the same radial distance from the axis of the ring member to enable longitudinal compression of said resilient locking means.

4,393,596

REMOTELY ADJUSTABLE SIGHTING DEVICE FOR TRACTORS

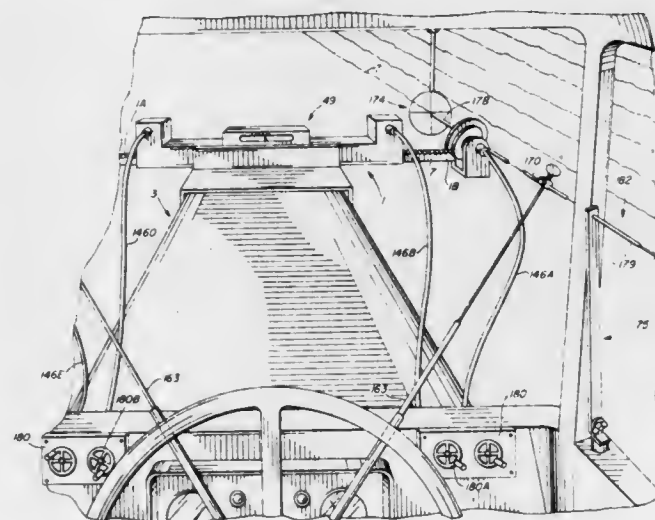
B. Lynn Gerber, 6286 E. Catalina Dr., Scottsdale, Ariz. 85251
Continuation-in-part of Ser. No. 99,526, Dec. 3, 1979, Pat. No. 4,280,281. This application Nov. 6, 1980, Ser. No. 204,454

The portion of the term of this patent subsequent to Jul. 28, 1998, has been disclaimed.

Int. Cl.³ G01C 15/00

U.S. Cl. 33—264

14 Claims



1. A sighting apparatus attachable to a tractor to enable a driver of the tractor to precisely align the tractor with swaths or furrows previously cut in a field by a farming implement towed to the tractor, said sighting apparatus comprising in combination:

- a first extension arm for extending outwardly an adjustable distance to one side of the tractor from a mounting point of the tractor, said first extension arm having an outer end and an inner end;
- support means pivotally connected to the mounting point and also engaging the inner end of said extension arm for supporting said first extension arm;
- first adjustment means adjustable by a driver seated in the driver's seat of the tractor for controlling extending and retracting of said extension arm from said support means;
- first sighting bar means rotatably connected to the outer end of said first extension arm for effecting visual alignment of the tractor with the previously cut swath or furrow; and
- second adjustment means adjustable by the driver when the driver is seated in the driver's seat of the tractor for controlling rotation of said first sighting bar means, said

first and second adjustment means being located sufficiently close to the driver's seat to be conveniently controlled by the driver while the driver assumes a normal driving position in the driver's seat;

- pendulum means connected to said support means for maintaining said support means in a level orientation as the tractor tilts or is jolted as the tractor moves over uneven or rough ground; and
- damping means engaging said pendulum means for damping movement of said pendulum means relative to the tractor.

4,393,597

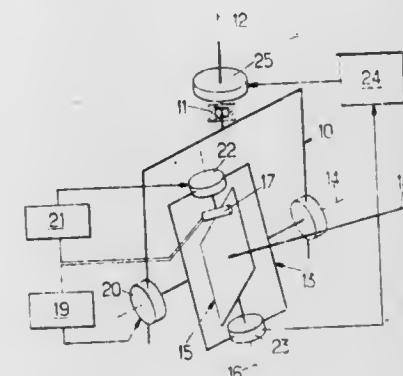
STABILIZED SIGHTING DEVICES FOR VEHICLES
Jean-Francois Picard, Versailles, and Paul Jacquard, le Peco, both of France, assignors to Societe D'Applications Generales, Paris, France

Filed Dec. 29, 1980, Ser. No. 220,895

Claims priority, application France, Dec. 26, 1979, 79 31721
Int. Cl.³ G01C 15/14

U.S. Cl. 33—275 G

7 Claims



1. A stabilized sighting device comprising:
 - a first gimbal unit mounted for rotation about a first axis;
 - a drive motor for rotating said first gimbal unit about said first axis;
 - a second gimbal unit mounted for rotation on said first gimbal unit about a second axis perpendicular to said first axis;
 - a sight unit provided with a gyroscope and mounted on said second gimbal unit for rotation within a predetermined limited angular range with respect to a predetermined reference position which is a canonical position about a third axis perpendicular to said second axis;
 - first and second motor means for driving said second gimbal unit and sight unit about said second and third axes, respectively;
 - said gyroscope having a first sensitive axis located parallel to said second axis when the sight unit is in said predetermined reference position about said third axis, and a second sensitive axis parallel to said third axis,
 - first and second servo loop circuits connected to first and second outputs of said gyroscope for controlling said first and second motor means, respectively;
 - detector means arranged to deliver a signal representative of the deviation of said sight unit from the canonical position with respect to the second gimbal unit;
 - and a position copying loop controlled by said detector means and activating said drive motor in a direction tending to compensate said deviation, whereby said second servo loop returns said sight unit to said predetermined reference position which is a canonical position.

4,393,598

BOREHOLE TOOL

Steven W. Powell, and James G. Stockton, both of Houston, Tex., assignors to NL Sperry Sun, Inc., Sugar Land, Tex.
Continuation of Ser. No. 115,454, Jan. 25, 1980, abandoned. This application Apr. 19, 1982, Ser. No. 369,400

Int. Cl.³ E21B 47/00

U.S. Cl. 33—302

8 Claims



1. An apparatus for measuring a borehole parameter comprising:

- an elongated housing having first and second ends; means for supply alternating electrical power to said housing at either of said first or second ends, said means including at least one electrical conductor running between said first and second ends; (at either end to permit inversion of the housing in the borehole);
- means within said housing for detecting a borehole parameter, said detecting means being activated in response to changes in the parameter being detected, said detecting means also being activated in response to the passage of an electrical current creating a magnetic field within the immediate environment of said detecting means;
- means for dampening the response of said detecting means and thereby slowing down the response time of said detecting means to the magnetic field created by said electrical current; and
- means for varying the direction of electrical current supplied to said housing at a rate faster than the response time of said detecting means when subjected to the electrical current, thereby providing a zero average magnetic field.

4,393,599

LEVELING MECHANISMS FOR HAND-HELD POWER DRILL

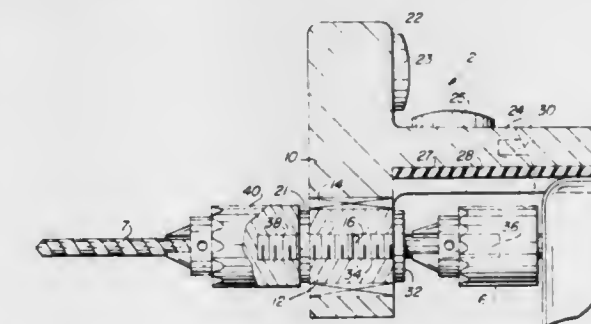
John W. Sterrenberg, 8350 E. McKellips Rd. #146, Scottsdale, Ariz. 85257, assignor to John W. Sterrenberg, Scottsdale, Ariz.

Filed Sep. 2, 1980, Ser. No. 183,183

Int. Cl.³ G01C 9/28; B23B 49/00

U.S. Cl. 33—336

22 Claims



1. A leveling mechanism for use in conjunction with a drill, the drill including a rotatable drive member for rotating a chuck, the rotatable drive member having a threaded central bore formed therein, said leveling mechanism comprising in combination:

- a support;
- a drive shaft rotatably mounted to said support and having an axis of rotation, said drive shaft having first and second ends, the first end of said drive shaft being coupled to said chuck, and the second end of said drive shaft being externally threaded and of a diameter commensurate with that of the threaded central bore within the rotatable drive member, said externally threaded second end of said drive

shaft being received directly by the threaded central bore within the rotatable drive member for rotating the chuck; (c) said support being maintained at a substantially fixed point along the rotational axis of said drive shaft and at a substantially fixed distance from said drill and relatively proximate thereto for minimizing the distance between the drill and the chuck rotated thereby; and (d) a first bubble level attached to said support to aid a user in holding the drill in a predetermined position.

4,393,600

STRUCTURAL BEAM SQUARE

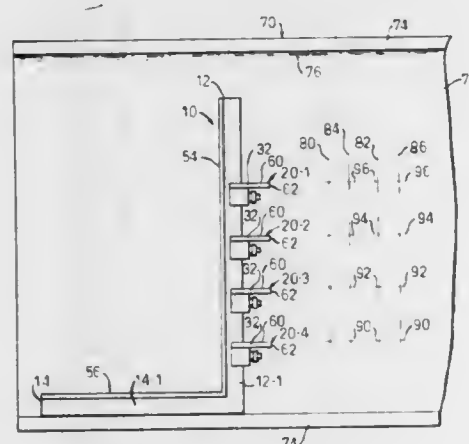
Norman O. Coe, 2600 Senter Rd. #77, San Jose, Calif. 95111

Filed Oct. 27, 1981, Ser. No. 315,538

Int. Cl.³ G01B 3/30

U.S. Cl. 33—474

4 Claims



1. In a square for use in establishing a line on the base of a structure perpendicular to a wall extending from the base, the combination comprising,

unitary first and second arm members extending at right angles to each other, said first and second arm members having T-shaped cross sections, said first and second arm members comprising,

first and second coplanar stem members having inner and outer edges, and

first and second flanges extending along the inner edge of the respective first and second stem members, respectively, said first and second flanges being of uniform, equal, height, the outer free edge of one of said first and second arm members being adapted to abut the wall associated with the base with the other arm member extending perpendicular to the wall for use in marking off the base along said flange on the other arm member,

said square including at least one gauge member secured to the stem member of the other of said first and second arm members said gauge member including a gauge plate extending parallel to the one arm member abutting the wall of the structure for use in cross marking the line established using said flange on the other arm member, said gauge plate having a height equal to the height of said first and second flanges.

4,393,601

MEASURING DEVICE

Jerald G. Peterson, 1417 Kurtz Rd., McLean, Va. 22101

Filed Oct. 26, 1981, Ser. No. 314,865

Int. Cl.³ G01B 3/02

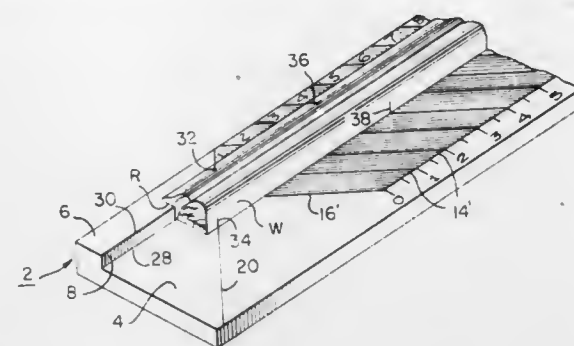
U.S. Cl. 33—494

6 Claims

1. A measuring device comprising a plurality of stepped surfaces including a first surface extending in a first longitudinal plane and a second surface extending in a second longitudinal plane, said first and second surfaces being substantially parallel and offset relative to each other to form said stepped surfaces,

a third surface extending from said first surface to said second surface in a third plane, said third surface extending

substantially at right angles to said first and second surfaces, a first reference mark positioned upon at least one of said surfaces at a position where the plane of said third surface intersects said first and second surfaces, and



at least one second reference mark comprising a plurality of marks which define at least one line which is spaced from said first reference mark and positioned upon at least one of said first and second surfaces at an angle of 135° relative to said third surface.

4,393,602

VEHICLE DRYING MACHINE AND METHOD

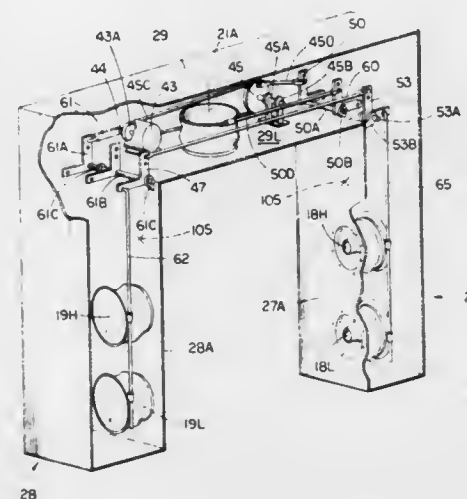
Judson L. Smith, 5432 Lighthouse La., Tempe, Ariz. 85283

Division of Ser. No. 932,273, Aug. 9, 1978, abandoned. This application Jul. 23, 1980, Ser. No. 171,338

Int. Cl.³ F26B 5/00

U.S. Cl. 34—34

2 Claims



1. A method of drying a vehicle comprising the steps of: establishing a path of relative linear horizontal movement between a nozzle and the vehicle, directing a generally circular blast of air from the nozzle from one side of said path onto the exterior of the vehicle above the vehicle bottom at a velocity exceeding 150 mph, directing second and third generally circular blasts of air against the exterior of the vehicle, said second blast being directed downward from above the vehicle and said third blast being directed generally horizontally and from the side of the path opposite said one side, and oscillating the directions of said blasts in a direction of oscillation generally transverse to the direction of said path, said blasts from the side being alternated in opposite directions so both are not blasting upward at same time.

4,393,603

DRYER THERMAL EFFICIENCY

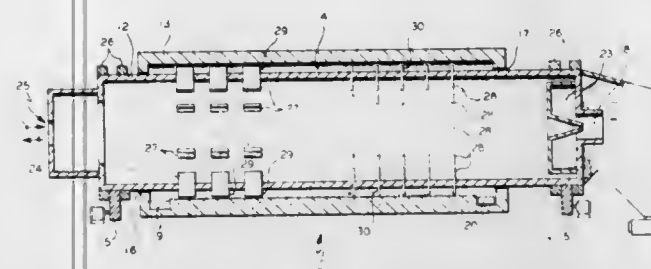
John R. Casperson, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 29, 1981, Ser. No. 278,159

Int. Cl.³ F26B 3/24

U.S. Cl. 34—39

15 Claims



1. A process for removing liquid from particulate matter which comprises:

(a) feeding said particulate matter containing the liquid into a rotary drum vessel which has attached thereto projections extending from the outside of the drum vessel to the inside thereof, and having portions extending into the drum vessel and portions extending into the space outside of the drum vessel,

(b) contacting the outside of said vessel and those portions of said projections which extend into the space surrounding said vessel with a heating medium,

(c) rotating said rotary drum vessel containing said particulate material

(d) exposing the particulate matter containing liquid to those inside portions of said projections which extend from the interior of the vessel through the walls of the vessel to the exterior of the vessel and which contact the heating medium that contacts the vessel thereby transferring heat through said projections,

(e) vaporizing the liquid to be removed, and

(f) recovering particulate matter having reduced liquid content.

4,393,604

OUTSOLE FOR ATHLETIC SHOE

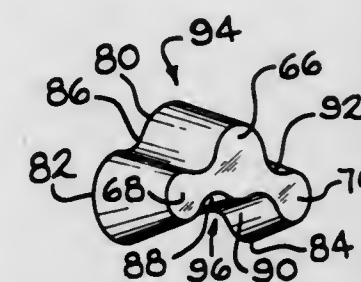
Kevin J. Crowley, Newburyport, Mass., assignor to Converse Inc., Wilmington, Mass.

Filed Oct. 14, 1981, Ser. No. 311,485

Int. Cl.³ A43C 15/02

U.S. Cl. 36—67 R

1 Claim



1. A cleat projection for an athletic shoe, having a shape characterized by three frustoconical members of equal height and unequal volume, two said members being smaller than a third said member, said third member being disposed between said smaller members, each of said three frustoconical members having a major axis, said major axes defining points on an arc, each said frustoconical member having a base portion, said base portions being overlapping portions, said shape including fillet portions interconnecting the sides of said frustoconical members.

4,393,605

SPORTS SHOE

Georg Spreng, Weiherstrasse 10, D-7272 Altensteig, Fed. Rep. of Germany

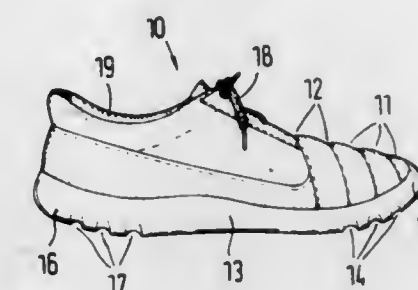
Filed May 18, 1981, Ser. No. 264,803

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1980, 3043266

Int. Cl.³ A43B 5/00, 13/04, 23/00

U.S. Cl. 36—114

10 Claims



1. A sports shoe having a sole and an enclosing upper, said upper having a toe cap, formed of a plurality of strips, articulately interconnected along parallel lines extending from the inside edge toward the heel of said shoe at an acute angle with the longitudinal axis of said shoe, said sole being provided with a plurality of grooves aligned with the articulating interconnections of said strips.

4,393,606

EXCAVATOR WITH LASER POSITION INDICATOR

Waldemar Warnecke, Grasleben, Fed. Rep. of Germany, assignor to Friedrich Wilh. Schwing GmbH, Herne, Fed. Rep. of Germany

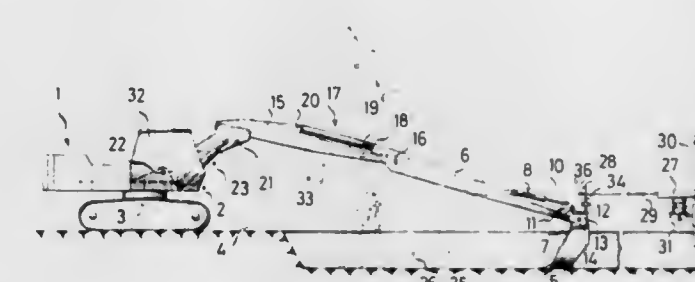
Filed Aug. 26, 1981, Ser. No. 296,450

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1980, 3032821

Int. Cl.³ E02F 5/02

U.S. Cl. 37—103

5 Claims



1. In a back hoe excavator of a type having an articulated digging device with a digging bucket mounted at an outer end, in which the digging bucket is capable of being set to a given cutting angle, and in which the digging bucket is moved toward a human operator of the excavator in a digging direction during a digging operation while the digging bucket is maintained at the given cutting angle, a position indicator apparatus for checking position of the digging device of the excavator relative to a digging floor which has already been formed, the position indicator apparatus being arranged in a field of view of the human operator of the excavator to provide a visual indication of the position of the digging device to the operator, the position indicator apparatus comprising:

laser transmitter means for providing a laser beam in a direction parallel to the digging direction, the laser transmitter means being positioned on an opposite side of the digging bucket from the operator, so that the digging bucket moves in the digging direction toward the operator and away from the laser transmitter means during a digging operation;

mounting means for mounting the laser transmitter means

with respect to the digging floor which has already been formed so that the laser beam is representative of vertical and horizontal aspects of a digging floor to be dug by the excavator; and

target means mounted to and carried by the digging device, the target means being at least partially transparent, and having a first surface facing the operator and a second, opposite surface for receiving the laser beam from the laser transmitter, and wherein the target means reproduces a visual image of an end point of the laser beam for parallax-free observation by the operator during an entire digging operation in which the digging bucket is set to a given cutting angle and moved in the digging direction toward the operator.

4,393,607

HYDRAULIC EXCAVATOR

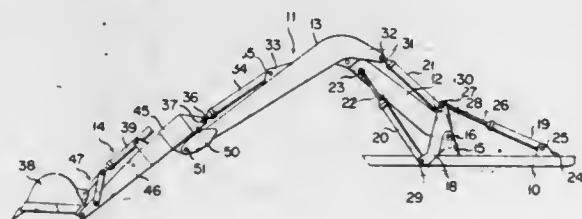
Katsu Hirose, Komatsu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Oct. 23, 1981, Ser. No. 314,516

Int. Cl.³ E02F 5/22

U.S. Cl. 37—103

3 Claims



1. A hydraulic excavator comprising:

- a base;
- a first boom mounted on said base for movement in a vertical plane about a first pivot;
- a second boom mounted on said first boom for movement in the same vertical plane about a second pivot;
- an arm assembly mounted on said second boom for movement in the same vertical plane about a third pivot;
- an implement mounted at the swinging end of said arm assembly for movement about a fourth pivot;
- means for swinging said first boom with respect to said base about the first pivot, said means including a lever pivotally mounted on said base and first and second hydraulic cylinders, said lever having first and second ends and is pivoted about the first pivot, said first hydraulic cylinder having its one end pivotally connected to said base and the other end pivotally connected to the first end of said lever while said second hydraulic cylinder has its one end pivotally connected to the second end of said lever and the other end pivotally connected to said first boom;
- a third hydraulic cylinder for swinging said second boom with respect to said first boom about the second pivot;
- a fourth hydraulic cylinder for swinging said arm assembly with respect to said second boom about the third pivot; and
- a fifth hydraulic cylinder for swinging said implement with respect to said arm assembly about the fourth pivot.

4,393,608

LAND FORMING AND EARTH MOVING EQUIPMENT

John R. Hodge, Nathalia-Katamatite Rd., Numurkah, Victoria, Australia (3636)

Filed Sep. 3, 1981, Ser. No. 299,170

Claims priority, application Australia, Sep. 2, 1980, PE5364/80

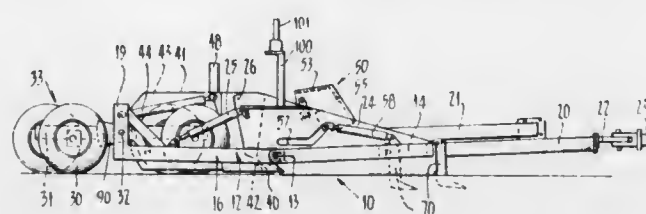
Int. Cl.³ E02F 5/00

U.S. Cl. 37—124

17 Claims

1. Earth moving and land forming equipment including an open frame formed as a forward section and a rearward section pivoted together on a transverse axis, the forward section adapted to be connected at its forward end to a tractor draw

bar and the rear of the rearward section being supported at each side by land wheels, the wheels on each side being carried on an arm pivotally mounted on said rearward section, a fixed scraper blade at the pivoted end of the said rearward section, a load carrying container behind the scraper blade, an apron pivotally mounted above and forwardly of the load carrying container the forward section having substantially vertical wings on either side thereof to guide soil to the load carrying container, the apron having a substantially downwardly directed edge, when it is in a, first, raised position in which it is located substantially above the scraper blade so as to leave the



mouth of the load carrying container unimpeded, and means to cause the apron to rotate generally arcuately downwardly to a, second, lowered position in which the edge substantially abuts the scraper blade, the apron effectively closing the forward end of the load carrying container, the rotation being effected by hydraulic rams connected between the apron and formed slots in the wings, the slots constraining the ends of the rams to move in a fixed path to control the movement of the edge of the apron, means connected between the said forward and rearward sections, on each side of the frame pivot to effect raising and lowering movements of the said pivot and thus to the scraper blade.

4,393,609

FEEDING DEVICE

Arne Persson, Pl 5165, S-82027 Söderala, Sweden

PCT No. PCT/SE81/00102, § 371 Date Nov. 24, 1981, § 102(e)

Date Nov. 24, 1981, PCT Pub. No. WO81/02723, PCT Pub.

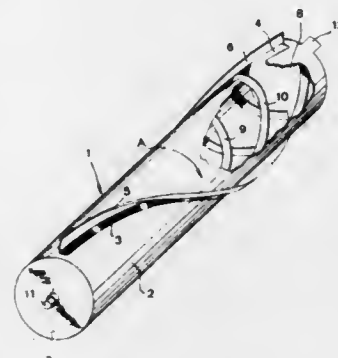
Date Oct. 1, 1981

PCT Filed Mar. 28, 1980, Ser. No. 328,571

Int. Cl.³ E01H 5/09

U.S. Cl. 37—238

7 Claims



1. A feeding device comprising a rotary drum in the casing wall of which one or more openings are provided to serve as intakes, with which blade-like elements cooperate, said blade elements projecting outwardly from the outside of the casing wall so as to rip and carry along goods and bring it into the interior of the drum through said intake upon rotation of the drum, means being provided inside the casing wall for conveying the goods introduced into the drum to an outlet opening at an end of the drum, said intake openings being in the form of narrow slots, which together with the associated blade elements extend helically along the casing wall, said means for conveying the goods to the outlet opening including a flange which projects from the inside of the casing wall towards the interior of the drum, said flange extending, like the slots and the blade elements, helically in the direction from one of the ends of the drum towards the other, the pitch of the slots and

the blade elements along the drum being greater than the pitch of the interior flange.

4,393,610

CARD CARRYING MICROFILM AND ASSOCIATED READING LENS AND PROCESS OF FORMING SAME

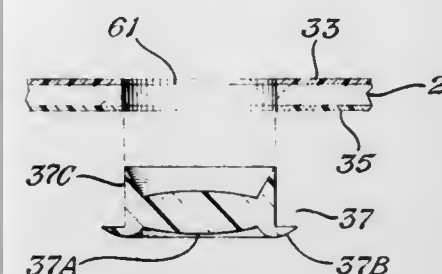
David L. Adrian, Abilene, Tex., assignor to Lens-Card Systems, Inc., Abilene, Tex.

Filed Jan. 30, 1981, Ser. No. 229,972

Int. Cl.³ G09F 1/10; G02B 27/04

U.S. Cl. 40—625

10 Claims



1. A data card comprising:

- a flexible paper stock having an information portion upon which information appears that can be read in the normal manner with the naked eye with a portion removed at one end region,
- a microfilm upon which information is recorded and which is disposed at said one end region,
- a pair of flexible clear plastic sheets laminating opposite sides of said paper stock respectively, including said microfilm, an aperture formed through said clear plastic sheets and through said paper stock at an end region opposite said one end region,
- a round plastic lens located in said aperture,
- said lens having a central magnifying portion and an annular outer gripping portion for gripping the opposite sides of said card for securing said lens to said card and in said aperture,
- said annular outer gripping portion extending transversely to the thin plane of said lens beyond said central magnifying portion on each side of said lens for providing protection for each side of said central magnifying portion,
- said card being flexible whereby a reader may bend said card to align and focus the lens on the microfilm for reading the same.

4,393,611

PERPETUAL CALENDAR

Ronald S. Lane, 406 Deer Creek Dr., Plainsboro, N.J. 08536, and James M. Wittes, Linden, N.J., assignors to Ronald S. Lane, Plainsboro, N.J.

Continuation-in-part of Ser. No. 10,336, Feb. 8, 1979, Pat. No. 4,275,516, which is a continuation-in-part of Ser. No. 798,273, May 19, 1977, Pat. No. 4,142,311. This application Jun. 8, 1981, Ser. No. 271,613

Int. Cl.³ G09F 3/00

U.S. Cl. 40—107

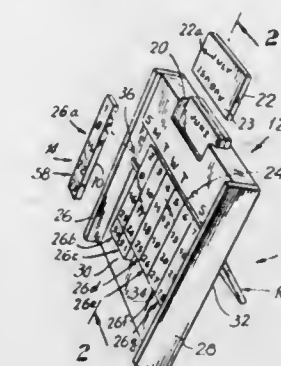
10 Claims

1. An improved permanent calendar assembly to precisely display any month of the year and reflect the number of days in the desired month, said assembly having a date column area, a plurality of date columns, and means to detachably secure said columns to said date column area, the improvement comprising:

- at least one reversible mounting structure secured at the lower end of a respective one of said date columns for rotation about an axis extending along said column;
- a pair of opposed surfaces on said mounting structure, a rear surface being unnumbered, the other surface defining a

front surface having thereon a numeral representing the date of a day of the month; and

a lug on one of said mounting structure and said one date column extending toward the other of said mounting structure and said one date column; said other of said mounting structure and said one date column having openings on opposite sides of said axis extending thereinto



and through the rear thereof, each opening being dimensioned to receive said lug freely therein, but having a protrusion near the rear of said other of said mounting structure and said one date column positioned to interfere with the movement of said lug into said opening, whereby said mounting structure may be rotated to force said lug through the rear portion of one of said openings so that said lug is retained in said one opening.

4,393,612

PADDED FRAME

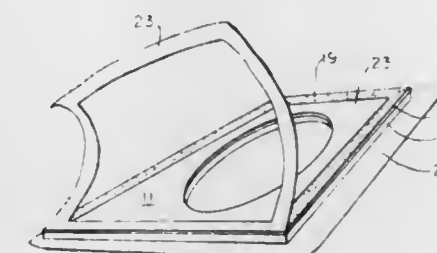
Susan Clark, 7270 Prow Way, Dublin, Calif. 94566

Filed Jun. 18, 1982, Ser. No. 389,854

Int. Cl.³ A47G 1/06; G09F 1/12

U.S. Cl. 40—152

7 Claims



1. A padded frame comprising

- a mounting board having a uniform layer of foam sponge material secured thereto on one side thereof and having at least one opening for framing a picture or other object;
- bands of adhesive surfaces disposed on the opposite side of said mounting board from said sponge layer and surrounding the periphery of said mounting board and the opening therein and
- a decorative covering material stretched over said sponge material layer and squeezing it to the mounting board around the border of said mounting board and around the opening in the center thereof, said covering material being wrapped around the edges of said mounting board and the edge of said opening and stuck to said adhesive surfaces on the reverse side thereof.

4,393,613

PROJECTILE LUBRICATING AND MUZZLE LOADING DEVICE FOR GUN

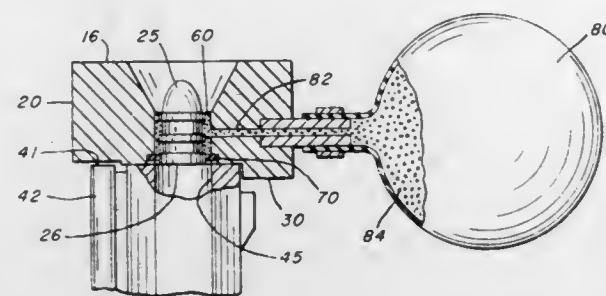
Ronald J. Knosky, R.D. #3 - Box 166, Leechburg, Pa. 15656

Filed Sep. 15, 1980, Ser. No. 187,418

Int. Cl.³ F41C 27/00

U.S. Cl. 42-90

7 Claims



1. A projectile lubricating and muzzle loading device for muzzle loading guns comprising a body structure having:

- (a) a top surface;
- (b) a bottom surface for placing on the muzzle of the gun when inserting a projectile therein;
- (c) an aperture adapted to receive and hold said projectile during lubrication and to align said projectile with the muzzle of the gun for purposes of loading, said aperture defined by a side wall structure extending from and connecting the top surface to the bottom surface, and having the axis thereof aligned substantially at right angles with the bottom surface;
- (d) a resilient member located in said aperture which cooperates with the projectile when placed in said aperture, said member adapted to restrict the flow of lubricant towards the rear of the projectile thereby preventing contamination of the powder with the lubricant when the projectile is loaded into said muzzle for firing; and
- (e) means for introducing lubricant to said aperture when the projectile is held therein.

4,393,614
GUN REST

Fred E. Pickett, 508 Sophia La., Shreveport, La. 71115

Continuation-in-part of Ser. No. 158,060, Jun. 9, 1980, Pat. No. 4,345,398. This application Feb. 27, 1981, Ser. No. 238,763

Int. Cl.³ F41C 29/00

U.S. Cl. 42-94

8 Claims



1. A gun rest for supporting a firearm comprising:
- (a) a monopod characterized by a round, hollow and elongated base support member having a pivoted end and an open end opposite said pivoted end, and tapered from a top base support diameter at said pivoted end to a smaller bottom base support diameter at said open end, and a plurality of round, hollow and elongated interior support members carried by said base member and tapered from a

first interior support diameter at the top ends thereof, respectively, to a smaller second interior support diameter at the bottom ends, thereof, respectively, to permit said interior support members to successively rest in, and selectively telescope from said open end of said base support member; and

- (b) a monopod bracket pivotally attached to said pivoted end of said monopod and further comprising clamp means carried by said bracket for removable engagement with the barrel of said firearm to secure said monopod bracket and said monopod to said firearm.

4,393,615
FISHING APPARATUS

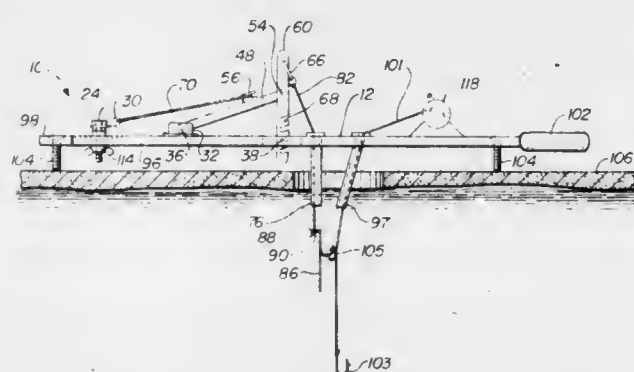
Vincent B. Hodshire, 2701 NE. Adams St., Peoria, Ill. 61603

Filed Nov. 30, 1981, Ser. No. 325,726

Int. Cl.³ A01K 97/01

U.S. Cl. 43-15

9 Claims



1. A fishing apparatus comprising:
- a main support member;
 - a first member connected to said main support and movable between first and second positions;
 - a trigger member connected to said first member;
 - means for retaining said trigger and said first member in said first position;
 - means for resiliently urging said trigger and said first member toward said second position;
 - a first elongated guide member extending from said main support, said first guide having a first end adjacent said trigger;
 - a first line connected to said trigger and extending through said first guide and terminating adjacent a second end of said guide;
 - a reel mounted on said main support;
 - a second elongated guide member extending from said main support, said second guide having a first end adjacent said reel;
 - a second line extendably connected to said reel and extending through said second guide; and
 - means connected to said first line for releasably engaging said second line.

4,393,616
TRAP APPARATUS, AND METHODS OF FABRICATING AND UTILIZING SAME

Gilbert T. Kaufman, Flint, and Alfred Evans, Swartz Creek, both of Mich., assignors to Critter Getter, Inc., Flint, Mich.

Filed Mar. 23, 1981, Ser. No. 246,882

Int. Cl.³ A01M 23/18

U.S. Cl. 43-60

16 Claims

1. An animal trap comprising:
- a housing forming an elongated chamber and having forward and rear walls;
 - an opening in said forward wall for entry of an animal to be trapped;
 - a platform member within said chamber and extending substantially the full length and width of said chamber, but being spaced from the walls of said chamber sufficiently to

4,393,618

NOVELTY WRITTEN MESSAGE DEVICE SUITABLE FOR MAILING

Otis E. Ray, P.O. Box 40302, St. Petersburg, Fla. 33743

Filed May 19, 1981, Ser. No. 265,204

Int. Cl.³ A63H 1/30

U.S. Cl. 46-35

2 Claims



- an indicator mounted on said platform and moveable thereby to indicate the condition of said platform with respect to said opening and to thus give an indication that an animal may be trapped in said trap;
- a locking device attached to said platform and operable to lock said platform in said second condition; and
- said indicator operably cooperating with said locking device and being movable by a user of said trap to unlock said locking device in said second condition.

4,393,617

ANIMAL TRAP SIGNAL APPARATUS

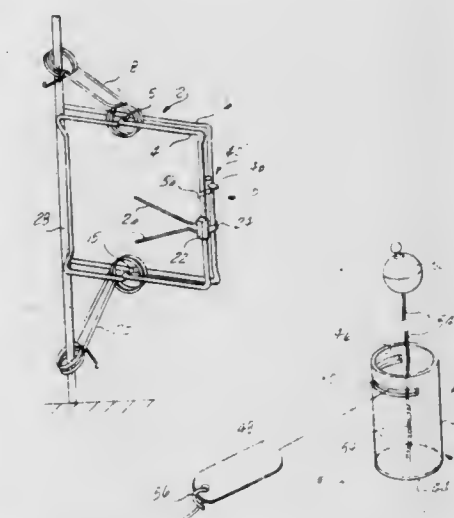
Nicky L. Charnoske, 1450 Sheldon St., Alger, Mich. 48601

Filed Jun. 5, 1981, Ser. No. 270,603

Int. Cl.³ A01M 23/26

U.S. Cl. 43-96

5 Claims



1. A signal apparatus for use with an animal trap positionable underwater and having at least one movable portion comprising:

- a housing having an open end, the housing adapted to be attached to the animal trap in a substantially vertical orientation with the open end uppermost;
- a movable cover member for releasably closing the open end of the housing;
- a buoyant float disposable within the housing;
- means for extensibly attaching the buoyant float to the housing such that the buoyant float can rise to the surface of the water when released from the housing; and
- means for connecting the cover member to a movable portion of the animal trap such that the cover member is movable to a position uncovering the open end of the housing and releasing the buoyant float therefrom in response to the closing of the animal trap.

4,393,619

DOLL EYE HAVING INSERT FORMING THE IRIS

Mason D. Murch, 5419 Williams, Wayne, Mich. 48184

Filed Jun. 29, 1981, Ser. No. 278,733

Int. Cl.³ A63H 3/38

U.S. Cl. 46-165

6 Claims



1. A doll eye comprising:
- a substantially spherical solid body constructed of a thermosetting clay, said body having a substantially cylindrical and diametric bore formed through it,
 - an eye insert having an elongated stem and an annular flared-out portion at one end of the stem,
 - means for securing said eye insert to said body so that said stem protrudes into said bore and so that the outwardly facing side of said flared-out portion substantially conforms to the outer periphery of the body,
 - wherein said eye insert is constructed of a transparent material having a coating of colored material on the other side of said eye insert flared-out portion, said coating of col-

ored material determining the extent and color of the iris in the finished eye, and
a coating of transparent material on the outer periphery of said body and said outwardly facing side of said flared-out portion.

4,393,620

ROCKET TRAIN TOY ASSEMBLY

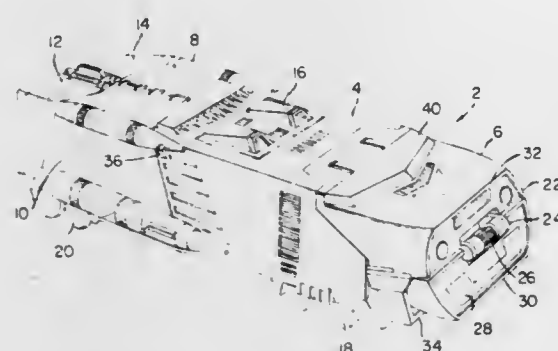
Kazuya Murakami, Tokyo, Japan, assignor to Takara Co., Ltd., Osaka, Japan

Filed Jul. 31, 1981, Ser. No. 288,948

Int. Cl.³ A63H 11/10

U.S. Cl. 46—201

12 Claims



1. A reconfigurable toy comprising:
a first housing member having a longitudinal axis configured to simulate a portion of a surface vehicle in an initial position;
a second housing member configured to simulate the front portion of a surface vehicle and relatively movable along the longitudinal axis from the first housing member, a portion of the second housing member is pivotally movable to reconfigure the front portion of the surface vehicle configuration into the nose portion of an aeronautical vehicle when placed in a second position;
first and second outer wall members are pivotally mounted to the first housing member and are simulated to complement a surface vehicle configuration in an initial position and to extend away from the first housing member to a second position to provide a set of wings for an aeronautical vehicle configuration;
means for biasing the outer wall members and the portion of the second housing member to an aeronautical vehicle configuration when placed into an initial position of a surface vehicle, and
means for activating the reconfiguration by releasing the outer wall members and portion of the second housing member to be moved by the biasing means.

4,393,621

TREE HOLDER

Clifford H. Rodell, 8749 Contee Rd., Laurel, Md. 20811

Filed Oct. 28, 1981, Ser. No. 315,712

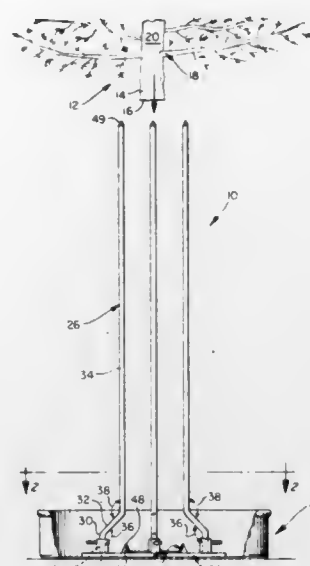
Int. Cl.³ A47G 7/02

U.S. Cl. 47—40.5

15 Claims

1. A stand for holding trees in an upright position comprising:
(a) a base upon which the end of a trunk of a tree rests when the tree is being held in an upright position;
(b) at least three orthogonally projecting members attached to a surface of the base at spaced apart locations which define a polygon, each member projecting a distance from the base such that it extends along the trunk to the stem where the branches join to the stem when the end of the trunk touches the base; and
(c) means attached to and extending upwardly from the base for holding the end of the trunk at least partially within

the area of the polygon defined by the points of attachment to the members of the base, the means having a



pointed member located on a line extending between each adjacent pair of vertices of the polygon.

4,393,622

WATER FUNNEL AND CARD HOLDER FOR CUT FLOWERS

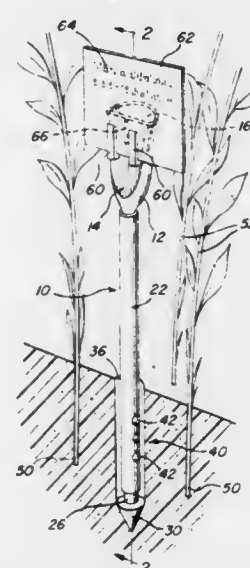
Joseph S. Gallo, Sr., Walpole, Mass., assignor to Dakota Plastics Company, Watertown, S. Dak.

Filed Nov. 25, 1981, Ser. No. 324,864

Int. Cl.³ A01G 29/00

U.S. Cl. 47—48.5

6 Claims



1. A water funnel arrangement for cut flowers including a unitary structure for funnelling water into a container having foam plastic material for receiving cut ends of cut flowers, the arrangement comprising:

- a funnel having its large opening for receiving water and its small opening for passing water therefrom,
- a tubular member having an opening at its upper end to receive the small opening of the funnel and for passing water through the tubular member to its lower end, said tubular member having at least one aperture proximate the lower end for discharging water therefrom and
- a pointed tip means closing the lower end of the tubular member below the aperture and having a pointed portion insertable into the foam plastic, said pointed portion having a maximum dimension greater than the external dimension of the tubular member to provide a cavity in the foam plastic above the pointed portion to receive water discharged from the aperture and enabling water to contact the foam plastic throughout the height of the cavity and along the top surface of the foam plastic, said

funnel including a pair of slits formed therein extending downwardly from the upper edge thereof for holding a card having indicia.

4,393,623

ARRANGEMENT FOR MOUNTING A DOOR

Johann Munz, Hinwil, Switzerland, assignor to Team Form AG, Hinwil, Switzerland

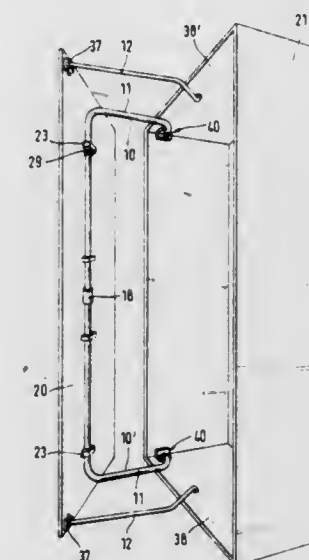
Filed Dec. 5, 1980, Ser. No. 213,544

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1979, 2950857

Int. Cl.³ E05D 15/32

U.S. Cl. 49—248

19 Claims



1. An arrangement for mounting a door pivotable about a vertical axis and guided for parallel displacement relative to a housing, the arrangement comprising at least one guiding element arranged to guide a door for parallel displacement relative to a housing and pivotally connected with the former and the latter in predetermined pivot points; and a supporting element arranged to support the door on the housing and pivotally connected with the latter in further pivot points which are offset relative to the first mentioned pivot points, said supporting element including two separate shaped members which are mirror-inverted relative to one another and each has a horizontally extending leg and a vertically extending leg extending in different planes and an intermediate web connecting said legs with one another, said vertically extending legs can be cut into desired lengths and upon adjustment of the relative position of said horizontal legs in different vertical planes, being fixedly connected with one another for joint rotation.

4,393,624

THREAD GRINDER

Anthony Kushigian, P.O. Box 768, Hendersonville, N.C. 28739

Filed Jan. 5, 1981, Ser. No. 222,501

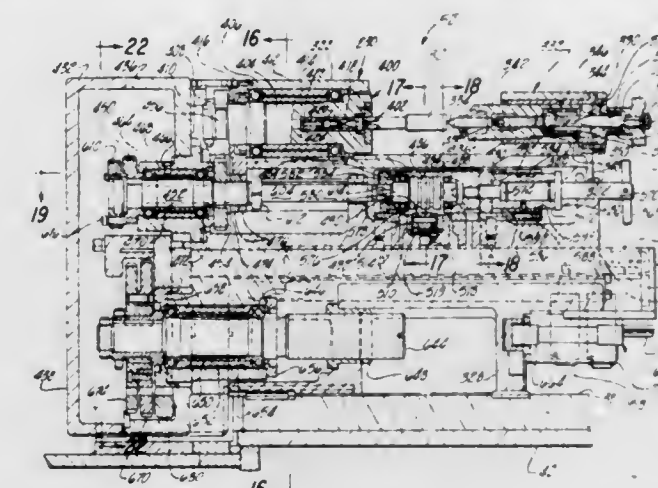
Int. Cl.³ B24B 3/22

U.S. Cl. 51—5 D

29 Claims

1. A machine for grinding workpieces comprising a base, a wheelhead carried by said base for reciprocation in a straight line path and constructed and arranged to drive a grinding wheel with its axis of rotation extending essentially transversely to said straight line path of reciprocation, a workhead adapted to releasably receive and rotate a workpiece and constructed and arranged to position the workpiece so that the point of contact between such workpiece and the grinding wheel is on one side of the centerline which intersects the axis of rotation of the wheel and extends parallel to such straight line path of reciprocation of said wheelhead, a grinding wheel dresser adapted to receive a dresser wheel and constructed and arranged so that the point of contact between the dresser wheel and the grinding wheel is located on the same side of the grinding wheel as the point of contact between the grinding

wheel and the workpiece, on the other side of such centerline intersecting the axis of rotation of the grinding wheel and extending parallel to such straight line path of reciprocation of the wheelhead, and symmetrical about said centerline with the point of contact between the grinding wheel and the workpiece, an arm carried by said base, a pivot constructed and arranged to pivot said arm with respect to said base about an axis spaced from and extending generally parallel to the axis of rotation of said wheel and spaced from said straight line path of reciprocation of said grinding wheel, a dresser wheel drive carried by said arm at a point distal from such pivot and con-



structed and arranged to receive and rotate a dresser wheel with its axis of rotation extending essentially parallel to the axis of rotation of the grinding wheel, and said arm being constructed and arranged such that the location of its pivot point and the lineal distance between its pivot point and the axis of rotation of the dresser wheel is such that when said arm is pivoted so that the dresser wheel contacts the grinding wheel, the point of contact between the dresser wheel and grinding wheel is essentially symmetrical with the point of contact between the grinding wheel and the workpiece throughout the range of diameters of workpieces which can be ground by the grinding machine.

4,393,625

APPARATUS FOR GRINDING GEARS

Peter Bloch, Mutschellen, and Hansjörg Bickel, Au, both of Switzerland, assignors to Maag Gear-Wheel & Machine Company Limited, Zurich, Switzerland

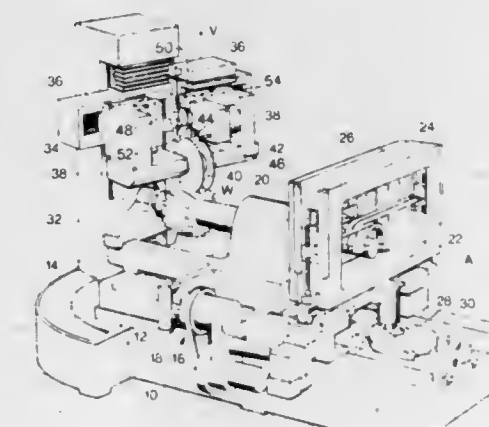
Filed Jun. 9, 1980, Ser. No. 157,977

Claims priority, application Switzerland, Jun. 20, 1979, 5757/79

Int. Cl.³ B24B 49/00, 53/06

U.S. Cl. 51—165.87

2 Claims



1. An apparatus for grinding gear teeth having substantially involute-shaped tooth flank profiles and tooth roots, comprising:
at least one grinding head;

a substantially dished grinding wheel having an active grinding point and being mounted at said grinding head;
 a grinding head support at which there is adjustably mounted the grinding head in the radial direction of the dished grinding wheel;
 a dressing device displaceable in a predetermined adjustment direction;
 means for displaceably grinding the dressing device at the grinding head in the adjustment direction;
 adjustment device means;
 said adjustment drive means including adjustment gearing, a pinion mounted at said grinding head, two gear racks extending in the adjustment direction and with which meshes said pinion, one of said gear racks being arranged at said grinding head support, the other of said gear racks being arranged at said dressing device;
 said adjustment drive means imparting by means of the adjustment gearing to the grinding head and the dressing device adjustment movements in a ratio of approximately 1:2;
 an advance drive means for displacing both gear racks in its lengthwise direction such that the pinion is prevented from rotating during a movement of the grinding head which is caused by the adjustment drive means, in order to thereby enable the dressing device to participate in the movement of the grinding head in a ratio of approximately 1:1;
 said advance drive means shifts the active grinding point of the dished grinding wheel downwardly towards the tooth root of the gear tooth being ground so as to selectively grind a different part of the gear tooth by means of a peripheral portion of the dished grinding wheel;
 said advance drive means shifts the active grinding point of the dished grinding wheel downwardly towards the tooth root of the gear tooth being ground in order to grind said different part of the gear tooth along a grinding curve which differs from the involute along which there is ground the tooth flank profiles of the gear teeth.

4,393,626

TOOLHOLDER FOR SUPPORTING THIN ROTARY TOOLS

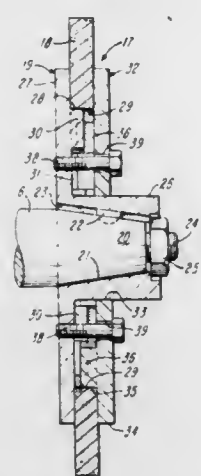
George A. Schroer, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Nov. 9, 1981, Ser. No. 319,577

Int. Cl.³ B24B 41/04

U.S. Cl. 51—168

1 Claim



1. A toolholder for supporting thin rotary tools, comprising:
 - (a) a first tool ring having
 - (1) a generally circular tool support section,
 - (2) a flanged shoulder portion adjacent to said support section,
 - (3) facial tooth means and tooth space means formed in said support section,

- (4) means for locating and driving said ring with a rotatable tool spindle;
- (b) a second tool ring having
 - (1) a generally circular tool support section,
 - (2) a flanged shoulder portion adjacent to said support section,
 - (3) facial tool means and tooth space means formed in said support section;
- (c) means for supporting said first and second rings in a concentric manner with each other and with the tooth means of one ring aligned with and disposed facing the tooth space means of the other ring; and
- (d) means for clamping said rings together enmeshing respective tool support sections of said rings whereby a tool having a thickness equal to or less than the combined lengths of each of said tool support sections of said rings may be clamped and supported on a substantially continuous bore support surface.

4,393,627

REVERSING SCREW/HIGH-LOW SPEED LEVEL WIND SCREW

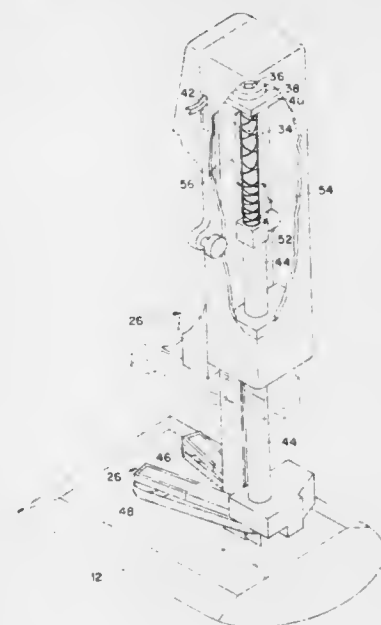
Harrison A. Ailey, Jr., Knoxville, Tenn., assignor to Acraloc Corporation, Oak Ridge, Tenn.

Filed Feb. 23, 1981, Ser. No. 236,791

Int. Cl.³ B24B 19/00, 3/00

U.S. Cl. 51—246

9 Claims



1. Sharpening mechanism for moving at a variable speed along the length of the edge of a reciprocating knife of a cutting mechanism comprising:
 - driving means;
 - grinding means driven by said driving means for contacting an edge on said knife to be sharpened;
 - a movable carriage for supporting and moving said grinding means along said edge of said reciprocating knife;
 - traversing mechanism for moving said movable carriage, said traversing mechanism including a drive shaft rotated by said driving means and having a first and further portion and right hand and left hand peripheral threads cut therein, a guide means for following said peripheral threads cut in said drive shaft, and a carrier member connecting said guide means and said movable carriage, said right and left hand peripheral threads having a first selected pitch along said first section of said drive shaft and a pitch different from said first selected pitch along said second portion of said drive shaft such that said driven grinding means is moved along selected portions of said reciprocating knife edge at selected speeds.

4,393,628

FIXED ABRASIVE POLISHING METHOD AND APPARATUS

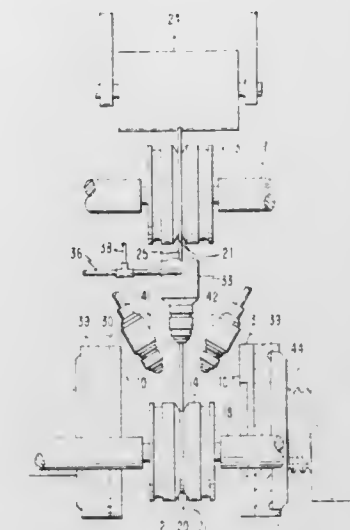
John C. Ottman, San Jose, Calif., and John C. S. Shen, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 4, 1981, Ser. No. 260,549

Int. Cl.³ B24B 1/00

U.S. Cl. 51—281 SF

11 Claims



1. The method of polishing a rigid, metal magnetic disk substrate comprising:
 - applying a water soluble, low viscosity liquid vehicle to the disk substrate surface to be polished;
 - rotating an annulus of non-friable, non-rigid, high density polyurethane foam impregnated with in excess of 50% by weight of classified hard particles, said annulus being mounted on a rigid backing plate and having an inner diameter greater than the difference of the inner and outer radii of the disk substrate annular surface to be polished; and
 - positioning said annulus of impregnated foam in contact with said disk substrate with the axis of rotation parallel to the axis of rotation of said disk substrate and relatively displaced therefrom to cause the inner diameter of said impregnated foam annulus to extend across the disk substrate annular width to be polished, the contact pressure being at least 10 pounds per square inch.

4,393,629

EXTRUDED SNAP-FASTENING FOR SLATS AND METAL AWNING MADE THEREWITH

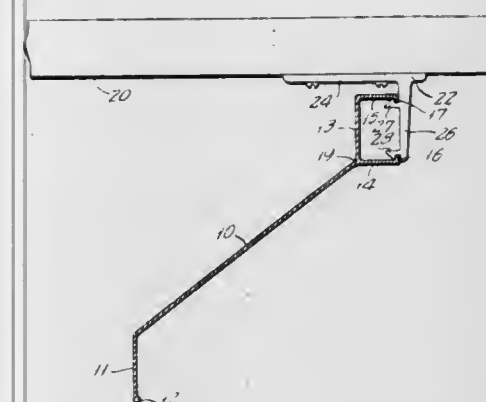
Aldo Gasparini, Kungsgatan 34, and Nils E. Winnell, Karl Gustavsgatan 59, both of 411 36 Goeteborg, Sweden, assignors to Aldo Gasparini and Nils Erik Winnell

Filed May 5, 1981, Ser. No. 260,685

Int. Cl.³ E04B 1/34

U.S. Cl. 52—74

11 Claims



1. A metal awning structure having at least one awning slat, directly held in position at spaced locations along the same lateral boundary of said slat, on at least two brackets, said

brackets each having a base portion and two parallel ridges outstanding therefrom in the same direction in channel configuration, said ridges being oppositely barbed and providing a substantially rectangular notch groove between each barb and said base portion, said awning slat being bifurcated along one edge into a channel-shaped web obliquely joined to the remainder of the slat at one channel corner of said channel-shaped web, the free edges of said channel-shaped web being oppositely beaded and being spaced apart so as to fit onto said brackets by snap action, said beads being of substantially rectangular profile and fitting into said notches for support of said slat on said brackets.

4,393,630

ACTUATION MEANS FOR THE RACKING PLATFORM OF A MAST

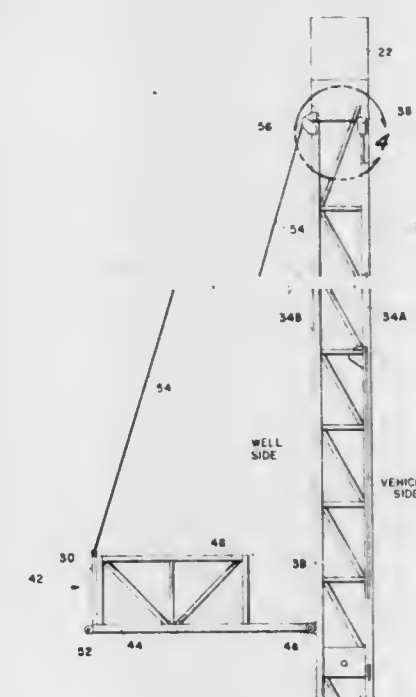
Arnold W. Knox, deceased, late of Tulsa, Okla. (by Ester Knox, executrix), assignor to Crane Carrier Corporation, Tulsa, Okla.

Filed Mar. 12, 1981, Ser. No. 243,049

Int. Cl.³ B66C 23/04, 23/62

U.S. Cl. 52—121

16 Claims



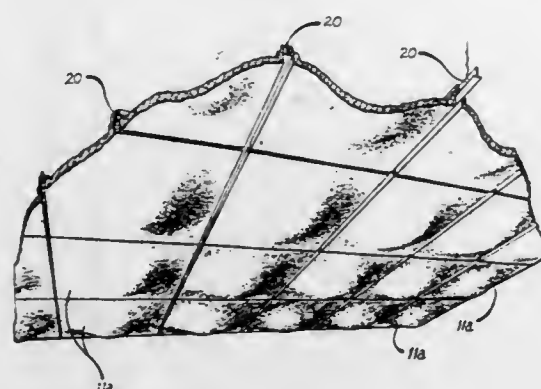
1. In combination with a telescoping mast having a fixed lower structure and a traveling upper structure, actuation means for timed extension and retraction of a platform attached to said upper structure comprising:
 - at least one upper pulley secured within said upper structure above said platform;
 - at least one lower pulley secured within said upper structure below said platform;
 - traveling means cooperable with said upper structure and said lower structure;
 - catch means on said lower structure for receiving and retaining said lower traveling means; and
 - cable means extending from said platform around said upper pulley, said lower pulley and connected to said traveling means, whereby when said upper structure is extended said traveling means is propelled along said lower structure until received by said catch means whereupon said platform is extended.

4,393,631

THREE-DIMENSIONAL ACOUSTIC CEILING TILE SYSTEM FOR DISPERSING LONG WAVE SOUNDEdward D. Krent, 207 W. Eisenhower Dr., Sharon, Mass. 02067
Filed Dec. 3, 1980, Ser. No. 212,599Int. Cl.³ E04B 1/82

U.S. Cl. 52—144

25 Claims



1. An acoustic tile ceiling system comprising:
 - a suspended ceiling structural grid adapted to hold a plurality of individual acoustic tile elements;
 - a plurality of smoothly contoured acoustic tile elements, each tile element having a surface thereof adapted to form a ceiling surface when installed within said ceiling structural grid;
 - said tile element surface exhibiting a curvature substantially as a surface of revolution varying smoothly and without abrupt changes from a substantially horizontal aspect at the periphery of said tile element through an increasingly downwardly projecting curvature to an inflection point through a decreasingly downwardly projecting curvature to a central, substantially horizontal portion, depressed at least 5 centimeters below the peripheral portion;
 - each said tile element forming in the composite with adjacent tile elements as installed in said structural grid, a substantially continuous smoothly flowing curvature, particularly adapted to disperse long wave length audible sound.

4,393,632

BUILDING SYSTEM

Clarence N. Levesque, Westford, Mass., assignor to C. Levesque Co. Inc., Lowell, Mass.

Filed Jan. 26, 1981, Ser. No. 228,336

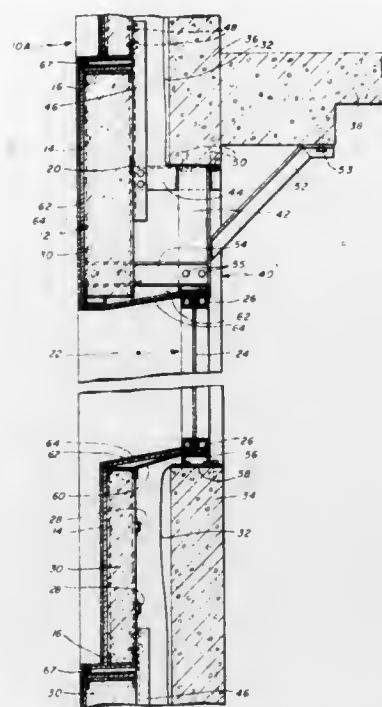
Int. Cl.³ E04H 1/00; E04B 2/88

U.S. Cl. 52—235

15 Claims

1. A building panel system for covering the exterior surface of a building that is being restored having a plurality of structural panels with each panel adapted for support from an existing window opening and comprising:
 - a rigid frame having a window opening, a window secured in the frame window opening, and means for securing the panel to the building including brace means extending from the rigid frame above the frame window opening to the building at the existing window opening, said existing window opening being defined at least in part by upper and lower vertical support walls, wherein the existing window opening is greater in height than the frame window opening with the existing window opening being covered by the window and a section of the frame overlying the window, wherein the brace means comprises a brace extending from the section of the frame overlying the window

to the upper vertical support wall of the building, wherein the means for securing also includes a securing member coupled to



the rigid frame and secured to the top of the lower vertical support wall that in part defines the existing window opening.

4,393,633

WALL CONSTRUCTION

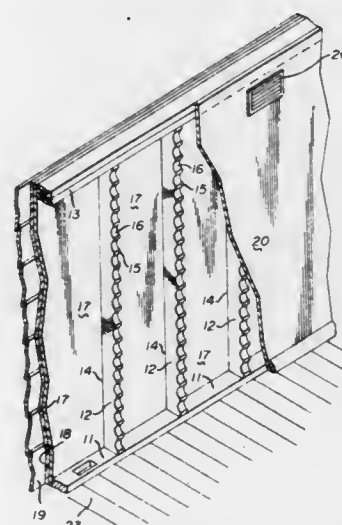
Joseph Charniga, P.O. Box 292, New Middletown, Ohio 44442

Filed Jan. 26, 1981, Ser. No. 228,480

Int. Cl.³ E04B 2/02; E04C 2/80

U.S. Cl. 52—303

4 Claims



1. An improvement in an exterior load bearing wall construction having horizontally spaced vertically standing studding and outer and inner wall portions supported thereon, said improvement comprising the formation of said outer wall portion consisting of at least two layers of insulating board and at least one layer of insulating batting and an exterior surfacing material, a plurality of closely spaced scallops formed in the inner surfaces of said studding to form narrow transverse areas therebetween, said inner wall portion comprising dry wall and the like positioned against said narrow transverse portions of said studding, upper and lower plates positioned on the upper and lower ends of said studding, said outer wall portion extending only partially into areas of said wall construction between said studding so as to provide air spaces between said outer wall portion and said inner wall portion and openings in said inner wall portion for ventilating said air spaces.

4,393,634

ROOFING SYSTEM AND NEEDLE PUNCHED IMPREGNATED SYNTHETIC FIBER FABRIC

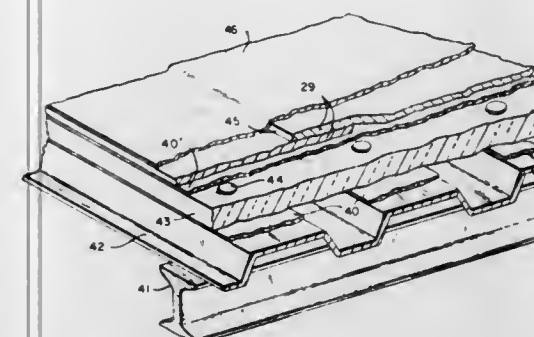
Thomas R. McDermott, Franklin, Mass., and Robert K. Jackson, Spofford, N.H., assignors to Clark-Cutler-McDermott Company, Franklin, Mass.

Filed Jun. 30, 1980, Ser. No. 164,806

Int. Cl.³ B32B 5/24, 11/10; E04C 1/00

U.S. Cl. 52—309.1

18 Claims



1. A roofing system comprising:
 - a roofing deck having a substantially continuous top surface area extending over the space covered by the roof;
 - a synthetic fiber needled fabric flexible porous layer covering said top surface, the fibers in said layer coated with asphalt but without fiber-free asphalt retained within the interstices of the fabric;
 - means for adhering said flexible layer to said top surface; and
 - a waterproof asphalt saturant applied in situ to the top surface of said layer to form a continuous waterproof coating which bonds by absorption in the upper lattice structure of the said fabric layer.

4,393,635

INSULATED WALL CONSTRUCTION APPARATUS

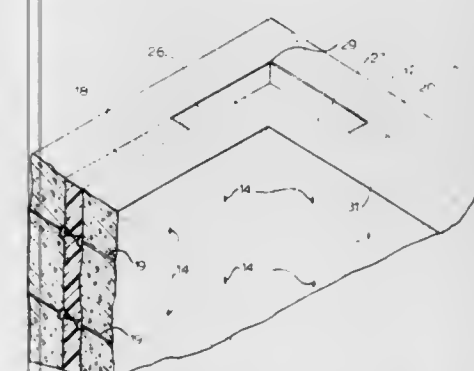
Robert T. Long, 3216 Shasta Ct., NE., Cedar Rapids, Iowa 52402

Filed Apr. 30, 1981, Ser. No. 259,039

Int. Cl.³ E04B 2/84, 1/74; E04C 2/26

U.S. Cl. 52—309.11

15 Claims



1. An insulating wall comprising two spaced outer layers of form-poured concrete; a high density insulating board disposed between said outer layers; a plurality of rods extending perpendicularly through said insulating layer and further extending substantially from respective outer surfaces of said outer layers; and a plurality of retainer means mounted to receive and immovably hold a rod for fixing the lateral position of said rods with respect to said insulation layer, whereby said rods abut said form during pouring of said concrete to retain said interior layer substantially immovably during pouring and are retained in said concrete after curing for forming a mechanical connection between said interior layer and each of said outer layers, wherein said retainer means comprises a pair of spools formed with central openings that can be inserted into opposite sides of said insulating board, wherein said spools each have an enlarged outer flange that can be depressed into the surface of

said board and a central portion smaller than said flange, and wherein said spools also each have an inner portion which is larger than said central portion for locking said spool to said board.

4,393,636

BOX BEAM REINFORCED CONCRETE STRUCTURE

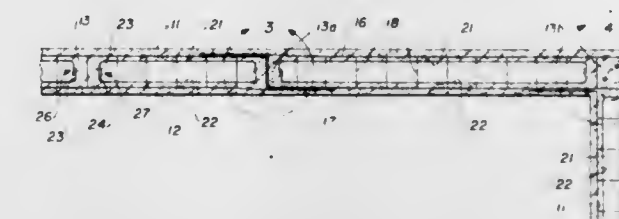
Raymond H. Rockstead, and Christopher A. Rockstead, both of 10041 Tesla Rd., Livermore, Calif. 94550

Filed Sep. 24, 1980, Ser. No. 190,355

Int. Cl.³ E04B 1/16

U.S. Cl. 52—381

3 Claims



1. The combination of integrated spaced apart parallel concrete skin walls and an elongated monolithic solid concrete core connecting said walls;
 - flexible wire mesh sections embedded in said walls and said core and being positioned to provide continuous reinforcement extending medially of said walls and across said core;
 - a plurality of sinuous truss wires each extending between and having its apexes fixed to and providing an uninterrupted continuous wire connection between and supporting said sections in spaced apart substantially parallel planes with said apexes embedded in said walls;
 - a pair of flexible frangible sheets mounted on and solely supported by said truss wires one interiorly of and substantially parallel to each of said sections in spaced relation thereto and providing backing for concrete forming said walls with said sections embedded medially in said walls;
 - said sheets permitting cutting thereof to provide selectively positioned sheet ends folded transversely and interiorly to form spaced apart backing walls on opposite sides of and generally parallel to one of said truss wires for supporting plastic concrete forming said core contiguous to and integrated with said skin walls; and
 - said last-named truss wire extending through and being embedded in said core and having its length extending longitudinally of said core.

4,393,637

WOOD ROOF TRUSS CONSTRUCTION

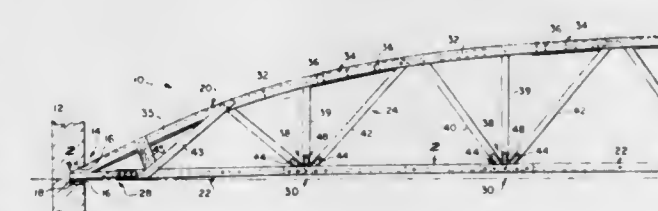
Leo D. Mosier, 322 Euclid, Sheboygan, Wis. 53081

Filed Oct. 10, 1980, Ser. No. 196,075

Int. Cl.³ E04B 1/32

U.S. Cl. 52—644

14 Claims



1. A roof truss construction comprising a pair of redundant super-positioned load resisting force systems, said systems formed of a coincident top chord, a web system depending from said top chord and a pair of individually functioning bottom chords, one of said chords being a word bichord including lap-splices, connected to said web system and the other

chord comprising tension rod means disposed longitudinally within said bichord generally parallel thereto and means supporting said tension rod independent of said bichord, said web system including web clusters each comprising a vertical and diagonal strut members depending from said top chord and converging at a common point at the bottom chord, plate means at the point of convergence secured to the bottom ends of each converging strut member, said plate means having first passage means formed horizontally therein and strap means secured to and depending from said plate means and having second passage means formed longitudinally therein for supporting the rod without fixed attachment and said second passage means being aligned in said web cluster and containing spacer means passing therethrough whereby to secure said web cluster to said bottom bichord.

4,393,638

ANCHOR ROD, METHOD OF SETTING IT IN PLACE AND METHOD OF ITS MANUFACTURE

Rudolf Sell, Munich, and Herbert Kistner, Freiburg, both of Fed. Rep. of Germany, assignors to Upat GmbH & Co., Fed. Rep. of Germany

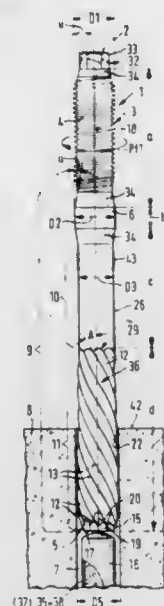
Filed Oct. 15, 1980, Ser. No. 197,271

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1979, 2941769

Int. Cl.³ E04B 1/38

U.S. Cl. 52—704

23 Claims



1. An anchor rod for setting in and fastening, with the use of a hardenable mortar, to concrete and similar structural matrices into which a prebore which closely fits the portions of greatest diameter of said anchor rod has been prepared, said anchor having first and second extremities and comprising:

a connection portion at or near the first extremity of the rod designed to remain outside of the prebore and to provide for fastening an object to said rod or to said concrete or structural matrix;

an insertion portion provided, in a region thereof extending substantially to the second extremity (5) of the rod, with profiling for causing mortar and abrasive grains mixed therewith to be carried along by rotation of said anchor rod during insertion thereof, said profiling being provided in the form of a multiplicity of outwardly extending uniformly spaced ridges running in an axially directed steep-pitch spiral configuration providing grooves (12) between adjacent ridges, said ridges each having a slight trough-like concavity (24) running between a pair of outwardly directed apices (23).

4,393,639

REINFORCING ELEMENT AND PROCESS FOR ITS MANUFACTURE

Franz Bucher, Reut-Nicolussi-Str. 12, A-6020 Innsbruck, Austria

PCT No. PCT/AT80/00003, § 371 Date Oct. 27, 1980, § 102(e) Date Oct. 24, 1980, PCT Pub. No. WO80/01818, PCT Pub. Date Sep. 4, 1980

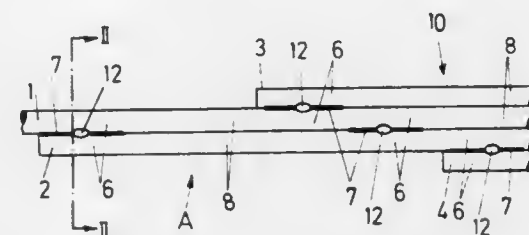
PCT Filed Jan. 29, 1980, Ser. No. 212,718

Claims priority, application Austria, Feb. 27, 1979, 1484/79

Int. Cl.³ E04C 5/02

U.S. Cl. 52—730

11 Claims



1. A reinforcing insert to be embedded in a tension zone of a ferroconcrete member, comprising an assembly of parallel, closely juxtaposed steel rods including at least one through-going main rod and at least one ancillary rod of lesser length adjoining same, said ancillary rod being connected with said main rod along a plurality of elongate stretches, two of said stretches being located at the ends of said ancillary rod which are offset from the extremities of said main rod to an extent letting the tensile strength of said assembly vary in approximate conformity with the moment line of said ferroconcrete member, said stretches having cross-sectional areas of sufficient strength to transfer the tensile stress of said ancillary rod from the ends thereof to said main rod.

4,393,640

METHOD AND APPARATUS FOR HANDLING AND FILLING BAGS OR ENVELOPES

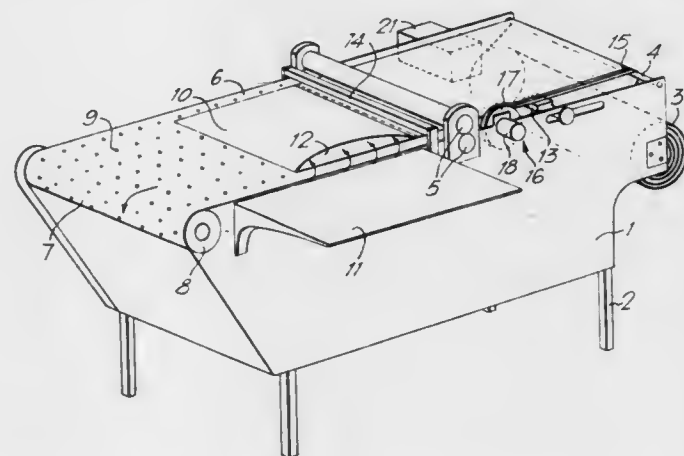
Denis B. Cole, Honiton, and Derek C. Trethewy, Esher, both of England, assignors to Hazelwood Enterprises Limited, Alderney, Channel Islands

Filed Aug. 28, 1980, Ser. No. 182,182

Int. Cl.³ B65B 9/08, 43/30, 43/36

U.S. Cl. 53—69

17 Claims



1. Apparatus for handling flexible fillable containers selected from the group consisting of preformed bags and envelopes, comprising:

means for mounting a continuous length supply consisting of a series of similar preformed flexible fillable containers, each separated from its respective neighbour(s) by a tear-line allowing detachment of the leading endmost such flexible fillable container from the continuous length supply, each such container being open at one marginal edge

of the continuous length supply for insertion therein of a filling material; means for intermittently advancing the free end of the continuous length supply; a surface on which the flexible fillable containers are arranged to travel under control of said advancing means; a filling station for said flexible fillable containers located at a predetermined location along said surface; intermittently operable suction means located at said filling station for holding the leading endmost flexible fillable container of the supply in a predetermined position and selected orientation at said filling station; intermittently operable blowing means for directing a stream of air towards the opening of the said endmost container while held by the suction means, and into the said container to thereby hold the same open for the insertion of a said filling material; and intermittently operable clamping bar means located immediately upstream of said filling station and adapted in operation to clamp the leading edge of the flexible fillable container next adjacent in said continuous supply to said endmost container at least for a period of time after filling of said endmost container is complete, thereby enabling ready detachment of the filled endmost container from said continuous supply along the tear-line separating said endmost and said next adjacent containers, to leave said filling station free for receipt of said next adjacent container.

4,393,641

DEVICE FOR CLOSING GATHERED ENDS OF WRAPPERS WITH U-SHAPED CLIPS

Herbert Niedecker, Am Ellerhang 6, Königstein 2, Fed. Rep. of Germany (6240)

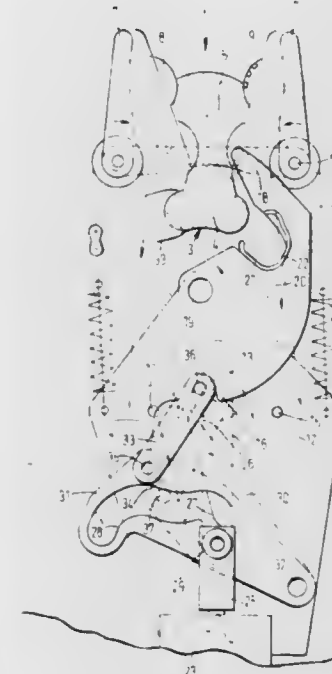
Filed May 20, 1981, Ser. No. 265,272

Claims priority, application Fed. Rep. of Germany, May 29, 1980, 3020325

Int. Cl.³ B65B 61/00

U.S. Cl. 53—138 A

4 Claims



1. In a device for closing a U-shaped clip about the gathered end of a wrapper and comprising a housing carrying a clip-closing die, a punch pivotally mounted on said die to move from inoperative to clip-closing position in cooperation with said die, means for supplying clips to said punch, and means for moving said punch from inoperative to clip-closing position, the improvement which comprises

(a) a wedge shaped opening provided in one end face of the housing, the opening widening adjacent its apex to form a space for receiving the gathered end;

(b) two gathering means pivotally mounted on the housing

on opposite sides of the wedge-shaped opening so that, upon pivoting, a gathered end within the opening is caused to enter the receiving space;

(c) a gathering nose on the punch; and

(d) means operatively connecting the gathering arms and the punch so that only after the gathering arms have been closed the punch is pivoted so that the nose engages and further compacts the gathered end against the die whereupon the punch applies the clip about the gathered end, the clip being closed by the die.

4,393,642

SHEET RECEIVING AND STORAGE APPARATUS

Hendrik S. Plessers, Wychmaal, and Julianus J. Hellemans, Kontich, both of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

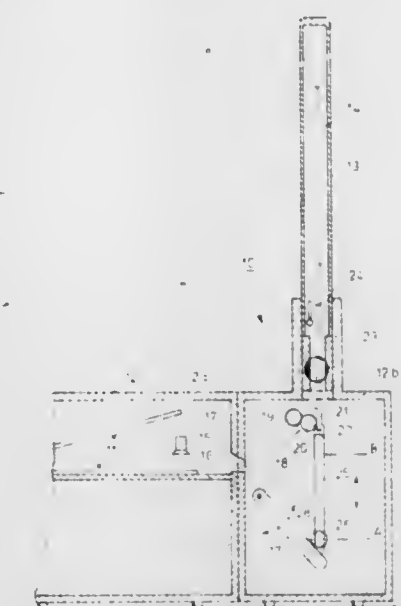
Filed Apr. 6, 1981, Ser. No. 251,335

Claims priority, application United Kingdom, Apr. 9, 1980, 8011695

Int. Cl.³ B65B 5/06, 5/10, 7/00

U.S. Cl. 53—266 R

14 Claims



1. A sheet-receiving and storage apparatus comprising a housing having an entrance opening via which sheets can be fed one by one into its interior, an open-bottomed magazine releasably connected to said housing via said open bottom for receiving sheets from said housing in the same sequence and storing them as a stack, a sheet advancing mechanism for causing sheets entering said housing to advance to a rest position with their upper portions within said magazine and their trailing end portion extending through said open bottom into said housing, sheet supporting means normally disposed in a position underlying the trailing edges of a plurality of said sheets in said rest position and thereby supporting a stack of such sheets in face to face relationship in said rest position, a mechanism for elevating said sheet supporting means upwardly from its normal position thereby to raise the supported sheet stack bodily into the magazine, stack retaining means operative for retaining the raised stack of sheets in the magazine against the action of gravity after retraction of said sheet supporting means to its normal position, and closure means for light-tightly closing the bottom of said magazine after such retraction.

4,393,643

PROCESS FOR FORMING A BARRIER PHASE

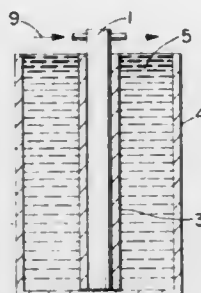
Durward Fryar, Burlington, Ky., and Jerome J. Schmitz, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 306,808, Sep. 29, 1981, abandoned. This application Jul. 29, 1982, Ser. No. 402,870

Int. Cl.³ B29D 3/00; B65B 7/28

U.S. Cl. 53—471

10 Claims



1. A process for preparing a product containing two incompatible phases separated by a thin film barrier phase comprising:

- dipping a pin of appropriate size and possessing heat transferring capability into a molten bath of the barrier phase material, said pin's outer surface having a temperature below the solidification temperature of said barrier phase;
 - withdrawing said pin from said barrier bath with a solidified film of said barrier material left on its surface;
 - placing the coated pin into an open end of a container designed to contain the product, the coated pin being placed tightly against an opposite end of said container which is closed;
 - putting a molten outer phase material into a space between said coated pin and the outer wall(s) of said container, maintaining the temperature of the outer surface of said coated pin below the solidification temperatures of the barrier phase and the outer phase materials thereby allowing the outer phase material to solidify;
 - increasing the temperature of said pin sufficiently to allow barrier phase material to attach to said solidified outer phase and removing said pin from said container; and
 - pouring molten inner phase material into the space previously occupied by said pin and allowing said inner phase material to solidify.
7. A process according to claim 1 wherein the pin has cooling water circulating therein during the barrier forming step.
8. A process according to claim 7 wherein hot water is circulating within the pin during the barrier release and attachment to the outer phase step.

4,393,644

TWO-SPEED DRIVE APPARATUS FOR BLOWER FANS

Wayne B. Martenas, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Aug. 4, 1981, Ser. No. 289,869

Int. Cl.³ A01D 87/10; B02B 1/02

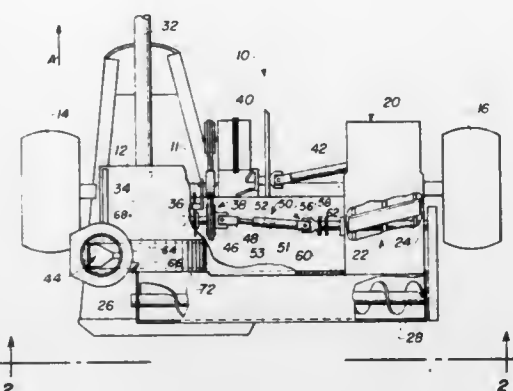
U.S. Cl. 56—12.8

7 Claims

1. In an agricultural machine including a frame, a blower fan supported on said frame for discharging crop material from said agricultural machine, and a main drive shaft supported on said frame for driving said blower fan, the improvement comprising:

- an input shaft connected to be rotated by said main drive shaft;
- said blower fan connected to rotate on said input shaft;
- a first gear connected to rotate with said input shaft;
- a second gear disposed on said input shaft;

- a third gear interconnecting said first and second gears;
- means connecting said third gear to said blower fan;
- means for selectively fixing said second gear to either of said input shaft and said frame;



- said blower fan being rotated at the same speed as said input shaft when said second gear is fixed to, and rotates with, said input shaft; and
- said blower fan being rotated at a slower speed than said input shaft when said second gear is fixed to said frame.

4,393,645

REAR BAGGER ATTACHMENT FOR LAWN MOWER

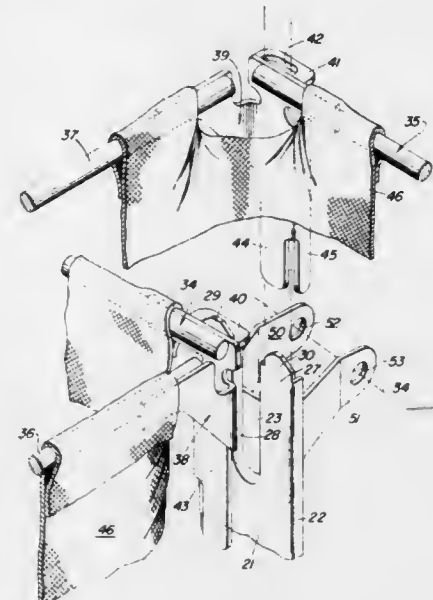
James W. Moore, Beaver Dam, Wis., assignor to Deere & Company, Moline, Ill.

Filed Aug. 19, 1981, Ser. No. 294,261

Int. Cl.³ A01D 35/22

U.S. Cl. 56—202

13 Claims



3. A bag assembly for a lawn mower carried in underslung relation on a vehicle having rear wheels supporting the vehicle frame, and in which the mower has a duct extending upwardly and rearwardly to a rear discharge portion terminating rearwardly of the vehicle and for directing grass clippings transverse of the vehicle, said bag assembly comprising: a bagger frame mounted on the vehicle frame; a pair of rod-like horizontally disposed rectangular-shaped bag supporting rims with adjacent fore-and-aft extending sides extending rearwardly from inner forward corners; a pair of bags suspended on and depending from the respective rims; structures at said corners rigid with the respective rims and projecting forwardly from said corners; means mounting said structures at said corners on the bagger frame for vertical sliding movement to and from lowermost positions in which said rims are slightly lower than the discharge portion and for suspending the respective rims and bags in cantilever fashion from said corners; and a bagger top hinged at a forward edge to the bagger frame and extending over the respective rims and having an opening receiving

and for passing material from the discharge portion of the duct into the top.

4,393,646

METHOD AND APPARATUS FOR JOINING YARN OR THREAD ENDS

Sergio Lucchetta, Wädenswil, Switzerland, assignor to Maschinenfabrik Schweizer AG, Switzerland

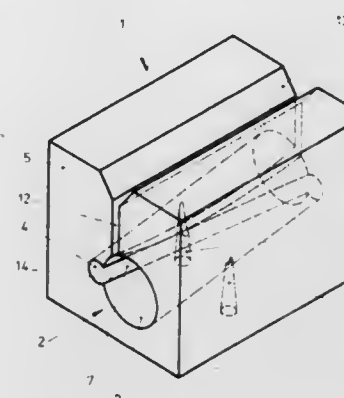
Filed Dec. 1, 1981, Ser. No. 326,327

Claims priority, application Switzerland, Dec. 12, 1980, 9216/80

Int. Cl.³ D01H 15/00

U.S. Cl. 57—22

8 Claims



1. A method for splicing two yarn or thread ends in a splicing head of the type having a turbulence chamber for receiving the ends to be spliced together wherein the ends are subjected to centric pressure medium flow which is tangential to the periphery of the turbulence chamber so that the yarn or thread ends are subjected to turbulence and are twisted together to form a joint, including

- providing two driving pressure medium flow streams to the turbulence chamber to form the pressure medium flow therein;
- introducing the two driving flow streams into the turbulence chamber through inlets at opposite side walls thereof, the two streams at the inlets being parallel with each other, and
- guiding the two driving flow streams in opposite directions along lemniscate-like paths through the turbulence chamber.

4,393,647

SNAIL WIRE ARRANGEMENT FOR YARN BREAKAGE DETECTION IN RING FRAMES

Yohji Kitamura, 1-18, Deguchi 1-chome, Hirakata-shi, Osaka, Japan

PCT No. PCT/JP81/00036, § 371 Date Aug. 20, 1981, § 102(e) Date Aug. 20, 1981, PCT Pub. No. W081/02433, PCT Pub. Date Sep. 3, 1981

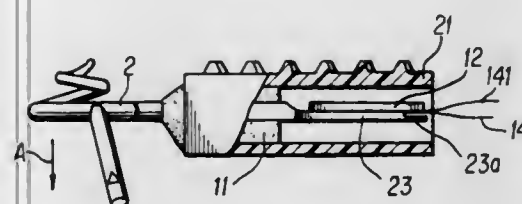
PCT Filed Feb. 26, 1981, Ser. No. 296,424

Claims priority, application Japan, Feb. 27, 1980, 55-25200; Dec. 4, 1980, 55-174238; Dec. 4, 1980, 55-174239

Int. Cl.³ D01H 13/16

U.S. Cl. 57—81

3 Claims



1. A yarn breakage detecting snail wire arrangement for ring frames and the like comprising:

- a lappet;
- a holder inserted into said lappet;
- a resilient support member;
- a snail wire supported, through said resilient support member, by said holder inserted into said lappet so as to contact running spinning yarns for producing inherent vibrations at a side portion of said snail wire; and
- a piezo-electric element attached to a portion of said snail wire so as to detect said inherent vibrations for detecting presence of running spinning yarns, said snail wire being formed, at said portion thereof attached to said piezo-electric element along the face portion thereof, into a flat-shaped portion, said flat-shaped portion having a groove formed therein at a side face portion thereof opposite to said face portion attached to said piezo-electric element, and at approximately a central portion of said piezo-electric element in a direction intersecting at right angles with the axial direction of said snail wire so as to form a thin portion in said face portion of said snail wire attached to said piezo-electric element.

4,393,648

FIBER-GUIDING ELEMENT FOR OPEN END SPINNING MACHINES

Miroslav Rambousek, Usti n Orli, and Stanislav Svarc, Dolni Dobrouc, both of Czechoslovakia, assignors to Elitex, koncern textilního strojírenství, Liberec, Czechoslovakia

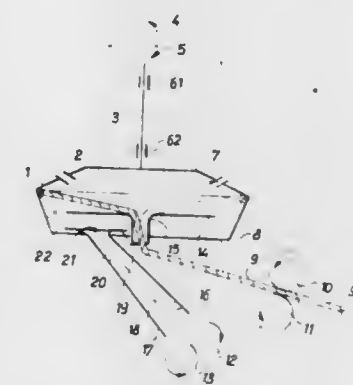
Filed Sep. 9, 1981, Ser. No. 300,598

Claims priority, application Czechoslovakia, Sep. 11, 1980, 6157-80

Int. Cl.³ D01H 7/882

U.S. Cl. 57—413

4 Claims



1. In an open-end spinning machine having a hollow spinning rotor which may be rotated in either direction for the purpose of forming either yarn with a left-hand twist or yarn with a right-hand twist, the improvement which comprises a fiber-guiding element having an exit opening through which separated fibers are directed into the spinning rotor, the guiding element being fixedly mounted with respect to the rotor and having a left fiber-directing wall and a right fiber-directing wall, the left fiber-directing wall of said fiber-guiding element being oriented in a first direction substantially tangential to the then retreating collecting surface of the spinning rotor when the rotor is rotating in one direction, the opposite, right fiber-directing wall of the fiber-guiding element at the exit opening thereof within the rotor being oriented in a second direction opposite the said one direction and substantially tangential relative to the then retreating collecting surface of the spinning rotor when the rotor is rotating in the other, reverse direction.

4,393,649

STEAM OUTPUT CONTROL SYSTEM

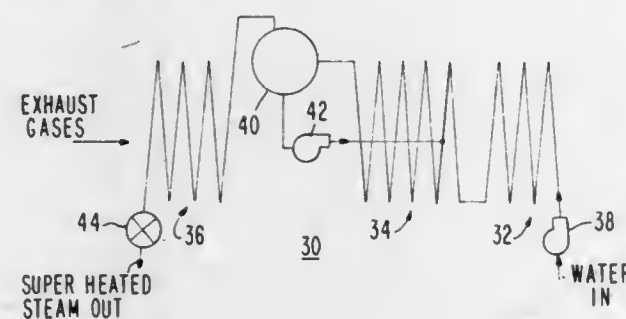
Dah Yu Cheng, Los Altos, Calif., assignor to International Power Technology, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 59,591, Jul. 23, 1979, Pat. No. 4,297,841. This application Aug. 4, 1980, Ser. No. 175,287

Int. Cl.³ F02C 7/00

U.S. Cl. 60—39.05

15 Claims



1. A heat engine comprising a dual fluid cycle engine having a counterflow heat exchanger, comprising at least an evaporator and a superheater section, for recovering waste heat from the engine exhaust gases to evaporator water into superheated steam for mixing with the engine combustion products, and having means for regulating the steam generation rate comprising a control valve located between the evaporator and superheater sections of the heat exchanger.

4,393,650

GAS TURBINE ENGINE HAVING AN AUTOMATIC ICE SHEDDING SPINNER

Francis C. Pool, Duffield, England, assignor to Rolls-Royce Limited, London, England

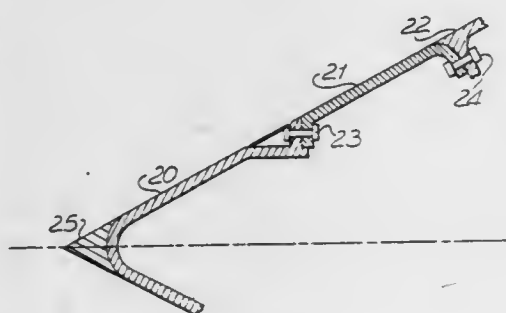
Continuation-in-part of Ser. No. 222,750, Jan. 6, 1981, abandoned, which is a continuation of Ser. No. 887,418, Mar. 15, 1978, abandoned. This application Feb. 20, 1981, Ser. No. 236,045

Claims priority, application United Kingdom, Apr. 20, 1977, 16318/77

Int. Cl.³ F02G 3/00

U.S. Cl. 60—39.093

10 Claims



1. In a gas turbine propulsion engine for aircraft in which thrust is provided only from flow of exhaust gases or a combination of flow of exhaust gases and by-pass air, said engine having an air inlet and an exhaust gas outlet, the improvement in a spinner positioned in the forward end of said air inlet for automatically shedding ice accretions at operational rotations of the engine, said spinner comprising:

a conical member having an included conical angle of substantially 57°, said conical member having a frusto-conical main body portion and a solid pointed cone-shaped tip portion attached thereto by a bond, said solid pointed cone-shaped tip portion of said spinner having an axial length relatively shorter than an axial length of said frusto-conical main body portion and said axial length of said solid pointed cone-shaped tip portion being no greater than 75 mm. and no less than 50 mm., said frusto-conical main body portion being manufactured from a material rigid at operational rotations of the spinner, and said solid pointed cone-shaped tip portion having at least a surface made of a different material from

and flexible relative to said rigid material of said frusto-conical main body portion, said different material of the at least said surface of said solid pointed cone-shaped tip portion being flexible at said bond during operational rotation of the spinner causing local high stress levels to be produced and cracks propagated in any ice at said bond with surface deflection of the remainder of the at least said surface of said solid pointed cone-shaped tip portion causing any accretion of ice thereon to shed from the remainder of the spinner.

4,393,651

FUEL CONTROL METHOD AND APPARATUS

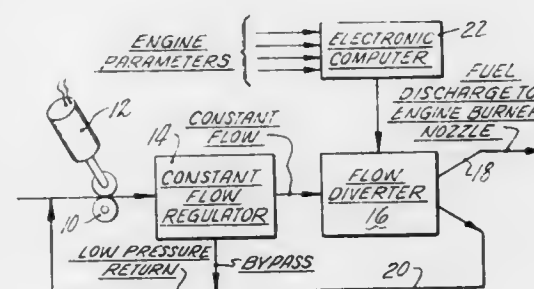
Robert E. Peck, Prospect, and Raymond D. Zagranski, Somers, both of Conn., assignors to Chandler Evans Inc., West Hartford, Conn.

Filed Sep. 2, 1980, Ser. No. 183,059

Int. Cl.³ F02C 9/36

U.S. Cl. 60—39.281

9 Claims



1. In a fuel control for a gas turbine engine of the type having: a pump for delivering a pressurized flow of fuel; an inlet conduit for receiving fuel flow from the pump; a discharge conduit in fluid communication with the inlet conduit for delivering fuel to the engine; and a computer responsive to selected engine parameters for generating a signal indicative of a requested fuel flow, the improvement comprising:

a constant flow regulator fluidly connected to the pump and the inlet conduit for generating a constant flow of fuel in the inlet conduit;

a bypass conduit in fluid communication with the inlet side of the pump for returning fuel thereto; and

a flow diverter, having first and second outlet ports, positioned in the inlet conduit such that it receives the constant fuel flow therein and has the first and second outlet ports in respective fluid connection with the discharge conduit and the bypass conduit, the flow diverter including a flow dividing device responsive to the signal from the computer for apportioning the constant fuel flow between the first and second outlet ports so that the requested fuel flow is delivered to the discharge conduit and the remainder of the constant fuel flow is delivered to the bypass conduit.

4,393,652

EXHAUST SYSTEM FOR INTERNAL COMBUSTION ENGINES

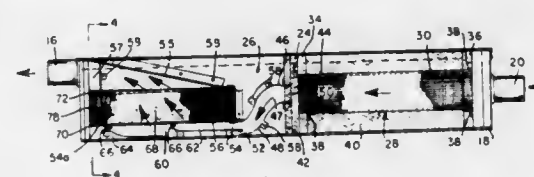
John H. Munro, 18 W. Mystic Ave., Mystic, Conn. 06355

Filed Jul. 23, 1980, Ser. No. 171,654

Int. Cl.³ F01N 3/02, 1/24, 3/20

U.S. Cl. 60—295

3 Claims



1. An exhaust system for connection to exhaust gas pipes of an internal combustion engine comprising a casing adapted for

4,393,654

SHAPE MEMORY ELEMENT ENGINE

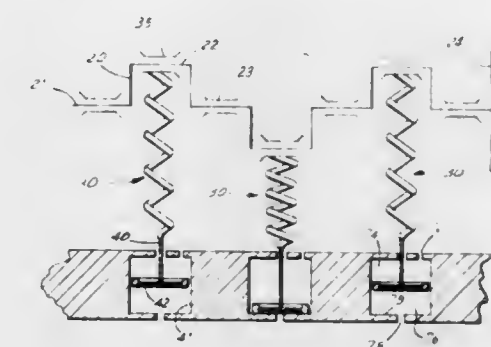
L. Ronald Pelly, Box 385, Fillmore, Calif. 93015

Continuation-in-part of Ser. No. 56,429, Jul. 10, 1979, abandoned. This application Jun. 18, 1981, Ser. No. 275,101

Int. Cl.³ F03G 7/06

U.S. Cl. 60—527

5 Claims



1. A mechanism for transforming heat energy into mechanical energy comprising:

- a plurality of deformable shape memory elements having inner surfaces and responsive to form changes at a predetermined transition temperature;
- a hot fluid incorporating a temperature above said transition temperature of said shape memory elements;
- a cold fluid incorporating a temperature below said transition temperature of said shape memory elements; and
- a crankshaft including at least one offset crankpin rotatably connected to one end of said shape memory elements, said crankpin incorporating fluid passageways for transporting, respectively, hot and cold fluids, said fluid passages sequentially and sealably cooperating with said inner surfaces of said shape memory elements whereby said cold fluid may contact said shape memory elements prior to deformation and said hot fluid may contact said shape memory elements prior to recovery.

4,393,655

RESERVOIR FOR A MASTER CYLINDER

Junichi Komorizono, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

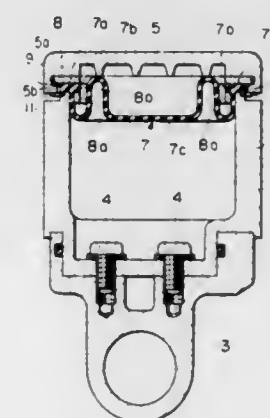
Filed Feb. 12, 1981, Ser. No. 235,045

Claims priority, application Japan, Feb. 19, 1980, 55-19890[U]

Int. Cl.³ B60T 11/26

U.S. Cl. 60—585

3 Claims



1. A method of operating a reciprocating external combustion engine having a cylinder and a piston therein defining a working end space, wherein energy is transferred to a working gas from a heated vaporizable liquid heat transfer medium, which comprises

- (1) inducting working gas into the end space;
- (2) generating externally of the cylinder heated heat-transfer medium under a pressure such as to maintain the medium in the liquid state;
- (3) after induction, injecting heated liquid medium into the working gas and allowing at least part of the liquid medium to vaporize, so as to raise the internal energy of the gas;
- (4) in an expansion stroke of the piston, allowing the wet gas containing the heat-transfer medium to expand thereby driving the piston;
- (5) exhausting wet gas from the end space near the end of the expansion stroke;
- (6) separating liquid heat-transfer medium from wet exhaust gas containing heat-transfer medium vapor; and
- (7) recycling the separated liquid medium to stage (2) above.

1. A reservoir for a master cylinder which comprises a reservoir body adapted to be placed above and secured to a master cylinder body and having a top opening defined by a top peripheral edge portion, a cap adapted to be secured to the reservoir body for closing the top opening, a flexible diaphragm disposed between the reservoir body and the cap, said diaphragm including a flexible portion substantially covering the top opening of the reservoir body and a peripheral portion

adapted to be interposed between the top peripheral edge portions of the reservoir body and the cap, a depressing plate interposed between the peripheral portions of the diaphragm and the cap, and restraining means provided on the depressing plate for engagement with the peripheral portion of the diaphragm to thereby restrain it from a radially inward movement, said cap being provided with a pair of hook-shaped portions for engagement with an outer edge of said depressing plate for securing said depressing plate to said cap, and said diaphragm being formed with a pair of inward projections engaging apertures in said depressing plate for securing said diaphragm to said depressing plate such that said cap, depressing plate, and diaphragm form a sub-assembly to be placed on the reservoir body.

4,393,656

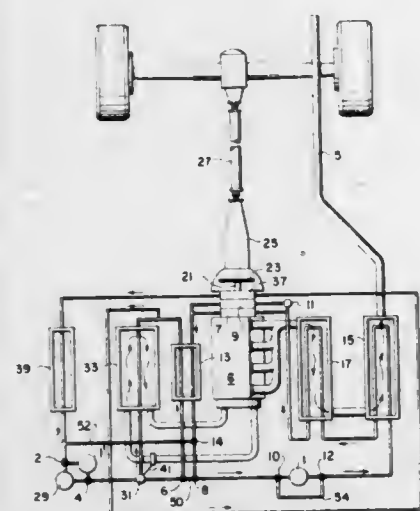
WASTE HEAT RECOVERY SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Forest L. Anderson, 12186 Melody Dr., Denver, Colo. 80234, and Robert H. Nation, 13164 Elk Pl., Denver, Colo. 80239
Continuation-in-part of Ser. No. 204,855, Nov. 7, 1980, Pat. No. 4,351,155. This application Sep. 20, 1982, Ser. No. 420,494

Int. Cl.³ F01K 23/10

U.S. Cl. 60—618

18 Claims



1. A method primarily intended for recovering and utilizing waste heat from the exhaust and coolant of an internal combustion engine by using a single working fluid, said method comprising the steps of:

- (a) pumping liquified working fluid to a first location along a first path,
- (b) vaporizing said working fluid at said first location along said first path to a high side temperature and pressure by applying waste heat from said exhaust,
- (c) expanding said vaporized working fluid in said first path to produce work,
- (d) condensing said expanded working fluid to a liquid state by removing heat therefrom,
- (e) repeating steps (a)-(d) while simultaneously,
- (f) pumping said liquified working fluid along a second path having at least two portions thereof in parallel,
- (g) vaporizing said working fluid of step (f) in said parallel portions of said second path to high side temperatures and pressures less than the high side temperature and pressure of said first path by respectively applying waste heat in parallel from said coolant and the removed heat of step (d),
- (h) expanding said vaporized working fluid in said second path to produce work,
- (i) condensing said expanded working fluid of step (h) to a liquid-state, and
- (j) repeating steps (f)-(i).

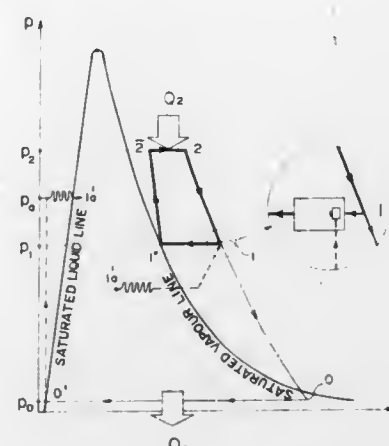
4,393,657

METHOD FOR RECOVERING WASTE HEAT AS MOTIVE POWER

Isao Takatama, 2-5-6 Kohokudai, Abiko, Chiba-ken, Japan
Filed Apr. 29, 1981, Ser. No. 258,732
Int. Cl.³ F01K 7/16

U.S. Cl. 60—653

4 Claims



1. A novel method for the recovery of waste heat from a waste gas in the form of motive power in a cycle having a superheater provided on the upstream side and a counterflow heat exchanger on the downstream side respectively in the path of the waste gas to permit efficient recovery of the sensible heat of waste gas, characterized by injecting part of the high-pressure hot water brought to an elevated temperature by the heat absorbed within said counterflow heat exchanger into the circulation steam of the superheater system emanating from the outlet of said superheater thereby cooling the circulation steam into a saturated steam, returning the saturated steam to said superheater via the inlet thereof thereby enabling the saturated steam within said superheater to be converted into a superheated steam by the heat derived through the gas-gas heat exchange from the waste gas within said superheater, supplying a mass flow of the superheated steam equalling the amount of the hot water used for the aforementioned injection as the working steam for the steam turbine system to the steam turbine thereby causing the superheated steam within the steam turbine to be adiabatically expanded to generate motive power, subsequently introducing the expanded steam into the condenser to be condensed therein, introducing the resultant condensed cold water into said counterflow heat exchanger to be converted therein into a high-temperature, high-pressure hot water by the heat derived through the gas-liquid heat exchange from the waste gas within the heat exchanger, supplying the portion of the hot water remaining after deduction of the portion for use in the aforementioned cooling of the circulation steam to the hot water turbine to be adiabatically expanded therein to generate motive power, subsequently introducing the expanded hot water (wet steam) into the condenser to be condensed therein, and thereafter repeating the same heat cycles as described above sequentially one after another.

4,393,658

EXTRACTION CONDENSING TURBINE

Wulf Bohnenkamp, Düsseldorf-Wittlaer, and Gerd Hempel, Hamburg, both of Fed. Rep. of Germany, assignors to Blohm & Voss AG, Hamburg, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 83,413, Oct. 10, 1979, abandoned. This application Jul. 10, 1981, Ser. No. 281,934
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844681

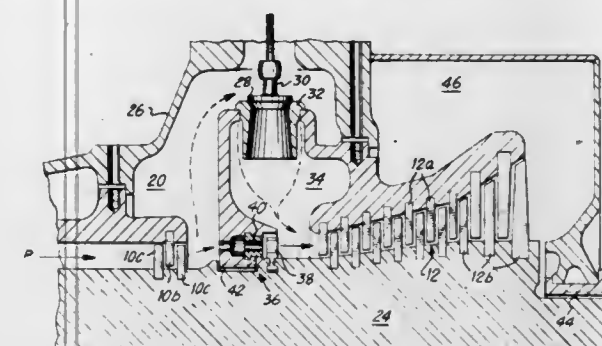
Int. Cl.³ F01B 31/08

U.S. Cl. 60—657

6 Claims

1. A steam extraction turbine comprising: a high pressure turbine section; a low pressure turbine section from which steam is exhausted from said turbine; a steam extraction section arranged in the steam flow path intermediate said high and said

low pressure sections of said turbine from which steam is fed into said low pressure section; said steam extraction section including steam extraction chamber means fed from said high pressure section from which steam is extracted from said turbine for external use; valve means between said steam extraction chamber means and said low pressure section for controlling the amount of steam flowing therebetween; and cooling



means defining a steam flow path between said steam extraction chamber means and said low pressure section in parallel with the flow path through said valve means for supplying steam to prevent overheating of said low pressure section, said cooling means including energy extraction means for extracting from the steam flowing through said cooling means energy which is applied to drive said turbine.

4,393,659

METHOD AND APPARATUS FOR PRODUCING STERILE SLUSH ICE

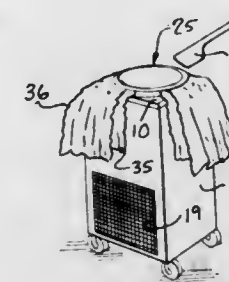
Richard M. Keyes, Lake Summerset, and Stephen W. Schwitters, Rockford, both of Ill., assignors to Taylor Freezer Company, Rockton, Ill.

Filed Jun. 1, 1982, Ser. No. 384,014

Int. Cl.³ F25C 1/00

U.S. Cl. 62—66

8 Claims



1. A method of producing surgical sterile slush ice from a surgical sterile liquid for use in surgical procedures comprising:

- (a) providing a portable refrigeration apparatus including a cabinet having an open top heat transfer basin at the top and depending side walls defining an enclosure, the refrigerating apparatus having refrigeration mechanism in the cabinet including an evaporator in heat transfer relation to the heat transfer basin and compressor means and condenser means and expansion control means connected in a closed refrigeration loop with the evaporator;
- (b) providing a separate sterilizable product basin dimensioned to be removably receivable in the heat transfer basin;
- (c) introducing a quantity of non-toxic heat transfer medium into the heat transfer basin;
- (d) sterilizing the product basin to surgical sterility and positioning the product basin in the heat transfer basin for cooling of the product basin via the heat transfer medium;
- (e) introducing a quantity of a surgical sterile liquid of a type suitable for subcutaneous administration into the product basin;
- (f) operating the refrigeration mechanism to cause congel-

- ing of the surgical sterile liquid on the walls of the product basin;
- (g) providing a sterilized scraping tool, and scraping ice off the walls of the product basin as the sterile liquid congeals thereon to produce loose sterile ice slush in the product basin; and
- (h) allowing a quantity of the loose sterile ice slush to accumulate in the product basin and removing the loose sterile ice slush from the product basin for immediate use in surgical procedures.

4,393,660

QUIESCENT FORMATION OF GASIFIED ICE PRODUCT AND PROCESS

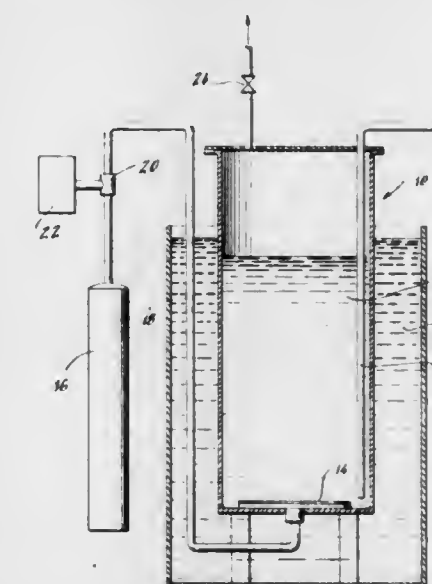
Fredric Kleiner, New City, N.Y., and Valery B. Zemelman, Wilton, Conn., assignors to General Foods Corporation, White Plains, N.Y.

Filed Jun. 29, 1981, Ser. No. 278,233

Int. Cl.³ F25C 1/18

U.S. Cl. 62—69

4 Claims



1. A process for preparing gasified ice characterized by a granular, crystalline porous structure, a brittle texture, good stability in its frozen state, and the ability to rapidly and quietly release its gas content to aqueous solution upon melting, which process comprises:

- a. maintaining aqueous liquid in a pressurized vessel under conditions of temperature and pressure effective to form a stable gas hydrate upon contact with a conditionally-stable-hydrate-forming gas;
- b. introducing finely-dispersed bubbles of a conditionally-stable-hydrate-forming gas into said aqueous liquid, at a pressure above that within said vessel to contact said liquid with said gas;
- c. constantly withdrawing gas from said vessel to maintain a substantially constant pressure within said vessel;
- d. maintaining said contact for a period of time effective to form a suspension comprising gas hydrate dispersed within said liquid;
- e. freezing said suspension under pressure; and
- f. separating unreacted aqueous liquid from said vessel prior to freezing.

4,393,661

MEANS AND METHOD FOR REGULATING FLOWRATE IN A VAPOR COMPRESSION CYCLE DEVICE

Himanshu B. Vakil, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 10, 1981, Ser. No. 329,493

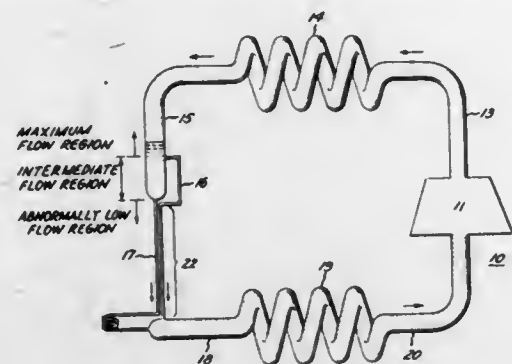
Int. Cl.³ F25B 41/00

U.S. Cl. 62—113

9 Claims

1. A method for regulating the working fluid flowrate in a

vapor compression cycle device which comprises compressing a working fluid vapor in a compressor, condensing working fluid vapor in a condensing heat exchanger, passing a portion of the working fluid from said condensing heat exchanger through a first expansion device positioned so as to pass working fluid from the lower most section or termination of the output of said condensing heat exchanger, passing a portion of the working fluid from said condensing heat exchanger through a second expansion device positioned so as to pass working fluid from a region of the condensing heat exchanger



output which is upstream or higher than the inlet to said first expansion device, said working fluid flowing in said expansion devices being substantially in heat exchange relationship such that the working fluid flowing through said first expansion device can be cooled by the expanded working fluid flowing through said second expansion device, passing the working fluid from said expansion devices to an evaporating heat exchanger or to an evaporating heat exchanger and associated inlet tube of said compressor, evaporating the working fluid in said evaporative heat exchanger, and finally compressing the working fluid vapor for recirculation.

4,393,662

CONTROL SYSTEM FOR REFRIGERATION OR AIR CONDITIONING INSTALLATION

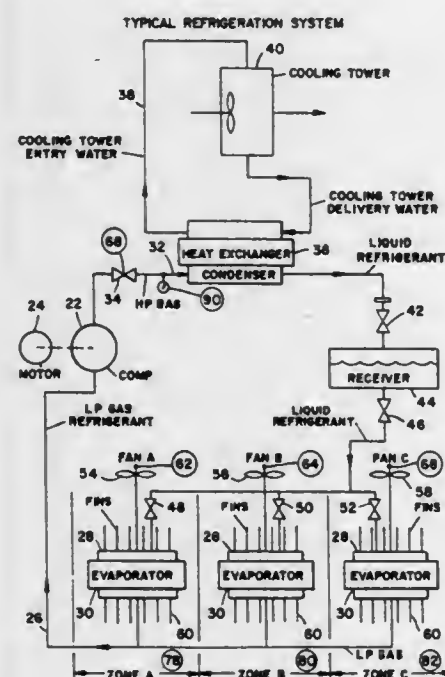
George P. Dirth, 504 Cambrian Way, San Ramon, Calif. 94583

Filed Sep. 28, 1981, Ser. No. 306,207

Int. Cl.³ F25D 17/00; G05D 23/32

U.S. Cl. 62—115

9 Claims U.S. Cl. 62—119



1. A method for increasing the efficiency and reducing the power consumption of a refrigeration system have a compressor driven by a motor, first heat exchanger means with evaporator means located in a control zone and one or more additional zones to be cooled, said first heat exchanger means being connected to the compressor inlet, fan means associated with said first heat exchanger means, a conduit for liquid refrigerant

interconnecting an outlet from said compressor to a second heat exchanger means, means for varying the load on said compressor, a liquid coolant means connected to said second heat exchanger means, a receiver for cooled liquid refrigerant connected to said second heat exchanger means, conduit means connected from the outlet of said receiver to said evaporator means of said first heat exchanger means, and expansion valve means in said conduit means, said method comprising the steps of:

establishing a desired set point temperature to be maintained in a predetermined one of said zones designated a control zone; constantly measuring the actual temperature in said control zone; establishing a continuous series of equal time sampling periods for said compressor; operating said compressor at a relatively high load for a predetermined first portion of each time sampling period responsive to said measured temperature and at a relatively low load for the remaining or second portion of the sampling period; during each time sampling period, determining the difference in the actual temperature from the set point temperature in the control zone; calculating any change in the length of time for the first portion of the next sampling period required to maintain the set point temperature in the control zone from said difference; controlling the compressor responsive to said calculation accordingly so that it is cycled from high load to low load during each time sampling period; establishing a continuous series of equal time sampling periods for each of said fans or valves; and controlling the length of time during the first parts of said time sampling periods for each of said fans or valves that each of said fans or valves are turned on for purposes of zone temperature control.

4,393,663

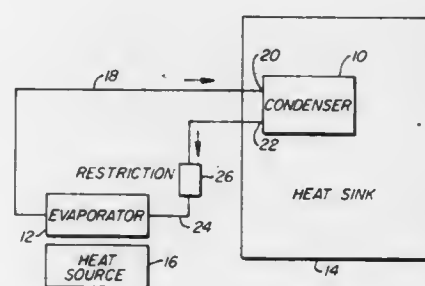
TWO-PHASE THERMOSYPHON HEATER

Howard E. Grunes, and Dennis J. Morrison, both of Santa Cruz, Calif., assignors to Gas Research Institute, Chicago, Ill.

Filed Apr. 13, 1981, Ser. No. 253,817

Int. Cl.³ F25D 15/00

12 Claims



1. Apparatus for transferring heat from a heat source to a heat sink via a vaporizable liquid when the apparatus is operating, the apparatus comprising evaporator means at the heat source for heating the vaporizable liquid so that a portion of the liquid is vaporized to produce a moving stream of a heated liquid-vapor mixture; condenser means at the heat sink, the condenser means having an inlet and an outlet, the inlet being communicatively coupled to the evaporator means for receiving the heated mixture, and wherein the condenser means extracts both sensible and latent heat from the heated mixture and condenses the vapor portion of the mixture back into liquid form, and wherein the outlet is communicatively coupled to the evaporator means for returning the cooled liquid and condensed vapor to the evaporator for reheating; supply means for communicatively coupling the inlet of the condenser means to the evaporator means; and return means for communicatively coupling the outlet of the

condenser means to the evaporator means, the return means further including restriction means for passing the cooled liquid and condensed vapor from the outlet of the condenser means to the evaporator means while impeding the flow of vapor from the evaporator means to the condenser means through the outlet of the condenser means by way of the return means when the apparatus is operating.

4,393,664

MULTIPLE DAMPER ASSEMBLY FOR REACH-IN CASES OF THE AIR DEFROST TYPE

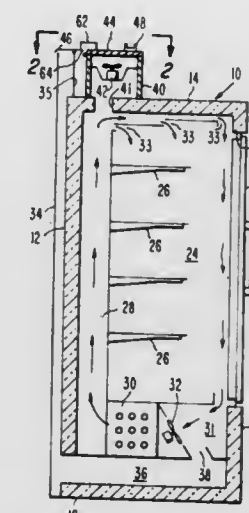
George E. Wallace, Levittown, Pa., assignor to Emhart Industries, Inc., Farmington, Conn.

Filed Dec. 24, 1981, Ser. No. 334,482

Int. Cl.³ A47F 3/04

U.S. Cl. 62—256

10 Claims



1. In a refrigerated display case formed with an air inflow duct and an adjacent primary air passage having a refrigeration coil therein and respectively having inflow and exhaust openings for communicating said duct and passage with the ambient atmosphere during a defrost cycle, the improvement comprising:

- a first series of dampers controlling air flow through the exhaust openings;
- a second series of dampers controlling air flow through the inflow openings; and
- means interengaging all of said dampers for joint simultaneous movement to open and closed positions respectively, the dampers of each series being arranged in a straight row, the row of dampers of the first series being parallel to the row of dampers of the second series, each damper of the first series being aligned transversely of said rows with a damper of the second series, the damper-interengaging means including an element extending between and rigidly connecting all the dampers of one of said series, said element being in the form of an elongated bar fixedly connected to each of the dampers of said one series and extending from end-to-end of said one series, the dampers of each series being hingedly mounted for movement between open and closed positions, all the dampers of each series being swingable about a common hinge axis, the hinge axes of the first and second series being parallel, said bar extending in parallel relation to said hinge axes, said damper-interengaging means including a cam on each damper of said one series and a tongue on the corresponding, transversely aligned damper of the other series engageable by the cam upon opening of the damper of said one series, the cams on the several dampers of said one series biasing the tongues of the several dampers of the other series when the dampers of said one series are moved to open position, for simultaneous movement of the dampers of the other series to open position conjointly with the dampers of said one series.

4,393,665

SERVER FOR WINE BOTTLES AND THE LIKE

James H. Gardner, and Noel H. deNevers, both of Salt Lake City, Utah, assignors to Aurora Design Associates, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 171,901, Jul. 24, 1980, abandoned, which is a continuation-in-part of Ser. No. 61,655, Jul. 30, 1979, Pat. No. 4,255,944. This application Mar. 30, 1981, Ser. No. 248,816

The portion of the term of this patent subsequent to Mar. 17, 1981, has been disclaimed.

Int. Cl.³ F25D 3/08

9 Claims



1. A server for wine bottles and the like comprising a housing open at the top for receiving a bottle and having a side wall shaped to conform to and surround the side exterior of the bottle and a bottom wall joined at its perimeter to said side wall, said side wall having a height of at least one-half the height of the enlarged portion of the bottle and being made of a heat conductive material, the side wall and bottom wall forming a receptacle means for holding ice in contact with said side wall to cause said side wall to absorb heat from the bottle if the bottle is at a higher temperature than the side wall, and to substantially prevent the transfer of ambient heat to the bottle, and support means within said housing above said bottom wall to hold the bottle above and out of contact with the ice, said support means having openings therein to allow placement of ice into the receptacle means through the top opening of the housing.

4,393,666

BALANCED HEAT EXCHANGE ASSEMBLY

Doyle A. Revis, 9864 Monroe Dr., Dallas, Tex. 75220

Filed Oct. 14, 1980, Ser. No. 196,614

Int. Cl.³ F25B 27/02

U.S. Cl. 62—506

1 Claim



1. A heat exchange assembly for reclaiming heat from the refrigerant of an air conditioning system comprising: a water circulation means; a refrigerant circulation means; a plurality of tube-in-tube heat exchange coils connected in parallel in the refrigerant and water circulation means to receive refrigerant in one tube and water in the other for heat exchange therebetween; and means for ensuring a substantially equal rate of flow of refrigerant through each of the heat exchange coils, said means includes a refrigerant-in manifold pipe connecting the upstream end of the refrigerant tube of each of the coils to the refrigerant circulation circuit and a refrigerant-

ant-out manifold pipe connecting the downstream end of the refrigerant tube of each coil to the refrigerant circulation circuit, said inlet manifold pipe having successive decreases of cross-sectional area downstream of each said upstream end connection and said outlet manifold pipe having successive increases of cross-sectional area upstream of each said downstream end connection.

4,393,667

JEWELRY ARTICLES

Martine Reinstein, Valkenlaan 14a, B-1800 Vilvoorde, Belgium, and Jacques Wurcel, Elfbunderslaan 18, B-1650 Beersel, Belgium

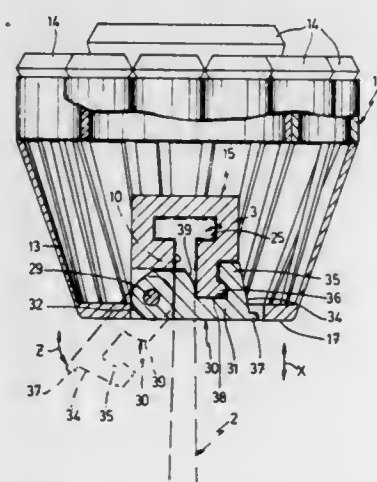
Filed Jun. 9, 1981, Ser. No. 271,875

Claims priority, application Belgium, Aug. 20, 1980, 201799

Int. Cl.³ A44C 17/02

U.S. Cl. 63—29 R

10 Claims



1. A jewelry article set comprising:

- a support;
- a setting having an ornamental element on a front face thereof and a backface;
- male and female elements for coupling said backface of said setting to said support;
- said female element being located and permanently fixed inside said setting and having a first groove which is open towards said backface of said setting and toward two opposite faces of said female element, said first groove having first and second parts, said first part of said first groove being broader than said second part, said second part of said first groove opening towards said backface of said setting and having an end which is substantially coplanar with said backface of said setting;
- said male element having a shape complementary to that of said first groove so that when said male element is inserted into said first groove of said female element through one of said two opposite faces of said female element, both said male and female elements are hidden from view and it is impossible to disengage said male element from said female element through said second part of said first groove;
- a blocking lever for fastening said male and female elements together, said blocking lever having one end connected to a pivot connected to said female element and having means on its other end for gripping said lever to a boss of said female element located inside said setting to fasten said blocking lever other end to said boss, when fastened said blocking lever extending within said setting and preventing a sliding movement between said male and female elements;
- said male element being a part of said support; and
- a notch provided in said support through which said blocking lever extends when it is fastened.

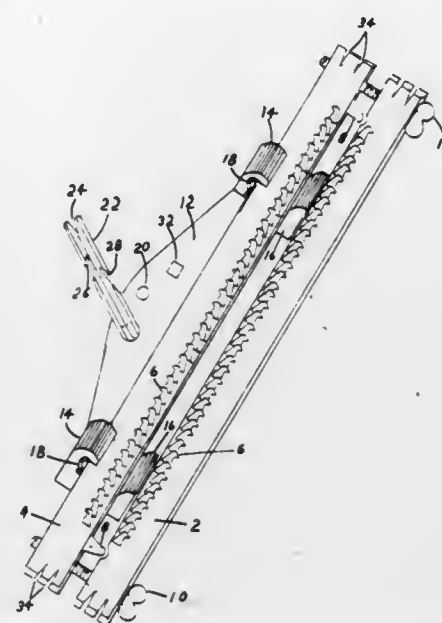
4,393,668
MANUAL KNITTING FRAME WITH SUPPORT
Clifford Leach, Sr., 1947 Woodglen La., #1, Vacaville, Calif. 95688

Filed Aug. 20, 1981, Ser. No. 294,679

Int. Cl.³ D04B 3/00

U.S. Cl. 66—4

6 Claims



1. In a knitting device, including a knitting frame comprising two spaced parallel bars, said bars having upper flat surfaces forming a plane and a row of pins substantially perpendicular to said plane on each of said bars; the improvement comprising a support for said frame, said support comprising a base plate, at least one upstanding hook-shaped locking member on said base plate, and at least one upstanding sustaining member on said base plate, said sustaining member being spaced from said locking member laterally of said base plate by a distance substantially the same as the width of one of said bars of said knitting frame, the hook of said locking member facing said sustaining member and the upper surface of said sustaining member being curved upwardly from said base plate and away from said locking member, said sustaining member being of such thickness that it will pass between the bars of said knitting frame, whereby said knitting frame can be laid on said support with one of said bars resting on said plate and within the hook of said locking member and against said sustaining member; and means for securing said support in a substantially fixed position.

4,393,669
AUTOMATIC LACING METHOD AND APPARATUS FOR MAKING PIECES WITH MULTIDIRECTIONAL WOVEN REINFORCEMENT

Georges J. J. Cahuzac, Le Bouscat, France, assignor to Societe Nationale Industrielle Aerospatiale, Paris, France

Filed Jan. 27, 1981, Ser. No. 228,970

Claims priority, application France, Aug. 11, 1980, 80 17666

Int. Cl.³ D04B 9/44; D03D 41/00

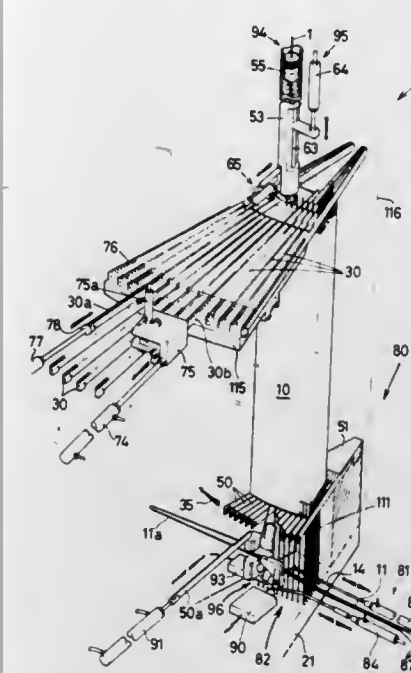
U.S. Cl. 66—13

18 Claims

1. Method for automatically lacing reinforcements or woven pieces made by multidirectional weaving and composed of filiform textile elements disposed in several directions, one of the directions of weaving being initially materialised by temporary rigid rods which have to be replaced, in the course of lacing operations, by filiform textile elements, this method comprising the following steps of:

- passing a needle through the woven piece, which needle simultaneously pushes a preselected rigid rod outwardly and chases it from the woven piece,
- causing the needle to grip a textile element previously formed as a loop and
- causing the needle, provided with the textile element thus

gripped, to pass through the woven piece in the opposite direction, said textile element thus gripped occupying the space vacated by the previously chased rigid rod,



disengaging the needle from the woven piece, and releasing it from the textile element.

4,393,670

AUTOMATIC KNITTING NEEDLE SELECTION DEVICE

Takeji Hashimoto, Nagaokakyo; Kiyohumi Okumoto, and Masayasu Andoh, both of Kyoto, all of Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Japan

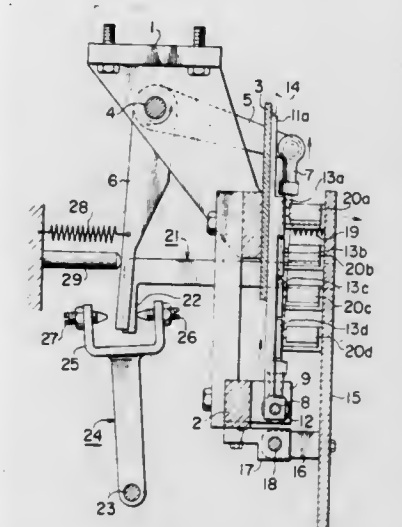
Filed Aug. 3, 1981, Ser. No. 289,258

Claims priority, application Japan, Aug. 20, 1980, 55-113421

Int. Cl.³ D04B 7/00, 15/66

U.S. Cl. 66—75.2

12 Claims



1. An automatic knitting needle selection device for forming knitting patterns in a knitting machine, comprising:

- a plurality of vertically oriented knitting needles which can assume either a knit position or a non-knit position,
- a plurality of vertically oriented selectors, provided in one-to-one relation with respect to the knitting needles and pivoted at their lower ends by a pivot shaft, which can assume either a first position adapted for moving the corresponding knitting needles from the non-knit position to the knit position and a second position adapted for not moving the corresponding knitting needles from the non-knit position to the knit position,
- a plurality of solenoids, again provided in one-to-one relation relative to the selectors, for attracting a selected group from the selectors according to a desired knitting pattern,
- a first drive means for moving the selectors other than those

in the selected group from the first position to the second position, and

a second drive means for moving the selectors other than those belonging to the selected group so as to move the corresponding knitting needles from the non-knit position to the knit position.

4,393,671

APPARATUS FOR DYEING FIBER BY UTILIZING MICROWAVES

Hajime Ito, 2-32, Kamiotai, Nishi-Ku, Nagoya City, Aichi Prefecture, Japan

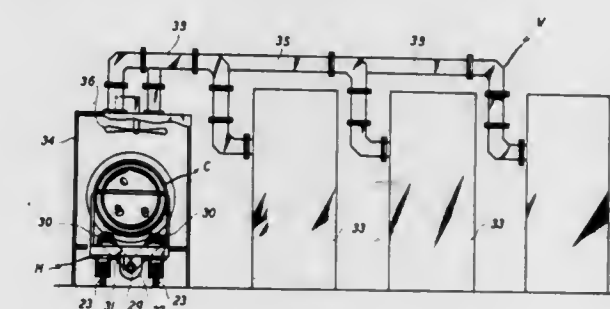
Filed Jan. 15, 1981, Ser. No. 225,437

Claims priority, application Japan, Jan. 19, 1980, 55-4687; Aug. 25, 1980, 55-117229

Int. Cl.³ D06B 3/02

U.S. Cl. 68—5 C

3 Claims



1. A fiber dyeing apparatus which comprises

- (a) a vessel which is adapted to hold a quantity of fiber to be dyed, said vessel being formed of a material capable of transmitting microwaves, said vessel being formed of a gas tight pressure resisting sealed construction, said vessel being provided with a lid member to seal the vessel, said lid member being provided with a control valve to control the internal pressure of the vessel,
- (b) a flat car located underneath said vessel so that the vessel can be moved from one place to another, said vessel being supported on said flatcar by rotary shafts that are connected with means to rotate them and thereby move the vessel rotatively,
- (c) a radiation chamber extending around said vessel and said flatcar,
- (d) a microwave generator, and
- (e) a microwave guide for conducting microwaves from said microwave generator to said radiation chamber so that the vessels containing fiber that are located in said radiation chamber can be irradiated.

4,393,672

CYLINDER LOCK AND KEY ASSEMBLY

Egon Gelhard, Thomas-Mann-Strasse 10, D-5000 Köln 51, Fed. Rep. of Germany

PCT No. PCT/DE79/00144, § 371 Date Aug. 13, 1980, § 102(e) Date Aug. 13, 1980, PCT Pub. No. WO80/01299, PCT Pub. Date Jun. 26, 1980

PCT Filed Dec. 13, 1979, Ser. No. 204,401

Claims priority, application Fed. Rep. of Germany, Dec. 13, 1978, 2853655

Int. Cl.³ E05B 47/00

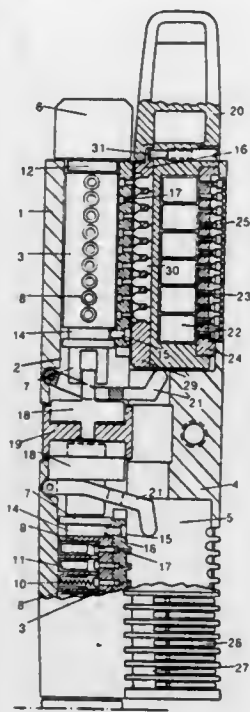
U.S. Cl. 70—277

12 Claims

1. A cylinder lock and key assembly for effecting a mechanical and electro-mechanical locking, comprising:

- a lock cylinder casing having a cylinder-receiving bore and a crosspiece offset from said bore in which a keyway is formed, a lock cylinder rotatably mounted in said cylinder-receiving bore of said casing, and a key receivable in said keyway, said key and said keyway being provided

with interchangeable and mechanically codable tumbler means for effecting a mechanical locking and electrical



means for changing the flow of electric current for effecting an electromechanical locking signal.

4,393,673

CYLINDER LOCK

Bo G. Widen, Torshälla, Sweden, assignor to GKN Stenman AB, Eskilstuna, Sweden

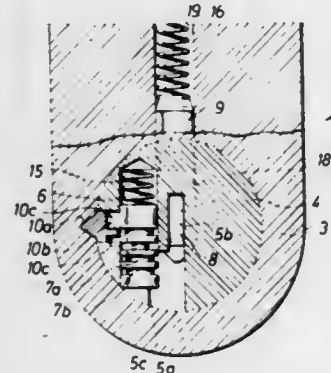
Filed Jul. 2, 1980, Ser. No. 165,357

Claims priority, application Sweden, Jul. 10, 1979, 7906022

Int. Cl.³ E05B 19/06, 27/06

U.S. Cl. 70—358

5 Claims



1. A cylinder lock comprising:

- (a) a housing,
- (b) a cylinder core mounted for rotation in said housing,
- (c) a slot extending into the cylinder core parallel to the rotation axis thereof, for receiving a key,
- (d) at least one row of locking pins in bores in said cylinder core and being movable against spring means by a key which engages ends of the pins when the key is inserted into the slot,
- (e) at least one side bar accommodated in a recess extending axially in a peripheral part of the cylinder core, said at least one side bar being spring biased outwardly of the cylinder into engagement with a recess in the housing which recess is shaped to retract the side bar in the cylinder core upon turning of the cylinder core,
- (f) said locking pins having operative waisted portions, and said at least one side bar having a number of lugs which must engage in said waisted portions of said pins of a row to permit said retraction, said waisted portions of the pins of the or each row being identically positioned on said pins of said row with respect to said ends of the pins

of the row, and said lugs being respectively positioned on said at least one side bar so as to engage said waisted portions when the pins of a row have been set in predetermined positions by the key when the key is in an operative position,

- (g) said at least one side bar including guide portions which extend between the pins of a row at least when the side bar is retracted into the cylinder and engage with surfaces in the cylinder to resist misalignment of the side bar.

4,393,674

HYDRAULIC CHUCK DEVICE FOR ENGAGEMENT WITH THE INSIDE OF A TUBE

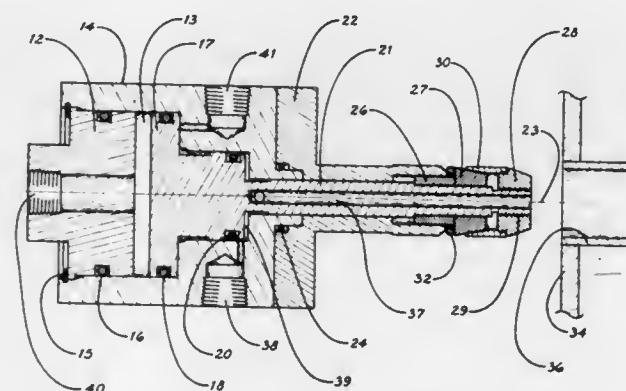
Robert Rasmussen, Minneapolis, Minn., assignor to Air-Mo Hydraulics, Inc., Minneapolis, Minn.

Filed Jun. 25, 1981, Ser. No. 277,206

Int. Cl.³ B21D 22/10

U.S. Cl. 72—61

9 Claims



1. A hydraulic chuck device for use with the inside of a tube, comprising:

- a body defining a chamber; a piston slideably mounted in said chamber; an axially centered stem means mounted at one end on said piston and having a passage along its axis; sleeve means slideably covering said stem means and mounted on said body; collet means operably connected to said stem means and said sleeve means such that relative movement of one with respect to the other causes activation of said collets;
- first fluid means connected to said piston to cause relative movement between said stem means and said sleeve; and
- second fluid means connected to said stem means for passage of fluid through said passage of said stem means into the inside of said tube.

4,393,675

CONTRIVANCE FOR THE MACHINING OF CYLINDRICAL SURFACES ON METAL-CUTTING LATHES

Gennady M. Azarevich, ulitsa Akademika Yangelya, 14, korpus 2, kv. 257; Iosif A. Gussyatsky, ulitsa Malaya Bronnaya, 10, kv. 35; Lidia B. Savelieva, 9 Parkovaya ulitsa, 68, korpus 2, kv. 16, and Boris I. Akimov, Simonovsky val, 7, korpus 1, kv. 249, all of Moscow, U.S.S.R.

Filed Mar. 11, 1981, Ser. No. 242,521

Claims priority, application U.S.S.R., Apr. 25, 1980, 2916251

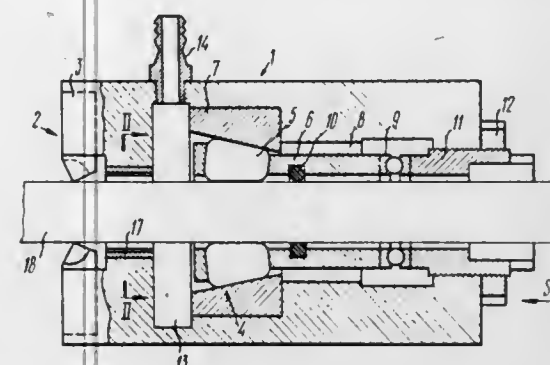
Int. Cl.³ B23B 27/10; B24B 39/04

U.S. Cl. 72—71

2 Claims

- 1. A contrivance for the machining of cylindrical surfaces on work supported for rotation on metal-cutting lathes comprising a housing; a tool head fixed inside said housing; at least one tool clamped in said tool head and having a cutting edge; a head with deforming rollers, said head being located in said housing behind said tool head; a system for feeding coolant-lubricant incorporating a source of coolant-lubricant, a chamber disposed in said housing between said tool head and said head with deforming rollers, said chamber being connected to said source of coolant-lubricant and to said head with deforming

ing rollers, at least one nozzle fitted in said housing between said chamber and said tool head so that the jet issuing therefrom is aimed at the cutting edge of at least one said tool, the



surface of said work defining one wall of said nozzle, and said nozzle confining the coolant-lubricant flow to direct and confine said flow to issue against the cutting edge of said tool.

4,393,676

PROCESS FOR PRODUCING CONNECTING MEMBER SHANKS, SUCH AS HINGES FOR WINDOW AND DOOR FRAMES, FORMED OF CYLINDRICAL SECTIONS OF DIFFERENT DIAMETER, WITH CONTINUOUS EVEN SCREW THREAD, THAT IS WITH CONSTANT PITCH

Luciano Prosdocimo, Viale Grigoletti 73, Fontanafredda, Pordenone, Italy

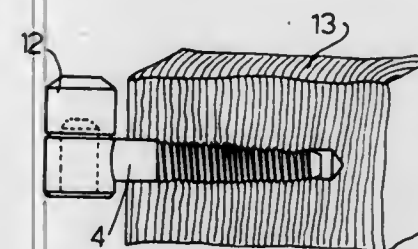
Continuation-in-part of Ser. No. 898,162, Apr. 20, 1978, abandoned. This application Sep. 23, 1980, Ser. No. 189,820

Claims priority, application Italy, Jan. 31, 1978, 45704 A/78

Int. Cl.³ B21H 3/02

U.S. Cl. 72—92

3 Claims



- 1. A method of forming a thread convolution with uniform pitch on a shank with at least two coaxial and essentially cylindrical portions of different diameters, the thread convolution on the shank being a leading face disposed at a first angle to the central axis of the shank, said method comprising the steps of providing a blank having two coaxial and essentially cylindrical portions connected by a sloping portion with the surface inclined at said first angle to the common axis of the two cylindrical portions, rolling said blank between a rotating chaser having two coaxial thread forming surfaces radially spaced apart by a distance equaling the difference in radius of said two different diameter portions of said blank and a fixed curved chaser having two thread forming surfaces radially spaced apart by a distance equal to the difference in the radius of said two different diameter portions of said blank, the larger diameter of said rotating chaser having a larger surface speed than the smaller diameter portion of said rotating chaser and being disposed in engagement with the smaller diameter portion of said blank, and guiding said blank during said rolling by abutting said sloping surface of said blank against sloping thread forming surfaces of said rotating chaser and said fixed chaser which connect said two thread forming surfaces of said rotating chaser and said fixed chaser, respectively, and which are parallel with said sloping surface of said blank to form a continuous uniform pitch thread convolution over and between the two essentially cylindrical portions of the blank.

4,393,677

PLUGS FOR USE IN PIERCING AND ELONGATING MILLS

Manabu Tamura, Kanagawa; Yoshiki Kamemura, Tokyo, and Masao Handa, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 12, 1980, Ser. No. 215,753

Claims priority, application Japan, Dec. 25, 1979, 54-167515

Int. Cl.³ B21B 19/04

U.S. Cl. 72—97

15 Claims



- 1. A plug for use in a piercing and elongating mill to manufacture seamless steel pipes having its surface coated with a highly adherent durable heat insulating layer consisting essentially of iron oxides comprising at least one oxide selected from the group consisting of FeO, Fe₃O₄, and Fe₂O₃ which had been formed on the surface of said plug by spraying molten powder consisting essentially of iron oxide onto the surface of the plug to form said layer, said iron oxide molten powder which is sprayed onto the surface of said plug also contains at least one metal or oxide selected from the group consisting of the oxides of chromium, nickel, copper and manganese, and the metals iron, chromium, nickel, cobalt, copper and manganese.

4,393,678

SPRING COILING MACHINE

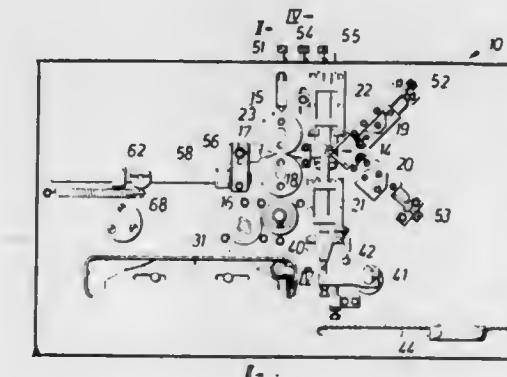
Guido Favot, and Alf A. Berg, both of Västerås, Sweden, assignors to Tekno-Detaljer Sture Carlsson AB, Vällingby, Sweden

Filed Dec. 22, 1980, Ser. No. 218,795

Int. Cl.³ B21F 3/02, 11/00

U.S. Cl. 72—131

10 Claims



- 1. A spring coiling machine, comprising two cooperating rotatable wire feeding rollers and a driving device for said wire feeding rollers by which said rollers may be rotated in order to feed a wire in its longitudinal direction between said rollers to a spring forming station, where wire bending tools are provided to cause the wire, as it reaches said station, to be successively bent so as to form a coiled spring by being brought into contact with said bending tools with successive portions thereof, and where a separate movable pitch controlling tool is provided to control the pitch of said spring along the length thereof through engagement with said wire, a cam follower being connected to said pitch controlling tool to control the position thereof through cooperation with a movable cam curve operatively connected to said driving device, wherein said cam curve defined by a plurality of distinct portions which are longitudinally displaceable relative to each other, said cam

curve being mounted for reciprocating rectilinear movement in unison with a reciprocating gear rack included in said driving device.

4,393,679

METHOD FOR PRODUCING BLANK FOR WIDE FLANGE BEAM

Yoshiaki Kusaba, Ibaraki, Japan, assignor to Sumitomo Metal Industries, Ltd., Osaka, Japan

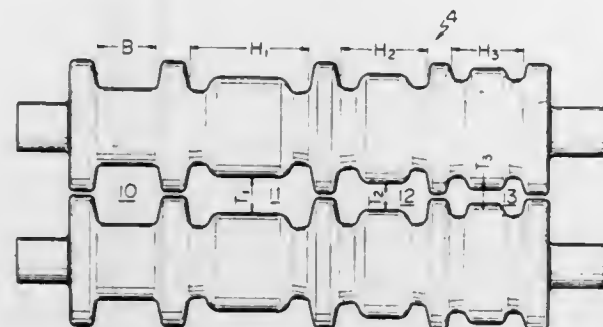
Filed Nov. 21, 1980, Ser. No. 209,299

Claims priority, application Japan, Dec. 29, 1979, 54-172089

Int. Cl.³ B21B 1/08

U.S. Cl. 72-221

3 Claims



1. A method for producing a blank for a wide flange beam, said method comprising:

forming a box caliber, at least one forming caliber and a sizing caliber by a pair of rolls of a break-down mill; providing a flat slab as raw material with said flat slab having a rectangular ratio of width to thickness of from 3 to 6;

conducting a former stage of a rolling process by edging said raw material by said box caliber with the widthwise dimension of said material maintained vertically until the total reduction of said width is 30%, and then reducing said material, mainly in a web portion thereof, by said forming caliber, with the widthwise dimension of said web maintained horizontally, into a dog-bone-shaped workpiece having a rectangular ratio which substantially is equal to that of said raw material;

conducting a latter stage of said rolling process by edging said workpiece to reduce the width thereof by said box caliber with said web maintained vertically, and web-rolling said workpiece to reduce the thickness of said web by said sizing caliber with said web maintained horizontally, thereby forming said workpiece into a desired blank for a flange beam and providing said forming and sizing calibers to be sequentially smaller in width.

4,393,680

METHOD FOR ROLLING RAILS

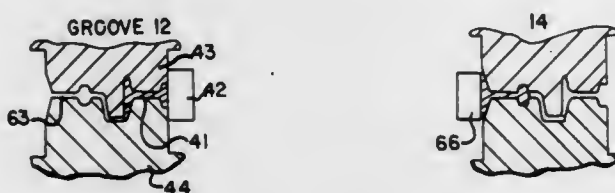
Daniel C. Kovacs, Pittsburgh, Pa., assignor to SMS Schloemann-Siemag, Inc., Pittsburgh, Pa.

Filed Jul. 30, 1981, Ser. No. 288,413

Int. Cl.³ B21B 31/08

U.S. Cl. 72-234

10 Claims



1. A method of hot-rolling elongated workpieces to form a rail or the like according to a schedule of roll passes in a rolling mill train which includes at least two rolling mill stands each

having a pair of horizontal rolls and at least one vertical roll, said method including the steps of:

providing each of said rolling mill stands with rolls defining two different roll-pass openings having preselected configurations to process a heated workpiece according to said schedule at only one of two different preselected locations in the rolling mill train, said vertical roll and a pair of horizontal rolls establishing one of the two different roll-pass openings in each rolling mill stand, rolling heated workpieces in a designated one of the two roll-pass openings in each of the rolling mill stands, replacing at least the horizontal rolls at one location with a pair of horizontal rolls after use at a different location to utilize an unused roll-pass opening at the previous location to process workpieces according to said schedule, and rolling additional heated workpieces in said unused roll-pass opening.

4,393,681

METHOD OF MANUFACTURING HERMETIC SEALING MEMBER

Masao Sakai, Mobara, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

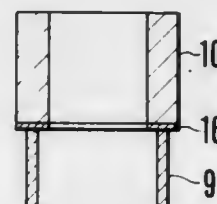
Filed Jul. 23, 1980, Ser. No. 171,643

Claims priority, application Japan, Jul. 23, 1979, 54-92674

Int. Cl.³ B21D 31/02

U.S. Cl. 72-329

6 Claims



1. A method of manufacturing a hermetic seal member including a metal cylinder, at least one end thereof being adapted to be soldered to another member to form a hermetic sealing structure, comprising the steps of deforming a metal plate into a cup-shaped member, pressing the periphery only of at least one end surface of said cup-shaped member to compress a portion of said end surface periphery into an annular flat concentric with the longitudinal axis of said cup-shaped member, and making a concentric cut through said end surface at a diameter which leaves a portion of said annular flat as the remainder of said end surface of said cup-shaped member.

4,393,682

FEED BAR DRIVING APPARATUS FOR A TRANSFER PRESS

Shozo Imanishi, Sagami, Japan, assignor to Aida Engineering, Ltd., Kanagawa, Japan

Filed Aug. 7, 1981, Ser. No. 290,969

Claims priority, application Japan, Mar. 6, 1981, 56-31963

Int. Cl.³ B21D 43/04, 43/05; B65G 25/02

U.S. Cl. 72-405

10 Claims

1. A feed bar driving apparatus for a transfer press having two parallel feed bars, comprising:

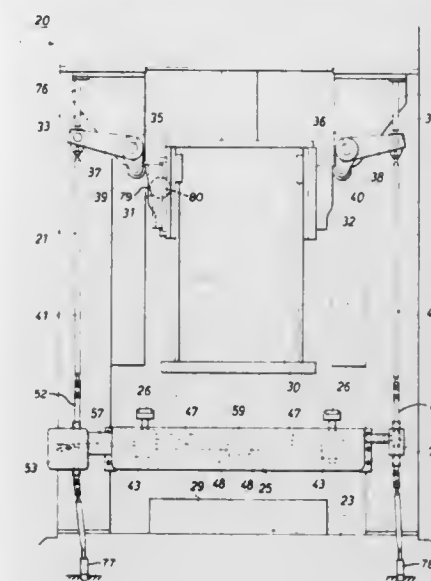
a pair of carriers located at each of the ends of the two parallel feed bars, said carriers each having vertically movable feed bar receptacles thereon for holding the feed bars for permitting them to slide freely in the direction of their length while restricting their movements in the lateral direction, the carriers in each pair being movable toward and away from each other for moving said feed bars in clamping and unclamping movements;

a rack mechanism between each pair of carriers and having a rack attached to each carrier, a pinion engaging each said rack, said pinions located at positions between the

corresponding carriers and the center of the space between the carriers, and an even number of idler gears connected between said pinions, for driving said pinions in opposite directions of rotation;

a cam carrying slide member reciprocally slidable on said press;

a reciprocating mechanism connected to one of said carriers in each pair and having a reciprocal motion producing cam on said slide member, reciprocating cam follower means actuated by said cam, and a connecting rod connected between said cam follower means and said one carrier for reciprocatingly driving said one carrier from the reciprocating sliding movement of said slide;



an elevating mechanism for said feed bar receptacles in each pair of carriers and having a splined shaft extending through both carriers in each pair and along which said carriers are slidable, an elevating plate in each carrier supporting the corresponding feed bar receptacle, a link means in each carrier connected between said splined shaft and said elevating plate for raising and lowering said elevating plate when said splined shaft is rotated; and

a rotation producing mechanism for each splined shaft and having a rotation producing cam on said slide member, rotation cam follower means actuated by said rotation producing cam, and a pinion on said splined shaft to which said rotation cam follower means is connected.

4,393,683

TRACTION DRIVE FOR FORGING MANIPULATORS

Werner Foltz, Mettmann, and Erwin Kost, Meerbusch, both of Fed. Rep. of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

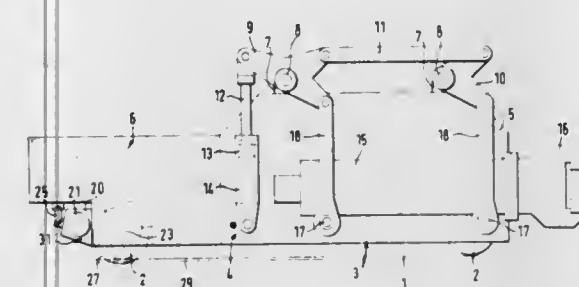
Filed May 27, 1981, Ser. No. 267,701

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1980, 3021519

Int. Cl.³ B21J 13/10

U.S. Cl. 72-422

6 Claims



1. A forging manipulator comprising: a chassis; rail wheels rotatably mounted on said chassis for supporting the chassis so that said chassis can travel forwards and rearwards on rails, said chassis having a forward part and a rear part and forward rail wheels and rear rail wheels mounted respectively thereon;

manipulating means mounted on the forward part of the chassis; laterally spaced side members on the rear part of said chassis; and a chassis drive unit mounted on the rear part of the chassis comprising, a transmission casing, a traction motor mounted on said casing, an output shaft extending from the transmission casing, bearing means for rotatably supporting said shaft on said casing, transmission means in said casing operably connecting said motor to said output shaft, a toothed wheel on said output shaft mounted directly adjacent said shaft bearing means for meshing with a stationary rack for moving said manipulator chassis along said rack and rails by said motor, said toothed wheel and output shaft being coaxial with respect to said rear rail wheels, transmission casing bearing means mounted on said side members in which the output shaft bearing means are journaled, and torque-absorbing means connecting said transmission casing to the rear part of the chassis.

4,393,684

PRESS HAVING A LINKAGE MECHANISM CONNECTABLE AND DISCONNECTABLE FROM A RAM

David M. Hansen, Dublin, and Richard B. Ernest, Richboro, both of Pa., assignors to Penn Engineering & Manufacturing Corp., Danboro, Pa.

Filed Feb. 12, 1981, Ser. No. 233,942

Int. Cl.³ B21J 9/18

U.S. Cl. 72-451

9 Claims



1. A press for assembling a fastener or the like to a plate or the like comprising

a frame, an anvil assembly carried by said frame, a toggle mechanism assembly carried by said frame and including two toggle links movable between retracted and extended positions,

a ram operatively connectable to said toggle links, said toggle mechanism assembly when in said extended position being in contact with said ram and when said toggle mechanism assembly is in said retracted position being out of contact with said ram,

punch means connected to said ram, pneumatic means for retracting and extending said toggle links and applying a force to said ram when one of said toggle links is in contact with said ram,

said pneumatic means including a first pneumatic cylinder and piston assembly for holding said ram in a raised position, first pneumatic switch means for terminating the flow of

pressurized air to said first pneumatic cylinder, thereby permitting said ram and punch means to descend by gravity to a lower position, second pneumatic switch means activated after a sufficient descent of said ram and punch means toward said lower position, and a second pneumatic cylinder piston and assembly operatively connected to said second pneumatic switch means for extending and retracting said toggle links, whereby when said toggle links are extended and one of said toggle links is in contact with said ram a force sufficiently high to insert said fastener into said plate is applied by said toggle links to said ram and when said toggle links are retracted and one of said toggle links is out of contact with said ram no force is applied by said toggle links to said ram and said ram is permitted to descend and rise without contacting said toggle mechanism assembly.

4,393,685

TOOL ATTACHING DEVICE FOR PRESSES

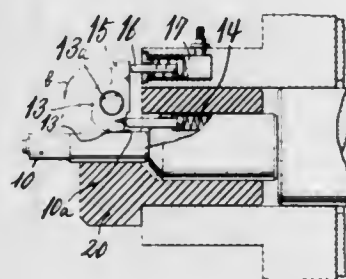
Yoshikazu Sakamura, 56, Kitamomodani-Cho, Minami-Ku, Osaka-Shi, Japan

Filed Feb. 23, 1981, Ser. No. 237,409

Int. Cl.³ B21J 13/02

U.S. Cl. 72—481

4 Claims



1. A device for attaching a tool to a press, comprising:
 - (1) means for withdrawingly holding a tool therein, the tool inserted therein in a first direction;
 - (2) means, including a pressing member having an eccentric portion for preventing the tool when held in said holding means from slipping out of said holding means while in contact with the peripheral surface of the tool, pivotally mounted on said holding means and openly positioned for pivotal movement in a circumferential direction during insertion of the tool, for engaging the tool at said eccentric portion in biting contact therewith when the tool is held in said holding means, so as to exert a force thereon in a second direction opposite said first direction, said pressing member being provided with an unlocking lever including an elongated member;
 - (3) spring means for elastically biasing said pressing member in said second direction; and
 - (4) a fluid driven power pusher engagable with said elongated member for pivoting said unlocking lever in said circumferential direction against the bias of said spring means to pivot said pressing member to pivot said eccentric portion in said first direction so as to disengage said eccentric portion from the tool so that the tool can be withdrawn from said holder in said second direction; said elongated member being disengagable from said power pusher, whereby said pressing member can be pivoted in said circumferential direction by manually pivoting said elongated member to disengage said eccentric portion from the tool.

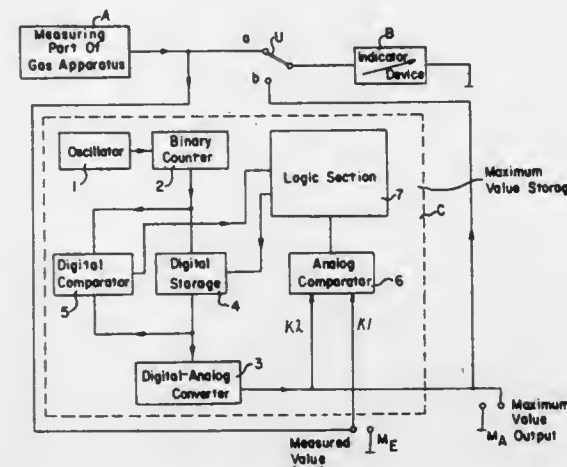
4,393,686
CIRCUIT ARRANGEMENT FOR A GAS MEASURING AND GAS ANALYSIS APPARATUS
Hans-Jörg Fengler, Berlin, Fed. Rep. of Germany, assignor to Auergesellschaft GmbH, Berlin, Fed. Rep. of Germany
Filed Aug. 31, 1981, Ser. No. 298,015

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1980, 3031555

Int. Cl.³ G01N 31/00

U.S. Cl. 73—23

5 Claims



1. A circuit arrangement for an apparatus for measuring and analyzing gases and consisting of a measuring part with an indicating and warning device, characterized by the provision of:

- (a) a binary counter which is acted upon by an oscillator and which is connected to a digital-analog converter through a digital storage,
- (b) a digital-comparator connected for comparing the binary values of the counter output from the binary counter and the input to the digital-analog converter,
- (c) an analog comparator which is connected to a measured-value input from the measuring part and to a maximum value output of the digital-analog converter, the analog comparator connected to a digital section and adapted for actuating the digital logic section such that said logic section opens and closes the digital storage, and
- (d) a chargeover switch located between the measuring part and the indicating device and connected for switching the maximum value output to the measured value input on the input of said indicating device.

4,393,687

SENSOR ARRANGEMENT

Klaus Müller, Tamm; Ernst Linder, Mühlacker, and Helmut Maurer, Schwieberdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 9, 1980, Ser. No. 214,481

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001711

Int. Cl.³ G01L 23/22; H01T 13/48

U.S. Cl. 73—35

7 Claims

1. Engine knock sensor arrangement to detect oscillations arising upon knocking in an internal combustion engine due to undesired progress of the course of combustion within a combustion chamber thereof, said engine having a cylinder head seal (35); and comprising sensing means including a pair of light guide fibers or filaments (36, 37; 38, 39) positioned within the cylinder head seal; light guide means in optically coupled relation with respect to said light guide fibers or filaments; and photoelectric evaluation means (412) connected to said light guide means for photoelectric evaluation of light sensed by said light guide fibers or filaments.

4,393,688

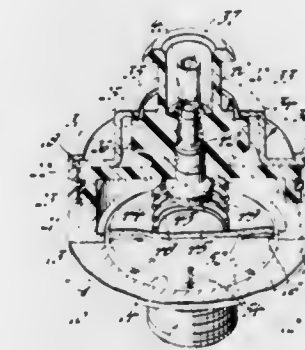
PIEZOELECTRIC KNOCK SENSOR

Daniel U. Johnston, and George A. Shinkle, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 19, 1981, Ser. No. 322,989

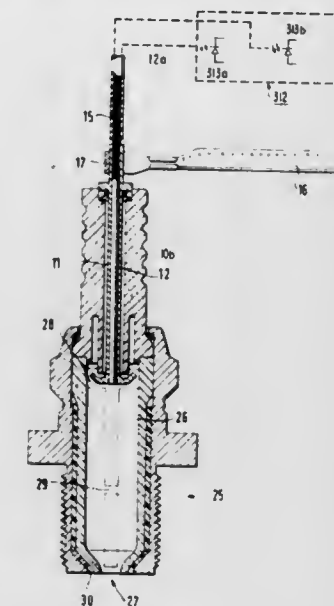
Int. Cl.³ G01L 23/22

U.S. Cl. 73—35

2 Claims



5. Combined spark plug and optical sensor structure having an electrical or sparking portion and an optical combustion observation portion to determine oscillations occurring upon knocking of an internal combustion engine having a housing (10) forming a ground or chassis electrode for the electrical portion, and having a spark gap ground electrode (10a) secured thereto;
- a metal tube (11) extending centrally within the housing and forming a center electrode of the sparking portion terminating adjacent the ground electrode, and spaced therefrom by a spark gap;
- a light guide element (12) located within the metal tube and terminating essentially even with the end of the tube adjacent the spark gap, but short of the end of the tube at the other end thereof;
- an insulator (10b) located between said center electrode metal tube and the housing, electrically separating the



1. A knock sensor for an internal combustion engine comprising, in combination:

- a mounting element adapted for rigid attachment to the engine;
- a flexing plate supported on the mounting element and adapted to execute plate vibrations in response to knock events in the engine, the plate having a surface comprising a plurality of raised radial ridges;
- a piezoelectric disk affixed to the surface of the plate for flexure with vibrations thereof in abutment with the radial ridges by means of an adhesive substance between the raised radial ridges, said ridges providing internal electrical ground contact for one surface of the piezoelectric disk through the plate, mounting element and engine, as well as strain transmission between the plate and the disk;
- a cover affixed to the periphery of the plate, the cover including an electric output terminal; and
- spring means compressed between the cover and the other surface of the piezoelectric disk, said spring means being in electrical contact with the electric output terminal, the radial arrangement of said ridges permitting radial outflow of excess adhesive to permit the spring means to force the piezoelectric element into contact with said ridges, whereby good internal electrical ground contact in the sensor is assured.

4,393,689

DEVICE FOR DETERMINING PHYSICAL CHARACTERISTICS OF A FLUID, SUCH AS ITS LIQUID-VAPOR EQUILIBRIUM PRESSURE

Henri Renon, Paris, and Dominique Richon, Aulnay-sous-Bois, both of France, assignors to Institut Français du Pétrole, Rueil-Malmaison and Association pour la Recherche et le Développement, Paris, both of France

Filed Apr. 16, 1981, Ser. No. 254,722

Claims priority, application France, Apr. 16, 1980, 80 08568

Int. Cl.³ G01N 7/14

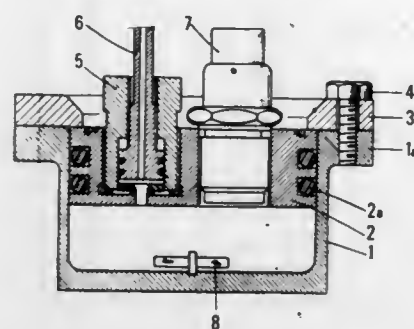
U.S. Cl. 73—64.2

10 Claims

1. A device for determining physical characteristics of a fluid, such as its liquid-vapor equilibrium pressure or its volumetric mass, said device comprising in combination:
 - (a) a removable compact cell (1) adapted for being accurately weighed, said cell (1) comprising means (6) for introducing the fluid and means (8,9) for homogenizing and stirring the fluid contained therein, at least one measuring gauge (7), and said cell having a slidable wall (2);
 - (b) a pressurizing unit (10) adapted for having its temperature controlled, and provided with a housing (19) for receiving said removable cell (1); and
 - (c) means for reducing the internal volume of said cell (1)

housing and the metal tube and supporting the metal tube, and the light guide element therein, within the housing; a light pick-up surface (13, 20) formed at the end of the light guide element; and a light guide cable (15) having an optical coupling surface positioned in optically coupled relation with respect to the light guide element (12) and located within the end portion of the metal tube (11) remote from the spark for connection of optical signals derived from the light guide element to an electrical evaluation circuit (112); wherein the spark plug comprises an ante-chamber (26); and wherein the light guide element comprises a light guide element portion (12a) recessed with respect to the end portion of said tube (11) and a further light guide portion (12b) terminating essentially flush with the end of said tube (11) to provide two different viewing apertures for the respective light guide element portions.

comprising calibrated compression means (33) associated with said pressurizing unit (10) and operatively associated



with said slidable wall (2) of said cell (1) for compressing the fluid contained therein.

4,393,690

FORCE BALANCING TECHNIQUES FOR COMPLEX CYCLICALLY MOVING PLANAR LINKAGES

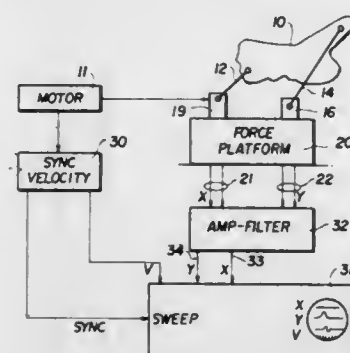
Gerard G. Lowen, Wyckoff, and Stephen J. Tricamo, Norwood, both of N.J., assignors to Research Foundation of the City University of New York, New York, N.Y.

Filed May 12, 1981, Ser. No. 262,826

Int. Cl.³ G01M 1/22

U.S. Cl. 73-66

32 Claims



1. The method of fully force balancing cyclically moving planar n-bar linkages to reduce residual shaking forces comprising the steps of,
cyclically moving the planar linkage through its movement cycle,
determining during the cyclic movement in the plane of movement the shaking forces (F_s) along a set of two coordinates, such as the x and y axes, for a plurality of angular sensing positions in the movement cycle,
determining the angular position and angular velocity of the input link at said plurality of positions to thereby provide a plurality of sets of data,
and establishing from the plurality of sets of data determining the shaking forces at the plurality of sensing positions with the help of the balancing equations the required corrective mass and location of counterbalance structure for reducing the shaking forces F_s of both fundamental frequencies and harmonics of the cyclic movement.

4,393,691

RAIL VEHICLE FOR TRACK INVESTIGATION

Hermann D. Koehne, Printroper Str. 555, D-4300 Essen 11, Fed. Rep. of Germany

Filed Sep. 11, 1981, Ser. No. 301,365

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1980, 3034704

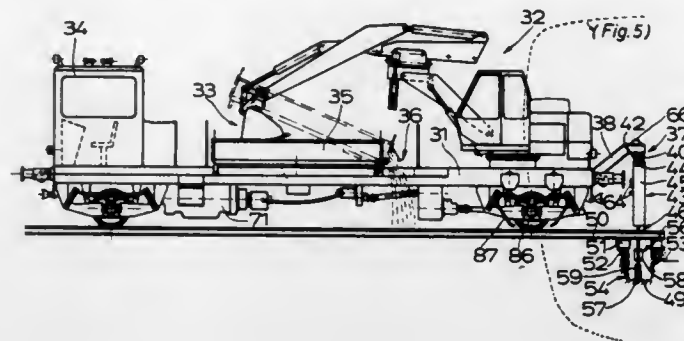
Int. Cl.³ G01N 3/42

U.S. Cl. 73-84

24 Claims

1. Rail vehicle for track investigation comprising means attached to said vehicle for removing supporting material of the track disposed below the rail level;

a support provision attached to the rail vehicle;
a test unit attached to the support provision including:
a frame supported by the support provision;
a pressure plate held by the frame and capable of being lowered down and lifted up and disposed in its upper rest



position such that it is at a level above the track region for preventing interference with line travel and capable of being lowered down to below the formation level; and
a pressure piston adapted to an opening in said pressure plate and capable of substantially vertical motion relative to the pressure plate for pressing into the subgrade to be tested.

4,393,692

STATIC PRESSURE PROBE AND METHOD

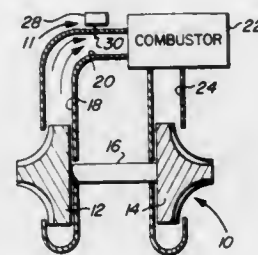
Walter L. Clark, Scottsdale, and Trevor G. Sutton, Tempe, both of Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Feb. 21, 1978, Ser. No. 879,542

Int. Cl.³ G01L 7/00

U.S. Cl. 73-115

18 Claims



1. A probe for use in measuring static pressure of an air-stream comprising:
a flow pickup tube having an open end disposed in a downstream direction relative to said airstream, said open end presenting an orifice of preselected size; and
a protective hood carried with said tube in surrounding relationship to said open end of the tube, said hood being substantially larger than said tube and having an open distal end disposed downstream of said orifice and presenting an opening communicating with said airstream, said opening being at least twice as large as said orifice.

4,393,693

APPARATUS AND METHOD FOR DETECTING CRANK SHAFT ORIENTATION AND VALVE ASSEMBLY IN AN INTERNAL COMBUSTION ENGINE

Tadashi Naito, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jan. 21, 1981, Ser. No. 226,544

Claims priority, application Japan, Jan. 22, 1980, 55-5980

Int. Cl.³ F02P 17/00; G01M 15/00

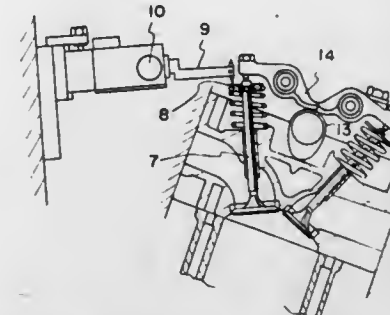
U.S. Cl. 73-116

8 Claims

4. A method for automatically inspecting a multi-cylinder four-cycle internal combustion engine having a crankshaft; a piston, an intake valve, and an exhaust valve for each cylinder, each being operatively coupled to the crankshaft; and a mem-

ber rotatable with the crankshaft and having a detectable angular index, wherein the method comprises:

- turning the crankshaft of such an engine;
- detecting when the index on the rotatable member reaches a predetermined angular position corresponding to a top dead center position of a preselected piston;



- simultaneously measuring the positions of a plurality of preselected valves when the index is detected at the top dead center position; and
- distinguishing in response to the displacement values of the plurality of preselected valves whether the preselected piston is at its compression top dead center position or its exhaust top dead center position.

4,393,694

VEHICLE STEERING AND FRONT-END ALIGNMENT DEFECT DETECTOR

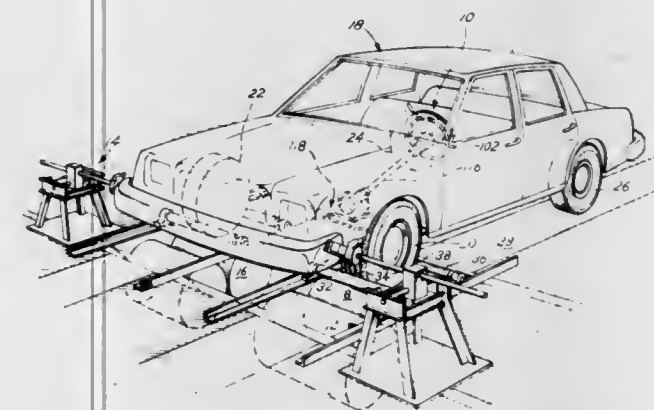
John A. Marten, Wauconda; Donald Legler, Fort Wayne, and Jesse W. Wagoner, Dundee, all of Ill., assignors to Sun Electric Corporation, Crystal Lake, Ill.

Filed May 18, 1981, Ser. No. 264,647

Int. Cl.³ G01M 15/00

U.S. Cl. 73-117

16 Claims



1. An apparatus for detecting defects in vehicles having a front portion with a first side and a second side, a rear portion, at least two front wheels rotatably mounted in said front position, rear support means for mobile support of said rear portion, and steering means for steering said front wheels, said steering means including a steering rod rotatable around an axis of rotation, a steering wheel rotatably mounted about said axis of rotation and connected to said steering rod, and connecting means for steerably connecting said steering rod to said front wheels, said steering wheel being in a center position when said wheels are aligned for forward motion of said vehicle, said apparatus comprising:

wheel rotating means for rotating each of said front wheels of said vehicle when said steering wheel is turned through a relatively small angle of rotation to urge the front portion of the vehicle to move in the direction of the vehicle's first or second side;
first retaining means for retaining said first side of said vehicle from movement in the direction of the vehicle's first side, said first retaining means having a first urging force determining means for determining a first value of urging force exerted by said vehicle on said first retaining means

when said steering wheel is rotated about the axis of rotation from said center position through a relatively small first angle of rotation to urge the first side of the vehicle against said first retaining means;

a second retaining means for retaining said second side of said vehicle from movement in the direction of the vehicle's second side, said second retaining means having a second urging force determining means for determining a second value of urging force exerted by said vehicle on said second retaining means when said steering wheel is rotated about the axis of rotation from said center position through a relatively small second angle of rotation to urge the second side of the vehicle against said second retaining means;

angular rotation measuring means for measuring the angular rotation of said steering wheel about the rotational axis of said steering wheel about the rotational axis of said steering rod whereby said first and second angles of rotation of said steering wheel can be made to be approximately equal in magnitude; and

rotational force measuring means for measuring the force or torque exerted on said steering wheel during rotation of said steering wheel about the rotational axis of said steering rod and whereby a first value of rotating force can be obtained when the steering wheel is rotated through said first angle of rotation and a second value of rotating force can be obtained when the steering wheel is rotated through said second angle of rotation, so that the first and second urging force values and the first and second rotating force values can be mathematically compared to determine if a steering or front-end alignment defect exists in the auto.

4,393,695

MANUAL SHIFT SYSTEM AND METHOD OF USE FOR VEHICLE TESTING

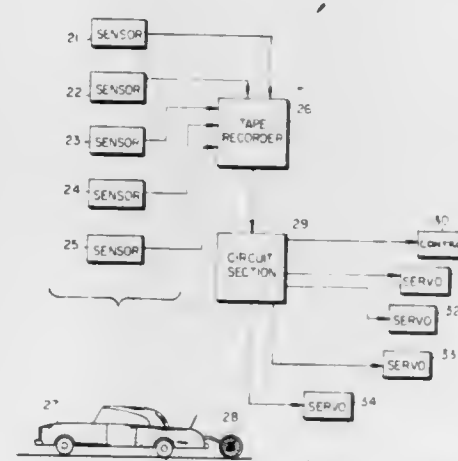
Richard A. Marshall, and Edward F. Miller, both of Indianapolis, Ind., assignors to Laboratory Equipment Corp., Mooresville, Ind.

Filed Sep. 29, 1980, Ser. No. 191,868

Int. Cl.³ G01M 15/00

U.S. Cl. 73-117.3

6 Claims



1. A remote, manual shift system cooperatively arranged with the clutch linkage and gear shift stick of a manual transmission vehicle for use during vehicle testing, said manual shift system comprising:

a manual transmission test vehicle;
means for generating a DC voltage signal;
a first sensor assembly coupled to the throttle linkage of said vehicle and suitably arranged to respond to throttle linkage movements;
a second sensor assembly coupled to the clutch linkage of

said vehicle and suitably arranged to respond to clutch linkage movements;

- a dual rotary sensor assembly coupled to the gear shift stick of said vehicle, said dual rotary sensor assembly suitably arranged to record the X-axis component of the movement of the gear shift stick by first sensor means and the Y-axis component of the movement of the gear shift stick by second sensor means, said dual rotary sensor assembly thereby providing real-time position information of the gear shift stick;
- a clutch actuator subassembly mechanically coupled to the clutch linkage of said vehicle and suitably arranged to respond to a DC voltage signal from said generating means in order to move said clutch linkage;
- a throttle actuator subassembly mechanically coupled to the throttle linkage of said vehicle and suitably arranged to respond to a DC voltage signal from said generating means to move said throttle linkage;
- a gear shift actuator subassembly mechanically coupled to the gear shift stick of said vehicle and suitably arranged to respond to a DC voltage from said generating means signal to move said gear shift stick;
- data recording and processing means electrically coupled to said first and second sensor assemblies and to said dual rotary sensor assembly; and
- said gear shift actuator subassembly including a DC drive system, a linkage arm and a ball screw assembly suitably arranged for converting rotary motions from said DC drive system into linear travel of said linkage arm, said DC drive system disposed within said vehicle and being suitably adapted to respond to data input signals from said data recording and processing means for duplicating the real-time position movements of said gear shift stick.

4,393,696

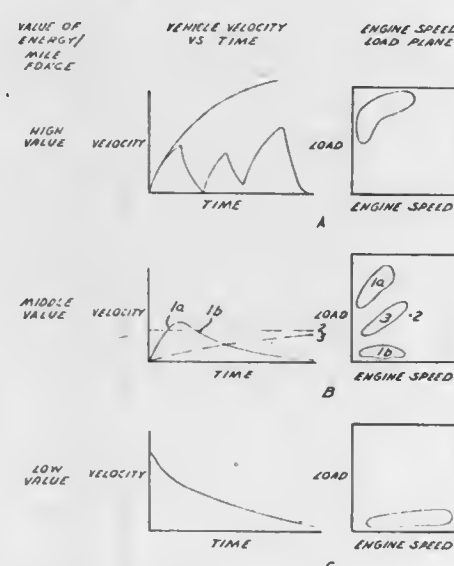
METHOD FOR GENERATING ENERGY OUTPUT SIGNAL

Frederick G. Willis, Ann Arbor; Richard R. Radtke, Plymouth; Joseph Ellison, Detroit, and Steven R. Fozo, Westland, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Jul. 20, 1981, Ser. No. 284,861

Int. Cl.³ G01M 15/00

U.S. Cl. 73—117.3

11 Claims



1. A method of generating an energy output signal for use in controlling the performance of a spark ignited automobile internal combustion engine, said method including the steps of: generating a short term energy output average during a relatively short duration length of time; generating a medium term energy output average during a medium duration length of time, said medium duration being longer than said short duration; generating a long term energy output average during a

relatively long duration of time, said long duration being longer than said medium duration; generating an estimated future energy output by combining a weighted sum of the short term, medium term and long term energy outputs, the weighting being a coefficient A for the short term output, a coefficient B for the medium term output and a coefficient C for the long term output.

4,393,697

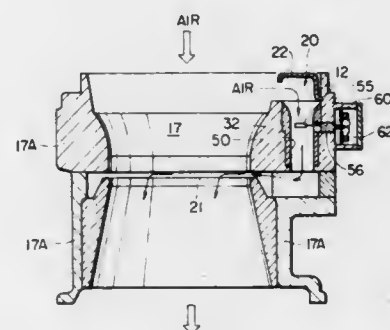
AIR FLOW RATE MEASURING APPARATUS
Kanemasa Sato; Sadayasu Ueno, and Kazuhiko Miya, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 30, 1981, Ser. No. 229,838

Claims priority, application Japan, Jan. 31, 1980, 55-11345

Int. Cl.³ G01M 15/00

U.S. Cl. 73—118

15 Claims



1. An air flow rate measuring apparatus for internal combustion engines, comprising an air flow sensor disposed in a passage through which intake air flows into said engine, and a temperature sensor disposed in said passage and adapted to compensate the temperature of said air flow sensor with respect to the measurement of the flow rate of said intake air, said air flow sensor and said temperature sensor being arranged in the same plane which is at right angles to the direction in which said intake air flows, wherein said air flow sensor and said temperature sensor are fixed at their respective end portions by conductive support pins having the same surface area and the same heat capacity.

4,393,698

DEVICE FOR MEASURING HOLLOW CYLINDER SURFACES

Ludwig Pietzsch, Im Rosengärtle 14, D-7500 Karlsruhe 41, Fed. Rep. of Germany; Knud Overlach, Ettlingen, and Manfred Wamser, Karlsruhe, both of Fed. Rep. of Germany, assignors to Ludwig Pietzsch, Karlsruhe, Fed. Rep. of Germany
Filed Jun. 22, 1981, Ser. No. 276,159

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1980, 3024331; Oct. 3, 1980, 3037519

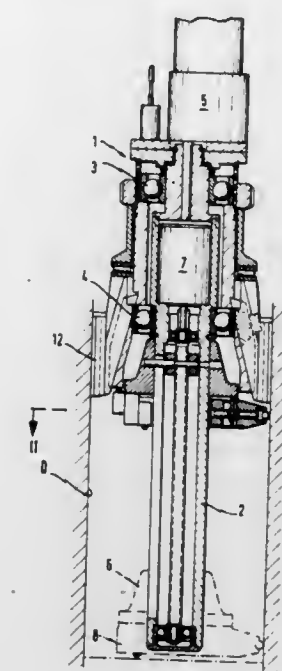
Int. Cl.³ G01M 15/00

U.S. Cl. 73—118

14 Claims

1. Apparatus for measuring the inner surface of a generally cylindrical bore, comprising:
 - (a) a housing (1) adapted for insertion within the bore;
 - (b) clamping jaw means (12) for clamping said housing within the bore;
 - (c) a longitudinal measuring arm (2) rotatably connected with said housing for rotation about, and extending longitudinally of, the bore axis;
 - (d) first drive means (5) for rotating said arm relative to said housing;
 - (e) a measuring head (8) connected with said measuring arm for axial displacement along the length thereof;
 - (f) second drive means (7) for axially displacing said measuring head relative to said arm;
 - (g) sensor means (9) connected for radial displacement relative to said measuring head;
 - (h) spring means (21) biasing said sensor means radially outwardly relative to said head toward a position in engagement with the inner surface of the bore; and

- (i) means responsive to the deflection of said spring for generating an electrical signal corresponding with the



radial displacement of said sensor means relative to said measuring head, thereby to afford an indication of the inner surface contour of the bore.

4,393,699

PNEUMATIC ADHESION TESTER

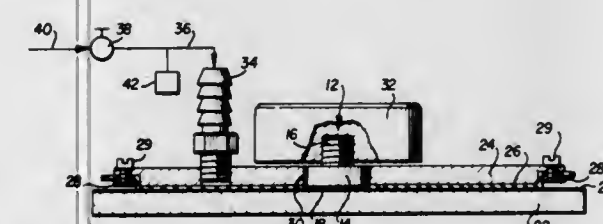
James F. N. Seiler, Jr., Frederick, Md., assignor to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Jun. 11, 1981, Ser. No. 272,231

Int. Cl.³ G01N 19/08

U.S. Cl. 73—150 A

4 Claims



1. A pneumatic adhesion tester comprising:
 - a fixture having a bonding surface adapted to be bonded to a coated or uncoated substrate,
 - a plate and a membrane sealed together solely along their outer peripheries, said membrane being adapted to directly contact said coated or uncoated substrate,
 - a hole extending through said membrane and at least into said plate for receiving said fixture so that said bonding surface is substantially flush with said membrane,
 - means for introducing a pressurized gas between said plate and membrane, said membrane having said hole being adapted to be thereby pressed into gas-tight contact with said coated or uncoated substrate, said bonding surface remaining flush with said membrane until the bonding surface separates, and
 - means for measuring the pressure of said gas introduced between said plate and membrane.

4,393,700

PROCESS AND TEST SPECIMEN FOR DETERMINING THE ADHESION TO GLASS OF INTERLAYERS FOR LAMINATED GLASS BY THE TENSILE SHEAR TEST
Klaus Fabian, Krieffel, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

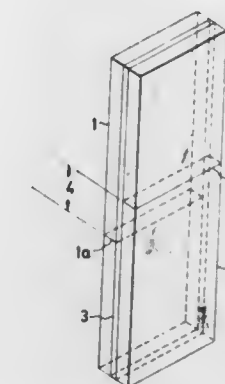
Filed Oct. 9, 1981, Ser. No. 310,072

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1980, 3038449

Int. Cl.³ G01N 3/24

U.S. Cl. 73—150 A

4 Claims



1. A process for determining the adhesion to glass of interlayers for laminated glass by the tensile shear test, which comprises subjecting to a tensile strain a substantially parallelepiped-like test specimen consisting of laminated glass, the individual sheets of glass of which are divided to form an obtuse fracture, the edges of the fractures facing the interlayer being staggered, and determining the minimum force required to detach the interlayer from the individual sheets of the glass laminate.

4,393,701

YARN TESTER SYSTEM

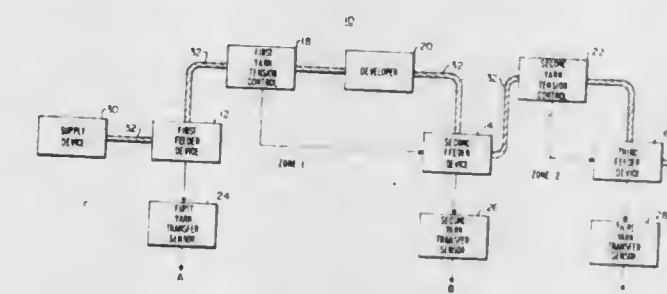
John B. Lawson, Providence, R.I., assignor to Lawson-Hemphill, Inc., Central Falls, R.I.

Filed Jan. 29, 1982, Ser. No. 344,066

Int. Cl.³ G01L 5/04

U.S. Cl. 73—160

32 Claims



1. A yarn tester system comprising:
 - heater means for inducing a change in length of yarn to be tested;
 - first means for feeding yarn to be tested to said heater means at a first predetermined tension;
 - first means for sensing a function of the amount of yarn transferred by said first means for feeding;
 - second means for feeding yarn for receiving yarn from said heater means;
 - second means for sensing a function of the amount of yarn transferred by said second means for feeding;
 - third means for feeding yarn for receiving yarn from said second means for feeding;
 - third means for sensing a function of the amount of yarn transferred by said third means for sensing;
 - first yarn tension control means for establishing a second predetermined tension on said yarn between said first and second means for feeding and controlling the speed of said

second means for feeding to maintain said second predetermined tension;

second yarn tension control means for establishing a third predetermined tension on said yarn between said second and third means for feeding and controlling the speed of said third means for feeding to maintain said third predetermined tension; and

means, responsive to said first, second, and third means for sensing, for determining fiber shrinkage and recovery of the yarn which has been transferred between the first, second, and third means for feeding.

4,393,702

GAS FLOW MEASURING DEVICE

Tokio Kohama, Nishio; Hideki Obayashi, Okazaki; Hisasi Kawai, Toyohashi, and Tsuneyuki Egami, Aichi, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

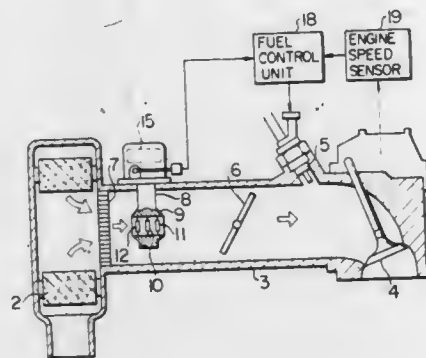
Filed Mar. 11, 1981, Ser. No. 242,563

Claims priority, application Japan, Mar. 21, 1980, 55-36614; May 14, 1980, 55-64427

Int. Cl.³ G01F 1/68

U.S. Cl. 73-204

9 Claims



1. A gas flow measuring device comprising:
 pipe means for directing flow of a gas whose flow rate is to be measured;
 an electric heater disposed within said pipe means;
 a first temperature dependent resistor disposed within said pipe means downstream of said electric heater;
 a second temperature dependent resistor disposed within said pipe means, at a position suffering substantially no influence of heat from said electric heater;
 each of said first and second temperature dependent resistors and said electric heater includes a resistance wire of a platinum alloy;
 wherein platinum is alloyed with a metal chosen from the group consisting of rhodium, iridium, palladium, ruthenium, and nickel;
 a measuring circuit connected to said first and second temperature dependent resistors and to said electric heater to generate an output voltage indicative of the flow rate of the gas depending on the resistance values of said first and second temperature dependent resistors, said measuring circuit including at least two reference resistors constituting a bridge circuit together with said first and second temperature dependent resistors; and
 each of said at least two reference resistors of said bridge circuit including a film resistor deposited on an insulating base.

4,393,703

SEALING ASSEMBLY FOR FURNACE PROBE BORE

Werner Schneider, Siegen, Fed. Rep. of Germany, assignor to Dango & Dienenthal Maschinenbau GmbH, Siegen, Fed. Rep. of Germany

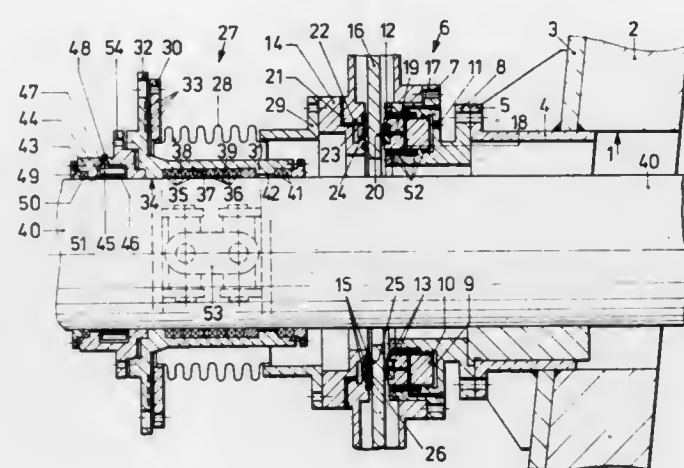
Filed Dec. 8, 1980, Ser. No. 213,917

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950672

Int. Cl.³ G01N 1/22; G01D 21/02

U.S. Cl. 73-432 R

11 Claims



1. An attachment for a bore in the shaft wall of a blast furnace through which a blast furnace probe is received comprising, stop valve means, a sealing assembly, and a hose seal including an annular flexible element for slidably engaging said probe which bears against said blast furnace probe and which is connected to said sealing assembly.

4,393,704

GRAIN LOSS SAMPLING DEVICE

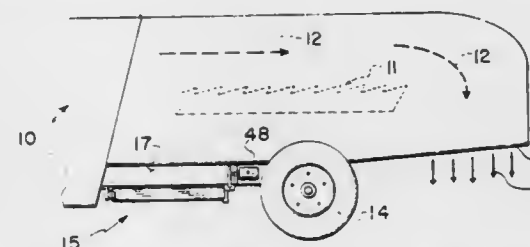
Richard Bartko, R.R. #1, North Battleford, Saskatchewan, Canada (S9A 2X3)

Filed May 4, 1981, Ser. No. 259,836

Int. Cl.³ A01D 43/00; A01F 12/00

U.S. Cl. 73-432 R

15 Claims



1. A grain loss sampling device for selectively sampling the discharge of a grain harvesting machine, said machine having a straw and chaff discharge across the rear thereof and a supporting framework extending forwardly therefrom; said sampling device comprising in combination a support frame pivotally securable by one end thereof in trailing relationship to said supporting framework of said grain harvesting machine upon the underside thereof and forwardly of said straw and chaff discharge, means to detachably support the other end of said support frame in a nonoperating position and to release said support frame to the operating position, and a drop box detachably held by said support frame, said drop box including sides and a base, said drop box being detachable from said support frame on to the ground therebelow and passing under said discharge when said support frame is in the operating position.

4,393,705

SPECIFIC GRAVITY LEVEL GAUGE AND METHOD

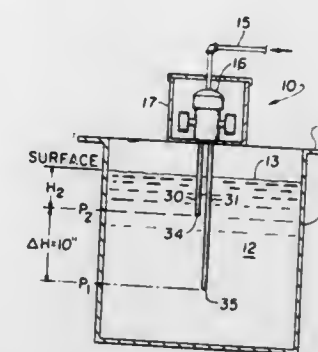
Charles D. Eidschun, Clearwater, Fla., assignor to Micro-Plate, Inc., Clearwater, Fla.

Filed Jul. 27, 1981, Ser. No. 287,246

Int. Cl.³ G01N 9/28

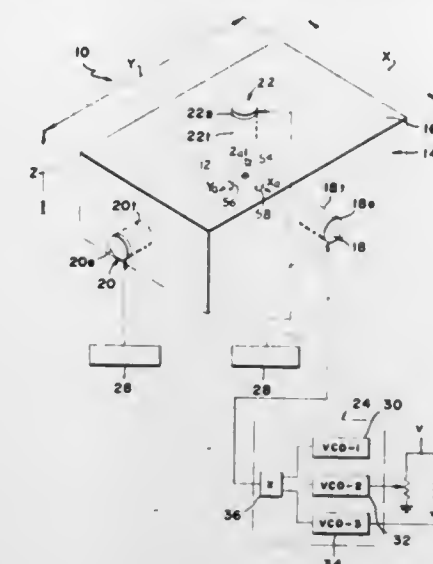
U.S. Cl. 73-439

5 Claims



1. A specific gravity and level gauge comprising, in combination,
 a pair of pipes for insertion into a liquid fluid having a variable level and variable specific gravity, the length of the pipes being predetermined to provide a head differential between the lower end of the shorter pipe and the lower end of the longer pipe,
 means for securing the pipes in essentially vertically oriented fashion with the liquid fluid to be measured,
 means for supplying a gaseous fluid into each of the pipes including a plenum to maintain a given head of gaseous fluid by slowly discharging the gas into the liquid fluid at the lower end portion of the pipes,
 a pair of gaseous fluid pressure chambers at the upper portion of the pipes,
 bleed holes for permitting a gaseous fluid to pass from the plenum into the gaseous pressure fluid chambers and thence to the pipes,
 and pressure transducer means for reacting the gaseous pressure fluid in the pressure chamber for the short pipe and the gaseous pressure fluid chamber for the long pipe.

third and fourth wavelengths, the first and third wavelengths being different, and the second and fourth wave-



lengths being substantially the same and of lower intensity than the first and third wavelengths.

4,393,707

FLUIDIC ANGULAR RATE SENSOR EMPLOYING IONIZED GAS

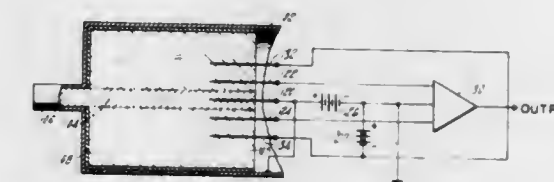
Carl M. Ferrar, East Hartford, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Oct. 2, 1981, Ser. No. 308,321

Int. Cl.³ G01P 15/08

U.S. Cl. 73-505

2 Claims



1. A fluidic angular rate sensor comprising:
 means for generating and directing a gas stream along an axis passing through a quantity of substantially stationary gas;
 means for creating ions over a predetermined region of said gas stream and said stationary gas;
 a center electrode positioned on said axis;
 ion-collecting means comprising at least two ion-collecting electrodes for collecting ions from said gas stream at least two positions displaced symmetrically from said axis by a first predetermined transverse distance in a first plane passing through said axis, to form first and second ion currents;
 a pair of compensating electrodes disposed symmetrically about said axis at a second predetermined transverse distance greater than said first predetermined transverse distance in said first plane, said pair of compensating electrodes being biased with respect to said center electrode by a bias amount such that ions are attracted from the vicinity of said ion-collecting electrodes toward said compensating electrodes, the amount of said bias being such that ion flow from said ion-collecting electrodes to said compensating electrodes is substantially equal to ion flow from said center electrode to said ion-collecting electrodes, whereby current flow common to both said ion currents is reduced;
 means for combining said first and second ion currents to form a signal representative of the difference between said ion currents.

4,393,706

SYSTEM FOR CONTROLLED ACOUSTIC ROTATION OF OBJECTS

Martin B. Barmatz, Glendale, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sep. 18, 1981, Ser. No. 303,672

Int. Cl.³ H02N 11/00

U.S. Cl. 73-505

11 Claims

1. Apparatus for levitating and controlling rotation of an object, comprising:
 means for applying acoustic energy along at least two perpendicular directions to a region which includes the object, with the energy along a first direction including energy of first and second wavelengths, and with the energy along the second direction including energy of

4,393,708

ACOUSTIC SYSTEM FOR MATERIAL TRANSPORT

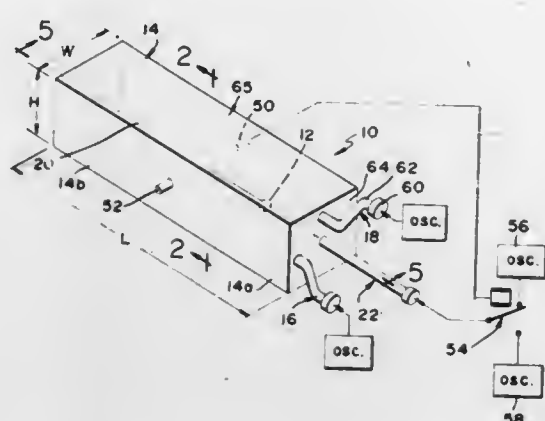
Martin B. Barmatz, Glendale; Eugene H. Trinh, Los Angeles; Taylor G. Wang, Glendale; Daniel D. Elleman, San Marino, and Nathan Jacobi, Pasadena, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 26, 1981, Ser. No. 314,929

Int. Cl.³ H02N 11/00

U.S. Cl. 73-505

9 Claims



1. A method for moving an acoustically positioned object within a chamber comprising: applying acoustic energy of a plurality of resonant modes along the same predetermined direction within said chamber, in sequence, to move the object between pressure wells established by said modes, wherein a first mode has a first pressure well and a second mode has pressure wells on initial and final opposite sides of said first pressure well; said step of applying acoustic energy including applying said first mode at a time when the object lies on said initial side of said first pressure well, to draw said object toward said first pressure well, and then applying said second mode while the object is moving toward said final side.

4,393,709

DIRECTION DETECTION APPARATUS

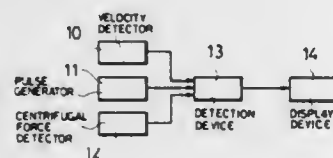
Masatoshi Harumatsu, Tamayama; Makoto Tomoyori, Iwate, and Noboru Tsushima, Morioka, all of Japan, assignors to Alps Electric Co., Ltd., Japan

Filed Nov. 12, 1981, Ser. No. 320,519

Claims priority, application Japan, Nov. 13, 1980, 55-159896
Int. Cl.³ G01C 19/58

U.S. Cl. 73-505

6 Claims



1. A direction detection apparatus comprising a centrifugal force detector including a weight and a detecting means for detecting a movement of said weight and generating a centrifugal force signal, a clock signal generator generating a time signal, a velocity detector generating a velocity signal, and a computation means connected to said force detector, clock signal generator and velocity generator to compute a directional angle on the basis of said centrifugal force signal, said time signal and said velocity signal.

4,393,710

ELECTROSTATIC ACCELEROMETER

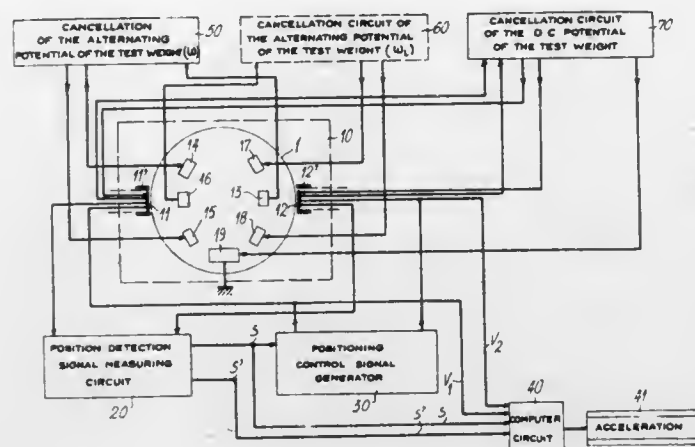
Alain M. Bernard, Fresnes, France, assignor to Office National d'Etudes et de Recherches Aerospatiales, Chatillon, France

Filed Nov. 27, 1981, Ser. No. 325,590

Claims priority, application France, Nov. 28, 1980, 80 25272
Int. Cl.³ G01P 15/125, 15/13

U.S. Cl. 73-517 B

9 Claims



1. Electrostatic accelerometer comprising: an electrically conducting test weight; a cage in which said test weight is located; a system of electrodes for suspending said test weight located in said cage at the points where the axes of a coordinate tri-rectangular trihedral meet the cage and associated by pairs of electrodes located along given coordinate axes of said trihedral, said electrodes forming with said conducting test weight pairs of variable capacitors, each pair relating to one coordinate axis; a least a measurement circuit of the capacities of a pair of electrodes relating to one coordinate axis; at least a generator of electrostatic positioning control signals of the test weight along said coordinate axis, driven by said measurement circuit and connected to the pair of electrodes relating to said coordinate axis; means for calculating the gradients of the measured capacities of said pair of electrodes; means for squaring said positioning control signals relating to said pair of electrodes; and means for multiplying said gradient by said squared signals.

4,393,711

APPARATUS AND METHOD FOR ULTRASONIC DETECTION OF FLAWS IN POWER PLANT PIPING SYSTEMS

Melvin E. Lapides, Mountain View, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Nov. 13, 1980, Ser. No. 206,627

Int. Cl.³ G01N 29/04

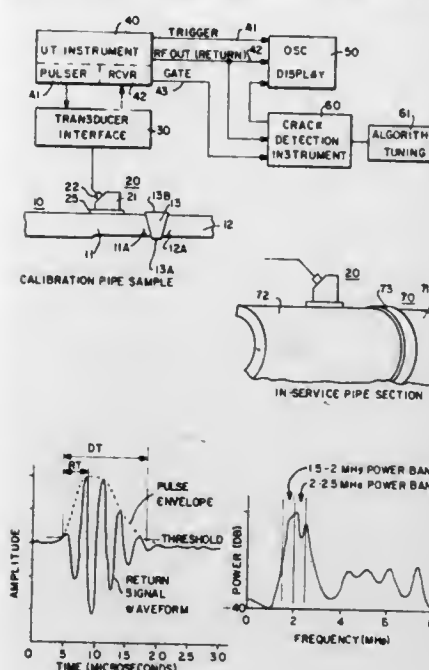
U.S. Cl. 73-592

6 Claims

1. In a method of in-service ultrasonic detection of a cracking condition in a pipe section of predetermined configuration, the steps of:

- (a) selecting a plurality of ultrasonic return signal features and a tunable algorithmic combination of the measured values thereof whose resultant value is useful in distinguishing return signals from a cracking condition and from geometric reflectors, said selection being based on prior ultrasonic examination studies on a plurality of pipe samples having a variety of known geometric reflectors and known cracking conditions;
- (b) providing a calibration pipe sample having a prearranged configuration with geometric reflectors substantially corresponding to said pipe section and at least one known cracking condition;
- (c) performing an ultrasonic examination of said calibration

pipe sample to measure the values of said selected return signal features while tuning said tunable algorithmic combination to optimize the capability of said algorithmic combination to distinguish return signals from said geometric reflectors and said known cracking condition;



- (d) performing an ultrasonic examination of said pipe section using the same selected return signal features and said tuned algorithmic combination of the values thereof to ascertain the presence or absence of a cracking condition therein.

4,393,712

PORTABLE LIQUID CRYSTAL TESTING DEVICE

Jaswinder S. Sandhu, Chicago, Ill., assignor to Raj Technology Partnership, Chicago, Ill.

Filed Sep. 8, 1981, Ser. No. 300,003

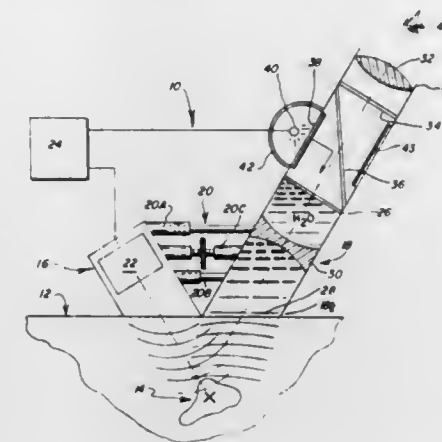
Int. Cl.³ G01N 29/00

U.S. Cl. 73-603

8 Claims

1. A portable device for inspecting bodies for internal flaws and for providing a visual image thereof which comprises: an ultrasonic transducer which emits ultrasonic energy for insonifying at least a portion of the body to be inspected; a liquid crystal display for receiving energy from the insonified body and for visually displaying an image thereof; and means for viewing the display; wherein the improvement comprises said device being constructed to rest on a surface, to be acoustically coupled to said surface, and to inspect for flaws or features beneath said surface, said device including: an assembly for separately but adjustably supporting said transducer and said liquid crystal display in reflection-receiving relation to each other, said assembly including: first housing means for supporting said transducer in relation to said surface;

second housing means for supporting said display in relation to said surface; and interconnecting means for adjustably interconnecting said first housing means and said second housing means in reflection-receiving relation to each other, said second housing means including: an elongated hollow tube with one end constructed to contact said surface and the other end constructed for viewing, with the liquid crystal display being positioned intermediate the ends of the second housing means, there being further provided:



means at the viewing end for optically viewing images developed by said display; means at the contacting end for acoustically coupling said second housing means to the surface; and acoustic transmission means for contacting the cell and the coupling means for carrying acoustic signals from the contact end of said housing to the cell; whereby when said device is placed on a surface, ultrasonic energy emitted from said transducer is projected into the body and reflections therefrom are received on said display through said coupling end and transmission medium for optical viewing.

4,393,713

DIGITAL PRESSURE-MEASURING DEVICE

Philippe Guillemot, Paris, France, assignor to Mecilec, Paris, France

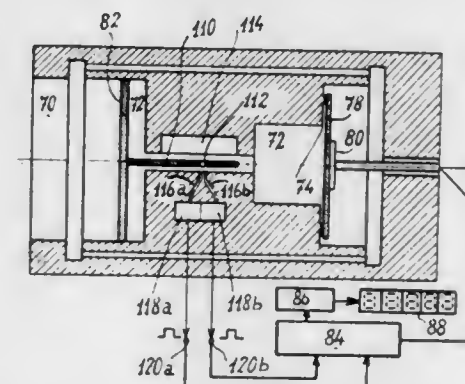
Continuation-in-part of Ser. No. 52,980, Jun. 28, 1979, Pat. No. 4,301,685. This application Mar. 9, 1981, Ser. No. 241,743

Claims priority, application France, Jan. 27, 1980, 81 01450

Int. Cl.³ G01L 9/00

U.S. Cl. 73-701

7 Claims



1. A digital pressure-measuring device comprising a first chamber subjected to the pressure to be measured, a second chamber connected to the first through an opening fitted with a valve, a pressure-tight partition-wall between the two chambers, said wall being deformable under the action of a pressure difference between the two chambers, an element for converting the deformation of the partition-wall directly to electrical

logic signals indicating the appearance of a pressure difference equal to a predetermined increment $+\Delta P$ and to a predetermined decrement $-\Delta P$ and to zero, wherein said element comprises an optical emitter, two light guides in spaced relation, two photoreceivers and a screen secured to the deformable wall and capable of displacement between the emitter and the light guides in order to permit or prevent penetration of the light into either of the two guides, said device being further provided with means for initiating opening of the valve under the action of the logic signals which indicate the appearance of a pressure difference equal to $+\Delta P$ and for initiating closure of said valve under the action of the signal which indicates that said difference is zero, bidirectional counting means for receiving said logic signals and accounting for the number of increments $+\Delta P$ obtained and reduced by the number of decrements $-\Delta P$ obtained.

4,393,714

DIFFERENTIAL PRESSURE SENSOR

Curt Schmidt, Karlsruhe, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

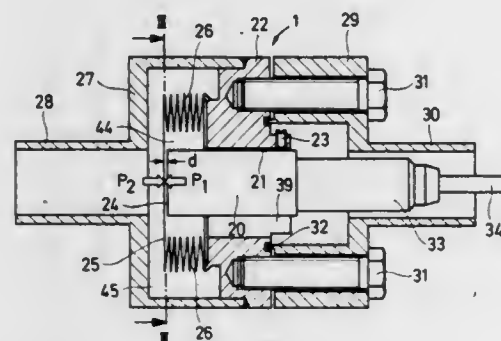
Filed Nov. 20, 1981, Ser. No. 323,692

Claims priority, application European Patent Off., Mar. 7, 1981, 81101676.5

Int. Cl.³ G01L 9/12

U.S. Cl. 73—718

8 Claims



1. A differential pressure sensor comprising in combination:
 - (a) a housing including means defining first and second inlets;
 - (b) a rod-shaped capacitive displacement sensor affixed to said housing in the interior thereof;
 - (c) a first electrode constituted by an end face of said displacement sensor;
 - (d) a second electrode constituted by a diaphragm extending generally parallel to and at a distance from said first electrode; said diaphragm having opposite faces;
 - (e) a bellows affixed to said housing and said diaphragm along a circumference thereof;
 - (f) a first chamber defined within said housing and communicating with said first inlet; and
 - (g) a second chamber defined within said housing and communicating with said second inlet; said first and second chambers being separated fluid tight from one another; one of said faces of said diaphragm being exposed to the pressure of a first fluid admitted to said first chamber through said first inlet and the other of said faces of said diaphragm being exposed to the pressure of a second fluid admitted to said second chamber through said second inlet, whereby said diaphragm is displaced and said distance from said first electrode is varied as a function of the difference between the pressures of said first and second fluids to vary the capacitance of said capacitive displacement sensor.

4,393,715

ABSOLUTE PRESSURE PICK-UP, ESPECIALLY FOR MEASURING PRESSURE AT INTAKE IN INTERNAL COMBUSTION ENGINES

Claude Lombard, Le Chesnay, France, assignor to Regie Nationale Des Usines Renault, Boulogne-Billancourt, France

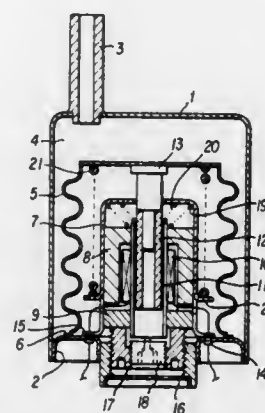
Filed Apr. 23, 1981, Ser. No. 256,975

Claims priority, application France, May 7, 1980, 80 10172

Int. Cl.³ G01L 9/10

U.S. Cl. 73—728

3 Claims



1. A pressure pick-up comprising:
 - a sealable rigid cylindrical envelope having two ends;
 - a fluid tight elastic bellows in said envelope and having one end attached to one of said ends of said envelope;
 - biasing means associated with said bellows for expanding said bellows;
 - a ferrite screened magnetic circuit in said bellows;
 - a mobile ferrite core in said circuit and fixed to the other end of said bellows;
 - a single induction coil within said circuit, said coil having two ends extending out of said envelope;
 - means for applying a fluid pressure in said envelope and only on the outside of said bellows; and
 - means for providing a fluid tight seal for said envelope at points where said two ends exit said envelope.

4,393,716

FIXTURE FOR ENVIRONMENTAL EXPOSURE OF STRUCTURAL MATERIALS UNDER COMPRESSION LOAD

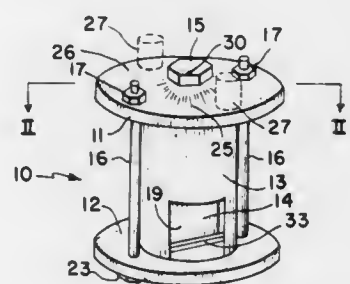
Ronald K. Clark, Hampton, and W. Barry Lisagor, Newport News, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 26, 1980, Ser. No. 210,506

Int. Cl.³ G01N 3/08, 3/02, 25/00

U.S. Cl. 73—818

3 Claims



1. An apparatus for stressing deformable materials which comprises:
 - a top plate;
 - a bottom plate;
 - a guide cylinder positioned between said top plate and said bottom plate;
 - a load piston positioned within said guide cylinder;

an adjustable loading bolt positioned in the center and extending through said top plate to contact said load piston; means for positioning a deformable material specimen between said bottom plate and said load piston; said adjustable loading bolt serving to apply a compression load force to said load piston; means for maintaining the compression load force on said load piston, said means for maintaining the compression load force consisting of two tie bolts; each said tie bolt extending from the upper surface of said top plate to the lower surface of said bottom plate; said tie bolts being fixably attached to said bottom plate; and each of said tie bolts extending through a tie bolt nut positioned on the upper surface of said top plate; whereby tightening said tie bolt nuts draws said top plate toward said bottom plate, and pushes said top plate and said bottom plate securely against said guide cylinder to thereby maintain the compression load force applied to the specimen by said loading bolt and said load piston.

4,393,717

APPARATUS FOR TESTING MEDICINAL TABLETS

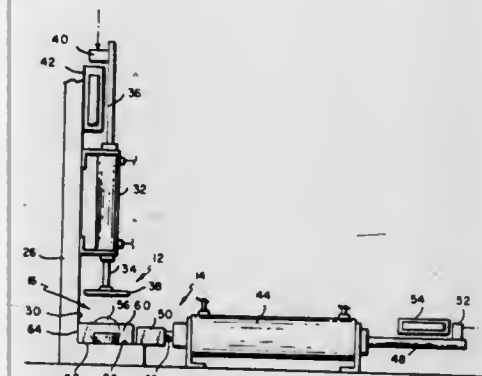
Donald L. Mason, Washington, and Warren A. McAllister, Greenville, both of N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Filed Jan. 6, 1981, Ser. No. 222,825

Int. Cl.³ G01N 3/08

U.S. Cl. 73—821

16 Claims



1. Apparatus for testing medicinal tablets for thickness, diameter and hardness comprising a support for receiving tablets one at a time for testing, means movable relative to the support in a direction perpendicular to the thickness of the tablet to measure the thickness of the tablet, means movable relative to the support in a direction at right angles to the thickness of the tablet to measure the diameter of the tablet, said latter means being further movable to crush the tablet to thus measure the hardness, and means for effecting reciprocal movement of the aforesaid means in sequence and for repeating said sequence of operation for a predetermined number of tablets.

4,393,718

ASSEMBLY FOR STRESS TESTING MATERIAL UNDER HIGH TEMPERATURES

Werner Gebhard, Forsbach, and Claus Kroder, Cologne, both of Fed. Rep. of Germany, assignors to Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt e.V., Fed. Rep. of Germany

Filed Jun. 17, 1981, Ser. No. 274,573

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023063

Int. Cl.³ G01N 3/04

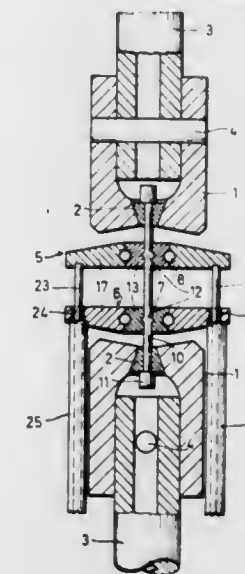
U.S. Cl. 73—859

5 Claims

1. An assembly for tensile stress testing material under high temperatures, said assembly comprising:
 - (a) two clamping means mounted to move longitudinally with respect to each other and having a structural configuration

uration to hold a workpiece at two laterally displaced locations thereon,

- (b) each clamping means includes a clamping head and a divided workpiece end holder disposed within the clamping head,
- (c) the clamping heads each have a front wall facing each other and an inwardly enlarged opening at their facing front walls,
- (d) each divided workpiece end holder is mounted in said enlarged opening and contains a longitudinal opening for the passage of the end of the workpiece,
- (e) the rear side of each workpiece end holder having a support face effective to support a thicker head located at the end of the workpiece, and



- (f) a measuring apparatus including two laterally displaced elongation measurement holders for engaging the workpiece at two laterally displaced locations thereon which locations are inwardly spaced from the ends of the workpiece,
- (g) said measurement holders include an annular jacket ring having a central opening and a bipartite inner annular ring mounted within said central opening,
- (h) each of the sections of said bipartite inner ring having an annular groove facing inwardly with respect to the specimen and having a structural configuration to engage a shoulder formed at each of the two laterally spaced locations on the workpiece.

4,393,719

IONIZATION FLOWMETER

Walter J. Wiegand, Glastonbury, and Robert H. Bullis, Avon, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 20, 1981, Ser. No. 284,837

Int. Cl.³ G01F 1/70

U.S. Cl. 73—861.05

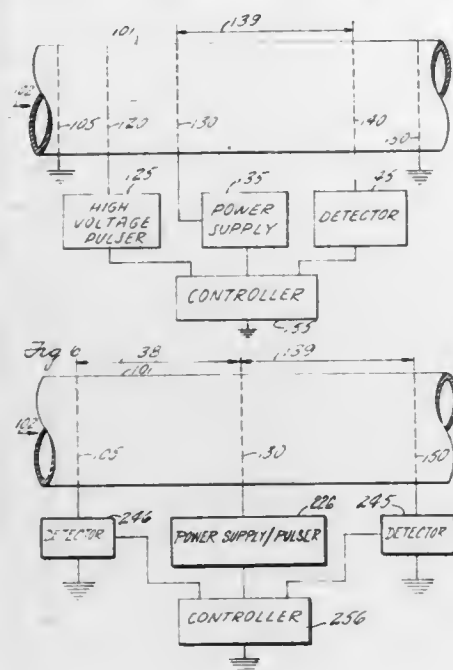
25 Claims

12. An apparatus for measuring the flux of a fluid flowing along an axis through a defined region comprising:

- (a) ion means for producing a concentration of ions distributed in said fluid and for varying said ion concentration to produce ion concentration changes in said fluid;
- (b) a plurality of planar fluid-permeable electrodes oriented substantially perpendicular to said fluid flow and disposed along the axis of said flow region at predetermined positions;
- (c) voltage means for applying a first potential between said ion producing means and a first fluid-permeable electrode disposed on a first side of said ion producing means;
- (d) voltage means for applying a second potential between said first electrode and a second fluid-permeable electrode located on said first side further from said ion producing means than said first fluid-permeable electrode;
- (e) first signal means for generating an entrance signal re-

lated in time to the passage of ion concentration changes through said first fluid-permeable electrode and first detection means for generating an exit signal related in time to the passage of ion concentration changes through said second fluid-permeable electrode; and

(f) combining means, responsive to said first signal means and first detection means, for combining first entrance and

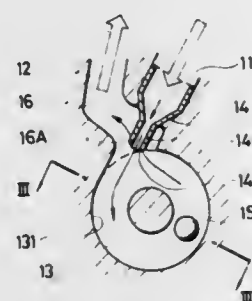


exit signals obtained at a first value of said second potential with second entrance and exit signals obtained at a second value of said second potential with a representation of the magnitudes of said first and second voltages and with other physical parameters of the apparatus in a predetermined manner to form a representation of the fluid flux.

4,393,720
**BALL-CIRCULATION TYPE LIQUID FLOW RATE
 SENSOR**

Toru Takahashi, Mito, and Sadayasu Ueno, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Sep. 24, 1981, Ser. No. 305,387
Claims priority, application Japan, Sep. 24, 1980, 55-131634
Int. Cl.³ G01F 1/70

U.S. Cl. 73—861.05 **16 Claims**



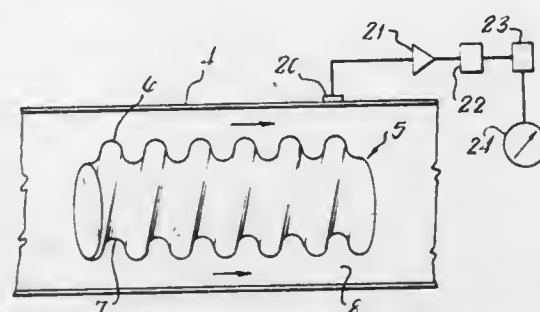
1. A flow rate sensor comprising an annular passage means for enabling a flow of liquid therethrough, a movable member disposed in the annular passage means, an intake passage means for supplying the liquid to the annular passage means, and an outlet passage means disposed concentrically to the intake passage means for enabling the liquid to flow out of the annular passage means about an outer periphery of the intake passage means.

4,393,721
APPARATUS FOR MEASURING FLUID FLOW
John T. Turner, Higher Disley; Harish C. Gulati, Denton; Wil-
liam B. Hall, Alderley Edge, all of England, and Arnold
Watson, Auckland, New Zealand, assignors to The Victoria
University of Manchester, Manchester, England
Filed Aug. 17, 1981. Ser. No. 293,344

Claims priority, application United Kingdom, Aug. 16, 1980,
8026746

U.S. Cl. 73—861.21 Int. Cl.³ G01F 1/20

16 Claims



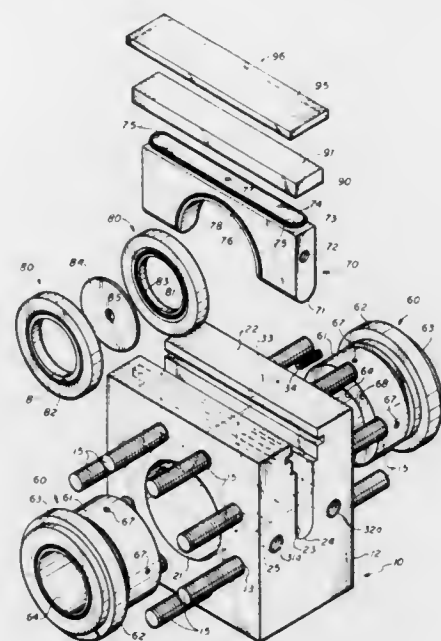
1. Apparatus for measuring fluid flow comprising a tubular body, means defining a fluid flow path, a member within said tubular body formed of crest and trough formations disposed along said path such that the flow of fluid is between the outer surface of said member and the internal surface of said tubular body and produces a signal which is dependent upon the fluid flow, means for detecting said signal, and means for converting the detected signal to provide a measurement of the fluid flow.

4,393,722
FLOW MEASURING DEVICE
Marvin D. Scott, 701 Morningside Dr., Mineral Wells, Tex.
76067

Filed Jun. 15, 1981, Ser. No. 273,741
Int. Cl.³ G01F 1/42

U.S. Cl. 73—861.61

6 Claims



1. A fluid measuring device comprising:
housing having a bore therethrough; a pair of spaced fluid
passageway means in said housing for permitting fluid to
exit said housing for differential pressure measurement;
and
removable orifice means removably insertable substantially
across said housing bore intermediate said pair of passage-
way means, said orifice means comprising,
a carrier member having a central arcuate cutout portion
of slightly greater than 180 degrees, an orifice plate and
centrally apertured seal plates on opposite sides of said

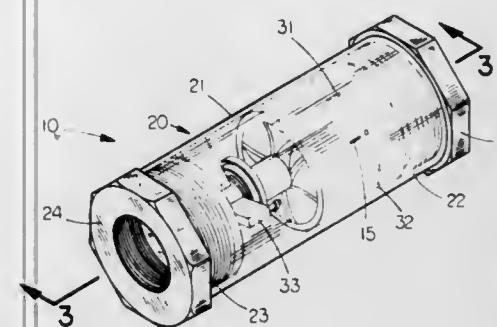
orifice plates, all of said plates being carried within said carrier cutout portion whereby, said plates are restrained from radial movement.

4,393,723
FLUID FLOW METER
Glen Brand, 4114 N. 79th, Omaha, Douglas County, Nebr.
68134

Filed Apr. 16, 1981, Ser. No. 254,675
Int. Cl.³ G01F 1/11

U.S. Cl. 73—861.72

10 Claims



1. A fluid flow meter, comprising:
a turbine having a hub for mounting on a supporting structure affixed to the interior of a housing having inlet and outlet ends, for both rotational and downstream movement of said turbine with respect to said supporting structure, in response to the rate of flow of fluid through said housing;
means for biasing said turbine with forces in directions opposite to those applied to said turbine by said fluid flow; and
means for determining the combined rotational and downstream displacement of said turbine, whereby said flow rate can be translated to more than 360° of angular displacement of said turbine.

4,393,724

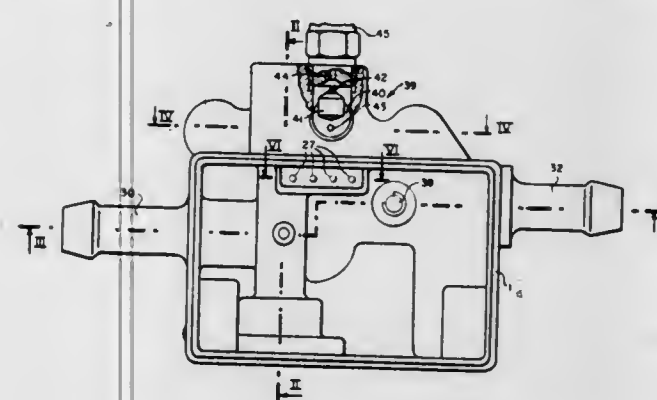
FLOW METER HAVING A ROTARY BODY

Karl-Heinz Werkmann, and Wolfgang Sauerschell, both of
Frankfurt am Main, Fed. Rep. of Germany, assignors to VDO
Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 12, 1981, Ser. No. 273,146
Int. Cl.³ G01F 1/10

U.S. Cl. 73-861.91

41 Claims



1. In a flow meter, particularly for liquids, having an impeller which is arranged in a measurement bore and is drivable by a flow stream of oncoming flow flowing through the measurement bore, the improvement comprising

a housing forming a chamber with an inlet connection and an outlet connection,

a movable wall subdividing said chamber into two chamber halves,

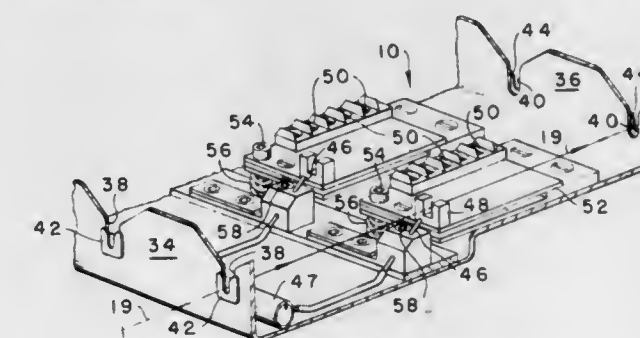
one of said chamber halves is in communication with said

inlet connection and the measurement bore upstream of said impeller,
the other of said chamber halves is in communication with said outlet connection and the measurement bore downstream of said impeller,
the impeller has a bearing shaft, the ends of said bearing shaft being rotatably mounted in an axially and radially guiding bearing,
at least one vane of the impeller having a flow-on surface inclined to the direction of the oncoming flow, and
sensor means for detecting the rotary frequency of said impeller.

4,393,725
APPARATUS TO MEASURE YARN TENSION
Larry S. Satterfield, Moore, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.
Filed Feb. 23, 1981, Ser. No. 236,966
Int. Cl.³ G01L 5/10; G01H 13/00
U.S. Cl. 73-862.41 **4 Claims**

U.S. Cl. 73-862.41

4 Claims



3. Apparatus to measure the tension in a running length of yarn comprising: a frame, at least one pair of guide members attached to said frame and longitudinally spaced from one another to guide yarn from one end of said frame to the other end of said frame, air jet means mounted to said frame to supply air under pressure against the yarn passing between said guide members to cause said yarn to vibrate at its harmonic frequency and a second means mounted in said frame to measure the harmonic frequency of the yarn as it passes through said guide members.

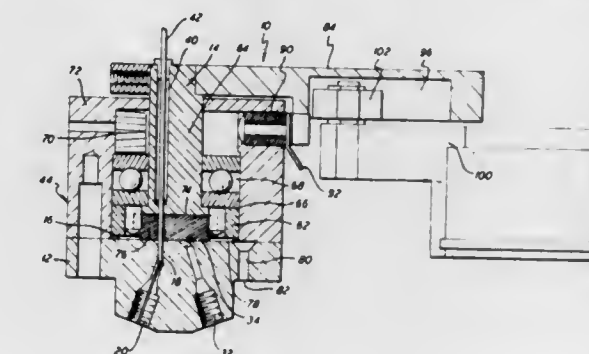
4,393,726
SAMPLING VALVE USEFUL IN LIQUID
CHROMATOGRAPHY

Rolf Tamm, Salem, and Toma Tomoff, Überlingen, both of Fed. Rep. of Germany, assignors to Bodenseeeverk Perkin-Elmer & Co. GmbH, Fed. Rep. of Germany
Filed Sep. 23, 1981, Ser. No. 304,735
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1980, 3037014

U.S. Cl. 73—864.84 Int. Cl.³ G01N 35/00

U.S. Cl. 73—864.84

3 Claims



1. Method of feeding samples in liquid chromatography, said method comprises the steps of:
providing a sample into a dosing loop by means of an injection valve;

tion needle through a sample inlet valve said valve having stationary and movable members in a first position of said valve, changing said sample valve to a second position, thereby connecting, in series, a transport liquid source, said dosing loop and a separating column, and wherein said providing step includes: sucking an air volume into said injection needle prior to sucking-in said sample; inserting said injection needle, through a bore in said movable valve member into a dosing bore of said stationary valve member, retracting said injection needle after the sample has been introduced and prior to said changing-over of said sample valve.

4,393,727 FRICTION DRIVE

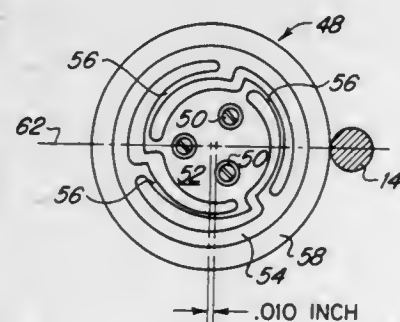
Edward H. Phillips, Middletown, Calif., assignor to Optimetrix Corporation, Mountain View, Calif.

Filed Mar. 11, 1980, Ser. No. 129,214

Int. Cl.³ F16H 13/14

U.S. Cl. 74-209

10 Claims



1. A friction drive comprising:

a rotary drive member;
a rotary driven member; and
a compliant rotary member for coupling the rotary drive member and the rotary driven member together, the compliant rotary member being loaded against at least one of those members;

the compliant rotary member having a circular inner portion and an annular outer portion resiliently and eccentrically offset relative to one another and further having at least three circumferentially extending spring elements symmetrically disposed around the periphery of the inner portion, each of those circumferentially extending spring elements being entirely circumferential in an unloaded condition of the compliant rotary member, being rigidly attached at one end to the inner portion and being rigidly attached at another end to the outer portion.

4,393,728

FLEXIBLE ARM, PARTICULARLY A ROBOT ARM
Ove Larson, Gothenburg, and Charles Davidson, Askim, both of Sweden, assignors to Robotgruppen HB, Gothenburg, Sweden
Continuation of Ser. No. 129,202, Mar. 11, 1980, abandoned.
This application Feb. 23, 1982, Ser. No. 351,589

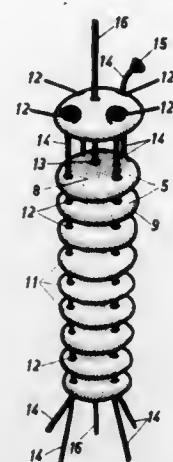
Claims priority, application Sweden, Mar. 16, 1979, 7902366
Int. Cl.³ B25J 1/02; F16C 1/00; A61F 1/06

U.S. Cl. 74-469

14 Claims

1. A flexible arm, particularly a robot arm, for supporting and/or manipulating tools or the like, wherein a number of elements are arranged in series for contacting each other and power-generating and power-transmitting actuating means are provided and arranged to operate the elements to move them with respect to each other comprising each said element has segments with convexly curved surfaces substantially oppositely disposed with respect to each other, the curved surfaces of each of said segments engaging the adjacent curved surfaces of the adjacent segments so that said elements have a rolling

motion in relation to each other when actuated by said actuating means, the radius of curvature of said curved surfaces



being relatively considerably larger than the height of said segments.

4,393,729 GEAR SHIFT MECHANISM

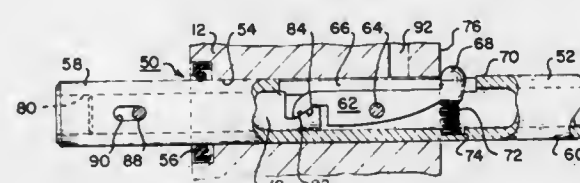
Thomas E. Wilson, Troy, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Feb. 25, 1981, Ser. No. 238,286

Int. Cl.³ G05G 5/24

U.S. Cl. 74-475

4 Claims



1. A gear shift mechanism for a gear mounted on a shaft within the housing of a power transmitting device comprising: a shift rod mounted parallel with said shaft and capable of axial movement between a first and a second position, said shift rod extending through a hole in said housing to have an external end and an internal portion;

coupling means rigidly mounted on said internal portion coupling said shift rod to said gear to cause said gear to be capable of moving in response to said movement of said shift rod;

a locking lever pivotally mounted within a slot in said shift rod and having an extended end thereof capable of extending beyond an external surface of said shift rod;

said locking lever being pivotally biased to cause said extended end to overlie said housing adjacent said hole when said shift rod is in said first position and to make sliding contact with an interior surface of said hole when said shift rod is in said second position and between said first and said second positions; and

means for retracting said extended end of said locking lever to be within said slot when said shift rod is selectively moved from said first position to said second position.

4,393,730

UNIDIRECTIONAL DETENT GATE

John R. Randall, La Palma, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Nov. 24, 1980, Ser. No. 209,733

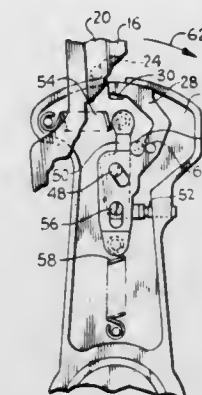
Int. Cl.³ G05G 5/06

U.S. Cl. 74-538

10 Claims

10. A unidirectional gate for a detent slot on the periphery of a base activated by a roller moving in a first plane comprising:

a first pivot peg mounted on said base member perpendicular to said first plane;
a carrier mounted on said first pivot peg for rotation in a first direction in a second plane parallel to said first plane;
spring means attached to said base and said carrier restraining rotation of said carrier in a first direction, said carrier rotation in the second direction opposite said first direction limited by a stop located on said base member;
second pivot peg mounted on said carrier perpendicular to said first plane and parallel to said first pivot peg;



a cover having two slots therein mounted on said first and second pivot pegs for rotation and for vertical movement; second spring means attached to said cover and to said base to restrain rotation and vertical movement of said cover; and

a pin mounted on said cover, perpendicular to said first plane, to engage said roller in a first arc to move said cover and expose said detent slot, and when said roller engages the said pin in a second arc opposite said first arc, the roller forces the gate closed, providing a bridge over the detent slot.

4,393,731

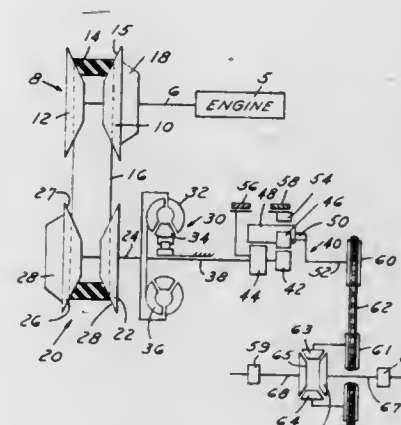
INFINITELY VARIABLE BELT-DRIVE TRANSMISSION
Howard L. Croswhite; Po-Lung Liang, both of Livonia, and Alan R. Fisher, Dearborn, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Sep. 15, 1980, Ser. No. 186,944

Int. Cl.³ F16H 37/08, 57/10, 47/08

U.S. Cl. 74-689

10 Claims



1. A motor vehicle transmission for producing a stepless range of torque ratios between an input member and an output member comprising:

means connected to the input member for varying its torque ratio by steplessly changing the radial distance from the axes of the input member and its output member at which an endless, flexible belt driveably engages these members; a hydrodynamic torque converter connected to the output of the torque ratio producing means, adapted to multiply the torque output of the torque ratio producing means over at least a portion of its range; and a gearset connected to the output of the torque converter

adapted to selectively produce forward drive or reverse drive at a constant torque multiplication.

4,393,732

ABNORMALITY TREATMENT DEVICE FOR AUTOMATIC TRANSMISSION CONTROL DEVICE
Tadashi Suzuki, and Norimasa Kishi, both of Yokosuka, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

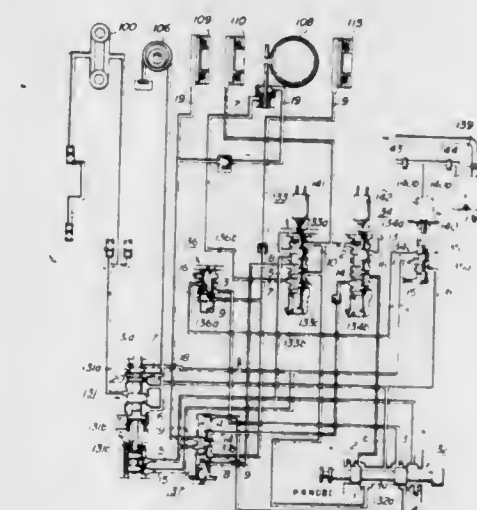
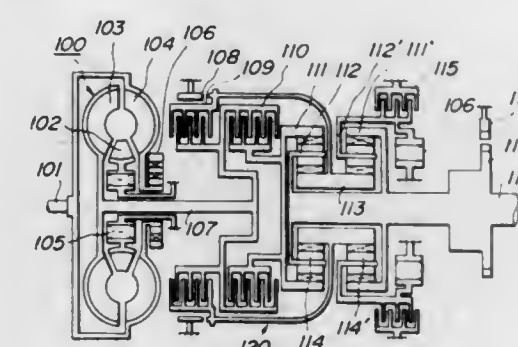
Filed Sep. 23, 1980, Ser. No. 190,071

Claims priority, application Japan, Sep. 28, 1979, 54-124816; Sep. 28, 1979, 54-124817; Sep. 28, 1979, 54-124818; Sep. 28, 1979, 54-124819

Int. Cl.³ B60K 41/16; F16H 5/64

U.S. Cl. 74-866

9 Claims



1. An abnormality treatment device for a control device for an automatic transmission including a speed change gear mechanism whose power transmission passage is connected to an output shaft of an engine and changed by means of hydraulically operated friction means to obtain a plurality of speed ranges, said treatment device including a speed range selection judgement circuit for receiving respective signals from an engine load sensor generating engine load signals corresponding to engine loads and from a vehicle speed sensor generating vehicle speed signals corresponding to vehicle speeds, comparing these signals with values corresponding to predetermined engine load and vehicle speed and determining said speed range and operation of said friction means, and a hydraulic control judgement circuit for receiving the signals from said engine load sensor to operate a hydraulic regulator valve, said treatment device comprising, in its input portion receiving the signals from said engine load sensor and said vehicle speed sensor, an abnormal value detection circuit for detecting an abnormal value of any one of said respective signals to generate an abnormal value detection signal, and an abnormality treatment circuit for producing abnormality treatment signals to be fed to said speed range selection judgement circuit and said hydraulic control judgement circuit in response to said abnormal value detection signal, thereby upon detection of the

abnormal value signal, enabling said speed range selection judgement circuit and said hydraulic control judgement circuit to maintain a predetermined speed range and a predetermined high pressure, respectively.

4,393,733

CORKSCREWS WITH TACKLE REDUCTION

Bruno Desnoullez, 76, Boulevard du General Koenig, 92200 Neuilly, and Andre Dejoux, 15, rue Lakanal, 75015 Paris, both of France

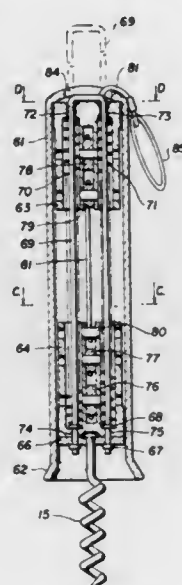
Filed Aug. 1, 1980, Ser. No. 174,655

Claims priority, application France, Aug. 2, 1979, 79 19823; Jul. 4, 1980, 80 14994

Int. Cl.³ B67B 7/00

U.S. Cl. 81—3,38 A

7 Claims



1. A corkscrew comprising a screw-carrying plate and a tackle arrangement, a one-piece molded generally tubular body, a cork extracting screw fixed to said screw-carrying plate, means to mount said plate and said tackle arrangement inside said body, said body being closed by an end wall at its other upper end, said tackle arrangement comprising upper and lower tackle block means to secure said upper tackle block in said upper end of said body in closely spaced relation to said end wall, said securing means comprising a pin extending through said upper tackle block and the juxtapositioned portions of said body, said one-piece molded body being formed with integral internal groove means extending over substantially all of the internal height of said body, said upper and lower tackle blocks and screw-carrying plate being formed with complementary groove means mating with said body groove means, mating of said body and upper tackle block groove means serving to prevent relative rotation between said upper tackle block and said body, mating of said lower tackle block and said body groove means serving to prevent relative rotation between said lower tackle block and said body and to guide axial motion of said lower tackle block within said body, said upper tackle block serving as a stop for the upward motion of said lower tackle block within said body, a generally "U"-shaped stirrup comprising a pair of generally parallel elongated legs and a cross-connecting portion at one end of said legs, said body end wall being formed with an opening to permit said cross-connecting portion of said stirrup and portions of said legs to extend therethrough and to be located externally of said body, said stirrup cross-connecting portion being adapted to fit through said end wall opening and to engage an upper surface of said upper tackle block to thereby define an end of downward travel stop of said stirrup with respect to said upper tackle block, recall compression spring means mounted on said legs of said stirrup and constrained between said upper and lower tackle blocks to normally urge said upper and lower tackle blocks away from each other; means to secure said screw-carrying plate, said lower tackle block and the free ends of said legs of said stirrup to each other; said securing means comprising a pair of crimped portions on each of said legs

which fix said lower tackle block and said screw-carrying plate therebetween, said tackle arrangement comprising cable means, means to secure one end of said cable means to said lower tackle block, said one-piece generally tubular body end wall being formed with opening means permitting said cable means to pass therethrough, the end of said cable means passing through said opening means comprising a free operating end of said tackle arrangement cable means, said molded one-piece tubular body including no external moving parts other than said free operating end of said cable means, and said stirrup legs' length being such with respect to said upper and lower motion stops and with respect to the length of said one-piece molded generally tubular body that said screw-carrying plate and said lower tackle block secured thereto do not extend out of the lower open end of said body during normal use of said corkscrew.

4,393,734

COMBINED TORQUE LIMITING AND MARKING WRENCH

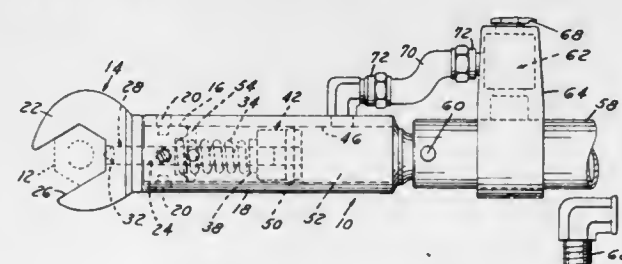
M. W. Thorn; E. R. Thorn, both of Farmington Hills, and Brent Thorn, Northville, all of Mich., assignors to Van F. Belknap Co., Inc., Wixom, Mich.

Filed May 28, 1981, Ser. No. 267,836

Int. Cl.³ B25B 23/00

U.S. Cl. 81—468

2 Claims



1. A torque limiting and part marking wrench comprising an elongated tubular torque applying handle, an elongated generally cylindrical housing pivotally mounted at one end to said torque applying handle, a replaceable part engaging head assembly mounted to the other end of said housing, and a part marking mechanism mounted within said housing, said torque applying handle, cylindrical housing, head assembly and part marking mechanism being disposed along a common axis, means for releasably mounting said head assembly to said housing whereby said head assembly may be replaced with another head assembly of a different size or design, and said housing being positionable at various attitudes relative to said torque applying handle depending on the location of a part operated upon by the wrench and the available working space; said head assembly including a wrench head portion having an open part engaging area and a generally cylindrical shank portion that is releasably retained within said other end of said housing by said mounting means; said marking mechanism including a striking pin that passes through a bore in said head assembly shank portion for reciprocal movement, said striking pin being mounted to a piston assembly that is slidably movable within a bore in said housing, said striking pin being extended outwardly from said housing for marking a part in response to fluid pressure acting on said piston assembly and said striking pin being retracted within said housing by a return spring mounted between said head assembly shank portion and said piston assembly; said housing including a fluid receiving chamber for receiving pressurized fluid from an on-off fluid valve unit mounted on said torque applying handle, said piston assembly being actuated in response to fluid pressure in said chamber from said valve unit when the torque on a part acted upon by said wrench has reached a predetermined value due to manipulation of said wrench.

4,393,735

CUTTING PLATE CARRIER INSERTABLE IN A HOLDER OF A MACHINE TOOL, IN PARTICULAR A LATHE TOOL

Otto Eckle, Loechgau, and Helmut Veigel, Schwieberdingen, both of Fed. Rep. of Germany, assignors to Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH, Besigheim, Fed. Rep. of Germany

Filed Nov. 14, 1980, Ser. No. 206,775

Claims priority, application Fed. Rep. of Germany, Jan. 16, 1980, 8000947[U]

The portion of the term of this patent subsequent to Jan. 3, 1995, has been disclaimed.

Int. Cl.³ B23B 27/00, 29/00

U.S. Cl. 82—36 R

6 Claims



1. In a cutting plate carrier insertable in a holder of a machine tool, in particular a lathe tool, said cutting plate carrier having a plane base surface and a cylindrical peripheral surface adjacent and extending perpendicularly thereto and the axis of which coincides with the axis of a central screw thread provided in said cutting plate carrier and extending perpendicularly to the base surface, a recess for a polygonal cutting plate having plural cutting tips, plural lateral surfaces and a central bore therein and fixable in said recess by means of a clamping screw which can be screwed into said central thread, for which cutting plate said recess has a plane supporting surface arranged parallel to said base surface and a plurality of bearing surfaces extending parallel to said lateral surfaces of said cutting plate, and a second screw thread provided parallel to said central screw thread and for screwing in a retaining screw inserted into said holder from a side thereof remote from said recess, the improvement comprising wherein said cutting plate carrier has a substantially circular plan, the axis of which coincides with the axis of said central screw thread, wherein the number of said plurality of bearing surfaces corresponds to the number of said plural lateral surfaces on said cutting plate, said bearing surfaces each being arranged at an equal distance (a) from said central screw thread, and wherein the radius of said peripheral surface of said cutting plate carrier is only slightly greater than the distance of said cutting tips of said cutting plate from its said central bore, whereby said cutting tips are wholly radially inside said peripheral surface and in said recess to thereby render said cutting plate unusable until undesired portions of said cutting plate carrier are removed to expose a desired amount of said cutting plate.

4,393,736

CUTTER FOR A MOVING STRAND

Thomas R. Clark, Wilmington, Del.; Alvin E. Lillmars, Newtown Square, Pa.; Elwood A. Roth, Seaford; Alvin L. Schmick, Frederica, both of Del., and Maurice C. Todd, Chadds Ford, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 10, 1981, Ser. No. 252,720

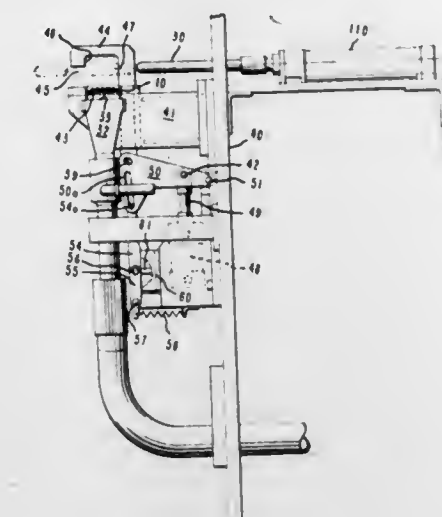
Int. Cl.³ B65H 35/00

U.S. Cl. 83—100

2 Claims

1. In an apparatus for processing at least one continuous advancing strand, a cutting device for the strand comprising: a support situated adjacent the path of travel of the strand; a bed knife attached to said support and located below and across said path of travel; an arm positioned above the path of the

strand for movement across the strand path to engagement with said bed knife; a linkage mechanism having a knee and being pivotally connected at one end to said support while the other end of the linkage mounts said arm for said movement; a first motive means coupled to said linkage for imparting said movement; a second motive means engageable with the knee of the linkage to hold the knee in an over-the-center position and limit movement of said arm to a location slightly above the



4,393,737

JULIENNE CUTTER FOR FOOD PROCESSORS

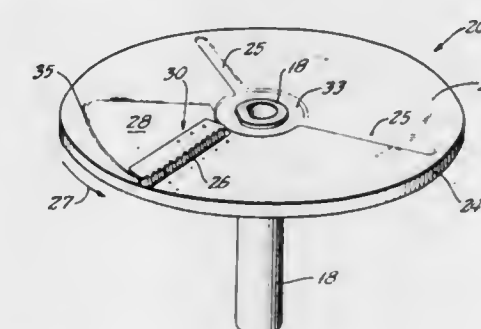
Koichiro Shibata, Seto, Japan, assignor to Cuisinarts, Inc., Greenwich, Conn.

Filed Feb. 5, 1981, Ser. No. 231,592

Int. Cl.³ B26D 3/26

U.S. Cl. 83—356.3

5 Claims



1. A julienne cutter tool for use in rotary food processors of the type having a working bowl with tool drive means extending into the bowl for rotating said julienne tool in said bowl in a predetermined direction about an axis, a removable cover for the bowl when in use, and a feed passage for introducing food material into the bowl, said julienne tool having a hub with a disc-like member secured to the hub, said disc-like member having a periphery and an elongated opening therein extending from a region near said hub to a region near the periphery of said disc-like member, said disc-like member having an elevated portion having a leading edge located behind said opening, and cutting means associated with said opening for producing multiple closely spaced cuts in food items applied thereto with the resultant cut strips passing through said opening into said bowl, said julienne cutting tool comprising: a unitary integral cutting structure formed of sheet metal having an elongated lower portion integral with an elon-

gated upper portion, which is at a higher elevation than said lower portion,
 said elongated lower portion of said integral cutting structure being secured beneath said disc-like member in front of said opening in said disc-like member,
 said elongated upper portion of said integral cutting structure being secured to the top of said elevated portion of said disc-like member behind said opening near to the leading edge of said elevated portion of said disc-like member,
 said elongated upper portion of said cutting structure projecting forward generally horizontally beyond the leading edge of said elevated portion of the disc-like member,
 said cutting structure including a row of relatively closely spaced, small parallel blades integral with both said upper and lower portions of said cutting structure,
 said row of blades being located in said elongated opening, said small, parallel blades extending upwardly relative to said disc-like member as seen looking at said row of blades in front elevation,
 each of said blades being integrally joined to said upper portion of the cutting structure by an upper triangular gusset,
 each of said blades being integrally joined to said lower portion of the cutting structure by a lower triangular gusset,
 said upper and lower triangular gussets extending generally horizontally in opposite directions from the respective blades,
 the leading edges of the upper triangular gussets being sharpened for forming a series of horizontally aligned knife edges,
 the leading edges of the blades also being sharpened,
 for said upper triangular gussets to make clean horizontal cuts in food items and for said blades to make uniformly spaced upright cuts in the food items for forming cleanly, uniformly, and neatly cut julienne strips when said cutter tool is rotated at high speed by the drive means in the food processor.

4,393,738

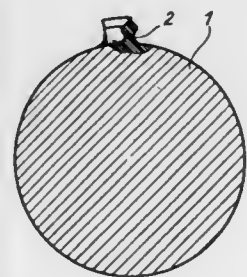
CUTTING ROLL FOR PRODUCING SHAPED INNER AND OUTER CUTS AND A METHOD FOR MAKING SAME

Günter Heyden, Neuwied, Fed. Rep. of Germany, assignor to Winkler & Dunneier Maschinenfabrik und Eisengießerei GmbH & Co. KG, Neuwied, Fed. Rep. of Germany
 Continuation of Ser. No. 123,634, Feb. 22, 1980, abandoned.
 This application Sep. 24, 1981, Ser. No. 305,143
 Claims priority, application Fed. Rep. of Germany, Feb. 24, 1979, 2907325

Int. Cl.³ B26D 1/62; B21K 5/12

U.S. Cl. 83—663

2 Claims



1. A method of making a cutting roll for producing shaped inner and outer cuts on moving webs or discrete blanks of paper or the like, comprising the steps of:
 welding a multiplicity of weld beads made of a highly wear-resistant steel alloy on a base member made of a readily weldable steel so as to form a web-like blade whose cutting edge corresponds to the contour of the desired cutting pattern, said weld beads being disposed one above the other and one beside the other longitudinally along and on

said base member, said weld beads being arranged and disposed to substantially assume the desired blade profile with a cutting edge having a rounded cross-sectional profile supported on a narrower neck portion so as to require only minor machining to form the cutting edge of the blade; and
 sharpening in a single machining operation the cutting edge of said blade to a shape resembling a pitched roof.

4,393,739

TOP SHARPENING CHAIN

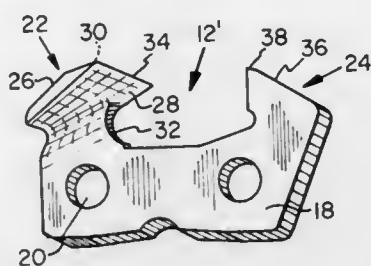
Jaroslav J. Olmr, Columbia, S.C., assignor to Textron, Inc., Providence, R.I.

Filed Mar. 25, 1981, Ser. No. 247,237

Int. Cl.³ B27B 33/14

U.S. Cl. 83—834

5 Claims



1. In a top sharpening saw chain cutting link formed of a single piece and sharpenable by a grinding device attached to a chain saw and including a body portion, a depth gauge and an integral hooded cutting element, the improvement comprising a side plateless cutting element including a top plate having a bottom surface, a top surface spaced therefrom and initiating rearward thereof at a leading end, and a leading end connecting surface extending between the top surface and bottom surface, a juncture between the connecting surface and the bottom surface defining the only cutting edge of the cutting element, said top plate connecting to said body portion through a surface located rearward of said juncture and along a side of said bottom surface so as to define an area of clearance for chip passage.

4,393,740

PROGRAMMABLE TONE GENERATOR

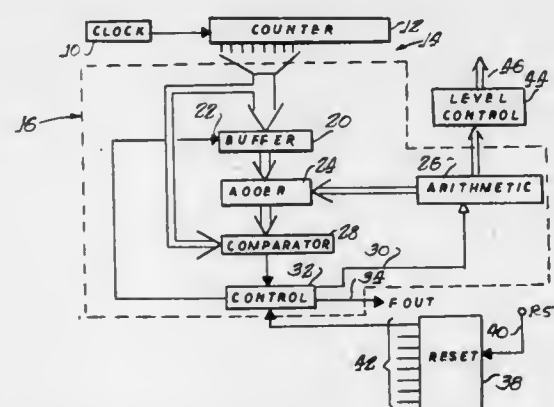
Thomas A. Niezgoda, DeKalb, and Carl P. Oppenheimer, Sycamore, both of Ill., assignors to The Wurlitzer Company, DeKalb, Ill.

Continuation of Ser. No. 22,970, Mar. 23, 1979, abandoned. This application Jan. 2, 1981, Ser. No. 221,983

Int. Cl.³ G10H 1/00

U.S. Cl. 84—1.01

8 Claims



1. A digital electronic tone signal generating circuit for an electronic musical instrument comprising: a clock, digital counter means having an input connected to said clock and having a plurality of outputs, a plurality of like tone signal

branches each comprising a digital signal processing circuit including buffer means connected to selected ones of said counter outputs, adder means connected to said buffer, programmable variable number source means connected to said adder, comparator means connected to said adder and also to said selected counter outputs, and flip-flop means connected to said comparator and controlled thereby to produce either a logic 1 or logic 0 output, said selected counter outputs and said programmable variable number source means cooperating for controlling the state of said flip-flop means to construct a rectangular wave output of selected pulse width and pulse spacing in each tone signal branch, thereby comprising a composite tone signal of selected fundamental frequency and harmonic content for each tone signal branch, wherein said programmable variable number source means comprises means providing programmed fixed numbers, programmable means for generating further numbers and means for selectively adding said further numbers with said fixed numbers.

4,393,741

ELECTRONIC ORGAN CIRCUIT

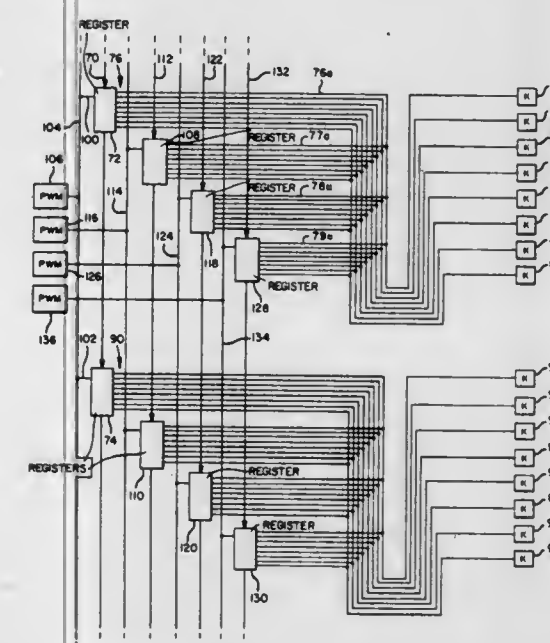
Gerald A. Budelman, Aloha, Oreg., assignor to CBS, Inc., New York, N.Y.

Filed Jun. 1, 1981, Ser. No. 269,652

Int. Cl.³ G10B 3/10; G10H 1/24

U.S. Cl. 84—1.01

16 Claims



1. In an electronic organ provided with a plurality of input keyboard keys, a plurality of stops, plural input circuits for providing input waveform signals of different frequencies, and keyer circuits operative in response to actuation of selected keys for gating waveform signals from said input circuits to keyer output circuitry,

separate means each effective for providing enabling pulses for operating a given keyer to an on condition for coupling a said waveform signal, each of said separate means being controllable to provide a different enabling pulse at a different time for a controllably different length of time to said given keyer,

wherein each of said separate means is responsive to a key of said keyboard for operating said given keyer to an on condition, with the separate means being separately responsive according to operation of stops of said organ.

4,393,742

ELECTRONIC MUSICAL INSTRUMENTS OF THE TYPE SYNTHESIZING A PLURALITY OF PARTIAL TONE SIGNALS

Masatada Wachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

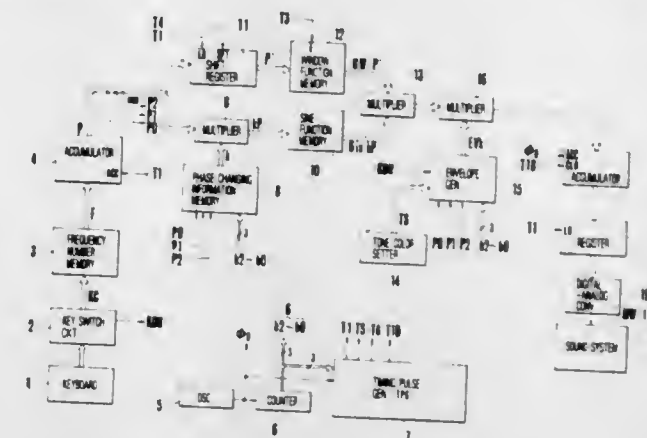
Filed Aug. 12, 1981, Ser. No. 292,052

Claims priority, application Japan, Sep. 8, 1980, 55-124929

Int. Cl.³ G10H 1/06

U.S. Cl. 84—1.23

8 Claims



1. An electronic musical instrument comprising:
 means for producing a time window signal;
 means for producing a plurality of predetermined partial tone signals;
 first control means connected to said time window signal producing means for controlling a time width of said time window signal;
 second control means connected to said partial tone signal producing means for controlling the frequency of each of said partial tone signals and assigning said partial tone signals to respective time divisioned time slots;
 modulating means for modulating said partial tone signals with said time window signal and producing modulated partial tone signals in said time divisioned time slots respectively; and
 synthesizing means connected to said modulating means for synthesizing said modulated partial tone signals and producing a musical tone signal.

4,393,743

ELECTRONIC MUSICAL INSTRUMENTS OF THE TYPE SYNTHESIZING A PLURALITY OF PARTIAL TONE SIGNALS

Masatada Wachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

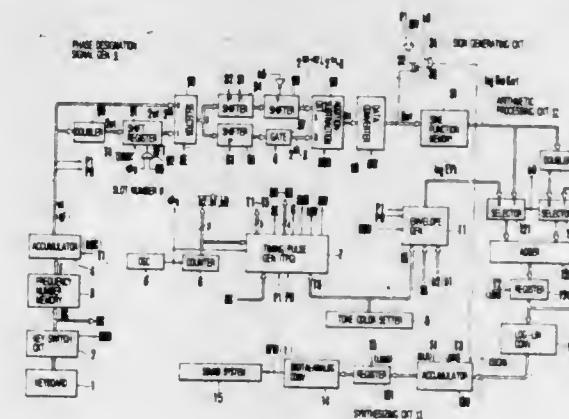
Filed Sep. 10, 1981, Ser. No. 301,014

Claims priority, application Japan, Sep. 24, 1980, 55-133261

Int. Cl.³ G10H 1/08, 7/00

U.S. Cl. 84—1.23

13 Claims



1. An electronic musical instrument of the type in which a

musical tone is synthesized from a plurality of windowed partial tone components, comprising:
 time window signal generating means for separately generating for each of said windowed partial tone components a time window signal having a time width;
 frequency signal generating means for separately generating for each of said windowed partial tone components a frequency signal having a frequency;
 tone color setting means for setting a tone color selected among a plurality of tone colors;
 control means connected to said tone color setting means for determining said time widths of said time window signals generated by said time window signal generating means and said frequencies of said frequency signals generated by said frequency signal generating means in accordance with the set tone color;
 modulating means for amplitude modulating each frequency signal with the time window signal for the corresponding windowed partial tone component and for combining the resultant modulated signals to produce a combined signal containing a plurality of partial tone components whose frequencies are determined by said time widths and said frequencies; and
 sound system means for converting said combined signal to a musical tone.

4,393,744

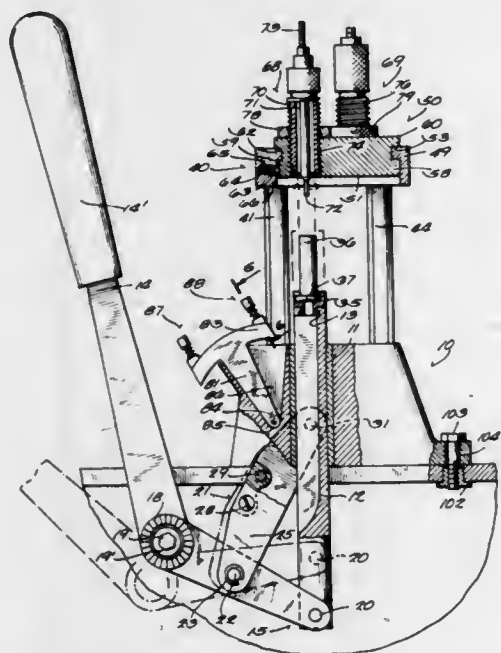
PRESS FOR RELOADING RIFLE AND PISTOL CARTRIDGES

Richard J. Lee, 3146 Kettle Moraine Rd., Hartford, Wis. 53027
 Filed Jul. 6, 1981, Ser. No. 280,677

Int. Cl.³ F42B 33/02

U.S. Cl. 86—25

6 Claims



1. A press for reloading cartridges comprising:
 a base member,
 an elongated ram mounted for moving axially upwardly and downwardly on the base member and a holder at an end of the ram for holding a cartridge,
 means for driving the ram axially in opposite directions,
 a turret ring and means for supporting said turret ring rigidly above the base member in a plane that is transverse to the axis of the ram, said turret ring having an axially directed bore and bearing surface means on said ring circumjacent the nominally upper end of the bore,
 a generally circular turret for supporting dies that act on said cartridge, said turret having radially outwardly extending flange means radially remote from its center which outwardly extending flange means interface with said bearing surface to support said turret for rotating in in said bore of the turret ring, and

means for restraining said turret from moving axially upwardly when a force is applied to it by the ram.

4,393,745

RELEASABLE RETAINER FOR EJECTION TUBE

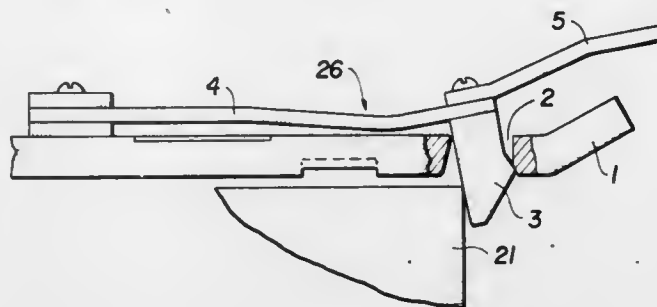
Henry C. Mayo, and William V. Millman, both of Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 30, 1981, Ser. No. 288,624

Int. Cl.³ F41F 3/04

U.S. Cl. 89—1,806

9 Claims



1. A detent assembly including a slotted support defining at least one slot therein by an inside wall, said slotted support mounted on a hollow support, the detent assembly to detain a movable item in the hollow support, the detent assembly having a spring connected to the slotted support, a restraining tooth connected to the spring such that the spring biases the restraining tooth through the slot in the slotted support and wherein the restraining tooth is rotated against the bias of the spring by movement thereagainst of the item, such that: as the restraining tooth is rotated against the bias of the spring, the restraining tooth is forced against the inside wall of said slot in the slotted support preventing movement of the item within the hollow support in a first direction.

4,393,746

AMMUNITION MAGAZINE WITH BUILT-IN COMPARTMENT COVERS

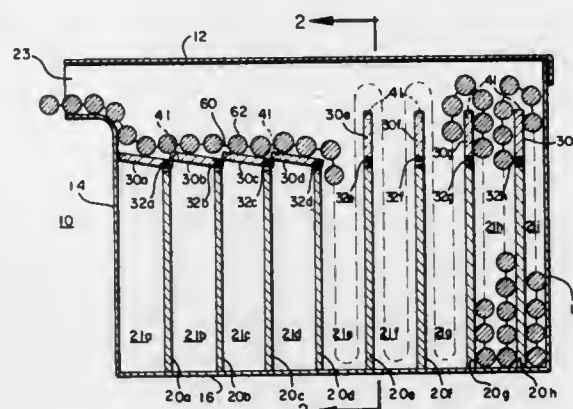
John G. Rocha, Dover, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 31, 1981, Ser. No. 288,826

Int. Cl.³ F41D 10/14

U.S. Cl. 89—34

7 Claims



1. An ammunition magazine comprising a plurality of compartments formed by vertical separators for holding rounds linked by a belt and at least one compartment cover, said compartment cover rotatably mounted immediately above one of said vertical separators for either opening or closing one of said compartments, said compartment cover having an opened position when said rounds are disposed inside said one of said compartments and a closed position when said one of said compartments is emptied of said rounds, wherein said compart-

ment cover is radially extended from said one of said vertical separators forming a substantially continuous surface with said one of said vertical separators, and said compartment cover forming a single vertical plane with said one of said vertical separators when in said opened position, and extending in a direction substantially perpendicular to said one of said vertical separators when in said closed position.

4,393,747

LOADING TABLE

Olle Gustavsson, and Göran Sundmar, both of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

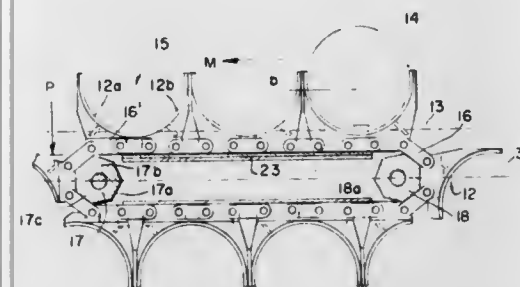
Filed Dec. 18, 1980, Ser. No. 217,635

Claims priority, application Sweden, Dec. 18, 1979, 7910436

Int. Cl.³ F41F 9/02

U.S. Cl. 89—45

8 Claims



1. A firearm loading table for receiving a plurality of ammunition units and individually depositing said ammunition units comprising:

an endless chain supported by first and second sprockets; forming upper and lower horizontal chain segments;
 a plurality of holding trough segments connected to said endless chain, and perpendicular therewith, pairs of said holding trough segments abutting each other along said upper segment to form a trough member for receiving an ammunition unit, said holding trough segments having a rear edge at the center thereof for coating with a front edge of a section of the ammunition unit for fixing the ammunition unit against forward motion;

stop means;

a support member for holding said stop means an adjustable preselected distance from one end of said trough members to form an adjustable stop means whereby motion of an ammunition unit in a direction of said one end is restricted; and

means for rotating said sprockets to incrementally move said endless chain a distance substantially equal to the distance between centers of said holding troughs, whereby said segments on said upper horizontal segment advancing towards the end of the said horizontal segment separate, releasing an ammunition unit, the rear segment of a trough pushing said released ammunition unit into a receiving plane.

4,393,748

DEVICE FOR STRIPPER

Sten Hallqvist, and Erik Eriksson, both of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Dec. 18, 1980, Ser. No. 217,595

Claims priority, application Sweden, Dec. 18, 1979, 7910442

Int. Cl.³ F41F 9/06

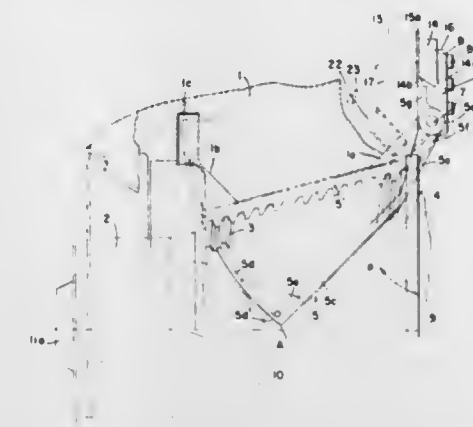
U.S. Cl. 89—47

7 Claims

1. In a firearm having a chamber for receiving a shell and powder charge, a ramming unit for inserting said shell and powder charge in said chamber, a threaded breech ring and closing screw for maintaining said chamber closed, the improvement comprising:

an elongated stripper for holding the powder charge in the chamber during extraction of said ramming unit, said stripper being connected at one end to swing from a first

charge holding position to a second position for maintaining said stripper from striking said powder charge;
 a blocking means for maintaining said stripper in said second position until said ramming unit moves said shell and powder charge into said chamber including a longitudinal blocking rod having at one end thereof an actuator for longitudinally displacing said rod in response to movement of said ramming unit, and a displacement means connecting said stripper with a remaining end of said



blocking rod, whereby motion of said rod releases said stripper from said second position to assume said first position under the influence of a spring force against said stripper; and,
 means for moving said stripper from said first position to said second position in response to closing said screw with said breech ring whereby said stripper is maintained in place avoiding contact with a subsequent shell and powder charge.

4,393,749

VACUUM ACTUATED TYPE BOOSTER DEVICE

Yoshihisa Miyazaki, Ueda, Japan, assignor to Nissin Kogyo Kabushiki Kaisha, Ueda, Japan

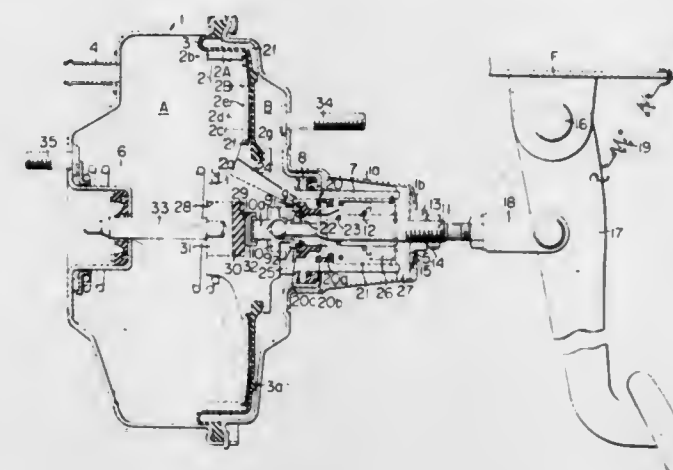
Filed Sep. 26, 1980, Ser. No. 191,354

Claims priority, application Japan, Sep. 27, 1979, 54-124636

Int. Cl.³ F15B 9/10; F01B 19/00; F16J 3/00

U.S. Cl. 91—376 R

5 Claims



1. In a vacuum actuated booster device having a booster shell, a booster piston reciprocally received in the booster shell, a diaphragm connected at its inner peripheral portion to the rear side of a radial disc portion of said booster piston and at its outer peripheral portion to the peripheral wall of said booster shell, a first working chamber and a second working chamber defined in said booster shell by said booster piston and said diaphragm, a vacuum source with which said first and second working chambers are normally communicated, an input rod slideably mounted in said booster piston, and valve means connected to atmosphere for bringing said second working chamber into communication with ambient air by the

forward movement of said input rod so that said booster piston is driven forwardly by the differential pressure between said first and second working chambers,

an improvement wherein said booster piston comprises a piston body having a disc portion with windows and porous thin-walled members covering said windows, said diaphragm contacting said porous thin-walled members closing said windows.

4,393,750 BRAKE BOOSTER

Wilfried Wagner, Frankfurt am Main, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

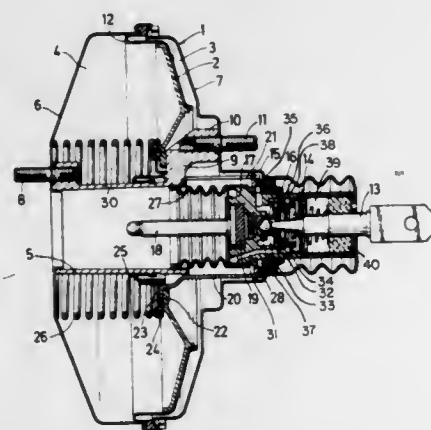
Filed Jun. 29, 1981, Ser. No. 278,134

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1980, 3029911

Int. Cl.³ F15B 9/10

U.S. Cl. 91—376 R

9 Claims



1. A brake booster for automotive vehicles comprising: a low-pressure casing having a longitudinal axis; an axially movable wall disposed in said casing in a coaxial and transverse relationship with said axis to subdivide said casing into a low-pressure chamber and a working chamber; a mechanically actuatable control valve to connect said working chamber to a selected one of said low-pressure chamber and atmosphere, said control valve being disposed in an axially movable control valve housing disposed coaxial of said axis in communication with a master cylinder piston actuating push rod; a force-transmitting sleeve having a plurality of longitudinal slots disposed in said casing coaxial of said axis, one end of said sleeve being connected to said housing and the other end of said sleeve being connected to said movable wall; and a reinforcement tube extending coaxial of said axis through said casing having an outside diameter less than the inside diameter of said sleeve, said tube being sealed to said movable wall, having one end connected to one end wall of said casing in a transverse relationship to said axis adjacent said low-pressure chamber and having a plurality of radial extensions adjacent the other end of said tube in said working chamber, each of said plurality of radial extensions extending through a different one of said plurality of longitudinal slots and connected to the other end wall of said casing in a transverse relationship with said axis adjacent said working chamber.

4,393,751

TWO HOLE HYDRAULIC CUSHION VALVE

Clarence R. Kelley, Mishawaka, Ind., assignor to C. C. Kelley & Sons, Mishawaka, Ind.

Filed Jan. 21, 1981, Ser. No. 226,750

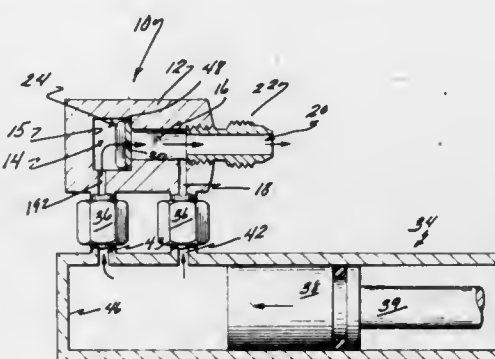
Int. Cl.³ F15B 15/22

U.S. Cl. 91—408

4 Claims

1. In a cylinder having a fluid actuated piston therein, said piston being shiftable longitudinally within said cylinder by the operation of said fluid, the improvement wherein said cylinder includes two ports at one end for evacuating fluid from in front

of said piston as it is urged toward said one cylinder end and for introducing fluid at the rear of said piston to urge it away from said one cylinder end, said cylinder ports being spaced longitudinally apart along the direction of travel of said piston within said cylinder with one port nearer said cylinder end than the other port, said piston being shiftable over said other cylinder port, a valve for evacuating and introducing fluid from and into said one cylinder end, said valve having first, second and third passages, each of said first and second passages in spaced communication with said third passage in the valve, a fluid flow restrictor means within said third valve passage and shiftable therein in response to fluid flow from a



non-operative position to an operative position between said first and second passages for reducing the rate of fluid flow from said first valve passage into said third valve passage, said first valve passage in communication with said one cylinder port, said second valve passage in communication with said other cylinder port whereby fluid will first flow through both said first and second valve passages and out said third valve passage as the piston approaches said one cylinder end and then flow only through said first and third valve passages at a reduced rate after said piston shifts over said other cylinder port to provide a cushioning resistance to the movement of said piston.

4,393,752

PISTON COMPRESSOR

Hans Meier, Kollbrunn, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

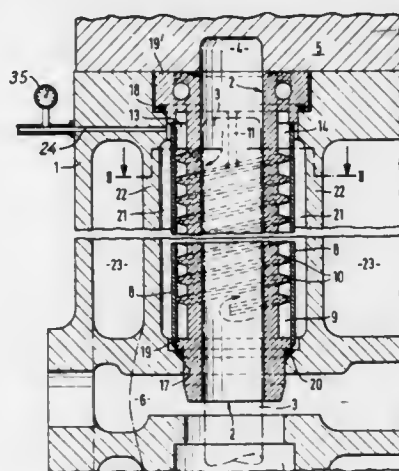
Filed Feb. 9, 1981, Ser. No. 232,975

Claims priority, application Switzerland, Feb. 14, 1980, 1209/80

Int. Cl.³ F01B 31/00

U.S. Cl. 92—86

11 Claims



1. A piston compressor comprising a cylinder block; a double walled cylinder liner mounted in said cylinder block, said cylinder liner having a first wall defining a bore for reciprocation of a piston therein and a second wall annularly spaced from said first wall to define an annular chamber therebetween

for receiving a coolant, said second wall being spaced from a wall of said cylinder block to define an annular space therebetween;

a collecting chamber in said cylinder block for receiving leakage gas, said collecting chamber being in communication with said bore of said cylinder liner;

a vent line in said block communicating with said annular space; and

a pressure gauge connected to said vent line.

4,393,753

ATTACHMENT FOR MOTOR VEHICLES WITH REAR WINDOWS

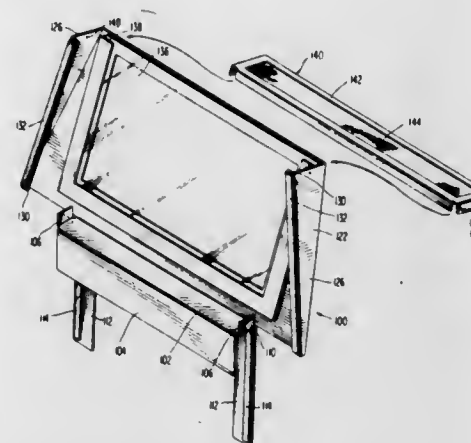
Richard Chatlos, Johnstown, Pa., assignor to Air-O-Scoop Corporation, Johnstown, Pa.

Continuation of Ser. No. 194,224, Oct. 6, 1980, Pat. No. 4,346,648, which is a continuation-in-part of Ser. No. 118,444, Feb. 4, 1980, Pat. No. 4,326,451. This application May 12, 1982, Ser. No. 377,564

Int. Cl.³ B10J 1/20

U.S. Cl. 98—2.12

18 Claims



1. A window containing an air flow device for a closed motor vehicle or boat for positioning in the rear aperture thereof, which comprises a window frame, two outer window sections which are stationary and mounted in the end portions of said window frame, said two outer window sections begin of such size as to form an opening therebetween, and said air flow device mounted in said opening, said air flow device comprising a base plate, a bottom lip attached on top to said base plate, and on bottom to the bottom portion of said window frame, two vertical side plates, each having one end attached to the end of the base plate, a narrow top horizontal plate attached on each end to the vertical side plates on the side towards the opening, a top vertical lip attached to the edge of said top plate towards said opening, part of the ends of said top vertical lip being attached to said side plates, a back plate which is attached at its bottom to the portion of said base plate inside of said motor vehicle and is positioned with its top away from said top horizontal plate or the vertical plane of said opening thereby forming a gap between said top horizontal plate and said back plate, and an extension of the edge of each of said side plates facing said opening which provides means of sealingly engaging the end of one of said outer window sections facing the opening, at least said back plate being transparent, said two side plates being generally triangular in shape, being attached on one edge to said back plate and preventing lateral air flow.

4,393,754

AIR DEFLECTION ASSEMBLY FOR VEHICLE SUNROOFS

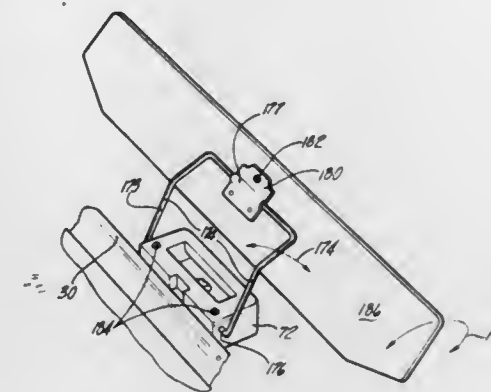
Louis E. Hough, 22448 Statler, St. Clair Shores, Mich. 48081, and Walter J. De Vigili, 16082 Dugan Rd., Roseville, Mich. 48066

Filed Oct. 8, 1980, Ser. No. 195,151

Int. Cl.³ B60J 7/00

U.S. Cl. 98—2.14

8 Claims



1. An air deflection assembly for use with a vehicle having a sunroof opening in the roof thereof, comprising: an air deflecting member extending transverse to said opening for deflecting air flowing over said roof and through or over said opening; and mounting means for mounting said deflecting member adjacent the leading edge of said opening for independent pivotal movement about first and second transversely extending axes, whereby to permit adjustment of both the elevation and inclination of said deflecting member.

4,393,755

HEAT TREATMENT OF PARTICULATE SOLID MATERIALS

Graham S. Cattell, Lingfield, and John E. Brittain, Beaconsfield, both of England, assignors to The A.P.V. Company Limited, Crawley, England

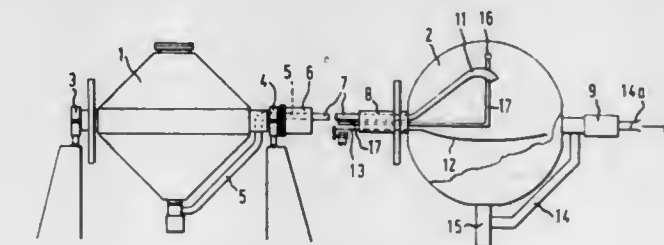
Filed Feb. 13, 1981, Ser. No. 234,868

Claims priority, application United Kingdom, Feb. 15, 1980, 8005147

Int. Cl.³ A47J 27/04

U.S. Cl. 99—348

4 Claims



1. In apparatus for the batchwise heat treatment of particulate solid material, comprising a heat treatment vessel mounted on hollow trunnions for rotation about a generally horizontal axis and shaped so as to impart a tumbling action to the solid material therein as the vessel rotates, the heat treatment vessel having a fluid inlet leading via one of the hollow trunnions, and a discharge outlet for withdrawal of the total solids and liquids contents of the vessel via one of the hollow trunnions; the improvement of a second rotary vessel for subsequent treatment of the material discharged from the said heat treatment vessel, the second rotary vessel also being mounted on hollow trunnions and being provided with a first connection to said discharge outlet of said heat treatment vessel for receiving solids and liquids therefrom and a second connection for the supply and discharge of fluid, each of said connections being via one of the hollow trunnions and with strainer means therein

at a location to trap solids as the solids and liquids enter from the heat treatment vessel for separating the solid particles from the liquid whereby liquid withdrawn from the heat treatment vessel and introduced into the second vessel with the solids may be separated therefrom for discharge via said second connection, the strainer means being adjustable whereby the solids may be allowed to drop from the strainer means and mixed by tumbling the second rotary vessel with a further liquid introduced via the said second connection.

4,393,756

STEAM PEELING OR COOKING APPARATUS

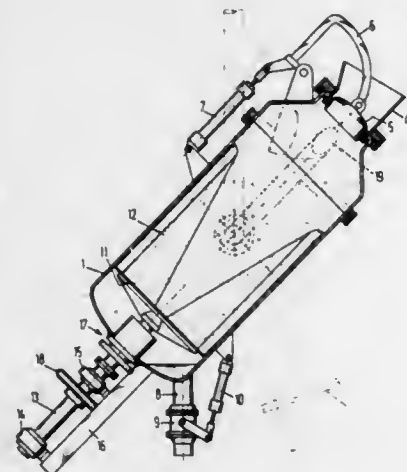
Peter W. C. van der Schoot, Ouderkerk a/d IJssel, Netherlands, assignor to Goudsche Machinefabriek B.V., Gouda, Netherlands

Continuation of Ser. No. 235,368, Feb. 19, 1981, abandoned, which is a continuation of Ser. No. 104,990, Dec. 18, 1979, abandoned. This application Jul. 21, 1982, Ser. No. 400,311 Claims priority, application Netherlands, Dec. 29, 1978, 7812678

Int. Cl.³ A23N 7/00

U.S. Cl. 99—348

8 Claims



1. A steam peeling apparatus for plant products such as potatoes, carrots, celery, red beets, Swedish turnips, apples and the like, comprising:

a substantially cylindrical peeling vessel having a product opening at one end closable by a closure mounted for movement within the vessel and a liquid discharge outlet at the other end;

means mounting the vessel for only tilting movement around a horizontal axis from a normally operating longitudinally inclined position wherein the one end is above the other end to a discharge position wherein the other end is above the one end;

a partition disposed in the vessel at said other end perpendicular to the longitudinal axis thereof and spaced from the liquid discharge outlet, wherein the partition is configured, when the vessel is in the normally operating position, to prevent passage of product to be peeled while allowing condensate to pass therethrough to form a condensate collection space thereunder such that the product to be peeled does not lie in the condensate during the application of steam;

steam supply and discharge means comprising an access opening in the vessel disposed above the product level when the vessel is in the normally operating position, a first steam line disposed colinearly with the horizontal tilting axis and a second line connecting the first line to the access opening; and

at least one stirring arm disposed above the partition and axially along the wall of the vessel and means for rotating same about the longitudinal axis of the vessel when the vessel is in the normally operating position.

4,393,757

FOOD POUCH COOKING HOLDER

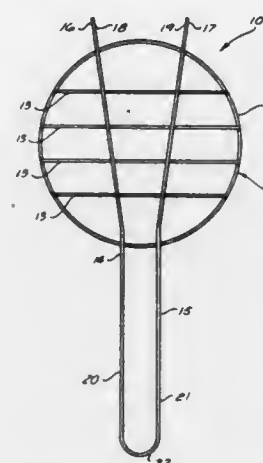
Clifford W. Welsh, 1622 Sonata La., Lake San Marcus, Calif. 92069

Filed Oct. 26, 1981, Ser. No. 314,955

Int. Cl.³ A47J 37/00

U.S. Cl. 99—369

2 Claims



1. A food pouch cooking holder suitable for cooking in pots of hot water, comprising:

a regular shaped, multiple wire member welded flat frame having an exterior frame of regular shape and multiple cross frame members permanently secured together,

a pair of diverging wire support frame members disposed fully across the regular shaped flat frame and permanently secured thereto, said diverging pair of frame members having a pair of free termini projecting beyond one exterior frame edge, and a second pair of termini formed in parallel and projecting beyond the opposed second exterior frame edge and having a first U-bend terminus,

a pair of curved horizontal extending securing means formed on the pair of first termini of aforesaid pair of diverging wire support frame members, said pair of securing means adapted to be secured to the top rim of a cooking pot,

a slidable, frictionally secured fastener disposed on aforesaid second pair of termini disposed in parallel, said fastener having a forward positioned securing means engagable with said cooking pot top rim, and a rearward positioned pusher means, said fastener providing a third securing means securing said cooking holder on said cooking pot, said pair of diverging wire support frame members also disposed in a second U-bend, adapted and sized to provide a required depth of immersion of said regular shaped, multiple wire frame inside of said cooking pot, and, said cooking holder capable of securing in said cooking pot and securing a cooking food pouch under said holder in water during a cooking time period.

4,393,758

FOOD PROCESSING APPARATUS

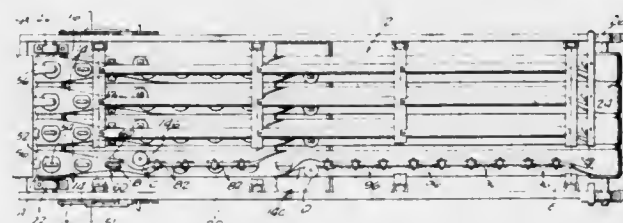
Al Anmahian, El Monte, Calif., assignor to Electra Food Machinery, Inc., El Monte, Calif.

Filed Jul. 17, 1981, Ser. No. 284,171

Int. Cl.³ A21C 9/00, 9/06

U.S. Cl. 99—450.6

7 Claims



1. An apparatus for forming a Mexican food product having

an exterior wrap comprising a tortilla and an inner filling, comprising:

(a) an elongated longitudinally extending supporting frame work;

(b) a driving drum rotatably supported proximate one end of said framework;

(c) a driven drum rotatably supported forwardly of said driving drum rotatably supported proximate one end of said framework;

(d) a continuous, yieldably deformable endless conveyor belt carried by said driving and driven drums, said belt having an upper and a lower surface, said lower surface including a downwardly depending "V" shaped protuberance extending the entire length of said belt;

(e) means for driving said driving drum at a predetermined rate of speed;

(f) a pair of angularly, upwardly extending rollers supported by said framework and adapted to rollably engage the lower surface of said conveyor belt said rollers being adapted to rotate respectively about axes extending at an angle with respect to the plane of said conveyor belt;

(g) a first flanged wheel supported by said framework and disposed on a first side of said conveyor belt, said wheel being adapted to rotate about an axis disposed generally perpendicular to the plane of said conveyor belt; and being adapted to fold a first portion of said conveyor belt transverse to the line of travel of the belt to move a first side portion of the tortilla into overlapping pressural contact with the inner filling;

(h) a second flanged wheel supported by said framework and disposed on a second side of said conveyor belt, said wheel being adapted to rotate about an axis disposed generally perpendicular to the plane of said conveyor belt, and being adapted to fold a second portion of said conveyor belt transversely of the line of travel of the belt to move a second side portion of the tortilla into overlapping pressural contact with said first portion of the tortilla to form a shaped product wherein the inner filling is substantially encapsulated within the tortilla;

(i) a plurality of longitudinally spaced apart rotatable flanged wheels carried by said framework intermediate said first and second flanged wheels adapted to maintain said first portion of said tortilla in pressural contact with the inner filling;

(j) a plurality of longitudinally spaced apart rotatable flanged wheels carried by said framework forwardly of said second flanged wheel adapted to maintain said second portion of said tortilla in pressural contact with said first portion of said tortilla; and

(k) a plurality of longitudinally spaced apart rotatable guide wheels carried by said framework adapted to engage said "V" shaped protuberance on said belt to guide longitudinal travel of said belt over said driving and driven drums.

4,393,759

CHEESE MAKING APPARATUS

Guy Quillion, Niort, France, assignor to Pierre Guerin S.A., Mauze-sur-le-Mignon, France

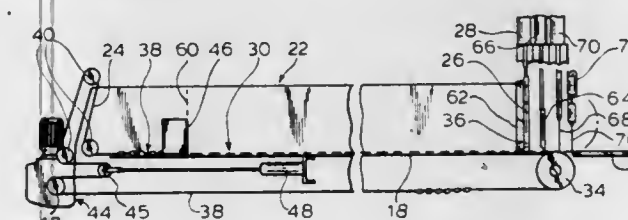
Filed Dec. 30, 1981, Ser. No. 335,763

Claims priority, application France, Jan. 15, 1981, 81 00611

Int. Cl.³ A01J 25/00; A23C 19/072

U.S. Cl. 99—459

14 Claims



1. A cheese making apparatus for producing cheese from a

pressed mass of curds wherefrom the whey has been drained, which comprises

(a) a rectangular vat including

(1) a bottom wall,

(2) two longitudinally extending side walls,

(3) a fixed end wall and

(4) a mobile end wall opposite the fixed end wall, the side and end walls defining interior dimensions of the vat,

(b) a pressing plate arranged to be lowered into, and lifted out of, the vat, the pressing plate having outer dimensions slightly smaller than the interior dimensions of the vat,

(c) a filtering sheet supported on the bottom wall of the vat for displacement in a direction parallel to the side walls,

(d) a transverse partition affixed to an end of the filtering sheet adjacent the fixed end wall of the vat for displacement with the filtering sheet in said direction, the partition defining with the side walls, the bottom wall and the mobile end wall an operating volume of the vat determining the amount of curds to be held in the vat, and displacement of the partition changing the operating volume, and the transverse partition being elastically compressible in a vertical direction whereby lowering of the pressing plate into the vat compresses the partition and permits the plate to apply pressure to the curds held in the vat, and

(e) means for simultaneously displacing the filtering sheet and the transverse partition affixed thereto in said direction.

4,393,760

JUICER

Tokuichiro Hasegawa, No. 18-6, 5-chome, Kanayama, Naka-ku, Nagoya-shi, Aichi-ken, Japan

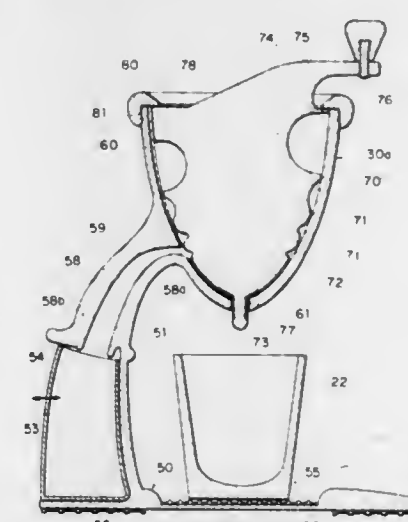
Continuation of Ser. No. 137,445, Apr. 4, 1980, abandoned. This application May 7, 1981, Ser. No. 261,387

Claims priority, application Japan, Apr. 12, 1979, 54-47599[U]

Int. Cl.³ A23N 1/02

U.S. Cl. 99—510

12 Claims



1. A juicer comprising a housing having a top portion with a raw material supplying mouth, a plurality of cutters, a support structure for said housing, a roll for pressing the raw material and a link means engaging the top portion for holding the roll within said housing; wherein

said housing has a bowl shaped structure with an exhaust port disposed at an intermediate portion thereof for removal of draft after pressing of said raw material, and further with an opening disposed at the bottom portion thereof for removal of juice produced by said pressing of said raw material; said plurality of cutters are arranged in vertical length in an inner wall of said housing;

said roll has a convex bowl shape corresponding to the inner shape of said housing and substantially fit within said housing, and further comprising spiral shaped top portion, spiral shaped intermediate portion and a bowl shaped bottom

portion, said spirals having their threads running vertically, and said top spiral having a larger space between each thread than the intermediate spiral, said bottom portion including a projection at the bottom thereof, said projection fitting into said opening disposed at the bottom of said housing, and wherein said bottom portion and said projection have a plurality of vertical grooves therein and terminating toward the end of said projection whereby squeezed juice will flow by gravity through said vertical grooves and out of said opening of said housing; and wherein

said roll is positioned with the portion between the intermediate spiral and the bottom portion being disposed adjacent said exhaust port, whereby said raw material is fed into said supplying mouth and by operating said roll, said raw material is pressed against said cutters first grossly by the upper spiral and then finely by the intermediate spiral, and then the resulting draff of said raw material is exhausted through said exhaust port and the resulting juice flows through said vertical grooves of said bottom portion and through said vertical grooves of said projection and through said opening at the bottom of said housing.

4,393,761

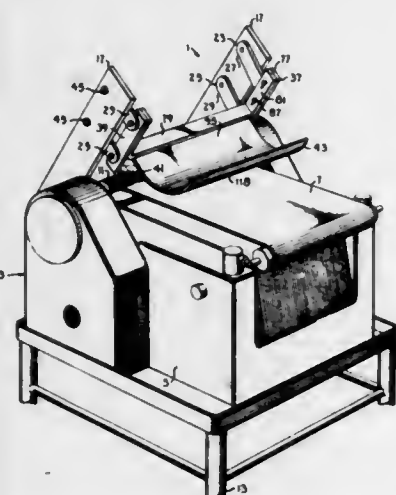
FLOATING KNIFE ASSEMBLY FOR A MEAT DEFATTING MACHINE

Robert P. Murphy, 1807 Commercial, St. Joseph, Mo. 64503
Filed Jul. 6, 1981, Ser. No. 281,006

Int. Cl.³ A22C 17/12

U.S. Cl. 99—589

8 Claims



1. A meat defatting machine for severing, from a succession of pieces of meat each having a red meat layer of constant thickness and a fat layer of varying thickness, a portion of said fat layer in excess of a desired total thickness of red meat layer and fat layer; said machine comprising:

- (a) a housing;
- (b) a knife blade;
- (c) conveyor means associated with said housing to present a succession of pieces of meat past said knife blade;
- (d) link means freely pivotally connecting said knife blade to said housing to allow said knife blade to be positioned over a continuous range of positions above said conveyor means;
- (e) gauge means communicating with said knife blade and engageable with said pieces of meat to automatically position said knife blade a distance above said conveyor means to sever from said pieces of meat a portion of the fat layer thereof in excess of a desired total thickness of red meat layer and fat layer remaining after said severance; wherein said link means includes:

- (1) a pair of spaced apart, vertically oriented, parallel support members rigidly connected to said housing;
- (2) a forward pair of spaced apart, vertically oriented, parallel mounting plates aligned with said support members and parallel thereto; said knife blade being

mounted on and extending between said forward plates and supported thereby;

- (3) a pair of upper and lower parallel links having each end thereof pivotally connected to an associated one of said support members and mounting plates respectively thereby forming a parallelogram.

4,393,762

SUNFLOWER SEED DEHULLING MACHINE

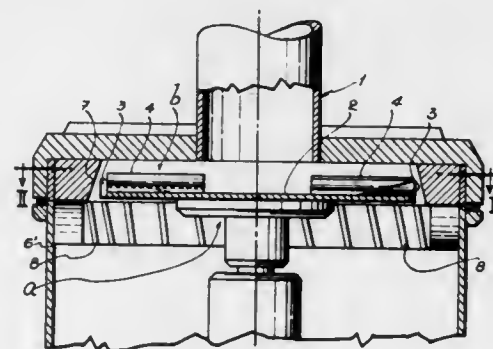
Wilson E. Jacobs, Buenos Aires, Argentina

Continuation of Ser. No. 142,018, Apr. 21, 1980, abandoned, which is a continuation-in-part of Ser. No. 30,372, Apr. 16, 1979, abandoned, which is a continuation of Ser. No. 852,929, Nov. 18, 1977, abandoned, which is a division of Ser. No. 636,994, Dec. 2, 1975, abandoned. This application Apr. 19, 1982, Ser. No. 369,814

Int. Cl.³ B02B 3/00, 7/02; B02C 9/02

U.S. Cl. 99—609

5 Claims



1. A rotor especially adapted for dehulling sunflower seeds, comprising:

a disc adapted to be rotated;
means for feeding sunflower seeds to a central portion of said disc;

substantially straight radially-disposed blades mounted on said disc extending from the edge of said disc to a position adjacent said central portion thereof for guiding the sunflower seeds from said central portion radially outward therefrom to the edge of said disc whereby the seeds are ejected radially outwardly of said disc along said blades by centrifugal force, said blades comprising a plate inclined with respect to said disc in the direction of disc rotation and forming with said disc a radial channel having a height conforming to the thickness of sunflower seeds adapted to orient the seeds with their major axes parallel to the radial channel axis as the seeds are ejected outwardly along said blades;

an annular impact ring surrounding said disc; and

means for sweeping seeds out of the path of said blades to clear the path of seed portions which rebound off said impact ring and avoiding interference by said rebounding seed portions with the seeds being ejected outwardly and maintaining said outwardly ejected seed in their proper orientation with their major axes parallel to the radial channel axis as the seeds are ejected outwardly of said disc toward said impact band, said sweeping means comprising fins mounted on said disc in front of said blades in the direction of disc rotation and extending radially outward of said disc beyond the most radially outward portion of said blades to a position spaced slightly inwardly from the face of said impact ring and each of said fins being constructed and arranged to intercept rebounding seed portions conveyed to the impact ring by the blade preceeding in the direction of disc rotation and to divert said rebounding seed portions away from the path of the sunflower seeds conveyed to the impact ring by the blade following in the direction of disc rotation.

4,393,763

METHOD AND APPARATUS FOR PRE-DRAPING AN OBJECT RECEIVING STATION WITH FLEXIBLE BINDING

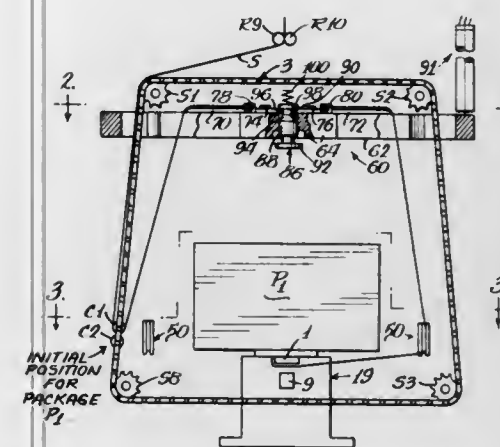
L. Peter Sauer, Glenview, and Ronald W. Gurak, Fox River Grove, both of Ill., assignors to Signode Corporation, Glenview, Ill.

Filed May 8, 1981, Ser. No. 261,969

Int. Cl.³ B65B 13/10

U.S. Cl. 100—2

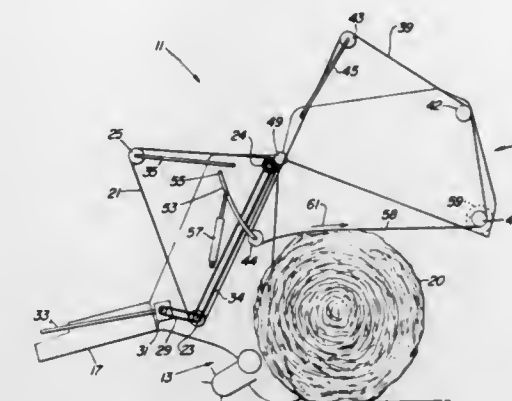
12 Claims



1. In a chuteless method for forming a loop of flexible binding about objects positioned seriatim in an object receiving station, said method including restraining an end of said binding adjacent said receiving station and then pulling a trailing portion of the binding in a closed path around an object; said method characterized by the improvement comprising:

- (a) while a previously bound first object is in said receiving station, initially pulling said trailing portion of the binding through a major portion of the locus of said closed path around the receiving station and guiding spaced portions of said binding from the interior of said path around said receiving station to retain the binding in a configuration spaced outwardly of said receiving station;
- (b) after commencing step (a), removing the bound first object from said receiving station;
- (c) positioning a second object in said receiving station; and
- (d) after terminating step (c), terminating said interior guiding of the binding around said receiving station to permit said binding to contact said second object while further pulling said trailing portion of the binding completely around said closed path and to then form a tensioned loop about the second object.

discharging said bale on the ground; the improvement comprising:



said gate means further comprising bale drive means for contacting a bale discharged on the ground and for displacing said bale along the ground away from said baler.

4,393,765

ALUMINUM CAN COMPACTOR

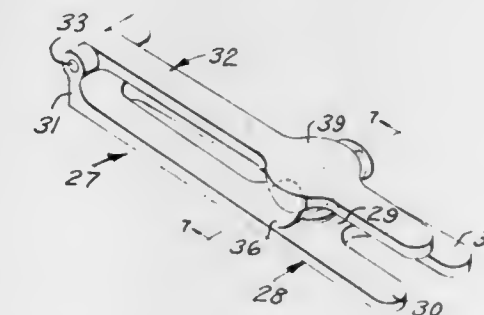
Albert Accettura, and Wanda J. Accettura, both of 25502 Jaclyn Ave., Sunnymead, Calif. 92388

Filed Jul. 27, 1981, Ser. No. 286,853

Int. Cl.³ B30B 9/32

U.S. Cl. 100—98 R

2 Claims



1. An aluminum can compactor device, comprising, in combination, a base member and a handle pivotally connected thereto by a hinge at one end of said base member and one end of said handle, said base member including a pair of parallel, elongated legs, a web between a longitudinally intermediate portion of said legs, a raised stage portion upon said web and an upward spike upon said raised stage portion; and a circular portion along a longitudinally intermediate portion of said handle being aligned with said stage of said web when said handle is pivoted in a closed position against said base member, and an upwardly recess on an underside of said handle circular portion.

4,393,766

BELT PRESS WITH HOSE-TYPE ACTUATOR

Peter Thies, Ennepetal-Voerde, Fed. Rep. of Germany, assignor to Wagener Schwelm GmbH & Co., Schwelm, Fed. Rep. of Germany

Filed Jul. 24, 1981, Ser. No. 286,670

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1980, 3028400

Int. Cl.³ B30B 15/06

U.S. Cl. 100—99

10 Claims

1. A belt press comprising:
a plurality of upper and a plurality of lower traverses respectively having lower and upper traverse faces;
respective upright tie bolts extending vertically between said upper and lower traverses and securing said lower traverses to the respective upper traverses;
upper and lower press platens carried on and between said traverses and having respective upper and lower platen

4,393,764

ROUND BALER WITH A DISCHARGE GATE FOR REARWARDLY MOVING A BALE

Jean Viaud, Gray, France, assignor to Deere & Company, Moline, Ill.

Filed Aug. 20, 1981, Ser. No. 294,651

Claims priority, application France, Aug. 20, 1980, 80 18200

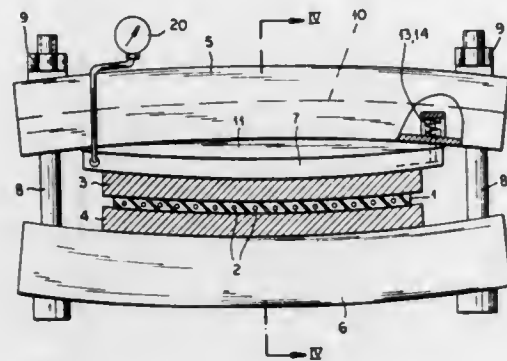
Int. Cl.³ B30B 5/06; A01D 39/00

U.S. Cl. 100—88

6 Claims

1. In a round baler comprising:
a plurality of transverse rollers;
means supported on said rollers and defining a bale forming chamber for forming a bale of generally cylindrical shape; and
a bale discharge gate means for opening said chamber and

faces respectively confronting said lower and upper traverse faces;
hydraulic actuating means for displacing said traverses toward each other and thereby pressing said platens against a belt engaged therebetween, said means being engaged between one of said platen faces and the confronting traverse face and having
a pressure plate bearing on said one platen face,
a plurality of diametrically compressible but circumferentially unstretchable hydraulic hoses forming at least one substantially closed chamber and bearing in one direction in surface contact on said pressure plate and in the oppo-



site direction in surface contact at least indirectly on said confronting traverse face, said hoses having in uncompressed condition a predetermined hose diameter but being partially flattened between said plate and said confronting traverse face, and
means for pressurizing said chamber;
means for displacement of said plate toward and away from said confronting traverse face only through a distance substantially shorter than said diameter; and
at least one bend-compensating element having a pair of nonparallel upper and lower surfaces and engaged between said hydraulic actuating means and one of the respective faces.

4,393,767

VERTICAL REFUSE COMPACTOR

James H. Duffield, Palgrave, Canada, assignor to Reftech Limited, Woodbridge, Canada

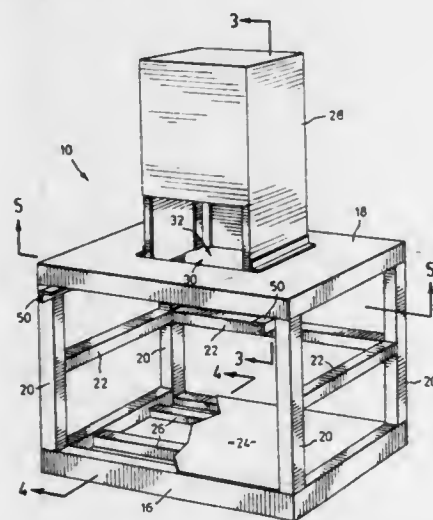
Filed Aug. 28, 1981, Ser. No. 297,196

Claims priority, application Canada, Aug. 11, 1981, 383644

Int. Cl.³ B30B 15/30

U.S. Cl. 100—229 A

16 Claims



1. A compactor for compacting material in an open topped receptacle comprising:
an enclosure structure including a bottom side, a coextensive top side and rigid vertical post structures extending between and connecting said bottom and top sides, the top

side having an opening for passing refuse material there-through;
said bottom side including a receptacle support surface which is inclined from a high front end to a low rear end; the enclosure structure defining a front opening for passing a receptacle therethrough;
means for retaining a receptacle on said support surface, said retaining means preventing horizontal movement of said receptacle in any horizontal direction except in a direction up said inclined surface out of said front opening; and
a compactor device mounted on the top side over said top side opening, said compactor device including a ram member mounted for reciprocal, vertical movement into and out of a receptacle arranged on said support surface, said compactor device having a refuse receiving opening located below the ram for passing refuse therethrough and through the top side opening into a receptacle.

4,393,768

VARIABLE DATA IMPRINTER WITH RACK CENTERING AND CARRIAGE INTERLOCK MECHANISM

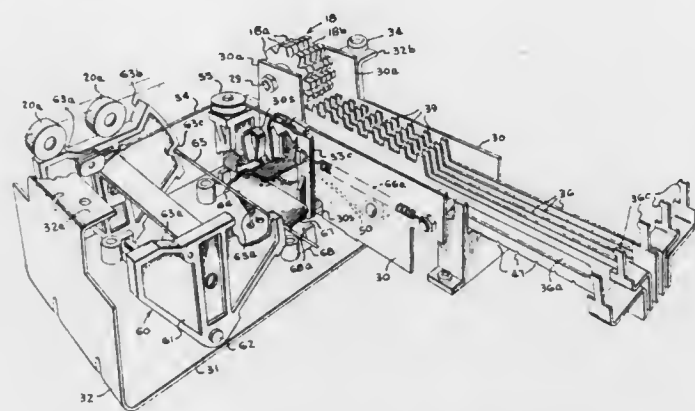
William P. Barbour, Mount Prospect, Ill., assignor to Security Imprinter Corporation, Walkersville, Md.

Continuation of Ser. No. 146,098, May 2, 1980, abandoned. This application Feb. 26, 1982, Ser. No. 352,931

Int. Cl.³ B41F 3/60

U.S. Cl. 101—45

10 Claims



1. A variable data imprinting machine comprising an elongated flat printing bed section providing a document supporting surface and including a print wheel pack adjacent said surface formed of rotatable, coaxial side-by-side closely adjacent print wheels each having circumferentially spaced raised-number-bearing imprint block formations separated by notches about their peripheries for imparting impressions to a document on said surface, an imprinting carriage movable from a parking position at one end of said surface through advance and return strokes longitudinally along the document support surface having a roller platen for transfer of imprinted characters to the document during one of said strokes, an elongated rack housing portion underlying and extending beyond the printing bed section defining a rack adjustment control panel projecting from a side of the printing bed section, a plurality of toothed racks slidable longitudinally in said rack housing portion with teeth of each of the racks engaging notches of the respective print wheels to rotatably index the print wheels to selected number-printing positions, means slidably supporting and guiding the toothed racks for longitudinal wheel-indexing movement subjacent the print wheels of the wheel pack, said racks having downwardly facing centering notches along their lower edges in predetermined positional relationship to said teeth, a rack centering mechanism including a blade member underlying the racks having a blade movable into and out of said notches and lifting means for raising said blade member and a control leg, a pivoted quadrant member of generally sector-shaped elevational profile located subjacent said parking position and pivoted adjacent the lowermost portion thereof about a pivot axis located below the plane of said

supporting surface, said quadrant member having generally arcuate convex peripheral surface portions movable circumferentially of said pivot axis adjoining shoulder formations defining an intercept surface in the path of advancing movement of said carriage from the parked position and a stop shoulder engageable with said control leg to latch the quadrant member in a blocking position restraining the carriage in said parking position, means moving the control leg from latching abutment with said stop shoulder responsive to adjustment of the toothed racks to new settings, and means positioned to be activated by movement of said carriage during a pre-imprinting part of its advance stroke to insert said blade into said centering notches of each rack for precisely aligning the print wheels to insure proper fine adjustment registration of the imprinting numbers at the printing positions.

4,393,769

ELECTROSTATIC CLUTCH-OPERATED PRINTING MECHANISM

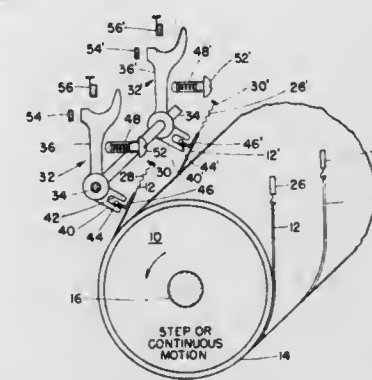
Alfred J. Landon, Peekskill; William B. Pennebaker, Carmel, and Han C. Wang, Chappaqua, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,864

Int. Cl.³ B41J 9/10, 9/32, 9/36

U.S. Cl. 101—93.3

2 Claims



1. A printing mechanism, comprising:

- an electrostatic clutch assembly, including a rotatively mounted semiconductive drum, and a conductive band wrapped around the periphery of said drum such that the application of a voltage pulse across said drum and band generates an electrostatic force therebetween, and means for rotating said drum;
- a printing hammer rotatably mounted on a hammer shaft, and having a first arm extending from said hammer shaft and having a hammer head, said hammer head causing a printing operation during rotational movement of the printing hammer about said shaft in a first direction, said printing hammer also having a second arm extending from said hammer shaft in a direction substantially opposite to that of said first arm, said second arm defining an elongated slot along its length, and a pin being mounted in said slot and further being coupled to said band for movement therewith; and
- a spring means for actuating said printing hammer, said spring means being mechanically coupled to said band through said printing hammer which is pulled to a cocked position, against the compressive action of said spring, by said band during the application of a voltage pulse across said electrostatic clutch while said drum is rotating, said printing hammer being actuated by the cocked spring at the termination of the voltage pulse which releases the spring, and said spring means compressively bearing against said first arm during rotation of said first arm in a direction counter to said first direction.

4,393,770

PRINTER WITH PRINTING DRUM

Hiroshi Takahashi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo and Canon Denshi Kabushiki Kaisha, Saitama, both of Japan

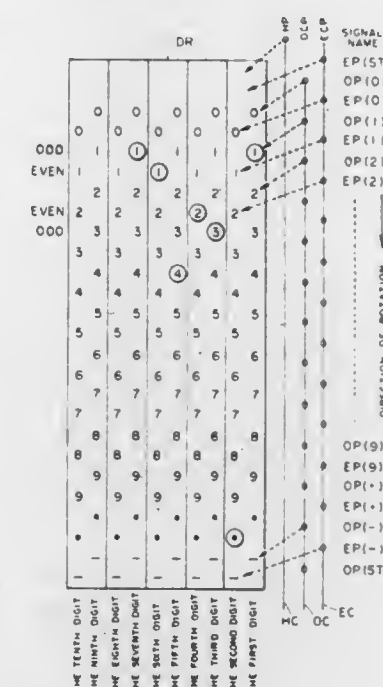
Filed Sep. 1, 1981, Ser. No. 298,467

Claims priority, application Japan, Sep. 8, 1980, 55-124988

Int. Cl.³ B41J 1/44

U.S. Cl. 101—93.22

2 Claims



1. A printer comprising:
a printing drum comprising a group of odd digit types and a group of even digit types, said odd digit types and said even digit types being disposed so as to come into a printing position alternately;
means for generating timing a pulse for indicating the position of said odd digit type on said drum;
means for generating a timing pulse for indicating the position of said even digit type on said drum;
means for stopping said drum when any selected type or said drum comes into the print position; and
means for carrying out printing following a predetermined time measured from detection of a timing pulse of even digit type which is positioned just before an odd digit type when the odd digit type is to be printed, and for carrying out printing following the predetermined time measured from detection of a timing pulse of odd digit which is positioned just before an even digit when the even digit is to be printed.

4,393,771

PRINTING HEAD FOR A PRINTER

Juichi Tatsumi, Iruma, Japan, assignor to Ye Data Inc., Tokyo, Japan

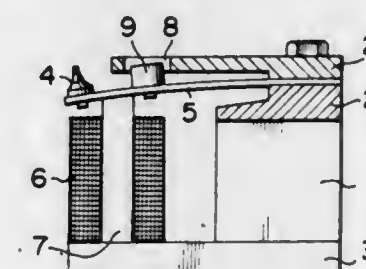
Filed Nov. 24, 1981, Ser. No. 324,637

Claims priority, application Japan, Nov. 25, 1980, 55-167504[U]

Int. Cl.³ B41J 9/02

U.S. Cl. 101—93.48

2 Claims



1. In permanent magnet type printing head for an impact dot

printer wherein a plate spring hammer has a hammer tip provided on one side thereof, and an attracting magnetic pole provided with a releasing electromagnetic coil arranged on another side opposite said hammer, the improvement comprising an armature disposed on the side where said hammer tip of said plate spring hammer is provided, and a yoke formed with a through hole or notch within which said armature is movable, said attracting magnetic pole being arranged between said hammer tip and said armature.

4,393,772

ROTARY PRINTING MACHINE, PARTICULARLY NEWSPAPER-TYPE OFFSET PRINTING MACHINE
Rainer Burger, Augsburg, Fed. Rep. of Germany, assignor to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany

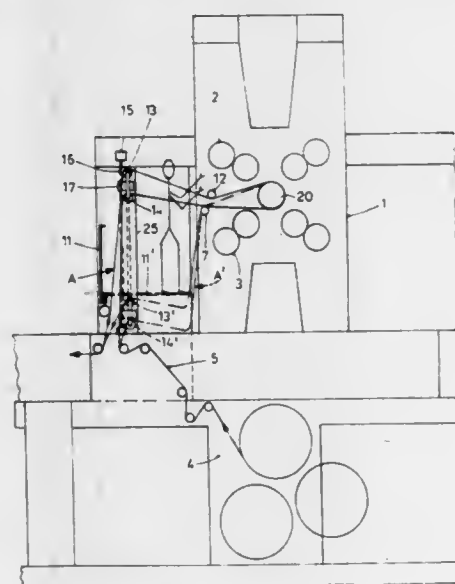
Filed Sep. 11, 1981, Ser. No. 301,319

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1980, 3034670

Int. Cl.³ B41F 7/02

U.S. Cl. 101-217

13 Claims



1. Rotary printing machine having a printing station (1, 2, 3); two vertically staggered guide rollers (13, 14), one being associated with a section of a paper web (5) being supplied to a printing cylinder (20) of the printing station, and the other being associated with a section of the paper web being removed from the printing station, said guide rollers guiding the paper web in a guide path having a portion extending essentially in vertical direction (A, A'), a portion extending in essentially horizontal direction for guidance of the paper web with respect to the printing cylinder of the printing station, the portion extending in essentially horizontal direction being sufficiently long to space the essentially vertical portion of the path from the printing station by a distance sufficient to render the printing station accessible to an operator; vertically movable positioning means (15, 16, 17) coupled to the two guide rollers and selectively positioning the two guide rollers with respect to the printing station to change the relative position of the essentially horizontal portion and the essentially vertical portion of the guide path of the web (5) with respect to the printing station; a pivotable operator platform (11) selectively horizontally positionable above the horizontal portion of the web path when the essentially vertical portion of the web is adjacent the printing cylinder, and the horizontal portion is remote from the printing cylinder, and separated therefrom by the essentially vertical portion (A'), and pivotable to a vertical position about a pivot axis located remote from the vertical portion of the web when the vertical portion of the web is adjacent the printing station; and guide means (25) guiding movement of the two guide

rollers (13, 14) between an upper and a lower position in which, respectively, when the guide rollers are in the upper position, the horizontally extending portion of the web is in essential alignment with the printing cylinder, and thereby spacing the portion extending in vertical direction from the printing cylinder by the horizontally extending portion, and, when the guide rollers are in the lower position, the horizontally extending portion of the web is positioned below the pivot axis of the pivotable operator platform.

4,393,773

ROTARY SHEET PRINTING MACHINE WITH TRANSPORT CHAIN

Klaus Theilacker, Friedberg, Fed. Rep. of Germany, assignor to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Offenbach Am Main, Fed. Rep. of Germany

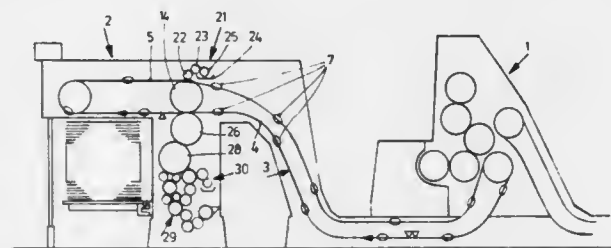
Filed Mar. 22, 1982, Ser. No. 360,067

Claims priority, application Fed. Rep. of Germany, Apr. 8, 1981, 3114076

Int. Cl.³ B41F 21/06

U.S. Cl. 101-232

15 Claims



1. Rotary sheet printing machine having a printing station (1) and a receiving station (2); a transport chain system (3) to transport sheets from the printing station to the receiving station including an endless transport chain (6) forming a supply run (4) and a return run (5) and having grippers (13) located thereon; means (21) applying a liquid to at least the upper side of the sheet being transported by the chain system including a liquid application cylinder (14) located between the supply run and the return run of the chain formed with an axial groove (15) in its circumference, and a counter cylinder (26) located for surface engagement with the liquid application cylinder opposite the supply run of the chain wherein, in accordance with the invention the axial groove in the liquid application cylinder (14) is dimensioned to receive the entirety of the grippers (13) of the transport chain (6); supply chain guide means (17, 19) are provided guiding the chain with respect to the liquid application cylinder such that a gripping surface (9, 27) of the grippers is tangent to the liquid application cylinder; and return chain guide means (18, 20) are provided guiding the chain with respect to the liquid application cylinder such that the grippers (13) are wholly received in the groove (15) to permit application of a liquid to the liquid application cylinder at the side thereof engaged by the return run of the chain.

4,393,774

APPARATUS FOR PRINTING AND DISPENSING LABELS

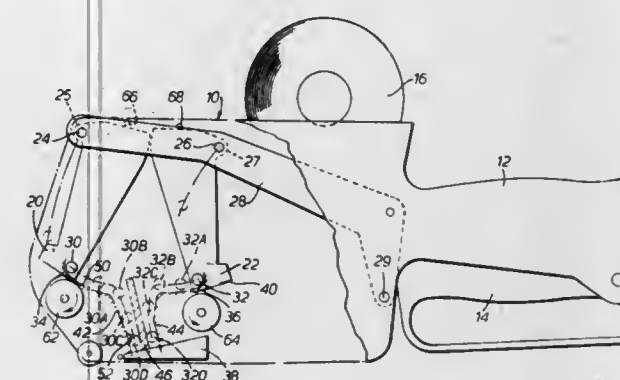
Anthony V. J. Figg, Kirby Cross, England, assignor to Norprint International, Boston, England

Continuation-in-part of Ser. No. 114,686, May 23, 1979, abandoned. This application Sep. 29, 1981, Ser. No. 306,853
Claims priority, application United Kingdom, May 23, 1978, 21428/78

Int. Cl.³ B41K 5/02, 1/08

U.S. Cl. 101-288

5 Claims



1. In apparatus for printing and dispensing labels, at a printing station having a printing surface, a body, a print-head assembly supported within the body, having a row of operative print facets, and being operative to produce a print impression on a label during each operating cycle of the apparatus, said cycle extending in a forward direction from a rest configuration of the apparatus to a printing station configuration and return to the rest configuration, lever means pivotally mounting the print-head assembly in the body, means biasing the lever means to the rest configuration in the operating cycle, means pivotally mounting the print-head assembly on said lever means at a location on the lever means remote from the point of pivoting of the lever means on the body and also remote from the operative print facets, means for actuating the lever means to bring the print-head assembly and the operative print facets thereof to the printing station during each operating cycle, and cam means, including track means controlling the angular orientation of the print head assembly during part of the pivotal motion of the lever means relative to the body and of the print head assembly relative to the lever means, said track means comprising a first track portion that extends from the rest configuration of the print head assembly, and a second track portion that extends from the first track portion towards the configuration at the print station a follower spigot on the print-head assembly disposed at the end of the print head assembly remote from the pivot mounting thereof, an inking roller assembly having an inking roller, said inking roller being operative during the forward portion of the operating cycle to ink the operative print facets and to guide the print-head assembly along its path towards said printing station, the first track portion also being effective, in the absence of the inking roller, to guide the print-head assembly along a path towards the printing station, first said track portion and also the inking roller being ineffective to guide the print-head assembly over the corresponding return portion of the return stroke of the operating cycle under the action of the biasing means so that irrespective of the presence of the inking roller, no further inking of the operative print facets can occur, the second track portion being operative at said printing station in conjunction with the follower spigot positively to constrain the print-head assembly against mo-

tion in the plane of the operative print facets thereby to avoid a blurred impression and, the pivot point of the print-head assembly on the lever means being offset substantially from an imaginary plane passing through the operative row of print facets at the printing surface and extending normally to the plane of the row of print facets.

4,393,775

ARRANGEMENT FOR METERING THE INK QUANTITY IN INKING UNITS ON PRINTING PRESSES

Bert Cappel; Gunther Schniggenfittig, both of Mulheim, and Siegfried Schuhmann, Offenbach am Main, all of Fed. Rep. of Germany, assignors to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

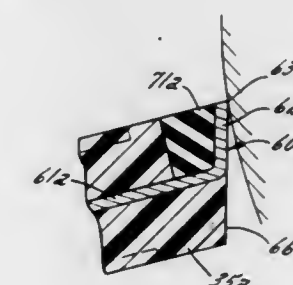
Filed Aug. 3, 1981, Ser. No. 289,365

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1980, 3030774

Int. Cl.³ B41F 31/02, 1/46

U.S. Cl. 101-365

5 Claims



1. In an ink fountain combination comprising a frame defining a generally horizontal slot having parallel walls, a fountain roller rotatable in the frame adjacent the slot and having means for slowly driving the same, a metering assembly mounted in the slot and having a presented front edge arranged in abutting relation to the surface of the roller, the frame being shaped to support a body of ink adjacent the metering assembly so that a film of ink is formed on the roller by the assembly as the roller is rotated, the metering assembly being in the form of a series of flat slides fitted in the slot and arranged side by side in coplanar relation with their lateral edge lying closely adjacent one another so that the preferred front edge is substantially continuous, means at the rear ends of the respective slides for individually adjusting the position of each slide with respect to the fountain roller thereby to meter ink in predetermined thickness in respective zones upon the foundation roller, the front portion of each slide having embedded therein a blade of wear-resistant spring metal, each said slide having a tip portion formed of a generally rectangular piece of resilient material, the tip portion of each slide being relieved in the region just behind the blade to accommodate rearward flexing movement of the blade, such relief being provided by a transverse groove substantially filled with a yieldable strip of soft material flush with the top surface of the groove such that each slide presents only planar surfaces free of nooks and crannies behind the blade, the blade being coextensive with the width of the slide and so oriented in the slide as to present a flat face to the fountain roller defining with the fountain roller a sharply acute cusp faced in such direction that the surface of the roller moves out of the cusp so that (a) when the slide is slightly retracted from the fountain roller in a metering mode a gap is created for the feeding of a film or ink on the roller surface at a metered rate which depends upon the degree of retraction and so that (b) when the slide is advanced to close the gap in a sealing mode the edge of the blade bears against the surface of the fountain roller flexing broadwise resiliently and accommodatingly to achieve a seal between the blade and the fountain roller with only a limited reaction force being exerted between them.

4,393,776

INK FOUNTAIN DEVICE FOR USE IN PRINTING PRESS
Hideaki Toyoda, Tokyo, Japan, assignor to Komori Printing Machinery Co., Ltd., Tokyo, Japan

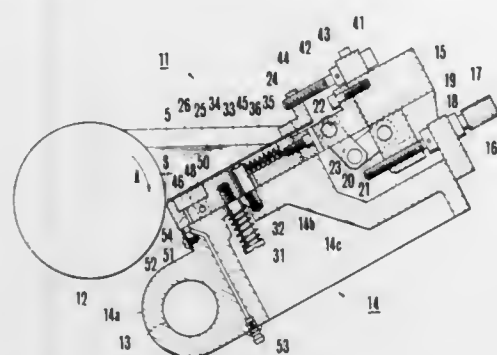
Filed Aug. 12, 1981, Ser. No. 292,304

Claims priority, application Japan, Feb. 20, 1981; 56-24760

Int. Cl.³ B41F 31/04, 31/06

U.S. Cl. 101—365

9 Claims



1. An ink fountain device for use in a printing press having an ink fountain containing printing ink, said ink fountain comprising an inking roller immersed in said printing ink contained in said ink fountain; a blade support; a plurality of blade sections juxtaposed on said blade support along the length of said inking roller, each of said blade sections being spaced an independent predetermined distance from the periphery of said inking roller; independent gap adjustment means for each of said blade sections for independently adjusting said predetermined distance between said blade section and the periphery of said inking roller; a thin magnetic plate extended over all of said blade sections, said thin magnetic plate having substantially the same width as the combined width of said blade sections; and a permanent magnet associated with each of said blade sections beneath said thin magnetic plate for attracting said magnetic plate to each of said blade sections.

4,393,777

HOLDING FIXTURE FOR A HOT STAMPING PRESS

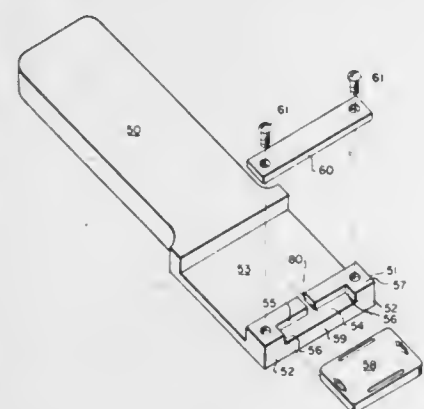
Raymond P. Harris, Baltimore, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 16, 1981, Ser. No. 225,499

Int. Cl.³ B41F 21/00

U.S. Cl. 101—407 BP

3 Claims



1. A fixture for holding a flat, stiff workpiece for contact with a stamp head, comprising:
a unitary member having a generally elongate shape providing a hand graspable section (50) and a planar, distal terminal section (51);
a narrow and elongate slot (54) formed in said planar, distal terminal section having a bottom surface, a rear surface, and at least one side wall said slot being open to the end and top surfaces of said terminal section; and
an elongate cover (60) having a flat underside detachably

secured to said top surface of said terminal section and forming with said bottom surface, rear surface and said side wall of said slot a continuous force-fit receptacle for a terminal segment of a flat workpiece having a thickness substantially equal to the separation between said underside of said cover and said bottom wall of said slot.

4,393,778

DEVICE FOR WASHING BLANKET CYLINDER OF ROTARY OFFSET PRESS

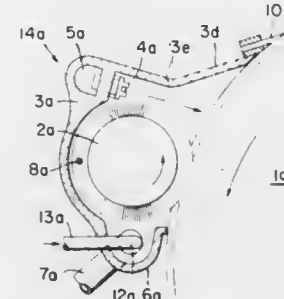
Toshihisa Kaneko, Tokyo, Japan, assignor to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 15, 1981, Ser. No. 283,440

Int. Cl.³ B41F 35/06; B41L 41/06

U.S. Cl. 101—425

5 Claims



1. In a device for washing a blanket cylinder of a rotary offset press, which device comprises a brush roll disposed on a lateral side of the blanket cylinder for rotation about an axis parallel to the axis of the blanket cylinder, in the same rotational direction as the blanket cylinder, and in pressed state in a region of contact against the blanket cylinder, the rotational direction of the brush roll being such that the peripheral surface thereof in said region of contact moves upward, spraying means disposed above the brush roll for spraying a wash liquid against the blanket cylinder at a part thereof in front of the region of contact as viewed in the rotational direction of the blanket cylinder, and a housing enclosing the brush roll and the spray means, functioning to prevent the washing liquid from scattering undesirably to other parts of the press, and having a trough at the bottom thereof for collecting waste washing liquid and washed-off foreign matter, said housing having a ceiling plate having a bent portion from which the ceiling plate extends obliquely upward with an eave-like shape toward an edge in close proximity of the blanket cylinder, said bent portion being the lowest portion of the ceiling plate and located above the brush roll whereby droplets of the washing liquid slung upward against the ceiling plate flow downward therealong toward said bent portion to drip onto the brush roll and not onto the blanket roll.

4,393,779

ELECTRIC DETONATOR ELEMENT

Uwe Brede, and Horst Penner, both of Fürth, Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Continuation of Ser. No. 948,782, Oct. 5, 1978, abandoned. This application Jul. 23, 1980, Ser. No. 171,293

Claims priority, application Fed. Rep. of Germany, Oct. 20, 1977, 2747163

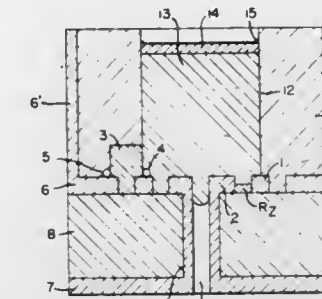
Int. Cl.³ F42B 5/08

U.S. Cl. 102—202.5

12 Claims

1. An electrical detonator element comprising:
a support of an electrically nonconductive material;
an electric circuit provided on the support for enabling detonation, the electric circuit including an ignition resistance with lead electrodes connected thereto and at least one electronic component means, the ignition resistance and the at least one electronic component means being electrically connected in the electrical circuit and each being separately arranged on the support; and

a mechanically firm insulating member contacting the support so as to at least partially cover the at least one electronic component means, the at least one electronic component means being embedded in the insulating member, the insulat-



ing member being provided with a recess in the region of the ignition resistance which exposes at least the ignition resistance, the recess extending through the insulating member and being adapted for receiving a primer charge in operative connection with the ignition resistance.

4,393,780

OMNI DIRECTIONAL FUZE

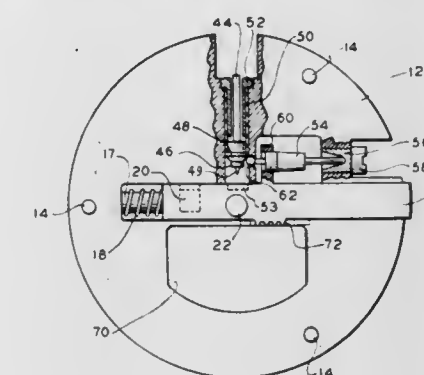
Alexey T. Zacharin, Parsippany, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 17, 1981, Ser. No. 293,739

Int. Cl.³ F42C 1/06, 9/02; F42B 23/26

U.S. Cl. 102—255

13 Claims



1. A fuze comprising:
a frame;
a firing pin slidably mounted in said frame;
a slider supporting a detonator, for moving said detonator into alignment with said pin;
an impact sensor for engaging and restraining said pin, said sensor being pivotally mounted in said frame;
said slider having a safe position and having an arm sized to hold said sensor when said slider is in said safe position, said sensor being free to pivot and to disengage said pin in response to deceleration of said frame in excess of a predetermined magnitude when said slider has moved said detonator into alignment with said pin.

4,393,781

FUZE FOR LIQUID SHELL PROPELLANTS

Manfred Graf, Düsseldorf, Fed. Rep. of Germany, assignor to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Feb. 26, 1973, Ser. No. 337,093

Claims priority, application Fed. Rep. of Germany, Apr. 13, 1972, 2217728

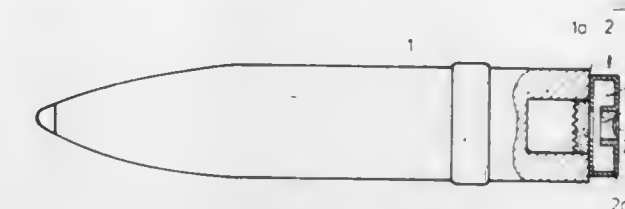
Int. Cl.³ F42B 5/16, 9/14

U.S. Cl. 102—440

2 Claims

1. A fuze for firing a projectile from a gun barrel, comprising:
a pyrotechnical detonator disposed at the aft end of a projectile to be fired, said detonator having a diameter less than the caliber of said projectile;

a breech piece secured to the rear end of the gun barrel and defining therewith a charge chamber centered on an axis; positioning means for emplacing said projectile in said gun barrel with said detonator extending rearwardly into said charge chamber along said axis, said breech piece being



provided with at least one conduit opening tangentially into said charge chamber for injecting a liquid propellant into same with circulatory motion around said detonator; and igniting means for setting off said detonator in the presence of the circulating propellant.

4,393,782

REVOLVING FIREARMS AND AMMUNITION THEREFOR

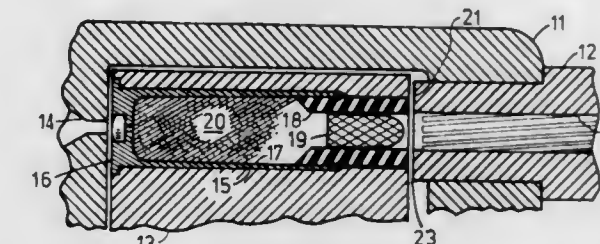
Charles R. Olsen, 307 Conestoga Way, Eagleville, Pa. 19408

Filed Sep. 16, 1980, Ser. No. 187,772

Int. Cl.³ F42B 5/02

U.S. Cl. 102—446

17 Claims



1. A firearm special-cartridge for use in the cylinder of a revolving cylinder firearm of the type having a barrel in front of the cylinder and in which the cylinder has a plurality of axially extending chambers each having an open mouth, said cartridge comprising in combination,

(a) a cartridge case having a closed head and an open mouth, the said cartridge case open mouth being spaced rearward of the revolver cylinder chamber mouth when the cartridge is installed in a revolver cylinder chamber,
(b) a generally cylindrical adapter member made of resiliently deformable material having a passage open at both ends extending therethrough from one end to the other along the cylindrical axis and having an external diameter at least at the rear end which fits closely within the mouth of the cartridge case, said adapter front end extending substantially to the mouth of the revolver cylinder chamber when the cartridge is installed in a revolver cylinder, the rear end of said adapter being formed to be radially expandable under gas pressure formed within the cartridge case upon firing of the cartridge to peripherally seal the outside surface of the adapter against the inside surface of the cartridge case and minimize escape of propellant gas between the said adapter and cartridge case,
(c) means securing said adapter within said cartridge case, and
(d) a bullet disposed close-fittingly within the open passage through said adapter and closing the open cross-sectional area thereof,

whereby, when the cartridge is fired the expanding gas drives the resilient adapter forward so that its front end strikes the rear face of the firearm barrel to seal the cylinder-to-barrel gap and prevent the escape of propellant gas except through the barrel muzzle, and thereafter when the bullet exits the barrel

muzzle the reduction of gas pressure to ambient permits longitudinal retraction of the resilient adapter and frees the cylinder for rotation.

4,393,783

FLUIDIC RANGE-SAFE EXPLOSIVE DEVICE

Michael J. Goes, Mine Hill; John R. Masly, Landing, and Albertus E. Schmidlin, Caldwell, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

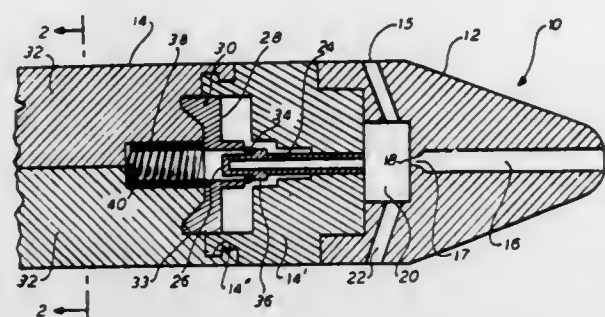
Division of Ser. No. 126,802, Mar. 3, 1980, Pat. No. 4,334,478.

This application Nov. 2, 1981, Ser. No. 317,049

Int. Cl.³ F42B 9/20

U.S. Cl. 102—529

3 Claims



1. Fluidic range safe device which comprises;

a projectile having a leading nose portion and a generally cylindrical body portion located therebehind, said body portion including;

at least two complementary longitudinal segments adjacently disposed to form a cylindrically shaped body assembly, said body assembly having a plurality of cylindrical recesses axially located therein and a tongue-in-groove end;

a cylindrical forward body portion operatively disposed intermediate said longitudinal segments and said nose portion, said forward body portion snapfittably engaging said tongue-in-groove end of said longitudinal segments and to said nose portion;

means for thermally inducing disintegration of said body portion of said projectile further comprising;

a nozzle element axially disposed in said nose portion, said nozzle element tapering to a reduced diameter orifice; an air vent assembly communicating with said orifice, said air vent assembly comprising an air collection chamber and air escape channels radiating therefrom;

temperature responsive fragmentation means located in said forward body portion in fluid registry with said air vent assembly, said fragmentation means adapted to respond to elevated temperature to cause said body portion to disintegrate which includes;

temperature transmitter means disposed within said body, said temperature transmitter adapted to absorb and transmit thermal energy, said transmitter means includes a temperature absorptive tube having an open end communicating with said air collection chamber, and an opposed closed end; and

fragmentation promoter means, disposed in registry with said closed end of said temperature absorptive tube, for overcoming the cohesive forces maintaining the integrity of said body portion; said promoter means includes;

retainer means comprising a spider member for releasably holding said longitudinal segments and said forward body portions together during projectile launch and flight, and for mechanically allowing said longitudinal segments to separate from said forward body portion after said projectile has traveled a specified distance down range; and

said release means comprises a movable cutter ram disposed at one end thereof in axial abutment against said retainer, and a thermally actuated explosive charge located between the opposite end of said cutter ram and the closed end of said temperature absorptive tube,

whereby the detonation of said explosive charge forces said cutter ram to impinge upon said retainer to cut said retainer and to force said retainer to release said longitudinal segments.

4,393,784

APPARATUS FOR REPLACING RAIL FASTENING ELEMENTS AND, OPTIONALLY, RAILS

Josef Theurer, Vienna, Austria, assignor to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Continuation of Ser. No. 149,159, May 14, 1980, abandoned,

which is a continuation of Ser. No. 902,853, May 4, 1978,

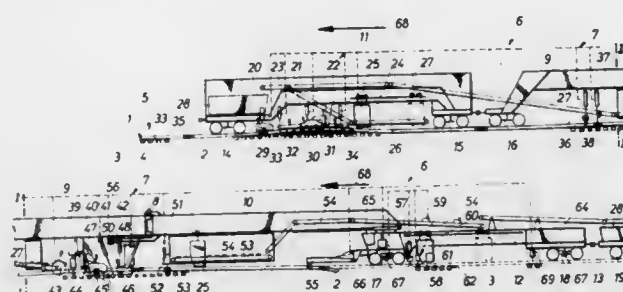
abandoned. This application Dec. 18, 1981, Ser. No. 332,303

Claims priority, application Austria, May 6, 1977, 3255/77

Int. Cl.³ E01B 29/20, 31/26, 31/22

U.S. Cl. 104—2

7 Claims



1. An apparatus for replacing track rails fixed to ties with old rail fastening elements at a predetermined track gauge by track rails fixed to the ties with new rail fastening elements at said gauge, which comprises

(a) a train of a plurality of track-bound cars mounted for mobility along the track rails at said gauge in an operating direction and one of the cars being a carrier frame comprising

(1) two pivotal frame parts and

(2) a pivoting axle extending substantially perpendicularly to a plane defined by the track rails and interconnecting the pivotal frame parts for pivotal movement with respect to each other,

(b) an assembly line of a series of individual operating mechanisms arranged spacedly and sequentially on the track-bound cars, each of the operating mechanisms including vertically movable tools mounted on the cars and centered over their work, the assembly line comprising, in sequence,

(1) a first one of the individual operating mechanisms including tools for detaching the old rail fastening elements from the ties, the removed rail fastening elements leaving holes in the ties,

(2) another one of the individual operating mechanisms for lifting the rails at gauge and for spreading the lifted rails beyond the track gauge, the first and other operating mechanisms being arranged on a forward one of the frame parts, as seen in the operating direction,

(3) means for working on the ties mounted on the carrier frame, the tie working means including an operating mechanism for plugging the holes in the ties and an operating mechanism for adzing the ties,

(4) an additional one of the individual operating mechanisms for placing the track rails on the plugged and adzed ties at said gauge,

(5) a further one of the individual operating mechanisms including tools for applying the new rail fastening elements to fix the track rails to the plugged and adzed ties, the additional and further operating mechanisms being arranged on a rear one of the frame parts, as seen in the operating direction, and

(6) respective tie holding devices associated with the tie working means and the first operating mechanism.

4,393,785

SUSPENDED TRACK FOR MONORAIL SUSPENDED TROLLEYS

Franz Hörtnagel, Oberperfuss, Austria, assignor to Firma R. Stahl GmbH & Co., Stuttgart-Wangen, Fed. Rep. of Germany

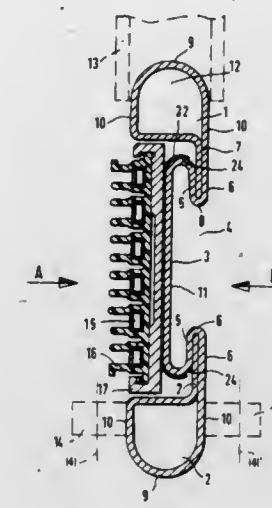
Filed Mar. 25, 1981, Ser. No. 247,524

Claims priority, application Fed. Rep. of Germany, May 21, 1980, 3019301

Int. Cl.³ E01B 25/22

U.S. Cl. 104—110

20 Claims



1. Suspended track for monorail suspended trolleys having an upper hollow structural section (1); a lower hollow structural sections (2);

and a connecting web (3) connecting said upper and lower sections together, adapted to be supported by hanger elements (25) laterally attachable to said web, and further being adapted to support electrical connection tracks, buses or rails (15),

said connecting web being a unitary element integral with the upper and lower hollow structural section and defining a central portion, and mutually approaching end portions leaving, between the ends (8) thereof, an open space; and wherein, in accordance with the invention, the central portion of the generally C-cross-sectionally shaped connecting web forms a back portion (11); the end portions of said web extend forwardly from the back portion, converging towards each other and leaving, between the ends (8) thereof, a groove-like open gap (4) which defines said space;

and mutually diverging wing portions (6) are provided extending upwardly and downwardly away from said gap (4), said wing portions merging into said upper and lower hollow structural sections (1, 2) and extending to form upper and lower hollow structural portions, respectively, of said sections.

4,393,786

TRACK CROSSING FOR A TWO TRACK SUSPENSION RAILROAD

Hans J. Düll, Langensendelbach, and Adolf Hillmer, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 5, 1980, Ser. No. 213,674

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2950017

Int. Cl.³ E01B 25/12

U.S. Cl. 104—141

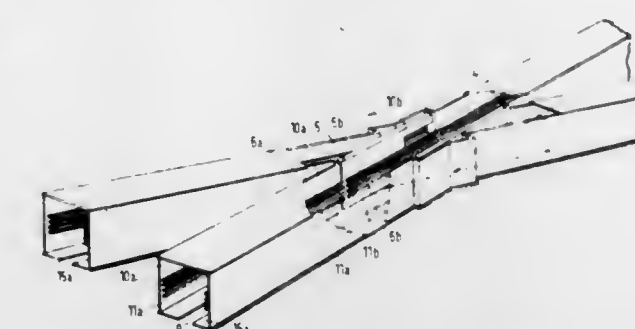
5 Claims

1. In a track crossing for a carriage of a two-track suspension railroad arranged in a track girder, in which running surfaces for support wheels are provided on both sides of a slot provided in the track girder, through which a suspension connecting the carriage to a cabin passes, the improvement comprising:

(a) the track girder being a box girder, at the sidewalls of

which parallel guide surfaces for lateral guide wheels and current rails are arranged,

(b) two settable support members having lateral guide surfaces for bridging the unused track pivoted for swinging motion at the mutually opposite sidewalls of the crossing track girders about vertical axes;



(c) depressions in the sidewalls of the box girders in the one or the other track into which said support members can be swung; and

(d) current rails on at least one of said support members.

4,393,787

ROLLER SIDE BEARING MOUNTING SYSTEM AND METHOD

George M. Hess, Huron, and James A. Zils, North Royalton, both of Ohio, assignors to Russell, Burdall & Ward Corporation, Cleveland, Ohio

Continuation of Ser. No. 135,480, Mar. 31, 1980, Pat. No.

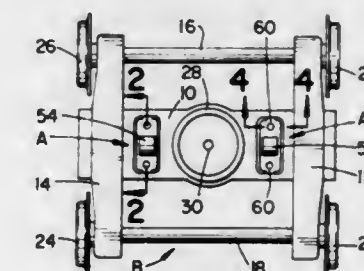
4,323,015. This application Apr. 5, 1982, Ser. No. 365,881

The portion of the term of this patent subsequent to Apr. 6, 1999, has been disclaimed.

Int. Cl.³ F16B 5/02, 31/02

U.S. Cl. 105—199 CB

22 Claims



1. An arrangement for mounting a roller side bearing assembly to a rail car truck assembly, said arrangement comprising in combination:

a truck assembly including spaced wheels adapted to rollingly support said rail car on a pair of parallel spaced apart tracks, said assembly including a top surface portion;

a side roller bearing assembly having an elongated generally U-shaped bearing cage including a bottom wall and a pair of spaced apart generally parallel side walls upstanding therefrom, said bottom wall having at least a pair of spaced apart openings extending therethrough in registry with at least a pair of openings in said truck top surface portion, said bearing cage side walls having at least one cylindrical bearing member extending therebetween adapted to supportingly engage an area of said rail car for reducing frictional forces generated during swivel movement between said car and truck assembly;

an elongated threaded fastener extending through each of said pairs of registered bottom wall and top surface portion openings, said fasteners each having a head and an elongated shank threaded along at least the outermost end section thereof wherein said head and shank interface with each other at a distinct fillet area, said head cooperating with said bottom wall and said shank extending through an associated pair of registered bottom wall and top sur-

face portion openings with said threaded outermost end disposed in threaded engagement with retaining means disposed on the underside of said top surface portion, said threaded fasteners being placed in some desired clamping condition within predetermined upper and lower limits as a function of rotating said fasteners to secure threaded advancement thereof into said retaining means, said desired clamping load being less than an amount which would cause failure in said bearing cage and greater than an amount which increases the potential for failure in said fasteners when said fasteners are subjected to tensile and bending loads resulting from loading of said roller side bearing assembly during rolling travel of said rail car along said track, said fasteners each further including means for limiting the torque applied thereto during fastener rotation into threaded advancement with said retaining means whereby the resultant fastener clamping loads may not exceed said upper limit; and,

bearing means interposed between the head of each fastener and said bearing cage bottom wall to facilitate control of frictional forces occurring at said fastener heads during rotation thereof into threaded engagement with said retaining means, said bearing means further protecting the fillet areas of said fasteners from being imbedded by said bearing cage bottom wall at said bottom wall openings at least when said fasteners are subjected to tensile and bending loads.

4,393,788

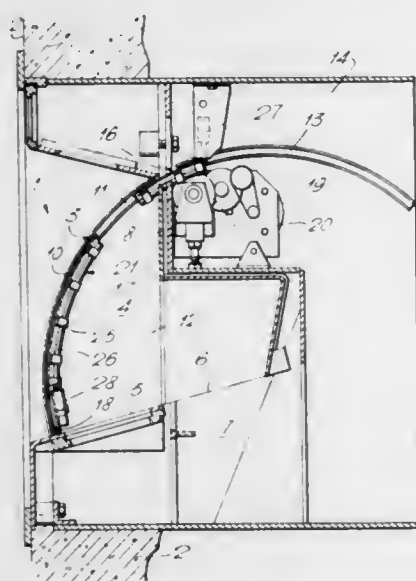
RETRACTABLE PROTECTIVE-SCREENS AND EQUIPMENT INCLUDING THEM

Bernard F. Campbell, 95 Havelock Rd., and Leslie Vallance, 6 Hollingbury Copse, both of Brighton, East Sussex, England
Filed Jan. 30, 1981, Ser. No. 230,152

Int. Cl.³ E04N 9/00

U.S. Cl. 109—2

13 Claims



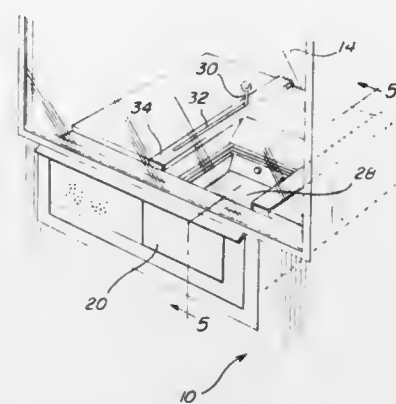
1. In equipment including a retractable protective-screen in the form of a member having two side-edges that are guided for movements of the member in extension and retraction of the screen, and drive means coupled to said member to drive it in at least one of said movements, the improvement wherein said drive means is coupled to said member to established driving engagement therewith via a rack-and-pinion coupling, said coupling comprising a rack carried by said member, said rack being an elongate strip of flexible material having projecting teeth formed integrally therewith, said strip being secured to said member at least at spaced positions along the length of the strip to extend on said member substantially centrally thereof intermediate said side-edges, and a pinion engaging with the teeth of the rack, said drive means being coupled to said pinion to rotate the pinion and thereby drive said member via said rack.

4,393,789
HIGH SECURITY TRANSACTION DRAWER
Herman E. Glotfelter, 4618 N. Post Rd., Indianapolis, Ind. 46226

Filed Jan. 26, 1981, Ser. No. 228,077
Int. Cl.³ E06B 7/32

U.S. Cl. 109—19

9 Claims



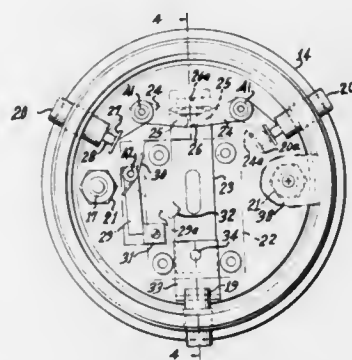
1. In combination with a partition structure having a horizontal drawer opening formed therethrough, a drawer structure defining an upwardly opening compartment, support means supporting said drawer structure from said partition for shifting of said drawer through said opening between first and second positions with said compartment opening upwardly on first and second sides of said partition, a security panel shiftably supported from said drawer for movement between closed and open positions closing and opening, respectively, said compartment from above, and security panel shifting means operatively connected between said panel and said support means for automatically shifting said panel to said open position responsive to said drawer being shifted to said first position, automatic shifting of said panel to said closed position responsive to initial shifting of said drawer from said first position toward said second position and automatic shifting of said panel back to said open position responsive to final movement of said drawer to said second position.

4,393,790
SAFE DOOR ASSEMBLY
William H. Bagwell, 1610 Country Club Prado, Coral Gables, Fla. 33134

Filed Jun. 10, 1981, Ser. No. 272,323
Int. Cl.³ E05G 1/04; E05B 63/00, 63/14, 15/16

U.S. Cl. 109—76

25 Claims



1. In a safe door assembly comprising a door casing, a door, a plurality of locking bolts operated by a combination lock so as to be selectively extended outwardly from or retracted inwardly into said door to lock or unlock, respectively, said door to said casing; said casing including a seat to accommodate a shoulder on said door and recess to receive each of said outwardly extended locking bolts; said door also including a combination lock with a retractable tongue operatively connected to a sliding link bar with lever means to simultaneously extend or retract said locking bolts; the improvement compris-

ing a pivotable relocking bar spring biased to pivot into a position whereby a portion of said bar mates with a corresponding portion in said link bar to prevent said link bar from sliding, said relocking bar positioned to mate with said link bar when said combination lock is disposed inwardly from its normal position; a hardened steel barrier separating the mechanism of said combination lock from the outside wall of said door; and a plurality of bolts through the outer wall of said door and through said hardened steel barrier fastened with lock nuts and supporting a handle for moving said door away from said casing, said bolts being weakened in their shank portions to shear off the head of the bolt if subjected to the torque normally required for loosening said bolt from its lock nut.

4,393,791

UNDERCUTTER SEED PLANTER

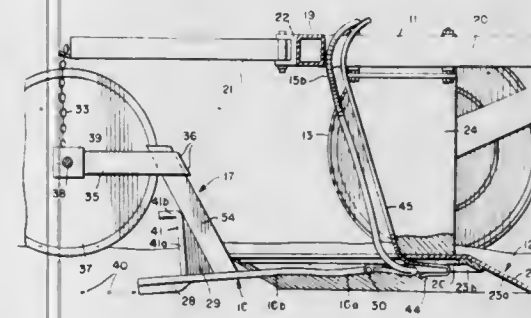
Donald A. Suderman, Manhattan, Kans., assignor to Kansas State University Research Foundation, Manhattan, Kans.

Filed Jan. 16, 1981, Ser. No. 225,469

Int. Cl.³ A01C 5/06, 7/20

U.S. Cl. 111—34

5 Claims



1. A seed planting apparatus comprising an undercutter plow having a blade with horizontal leading and trailing edges; transport means supporting said blade for substantially horizontal movement at a selected depth beneath a soil surface; an elongated rigid seed delivery member connected to said blade and extending rearwardly from the trailing edge thereof for longitudinal movement beneath a soil surface behind said blade; said seed delivery member having a front portion and an elongated rear portion; said front portion being hingedly connected to said blade for horizontal and vertical movement of said rear portion with respect to said blade; said rear portion being tubular and rearwardly terminating in a trailing end having a seed discharge opening for releasing seeds into the soil beneath the surface thereof; said seed delivery member communicating with seed metering means adapted to supply seeds in a flowing air stream thereto for the release of seeds into the soil from said discharge opening; and a gage wheel assembly secured to said rear portion of said seed delivery member adjacent said trailing end; said gage wheel assembly including a stanchion secured to said seed delivery member adjacent said rear portion, a mounting member adjustably secured to said stanchion for movement into different selected positions of vertical adjustment therealong, and a pair of wheels rotatably mounted upon and disposed on opposite sides of said mounting member above and behind said trailing end of said seed delivery member; said seed delivery member being provided adjacent said trailing end with an upstanding air release tube for releasing air from said rear portion at a point spaced forwardly from said discharge opening; said air release tube having an outlet spaced above said seed delivery member a distance substantially greater than the depths of the soil at which said trailing end is adapted to be supported by said gage wheel assembly; said assembly being adapted to support said trailing end of said seed delivery member at a selected depth totally beneath the surface of the soil, with said seed delivery member forming a tunnel beneath the surface for receiving seeds from said discharge opening, when said apparatus is in operation; said trailing end of said seed delivery member hav-

ing a depending longitudinal flange for firming the soil within said tunnel.

4,393,792

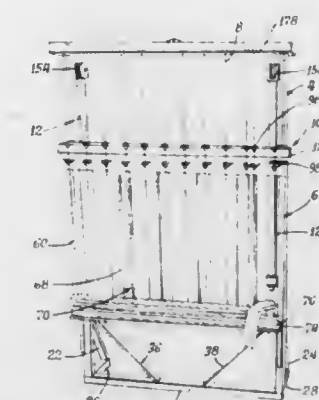
APPARATUS FOR MATTRESS MANUFACTURE
Albert R. St. Clair, Hamilton, Ohio, assignor to Simmons U.S.A. Corporation, Atlanta, Ga.

Filed May 29, 1981, Ser. No. 268,271

Int. Cl.³ D05B 11/00

U.S. Cl. 112—3 R

6 Claims



1. A mattress core manufacturing apparatus for making a core unit out of an assembly of coiled wire springs having a pair of spaced end coils representing the top and bottom faces of the assembly, the apparatus comprising:

- a frame;
- a support for holding said assembly, said support mounted on the frame for reciprocal movement relative to said frame;
- a plurality of needles mounted on said frame, said needles being thrust through said assembly between said top and bottom faces thereof upon reciprocation of said support relative said frame;
- an intermediate needle guide assembly mounted on said frame spaced from said support for reciprocal movement relative to said frame;
- a drive means operatively attached to said support for reciprocal movement thereof;
- a plurality of needle guide bushings mounted on said support and intermediate needle guide assembly; and
- said needle guide bushings including a bushing surface for said needles to prevent said needles from bending as the support reciprocates relative to said frame and said needles are thrust through the assembly held by said support.

4,393,793

TUFTING MACHINE WITH ADJUSTABLE YARN GUIDE TUBE BANK

Max M. Beasley, Chattanooga, Tenn., assignor to Tuftco Corporation, Chattanooga, Tenn.

Filed Feb. 1, 1982, Ser. No. 344,376

Int. Cl.³ D05C 15/18

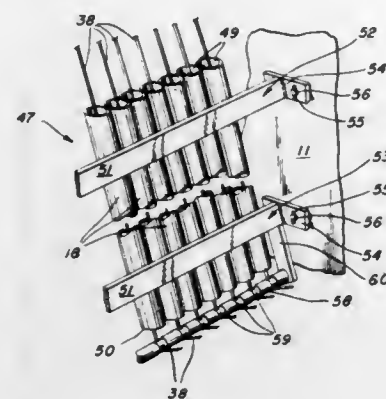
U.S. Cl. 112—79 R

9 Claims

1. In a tufting machine having means for supporting a base fabric for longitudinal movement in a feeding direction from front to rear through said machine, a plurality of transversely spaced reciprocal needles for introducing yarns through the base fabric to form loops, a yarn jerker bar reciprocally moving with the needles, yarn guide means comprising:

- (a) a yarn tube bank including a plurality of yarn guide tubes having upper and lower open ends,
- (b) mounting means supporting said yarn tube bank on the machine above the base fabric,
- (c) said yarn tube bank comprising a yarn jerker member spanning the lower ends of said yarn guide tubes,
- (d) each of said yarn guide tubes receiving a yarn from a yarn supply through its upper end and guiding said yarn through said corresponding yarn guide tube, and across

said yarn jerker member and the yarn jerker bar to a corresponding needle, and



(e) adjustment means for vertically adjusting the position of said yarn jerker member on said machine relative to said needles.

4,393,794

SEWING MACHINE WITH NEEDLE DROPPING HOLE CHANGING CONTROL DEVICE

Yasukata Eguchi, Kunitachi; Hideaki Takenoya, and Yasuro Sano, both of Hachioji, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

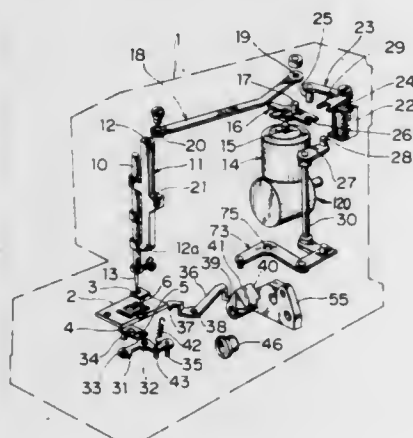
Filed Oct. 23, 1980, Ser. No. 199,914

Claims priority, application Japan, Nov. 5, 1979, 54-152423[U]

Int. Cl.³ D05B 1/14, 3/02, 75/00

U.S. Cl. 112-158 E

1 Claim



1. A sewing machine having a pulse motor operatively connected to a needle of the sewing machine to control the needle position and selectively operated to change the position of the needle and exchange a laterally elongated needle dropping hole for a reduced circular dropping hole and vice versa in dependence upon the stitching type, said needle plate being provided with an auxiliary needle plate which is formed with the reduced circular needle dropping hole and is selectively displaced by a transmission linkage to a position in which the auxiliary needle plate covers the laterally elongated needle dropping hole of the needle plate to provide the reduced circular needle dropping hole and to a position in which the auxiliary needle plate is spaced from the laterally elongated needle dropping hole of the needle plate, comprising operating means movable between a first and second predetermined positions, clutch means normally connected to the operating means and selectively operated to connect the pulse motor to the operating means when the pulse motor is driven to a predetermined angular position displacing the needle to a predetermined position, control means operatively connected to the operating means and to the transmission means, said control means including a cam member displaced to a predetermined position by a drive force of the pulse motor through the operating means, a follower member engaging the cam member, said cam member being rotated by a starting drive of the sewing machine

to displace the follower member to a predetermined set position, thereby to displace the auxiliary needle plate relative to the needle plate through the transmission means, and means for holding the follower member in the set position.

4,393,795

ELECTRONIC SEWING MACHINE

Hachiro Makabe, Fussa; Kazuo Watanabe; Hideaki Takenoya, both of Hachioji; Toshiaki Kume, Tachikawa, and Toshihide Kakinuma, Tokyo, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

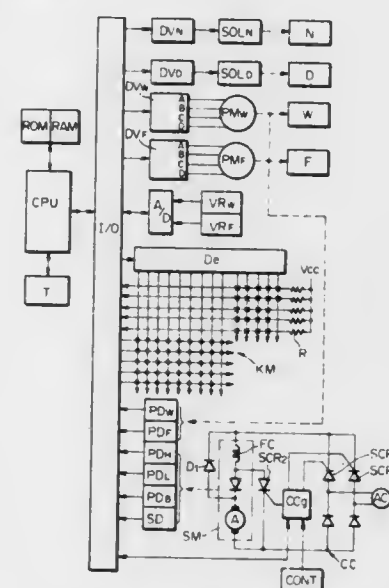
Continuation of Ser. No. 96,573, Nov. 21, 1979, abandoned. This application May 8, 1981, Ser. No. 261,710

Claims priority, application Japan, Nov. 27, 1978, 53-145280

Int. Cl.³ D05B 3/02

U.S. Cl. 112-158 E

2 Claims



1. A sewing machine having an electric machine motor driven by a manually operated controller, stitch forming instrumentalities including a needle driven by the machine motor to vertically reciprocate so as to penetrate a fabric to be sewn and a fabric feeding device driven by the machine motor in synchronism with the needle to feed the fabric relative to the movement of the needle, fabric presser means manually adjusted to press the fabric against the needle plate at a set pressure, and electronic memory means storing stitch data sequentially read out to control the needle position and the fabric feeding position, comprising electromagnetic drive means (PM_w) operated by the stitch data of the memory means to control the needle position; another electromagnetic drive means (PM_f) operated by the stitch data of the memory means to control the fabric feeding position; means manually operated to adjust the fabric presser means to press the fabric with a suitable pressure for basting stitches and generating an electric signal at a predetermined set position; control circuit means (CC) activated by operation of the controller to drive the machine motor at a reduced speed and to stop the machine motor after one complete rotation thereof with the needle stopped at the upper dead point thereof; switching means operated by one of the electromagnetic means to make the fabric feeding device inoperative; and data processing means (CPU) detecting the electric signal of the fabric presser adjusting means to perform calculations and treatments of the results by means of the programing data stored in the memory, thereby to produce orders to operate the control circuit means and the switching means.

4,393,796 ARRANGEMENT FOR OPERATING AN ELECTRONICALLY CONTROLLED SEWING MACHINE IN A DIAGNOSTIC MODE

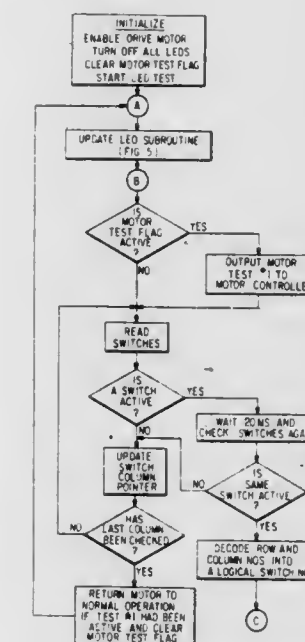
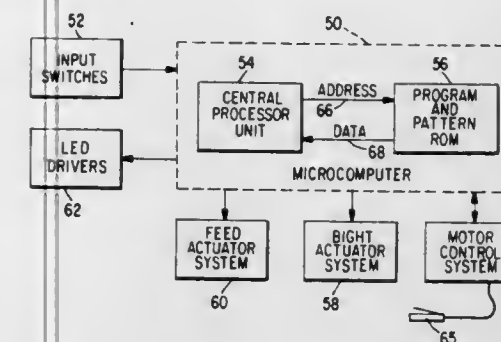
William H. Dunn, Frankford Township, Sussex County; Leonard I. Horey, West Orange, and Marvin Kurland, East Brunswick, all of N.J., assignors to The Singer Company, Stamford, Conn.

Filed Jun. 28, 1982, Ser. No. 393,148

Int. Cl.³ D05B 3/02, 79/00

U.S. Cl. 112-158 E

6 Claims



1. An electronically controlled multiple pattern sewing machine having operator controlled input means for selecting functions to be performed by said sewing machine, indicating means for providing an indication of the function selected by an operator via said input means, diagnostic means for operating said sewing machine in a diagnostic mode, said diagnostic means utilizing said indicating means for providing an indication to said operator of the operation of said sewing machine while in said diagnostic mode, and operator controlled means for selectively causing said diagnostic means to be operative.

4,393,797

ARRANGEMENT AND METHOD FOR PREVENTING FALSE TRIGGERING IN AN OPTICALLY SWITCHED BUTTONHOLE MECHANISM

Walter H. W. Marsh, Scotch Plains, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Dec. 13, 1982, Ser. No. 449,093

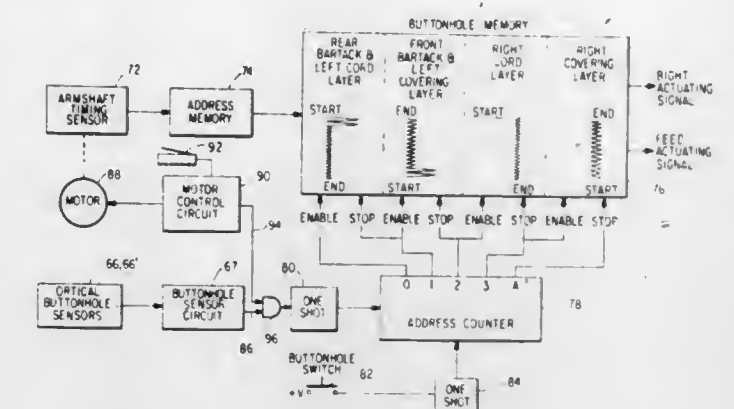
Int. Cl.³ D05B 3/06

U.S. Cl. 112-158 B

2 Claims

1. In an electronically controlled sewing machine having a controller, a controllable drive motor, and an optical buttonhole mechanism including photosensitive means responsive to changes in the amount of light impinging thereon for providing buttonhole signals adapted to be used by said controller for

sequencing through states in the formation of a buttonhole pattern, the improvement comprising:



means enabled only during operation of said drive motor for transmitting said buttonhole signals to said controller.

4,393,798

ROTARY SHUTTLE FOR A SEWING MACHINE

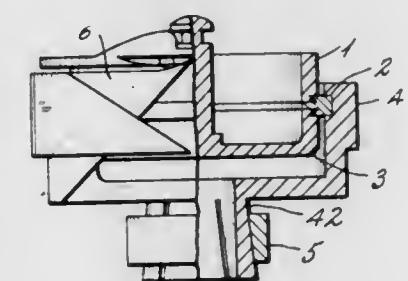
Haw-Lin Cheng, No. 119, Chung Shan Rd., Taiwan, Taiwan

Filed Sep. 29, 1980, Ser. No. 191,537

Int. Cl.³ D05B 57/16, 71/02

U.S. Cl. 112-231

2 Claims



1. A rotary loop taker for a sewing machine comprising:
(a) an internal housing comprising an upper part and a lower part held together by a ring which forms a middle part of the internal housing;
(b) an external housing comprising a tail base over which can be fitted an internally tapered member for fitting the loop taker into a sewing machine; and
(c) a flexible piece fixed to the external housing, the external housing and flexible piece being free of screw holes and the ring having a Teflon coating so that the internal and external housings are rotatable relative to each other.

4,393,799

ATTACHMENT OF KNITTED FABRIC STRIP TO A PIECE OF FABRIC

Denis Matthews, Sutton-in-Ashfield, England, assignor to Mathbirk Limited, Sutton-in-Ashfield, England

Filed Oct. 16, 1980, Ser. No. 197,526

Claims priority, application United Kingdom, Oct. 20, 1979, 7936477; Fed. Rep. of Germany, Jan. 25, 1980, 8002667

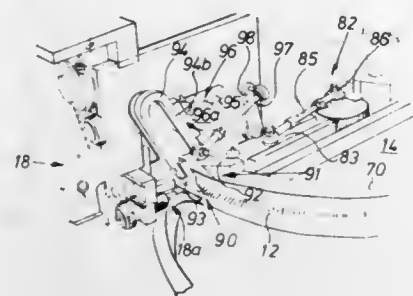
Int. Cl.³ D05B 1/00

U.S. Cl. 112-262.1

9 Claims

1. A method of linking a fabric strip to a piece of fabric, the fabric strip having spaced longitudinal edges, comprising impaling the piece of fabric on the points of a linking machine and positioning the fabric strip on the points of the linking machine adjacent one of the longitudinal edges of the strip in a manner

whereby the second longitudinal edge of the strip is arranged to abut the points, gripping the fabrics by gripping means to



position them relative to each other preparatory to linking and then linking the two fabrics together by a sewing operation.

4,393,800

BELT LOOP FOLDER AND FEED APPARATUS

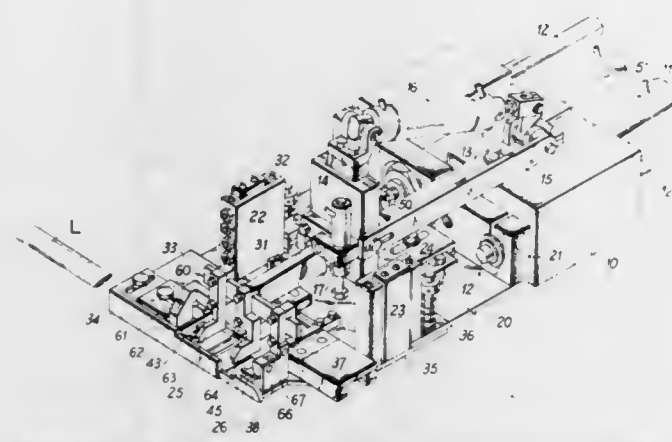
Francis B. Hargett, Richmond, Va., assignor to AMF Incorporated, White Plains, N.Y.

Filed Sep. 10, 1981, Ser. No. 300,769

Int. Cl.³ D05B 3/12

U.S. Cl. 112—265.1

10 Claims



1. Apparatus for folding and presenting a drop type belt loop for attachment to a garment, comprising:
a base plate;
drop plate means connected to move vertically relative to said base plate and biased upwardly;
said drop plate means being provided with a laterally disposed receiver immediately forward of said base plate for belt loops moving endwise thereto;
folding means comprising a pair of laterally spaced stationary tongues connected to said base plate and extending across the bottom of said receiver, and a pair of folding tongues connected to said drop plate means and extending therefrom across said receiver;
said folding tongues being spaced upwardly and outwardly of said stationary tongues;
stabilizer means being provided with a pair of laterally spaced jaws extending across said receiver and being spaced vertically in alignment with said stationary tongues;
first means for moving said stabilizer means toward said receiver to clamp a belt loop during folding between said jaws and stationary tongues, and for moving said stabilizer means away from said receiver to release a folded belt loop;
second means for simultaneously moving said receiver and folding tongues downwardly relative to said stationary tongues and thereafter moving said folding tongues toward each other below said stationary tongues thereby folding the upper and lower loop ends under the belt loop between said stationary tongues with the upper loop end extending past the fold of the lower loop end;
one of said folding tongues being disposed in vertical align-

ment with one of said stationary tongues thereby clamping the folded loop ends therebetween; and
means for moving the stationary and folding tongues forwardly thereby moving a folded belt loop transversely to its length to a stitching station of a tacker for attachment to a garment.

8. A method of folding and presenting a drop type belt loop for attachment to a garment comprising the steps of:
feeding a belt loop endwise to a position for folding;
clamping the belt loop in position only until folded;
underfolding both ends of the belt loop with the underfolded upper belt loop end extending past the fold of the lower belt loop end;
clamping the underfolded belt loop ends together thereby holding the belt loop and
moving the folded belt loop transversely to its length for presenting the folded belt loop for attachment.

4,393,801

SEWING MACHINE DUST COLLECTOR

Masahisa Kato; Syouji Kasugai, and Osamu Gouda, all of Aichi, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

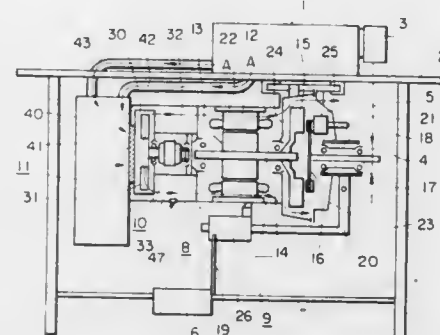
Filed Feb. 16, 1982, Ser. No. 349,109

Claims priority, application Japan, Feb. 19, 1981, 56-23276

Int. Cl.³ D05B 71/00

U.S. Cl. 112—282

5 Claims



1. A dust collector for use with a sewing machine comprising a clutch motor adapted to drive a sewing machine, suction means for collecting waste associated with the operation of said sewing machine including a blower motor, first control means for selectively energizing said blower motor in synchronization with the engagement of the clutch of said clutch motor and second control means adapted to selectively energize said blower motor independently of said first control means.

4,393,802

BOAT HULL WITH UNDERSIDE CHANNEL

Salvatore A. Rizzo, P.O. Box 87, E. Setauket, N.Y. 11733

Filed May 16, 1980, Ser. No. 150,338

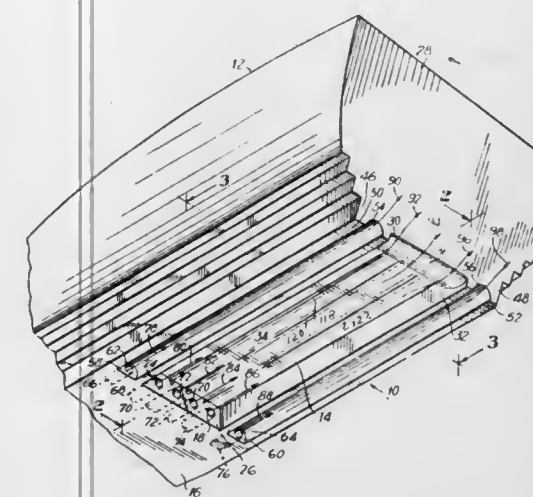
Int. Cl.³ B63B 1/38

U.S. Cl. 114—67 A

12 Claims

1. A hull for a motor boat having an internal combustion propulsion engine comprising a first pair of spaced apart vertical wall portions disposed on the undersurface of said hull and extending longitudinally with respect to said hull, a second pair of spaced apart vertical wall portions extending transversely with respect to said hull, with a first of said second pair of wall portions disposed at an intermediate location between the bow and the stern of said hull and with a second of said second pair of wall portions disposed proximate to said stern of said hull, a horizontally disposed wall portion extending between said first and said second pair of wall portions and with said first pair of wall portions, said second pair of wall portions and said horizontal wall portion, in combination defining a longitudinal cavity which projects inwardly into said hull, a plurality of exhaust ports disposed on said first wall of said second pair of

wall portions, with said exhaust ports directed longitudinally with respect to said hull and directed toward said stern and connection means connecting said exhaust ports with said propulsion engine for the purpose of introducing exhaust gases into said cavity in order to reduce hull-to-water friction, a pair



of longitudinal keel members disposed, one each, on port and on starboard sides of said cavity, with lower surfaces of said keel members including a longitudinally grooved portion, and connection means disposed to introduce exhaust gases from said propulsion engine into forward portions of said keel members.

4,393,803

BOAT ROPE CONTROLLER

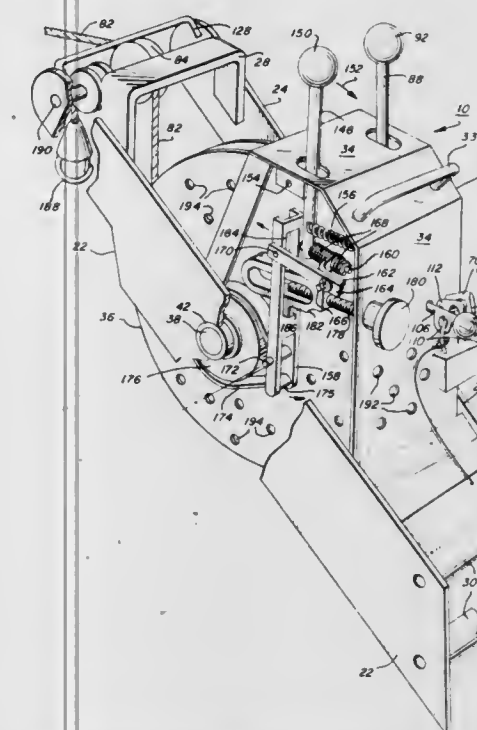
Richard W. Donalies, 1545 Newcastle La., Hoffman Estates, Ill. 60194

Filed Aug. 5, 1980, Ser. No. 175,514

Int. Cl.³ B63B 21/16

U.S. Cl. 114—254

9 Claims



2. A boat rope controller for a boat rope which is used for water skiing or other related water sports, anchoring and general marine towing, said boat rope controller comprising:
mounting means attached to the rear of a boat for providing occupants of the boat with an uninterrupted view;
a framework including two substantially parallel support arms, one end of said framework engaging said mounting means at an angle to extend said framework generally upward from said mounting means and rearward of the boat;
a reel means mounted for free rotation to said framework

between and near the central portion of said two support arms for containing said boat rope;
a pulley mounted for free rotation to said framework between and at the end of said two support arms opposite said mounting means, said pulley and said reel means being substantially aligned whereby said boat rope can readily pass to or from said reel means via said pulley;
mode control means operable with said reel means for selectively securing said reel means to prevent its rotation and for releasing said reel means to allow its rotation;
driving means attached to said reel means for rotating said reel means, said driving means being removable from said rope controller and said driving means and said mode control means being operable from a safe position with the boat;
rope guide means cooperatively associated with said reel means and said pulley for restricting the movement of said boat rope relative to said reel means and said pulley and, thereby, preventing malfunctions due to tangling and knotting of the boat rope within the rope controller;
a service cover mounted to said framework, said service cover, together with said framework, forming a substantially contiguous outer surface around said contained boat rope and any internal parts whereby said service cover and said framework protect the occupants of the boat, form the potential danger of internal moving parts, shield the occupants from spewing water from rotating internal parts and the boat rope, deter unauthorized tampering and dismantling of the rope controller, and protect internal parts and the boat rope from environmental elements; and
cover locking means operable with said service cover for locking said service cover to said framework, said cover locking means including drive locking means for securing said driving means while allowing for removal of said driving means and said service cover being not removable when said driving means is secured, whereby inadvertent or unauthorized access to or dismantling of said rope controller is prevented.

4,393,804

APPARATUS FOR REMOVING TONER FROM AND APPLYING OFFSET PREVENTIVE LIQUID TO A FIXING ROLLER

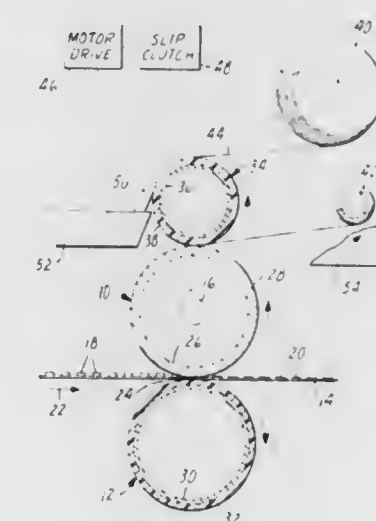
James C. Nygard, Maplewood; Melvin P. Weiss, Woodbury, and Thomas E. Larsen, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 12, 1981, Ser. No. 320,545

Int. Cl.³ B05C 11/00

U.S. Cl. 118—60

10 Claims



1. Apparatus for removing toner material offset to a rotatable fixing roller and applying offset preventive liquid to the fixing roller including:
a supply core;
a rotatable take-up core;

a rotatable pressure roller having an outer layer of resilient material;
a web member adapted to be moved from said supply core to said take-up core via said pressure roller, said pressure roller positioned to provide a contact nip for said web member with the fixing roller opposite said pressure roller wherein contact of said web member with the fixing roller at said contact nip removes toner material offset to the fixing roller; and
an offset preventing liquid applicator means positioned between said supply core and said contact nip for applying offset preventing liquid to the surface of said web member that is brought into contact with the fixing roller.

4,393,805

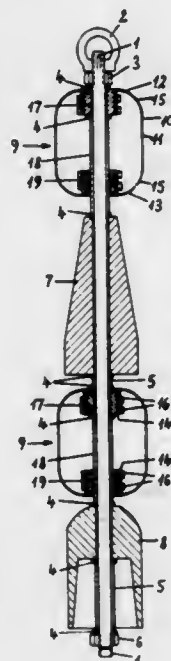
PIPELINE PIG FOR LINING PIPE LINES

Hubert Boer, Reken, Fed. Rep. of Germany, assignor to digi-die gasheizung GmbH, Essen, Fed. Rep. of Germany
Filed Nov. 30, 1981, Ser. No. 325,621
Claims priority, application Fed. Rep. of Germany, Dec. 11, 1980, 3046608

Int. Cl.³ B05C 7/00

U.S. Cl. 118—105

7 Claims



1. In a pipeline pig for lining a pipe line with an internal coating of a solidifying plastic composition with which the pipe line is spread by means of the pig which is adapted during operative movement of the pig to be drawn in the pipe line in only one direction of movement of the pig with respect to the pig, the pipeline pig having at least one spreader body and at least one forward and one rear guide body, the improvement wherein

each said guide body comprises means for exact central and coaxial guiding of the spreader body in the pipe line comprising,

at least three narrow, resiliently elastic guide pieces bent into U-form, each of said guide pieces comprising a middle part with forward and rear U-legs at ends thereof and rounded transitions from the middle part to the U-legs, said middle parts extending in an axial direction of the pipeline pig for the exact central and coaxial guidance of the pipeline pig in the pipe line by abutment on an inner wall of the pipe line and being offset in relation to one another in a circumferential direction,

means for securing said forward U-legs non-displaceably in the axial direction in the pig,

a common bearing means for displaceably mounting said rear U-legs in the axial direction in the pig, said rear U-legs of said guide pieces being secured to said common bearing, said forward U-legs being located forwardly with respect to said only one direction of movement of the pig and said rear U-legs being located rearwardly, opposite

with respect to said only one direction of movement of the pig.

4,393,806

BOAT FOR THE EPITAXIAL GROWTH FROM THE LIQUID PHASE

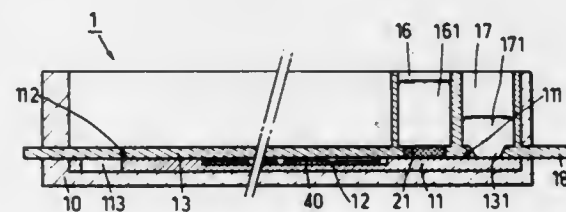
Marc Mahieu; Philippe Vandenberg, both of Caen, and Jacques J. Varon, Troarn, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 25, 1981, Ser. No. 237,816

Claims priority, application France, Feb. 27, 1980, 80 04323
Int. Cl.³ H01L 21/208

U.S. Cl. 118—412

5 Claims



1. A boat for use in a device for liquid phase epitaxial growth of two successive semiconductor layers on a plurality of semiconductor substrates, said boat comprising
a crucible structure,
a bottom support layer of said crucible structure having a cavity for holding said substrates,
a slide layer positioned above said support layer and extending for linear movement through opposite end walls of said crucible structure,
two reservoirs for liquid solutions provided on said slide layer, one of said two reservoirs having said support layer as a bottom, and
a removable sealing element provided in said slide layer to act as a bottom for the other of said two reservoirs.

4,393,807
SPINNER

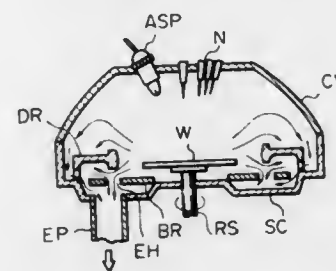
Shuzo Fujimura, and Atsuyuki Yasuda, both of Yokohama, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 15, 1980, Ser. No. 187,515

Claims priority, application Japan, Sep. 19, 1979, 54/119242
Int. Cl.³ B05C 5/00

U.S. Cl. 118—501

6 Claims



1. A spinner comprising: a rotating spindle for causing a workpiece to spin at a high speed, and a cup disposed around said spindle and provided at a bottom wall thereof with a port for air evacuation, said cup comprising a deflector ring disposed in the interior of the cup and extending inwardly, said deflector ring having an annular barrier at the inner peripheral edge for defining steps projecting from the upper and lower surfaces of the ring, respectively, said barrier having an inner peripheral surface formed to diverge at least upwardly with respect to the axis of the spindle, and wherein said deflector ring has an outer peripheral wall for defining with the side wall of the cup an annular space therebetween, said outer peripheral wall of the deflector ring being provided with a plurality of holes for air evacuation arranged approximately equidistantly

in the circumferential direction, whereby the interior of the cup is also in communication with the air evacuation port in the bottom wall of the cup, via a second route including said annular space and the air evacuation holes in the outer peripheral wall of the cup.

4,393,808

MEANS FOR PROCESSING MINIATURE ELECTRONIC COMPONENTS

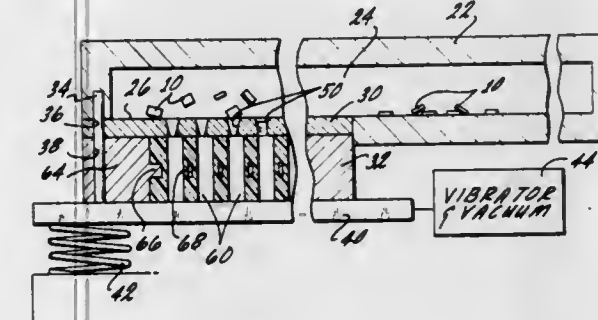
Denver Braden, Carlsbad, Calif., assignor to Palomar Systems & Machines, Inc., Escondido, Calif.

Filed Oct. 9, 1980, Ser. No. 195,347

Int. Cl.³ B05C 11/14, 13/00, 13/02

U.S. Cl. 118—503

9 Claims



1. Loading means orienting parts each having a configuration of right rectangular shape with a greater length dimension from end surface to end surface than width dimension from side surface to side surface and with a greater width dimension from side surface to side surface than thickness dimension from face surface to face surface, comprising:

(a) a loading plate having a multiplicity of through openings, said openings being disposed in juxtaposed rows, each opening extending therethrough from top face to bottom face of said plate and said openings receiving said parts from the top of said plate and said openings orienting said parts and discharging oriented parts from the bottom of said plate,

(b) each opening tapering from said top face to said bottom face to said plate to help feed said parts into said openings from the top of said plate, and

(c) each opening being formed at said bottom face of said plate with an oblong shape having a width generally matching said thickness dimension of said parts and less than said length and width dimensions of said parts in order to orient said parts relative to the axis of each part from face surface to face surface thereof.

4,393,809

APPARATUS FOR MANUFACTURING MAGNET WIRE

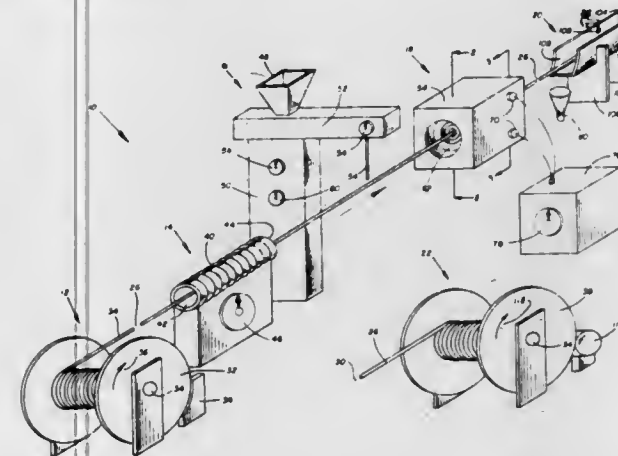
George D. Hilker, Fort Wayne, Ind., assignor to Phelps Dodge Industries, Inc., New York, N.Y.

Filed Aug. 7, 1978, Ser. No. 931,314

Int. Cl.³ B05B 5/02; B05C 5/00, 9/08

U.S. Cl. 118—620

15 Claims



1. An apparatus for the manufacture of coated filaments such

as magnet wire comprising a die, a bare filament pay-out device, a coated filament take-up device, said die being located between said pay-out and take-up devices, said die having a throat portion, an entrance opening larger than said throat portion interconnected by a converging interior wall, thereby defining a cavity between said throat portion and said opening, said die being positioned to receive a filament trained between said pay-out and take-up devices in said opening and throat portion, said die being fixed in position, a reservoir of flowable but hardenable material, a flowable material applicator connected to said reservoir means, said applicator applying said material to said filament just prior to said filament entering said die and in excess of that required to coat said filament to a desired thickness in a single pass, whereby said excess collects in said die cavity, and means including said material in said die cavity for centering said filament in said throat portion.

4,393,810

ELECTROGRAPHIC DEVELOPMENT APPARATUS AND METHOD HAVING OSCILLATING MAGNETIC CROSS-MIXING

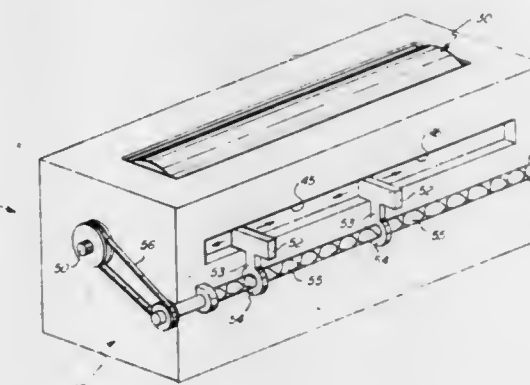
George P. Kasper, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 20, 1982, Ser. No. 380,173

Int. Cl.³ G03G 15/09

U.S. Cl. 118—657

10 Claims



1. In electrographic development apparatus of the kind adapted for use at a development zone which extends transversely across the operative path of an electrographic imaging device, said development apparatus including means providing a developer supply zone and magnetic brush means for transporting developer along a developer path from said supply zone into a developing position at the development zone and then back toward the developing position or the supply, the improvement comprising:

(a) cross-mix magnet means mounted proximate a transverse portion of said developer path; and

(b) means for oscillating said cross-mix magnet means along said developer path portion whereby developer moving past said portion of said developer path is intermixed transversely across said developer path.

2. In electrographic development apparatus of the kind adapted for use at a development zone which extends transversely across the operative path of an electrographic imaging device, said development apparatus including a developer housing providing a supply zone for electrographic developer and magnetic feed means for transporting developer along a developer path from said supply zone to a developing position at the development zone and then back toward the supply zone, the improvement comprising:

(a) a non-magnetic housing portion extending transversely of, and in closely spaced relation to, said developer path at a location displaced from said developing position;

(b) cross-mix magnet means mounted in close relation to said non-magnetic housing portion and on the housing side external with respect to the developer path; and

(c) means for oscillating said cross-mix magnet means along

said non-magnetic housing portion whereby developer moving along the developer path will be shifted transversely with respect to the operative path of the electrographic imaging device.

4,393,811

WEIGHTED TEAT CUP SHELL AND ASSEMBLY

Syd E. Bodmin, Otumotai, New Zealand, assignor to Mae Lois Moore, Tauranga, New Zealand

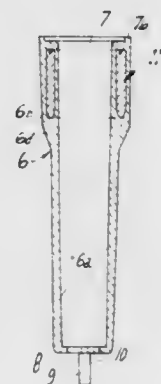
Filed May 1, 1981, Ser. No. 259,715

Claims priority, application New Zealand, Mar. 24, 1981, 196595

Int. Cl.³ A01J 5/04

U.S. Cl. 119—14.47

9 Claims



1. A teat cup shell comprising a body having an upper portion with an open end arranged to receive a complimentary upper portion of a teat cup inflation and a lower portion including an aperture through which a lower portion of the teat cup inflation may pass wherein the body of the teat cup shell is formed in a mouldable material and includes at least one internally moulded and inset weight, said internally moulded and inset weight being positioned in the upper regions of the teat cup shell and extending in length substantially throughout the upper portion of the teat cup shell where the walls thereof are thicker such that the centre of mass of the teat cup shell due to the presence of the inset weight in the upper region is within the upper region;

wherein the upper region of said teat cup body is provided with a substantially circular outer surface and the lower region of the body is provided with a substantially oval outer surface and the internal bore of the teat cup shell is such that the width in a first plane is greater than the width in a second plane at right angles to the first plane.

4,393,812

SWINE FARROWING HUT AND METHOD OF FARROWING PIGS AND MAINTAINING A DISEASE-FREE FARROWING HUT

Claude W. Ahrens, Grinnell, Iowa, assignor to Miracle Recreation Equipment Company, Grinnell, Iowa

Continuation of Ser. No. 945,084, Sep. 25, 1978, Pat. No.

4,269,144. This application May 26, 1981, Ser. No. 267,089

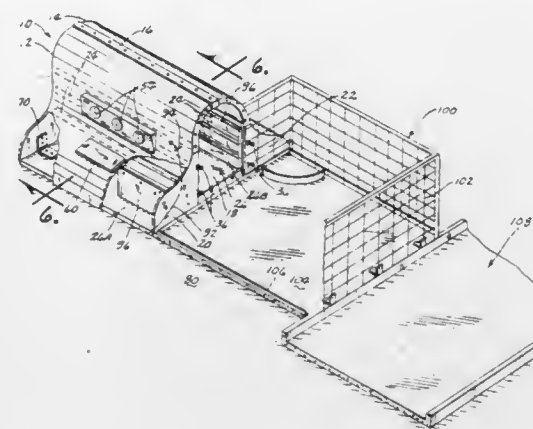
Int. Cl.³ A01K 1/02

U.S. Cl. 119—16

1 Claim

1. Method of farrowing pigs and providing and maintaining a disease free single litter farrowing hut wherein the hut includes a floor and an enclosure with the enclosure being pivotable from a position over the floor to an open raised position whereby the floor and the entire interior of the enclosure may be exposed to the sun, including the steps of, providing a substantially non-porous hut, which bacteria cannot penetrate, locating the farrowing hut outside in the open in substantial spaced relation to other farrowing huts so that each litter has fresh air and is not breathing the air from another adjacent litter and in a position relative to the sun that sun rays will reach the substantial area of the floor and interior of the enclosure when in the raised open position, following the removal of one sow and litter and before the

admission of the next sow pivoting the enclosure to the raised open position and washing the floor and the interior of the enclosure thoroughly,



maintaining the enclosure in the open position such that the floor and enclosure interior are exposed to the sun's rays long enough to kill all bacteria in the hut, and lowering the enclosure to the closed position and moving another sow into the hut for farrowing.

4,393,813

WATERING DEVICE FOR PET ANIMALS

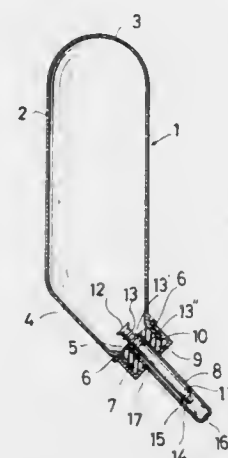
Teho Sou, 7-18 Higashiimazato 2-chome, Higashinari-ku, Osaka, Japan

Filed Jun. 29, 1981, Ser. No. 278,854

Int. Cl.³ A01K 7/00

U.S. Cl. 119—72.5

3 Claims



1. A watering device for pet animals, which comprises; an elongated sucking pipe extending downwardly from a hermetically sealed water container, and being so configured that pet animals can water from a suction port at the lower end of said sucking pipe; said sucking pipe comprising an elongated hollow cylinder of predetermined internal diameter open at both ends and made of a hard material which is not damaged by biting and chewing and an elongated cylindrical leakage-preventing plug disposed entirely within said hollow cylinder and container and having a longitudinal base of lesser diameter than said predetermined internal diameter, said plug being made of a material susceptible to damage by biting and chewing and being located protectively within said sucking pipe such that it cannot be contacted directly by said animals, said plug having engagement means on its outer surface for retaining it within said cylinder.

4,393,814

MULTI-FUELED BOILER

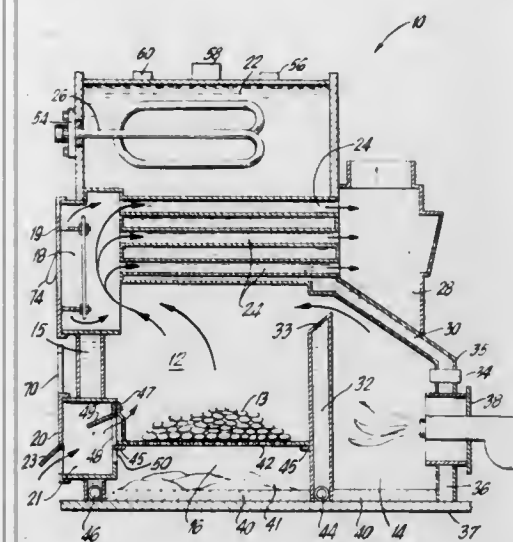
Raymond Sievert, 790 Old Colony Rd., Meriden, Conn. 06450

Filed Apr. 8, 1981, Ser. No. 252,254

Int. Cl.³ F22B 31/04

U.S. Cl. 122—22

8 Claims



1. A multi-fuel boiler having improved combustion efficiency comprising two compartments, said compartments each including external walls and an internal wall partially separating the compartments from each other to permit passage of heated gas from one compartment to the other so that the fuels may be burned in each compartment in sequence or simultaneously,

wherein said compartments comprise a front compartment for combustion of a solid fuel positioned and connected to and communicating with said front compartment, a rear compartment for combustion of a fluid fuel, and an ash pit positioned in front of said rear compartment and beneath said front compartment and separated from said front compartment by a grate to hold solid fuel;

means in one compartment to burn fluid fuel and means in the other compartment to burn solid fuel, a water-filled supply tank positioned above said front compartment; wherein said internal wall between the two compartments is a substantially vertical water-conductive wall connected to said water supply tank to heat the water of said tank; a plurality of fire tubes each having inlet and exhaust orifices, said fire tubes passing through said water supply tank, said fire tubes having their inlet orifices connected to said front compartment to receive hot combustion gases from both said compartments, said fire tubes heating the water within the supply tank and being connected to a flue for exhausting combusted gases.

4,393,815

HEATING PLANT

Niels R. Pedersen, Nybrogaardsvej 59, and Eyvind S. Nielsen, Alsoddevej 35, both of Hadsund, Denmark (DK 9560)

PCT No. PCT/DK80/00048, § 371 Date Apr. 16, 1981, § 102(e)

Date Apr. 16, 1981, PCT Pub. No. WO81/00611, PCT Pub.

Date Mar. 5, 1981

PCT Filed Aug. 15, 1980, Ser. No. 253,928

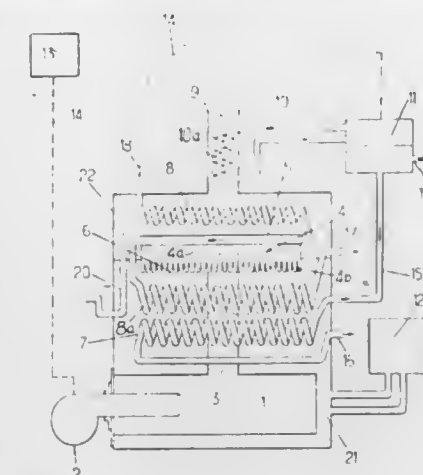
Int. Cl.³ F22B 1/02

U.S. Cl. 122—31 R

13 Claims

1. A heating plant comprising a housing, a combustion chamber, a high pressure burner associated with the combustion chamber, an exhaust pipe extending from the combustion chamber vertically within the housing and terminating within a smoke trap provided in the housing, the smoke trap including a dome having a downwardly extending skirt, the skirt extending below the top level of the exhaust pipe, means for maintaining a smoke washing liquid level below the level of the exhaust pipe and above the bottom edge of the dome skirt within the housing, openings provided in the dome skirt in the area below the liquid level, said openings decreasing in area from the

bottom edge of the skirt to the top limit of said openings below the level of the liquid, an exhaust stack communicating with the housing above the dome, and heat exchange means associ-



ated with the housing through which heat exchange fluid may be circulated for extracting the heat generated in the heating plant.

4,393,816

THERMODYNAMIC METHOD FOR STEAM-WATER SEPARATION

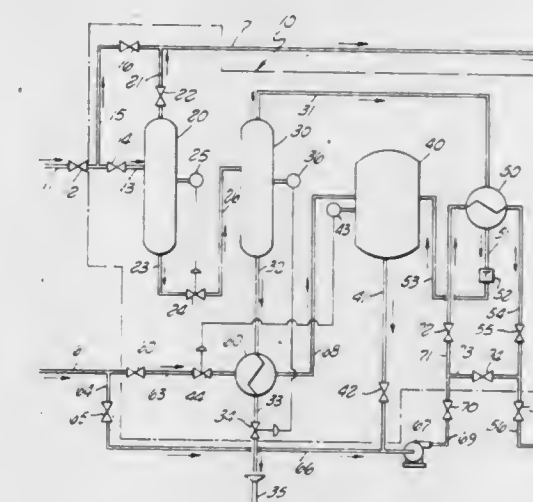
Paul A. Bock, 2246 N. Edinboro Ave., Claremont, Calif. 91711

Filed Feb. 10, 1982, Ser. No. 347,470

Int. Cl.³ F22D 1/00

U.S. Cl. 122—412

7 Claims



1. In the method of improving the quality of wet process steam produced by conventional and once through type boilers by removing moisture therefrom while reducing the quantity of boiler feedwater required to produce the resulting high quality dried steam, the steps comprising:

- (a) introducing wet process steam from a boiler to a steamwater separation vessel to separate entrained moisture and dry the steam to form relatively dry process steam;
- (b) removing from the separation vessel the separated moisture therein as a water stream including dissolved solids and passing said stream through a pressure reducing control valve to vaporize said water to form low pressure steam;
- (c) introducing said low pressure steam to a low pressure flash vessel and flashing said steam therein to separate moisture therefrom and form low pressure dry steam;
- (d) removing from the flash vessel the separated moisture therein as a low pressure water stream including higher quantities of dissolved solids and passing said stream through a feedwater preheater in indirect heat exchange relationship with fresh boiler feedwater to preheat said feedwater and cool said water stream;
- (e) removing from the flash vessel the low pressure dry steam

produced therein and passing said steam through a condensing heat exchanger to condense said steam for form a recovered hot stream of boiler feedwater substantially free of dissolved solids;

- (f) mixing the preheated stream of fresh boiler feedwater with the relatively hot stream of recovered boiler feedwater in a holding tank to form a combined feedwater stream having a temperature greater than that of the preheated fresh boiler feedwater and pumping said hot combined feedwater stream under high pressure through the condensing heat exchanger in indirect heat exchange relationship with the low pressure dry steam from the flash vessel to further heat said combined feedwater stream and to condense said steam and thence to said boiler for use therein in the production of steam;
- (g) discharging the water stream leaving the feedwater preheater, together with the included high quantities of dissolved solids, as a relatively cool waste stream; and
- (h) removing from the separation vessel, as an improved quality product, the relatively dry process steam.

5. In the method of improving the quality of high temperature, high pressure wet process steam produced by conventional and once through type boilers by removing moisture therefrom while reducing the quantity of boiler feedwater required to produce the resulting high quality dried steam, the steps comprising:

- (a) introducing wet high temperature, high pressure process steam from a boiler to a high pressure steam-water separation vessel to separate entrained moisture and dry the steam to form high temperature, high pressure relatively dry process steam;
- (b) removing from the separation vessel the separated moisture therein as a high pressure, high temperature water stream including dissolved solids and passing said stream through a pressure reducing control valve to vaporize said water to form low pressure, high temperature steam;
- (c) introducing said low pressure, high temperature steam to a low pressure flash vessel and flashing said steam therein to separate moisture therefrom and form low pressure dry steam;
- (d) removing from the flash vessel the separated moisture therein as a low pressure, high temperature water stream including higher quantities of dissolved solids and passing said stream through a feedwater preheater in indirect heat exchange relationship with fresh boiler feedwater to preheat said feedwater and cool said water stream;
- (e) removing from the flash vessel the low pressure dry steam produced therein and passing said steam through a condensing heat exchanger to condense said steam to form a recovered hot stream of boiler feedwater substantially free of dissolved solids;
- (f) mixing the preheated stream of fresh boiler feedwater with the relatively hot stream of recovered boiler feedwater in a holding tank to form a combined feedwater stream having a temperature greater than that of the preheated fresh boiler feedwater and pumping said hot combined feedwater stream under high pressure through the condensing heat exchanger in indirect heat exchange relationship with the low pressure dry steam from the flash vessel to further heat said combined feedwater stream and to condense said steam and thence to said boiler for use therein in the production of steam;
- (g) discharging the water stream leaving the feedwater preheater, together with the included high quantities of dissolved solids, as a relatively cool waste stream; and
- (h) removing from the separation vessel, as an improved quality product, the high temperature, high pressure relatively dry process steam.

4,393,817

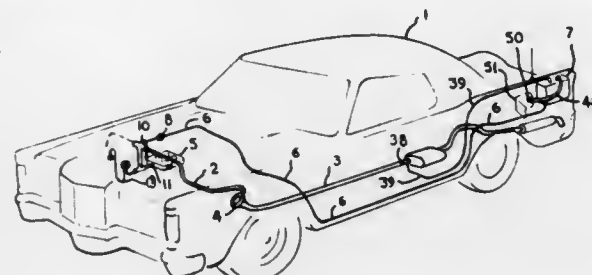
COMBUSTION AND POLLUTION CONTROL SYSTEM
John E. Lindberg, Lafayette, Calif., assignor to Owen, Wickersham & Erickson, San Francisco, Calif.

Division of Ser. No. 657,747, Feb. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 613,867, Sep. 16, 1975, abandoned, which is a continuation-in-part of Ser. No. 356,589, May 3, 1973, abandoned, which is a continuation-in-part of Ser. No. 227,440, Feb. 18, 1972, abandoned. This application Sep. 25, 1980, Ser. No. 190,932

Int. Cl.³ F02B 43/08, 19/00, 47/00

U.S. Cl. 123—3

11 Claims



1. A method for providing improved combustion and reduced emissions in an internal combustion engine, having a combustion zone and an exhaust, comprising feeding both fuel and controlled amounts of an aqueous fluid comprising a mixture of steam and hydrogen into said combustion zone, and in response to engine needs, increasing the weight ratio of said aqueous fluid to said fuel during engine acceleration.

4,393,818

COAL DUST COMBUSTION MOTOR
Otto Lefnaer, Brucknerstr. 68, 7000 Stuttgart 1, Fed. Rep. of Germany

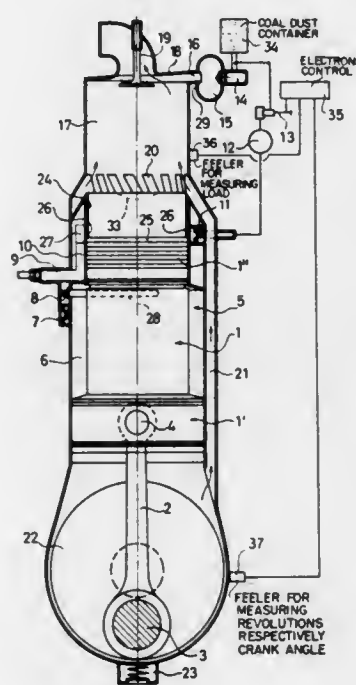
Filed May 22, 1981, Ser. No. 266,347

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1981, 3101910

Int. Cl.³ F02B 45/02

U.S. Cl. 123—23

28 Claims



1. A coal dust combustion motor comprising a cylinder; a piston reciprocable in said cylinder between a suction stroke and a compression stroke and defining between one end of said piston and a facing end wall of said cylinder a main combustion space; a whirling chamber continuously communicating with said space in the region of said end wall of said cylinder; means for blowing a mixture of air and coal dust at a low pressure of about 5-7 atm into said whirling chamber during

the compression stroke of said piston at a time at which the pressure in said space is greater than the effective pressure in said whirling chamber.

4,393,819

SYSTEM FOR CONTROLLING COOLING WATER TEMPERATURE FOR WATER-COOLED ENGINE
Takayuki Tanaka, Komae, and Rempei Matsumoto, Ohta, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

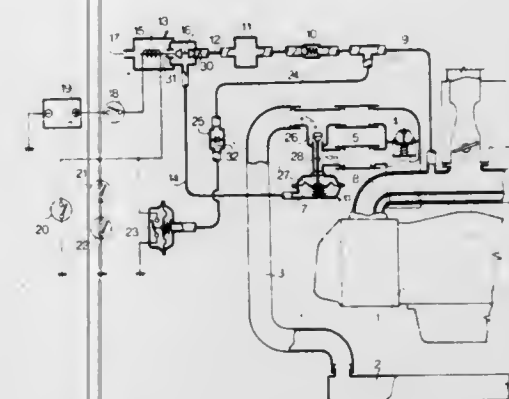
Filed Apr. 26, 1982, Ser. No. 371,761

Claims priority, application Japan, Apr. 30, 1981, 55-65672

Int. Cl.³ F01P 7/14

U.S. Cl. 123—41.08

4 Claims



1. A system for controlling cooling water temperature for a water-cooled engine having an intake passage, a radiator, a cooling water passage communicating a water jacket in said engine with said radiator, and a thermostat provided in said cooling water passage, said thermostat being so arranged as to open said passage when the cooling water temperature exceeds a predetermined value, said system comprising a bypass for bypassing said thermostat; bypass valve means provided in said bypass for closing the bypass; solenoid valve means for actuating said bypass valve; and switch circuit means connected parallel to said solenoid valve means for selectively switching the solenoid valve means; said switch circuit means comprising a low temperature switch responsive to low cooling water temperature to effect the operation of said solenoid valve for closing said bypass valve of said bypass, a high temperature switch means responsive to high cooling water temperature to effect the operation of said solenoid valve for closing said bypass valve, and a light load switch means responsive to the light load operation of the engine to effect the operation of said solenoid valve for closing the bypass valve.

4,393,820

ROLLING CONTACT ROCKER ARM AND PIVOT
Emil R. Maki, Rochester, Mich.; Ferdinand Freudenstein, Riverdale, N.Y.; Raymond L. Richard, Jr., Port Clinton, Ohio, and Meng-Sang Chew, Sterling Heights, Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 261,736, May 7, 1981, abandoned. This application Mar. 10, 1982, Ser. No. 356,926

Int. Cl.³ F01L 1/18

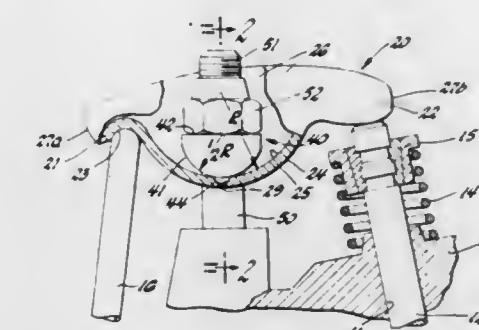
U.S. Cl. 123—90.41

9 Claims

1. A reciprocating internal combustion engine of the type having an engine block defining a cylinder with a port, a valve reciprocally located in said port and biased to a predetermined position, a valve actuator spaced from the valve and movable in opposite sense to reciprocate the same, and a valve train means including a rocker arm in engagement with the valve and the valve actuator and actuated in rocking movement to reciprocate said valve against said bias to open and close the port for engine operation, the improvement comprising: means defining a rocking support intermediate the length of

the rocker arm, said means and said rocker arm defining a pair of cooperating inner and outer cylindrical bearing surface contours carrying the reaction forces of rocker arm pivotal movement, the radius of the outer conformation being in the range of about 3 to 1.7 times the radius of the inner conformation;

restrainer means to anchor the cooperating cylindrical conformations for substantially rolling action in relation to each other, said restrainer means comprising a pin extending radially outward from the inner conformation and a recess in the outer conformation of a size to receive said pin,



said recess defining opposed sloping guide surfaces flaring outward in the direction toward the center of the outer conformation and over which the pin walks during rocker arm oscillation, the conformation of the pin being such that the pin moves in substantially walking motion during such reciprocation, whereby within the range of rocker arm oscillation the pin establishes substantially rolling contact between the cylindrical surfaces by contact with the guide surfaces of the recess and itself executes substantially rolling contact with the guide surfaces defined by the recess.

4,393,821

CYLINDER OR CYLINDER LINER

Shigeru Urano, Omiya, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

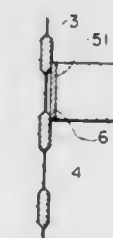
Filed May 19, 1980, Ser. No. 151,064

Claims priority, application Japan, May 22, 1979, 54-62198

Int. Cl.³ F02F 1/00

U.S. Cl. 123—195 C

6 Claims



1. An internal combustion engine comprising: a piston, a cylinder and a cylinder liner, said piston being operatively disposed in said cylinder, said cylinder liner having a plurality of spaced separate annular hardened layers produced directly from the cylinder liner without discontinuity, on the inner peripheral surface of said liner in the vicinity of the top dead center of said piston, the distance between adjacent annular hardened layers being smaller than an axial length of a piston ring of said piston.

the second cylinder group is an outer path of a second guide slot, and said second curved path coacting with the control lever of the second cylinder group is an inner path of said second guide slot.

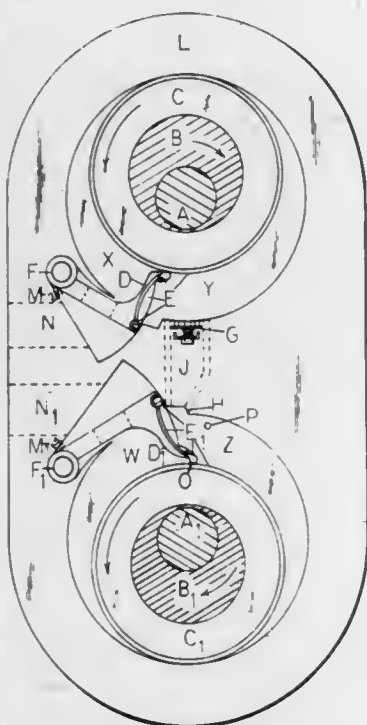
4,393,828 ROTARY ENGINE

Frank H. Jolly, 1832 Glendale Dr., Arcata, Calif. 95521
Filed Apr. 29, 1981, Ser. No. 258,597

Int. Cl.³ F02B 53/08

U.S. Cl. 123—203

1 Claim



1. An internally-cooled rotary engine comprising: two connected housings with hollow chambers therein; said chambers interconnected by a high temperature fire tube, said fire tube composed of high temperature material, said fire tube insulated from said housing by high temperatures insulation material and air space, said fire tube maintained at high temperature;

one of said chambers comprising a compression chamber, said chamber affixed with inlet means for gaseous mixture, said chamber equipped with a roller rotatably mounted on an eccentric crank to rotate inside said chamber, said roller equipped with resilient circular face seals, said chamber housing a rocking vane dividing said chamber into separate intake and compression volumes, said rocking vane mounted in said chamber with a shaft, said rocking vane sealed to said roller with a projection shaped to seal by entrained gas pressure, said rocking vane sealed to said chamber by resilient seals on face, projection, and sides, said rocking vane being lightly pressed against said roller by spring means;

the second of said chambers comprising an expansion chamber affixed with outlet means for expanded gases and steam, said second chamber equipped with a roller rotatably mounted on an eccentric crank to rotate inside said chamber, said roller equipped with resilient circular face seals, said second chamber housing a rocking vane dividing said chamber into separate expansion and exhaust volumes, said rocking vane mounted in said chamber with a shaft, said rocking vane sealed to said roller with a projection shaped to seal by entrained gas pressure, said rocking vane sealed to said chamber by resilient seals on face, projection, and sides, said rocking vane being lightly pressed against said roller by spring means, said second chamber affixed with inlet control and timing means by a projection valve on said rocking vane; said second chamber affixed with water injection means by hollow passages and spray nozzles in said rocking vane, said second cham-

ber having a displacement equal to or greater than the displacement of the compression chamber.

4,393,829 ROTARY ENGINE

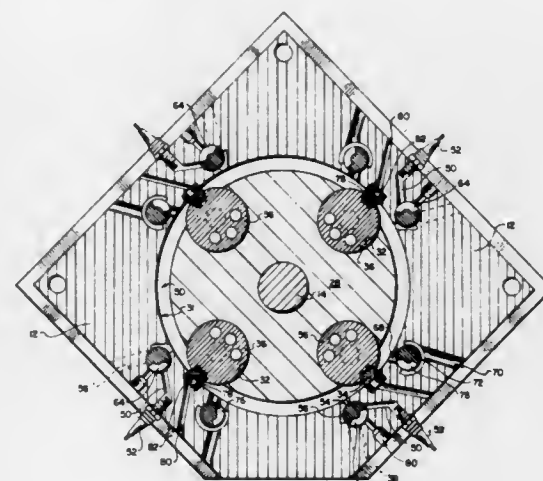
William P. Gardiner, Dallas, Tex., assignor to W. G. Slow T. (a partnership), Dallas, Tex.

Filed Sep. 15, 1980, Ser. No. 187,319

Int. Cl.³ F02B 53/00

U.S. Cl. 123—249

7 Claims



1. A rotary engine comprising:
 - a casing having a cylindrical bore and a plurality of combustion chambers spaced circumferentially externally of the bore;
 - a fuel supply for supplying a combustible fuel mixture;
 - a drive shaft concentrically received within the bore and journaled for rotation;
 - a rotor concentrically mounted on said drive shaft and having a radius less than the radius of the bore, and having a plurality of vane chambers equally spaced circumferentially around said rotor;
 - a plurality of first valves spaced circumferentially around the bore, said first valves alternately establishing and suppressing fluid communication between the bore and the exterior of said casing;
 - a plurality of second valves spaced circumferentially around the bore, said second valves separately and sequentially establishing and suppressing fluid communication between the bore and the combustion chambers, the combustion chambers and said fuel supply, the exterior of the casing and the bore, and said fuel supply and the bore, respectively;
 - a plurality of quadrant dividers equally spaced circumferentially around the bore, said quadrant dividers projecting radially into the interior of the bore a distance substantially equal to the difference between the radius of the bore and the radius of said cylindrical rotor, thereby forming a plurality of arcuate chambers; and
 - a plurality of cylindrical vanes rotatably received within the vane chambers and disposed for rolling contact with the wall of the bore, and each of said vanes having a notch disposed so that said vanes will rollably contact said quadrant dividers while suppressing fluid communication between adjacent pairs of arcuate chambers.

4,393,830 ACOUSTIC DETONATION SUPPRESSION IN A CATALYTIC ENVIRONMENT IN INTERNAL COMBUSTION ENGINE

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Jul. 28, 1978, Ser. No. 929,165

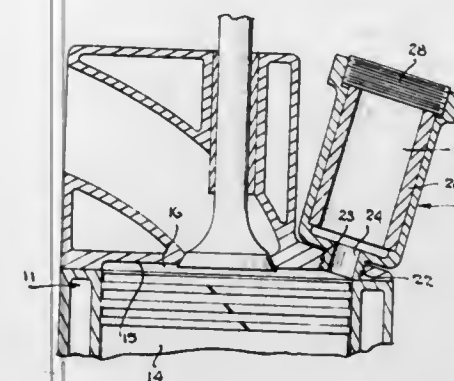
Int. Cl.³ F02B 27/00, 51/02

U.S. Cl. 123—272

14 Claims

1. In an internal combustion engine, having a combustion chamber and an ante-chamber dimensioned to suppress detona-

tion waves generated in said chamber in fluid communication with said combustion chamber, the improvement comprising:



catalytic means contained in said ante-chamber for facilitating the combustion within said combustion chamber.

4,393,831 CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Horst Bergmann, Esslingen, and Hans Pracht, Weinstadt, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

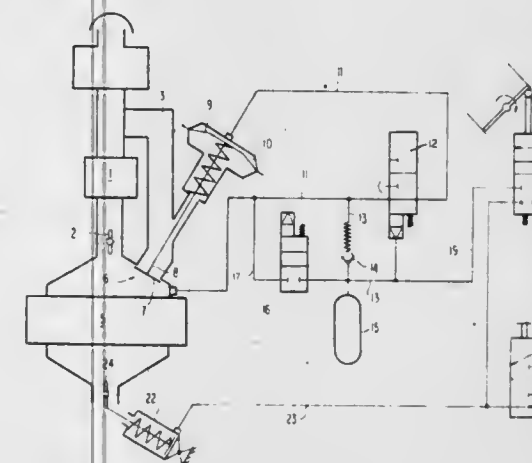
Filed Oct. 9, 1981, Ser. No. 310,235

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1980, 3038233

Int. Cl.³ F02D 9/06; F02M 23/08

U.S. Cl. 123—323

14 Claims



1. A control system for a mixture-compressing internal combustion engine comprising a carburetor means, an intake manifold means, a throttle valve means disposed in the intake manifold means, and an idle channel means for bypassing the throttle valve means, an additional channel means only forming an air channel bypasses the carburetor means and throttle valve means for introducing air into the intake manifold means, the additional channel means terminates in the intake manifold means at a position downstream of the idle channel means, first valve means are provided for controlling a communication between the additional channel means and the intake manifold means, the first valve means is located between the throttle valve means and inlet openings of the internal combustion engine, a diaphragm means is connected to the valve means for controlling an opening and closing of the valve means, line means are interposed between the diaphragm means and the intake manifold means for enabling an exposing of a side of the diaphragm means facing away from the first valve means to intake manifold vacuum, a further valve means, controlled by intake manifold vacuum, is disposed in the line means for enabling a venting of the diaphragm means and opening of the first valve means when the intake manifold vacuum is above an idle value, during a coasting operation of the engine whereby the side of the diaphragm means facing away from the first valve means can be evacuated to activate the first valve means

so that air exclusively flows into the intake manifold through the air channel means, thereby permitting an introduction of air into the intake manifold means through the additional channel means, and means are provided for controlling a positioning of the further valve means.

4,393,832 BRAKING DIESEL ENGINES

Olof Samuel, Stockholm, Sweden, and Heikki Hellemaa, Abo, Finland, assignors to Nordstjernan AB, Stockholm, Sweden and Oy Warstila AB, Abo, Finland

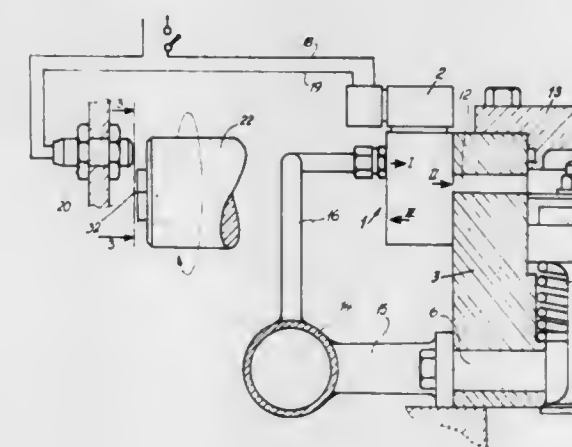
PCT No. PCT/SE80/00245, § 371 Date Jun. 5, 1981, § 102(e) Date Jun. 5, 1981, PCT Pub. No. WO81/01030, PCT Pub. Date Apr. 16, 1981

PCT Filed Oct. 7, 1980, Ser. No. 276,348

Claims priority, application Sweden, Oct. 10, 1979, 7908405 Int. Cl.³ F02D 35/00

U.S. Cl. 123—327

10 Claims



1. In an apparatus for controlling the braking action of a diesel engine having a plurality of combustion chambers in which pressurized air is supplied to the combustion chambers from a source of pressurized air during the compression stroke of the engine through valve means provided in the combustion chambers, each valve means having at least one conduit providing fluid communication between the source of pressurized air for introducing pressurized air to and discharging air from the valve means when in an open position, which valve means is opened by pressurized air supplied through a second conduit to a piston forming part of said valve means and slideably positioned in a cylinder located external to the combustion chamber, the improvement comprising:

- a means for controlling the introduction of pressurized air to and discharge of air from the piston and cylinder, including
 - an electro-magnetic valve placed intermediate the source of pressurized air and the cylinder, which electro-magnetic valve is adapted to be slideably moved between an open position in which air is introduced to the cylinder and a closed position in which air is discharged from the cylinder; and
 - a means for producing an electrical signal and actuating said electro-magnetic valve including an electrical transmitter electrically connected to said electro-magnetic valve, said transmitter being operatively associated with a means for transmitting rotational motion of the engine to the transmitter, such that the electro-magnetic valve is briefly opened at approximately the commencement and conclusion of the compression stroke.
6. In a method for controlling the braking action of a diesel engine having a plurality of combustion chambers in which pressurized air is supplied to the combustion chambers from a source of pressurized air during the compression stroke of the engine through valve means provided in the combustion chambers, each valve means having at least one conduit providing fluid communication between the source of pressurized air for

introducing pressurized air to and discharging air from the valve means when in an open position, which valve means is opened by pressurized air supplied through a second conduit to a piston forming part of said valve means and slideably positioned in a cylinder located external to the combustion chamber, the improvement comprising:

controlling the introduction of pressurized air to and discharge of air from the piston and cylinder, by driving an electrical transmitter with a means for transmitting rotational motion of the engine, said electrical transmitter producing an electrical signal in and actuating an electromagnetic valve arranged intermediate the source of pressurized air and the cylinder, the electrical signal so produced causing said electromagnetic valve to open and admit air to the cylinder, and closing said electromagnetic valve by terminating the electrical signal and discharging air from the cylinder, such pressurized air is introduced to the combustion chambers at approximately the commencement of the compression stroke and air is discharged from the compression stroke at approximately the end of the compression stroke.

4,393,833

DEVICE FOR THE CONTROL OF THE TRAVELING SPEED OF A MOTOR VEHICLE

Arnold Mann, Bieber, and Harald Collonia, Königstein, both of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany.

Division of Ser. No. 86,828, Oct. 22, 1979, Pat. No. 4,313,408, which is a division of Ser. No. 894,371, Apr. 7, 1978, abandoned.

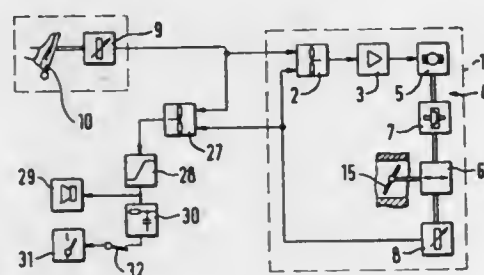
This application Aug. 10, 1981, Ser. No. 291,531

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753702; Dec. 2, 1977, 2753703; Dec. 9, 1977, 2754826

Int. Cl.³ F02D 11/10

U.S. Cl. 123—335

5 Claims



1. A device for the control of the traveling speed of a motor vehicle with a regulating unit actuable by the vehicle driver, particularly a gas pedal, and means for transmission of the movement of the same to an element, particularly the throttle valve, which influences the fuel-air mixture, comprising

- a regulating unit,
- a first electrical position encoder being coupled with said regulating unit, said first position encoder having an output with an output signal,
- means for influencing the air-fuel mixture of the vehicle,
- an electrical adjusting device including a positioning actuator, the latter being connected with said means,
- a second electrical position encoder being coupled with said positioning actuator, said second electrical position encoder having an output with an output signal,
- an electrical controller including said electrical adjusting device and having a desired value input connected with the output of said first electrical position encoder and having an actual value input connected with the output of said second electrical position encoder, and wherein the vehicle includes an ignition circuit, the device further comprising
- means for interrupting the ignition circuit of the motor vehicle upon a deviation of the output signal of said second electrical position encoder from the output signal of

said first electrical position encoder by a certain predetermined amount.

4,393,834

TWO-TEMPERATURE THERMALLY RESPONSIVE FAST IDLE CONTROL SWITCH

John Doherty, Jr., Assonet, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

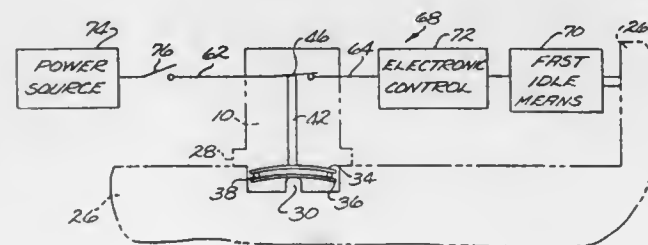
Division of Ser. No. 216,708, Dec. 15, 1980, Pat. No. 4,350,967.

This application Feb. 12, 1982, Ser. No. 348,478

Int. Cl.³ F02D 1/04

U.S. Cl. 123—339

2 Claims



1. A fast idle control system for an automotive engine comprising fast idle means, electrically operable control means for actuating the fast idle means, an electrical power source, and a thermally responsive electrical switch connected to the power source and mounted in heat-transfer relation to the engine for operating the control means to actuate the fast idle means when the engine is below a first temperature during engine warm-up, to deactivate the fast idle means when the engine is heated to said first temperature during normal running of the engine, and to reactuate the fast idle means when the engine is heated above a second temperature during extended idling operation of the engine, characterized in that, the thermally responsive electrical switch comprises a thermally conducting housing having a well with an open end and a closed end mounted in heat transfer relation to the engine, first and second thermally responsive dished disc elements of thermostat metal each adapted to move with snap action from an original dished configuration to an inverted dished configuration at said respective first and second temperatures, said elements being disposed in the housing well in facing relation to each other with peripheral portions of the elements aligned with each other and with one of the elements resting on the closed end of the well, spacer means disposed between the peripheral portions of the elements, switch means having first and complementary contact means thereon mounted in the open end of the housing well, the first contact means being movable between an open circuit position spaced from the complementary contact means and a closed circuit position engaging the contact means, the contact means being electrically connected to the power source and said control means respectively for providing a signal to the control means corresponding to the circuit position of the contact means, and motion transfer means movably mounted between the other thermally responsive disc element and the first contact means for permitting the first contact means to be in one of said circuit positions at a temperature below said first temperature and then to move to the other circuit position and to return to said one circuit position in sequence as the engine is successively heated to said first and second temperatures.

4,393,835

RPM GOVERNOR FOR A FUEL INJECTION PUMP

Franz Eheim, Stuttgart, and Gerald Höfer, Weissach-Flacht, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Division of Ser. No. 81,285, Oct. 2, 1979, Pat. No. 4,325,337.

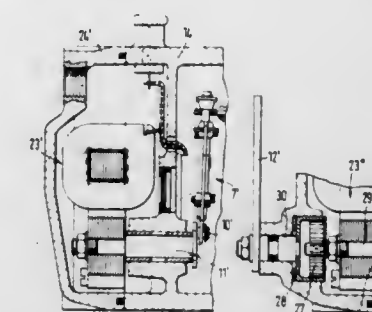
This application Dec. 28, 1981, Ser. No. 334,715

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1978, 2845096

Int. Cl.³ F02D 31/00

U.S. Cl. 123—357

4 Claims



1. In an rpm governor for a fuel injection pump of an internal combustion engine which includes

- a quantity adjustment means for determining the quantity of fuel injected, said quantity adjustment means being movable along a predetermined path between a first position at which a maximum quantity of fuel is injected and a second position at which a minimum quantity of fuel is injected,
- a first shaft,
- a governor lever means for positioning said quantity adjustment means, said governor lever means being pivotable about said first shaft and coupled to said quantity adjustment means,
- an rpm adjuster means for exerting a force on said governor lever means proportional to the rpm of the internal combustion engine,
- restoring force means for exerting a force on said governor lever means counter to the force exerted on said governor lever means by said rpm adjuster means,
- a second shaft having opposite ends defining an axis therebetween, said second shaft being pivotably mounted for rotation about its axis;
- a first pin, disposed eccentrically on said second shaft;
- an adjustment lever means, connected to said second shaft for arbitrary pivotal movement of said second shaft; and
- a governor spring, connected at one end to said first pin and at an opposite end to said governor lever means; and
- a rotary electromagnet having an armature which is engaged with said second shaft to vary the setting of said rpm governor.

4,393,836

SYSTEM FOR THE REGULATION AND CONTROL OF THE ANGLE OF ADVANCE FOR THE IGNITION UNIT OF AN INTERNAL COMBUSTION ENGINE

Giancarlo De Angelis, Milan; Alberto Castani, Corsico; Aldo Bassi; Edoardo Rogora, both of Milan; Dario Radaelli, Legnano; Luciano Bertoloni, Milan, and Francesco Perrone, Novara, all of Italy, assignors to Alfa Romeo, S.p.A., Milan, Italy

Filed Sep. 2, 1980, Ser. No. 183,586

Claims priority, application Italy, Sep. 10, 1979, 25585 A/79

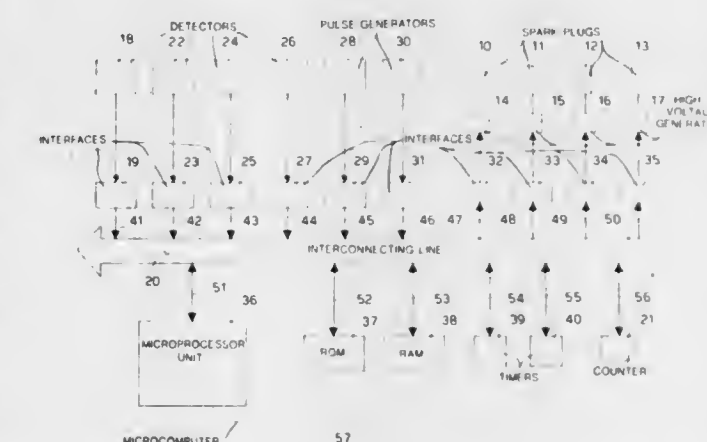
Int. Cl.³ F02D 5/00; F02B 3/10

U.S. Cl. 123—417

4 Claims

1. System of regulation and control of an ignition advance for an ignition unit of an internal combustion engine, the engine comprising a mainshaft, engine sparking plugs, means for generating high-voltages, means for distributing said high-voltage to said sparking plugs according to an explosion sequence, at least a power stage for driving said high voltage generating means, said regulation and control system comprising a first detector of a first engine operative parameter capable of deliv-

ering in a discrete number values provided by said first parameter, each of said values comprising a preselected number of bits; a second detector of a second engine operative parameter capable of delivering in a discrete number values provide by said second parameter, each of said values of said second parameter comprising a preselected number of bits; each combination of the values of said first and second parameters identifying a preselected operative condition of said engine; a third detector for detecting a working temperature of said engine and being capable of delivering in a discrete number values provided by said working temperature, each of said values of said working temperature comprising a preselected number bits; a first pulse generator operatively connected to said engine mainshaft and being capable of delivering at every revolution of said engine mainshaft a pulse signal comprised of a number of pulses equal to the number of ignition events which must be commanded in a revolution of said engine, each of said pulses having a preselected phase angle relationship relative to the engine top dead center; a second pulse generator operatively connected to a second engine shaft rotated at a speed equal to one half the speed of said engine mainshaft and being capable of delivering a properly phased pulse at every engine cycle; a central microprocessor unit (C.P.U.); a reading and writing storage unit (RAM); a plural storage cell reading only storage unit (ROM) containing calculation programs of said microprocessor unit, a preselected controlled advance of said ignition of said engine as a function of said two engine operative parameters, a preselected control of correction of said



ignition advance as a function of said working temperature of said engine; said storage cells of said storage units (ROM) relative to said preselected control of ignition advance each containing an information piece comprised of a preselected number of bits, the value of which is a function of an angle of ignition advance of a selected sparking plug relative to said piston top dead center position in the operative condition defined by a combination of said values of aforesaid two engine operative parameters, and all the other engine operative parameters being considered to be constant; the number of said storage cells being equal to the number of the possible combinations of values provided by a preselected number of most significant bits of said first engine operative parameter with values provided by a preselected number of most significant bits of said second engine operative parameter; said cells of said storage unit (ROM) relative to said preselected control of correction of said ignition advance each containing a piece of information the value of which is an ignition advance correction coefficient defined as a function of said values provided by said engine working temperature; said system comprising at least one timer operatively connected to said central microprocessor unit (C.P.U.) and to said at least one power stage; said central microprocessor unit being programmed for generating an address of said reading only storage (ROM), including the combination of said preselected number of said first most significant bits of said value provided by said first engine operative parameter with said preselected number of said most significant bits of said value provided by said second engine operative parameter forming means for:

4,393,841

DEVICE FOR REGULATING THE FUEL-AIR RATIO IN INTERNAL COMBUSTION ENGINES

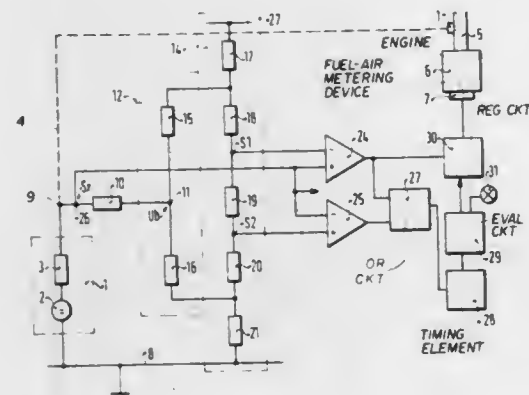
Ulrich Drews, Vaihingen; Peter Werner, Wiernsheim, and Werner Möhrle, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Jun. 24, 1981, Ser. No. 276,760

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1980, 3024607

Int. Cl.³ F02B 3/08

U.S. Cl. 123—440

5 Claims U.S. Cl. 123—440



1. A system for regulating the fuel-air mixture ratio being combusted in an internal combustion engine, the system having a lambda sensor having an internal resistance; a regulating device connected to the internal combustion engine to regulate the fuel-air ratio; a regulating circuit for controlling said regulating device; a monitoring circuit connected to said lambda sensor for generating a signal indicating lambda sensor readiness as a function of said internal resistance; said monitoring circuit including:

a resistor connected at a first end to said lambda sensor and connected at a second end to said monitoring circuit for generating a resultant voltage at the first end of said resistor;

two comparator devices having different threshold values which are connected to said lambda sensor to receive said resultant voltage and to compare said resultant voltage to said respective threshold values and to thereby generate respective output signals indicative of said comparison;

a logic processing circuit connected to receive said outputs of said two comparator devices for producing an output;

an evaluation circuit connected to receive said logic processing circuit output and connected to said regulating circuit for generating a lambda sensor readiness signal to operate said regulating device and a lambda sensor non-readiness signal to shut off said regulating device whereby said system is switched to open-loop control according to said logic processing circuit output, said system further including:

a voltage source connected to said monitoring circuit;

a first voltage divider connected across said voltage source;

a second voltage divider, connected parallel to said first voltage divider and having a pickup-point; and

wherein said resistor has a high resistance value and connects said pickup-point with said lambda sensor.

4,393,842

AIR/FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES, HAVING ATMOSPHERIC PRESSURE COMPENSATING FUNCTION

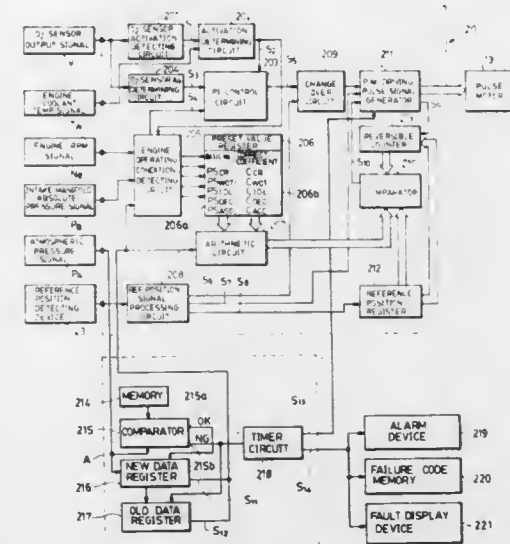
Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Motor Co., Ltd., Tokyo, Japan

Filed Jul. 27, 1981, Ser. No. 286,880

Claims priority, application Japan, Jul. 28, 1980, 55-103315

Int. Cl.³ F02B 33/00

6 Claims



1. An air/fuel ratio control system for performing feedback control of the air/fuel ratio of a mixture being supplied to an internal combustion engine, which comprises: an O₂ sensor for detecting the concentration of oxygen present in exhaust gases emitted from said engine; fuel quantity adjusting means for producing said mixture being supplied to said engine; and an electrical circuit operatively connecting said O₂ sensor with said fuel quantity adjusting means in a manner effecting feedback control operation in response to an output signal produced by said O₂ sensor to control the air/fuel ratio of said mixture to a first predetermined preset value, said electrical circuit including means for interrupting said feedback control operation when said engine comes into a predetermined operating condition, means responsive to said interruption of said feedback control operation to control said fuel quantity adjusting means so as to obtain an air/fuel ratio of said mixture equal to a second predetermined preset value corresponding to said predetermined engine operating condition irrespective of the value of the output signal of said O₂ sensor, and means for correcting said second predetermined preset value as a function of atmospheric pressure.

4,393,843

AIR-FUEL RATIO FEEDBACK CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES, HAVING FUNCTION OF CORRECTING POSITION OF AIR/FUEL RATIO CONTROL VALVE ACTUATOR

Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Motor Co., Ltd., Tokyo, Japan

Filed Jul. 30, 1981, Ser. No. 288,528

Claims priority, application Japan, Aug. 7, 1980, 55-108507

Int. Cl.³ F02M 7/18

U.S. Cl. 123—440

2 Claims

1. In an air/fuel ratio feedback control system for performing feedback control of the air/fuel ratio of an air/fuel mixture being supplied to an internal combustion engine, which includes means for detecting the concentration of an exhaust gas ingredient emitted from the engine, fuel quantity adjusting means for producing the mixture being supplied to said engine, means operatively connecting said concentration detecting means with said fuel quantity adjusting means in a manner effecting feedback control operation to control the air/fuel

ratio of said mixture to be a predetermined value, said connecting means comprising an electrical circuit, valve means for varying the air/fuel ratio of said mixture, and a pulse motor arranged to be controlled by said electrical circuit for driving said valve means, the combination comprising position detecting means for producing an output when said pulse motor is at a predetermined reference position which is set within a movable range of said pulse motor, a memory storing a value indicative of said predetermined reference position for said pulse motor, a first register responsive to an output signal of said

munication with the outlet, a supply passage in the distributor member, said supply passage communicating with the bore and extending to a second axial position on the periphery of the distributor member which is axially spaced from said first position, a supply port formed in the body part for communication with said supply passage during at least part of the time between successive inward movements of the plungers, a source of fuel under pressure, an adjustable throttle through which fuel from the source can flow to the supply port, a further port formed in the body part, said further port being positioned at said first axial position for registration with said delivery passage during at least part of the time said supply port is in communication with said supply passage whereby a flow of fuel together with any air, can take place along the supply passage, along the delivery passage and through said further port; and valve means for pressurizing fuel leaking into said cavity whereby when said throttle is closed to prevent fuel flow to said bore, said plungers will be moved inwardly their maximum extent to prevent actuation thereof by said cam means.

4,393,845

MEANS FOR IMPROVING THE EFFICIENCY OF AN INTERNAL COMBUSTION ENGINE

William R. Seitz, Royal Oak, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Apr. 3, 1978, Ser. No. 892,722

Int. Cl.³ F02D 5/02

U.S. Cl. 123—478

11 Claims

concentration detecting means, indicative of the concentration of said exhaust gas ingredient, to make accessible a predetermined desired value for said pulse motor, a second register storing a value indicative of an actual position of said pulse motor, means for driving said pulse motor until said actual position value in said second register becomes equal to said predetermined desired value, and means responsive to said output of said position detecting means to cause shifting of said predetermined reference position value stored in said memory to said second register to replace the value stored in the latter by said predetermined reference position value.

4,393,844

LIQUID FUEL PUMPING APPARATUS

Robert T. J. Skinner, High Wycombe, England, assignor to Lucas Industries Limited, Birmingham, England

Continuation of Ser. No. 153,780, May 27, 1980, abandoned.

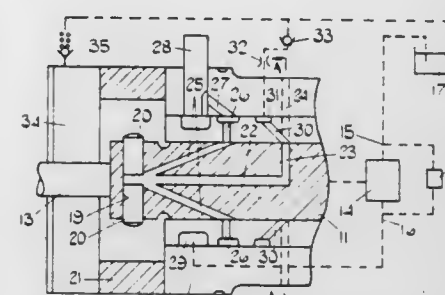
This application Nov. 8, 1982, Ser. No. 439,815

Claims priority, application United Kingdom, Jul. 6, 1979, 7923685

Int. Cl.³ F04B 23/10, 19/02

U.S. Cl. 123—450

1 Claim



1. A liquid fuel injection pumping apparatus for supplying fuel to an internal combustion engine and comprising a body part which defines a cavity, a rotary distributor member located in the body part and arranged in use, to be driven in timed relationship with the associated engine, a transverse bore formed in the distributor member, a pair of plungers in the bore, the outer end of said plungers being exposed within said cavity, a delivery passage extending from said bore to a first axial position on the periphery of the distributor member, an outlet in the body part positioned to register with the delivery passage during inward movement of the plungers as the distributor member rotates and while the delivery passage is in communication with the outlet, a supply passage in the distributor member, said supply passage communicating with the bore and extending to a second axial position on the periphery of the distributor member which is axially spaced from said first position, a supply port formed in the body part for communication with said supply passage during at least part of the time between successive inward movements of the plungers, a source of fuel under pressure, an adjustable throttle through which fuel from the source can flow to the supply port, a further port formed in the body part, said further port being positioned at said first axial position for registration with said delivery passage during at least part of the time said supply port is in communication with said supply passage whereby a flow of fuel together with any air, can take place along the supply passage, along the delivery passage and through said further port; and valve means for pressurizing fuel leaking into said cavity whereby when said throttle is closed to prevent fuel flow to said bore, said plungers will be moved inwardly their maximum extent to prevent actuation thereof by said cam means.

1. In an internal combustion engine having means for controlling the speed thereof and having an electronic fuel injection system which meters fuel to the engine in proportion to the width of pulses applied to engine fuel injectors, said fuel injection system establishing the width of said fuel injector pulses as a function of ambient engine operating parameters, wherein the improvement comprises:

means for increasing the efficiency of operation of said engine including;

means for varying in either a positive or negative sense the width of said fuel injector pulses established by said fuel injection system;

means for maintaining the speed of said engine constant;

means providing a quantity proportional to the width of said injector pulses;

means for periodically sampling and storing said quantity;

means for comparing an instantaneous value of said quantity with said stored value of said quantity to determine which of said compared values is of greater magnitude; and

means for reversing the sense of pulse width variation produced by said pulse width varying means whenever said comparing means indicates that the sense of change in said pulse width is in the direction of increased fuel consumption by said engine.

4,393,846

FUEL PUMPING APPARATUS

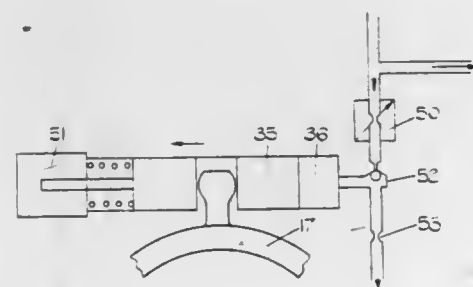
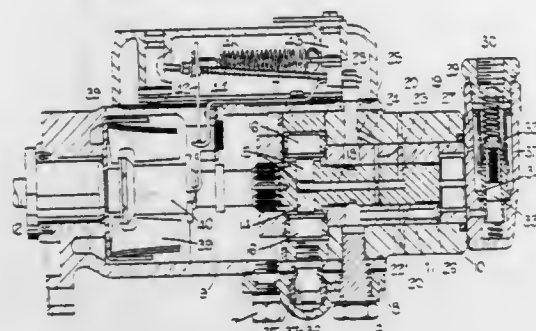
Dorian F. Mowbray, Burnham; Ivor Fenne, Greenford, and Eric J. Cavanagh, Surbiton, all of England, assignors to Lucas Industries Limited, Birmingham, England
Filed Jan. 30, 1981, Ser. No. 230,269

Claims priority, application United Kingdom, Feb. 15, 1980, 8005266

Int. Cl.³ F02M 59/20

U.S. Cl. 123—502

4 Claims



1. A fuel pumping apparatus for supplying fuel to an internal combustion engine comprising an injection pump operable in use in timed relationship with an associated engine, fluid pressure operable means for adjusting the timing of delivery of fuel by the apparatus comprising a member against a surface of which fluid under pressure can act, and resilient means opposing the movement of the member by said fluid pressure, a low pressure fuel supply pump for supplying fuel to the injection pump, an adjustable throttle for varying the quantity of fuel supplied to the injection pump, a transducer associated with the throttle valve for providing a first signal indicative of the effective flow area of the throttle valve throughout the range of movement thereof, an electrical circuit which receives said first signal, a second signal indicative of the speed of operation of the apparatus and a third signal indicative of the fuel pressure upstream of the metering valve and from which is determined a fourth signal representing the amount of fuel supplied to the injection pump, means responsive to at least said second and fourth signals for providing a fifth signal to vary the timing of delivery of fuel by the apparatus, an error amplifier to which said fifth signal is supplied, a further transducer for providing a sixth signal representative of the position of said fluid pressure operable means, said sixth signal being supplied to said error amplifier, an actuator responsive to the output of said error amplifier for controlling the pressure applied to said fluid pressure operable means, said actuator controlling the size of a restrictor through which fluid under pressure from a source is applied to said surface, said source of fluid pressure being said low pressure fuel supply pump and including a branch passage from downstream of said restrictor and through which fuel is supplied to the injection pump under the control of said throttle valve.

4,393,847

LOW PRESSURE SEALING ARRANGEMENT FOR A FUEL INJECTOR

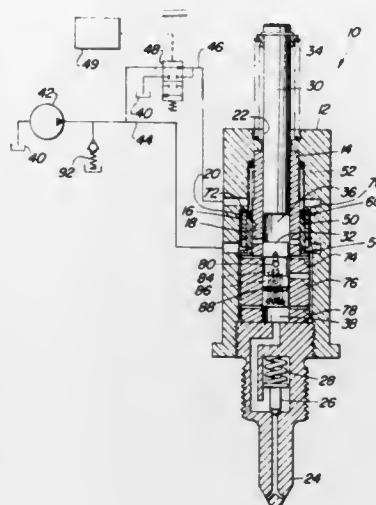
Charles W. May, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Mar. 25, 1982, Ser. No. 361,680

Int. Cl.³ F02M 47/02

U.S. Cl. 123—502

5 Claims



1. A low pressure sealing arrangement for a fuel injector comprising:

- a housing containing a cylindrical barrel therein and having an annular cavity formed between an inner surface of said housing and an outer surface of said barrel, said barrel also having a bore formed therein;
- a plunger and a piston spaced therefrom, said plunger and piston being positioned within said bore for axial movement;
- a nozzle situated at one end of said bore remote from said plunger for releasing fuel into a combustion chamber of an engine;
- a timing chamber defined in said bore between said plunger and said piston being adapted to receive pressurized fluid for creating a coupling between said plunger and said piston;
- a metering chamber defined in said bore between said piston and said nozzle;
- passages formed in said housing and said barrel for receiving pressurized fluid and transmitting said fluid into said timing chamber, into said metering chamber and into opposite ends of said annular cavity;
- control means for varying the flow of pressurized fluid through one of said passages and into one of said annular cavity;
- a pressure activated valve arranged in said annular cavity and movable by fluid pressure between an open position permitting fluid flow from said pressurized source into said timing chamber and a closed position preventing fluid flow from said pressurized source to said timing chamber;
- a cylindrical sleeve concentrically arranged about said pressure activated valve within said annular cavity for providing a first low pressure seal against an outer surface of said pressure activated valve; and
- means for axially urging an end of said cylindrical sleeve against a surface of said annular cavity to provide a second low pressure seal therewith, said first and second seals preventing leakage of fuel from said timing chamber during periods of increased pressure while permitting rapid movement of said pressure activated valve between said open and closed position with a minimal amount of drag forces acting thereon.

4,393,848

CONTROL MECHANISM FOR SELECTIVELY OPERATING AN INTERNAL COMBUSTION ENGINE ON TWO FUELS

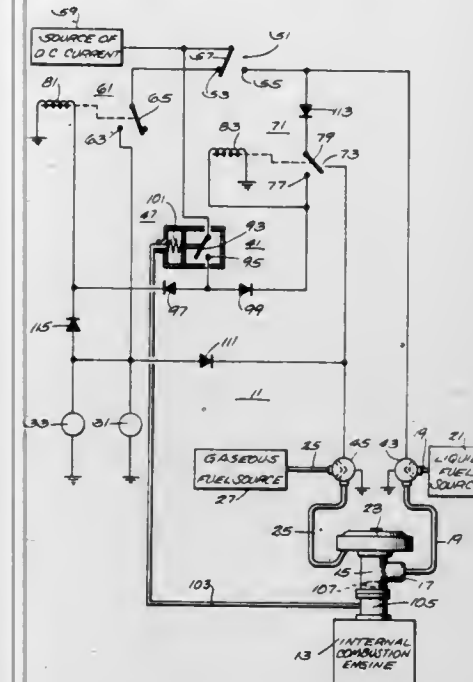
Arthur G. Poehlman, Oconomowoc, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Oct. 23, 1981, Ser. No. 314,225

Int. Cl.³ F02M 21/02

U.S. Cl. 123—525

6 Claims



1. Apparatus for controlling operation of an internal combustion engine which is selectively operable using gaseous fuel or liquid fuel, said apparatus comprising a gaseous fuel supply line extending between the engine and a source of gaseous fuel, a liquid fuel supply line extending between the engine and a source of liquid fuel, and means for controlling supply to the engine of the gaseous fuel and the liquid fuel, said control means including an operator controlled fuel selector switch movable between a gaseous fuel position and a liquid fuel position, said control means being operable following prior engine operation with gaseous fuel and in response to movement of said fuel selector switch from said gaseous fuel position to said liquid fuel position for permitting liquid fuel flow through said liquid fuel supply line, for permitting continued gaseous fuel flow through said gaseous fuel supply line until initiation of liquid fuel combustion, and for thereafter preventing further gaseous fuel flow through said gaseous fuel supply line until repositioning of said fuel selector switch to said gaseous fuel position, said control means also being operable following prior engine operation with liquid fuel and in response to movement of said fuel selector switch from said liquid fuel position to said gaseous fuel position for preventing further liquid fuel flow through said liquid fuel supply line, for preventing gaseous fuel flow through said gaseous fuel supply line until termination of liquid fuel combustion, and for thereafter permitting gaseous fuel flow through said gaseous fuel supply line until repositioning of said fuel selector switch to said liquid fuel position.

4,393,849

VARIABLE IGNITION DISTRIBUTOR

Kim J. Sae, 11-43 Daebang-Dong, Dongjak-Gu, Seoul, Rep. of Korea

Filed Apr. 24, 1981, Ser. No. 257,174

Claims priority, application Rep. of Korea, May 10, 1980, 80-1843[U]

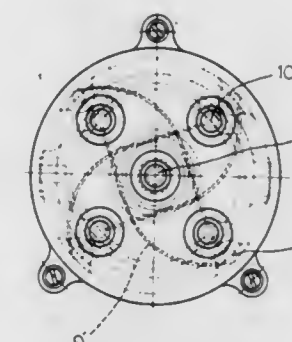
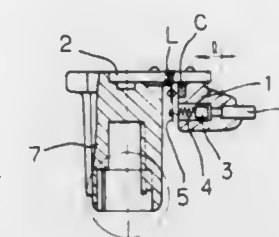
Int. Cl.³ F02M 27/04; F02P 15/00

U.S. Cl. 123—536

11 Claims

1. A variable ignition distributor for furnishing a high-voltage spark to a spark plug in a first cylinder to initiate an explosion of a fuel-air mixture therein and for furnishing a low voltage spark to a spark plug in a second cylinder to enhance

ionization of fuel supplied to the second cylinder prior to explosion of the fuel-air mixture in the second cylinder, said variable ignition distributor being usable with a distributor cap connected to an ignition coil and connected to the spark plugs in the first and the second cylinders and comprising:
a rotor disposed within the distributor cap;



an ignition electrode carried by said rotor for transferring a high voltage spark from the ignition coil to the spark plug in the first cylinder;
circuit means responsive to transfer of said high voltage spark for generating a low voltage spark; and
a variable electrode carried by said rotor for transferring said low voltage spark to the second cylinder.

4,393,850

IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

Minoru Nishida; Tadashi Hattori, and Akira Tanaka, all of Okazaki, Japan, assignors to Nippon Soken, Inc., Nishio, Japan

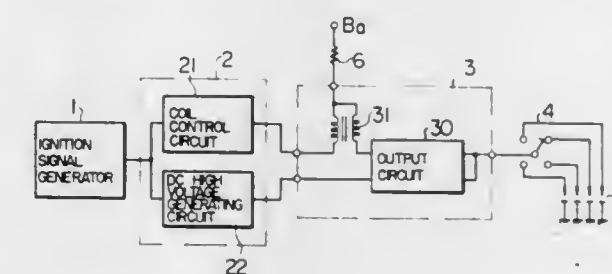
Filed Jul. 1, 1981, Ser. No. 279,516

Claims priority, application Japan, Jul. 10, 1980, 55/95887

Int. Cl.³ F02P 15/02, 15/10, 15/00

U.S. Cl. 123—536

9 Claims



1. An ignition system for an internal combustion engine having a plurality of spark plugs comprising:

an ignition coil including a primary coil and a secondary coil for generating a secondary voltage including a high voltage generated by interruption of a primary coil current, said secondary voltage reaching a dielectric breakdown voltage of a gap between discharge electrodes of any one of said spark plugs to cause a capacitive discharge therebetween;

a DC high voltage generating circuit for generating a DC

high voltage which is, in absolute value magnitude, lower than the dielectric breakdown voltage and higher than a voltage required to sustain discharge between the discharge electrode gap during a predetermined time interval from before occurrence of the capacitive discharge to a predetermined time or a predetermined crank angle thereafter;

said DC high voltage generating circuit including memory means for storing a plurality of predetermined time periods corresponding to a plurality of engine conditions and for generating a signal indicative of one of said time periods in response to a detected engine condition, and a circuit responsive to said output signal of said memory means to determine said predetermined time interval after the beginning of the capacitive discharge, whereby the time of interrupting said DC high voltage is determined in dependence on the detected engine condition; an output circuit for selectively applying one of the secondary voltage and the DC high voltage to the discharge electrode gap in accordance with relative levels of both voltages; and an ignition coil control circuit for controlling supply and interruption of the primary coil current.

4,393,851

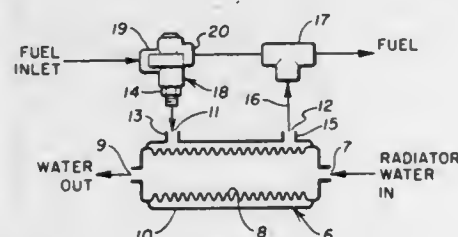
DIESEL FUEL TEMPERATURE CONTROLLING APPARATUS

Marc S. Gorans, Willmar, Minn., assignor to Phillips Temro, Inc., Eden Prairie, Minn.

Filed Jan. 14, 1981, Ser. No. 224,917
Int. Cl.³ F02M 31/00

U.S. Cl. 123—557

14 Claims



1. Apparatus for controlling the temperature of liquid fuel flowing in a fuel supply line while maintaining the same in liquid form comprising:

- fuel conduit structure having fuel inlet and outlet passages;
- a fuel-heating heat exchanger having heat exchange surfaces which define a fuel passageway connected in fuel communicating relation with said inlet and outlet passages;
- fluid conduit means defining a bypass passageway communicating with said inlet and outlet passages and effective to bypass fuel from said fuel conduit structure through said heat exchanger;
- thermostatic valve means for modulating the flow of such fuel through said passageways in response to temperature of unmixed and unheated bypassed fuel in said fuel conduit structure; and
- said valve means being constructed and arranged within said fuel conduit structure to direct the flow of fuel through said conduit structure when the fuel supply entering said inlet is warm and through said fluid conduit means and said heat exchanger when the fuel supply entering said inlet is cold.

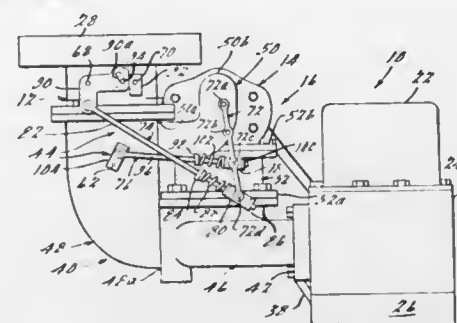
4,393,852 LINKAGE MECHANISM FOR SUPERCHARGER SYSTEM

Robert C. Merritt, Corning, N.Y., and Gerald L. Terwilliger, Wixom, Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 8, 1980, Ser. No. 214,305
Int. Cl.³ F02B 33/44; F02D 23/00

U.S. Cl. 123—564

21 Claims



- In an induction system including an inlet receiving air, an outlet adapted to deliver the air to an expansible combustion chamber of an engine, first and second air flow paths connected in parallel between the inlet and outlet, a supercharger interposed in the second path; the improvement comprising: valve means including a valving member and means responsive to differential pressure between the inlet and outlet, said valving member moveable between open and closed positions to control air flow in said first path for regulating said differential pressure between a minimum and a maximum pressure, and said pressure responsive means operative to move said valving member toward said first position to decrease said differential pressure in response to said outlet pressure exceeding said maximum pressure.

4,393,853

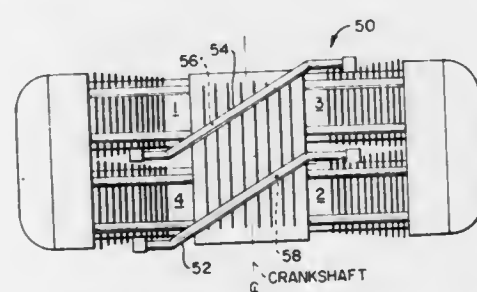
EXHAUST GAS RECIRCULATION TYPE INTERNAL COMBUSTION ENGINES AND METHOD OF OPERATING SAME

William N. Groves, Rapid City, S. Dak., assignor to Research Corporation, New York, N.Y.

Filed Aug. 6, 1981, Ser. No. 290,798
Int. Cl.³ F02M 25/06

U.S. Cl. 123—568

6 Claims



1. In a multi-cylinder internal combustion engine having a fuel and an air source connected to each cylinder via a substantially centrally located intake valve means in each cylinder; means for stratifying a combustible fuel/air mixture and exhaust gas in the cylinder during the intake stroke, said means for stratifying comprising:

- fuel/air mixture swirling means for each cylinder;
- at least one inlet port in each cylinder open to each cylinder from about 60° BBDC to about 60° ABDC;
- conduit means connecting each said at least one inlet port with a source of pressurized exhaust gas;
- said source of pressurized exhaust gas comprising the gas exhausting from the cylinder 360° apart on the firing order of the engine;

(e) means for causing the exhaust gas to swirl in each cylinder in the same direction as the swirl of the air/fuel mixture.

4,393,854

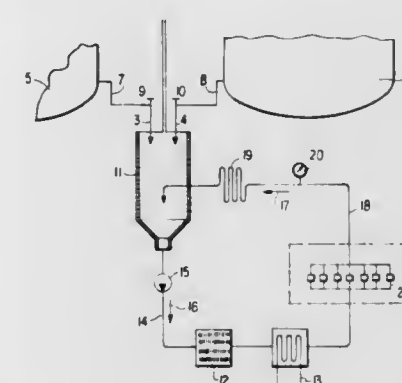
MIXING UNIT

Maurice Tacquet, 14 Allée des Pres, F-59650 Villeneuve d'Ascq, France

Filed Feb. 18, 1981, Ser. No. 235,519
Claims priority, application France, Feb. 19, 1980, 80 04386
Int. Cl.³ F02B 1/00

U.S. Cl. 123—576

5 Claims



1. An apparatus for supplying fuel to a combustion device, comprising in combination:

- a first tank for storing light fuel;
- a second tank for storing heavy fuel;
- a third tank;
- a first conduit connecting said first tank with said third tank for supplying light fuel from said first tank to said third tank;
- a second conduit connecting said second tank with said third tank for supplying heavy fuel from said second tank to said third tank;
- a third conduit connecting said third tank with said combustion device for supplying fuel from said third tank to said combustion device;
- a fourth conduit connecting said combustion device with said third tank for returning excess fuel from said combustion device to said third tank;
- a pump in said third conduit for driving fuel through said third and fourth conduits; said pump having an output flow rate that is greater than the rate of fuel consumption of said combustion device;
- a first valve in said first conduit for controlling the fuel flow therethrough;
- a second valve in said second conduit for controlling the fuel flow therethrough;
- a viscosity sensing means connected to said fourth conduit for sensing the viscosity of the fuel flowing therethrough and
- control means connecting said viscosity sensing means with at least one of said valves for changing the ratio of the rates of fuel flowing in said first and second conduits in response to signals from said viscosity sensing means for maintaining the viscosity of the fuel in said third tank and in said third conduit at a predetermined value.

4,393,855

CORRECTING DEVICE FOR THE COMBUSTION OF ENGINES OF VEHICLES DURING TRANSITIONAL PHASES OF OPERATION

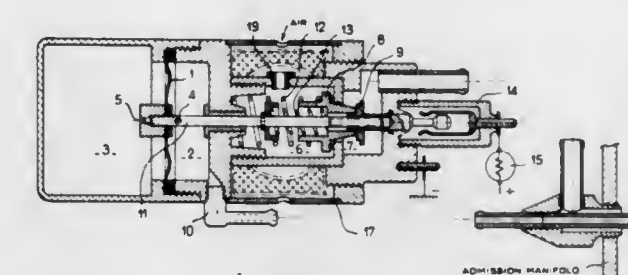
Andre Mandar, Creteil; Jules Fressard, Paris, and Martine Mandar, Versailles, all of France

PCT No. PCT/FR80/00058, § 371 Date Dec. 11, 1980, § 102(e)
Date Dec. 11, 1980, PCT Pub. No. WO80/02179, PCT Pub. Date Oct. 16, 1980

PCT Filed Apr. 14, 1980, Ser. No. 220,040
Int. Cl.³ F02M 23/04

U.S. Cl. 123—587

10 Claims



1. A device for correcting the combustion of internal combustion engines which are subjected to frequent changes in speed of rotation and loads, in particular automobile engines, each internal combustion engine having an intake manifold for directing a mixture of air and fuel to an engine comprising a first sealed chamber directly connected to said intake manifold, a second sealed chamber separated from the first chamber by a diaphragm having a neutral position, said second chamber being connected to the first chamber, through passage means for delaying transmission of pressure variations from the first chamber to the second chamber, control means for reducing the fuel to air ratio of said air and fuel mixture, said control means being coupled to said diaphragm for activation by said diaphragm whenever the differential pressure between the second and first chambers exceeds a first predetermined value and also whenever the differential pressure between the first and second chambers exceeds a second predetermined value, whereby the fuel to air ratio is reduced during acceleration and deceleration transitory phrases of the engine.

4,393,856

APPARATUS FOR MILLING BUILDING BLOCKS

Siegfried Gebhart, Tobelstadel, D-7971 Aitrach-Aichstetten, Fed. Rep. of Germany

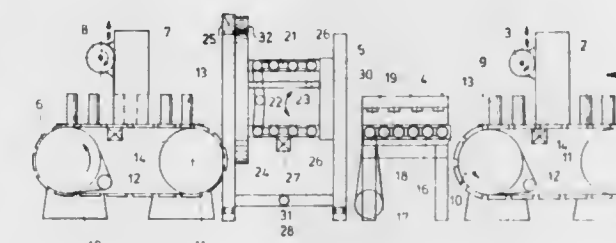
Filed Mar. 4, 1981, Ser. No. 240,535

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009615

Int. Cl.³ B28D 1/18

U.S. Cl. 125—3

16 Claims



1. Apparatus for milling building blocks at opposite first and second sides in two steps, comprising in combination:

- first means for milling said blocks at said first side thereof in a first one of said steps;
- second means for milling said blocks at said second side thereof in the second one of said two steps;
- third means located between said first and second means for accelerating said blocks in a direction of transportation of the blocks after said milling at said first side; and

fourth means located between one of said first and second means and said third means for turning said blocks by 180° for said milling at a second side thereof;
said fourth means including a box having opposite open ends, with one open end providing an entrance for blocks and the other open end an exit for the blocks, and means including a frame for mounting the box for rotation by said 180° about an axis of rotation parallel to said direction of transportation of the blocks.

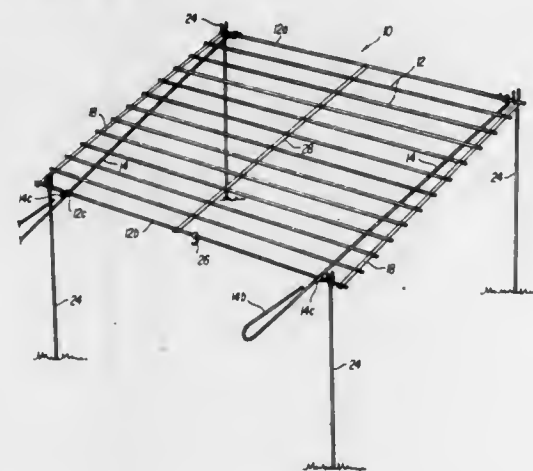
4,393,857

COLLAPSIBLE-GRILL

Richard Sanford, Rte. 2, Potsdam, N.Y. 13676
Filed Mar. 23, 1981, Ser. No. 246,915
Int. Cl.³ F24C 1/16

U.S. Cl. 126—9 R

9 Claims



1. A collapsible grid comprising:

- (1) a pair of flexible cables;
- (2) a plurality of rigid rods fastened at one end of each rod in ordered sequence beginning with a first rod at one end of one cable and continuing to a second rod at the other end of the one cable, and each remaining rod fastened at the other end to the other cable in like sequence with the first rod at one end of the cable and continuing to the second rod at the other end of the sequence, said second rod having a degree of flexibility;
- (3) a pair of bars each connected at one end of the bar to one end of the first rod, said first rod having means near each of its ends to capture the bars between the respective cable and the said means;
- (4) said bars each having a receiving hook to removably receive the second of said rod members, and said second bar having a pair of detent means respectively to receive said hooks; and

whereby when the hooks receive and engage the second bar member, the rods are under compression and the cables are under tension by spring action of the second bar to spread the rods into an array useful as a grill, and whereby when said rods are disengaged from the hooks the grill is collapsed, the bars and rods may be rolled up and retained by the cable to form a bundle.

4,393,858

COMBUSTION CONTROL SYSTEM

Keiichi Mori, Izumiohtsu; Yasukiyo Ueda, and Keiji Mori, both of Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 5, 1979, Ser. No. 100,529

Claims priority, application Japan, Dec. 11, 1978, 53-153498; Dec. 11, 1978, 53-153499; Dec. 12, 1978, 53-153926

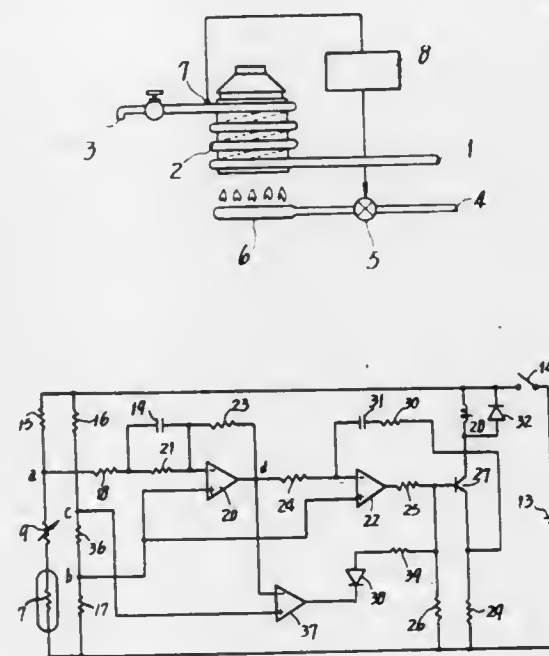
Int. Cl.³ F24H 1/00

U.S. Cl. 126—351

5 Claims

1. A combustion control system comprising:
a combustion unit for a fuel;

a proportional control valve for proportionally controlling the supply of the fuel to the combustion unit;
a temperature sensor for detecting the temperature of a fluid heated with the heat of combustion produced by the combustion unit; and
a control circuit comprising a bridge circuit including the temperature sensor as a component thereof, a proportional integrating differentiating circuit comprising a proportional differentiating circuit including an operation amplifier and a proportional integrating circuit including an



operation amplifier and an integration capacitor, the proportional integrating differentiating circuit being adapted to receive an output from the bridge circuit representative of a deviation of the fluid temperature from a first temperature setting and to give a drive output to the proportional control valve, and a discharging circuit including a comparator for comparing an output from the differentiating circuit with a second temperature setting and adapted to cause discharge of a charge from the integration capacitor when the comparison in the comparator indicates that the fluid temperature exceeds a specified level.

4,393,859

SOLAR COLLECTOR ROOF

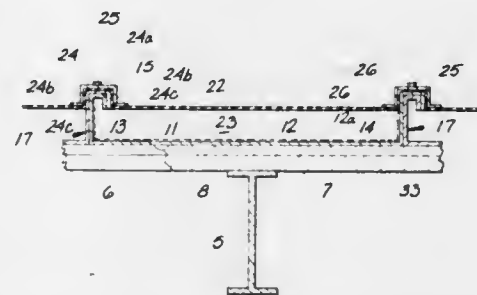
Gabor Marossy, and Warren E. Mueller, both of Middletown, Ohio, assignors to Armco Inc., Middletown, Ohio

Filed Feb. 19, 1980, Ser. No. 122,583

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429

35 Claims



1. In a building structure of the type having a roof construction including a plurality of spaced rafters supporting a plurality of spaced generally parallel transversely extending purlins and a plurality of interlocking rigid metallic roof panels positioned on and extending between said purlins, each of said panels having a central planar portion and a web extending upwardly along opposite edges of the planar portion, each of the webs being configured to interlock with a web of an adjoining

4,393,860

SOLAR HEAT COLLECTING APPARATUS

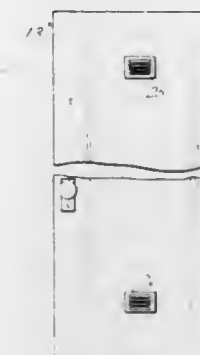
Paul M. French, 12 James St., Seekonk, Mass. 02771

Filed Nov. 24, 1980, Ser. No. 209,729

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429

1 Claim



ing panel to form a channel-like rib, said ribs extending in generally parallel fashion between the ridge and eave of the roof, the improvement in combination therewith comprising means for converting said roof construction to a solar collector for converting solar energy impinging thereon to thermal energy including:

glazing means defined by a solar radiation transmissive sheet overlying the outer surface of the roof construction in spaced relationship therewith and being supported by said ribs at spaced points to form a plurality of duct-like air passageways between the lower surface of the solar radiation transmissive sheet and the central planar portion of the roof panels, the sides of said air passageways being formed by the inside surfaces of the channel-like ribs adjoining said central planar portion, said air passageways extending generally between the eave and ridge of the roof structure;

means associated with the upper surface of said central planar portion for converting solar radiation impinging thereon to thermal energy within the air passageway;

means for attaching said solar radiation transmissive sheet to said ribs to maintain the sheet in spaced relationship with said central planar portion comprising an elongated hat section including a planar portion and leg portions depending downwardly from the outer edges of said planar portion, said sheet being secured between said hat section and said rib, the lower ends of said leg portions operating to space the sheet from the roof surface;

inlet means for introducing air into one end of the air passageway; and

outlet means for exhausting heated air from the opposite end of the air passageway for use in the building structure interior such that air moves in a single direction between inlet and outlet within said passageway in contact with the upper surface of the panel and the lower surface of the solar radiation transmissive sheet, whereby a solar collector may be formed by using the roof surface as the solar radiation absorbing surface.

27. A method for constructing a solar roof to supply supplemental heated air to an existing building structure by retrofitting an existing conventional roof construction associated with the building of the type having a plurality of spaced rafters supporting a plurality of spaced generally parallel transversely extending metallic purlins and a plurality of interlocking rigid metallic roof panels positioned on and extending between said purlins, each of said panels having a central planar portion and a web extending upwardly along opposite edges of said planar portion, each of the webs being configured to interlock with a web of an adjoining panel to form a channel-like rib, said ribs extending in generally parallel fashion between the ridge and eave of the roof, said method comprising the steps of:

attaching to said ribs by means of a hat section including a planar portion and leg portions depending downwardly from the outer edges of the planar portion a solar radiation transmissive sheet such that the sheet is secured between the hat portion and the rib with the lower ends of the leg portions positioning the sheet in spaced overlying relationship with the outer surface of the roof construction to form a plurality of duct-like air passageways positioned between the lower surface of the solar radiation transmissive sheet and the central planar portion of the roof panels with the inside surfaces of the channel-like ribs adjoining the central planar portion of the roof panel forming the sides of the air passageway, said air passageways extending generally between the eave and ridge of the roof structure, the central planar portion of the panel serving as a solar radiation absorbing surface; and

supplying means for introducing air into one end of the air passageways and for removing heated air from the opposite end of the air passageways for use within the building structure interior such that air moves in a single direction between inlet and outlet within said passageway in contact with the upper surface of the panel and the lower surface of the solar radiation transmissive sheet.

1. A hot air type solar heat-collecting apparatus comprising
 - (a) an upwardly extending outer door panel fitted into a wall of a building within a frame with openings therethrough at different vertical levels, said panel being so oriented as to receive the rays of the sun,
 - (b) a heat-collecting plate having a substantially black coating over its surface spaced from said panel and covering said openings and forming with said panel a closed heat chamber except for said openings,
 - (c) a heat trap cover capable of passing sun's heating rays covering said plate whereby the sun's rays will pass through said cover and impinge upon said plate and heat air in said chamber.

4,393,861

APPARATUS FOR THE UTILIZATION OF SOLAR ENERGY

Buddy M. Beard, 2856 Janelle, and Joe M. Beard, 822 E. York Way, both of Sparks, Nev. 89431

Continuation-in-part of Ser. No. 82,813, Oct. 9, 1979, abandoned. This application Oct. 1, 1981, Ser. No. 307,549

Int. Cl.³ F24J 3/02

U.S. Cl. 126—436

16 Claims

1. A system for heating an interior space of a building, the system comprising:

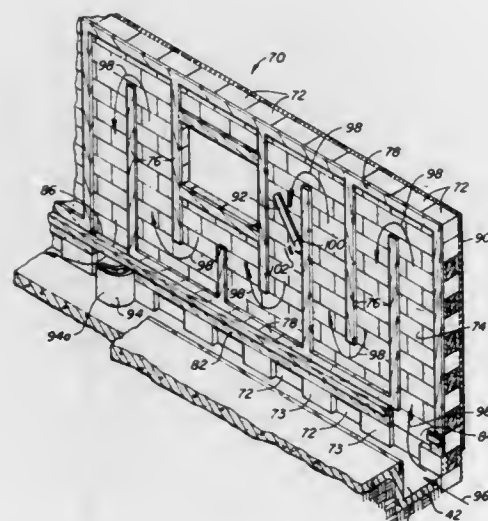
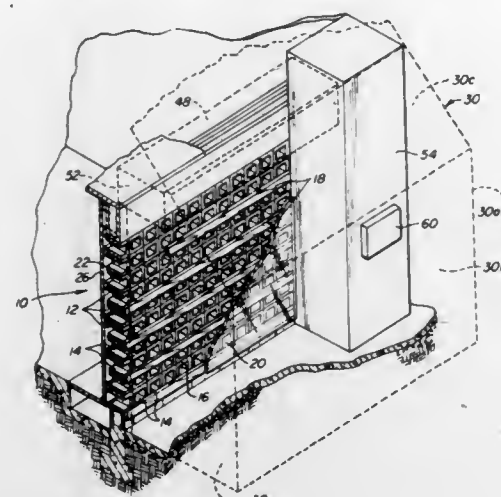
collector wall structure formed from a concrete material and having a generally interior-facing surface, an opposed exterior surface, and a plurality of apertures communicating the interior-facing and exterior surfaces to one another;

an exterior panel formed from a material transparent to solar energy, a first interior panel, and means for respectively mounting said exterior and first interior panels in spaced relation to the exterior and interior-facing surfaces of the collector wall structure to form first air passages comprising spacing between the exterior panel and the exterior surface, the first interior panel and the interior-facing surface and the plurality of apertures;

storage wall structure formed from a concrete material and having a second interior-facing surface, a second interior panel, and means for mounting the second interior panel to the second interior-facing surface to form at least a second air passage therebetween;

conduit means intercoupling the first and second air passages

for communicating air from the first air passages to the second air passage; and



air moving means operably coupled to the conduit means for moving air from the first air passages to the second passage and back again via the conduit means.

4,393,862

SOLAR AIR DUCT

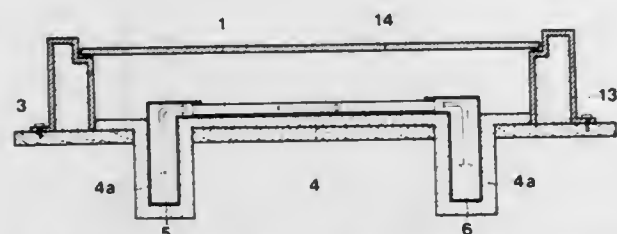
Douglas A. Wilke, Glen Head, N.Y., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Oct. 14, 1980, Ser. No. 193,581

Int. Cl.³ F24J 3/02

U.S. Cl. 126-448

2 Claims



1. In an apparatus for heating air with solar energy, wherein said air is heated in a chamber disposed below a glazing and surrounded by glazing support structure, the improvement wherein said apparatus comprises a kit capable of on-site assembly upon a planar-shaped base, and wherein said kit includes:

- at least one prefabricated heating chamber to be placed upon said base, said chamber consisting essentially of a set of elongated, hollow, flat, straight, sheet-metal ducts, which lie flat, side-by-side, above said base when said kit

is assembled; wherein each of said ducts is closed except for duct openings at each end thereof; and

- a first manifold chamber separate and distinct from said heating chamber to be disposed at one end of said set of ducts when said kit is assembled; a second manifold chamber separate and distinct from said heating chamber to be disposed at the other end of said set of ducts; wherein said first manifold chamber vertically extends from above said base down through a hole in said base adjacent said one end of said ducts when said kit is assembled; wherein said second manifold chamber vertically extends from above said base down through a hole in said base adjacent said other end of said set of ducts when said kit is assembled; wherein said first manifold chamber includes an aperture in its side through which said set of ducts horizontally extend when kit is assembled; wherein said second manifold chamber includes an aperture in its side through which said set of ducts horizontally extend when said kit is assembled; wherein said first and second manifold chambers each include an open-topped compartment and a lid therefor; wherein said compartment includes a protruding lip segment adjacent its open top; wherein said lid overlies said open top and lip segment when said kit is assembled; wherein said lip and overlying lid define said aperture in said manifolds through which the open ends of said ducts extend when said kit is assembled and wherein said heating chamber and manifolds are detached from said glazing and glazing support when said kit is assembled.

4,393,863

EXTRAVASCULAR CIRCULATION OF OXYGENATED SYNTHETIC NUTRIENTS TO TREAT TISSUE HYPOXIC AND ISCHEMIC DISORDERS

Jewell L. Osterholm, Radnor, Pa., assignor to Thomas Jefferson University, Philadelphia, Pa.

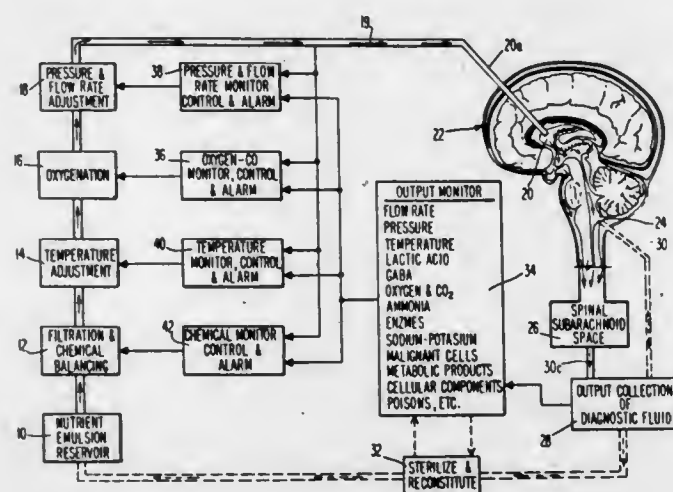
Division of Ser. No. 139,886, Aug. 14, 1980, Pat. No. 4,378,797.

This application Jun. 18, 1981, Ser. No. 275,116

Int. Cl.³ A61K 31/00; A61M 5/14

U.S. Cl. 128-1 R

18 Claims



1. A method of treating hypoxic-ischemic neurologic tissue, in mammals, comprising:

- providing a physiologically acceptable synthetic oxygenatable fluid;
- oxygenating said oxygenatable fluid to produce an oxygenated fluid;
- injecting a substantially continuous stream of said oxygenated fluid into the cerebrospinal fluid pathway, at a first injection point;
- substantially continuously withdrawing fluid from said cerebrospinal fluid pathway at a second point which is selected to create a circulation of said oxygenated fluid in the vicinity of said ischemic tissue; whereby ischemic

neurologic tissue will be oxygenated and otherwise nourished by said fluid.

4,393,864

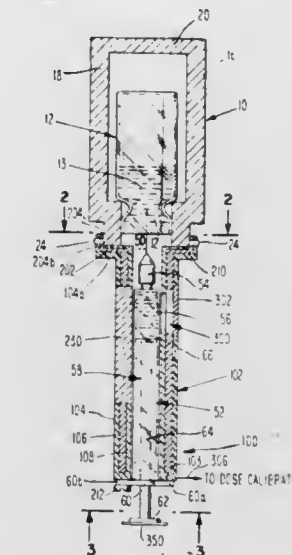
SYRINGE SHIELDS AND METHODS FOR USING SAME
Benjamin M. Galkin, Cherry Hill, N.J.; Raymond Boon, Glenolden, Pa.; Rudolph V. Gilliam, Yeadon, Pa., and Chan H. Park, Ambler, Pa., assignors to Thomas Jefferson University, Philadelphia, Pa.

Continuation of Ser. No. 121,211, Feb. 13, 1980, Pat. No. 4,307,713. This application Apr. 27, 1981, Ser. No. 257,961

Int. Cl.³ A61B 6/00

U.S. Cl. 128-1.1

8 Claims



1. A hand shield for use with a syringe at least during the use of that syringe for drawing aliquots of radioactive materials from a vial, comprising a shielding disc, said disc having an aperture centrally defined therein for receiving a syringe barrel therethrough, said aperture being slightly oversized with respect to the syringe barrel to permit a rotation of the barrel axis with respect to the plane of the disc of between about 5 and 25 degrees.

4,393,865

NAPKIN FOR A YOUNG CHILD

Jacques Lambert, 29 rue de la Gare, 59232 Vieux-Berquin (Nord), France

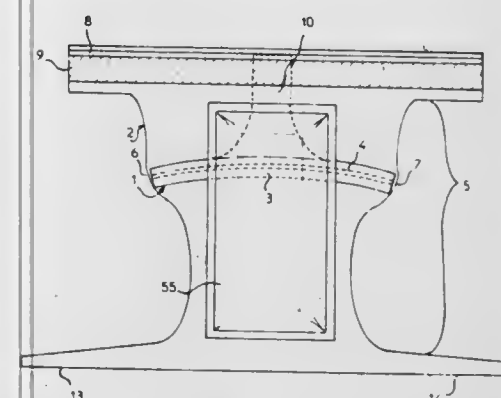
Filed Jun. 11, 1981, Ser. No. 272,756

Claims priority, application France, Oct. 15, 1980, 80 22520; Dec. 20, 1980, 80 27989

Int. Cl.³ A61F 5/00

U.S. Cl. 128-80 A

16 Claims



1. A napkin for an infant designed to prevent or cure an abnormality of one or both hips, such as dysplasia, subluxation of the hip or reducible and stable luxation, by binding the infant in a napkin in the abduction position comprising: semi-rigid orientation means for positioning the legs of the infant in bent position at an angle of approximately 90° with respect to the pelvis and in abduction of about 60°

while permitting movement of the legs, said semi-rigid orientation means being of the ischio-sacral type, and means for retaining said orientation means in position, said retaining means comprising flexible fabric or plastic material which is fastened around the waist of the infant and which assures maintaining the orientation means on the thighs and pelvis of the infant, said retaining means applying said orientation means on the pelvis and the lower rear portions of the infant's thighs and to keep the thighs flexed with respect to the pelvis, the orientation means providing a semi-elastic resistance principally to an adduction of the thighs by retaining them in, or restoring them to, the abduction position.

4,393,866

TIBIA BRACE

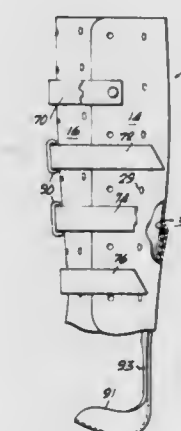
Alan Finnieston, 1901 NW, 17 Ave., Miami, Fla. 33125

Filed Jul. 16, 1981, Ser. No. 284,019

Int. Cl.³ A61F 5/04

U.S. Cl. 128-87 R

7 Claims



1. A tibia brace to nest about and to be secured about a wearer's leg, said brace having anterior and posterior segments, extending from a point below the knee of the wearer to a point above the ankle of the wearer,

said posterior segment with an interior and an exterior main surface, said interior surface being adapted to confront the posterior surface of the leg of the wearer, said posterior segment being of relatively thin rigid plastic material and said segment having an upper end and a lower end zone, said upper end and said lower end zone being spaced from one another a predetermined distance of between about 10 inches to 14 inches, said posterior segment being generally U-shaped as seen in cross section defining a base and a pair of spaced side walls extending in generally curved relation from the base, the upper end being greater in size than the lower end zone sizing the posterior segment for mating along the leg of a wearer, each side wall having a terminal end edge spaced from one another and defining a mouth of predetermined normal unflexed dimension and yieldable to expansion or contraction to manipulate the mouth; said anterior segment having an inside surface and an outside surface with an upper end and a lower end and being generally C-shaped as seen in cross section, said upper end and said lower end being spaced from one another a companionate distance to mate with the distance between the upper end and lower end zone of the posterior segment in clamping relation along the anterior part of the leg of a wearer;

keeper means to stabilize the segments in mating relation with one another with a portion of the anterior segment within the mouth defined by the posterior segment and in nesting relation about and along the length of the leg of a wearer to provide support around the entire periphery of the leg without gaps in the engagement of the leg and interior surfaces of the posterior and anterior segments; and *

means to locate and orient the brace vertically and circumferentially with respect to the leg of a wearer and said means to locate including a portion to receive the heel of the wearer to stabilize the location of the brace, said last named means being secured to the posterior segment and said heel receiving portion extending forwardly from a point spaced vertically below the lower ends of said posterior and anterior segments and lying substantially between a downward extension of the vertical surfaces of said segments, whereby the knee and ankle joints of the wearer are unrestrained by said tibia brace and said means to locate and orient the brace supports the brace in proper vertical position on the leg of the wearer.

4,393,867

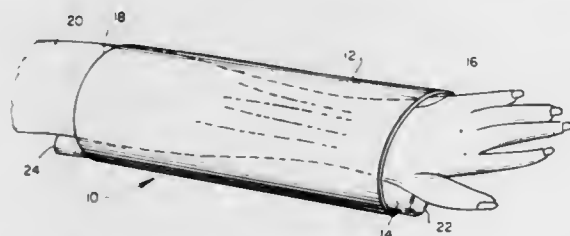
ANATOMICAL COMPRESSION DEVICE

Howard C. Baron, 1222 E. 19th St., New York, N.Y. 10003
Continuation-in-part of Ser. No. 104,187, Dec. 17, 1979, Pat. No. 4,300,542. This application Sep. 30, 1981, Ser. No. 307,313
The portion of the term of this patent subsequent to Nov. 17, 1998, has been disclaimed.

Int. Cl.³ A61F 5/04

U.S. Cl. 128—87 R

21 Claims



1. An anatomical compression device adapted to encircle and apply a compressive force to an anatomical body part, comprising:

- a completely sealed, flexible walled, expandible envelope adapted to at least partially encircle the body part;
- securing means for securing said envelope in an encircling relationship around the body part; and
- inflating means including a frangible member within said envelope for rapidly generating a supply of substantially only gas therein, said frangible member being accessible from the exterior of said envelope through the flexible walls thereof, whereby said frangible member may be manually ruptured to rapidly generate gas within said envelope, thereby causing said envelope to expand rapidly without further manipulation thereof and apply a compressive force to the body part.

4,393,868

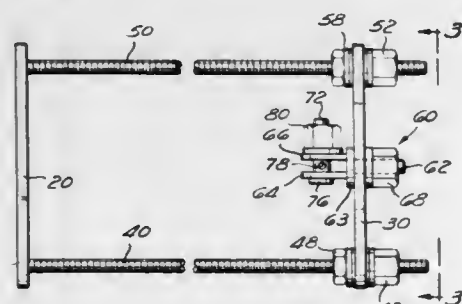
COLLES FRACTURE FIXTURE DEVICE

H. Derek Teague, Manhattan Beach, Calif., assignor to Ace Orthopedic Manufacturing Inc., Los Angeles, Calif.
Filed Feb. 20, 1981, Ser. No. 236,267

Int. Cl.³ A61F 5/04

U.S. Cl. 128—92 A

1 Claim



1. An external fixation device for use in orthopedic surgery for fixing the angular orientation and longitudinal extent of surgical fixation pins adapted, when in use, to be secured to

bone fragments for stabilizing such bone fragments during healing, comprising, in combination:

- a pair of rigid arcuate support members spaced apart from each other; each of the support members generally arcuate have a generally rectangular cross-section, the major dimension of which extends, in use, generally perpendicular to the axis of the bone to be stabilized; each support member has a hole proximate each end thereof; spaced from and positioned between said holes is an arcuate slot formed from proximate one hole to proximate the other hole, the holes and the slot being formed through the support member perpendicular to said major dimension thereof;
- a pair of spacing bolts extending through the holes through the support members;
- means on the spacing bolts for adjusting and for fixing the spacing between the support members;
- a plurality of surgical fixation pin support means, each such pin support means comprising a connector portion extending from a clevis which includes a pair of spaced clamping members each of which has an aperture formed there-through, means cooperating with the connector portion for removably and adjustably securing the pin support means in the slot of a support member, an elongated clevis pin having formed therethrough a transverse aperture which is adapted to receive a fixation pin; the clevis pin extends through the apertures in the clevis clamping members with the aperture in the clevis pin between said clamping members; and means on said clevis pin for tightening the clamping members together on a fixation pin received in the aperture in the clevis pin so that when the device is in use, the distance and angular orientation of the bone fragment to be stabilized is thereby fixed relative to the fixation device.

4,393,869

ELECTRONICALLY CONTROLLED RESPIRATOR

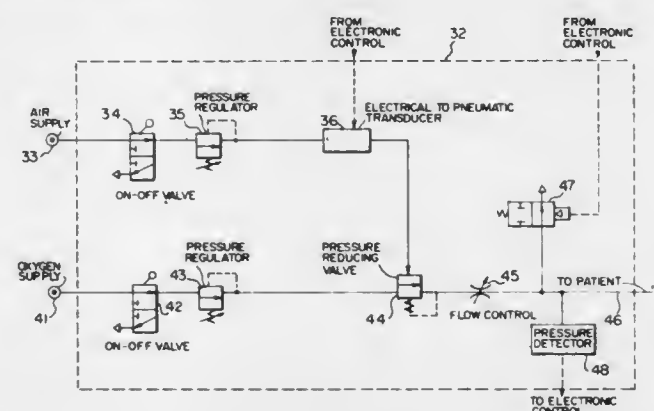
Abraham Boyarsky, Montreal; Jack Friedman, Cote St. Luc; Athanasios Christodouloupolos, St. Laurent, and Rock Lee, St. Hubert, all of Canada, assignors to Canadian Patents & Development Limited, Ottawa, Canada

Filed Jun. 22, 1981, Ser. No. 276,151

Int. Cl.³ A61M 16/00

U.S. Cl. 128—204.18

8 Claims



1. A method of controlling the breathing cycle of a patient comprising:
- determining the total resistance R of the patient's lungs;
 - determining the total compliance C of the patient's lungs;
 - determining the alveolar tidal volume V_{AT} of the patient's lungs;
 - delivering oxygen enriched air to the patient for an inspiration period τ of the breathing cycle at an initial pressure RV_{AT}/τ and increasing the pressure to a pressure

$$\frac{R V_{AT}}{\tau} + \frac{V_{AT}}{C}$$

at the end of the inspiration cycle; and lowering the pressure to a level below RV_{AT}/τ during an expiration period of the breathing cycle.

4,393,870

SUCTION INJECTOR

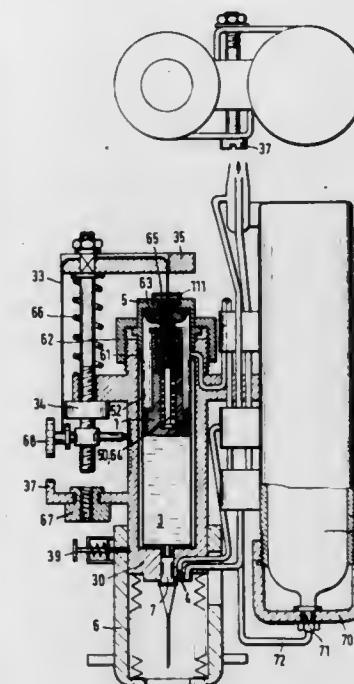
Wolfgang Wagner, Exercierstrasse 1, 1 Berlin 65, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 93,615, Nov. 9, 1979, Pat. No. 4,284,077, which is a division of Ser. No. 933,136, Aug. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 793,951, May 5, 1977, Pat. No. 4,114,691, which is a continuation-in-part of Ser. No. 634,741, Nov. 21, 1975, abandoned. This application Feb. 26, 1981, Ser. No. 241,378

Int. Cl.³ A61M 5/00

U.S. Cl. 604—115

14 Claims



1. A suction injector, particularly for use with hypodermic injections, comprising a container filled with a liquid medicine; a piston arranged for movement in said container; a cannula operatively connected to said container; a suction cup having an outer cylindrical portion defining an outer chamber and an inner cylindrical portion defining an inner chamber, said inner chamber having a surface to be positioned over human skin to be treated, said inner portion having an aperture for receiving said cannula through which the liquid medicine is discharged upon the movement of said piston and at negative pressure which is accumulated in said outer chamber during fabrication; and means for preventing communication of the negative pressure in said outer chamber to said inner chamber until said inner chamber is in pressure contact with the skin.

4,393,871

VAGINAL DEVICE

Bruce W. Vorhauer, Irvine, and Thomas A. Dobbie, Jr., Newport Beach, both of Calif., assignors to VLI Corporation, Costa Mesa, Calif.

Continuation-in-part of Ser. No. 167,386, Jul. 9, 1980, abandoned, Ser. No. 96,295, Nov. 21, 1979, Ser. No. 96,293, Nov. 11, 1979, abandoned, Ser. No. 900,864, Apr. 28, 1978, which is a continuation-in-part of Ser. No. 810,109, Jun. 27, 1977, abandoned. This application Mar. 30, 1981, Ser. No. 249,228

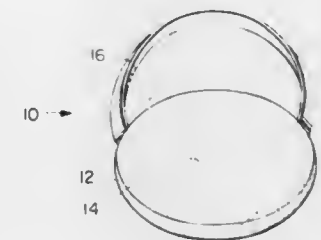
Int. Cl.³ A61F 13/20

U.S. Cl. 609—58

24 Claims

1. A vaginal device adapted for insertion and placement in the human vaginal cavity and subsequent removal therefrom, comprising:

a spermicide-foaming agent in a dry weight percentage of from about 10% to about 50%, and



a water-catalyzed foamed urethane polymer from which the spermicide is slowly released from the sponge during use.

4,393,872

ASPIRATING SURGICAL FORCEPS

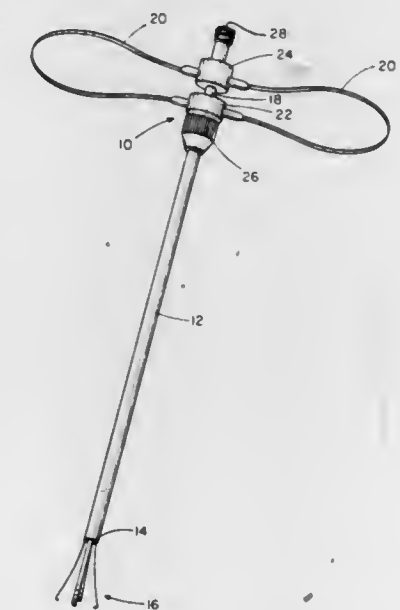
Benjamin Reznik; Stanley Welber, and Ludwig Streifeneder, all of Chicago, Ill., assignors to Eder Instrument Co., Inc., Chicago, Ill.

Filed May 27, 1980, Ser. No. 153,181

Int. Cl.³ A61M 1/00

U.S. Cl. 604—151

11 Claims



1. Surgical forceps capable of simultaneously aspirating liquids from a surgical site while grasping objects such as bone chips floating in said liquid, said forceps comprising:

- (a) an elongate tubular body defining a channel which terminates at one end of said body to define a mouth;
- (b) at least three springy prongs having inwardly bent distal ends;
- (c) an actuating means disposed within the body for retracting said prongs substantially within the mouth of the channel and for extending said prongs outwardly from said mouth, said prongs diverging during outward extension and converging during retraction;
- (d) a spring means cooperating with said actuating means for normally maintaining the prongs in a retracted position; and
- (e) communication means within said body for allowing liquids to be aspirated from a surgical site through said mouth and channel while said prongs are extended, while said prongs are in said retracted position and while said prongs are intermediate said extended and retracted positions, whereby liquids are aspirated such that objects floating in the liquid are drawn towards the mouth facilitating the capture of such objects with said prongs.

4,393,873

GASTROSTOMY AND OTHER PERCUTANEOUS TRANSPORT TUBES

Michael S. Nawash, 605 Nakoma St., Midland, Mich. 48640; Suzanne Stillman, 826 N. Whittier Dr., Beverly Hills, Calif. 90210, and Robert S. Mason, 745 W. Mariposa Ave., El Segundo, Calif. 90245

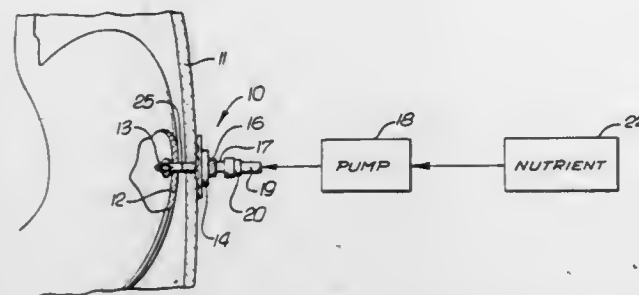
Division of Ser. No. 129,089, Mar. 10, 1980, Pat. No. 4,315,513.

This application Jun. 29, 1981, Ser. No. 278,329

Int. Cl.³ A61M 25/00

U.S. Cl. 604—151

4 Claims



1. In a gastrostomy or like percutaneous transport tube of the type having a length of tubing with a first end configured for enlargement when inserted into the stomach or other bodily region of a patient, and apertured for the passage of fluids, an assembly at the other end of said tubing, comprising:

a rigid, generally cylindrical member having a certain shoulder portion, having at one end an axial projection engaging said tubing, and having at the other end a radially extending flange, there being an axial passageway through said member and communicating with said tubing, and an annular skin protector disc formed of resilient material, said disc having a central aperture through which said shoulder portion extends, said disc thus seating between said flange and the external skin of the abdominal wall when said percutaneous transport tube is emplaced in a patient,

said skin protector disc having a set of raised ridges integral therewith on the side facing said skin, said ridges being arranged so as to permit the entry of air between said disc and the exterior abdominal wall.

4,393,874

BRADYCARDIA EVENT COUNTING AND REPORTING PACER

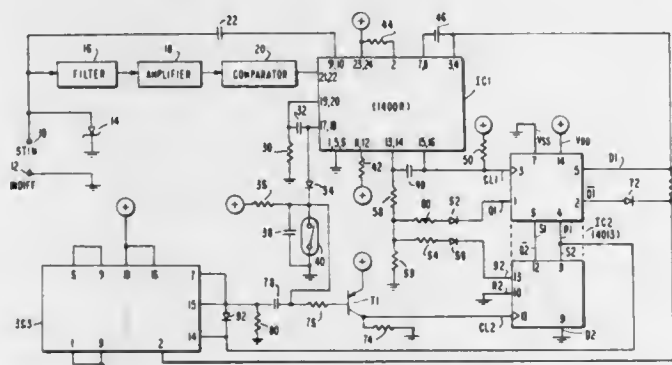
Tibor A. Nappholz, Drummoyne, Australia; Barry Hinch, Princes Risborough, and David B. Shaw, Exeter, both of England, assignors to Teletronics Pty. Ltd., Lane Cove, Australia

Filed Apr. 26, 1982, Ser. No. 372,026

Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 PT

27 Claims



1. An implantable heart pacer comprising means for generating pacing pulses, means for sensing heart activity, means for controlling said generating means to generate pacing pulses at times dependent upon when heart activity was sensed, means

responsive to said sensing means for counting heartbeat pauses which exceed a first predetermined interval and sequential heartbeat pauses of a predetermined number each of which exceeds a second shorter predetermined interval, and means for reporting on the state of said counting means.

4,393,875

BRASSIERE

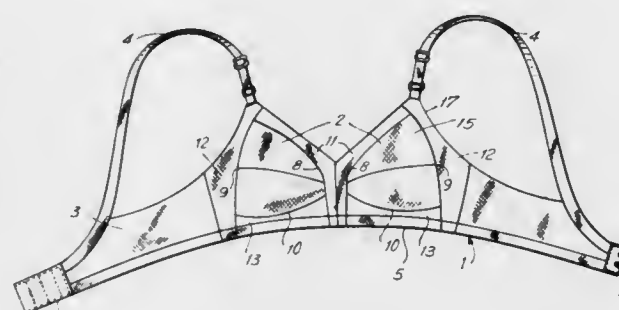
Dolores O'Boyle, Woodridge, and Phyllis Shonk, Glen Rock, both of N.J., assignors to International Playtex, Inc., Stamford, Conn.

Filed Dec. 22, 1980, Ser. No. 219,111

Int. Cl.³ A41C 3/00

U.S. Cl. 128—425

5 Claims



1. A series of brassieres of like styling for women whose size is selected from paired groupings of chest measurement ranges to diaphragm measurement ranges and whose bust measurement does not exceed her chest measurement by more than 2 inches and whose bust cup size designation is selected from subdivisions within said bust measurement ranges; each brassiere in said series including a pair of breast receiving components each having a depth adapted to enable the bust of the wearer within said selected size designation to closely fit therein, and a perimeter portion adapted to overlie the bust wall of the wearer in close juxtaposition to the bust of the wearer where the breast tissue extends outward of the chest wall, said perimeter portion having an inner edge section, an outer edge section and a base section and where each brassiere in said series further including a body encircling member adapted to extend about the wearer and the extent of said body encircling member measured from a point along the outer perimeter edge section of one of said breast receiving components to a like point along the outer perimeter edge of the other of said breasts receiving components is substantially the same for each brassiere in said series.

4,393,876

SHOE ORTHOSIS OR SHOE ORTHOSIS PARTS

Alfred Dieterich, Westtorgraben 3, Nürnberg, Fed. Rep. of Germany

Filed May 15, 1981, Ser. No. 264,110

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019561; Apr. 6, 1981, 3113820

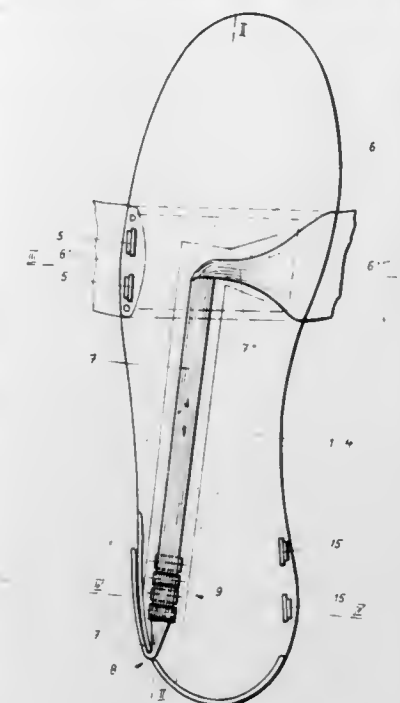
Int. Cl.³ A43B 7/24

U.S. Cl. 128—583

19 Claims

1. A shoe orthosis device for corrective treatment of foot deformities wherein the pressure of the posterior part of the foot on the device is transmitted to the part of the foot which is to be treated in an intermittently acting force, comprising a sole member, means within said sole member which are adapted to be operated by said pressure to rotate the forefoot around the longitudinal axis of the foot and/or move it substan-

tially transversely to said longitudinal axis substantially about an axis perpendicular to the sole, whereby said means act on



the inner side of the forefoot to lower it, thus rotating said forefoot.

4,393,877

HEART RATE DETECTOR

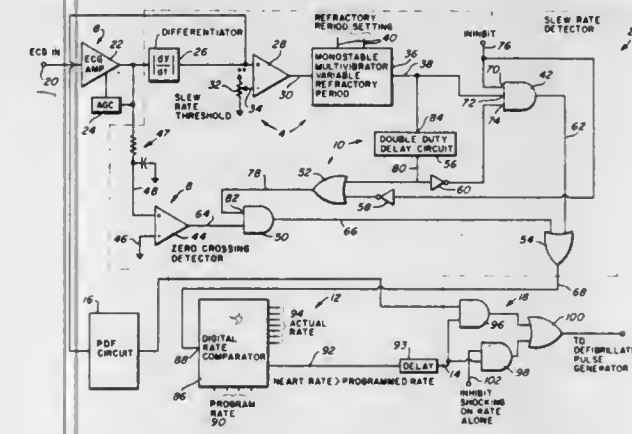
Mir Imran, Pittsburgh, and Steve Kolenik, Leechburg, both of Pa., assignors to Mieczyslaw Mirowski, Owings Mills, Md.

Filed May 15, 1981, Ser. No. 263,910

Int. Cl.³ A61B 5/04

U.S. Cl. 128—705

37 Claims



29. A system for use with an automatic defibrillator for defibrillating the heart of a patient experiencing abnormal cardiac rhythm, comprising:

input means for receiving ECG waveforms; processing means coupled with said input means for processing the ECG waveforms in accordance with a probability density function to develop a probability density function output signal; a heart rate detector coupled between said input means and a processing output means, said heart rate detector comprising, first detecting means for detecting an ECG wave packet by detecting a first characteristic of said wave packet and providing a first output signal when said wave packet is detected; second detecting means for detecting an ECG wave packet by detecting a second characteristic of said wave packet and providing a second output signal when said wave packet is detected; rate detector output means for receiving the first and second output signals and for providing a rate detector output signal to the processing output means when the

aggregate number of first and second output signals exceed a predetermined rate; and coupling means for selectively coupling only one of said first and second detecting means with said rate detector output means whereby the aggregate number of first and second output signals represents the number of heart beats; and

processing output means for coupling said processing means and heart rate detector with a defibrillating pulse generator for initiating the discharge of a defibrillating shock upon receiving a predetermined signal from at least one of said processing means and said heart rate detector.

4,393,878

PRESSURE MONITORING METHOD AND APPARATUS

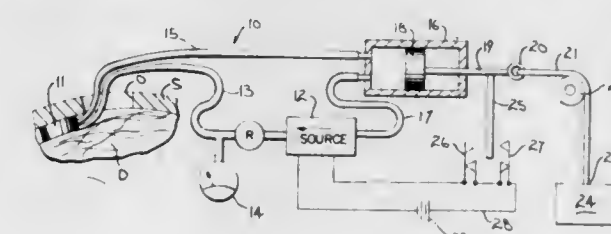
Alan R. Kahn, Madison, Wis., assignor to Meadox Instruments, Inc., Oakland, N.J.

Continuation-in-part of Ser. No. 211,084, Nov. 28, 1980, abandoned. This application May 11, 1981, Ser. No. 262,381

Int. Cl.³ A61B 5/00

U.S. Cl. 128—748

15 Claims



1. Pressure monitoring apparatus comprising:

- (a) a fluid pressure pump supplying gas under pressure;
- (b) a pressure sensor including:
 - (1) a cup shaped housing having an open mouth and having an inlet and an outlet formed therein;
 - (2) a flexible diaphragm sealed over the open mouth of the housing to define a plenum between the walls of the mouth in the housing and the diaphragm, and wherein the inlet formed in the housing is in communication with the plenum;
 - (3) an exhaust tube centrally mounted in the housing within the plenum with an end thereof terminating adjacent the inner side of the diaphragm and connected to be in communication with the outlet from the housing;
- (c) tubing connecting the pump to the inlet in the sensor housing to supply gas under pressure to the inlet and also connecting the outlet in the sensor housing to the pump to form a closed system;
- (d) a flow restriction connected in the tubing between the pump and the inlet to the sensor housing so that the flow to the sensor is substantially uniform; and
- (e) means for measuring pressure connected to measure the pressure in the tubing between the flow restriction and the inlet to the sensor housing, whereby changes in ambient pressure at the pressure sensor will result in movement of the diaphragm to alternately open and close the exhaust tube to automatically maintain the pressure within the plenum approximately equal to the ambient pressure, and whereby the means for measuring pressure in the tubing will measure a pressure which is approximately equal to the pressure within the plenum.

4,393,879

TISSUE-COLLECTING APPARATUS

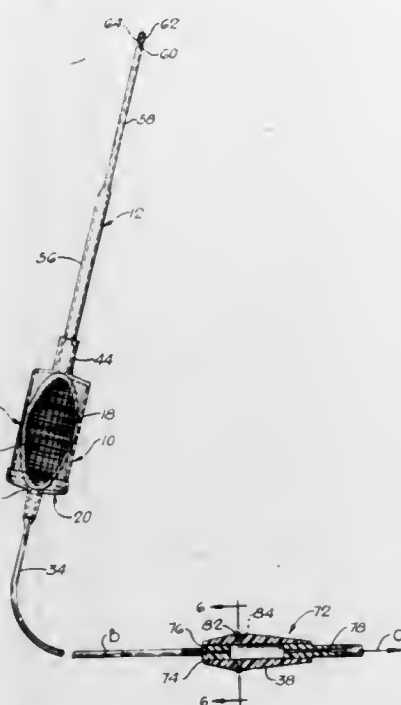
Hyman T. Milgrom, Chicago, Ill., assignor to Millex Products, Inc., Chicago, Ill.

Filed Apr. 11, 1980, Ser. No. 139,240

Int. Cl.³ A61B 10/00

U.S. Cl. 128—758

13 Claims



1. In an apparatus for collecting animal or human tissue, said apparatus including a housing having an interior and an exterior, a curette having a tissue-scraping end and a passageway communicating with the housing interior and extending from said housing and terminating at a front end of the curette in a tissue-receiving opening, said housing acting as a handle for manipulating the apparatus, said housing having an outlet opening communicating with the interior of said housing and adapted to be connected to a source of vacuum for sucking tissue through said tissue-receiving opening of said curette and into said housing, the improvement wherein said housing is transparent along at least a portion of one longitudinally extending side thereof, and said housing having a substantially planar tissue collection screen inside said housing in the path of flow of said tissue to be drawn through said curette and into the housing, said screen extending longitudinally and obliquely of said housing for substantially the full length thereof, the screen having a multiplicity of tissue-screening apertures with inlet and outlet sides forming a communication between opposite laterally facing sides of the screen, said apertures being of such a size to catch the tissue being drawn through the housing and screen, the inlet side of the apertures on the side of said screen facing said longitudinally transparent portion of said one side of said housing, and the length of said housing being substantially greater than the lateral dimension thereof so that the obliquely extending screen which extends for substantially the full length of the housing has such a substantial longitudinal component that any tissue collected thereon is readily visible to the user looking laterally into the housing as he grasps the housing to manipulate the apparatus.

4,393,880

DEVICE FOR COLLECTING BODY LIQUIDS

Glenn N. Taylor, Cary, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Mar. 25, 1981, Ser. No. 247,499

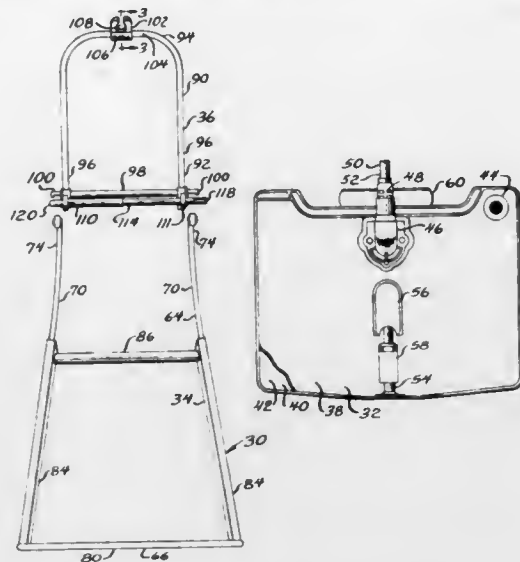
Int. Cl.³ A61F 5/44

U.S. Cl. 128—760

18 Claims

1. A device for collecting body liquids, comprising: a receptacle having a chamber to receive and collect body liquids; a stand having a back member having upper and lower portions, and leg means extending from the lower portion

of said back member to support the back member in an upright position; and means for connecting an upper portion of the back member to an upper portion of the receptacle to support the receptacle in a upright position by the stand, wherein the connecting means releasably attaches the back member to the receptacle, with the connecting means comprising a tunnel



nel in an upper portion of the receptacle, a rod extending through the tunnel, and means for attaching said rod to the back member, wherein the attaching means comprises a pair of spaced apertures in the upper portion of the back member, a pair of spaced bosses removably received in said apertures, a pair of spaced ears connected to said bosses, said ears having openings to removably receive said rod with the tunnel located intermediate said ears.

4,393,881

MIDSTREAM URINE COLLECTION DEVICE

Nayan S. Shah, 15091 Isleview, Chesterfield, Mo. 63017

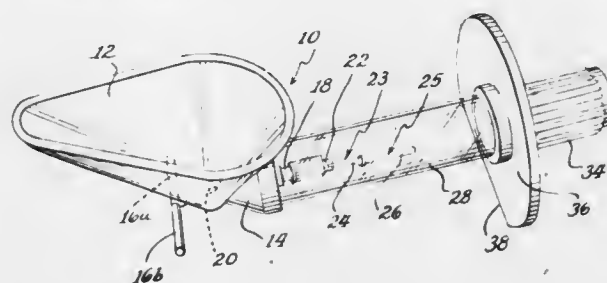
Continuation-in-part of Ser. No. 78,570, Sep. 24, 1979,

abandoned. This application Jun. 3, 1981, Ser. No. 270,005

Int. Cl.³ A61B 10/00

U.S. Cl. 128—760

16 Claims



1. A midstream urine collection device (10) comprising: a receiving cup (12) having a fluid receiving cavity with an opening therein; support means (16a, 16b) carried by said cup (12) and engageable with a support surface to retain said cup (12) with the opening facing upwardly away from said support surface; a needle assembly (23) carried by a lower portion of said cup (12) and extending outwardly away from the fluid receiving cavity in said cup, a channel (20) communicating between said cup (12) and said needle assembly (23); and valve means (25) on said needle assembly (23) controlling the flow of fluid through said needle assembly (23).

4,393,882

METHOD AND DEVICE FOR COLLECTING, TRANSPORTING, AND DELIVERING MICRO SAMPLES OF BLOOD

Fred K. White, Miami, Fla., assignor to American Hospital Supply Corporation, Evanston, Ill.

Division of Ser. No. 71,702, Aug. 31, 1979, Pat. No. 4,263,922.

This application Nov. 17, 1980, Ser. No. 207,372

Int. Cl.³ A61B 5/14

U.S. Cl. 128—764

11 Claims



1. A one-piece adapter for use in collecting micro samples of blood for laboratory testing, said adapter having integral body and tip sections formed entirely of resilient plastic material, said adapter having a bore extending through said body and tip sections, said tip section having a frusto-conical outer surface dimensioned and tapered outwardly towards the free end of said tip section to provide a male Luer taper and having the portion of said bore extending therethrough tapering gradually inwardly at an angle within the range of about 1° to 3° measured from the longitudinal axis of said adapter for receiving and engaging the inlet tube of a blood analyzer, said body section of said adapter having the portion of said bore extending therethrough tapering gradually inwardly at an angle within the range of about 2° to 6° measured from the longitudinal axis of said adapter and encompassing diameters of about 0.08 to 0.10 inches.

4,393,883

SINGLE PASS A-V LEAD

Nicholas P. D. Smyth, Bethesda, Md.; Jeanne M. Lesniak, Columbia Heights, and Kenneth B. Stokes, Brooklyn Park, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 3, 1980, Ser. No. 203,298

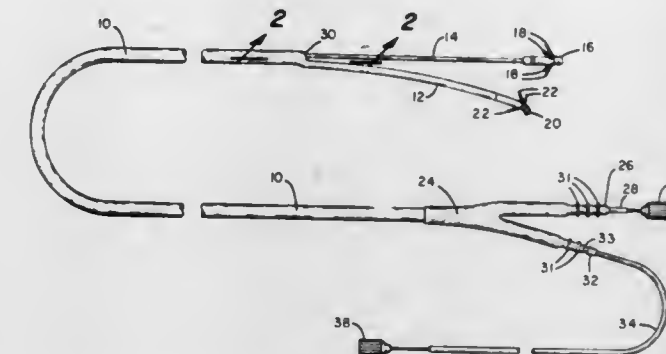
Int. Cl.³ A61N 1/04

U.S. Cl. 128—785

6 Claims

1. A single pass dual chamber pacing lead comprising: a connector; an outer sheath having a proximal end attached to said connector and having a distal end and having a junction point intermediate said proximal end and said distal end, said outer sheath having a "J" shaped bend located intermediate said distal end and said junction point; a first space wound coil conductor located within said outer sheath having a proximal end coupled to said connector and having a distal end; an atrial electrode coupled to said distal end of said first space wound coil conductor; a first stylet removeably insertable in said first space wound coil conductor which when inserted substantially straight-

ens said outer sheath and whereby placement of said atrial electrode is controlled; a ventricular electrode; a second space wound coil conductor slideably located within said outer sheath between said proximal end and said junction point of said outer sheath having a distal end attached to said ventricular electrode, said first and second space wound coil conductors mutually insulated, said second space wound coil conductor slideable in a proximal direction within said outer sheath whereby said second space wound coil conductor may be substantially withdrawn into said outer sheath;



a second stylet insertable in said second space wound coil conductor whereby placement of said ventricular electrode is controlled; and a space wound coil located within said outer sheath and having a proximal end attached to said connector and a distal end attached to said atrial electrode located coaxially about said first conductor between said junction point and said atrial electrode and located coaxially about said second conductor between said junction point and said connector.

4,393,884

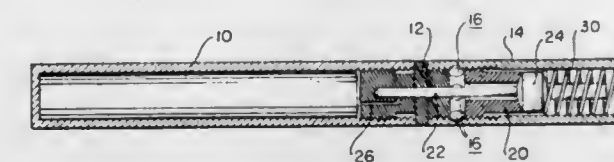
DEMAND INHALER FOR ORAL ADMINISTRATION OF TOBACCO, TOBACCO-LIKE, OR OTHER SUBSTANCES
Allen W. Jacobs, 12538 Oxnard St., #3, North Hollywood, Calif. 91606

Filed Sep. 25, 1981, Ser. No. 305,466

Int. Cl.³ A24D 1/00; A61M 15/00

U.S. Cl. 131—273

6 Claims



1. A dispenser for introducing a substance into the mouth of a user comprising: means defining a reservoir for containing the substance in a pressurized state and also defining an inner chamber in axial alignment with the reservoir and having an apertured end portion at the end thereof opposite to said reservoir; a partition interposed between said reservoir and said inner chamber and having an aperture therein; an elongated member mounted for reciprocal pivotal movement in said inner chamber and having a first angular position in said inner chamber in which the aperture in the partition is closed, and said elongated member having a second angular position within said inner chamber in which the aperture is open for releasing the substance from the reservoir to the apertured end portion of said inner chamber; and in which the user selectively introduces suction to the inner chamber through the apertured end portion thereof to move the elongated member from its first angular position to its second angular position so as to cause the aperture in said partition to open to enable the substance in the reservoir to be introduced into the mouth of

the user through said apertured end portion under the control of the user.

4,393,885

CIGARETTE FILTER

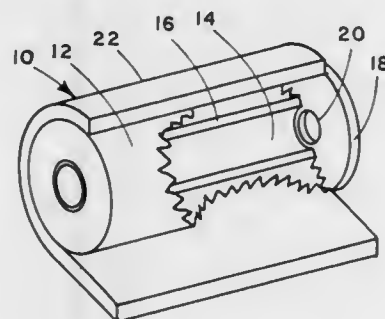
Donald A. Silberstein, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Sep. 21, 1981, Ser. No. 303,756

Int. Cl.³ A24D 3/04

U.S. Cl. 131—339

8 Claims



1. A filter for a cigarette, comprising:
a first longitudinally extending cylindrical chamber;
a second longitudinally extending cylindrical chamber disposed within the first chamber with a spacing between the outer wall of the second chamber and the inner wall of the first chamber, the wall of the second chamber being air impervious;
transversely disposed smoke impervious partition means disposed at the end of the chambers interfacing with a tobacco column of the cigarette; and,
means defining at least one orifice through said smoke impervious partition means for providing direct flow communication between the tobacco column of the cigarette and the interior of said second chamber whereby no smoke comes in contact with the exterior of said second chamber, the at least one orifice having a smaller cross-sectional area than the cross-sectional area of the second chamber, said first and second chambers being of substantially the same length with their ends being transversely aligned.

4,393,886

MIXTURES OF QUATERNARY, POLYMERIC, HIGH MOLECULAR WEIGHT AMMONIUM SALTS, WHICH ARE BASED ON ACRYLIC COMPOUNDS, AND SURFACTANTS, THEIR PREPARATION, AND THEIR USE IN COSMETICS

Dieter Strasilla, Weil am Rhein, Fed. Rep. of Germany; Laszlo Moldovanyi, Basel, Switzerland; Charles Fearnley, and Hubert Meindl, both of Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 27, 1981, Ser. No. 286,811

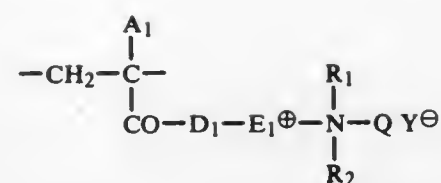
Claims priority, application Switzerland, Sep. 5, 1980, 6688/80

Int. Cl.³ A45D 7/00

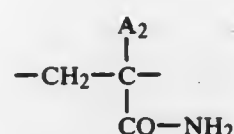
U.S. Cl. 132—7

17 Claims

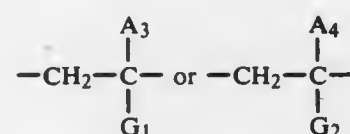
1. A cosmetic composition which contains water, (a) at least one ammonium salt which is soluble or gives a microemulsion in aqueous surfactant systems and which has a molecular weight distribution of 10^4 to 10^9 ; the molecular weight of at least 5 percent by weight of the copolymeric salt being 10^7 to 10^9 and the salt containing on average 5 to 100 mole % of recurring structural elements of the formula



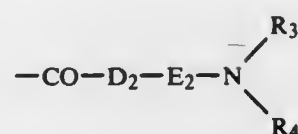
and O to an average 95 mole % of recurring structural elements of the formula



and O to an average 10 mole % of recurring structural elements of the formulas



in which A_1 , A_2 , A_3 and A_4 are each hydrogen or methyl, G_1 and G_2 differ from one another and are each $-CN$, $-COOH$ or



D_1 and D_2 are each oxygen or $-NH-$, E_1 and E_2 are each alkylene having 1 to 4 carbon atoms which is unsubstituted or substituted by hydroxyl, R_1 , R_2 , R_3 and R_4 are each methyl or ethyl, Q is alkyl, hydroxyalkyl having 1 to 4 carbon atoms or benzyl, and Y^- is a halide, alkylsulfate or alkylphosphonate anion having 1 to 4 carbon atoms in the alkyl radical, and (b) at least one non-ionic surfactant or a surfactant with one positive and one negative charge within the molecule, wherein the composition contains components (a) and (b) in a weight ratio of 1:2 to 400.

4,393,887

COLLAPSIBLE TENT FRAME

Edwin H. Oribin, K. & K. Factory, Mayne St., Launceston, Tasmania, 7250, Australia

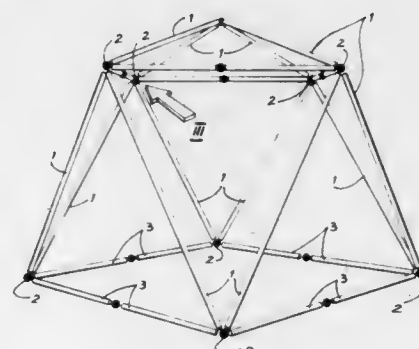
Continuation of Ser. No. 66,863, Aug. 15, 1979, abandoned. This application Jun. 15, 1981, Ser. No. 273,967

Claims priority, application Australia, Aug. 17, 1978, PD5520

Int. Cl.³ A45F 1/16

U.S. Cl. 135—109

13 Claims



1. A rigid self supporting collapsible tent frame comprised of triangular roof and wall frame sections formed of elongate frame members hinged interconnected at their ends to form

a unitary structure in both the erected and collapsed state, the adjacent triangular roof frame sections of said collapsible tent having a common elongate roof frame member and alternate ones of the triangular wall frame sections having an elongate member common with a triangular roof frame section, said roof frame sections having a common apex in both the erected and collapsed state, the elongate members common to the wall and roof frame sections being hingedly connected at the ends thereof to define the ceiling area of the tent, said common wall and roof frame section members being comprised of at least two parts connected by means to provide a flexible joint that is spring loaded and allows both expansion and contraction at a point therealong remote from the points of connection of other roof frame section members connected thereto, the remaining alternate ones of the triangular wall frame sections having two common elongate frame members with the first mentioned alternate triangular wall frame sections and being inversely arranged relative thereto to define the base area and a plurality of free corners of the tent, the elongate frame members of the remaining alternate triangular wall frame sections defining the base area and the plurality of free corners of the tent being comprised by means to provide a flexible joint at an intermediate point therealong remote from the points of connection of the first mentioned alternate triangular wall frame sections thereto.

4,393,888

METHOD OF PROTECTING CONTENTS OF A BARGE WHILE IN TRANSIT

James E. Nivin, Louisville, Ky., assignor to American Commercial Barge Line Co., Jeffersonville, Ind.

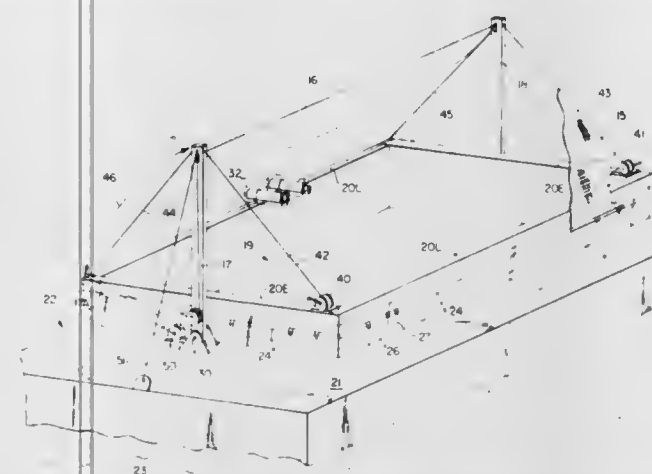
Division of Ser. No. 831,648, Sep. 8, 1977, Pat. No. 4,130,125.

This application Aug. 10, 1978, Ser. No. 932,667

Int. Cl.³ B63B 19/14

U.S. Cl. 114—201 R

4 Claims



1. The method of protecting contents of a barge in transit with an open hatch from the weather comprising the steps of erecting a light-weight fabric pup-tent like hatch cover array to extend above the hatch over a ridge pole assembly affixed to the deck and maintaining the tent in erected position over the ridge pole assembly in transit in the place of alternative hatch cover means, erecting from a folded position stowed on deck the ridge pole assembly affixed to the deck of the barge to extend over the top of the open hatch, placing a removable tent fabric sheet over the framework, fastening the sheet edges to the barge, and removal of the tent fabric and storing for further use on the barge deck by folding the fabric and then rolling the fabric from two ends onto a pair of bobbins.

4,393,889

FIRE-SAFE VALVE STRUCTURE

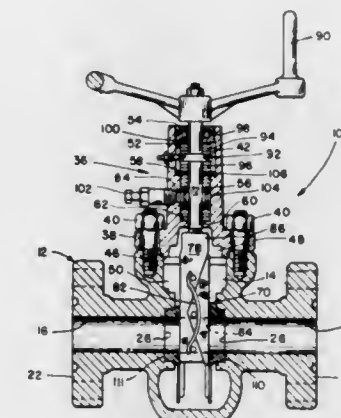
Scott W. Binegar, and Hamid J. Saka, both of Houston, Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Mar. 17, 1981, Ser. No. 244,532

Int. Cl.³ F16K 13/04

U.S. Cl. 137—72

4 Claims



1. In an expanding gate valve having a valve body with a flow passage therethrough, a valve chamber in the body communicating with the flow passage, and an expanding gate assembly movably mounted in the valve chamber for opening and closing the flow passage, and wherein the valve chamber becomes sealed off from the flow passage in the open and closed conditions of the valve, means defining an annular recess in said valve body circumferentially surrounding the flow passage on the upstream side of said valve element and opening between said valve chamber and said flow passage, said recess having a rear wall extending from the flow passage generally radially thereof and a circumferential cylindrical wall extending substantially coaxially to the flow passage from the valve chamber to said rear wall, and sealing means adapted to sealingly engage the gate assembly in its opened and closed conditions whereby said valve chamber becomes sealed off from said flow passage; an improved valve structure comprising:

an annular metallic seat disposed in said annular recess, said annular seat having an inner annular cylindrical surface substantially coaxial to and facing said flow passage and an outer peripheral annular cylindrical surface substantially coaxial to said inner annular cylindrical surface and facing said recess circumferential wall, said annular seat having a port therein extending in a generally radial manner from the flow passage between said inner annular cylindrical surface and said outer peripheral annular cylindrical surface such that the outer end of the port is exposed to the interior of the valve chamber and the inner end of the port is exposed to said flow passage; and a relief plug of a selected temperature degradable material positioned in a plugging relationship within said port, said relief plug being exposed to both the fluid environment within said valve chamber on its outer end and said flow passage on its inner end whereby the valve chamber is sealed off from the flow passage during the open and closed conditions of the gate valve and said relief plug is caused to evacuate the port into the upstream flow passage upon the fluid environment in the valve chamber reaching a preselected temperature condition or when a preselected pressure differential exists between the valve chamber and flow passage.

4,393,890

METHOD AND DEVICE FOR AUTOMATIC IRRIGATION

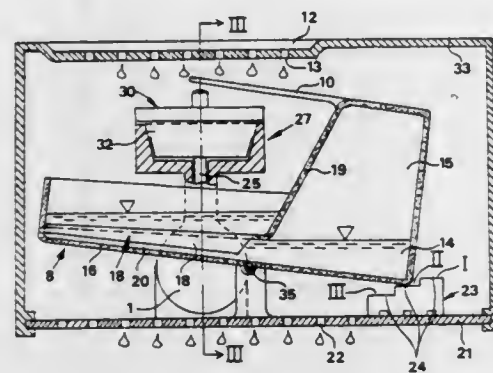
Einar Skappel, Kvartaervægen 12, SE 595 00 Mjølby, Sweden
PCT No. PCT/SE79/00213, § 371 Date Jun. 23, 1980, § 102(e)
Date Feb. 22, 1980, PCT Pub. No. WO80/00777, PCT Pub.
Date May 1, 1980

PCT Filed Oct. 22, 1979, Ser. No. 224,225

Int. Cl.³ F16K 17/36

U.S. Cl. 137—78.2

9 Claims



1. A control apparatus for an irrigation system, comprising a container adapted to receive a quantity of a fluid, valve means having an inlet and an outlet and responsive to variations in the quantity of fluid in said container for respectively effecting and obstructing communication between said inlet and said outlet when the quantity of said fluid in said container is less than and greater than a predetermined amount, and temperature responsive means for varying the quantity of said fluid in said container in response to changes in the temperature of the ambient air, the quantity of fluid in said container being progressively decreased and increased as the ambient air temperature respectively decreases and increases, said temperature responsive means including a closed chamber partially filled with said fluid and partially filled with a gas, said gas having a volume which respectively increases and decreases as the temperature of said gas increases and decreases, and means for effecting fluid communication between a lower portion of said container and a lower portion of said chamber, a change in ambient air temperature effecting a change in the volume of said gas in said chamber, causing fluid to be drawn into or forced from said chamber through said means for effecting communication, the quantity of fluid in said container respectively increasing and decreasing as the quantity of fluid in said chamber decreases and increases.

4,393,891

DEVICE FOR TEMPORARILY RINSING A WATER COCK COUNTERSUNK IN THE GROUND

Govert J. Snoek, and William J. Tuil, both of Dieren, Netherlands, assignors to Ocean B.V., Dieren, Netherlands

Filed Sep. 22, 1981, Ser. No. 304,678

Claims priority, application Netherlands, Sep. 23, 1980, 8005300

Int. Cl.³ B08B 9/02; F16K 31/122

U.S. Cl. 137—238

8 Claims

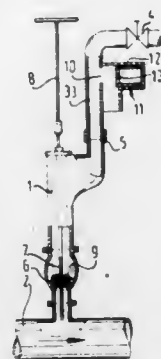
1. A drain valve for use with a water cock countersunk into the ground surface and including an extension pipe piece with a closing member being disposed above the ground surface, said water cock being in fluid communication with said extension pipe piece and said closing member comprising:

a drain pipe device operatively connected between the water cock and the closing member positioned in the extension pipe piece;

a valve body slidable disposed adjacent to said drain pipe device to selectively permit the fluid communication between said extension pipe piece and said drain pipe device;

biasing means for normally biasing said valve body into an open position for normally permitting the fluid communication between said extension pipe piece and said drain

pipe device during initial opening of said water cock for permitting rinsing of impurities from the water cock prior to the opening of said closure member; and



delay closing means actuated by fluid pressure within said extension pipe piece for closing said valve body to prevent communication between said extension pipe piece and said drain pipe device after the expiration of a predetermined time period.

4,393,892

ROTARY VALVE FOR CONTROLLING THE FLOW OF A SOLID PARTICULATE MATERIAL

Gaetano Di Rosa, Pino Torinese, Italy, assignor to F.A.T.A. - Fabbrica Apparecchi di Sollevamento e Trasporto ed Affini S.p.A., Turin, Italy

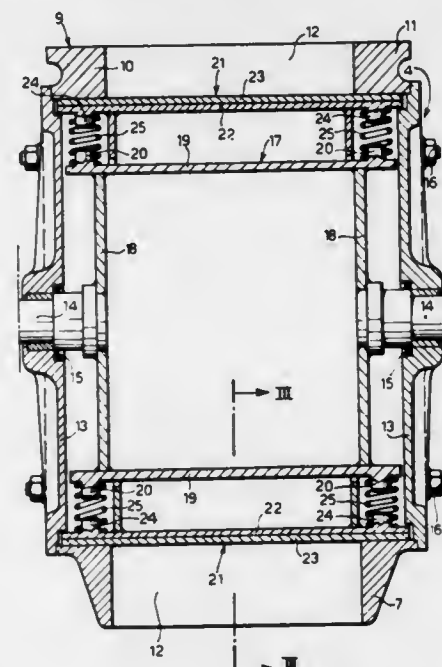
Filed Mar. 21, 1978, Ser. No. 888,791

Claims priority, application Italy, Jun. 3, 1977, 68286 A/77

Int. Cl.³ F16K 3/36

U.S. Cl. 137—242

3 Claims



1. A rotary valve for controlling the flow of a solid particulate material comprising a hollow body having an internal circumferential surface provided with two diametrically opposed valve ports, a rotatable support disposed within said body, two diametrically opposed obturator elements carried by said rotatable support and cooperating with said valve ports, each obturator being movable radially relative to said support and relative to the other obturator element, and resilient means disposed between said support and each obturator element for urging each obturator element radially outwardly relative to said support and against said internal circumferential surface of the valve body, said body having internal end surfaces perpendicular to said circumferential surface, said support being in the form of said rectilinear frame having two sidewalls adjacent the internal end surfaces of said body, at least one of said sidewalls being fixed to a drive shaft, said

frame having two additional sidewalls adjacent the internal circumferential surface of the body so that solid material will pass through the rectilinear frame when the valve is open, each obturator element having a bearing surface cooperating with a bearing surface on the support for the purpose of moving said obturator element circumferentially upon closure of the associated valve port with said bearing surfaces being inclined to each other in such a way that upon closure of the valve the support applies to each obturator element a direct radially outward force in order to augment the radial force of the resilient means.

4,393,893

LUBRICATED SPLIT PLUG VALVE

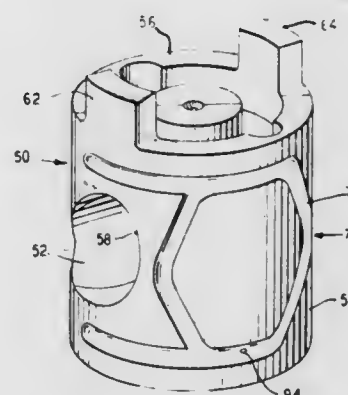
William H. Alexander, Houston, Tex., assignor to Vapor Corporation, Chicago, Ill.

Filed Dec. 12, 1980, Ser. No. 215,728

Int. Cl.³ F16K 5/22

U.S. Cl. 137—246.12

8 Claims



1. A valve element for a valve comprising: a valve body including a cylindrical bore therethrough with first and second ports thereto; said valve body split along a plane oblique to said bore to define first and second core members; and first and second identical continuous grooves defined in the outer peripheral surfaces of said first and second core members, respectively; said first and second grooves each comprising: a first portion circumferentially displaced from said port and a second portion essentially surrounding said port.

4,393,894

FLUID SUPPLY AND DISPENSING APPARATUS

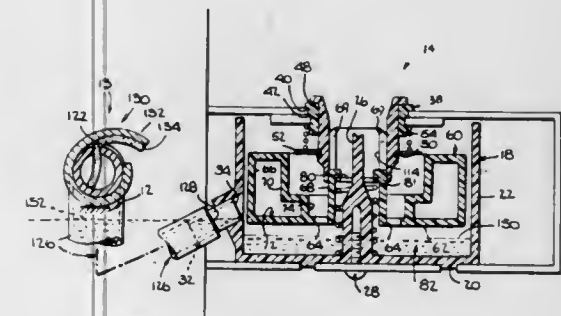
Hans C. Mol, Wilton, and LeRoy H. Byrne, Waterbury, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Nov. 23, 1981, Ser. No. 324,330

Int. Cl.³ G05D 9/00

U.S. Cl. 137—454

8 Claims



1. In a fluid supply and dispensing system including fluid dispensing means for carrying a working supply of fluid having a working surface level, and including reservoir means connected in fluid flow communication with said dispensing means for carrying a replenishing supply of fluid having a surface

level which establishes the working surface level of the working supply of fluid, an improvement for lowering the working surface level to a non-working level, said improvement comprising:

- said reservoir means including a movable fluid displacement member which is normally lowered into the replenishing supply of fluid; and
- means for raising the displacement member at least partially out of the replenishing supply of fluid, whereby the surface level of the replenishing supply of fluid and thus the working supply surface level is lowered to a non-working level.

4,393,895

CHECK VALVE FOR USE WITH HIGH PRESSURE PUMP

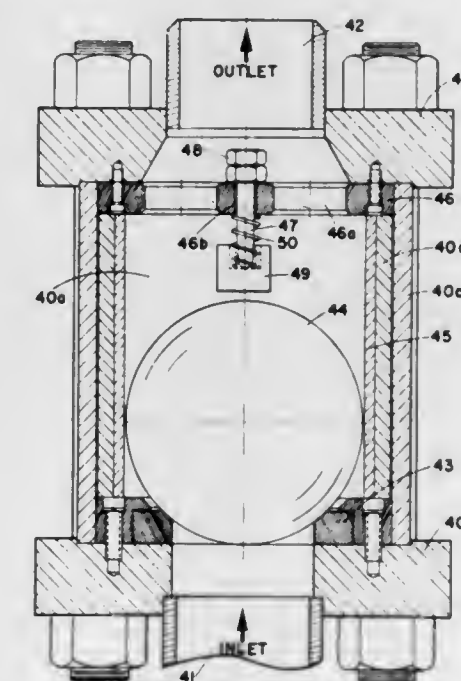
Robert J. Rubey, Wisconsin Rapids, Wis., assignor to Sterling Drug Inc., New York, N.Y.

Filed May 14, 1981, Ser. No. 263,506

Int. Cl.³ F16K 15/04

U.S. Cl. 137—539.5

2 Claims



1. A check valve member for use with a high pressure pump, said valve comprising:

- a valve body having an inlet and an outlet and a fluid passageway therebetween;
- a valve seat in said passageway between said inlet and said outlet;
- a valve member comprising a ball in said passageway movable toward said valve inlet for seating against said valve seat for sealing said passageway against backflow of fluid therethrough;
- a plate extending across the outlet end of said valve body and having one or more apertures therein for passage of fluid therethrough;
- a plunger slidably mounted on said plate for movement toward and away from said valve seat coaxially with the axis of said valve body and in the position closest to said valve seat projecting to within 1 to 10 mm of the valve member when said valve member is seated on said valve seat and in the position furthest from said valve seat acting as a valve member lift limiter;
- spring means urging said plunger toward and into contact with said valve member and permitting movement of said plunger away from said valve seat sufficiently far to permit said valve member to attain a maximum lift position; and
- adjusting means mounted on said plunger and operably associated with said plate for adjusting the position of said plunger toward and away from said valve seat.

4,393,896

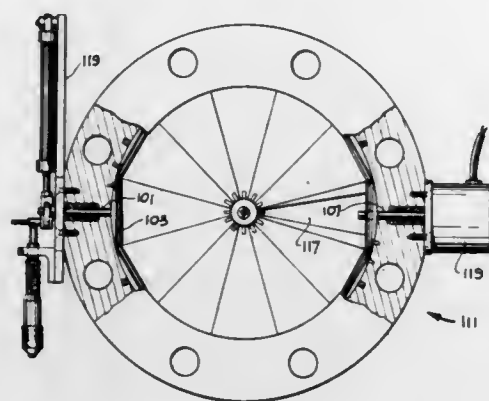
RADIAL VANE GAS THROTTLING VALVE FOR VACUUM SYSTEMS

Edward J. Slabaugh, San Jose, Calif., assignor to Comptech, Incorporated, San Jose, Calif.

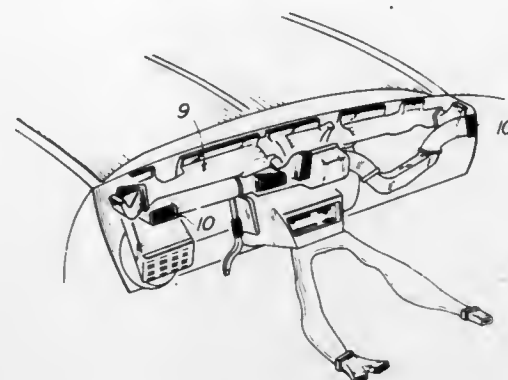
Filed Aug. 27, 1982, Ser. No. 412,251
Int. Cl.³ F16K 13/00

U.S. Cl. 137—601

15 Claims



said supplementary fluid control members remote from said sidewalls, so that each said supplementary control fluid pas-



sage causes control fluid from said control fluid passage of one of said sidewalls to flow against the other sidewall.

1. A gas flow control valve comprising: an annular flange having a continuous inner peripheral surface and a spaced apart, outer peripheral surface connected to the inner peripheral surface in a gas barrier relation between opposed side walls, a plurality of movable vanes disposable in a common plane closing the inside of the annular flange, said common plane parallel to the flange side walls, said vanes radially mounted for rotational shutter-like movement out of said common plane by inclining on an axis out of said common plane, a plurality of rotatable shims having an outer toric surface, matching the curvature of the inner peripheral surface of the flange and having a rotational support means for connection to the inner peripheral surface of the flange, each shim having a support side connected to a vane for transmitting shim rotation to a connected vane and further having rim means for transmitting rotational motion to rim means of adjacent shims, and the shims arranged in an endless rim-to-rim motive communication relation, coupling means supported in the flange from the outside peripheral region to the inside peripheral region for communicating rotary motion from outside the flange to one of the shims.

4,393,897

FLUID OUTLET STRUCTURE

Masao Izumi, Fujisawa; Hiroshi Yoshida, Zama, and Yukio Yoshikawa, Hiratsuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama and Tokyo Sokuhan Co., Ltd., Zama, both of Japan

Filed Nov. 19, 1980, Ser. No. 208,386

Claims priority, application Japan, Nov. 20, 1979, 54-149452
Int. Cl.³ F15C 1/04

U.S. Cl. 137—831

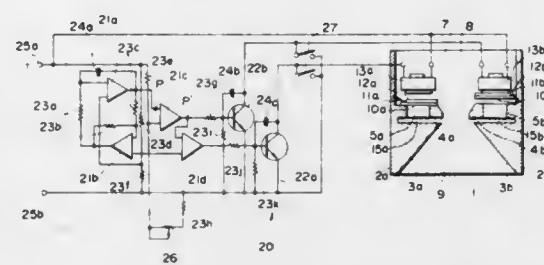
3 Claims

1. A fluid outlet structure using a fluid element including a supply opening for supplying compressed fluid, an outlet opening corresponding to said supply opening for fluid exhaust, a main fluid passage formed between said openings and control fluid passages comprising cavities provided in sidewalls on inner opposite sides of said main fluid passage, two supplementary fluid control members, each having two supplementary cavities divided by a center wall forming a T-shaped body in each said supplementary fluid control member, each said supplementary cavity having a supplementary control fluid fluid passage communicating with said main fluid passage, and two communicating pipes, each communicating with said cavity in one of said sidewalls and one of said supplementary cavities of

4,393,898
FLUID OUTLET DEVICE AND A METHOD OF CONTROLLING FLUID FLOW THROUGH A NOZZLE
Masao Izumi, Fujisawa; Hiroshi Yoshida, Zama, and Yukio Yoshikawa, Hiratsuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Dec. 24, 1980, Ser. No. 219,637
Claims priority, application Japan, Dec. 28, 1979, 54-171762
Int. Cl.³ B05B 1/14

U.S. Cl. 137—831

5 Claims



1. A fluid outlet device for directing a fluid comprising: (a) a nozzle including the following portion: (1) an inlet port; (2) an outlet port; (3) a throat portion formed between said inlet port and outlet ports; (4) first and second fluid control chambers positioned on either side of said throat; (5) first and second control fluid passages communicating with respective fluid control chambers; (6) first and second flappers for regulating the flow of fluid through respective control fluid passages; and (7) first and second electromagnets for controlling the operation of respective flappers, and (b) a control circuit comprising: (1) first and second switching means for actuating respective electromagnets; (2) a control signal generator for supplying timed alternating square wave pulses to respective switching means; and (3) first and second delay means respectively connected to said first and second switching means for retarding respective turn off timings thereof.

4,393,899

PLUGGING APPARATUS

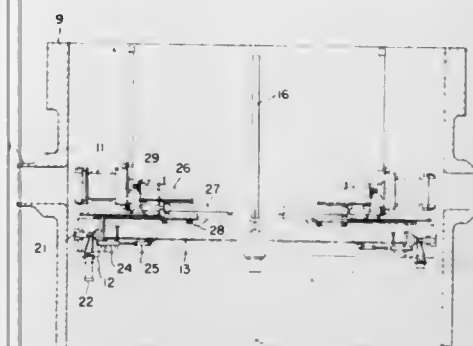
Tadashi Tsuji, and Ryokichi Igarashi, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Dec. 1, 1980, Ser. No. 211,845

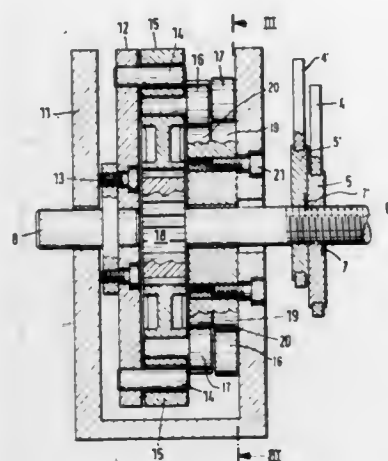
Claims priority, application Japan, Dec. 21, 1979, 54-166357
Int. Cl.³ G21C 17/00, 19/20; F16L 55/10

U.S. Cl. 138—89

6 Claims



said cam rollers cooperate with said cams in form-locked manner,



said cams are asymmetrically formed such that an adjustable relative movement per revolution between the drive shaft and the driven shaft is produced dependent on the form of said two cams.

4,393,903

WEFT FEELER UNIT FOR A FLUID-JET LOOM

Yoshio Ida, Kanazawa, Japan, assignor to Tsudakoma Kogyo Kabushiki Kaisha, Japan

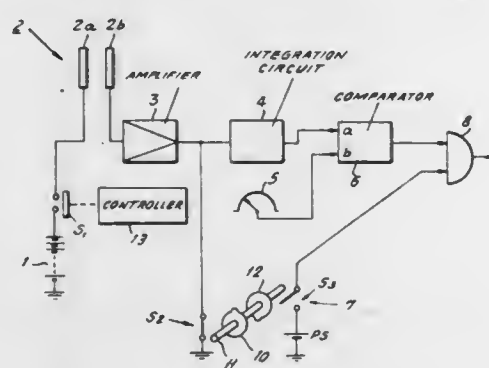
Filed Apr. 29, 1981, Ser. No. 258,455

Claims priority, application Japan, Jun. 23, 1980, 55-85656

Int. Cl.³ D03D 51/34

U.S. Cl. 139—370.2

10 Claims



1. Improved weft feeler unit for a fluid-jet loom, comprising: a weft feeler made up of first and second electrodes which are mounted to the reed of said loom on the weft arrival side, and which are spaced from each other along the traveling path of a weft; and means for applying a voltage of 900 to 3,000 volts to said electrodes, which voltage is sufficiently high to establish a virtual electric connection between said electrodes and said weft even when there is a physical gap between said weft and either of said electrodes due to whipping of said weft as long as said weft has been normally inserted.

4,393,904

METHOD AND DEVICE FOR WINDING STATORS OR THE LIKE

Willi Muskulus, Frankfurt, Fed. Rep. of Germany, assignor to Balzer & Droll KG, Niederdorfelden, Fed. Rep. of Germany Division of Ser. No. 14,546, Feb. 23, 1979, Pat. No. 4,221,243.

This application Jun. 24, 1980, Ser. No. 162,432

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2808048

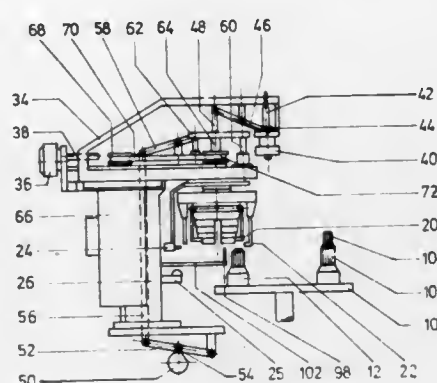
Int. Cl.³ H02K 15/04

U.S. Cl. 140—92.1

3 Claims

2. In a method of stripping electrical windings from a winding form onto which said windings are wound onto a collecting tool, said collecting tool comprising an inner ring of col-

lecting lamellae and a concentrically disposed outer ring of cover strip lamellae, said collecting lamellae being retractable and extensible relative to said cover strip lamellae, said stripping being effected by stripping said windings from said form onto said collecting tool, the improvement wherein, during



said stripping, said collecting lamellae are retracted to a position wherein their free ends are positioned immediately beyond the free ends of the cover strip lamellae such that they extend therebeyond a distance less than the thickness of a stator packet which is to receive a winding.

4,393,905

WIRE SPLICING TOOL

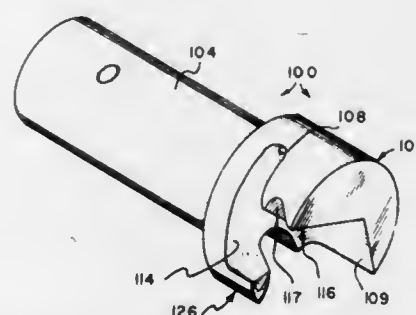
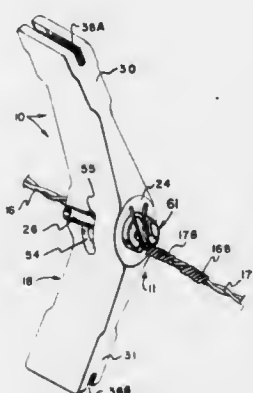
Frank A. Perrien, 205 Calva Rd., North Little Rock, Ark. 72116

Filed Sep. 14, 1981, Ser. No. 301,471

Int. Cl.³ B21F 15/04

U.S. Cl. 140—118

7 Claims



1. A wire splicing tool comprising: elongated, rigid frame means adapted to be manually grasped by a user of said tool; the frame means having a generally tubular center portion and a pair of integral, spaced-apart ends extending outwardly from said center portion; rotatable wire control means associated with said frame center portion for controlling wires to be spliced, said rotatable wire control means comprising: shank means rotatably received within said frame center

for selectively capturing at least a portion of first wire end; and, head means for forcibly contacting and splicing a second wire end about said first wire end in response to rotation of said tool by said user; manually operated means for rotating said wire control means between a first wire admitting or discharge position and a second wire capturing position, said last mentioned means for manually rotating said wire control means comprising an elongated stem projecting outwardly from said control means shank generally perpendicularly outwardly from said frame within a travel limiting slot which prevents rotation of said wire control means when said tool is rotated to splice wire ends; said tubular frame center comprising a slot for admitting or discharging a wire segment; and, said shank means comprising an elongated wire receptive groove adapted to be selectively registered in alignment with said slot for admitting or discharging a wire end, and operable when not aligned with said slot to capture a wire segment passing therethrough.

4,393,906

STERN TO BOW OFFSHORE LOADING SYSTEM

William A. Gill, El Toro, Calif., assignor to FMC Corporation, Chicago, Ill.

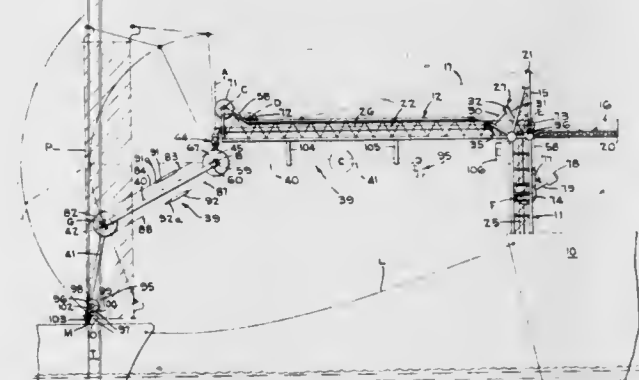
Continuation of Ser. No. 80,369, Oct. 1, 1979, abandoned. This

application Mar. 23, 1981, Ser. No. 246,565

Int. Cl.³ B65B 3/04

U.S. Cl. 141—387

8 Claims



a support structure for mounting on a first fluid handling means;
a horizontal support boom having an inboard end connected to said support structure;
a boom conduit member mounted along said boom;
means for coupling the inboard end of said boom conduit member to said first handling means;
an articulated loading arm having one end thereof pivotally connected to the outer end of said boom conduit member for movement about a first horizontal axis;
an inboard sheave;
means for mounting said inboard sheave for rotation about said first horizontal axis with said inboard sheave fixed to said loading arm;
a tower sheave rotatably mounted on said support structure;
a loading arm support cable;
means for connecting said support cable between said inboard sheave and said tower sheave including a plurality of idler sheaves, means for pivotally mounting a first idler sheave on the outer end of said support boom adjacent said inboard sheave, means for mounting a second idler adjacent said tower sheave, means for connecting a first end of said support cable to said inboard sheave, said support cable being trained around said inboard sheave and trained around a portion of said first and said second

idler sheaves, and means for connecting a second end of said support cable to said tower sheave;
means for rotating said tower sheave to rotate said inboard sheave and to pivotally move said loading arm about said first horizontal axis; and
means for connecting the outboard end of said loading arm to a second fluid handling means.

4,393,907

CLUTCH ASSIST APPARATUS

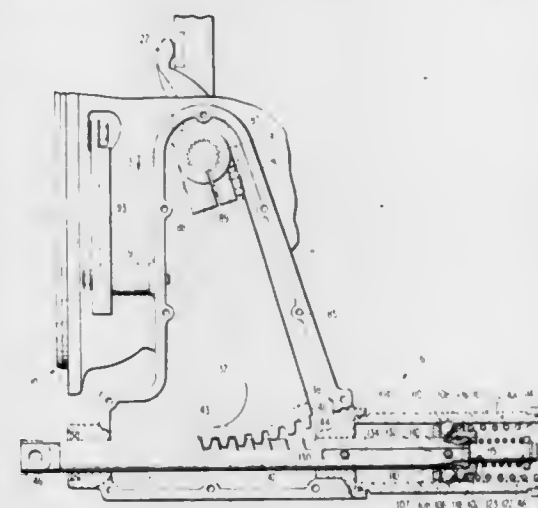
Victor Kronstadt, Hagerstown, Md., assignor to Mack Trucks, Inc., Allentown, Pa.

Filed Jan. 21, 1981, Ser. No. 226,867

Int. Cl.³ F16D 23/12; G05G 17/00

U.S. Cl. 192—99 S

18 Claims



1. A clutch assist mechanism for assisting clutch disengagement comprising:

(a) a clutch release shaft for rotation between clutch-engaged and disengaged positions;
(b) a movable member for movement along a substantially linear path for rotation of said clutch release shaft;
(c) a radial member fixed to said shaft and extending radially therefrom, said radial member having a portion for engaging said movable member to translate linear movement of said movable member into rotational movement of said shaft;
(d) biasing means for biasing said movable member in a direction of the linear path corresponding to a clutch-disengaged position; and
(e) means for preventing said biasing means from assisting movement of said movable member along the linear path until after an initial movement along at least a portion of said linear path;
(f) said movable member being a rack having upstanding gear teeth, and said radial member being a sector in which said portion for engaging said movable member is arcuate and includes complementary gear teeth for engagement with the gear teeth of said rack.

4,393,908

HAMMER WITH TWO DETACHABLE HEADS

Howard W. Clay, c/o Endall Company, 5083 27th Ave., Rockford, Ill. 61109

Filed Apr. 29, 1981, Ser. No. 258,591

Int. Cl.³ B25D 1/02

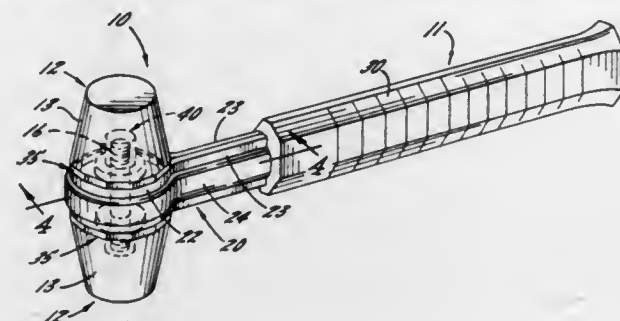
U.S. Cl. 145—29 A

12 Claims

4. A hammer having a handle and two detachable heads, each of said heads comprising:

a main body made of a material capable of being cast or molded, a plate made of a material which is harder than the material of said body, said plate being located adjacent one end of said body and being formed with a central axially extending hole, wrenching flats formed around the peripheral margins of said plate and unshielded by the

material of said body, an internally threaded sleeve disposed within said body and having an outer portion located within said body, said sleeve being joined rigidly to said plate and being made of a substance which is harder than the material of said body, a flange integral with the outer portion of said sleeve and located adjacent the outer face of said plate, the peripheral margins of said flange being located radially inwardly of the peripheral margins of said plate, a series of axially extending openings formed through said plate between the peripheral margins of said flange and the peripheral margins of said plate, a ring of



said material located on the outer face of said plate and intimately encircling said flange, and pieces of said material integrally joined to said ring and to said body and extending through said openings, said handle comprising an elongated handle portion and further comprising a disc on one end of said handle portion, said disc being formed with an axially extending hole, a stud located with the hole in said disc and having threaded end portions extending in opposite directions from said disc and threaded into said sleeves to attach said heads to said handle.

4,393,909

UNIVERSAL ADMINISTRATION PORT

Stephen Pearson, Ingleside, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Dec. 28, 1981, Ser. No. 335,132

Int. Cl.³ B65D 41/20

U.S. Cl. 150—8

8 Claims



1. A fluid container administration port for use with an associated cannula, comprising:

- a continuous sidewall;
- a cannula-pierceable membrane extending across a base of said sidewall;
- an inwardly tapered end continuous with said sidewall and opposite said base and said membrane;
- a volume-defining inner surface of said sidewall and said inwardly tapered end;
- said inner surface being substantially concentric about a longitudinal axis of said port taken through the center of said membrane and the center of a circular opening defined by said inwardly tapered end;
- such that diameter measurements, taken across said defined volume so as to span said inner surface, increase along said longitudinal axis from said membrane substantially up to said inwardly tapered end and decrease along said longitudinal axis from the commencement of said

inwardly tapered end up to said end-defined circular opening;

- said diameter measurement at said circular opening being not greater than said diameter measurement at said membrane;
- wherein said diameter measurements are such that upon insertion of an associated cannula, that portion of said inner surface at said circular opening provides a circumferential seal about the associated cannula before the cannula pierces said membrane.

4,393,910

FLEXIBLE CONTAINER HAVING FOUR LIFTING LOOPS

Odd F. Rasmussen, Porsgrunn, Norway, assignor to Norsk Hydro A.S., Oslo, Norway

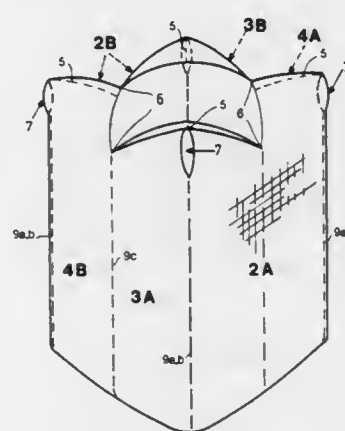
Filed Oct. 5, 1981, Ser. No. 308,855

Claims priority, application Norway, Oct. 29, 1980, 803222

Int. Cl.³ B65D 33/14

U.S. Cl. 150—12

3 Claims



1. In a flexible container for the lifting, transportation and storage of bulk material, said flexible container including a bottom, plural side walls, an inlet opening and lifting loops, the improvement wherein:

- said flexible container comprises four said lifting loops; each said lifting loop comprises an integral extension of the material of at least portions of said side walls; each said lifting loop has a width of no more than approximately one-quarter of the circumference of said container; and said bottom is formed from an integral extension of the material of at least one of said side walls.

4,393,911

SAFETY LINER FOR TIRES

Mason C. Winfield, Orchard Park, N.Y., assignor to Astronics Corporation, Orchard Park, N.Y.

Filed Jul. 26, 1982, Ser. No. 401,938

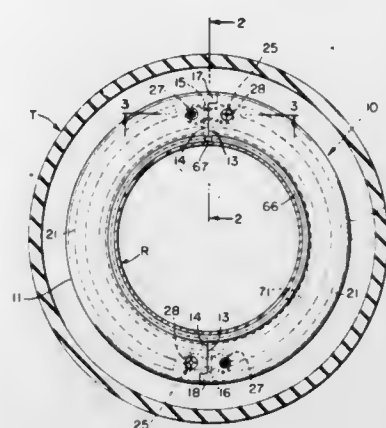
Int. Cl.³ B60C 17/00

U.S. Cl. 152—158

13 Claims

1. A safety liner for tires, comprising a pair of complimentary, semi-circular members made of a generally rigid, plastic material, a flexible, generally C-shaped bearing disposed to be secured around the drop center of a tire rim with the inner peripheral surface of the bearing engaged with the outer peripheral surface of the drop center of the rim, and means for releasably securing said semi-circular members together in the form of a ring disposed within a tire and coaxially around the outside of said bearing, and with the inner peripheral surfaces of said members being seated slidably in a circumferential groove formed in the outer surface of said bearing, the outer diameter of the ring formed by said members being greater than that of said rim and less than the inner periphery of a tire mounted on the rim, whereby when the last-

named tire becomes flat it is engaged with the outer surfaces of said members to cause rotation of said members relative to said bearing, and



said bearing having integral, circumferential flange sections at opposite side of said groove and slidably engageable with said members to prevent lateral movement thereof when said members are rotated on said bearing.

4,393,912

PROCESS FOR THE MANUFACTURE OF TIRES BY MOLDING

Jacques Gouttebessis, La Mouteyre, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

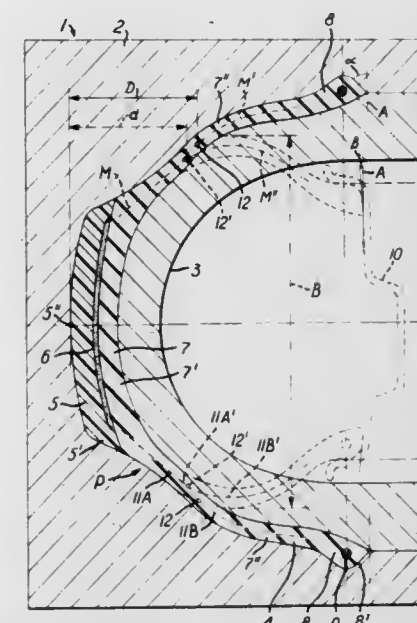
Filed Dec. 7, 1981, Ser. No. 327,938

Claims priority, application France, Dec. 10, 1980, 80 26258

Int. Cl.³ B60C 3/00, 13/00; B29H 17/02

U.S. Cl. 152—353 R

7 Claims



1. A process of manufacturing a tire from one or more liquid or paste materials which solidify in a mold, the tire being formed of a crown and of two sidewalls each terminated by a reinforced bead and each without reinforcement, the mold being formed by an envelope which defines the outer toroidal surface of the tire and by a core which defines the inner surface of the tire, in which process the tire is molded in a cross section different from that of the tire when mounted on its rim but not inflated, this process being characterized by the use of a mold in which, in radial cross section,

the crown of the tire is arranged approximately the same axially and radially as in the tire mounted on its rim but not inflated,

the sidewalls have lengths practically identical to those in the tire when mounted on its rim but not inflated and median lines each formed of two consecutive segments, namely, a first segment which is rectilinear or concave

towards the outside of the tire and is adjacent to the shoulder and a second segment which is concave towards the inside of the tire and is adjacent to the bead, the junction between the two segments being located at a radial distance from the crown which is greater than in the tire when mounted on its rim but not inflated, and the beads are arranged, on the one hand, approximately the same radially as in the tire when mounted on its rim but not inflated and, on the other hand, axially outward of their position on the rim.

7. A tire manufactured by the process in accordance with claim 1.

4,393,913

TIRE AND WHEEL CONFIGURATION

Charles E. Grawey, Peoria, and John J. Groezinger, Dunlap, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US81/00758, § 371 Date Jun. 8, 1981, § 102(e)

Date Jun. 8, 1981, PCT Pub. No. WO82/04224, PCT Pub.

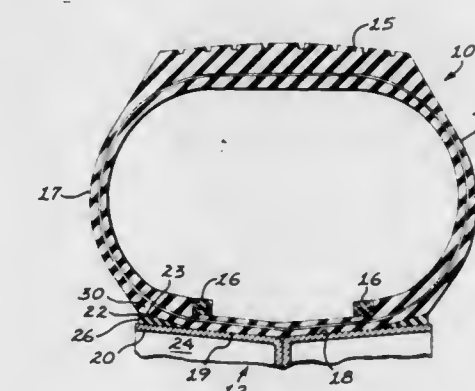
Date Dec. 9, 1982

PCT Filed Jun. 8, 1981, Ser. No. 287,541

Int. Cl.³ B60C 9/00, 5/00; B60B 21/00, 25/00

U.S. Cl. 152—364

16 Claims



1. In a rim assembly (12) having a rim portion (24) adapted to have mounted thereon a closed torus tire (14) having a pair of roll restraining hoops (16) and a shoulder portion (30) axially outward from each of said roll restraining hoop (16), the improvement comprising:

said rim assembly (12) including means (22) for reducing the rolling resistance of the closed torus tire (14), said means (22) including an elastomeric element (22) positioned solely between said shoulder portion of said closed torus tire and said rim portion (24) and being bonded to said rim portion (24).

7. A wheel assembly (10) comprising: a rim portion (24) having a tire retaining periphery (18); a closed torus tire (14) mounted on said rim portion and having a pair of roll restraining hoops (16) and a rim contacting periphery (19), said rim contacting periphery including a shoulder portion (30) positioned axially outward from each of said roll restraining hoops (16); and a pair of elastomeric elements (22) affixed to said rim portion (24), each of said elastomeric elements (22) being positioned between one of said shoulders (30) of the closed torus tire (14) and the adjacent portion of the tire retaining periphery.

4,393,914

TIRE CHANGER WITH COMBINATION WHEEL CLAMPS AND BEAD LOOSENERS

Charles G. Leeper, Antioch, Tenn., assignor to Hennessy Industries, Inc., La Vergne, Tenn.

Filed May 22, 1981, Ser. No. 266,153

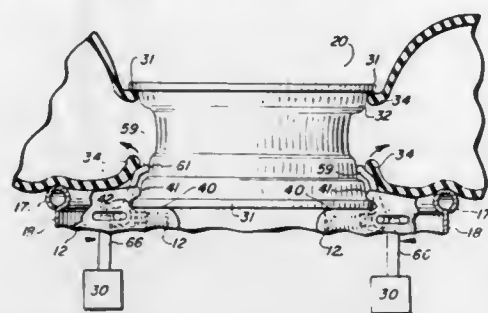
Int. Cl.³ B60C 24/06

U.S. Cl. 157—1.2

13 Claims

1. A device for clamping a wheel and loosening the bead of a tire attached thereto, comprising:

a table to hold a wheel and tire;
a plurality of radially converging shoes located on said table
and having means for clamping a wheel to said table;
a tongue extensible from at least one of said shoes; and



motor means for sequentially moving said shoes towards clamping engagement with a wheel and thereafter extending said tongue between a wheel and a tire bead to loosen the tire bead from the wheel.

4,393,915

WEB SECURING DEVICE

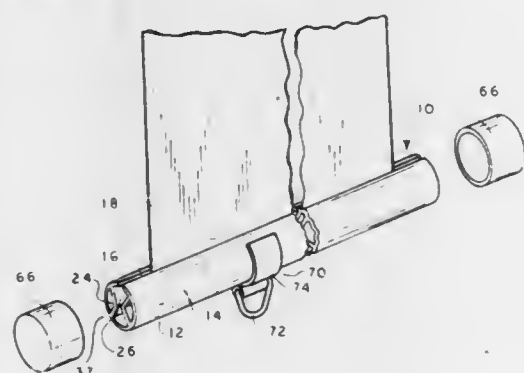
Carl G. Olson, 705 N. Elmhurst Rd., Prospect Heights, Ill. 60070

Filed Mar. 24, 1980, Ser. No. 133,346

Int. Cl.³ A47H 13/00, 23/01

U.S. Cl. 160—395

5 Claims



1. A device for attachment to a free margin of flexible webbing material, as for example a map, said device comprising: an elongated mounting strip to which the free margin of flexible webbing material may be affixed; and a rigid, tubular, elongated substantially cylindrical holder element having at least one open end, a cylindrical outer wall, a longitudinal slot within said outer wall having a width approximating the thickness of the webbing material, said outer wall being of predetermined thickness and continuous in cross-section circumferentially from one edge of said slot to the other edge of said slot, to define a cylindrical inner surface coaxial therewith, and a pair of elongated rib means within said holder element and formed integrally therewith, said rib means each being generally V-shaped in cross-section, the legs of each V being symmetrically arranged with respect to said cylindrical inner surface and diverging from diametrically spaced apices to integrally join said cylindrical inner surface and of similar thickness to said outer wall and integrally joining the interior surface of said outer wall at locations spaced apart from said slot and extending substantially the entire length thereof for rigidly supporting said outer wall to resist bending moments while leaving a major portion of the interior portion of the holder element hollow so as to minimize the weight thereof, said rib means further defining an elongated aperture communicating with said slot and being shaped to accommodate said mounting strip lengthwise through said open end with said webbing material extending through said slot, and said aperture having inner walls formed by said rib means arranged to coact with said mounting strip to facilitate impingement of said mounting strip with said aperture inner walls as an incident to the lateral shifting of said holder element; and handle means including an

arcuate structure snugly engaging the cylindrical holder element and supported thereby for rotational positioning about said holder element, and being provided with a pendant pull member intermediate longitudinal edges of the arcuate structure with the said edges being selectively spaced from each other a distance permitting the pull member to be positioned in accordance with the rotational positioning of the arcuate structure behind or in front of the holder element or any point therebetween without obstructing the longitudinal slot through which the webbing material extends.

4,393,916

APPARATUS FOR PRESSURE DIE CASTING

Stanko H. Vutov, and Rashko R. Slavov, both of Sofia, Bulgaria, assignors to Institute po Metaloznanie i Tehnologia na Metalite, Sofia, Bulgaria

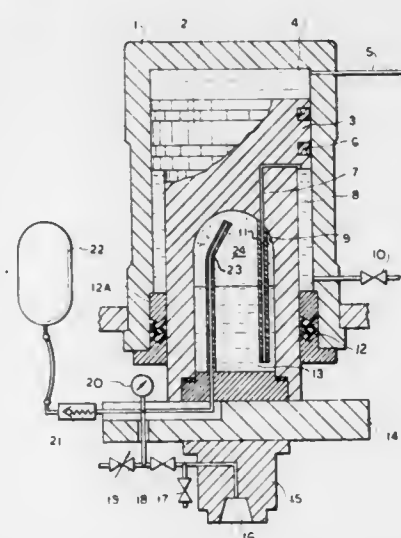
Filed Apr. 2, 1981, Ser. No. 250,289

Claims priority, application Bulgaria, Apr. 2, 1980, 47207

Int. Cl.³ B22D 17/06, 18/00

U.S. Cl. 164—119

3 Claims



1. An apparatus for pressure die casting by using elevated gas pressure in a die, comprising in combination,
a hydraulic press including a cylinder and a piston having an axially extending piston rod, said piston being slidably mounted in said cylinder; said piston dividing said cylinder into a first chamber and a second chamber, which chambers are filled with hydraulic liquid from a source of pressurized liquid for said hydraulic press;
die means including a die cavity are rigidly connected to said piston rod;
said piston rod including a gas retaining cavity which is in communication via first valve means with a reservoir of pressurized gas;
said gas retaining cavity containing a predetermined quantity of hydraulic liquid in its bottom portion which is in communication via a passage in said piston rod with said second chamber in said cylinder;
said second chamber being in communication with said source of pressurized liquid via second valve means;
an upper portion of said gas retaining cavity being also in communication with said die cavity via a third valve means;
and fourth valve means operatively connected to said die cavity for venting it to the atmosphere;
whereby when said third and fourth valve means are closed and the hydraulic liquid in the first chamber is pressurized via said source of pressurized liquid, the piston is caused to slidably move downwardly in said cylinder causing hydraulic liquid to flow from said second chamber into said gas retaining cavity via said passage in said piston which causes the gas contained therein to be additionally pressurized to a predetermined equilibrium and thereafter said pressurized gas being caused to flow into the die cavity via said third valve means.

4,393,917

METHODS AND APPARATUS FOR CASTING AND EXTRUDING MATERIAL

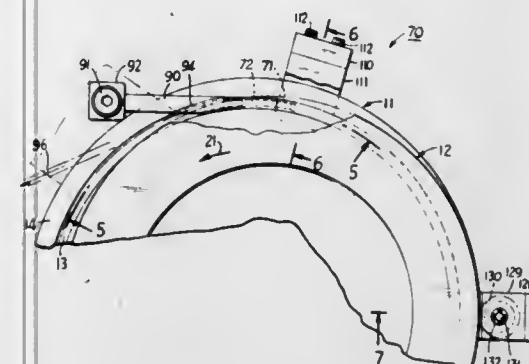
Francis J. Fuchs, Jr., Mercer County, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 810,457, Jun. 27, 1977, abandoned. This application Mar. 30, 1981, Ser. No. 248,733

Int. Cl.³ B22D 11/12

U.S. Cl. 164—476

13 Claims



1. A method of continuously casting and extruding a material, comprising the steps of:
(a) at a feeding station, introducing the material in molten condition into an annular groove in a radially extending, first surface on a first rotary member;
(b) enclosing a portion of the annular groove in the first surface with a radially extending second surface on a second rotary member, so as to define a region of overlap between the second rotary member and the annular groove;
(c) rotating the first and second rotary members simultaneously about two different axes in such direction as to transport the molten material within said annular groove from the feeding station and partly through said region of overlap while simultaneously cooling said material to produce full solidification thereof in the course of such transportation thereof; and
(d) further utilizing the rotation of said first and second members to cause extrusion of the material from the annular groove, in solidified condition, through an extrusion die disposed in said groove with at least part thereof being within said region of overlap, said die having an aperture shaped in conformity with a desired cross-sectional configuration, thereby to form an elongated product of said desired cross-sectional configuration from said material.

4,393,918

MELTING LATENT-HEAT HEAT OR COLD EXCHANGER-STORAGE DEVICE

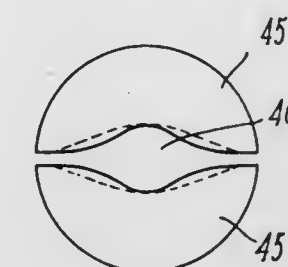
Jean Patry, 9, rue Saint-Paul, Paris, France (75004)

Filed Oct. 19, 1981, Ser. No. 312,845

Int. Cl.³ F28D 17/00

U.S. Cl. 165—10

7 Claims



1. A heat or cold exchanger and storage device operable according to the melting latent heat effect, said device comprising:
an elongated main container divided into two halves by a longitudinal partition to create two chambers connected at one end of said main container;
a plurality of elementary containers stacked in said two

chambers in a manner such that a heat carrier medium circulated through said chambers will pass around said elementary containers and will meet a homogeneous resistance;
each said elementary container comprising a pair of semi-spherical elements so shaped such that when assembled there will be a gap therebetween permitting circulation therethrough of the heat carrier medium;
each said element being filled with a heat and/or cold storage medium capable of generating a substantial quantity of heat when melting;
each said element being formed of a deformable material capable of absorbing volumetric variations resulting from crystallization; and
each said element containing therein an air pocket to produce an expansion inherent to the device.

4,393,919

THERMAL ENERGY METER

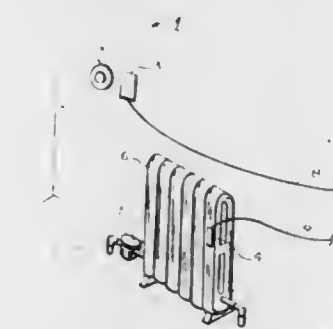
Cary R. Anderson, 428 E. Chapel St., Rockton, Ill. 61072

Filed Sep. 2, 1980, Ser. No. 183,433

Int. Cl.³ G01K 17/00

U.S. Cl. 165—11 R

7 Claims



1. A device for monitoring the thermal energy used by a single unit of a multi-unit building having a central space conditioning system said device comprising an energy monitoring circuit having a sensor unit comprising two temperature sensors separated by a solid sensor element, a differencing means to determine the temperature difference between said two temperature sensors, and a recording and display means for the totalization and reading of the energy consumption monitored wherein said sensor unit is thermally coupled to a space conditioning heat exchanger.

4,393,920

MANIPULATOR FOR WORKING IN A HEAT EXCHANGER

Michitsune Shima, Kobe; Shiso Kihara, Akashi; Takeo Omichi, Kobe; Taenji Igarashi, Shiga, and Kenji Mangetsu, Kameoka, all of Japan, assignors to The Kansai Electric Power Co., Inc., Osaka; Kyushu Electric Power Co., Inc., Fukuoka; Shikoku Electric Power Co., Inc., Takamatsu and Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, all of Japan

Filed Feb. 17, 1981, Ser. No. 235,029

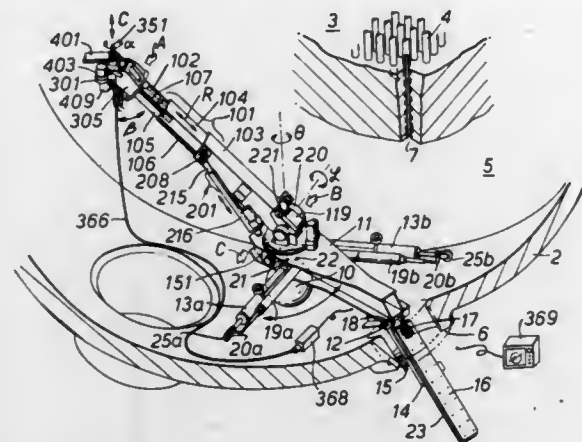
Int. Cl.³ F28F 11/00

U.S. Cl. 165—11 A

7 Claims

1. A manipulator for working in a heat exchanger, the heat exchanger including a water chamber delimited by a drum end plate and a header plate on which a large number of heat transfer tubes of a vertical type heat exchanger are arrayed, the manipulator comprising a support frame disposable within said water chamber; a freely extensible and contractible main arm having a first base end portion mounted on said support frame and a tip end portion, said main arm being rotatable about said first base end portion and vertically swingable about a first fulcrum at said first base end portion; a sub-arm having a

second base end portion mounted at said tip end portion of said main arm, said sub-arm being rotatable about said second base end portion and vertically swingable about a second fulcrum at said second base end portion, said sub-arm being positionable in parallel to said header plate; a vertically movable clamp



shaft insertable into one of said large number of heat transfer tubes, coaxial with the rotational axis of said sub-arm; and a position detector for detecting the position of said clamp shaft for use in positioning said clamp shaft so as to become coaxial with said one of said large number of heat transfer tubes, provided on said clamp shaft.

4,393,921

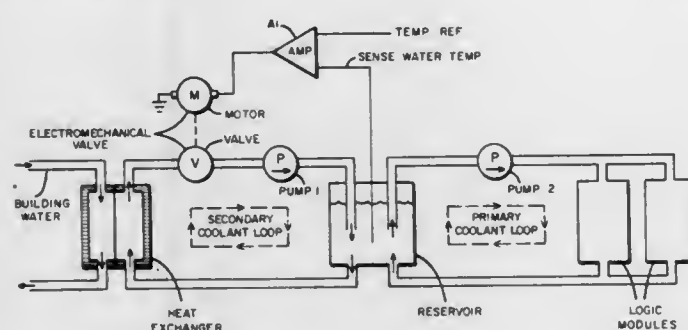
CIRCUIT CONTROLLING COOLANT FLOW TO A NON-LINEAR HEAT EXCHANGER THROUGH A NON-LINEAR ELECTROMECHANICAL VALVE

Terry B. Zbinden, Maple Grove, Minn., assignor to Sperry Corporation, New York, N.Y.

Filed Sep. 13, 1982, Ser. No. 397,954
Int. Cl.³ G05D 15/00

U.S. Cl. 165—40

5 Claims



1. In a thermal exchange coolant loop wherein coolant from a reservoir is pumped as regulated by the position of an electro-mechanical valve, through a heat exchanger for heat transfer, an electrical control circuit for said electromechanical valve to the end that the temperature of said coolant within said reservoir may be essentially maintained, via said heat transfer, at a reference constant, set point, temperature level as determined by an externally supplied signal, said electromechanical valve control circuit comprising;

- position potentiometer means for providing a linear position signal output responsively to the position of said electro-mechanical valve;
- non-linear compensator means responsive to said position signal output of said position potentiometer means for deriving a heat transfer signal output which is approximately linear with the coolant flow controlled by said electromechanical valve;
- temperature sensor means for providing a temperature signal output, essentially linear over a temperature range, responsively to the temperature of said coolant within said reservoir;
- differential amplifier means for receiving said heat transfer signal output from said non-linear compensator means,

said temperature signal output from said temperature sensor means, and said externally supplied signal which corresponds to said reference constant, set point, temperature level and for producing an error signal which is the difference between said ((externally supplied, set point temperature signal) minus (temperature signal)) and said (heat transfer signal);

drive amplifier means for producing a positioning drive signal to said electromechanical valve responsively to said error signal from said differential amplifier means.

4,393,922

ENGINE UNIT WITH LUBRICANT COOLING

Friedrich Bährle, Kernen, and Helmut Wulf, Ostfildern, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

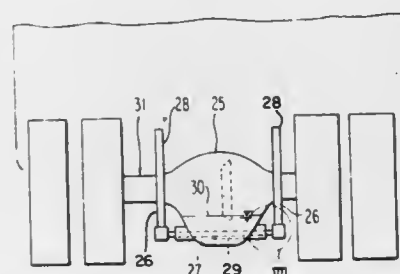
Filed Jan. 22, 1981, Ser. No. 227,372

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1980, 3002155

Int. Cl.³ F28F 15/00

U.S. Cl. 165—41

4 Claims



1. A differential gear of a vehicle driving axle lubricated by means of a liquid lubricant, having a lubricant collecting pipe as well as having a lubricant cooling system, comprising a heat pipe, with its heat-receiving part, that is circular in its cross section, projecting directly into the lubricant collecting space in an area of an especially high reflux current or turbulence of the lubricant in the collecting space; the heat-emitting part of the heat pipe, in the operational installation position of the differential gear, is geodetically higher than its heat-receiving part; and the heat-emitting part of the heat pipe is formed in a plate-shaped manner, of two sheet-metal plates that are welded to one another so that they are hermetically tight, with the heat-emitting part being exposed to ambient air and being aligned in the driving direction of the vehicle, where the surface in the heat-emitting part of the heat pipe that can be used for the formation of the condensate is larger than the surface in the heat-receiving part that can be used for the evaporation.

4,393,923

CONTOUR-ADAPTIVE ATMOSPHERIC HEAT EXCHANGE APPARATUS

Jack J. Press, 17426 Plaza Destacado, San Diego, Calif. 92128

Filed Sep. 2, 1980, Ser. No. 183,490

Int. Cl.³ F28F 3/12, 21/06; F24J 3/02

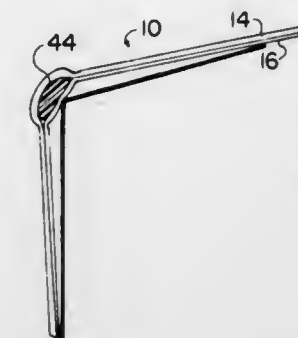
U.S. Cl. 165—46

2 Claims

1. An atmospheric heat transfer apparatus which is capable of bending over structures, said apparatus consisting of:

- a sealed container having front and rear walls which are made of thin, pliable sheet material which have smooth inner surfaces capable of contacting each other over substantially their entire inner surfaces so as to provide a planar liquid passageway therebetween;
- said container having an inlet and an outlet for the liquid so that the inlet can be positioned above the outlet to cause the liquid to flow by gravity and cause a negative pressure within the container which draws the container walls toward one another with only the liquid flowing therebetween; and

means for relieving compression contact between the container walls where any bend occurs in the container, the



compression contact relieving means being located only where such bend occurs.

4,393,924

HEAT EXCHANGE APPARATUS WITH USE OF HYDROGEN STORING MATERIAL

Takayoshi Asami, Ohtsu, and Hidekazu Sono, Kobe, both of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

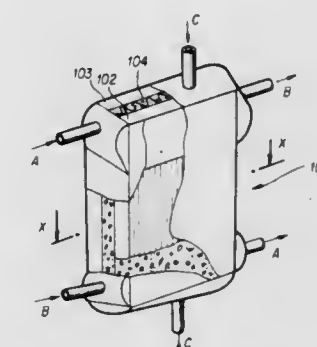
Filed Jun. 16, 1981, Ser. No. 274,194

Claims priority, application Japan, Jun. 23, 1980, 55-85700

Int. Cl.³ F28D 21/00

U.S. Cl. 165—104.12

7 Claims



1. A heat exchange apparatus for use with hydrogen storing material, comprising;

- a hydrogen reservoir;
- a heat source;
- a heat exchanger having a low temperature fluid pathway defined by first closed conduit means in said heat exchanger and a high temperature fluid pathway independent of said low temperature fluid pathway and defined by second closed conduit means in said heat exchanger;
- pressure controlling means;
- a heat utilizing system; and
- a regenerator chamber packed with a heat storing material and disposed only between said high temperature fluid pathway and said low temperature fluid pathway of said heat exchanger, wherein the high temperature fluid pathway is connected to said heat source and the low temperature fluid pathway is connected to said heat utilizing system, and said regenerator chamber is connected via said pressure controlling means to said hydrogen reservoir.

4,393,925

STOVE PIPE HEAT EXTRACTOR

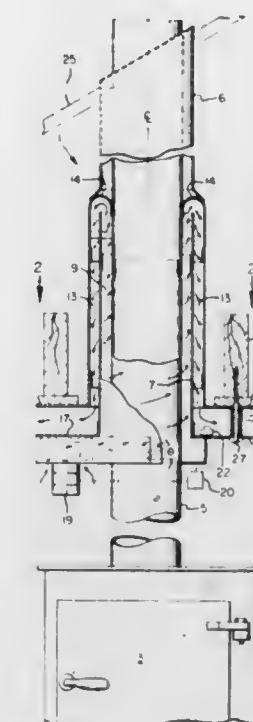
Kenneth J. Jacobsen, 14005 SW. Bonnie Brae Ct., Beaverton, Oreg. 97005, and Jerome F. Moshofsky, 9019 SW. 15th St., Portland, Oreg. 97219

Filed Nov. 2, 1977, Ser. No. 847,798

Int. Cl.³ F24F 3/02

U.S. Cl. 165—122

3 Claims



1. A stove pipe heat extractor comprising:
a hot gas conducting inner pipe having a longitudinal central axis;
an inner jacket surrounding the inner pipe, the pipe and inner jacket defining a first air path;
an outer jacket surrounding the pipe and inner jacket, the inner and outer jackets defining a second air path;
means for introducing air into the first air path in a spiral upward air flow pattern;
means for reversing air flow from the first air path and directing the flow downward in a spiral flow pattern into the second air path;
and an air exit vent operatively connected to the second air path.

4,393,926

CLOVER HEAT EXCHANGER CORE

Gary H. Appel, 2235 W. 25th St., San Pedro, Calif. 90732

Filed Apr. 6, 1981, Ser. No. 251,354

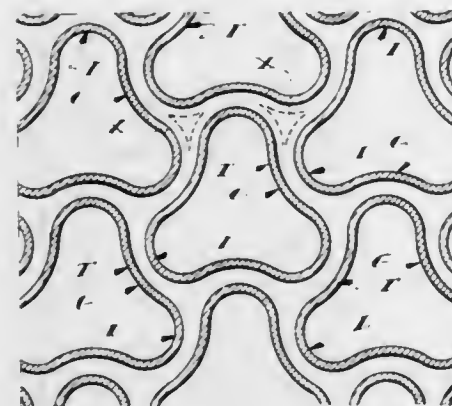
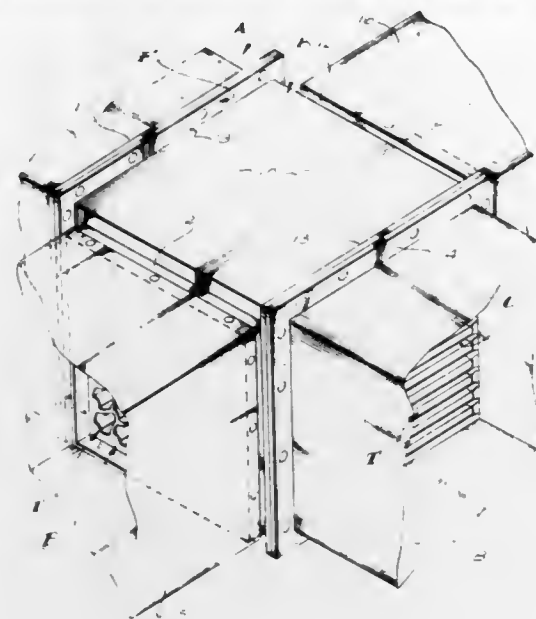
Int. Cl.³ F28D 7/00, 7/10

U.S. Cl. 165—165

9 Claims

1. A heat exchanger comprising a plurality of elongate parallel fluid medium conducting tubes, a first fluid handling means communicating with the opposite ends of the tubes to deliver a first fluid medium into one end and to receive said medium at the other end thereof, a second fluid handling means directing a second fluid medium about the exterior of and between the tubes, each tube is formed with an uneven number of circumferentially spaced longitudinally extending grooves and circumferentially spaced longitudinally extending lobes, each lobe occurs between a pair of adjacent grooves, the grooves have concave substantially radially outwardly disposed outside bottom surfaces and the lobes have substantially radially outwardly disposed convex outside surfaces, the radius of said convex surfaces is less than the radius of said concave surfaces,

the lobes at the sides of each tube projecting toward adjacent tubes extend to the related grooves of said adjacent tubes with



the concave and convex surfaces of the related lobes and grooves in spaced relationship.

4,393,927

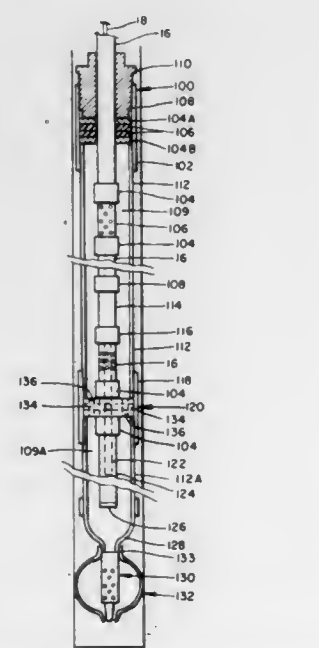
APPARATUS FOR POSITIONING A TREATING LIQUID AT THE BOTTOM OF A WELL

Mortimer Singer, 2320 Plaza del Grande, Las Vegas, Nev. 89102
Continuation-in-part of Ser. No. 94,381, Nov. 15, 1979, Pat. No. 4,267,888. This application Mar. 19, 1981, Ser. No. 245,361

Int. Cl.³ E21B 37/00, 37/06

U.S. Cl. 166—105

11 Claims



1. In a liquid producing well having installed at least a string of tubing extending from the surface to the bottom, a standing

valve, a sucker rod pump including a traveling valve, and a string of sucker rods, apparatus for positioning a selected volume of a selected fluid in the bottom of said well without disturbing said pump, rods, tubing, or standing valve, comprising:

- (a) a first opening in said tubing above said sucker rod pump;
- (b) a shroud, or cylindrical pipe, outside of, said tubing string, forming an annulus between said tubing and said shroud, said shroud extending to a point below the inlet to said sucker rod pump, from a point above said first opening; means to seal said shroud to the outside of said tubing string above said first opening;
- (c) crossover means inserted into said tubing string in the vicinity of the inlet to said sucker rod pump; said crossover means sealed to said shroud; permitting radial flow of well fluid from outside said shroud to the inlet to said sucker rod pump, and also permitting longitudinal flow of fluid down said annulus from said first opening to the bottom of said shroud;
- (d) an overpressure relief valve set to open at a selected fluid pressure on its inlet, said relief valve positioned at and closing off the bottom end of said shroud;
- (e) at the mouth of said well, means to close off the top of said tubing string; and
- (f) means to inject at least a selected first volume of a selected first fluid, into said closed top end of said tubing at a selected pressure above atmospheric pressure.

4,393,928

APPARATUS FOR USE IN REJUVENATING OIL WELLS

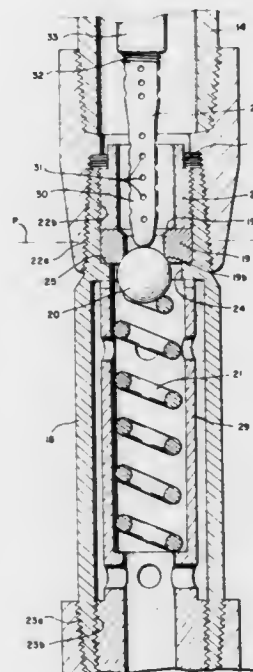
Charles E. Warnock, Sr., P.O. Box 509, Ventura, Calif. 93002

Filed Aug. 27, 1981, Ser. No. 296,640

Int. Cl.³ E21B 43/00

U.S. Cl. 166—105

2 Claims



1. An apparatus for use in rejuvenating oil wells wherein such rejuvenation involves injecting steam through a pipe-string and holding the steam under pressure in the well for a period of time before a production pump is lowered into the pipestring to resume production pumping operations, including, in combination:

- (a) a sub incorporating a check valve comprising a valve seat, ball and spring biasing the ball against the seat, said sub having exterior upper and lower threads for insertion into the pipestring so that steam can pass down through the pipestring and through the check valve to the surrounding formations, the check valve blocking back flow of steam into the pipestring, said sub having internal threads at its upper and lower ends, and a reduced diameter central opening defining an annular shoulder facing said upper end, said seat being receivable in said upper end

for seating on said annular shoulder; a threaded collar received in said upper internal threads to hold said seat against said annular shoulder; and a spring cage threadedly received in said lower internal threads of said sub for holding said spring for said check valve in a manner to urge said ball upwardly through the reduced diameter central opening against said valve seat, whereby said check valve can be easily disassembled for maintenance purposes; and

- (b) a hollow probe member having a lower narrow nose portion with a plurality of openings in its lateral wall, the diameter of said nose portion being less than the diameter of the seat for said check valve, the upper end of said probe member having threads for threaded engagement with the lower end of said production pump such that the probe member can be substituted for the normal pump screen threadedly held therein, whereby after steam has been injected into the well, the check valve will hold the pressure and block back flow so that said production pump can immediately be lowered while said well is cooling and the pressure is dropping, said probe member serving to enter said valve seat and unseat said ball to thereby open said check valve and permit production pumping of the well to resume.

4,393,929

WELL PACKERS AND SLIP ASSEMBLIES FOR USE THEREWITH

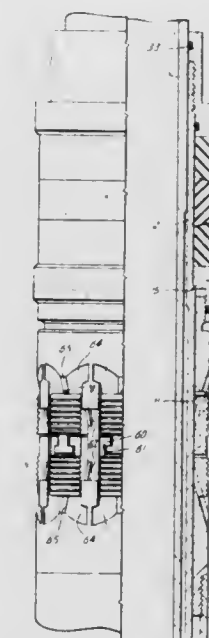
Neil H. Akkerman, Kingwood, Tex., assignor to AVA International, Houston, Tex.

Filed Feb. 17, 1981, Ser. No. 233,627

Int. Cl.³ E21B 33/128, 33/129

U.S. Cl. 166—134

13 Claims



1. A packer for use in closing off an annular space about a pipe string within a well bore, comprising a tubular member adapted to be connected as part of the pipe string, first and second sleeves surrounding the tubular member, normally contracted packing and slip elements carried about the first sleeve, means for expanding the packing and slip elements into engagement with the well bore in response to movement of one of said sleeves from an axially extended to an axially retracted position with respect to the other sleeve, means forming an annular chamber in which fluid at a lesser pressure than ambient well fluid may be contained and including a piston on said one sleeve, whereby said well fluid urges said one sleeve toward retracted position, and a circumferentially expandable and contractible ring disposed within said chamber and having wedging surfaces and ratchet teeth on its opposite sides engageable with corresponding parts on said one sleeve and one of the other sleeve and tubular member for locking said sleeves

against extension as said one sleeve is moved to retracted position.

4,393,930

SUBTERRANEAN WELL PRESSURE SURGING TOOL

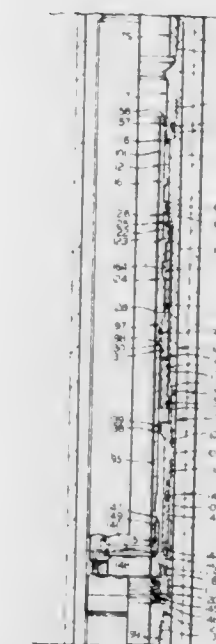
Richard J. Ross, and Luis E. Mendez, both of Houston, Tex., assignors to Baker International Corporation, Orange, Calif.

Filed Mar. 18, 1981, Ser. No. 244,997

Int. Cl.³ E21B 37/08

U.S. Cl. 166—188

8 Claims



1. In a surging apparatus for cleaning particulates from the perforations or the production formation face of a subterranean well, the apparatus including a surge chamber connectable to a tubing string and insertable in the well casing at atmospheric pressure, and a pressure actuated lower valve positionable between the lower end of the atmospheric pressure surge chamber and the casing bore adjacent to the casing perforations, said pressure operated lower valve being actuated by a predetermined increase in the fluid pressure in the annulus between the casing and the tubing string, the improvement comprising: a packer apparatus carried on said tubing string for selective sealing engagement at a predeterminable position in the well; a flapper valve pivotally mounted in the tubing string above the atmospheric pressure surge chamber and normally closing the bore of the tubing string; an axially shiftable actuating sleeve normally engaging the perimeter of said flapper valve to maintain same in a closed position with respect to the bore of the tubing string; radially shiftable locking means normally securing said actuating sleeve in said valve closing position; a retainer sleeve normally holding said locking means in said normal locking position, said retainer sleeve having a lower end disposed in a fluid pressure chamber communicable with the bore of the tubing string; shear means preventing movement of said retaining sleeve from its normal locking position with respect to the locking means, whereby an increase in fluid pressure in said tubing string bore above a predetermined level effects the shearing of said shear means and the axial movement of said retainer sleeve to release said locking means; a piston shoulder on said actuating sleeve exposed to fluid pressure in the tubing string bore by the pressure induced movement of said retainer sleeve to effect the shifting of said actuating sleeve to an unlocked position relative to said flapper valve; and biasing means for urging said flapper valve to its open position.

4,393,931

COMBINATION HYDRAULICALLY SET HANGER
ASSEMBLY WITH EXPANSION JOINT

John F. Muse; Rudy B. Callihan; Bobby F. Goad, all of San Antonio, and Clyde S. Wainwright, Jr., McQueeney, all of Tex., assignors to Baker International Corporation, Orange, Calif.

Filed Apr. 27, 1981, Ser. No. 257,839

Int. Cl.³ E21B 19/10

U.S. Cl. 166—208

5 Claims



1. Apparatus for cementing a liner in the bottom of a subterranean well bore below the well casing comprising, in combination: a torque transmitting, annular expansion joint having its upper end adapted to be secured to a tubular work string; an annular running tool secured to the bottom end of said torque transmitting, annular expansion joint, said running tool and said expansion joint defining interconnected axial bores having substantially the same I.D. as the tubular work string; a liner hanger secured in surrounding relationship to said running tools by left hand threads; a liner sleeve assembly having its top end secured to the lower portion of said liner hanger; said liner sleeve assembly including means for attaching a cement float shoe at its bottom end and a landing collar sleeve disposed above the cement float shoe; shearable valve means in said landing collar permitting the development of a predetermined fluid pressure in the bore of said running tool; said liner hanger having a plurality of slips disposed around its exterior periphery and movable outwardly to engage the well casing; resilient means urging said slips outwardly; axially movable means on said running tool retaining said slips in an inwardly retracted position during run-in of the aforesaid apparatus; an annular piston formed on said axially movable means, said running tool defining an annular cylinder chamber cooperable with said annular piston and in fluid communication with said bore of said running tool, whereby the application of a predetermined fluid pressure to the tubular work string effects displacement of said piston to release said slips to expand into engagement with the well casing and set the hanger; said axially movable means including a ring axially fixed on said axially-movable means but rotatable relative thereto; a plurality of axial fingers secured to said ring and respectively engagable with said slips, whereby right hand rotation of said running tool relative to said liner sleeve assembly will alternatively release said slips and set the hanger and permit removal of the running tool; said shearable valve means being sheared and displaced downwardly in the liner by an increase of fluid pressure above said predetermined value, thereby permitting flow of cementing fluid into said liner.

4,393,932

METHOD AND APPARATUS FOR UNIFORMLY
PACKING GRAVEL AROUND A WELL CASING OR
LINER

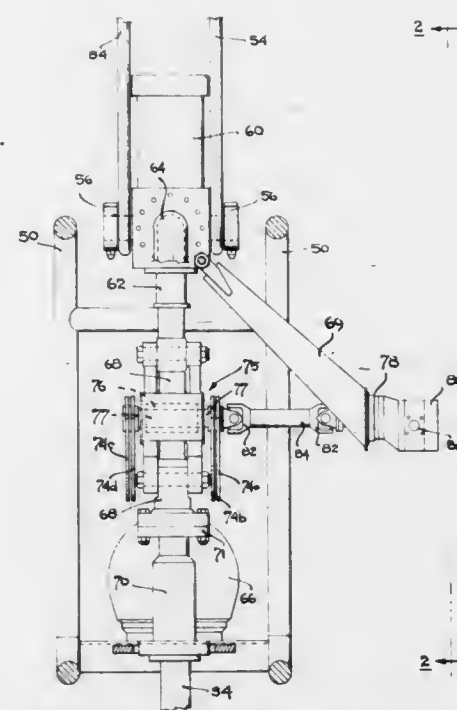
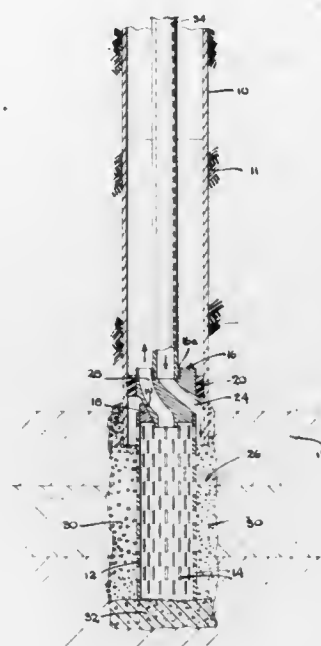
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Mar. 16, 1981, Ser. No. 243,846

Int. Cl.³ E21B 33/13

U.S. Cl. 166—249

8 Claims



1. A method for uniformly packing gravel around the perforated region of a well liner comprising the steps of installing a casing through overburden to a fluid producing formation, installing a liner at the bottom end of said casing in said formation, said liner having apertures therein for passing said fluid to the interior thereof, pouring gravel into the region surrounding said liner to inhibit the flow of foreign material through said apertures into the interior of said liner, generating high level sonic elastic wave energy, and coupling said sonic energy to the gravel through an elastic column coupled to the liner to effect the fluidization thereof and the resultant uniform distribution and compaction of said gravel without voids therein around the liner.

4,393,933

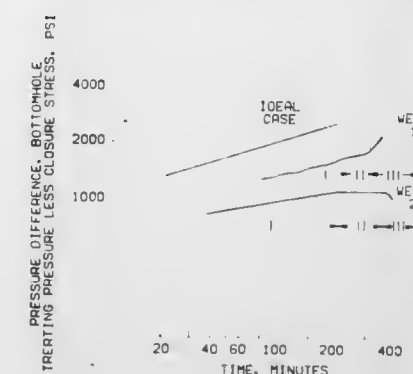
DETERMINATION OF MAXIMUM FRACTURE
PRESSURE

Kenneth G. Nolte, and Michael B. Smith, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill. Continuation of Ser. No. 155,873, Jun. 20, 1980, abandoned. This application Apr. 6, 1981, Ser. No. 251,666

Int. Cl.³ E21B 49/00

U.S. Cl. 166—250

8 Claims



1. A method of determining the maximum bottomhole treating pressure which should be attained during the fracturing of a subterranean formation at a first wellbore extending into the formation, which comprises

extending a fracture into the formation from a second wellbore extending into the formation by injecting fluid into the fracture at a rate sufficient for extending said fracture into the formation until the change in the bottomhole treating pressure is substantially zero during the injection of the fluid,

measuring at the second wellbore the bottomhole treating pressure,

determining the bottomhole treating pressure at which the change in bottomhole treating pressure during the formation of the fracture extending from the second wellbore is substantially zero, and

taking the sum of said determined bottomhole treating pressure less the in situ closure stress of the formation at the second wellbore plus the in situ closure stress of the formation at a said first wellbore extending into the formation as the maximum bottomhole treating pressure which should be attained during the fracturing of the formation at said first wellbore.

4,393,934

CONDITIONING A COAL SEAM PRIOR TO IN-SITU
GASIFICATION

Joseph G. Savins, and James C. Melrose, both of Dallas, Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 25, 1981, Ser. No. 296,039

Int. Cl.³ E21B 43/24

U.S. Cl. 166—261

10 Claims

1. A method for conditioning a subsurface wet coal seam prior to in-situ gasification wherein combustion of a portion of the coal in said seam has been initiated and is maintained by injection of a combustion-supporting gas into said seam through an injection well whereby there results an in-situ combustion front containing hot combustion gases which move toward a spaced production well and movement of this front displaces the hot combustion gases into the production well for recovery, the improvement comprising injecting into said coal seam via said injection well a wettability alteration fluid, said wettability alteration fluid capable of decreasing the water content of said coal and altering the wettability of said coal thereby increasing the permeability thereof to the flow of gas therethrough; recovering fluids including the wettability alteration fluid from said coal seam via said production well,

and continuing to inject said wettability alteration fluid into said coal seam until the permeability thereof to the flow of said

combustion-supporting gas therethrough has increased to a maximum extent.

4,393,935

STIMULATION OF GAS WELLS WITH PHOSPHATE
ESTER SURFACTANTS

William B. Walton, Cleburne, Tex., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation-in-part of Ser. No. 154,651, May 30, 1980, Pat. No. 4,278,129. This application Mar. 30, 1981, Ser. No. 249,098

The portion of the term of this patent subsequent to Jul. 14, 1998, has been disclaimed.

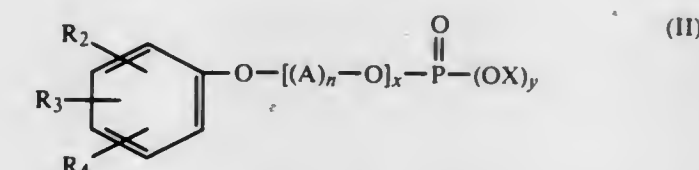
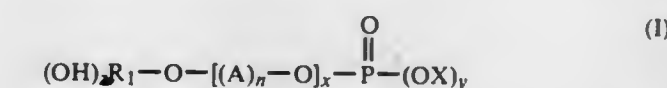
Int. Cl.³ E21B 43/22

U.S. Cl. 166—263

10 Claims

1. A method of treating gas-bearing subterranean formations to improve permeability thereof and increase or restore production of gas comprising introducing into said formation through a producing means in fluid communication with said gas-bearing subterranean formation, a treating fluid comprising:

(A) an aqueous solution of about 5 to about 50 weight percent of an alkyl or aralkyl polyoxyalkylene phosphate ester surfactant having the formula:



wherein R_1 represents an alkyl radical containing from about 10 to 18 carbon atoms, R_2 represents an alkyl radical of about 5 to about 27 carbon atoms or a cycloalkyl radical and radicals derived from mineral oils containing alkyl, cycloalkyl and mixed alkylcycloalkyl radicals having from about 12 to 27 carbon atoms, R_3 and R_4 represent either hydrogen or alkyl of from about 1 to 22 carbon atoms and the higher alkyls defined by R_1 and cycloalkyls defined by R_2 or radicals derived from mineral oils; A represents the residue of ethylene oxide, ethylene oxide and tetrahydrofuran, or mixed lower alkylene oxides selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, alone or including tetrahydrofuran, wherein the total molecular weight of said ester is about 500 to about 1500, and wherein A can be heteric or block in molecular configuration; n represents the degree of oxyalkylation; x and y are 1 or 2, the sum of x and y is 3 and z is an integer of 0 to 5; X is hydrogen or

a monovalent cation selected from at least one of the group consisting of an alkali metal, and ammonium; and thereafter,

- (B) injecting water into the pore space adjacent to the well bore in amounts sufficient to displace the aqueous solution of said phosphate ester out into the formation,
- (C) retaining said aqueous solution of said phosphate ester and water within said formation for a period of not less than 24 hours and
- (D) thereafter, pumping and/or displacing said aqueous solution of said phosphate ester and said water from said formation into the well bore by injecting water into said formation by an injection means in fluid communication with said gas-bearing subterranean formation to produce the desired gas through said producing means.

4,393,936

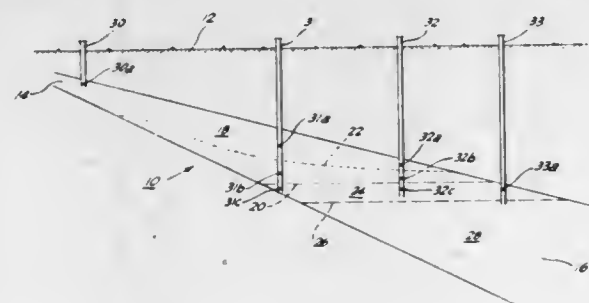
METHOD FOR THE ENHANCED RECOVERY OF OIL AND NATURAL GAS

Virgil A. Josendal, Pomona, Calif., assignor to Union Oil Company of California, Brea, Calif.

Filed Sep. 21, 1981, Ser. No. 303,957
Int. Cl.³ E21B 43/22

U.S. Cl. 166—263

28 Claims



1. A method for the recovery of hydrocarbons from a subterranean formation containing both natural gas and liquid petroleum, said formation having an upper first zone containing said natural gas, said method comprising the steps of:

- (a) introducing a gaseous displacement fluid through a first well communicating with said first zone so as to displace at least a portion of said natural gas from said first zone to a second well and recovering said portion of natural gas through said second well; and
- (b) thereafter introducing an oil-miscible displacement fluid into said formation at a selected pressure so as to displace at least a portion of said liquid petroleum to a recovery well, and recovering said portion of liquid petroleum through said recovery well.

4,393,937

OLEFIN SULFONATE-IMPROVED STEAM FOAM DRIVE

Richard E. Dilgren, Houston, and Kenneth B. Owens, Spring, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 25, 1981, Ser. No. 247,425
Int. Cl.³ E21B 43/24

U.S. Cl. 166—272

29 Claims

1. A steam-foam-forming composition useful in the displacement of oil within the pores of or a production of oil from an oil-containing reservoir, consisting essentially of (a) water, present in the composition, at a temperature substantially equalling its boiling temperature at the reservoir pressure, in both a liquid phase and a vapor phase of steam having a quality of at least about 30% but not more than about 80%, (b) an electrolyte, present in the liquid phase in an amount between about 0.1 and 5 percent by weight, calculated on the weight of the liquid phase, (c) a surfactant component, present in the liquid phase in an amount between about 0.01 and 5 percent by weight, calculated on the weight of the liquid phase, said surfactant component comprising in substantial part olefin sulfonate obtained by hydrolysis and neutralization of the

product of reacting sulfur trioxide with C₁₄ to C₂₀ olefins, and (d) a noncondensable gas, present in the vapor phase in an amount between about 0.0003 and 0.3 percent by mol, calculated on total mols in the vapor phase.

19. In a process for displacing oil within an oil-containing subterranean reservoir by flowing a steam-containing fluid in conjunction with a surfactant component through the pores of a relatively steam-permeable zone with said reservoir, the improvement which comprises: employing as the fluid flowed through the pores of the reservoir the steam foam-forming composition of claim 1.

4,393,938

TREATING WELLS WITH ION-EXCHANGE-PRECIPITATED SCALE INHIBITOR

Jimmie B. Lawson, and Edwin A. Richardson, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Apr. 9, 1981, Ser. No. 252,566
Int. Cl.³ E21B 43/16, 43/25; C09K 3/00

U.S. Cl. 166—279

5 Claims

1. A well treating process for inhibiting scaling by fluid which is produced from a clay-containing subterranean reservoir which tends to exchange cations with those contained within an injected aqueous solution, comprising:

dissolving within an aqueous solution of relatively neutral pH (a) at least one nitrogen-containing phosphonate scale inhibiting compound which contains scale-inhibiting anions that form multivalent cation salts which are only slightly soluble at the pH of the solution and (b) enough of at least one substantially neutral salt to both provide a ratio of monovalent-to-multivalent cations of at least about 100 and to substantially saturate the solution with respect to multivalent cation salts of the scale-inhibiting anions;

injecting said solution into a portion of said reservoir which (a) has a significant tendency to exchange cations with those contained within an injected aqueous solution and (b) contains a significant proportion of adsorbed multivalent cations; and,

controlling the rate at which said solution is injected so that at least some portions of that solution remain relatively near the well long enough to induce a significant precipitation of scale inhibitor salt due to the ion-exchange-induced addition of multivalent cations to the solution.

4,393,939

CLAY STABILIZATION DURING OIL AND GAS WELL CEMENTING OPERATIONS

Charles W. Smith, and John K. Borchardt, both of Duncan, Okla., assignors to Halliburton Services, Duncan, Okla.

Filed Apr. 20, 1981, Ser. No. 255,963
Int. Cl.³ E21B 33/138

U.S. Cl. 166—293

24 Claims

1. A process for filling a zone adjacent to a permeable formation containing clays and treating said clays with a clay stabilizing organic cationic polymer comprising:

mixing an aqueous inorganic cement slurry containing a water soluble clay stabilizing organic cationic polymer, said polymer having a molecular weight of about 400–6,000,000 and containing cationic groups of nitrogen, sulfur, or phosphorous or combinations thereof, wherein said polymer is added to said slurry in an effective concentration to produce a filtrate containing polymer in an amount of at least about 0.1% by weight of filtrate; and

introducing said aqueous cement slurry into said zone.

4,393,940

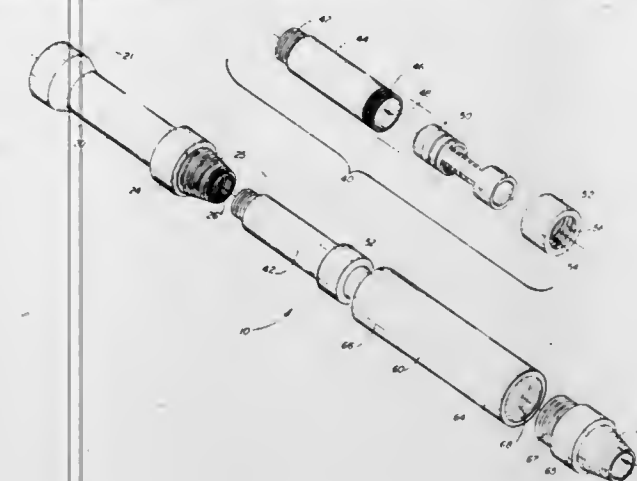
RETRIEVABLE FLOAT VALVE ASSEMBLY

Larry V. Cooper, Lake Charles, and Michael W. Sloane, Sr., Egan, both of La., assignors to Ace Fishing & Rental Tools, Inc., Lake Charles, La.

Filed Oct. 28, 1980, Ser. No. 201,580
Int. Cl.³ E21B 34/08

U.S. Cl. 166—325

10 Claims



1. A retrievable float valve housing tool assembly for placement in a drill string comprising:

- a. a sub member having on one end portion thereof, upper drill string connection means for connecting said sub to a drill string, said sub being open-ended providing between the open ends a continuous fluid conveying bore;
- b. lower drill string connection means on the lowermost portion of said sub for removably connecting said sub at its lower end to a drill string which depends downwardly therefrom;
- c. float valve canister means attachable during operation to and supported by said sub member for housing a float valve therewithin, said canister means having a continuous fluid conveying bore from one end portion to the other thereof and defining therewithin a float valve receptive space; and
- d. attachment means for attaching said canister means to said sub, said means comprising a connector on the canister means which attaches to said sub member at the lower portion thereof independently of the sub member/lower drill string connection, so that disassembly of the sub member/lower drill string connection alone allows removal of the upper portion of the drill string with the sub member and the canister means.

4,393,941

CHIMNEY FIRE SNUFFER

Barry A. Stevens, Box 122, Leland Ave., North Springfield, Vt. 05150

Filed Mar. 4, 1981, Ser. No. 240,437
Int. Cl.³ A62C 13/24

U.S. Cl. 169—70

3 Claims



1. A chimney fire snuffer for attachment to the end of a garden hose or the like for lowering through a chimney for

extinguishing chimney fires caused by accumulated creosote on the interior surfaces of the chimney and tending to block the chimney interior, said snuffer comprising:

- an elongated heavy metal cylindrical body,
- a bore extending axially of said body from one end thereof, a plurality of spray nozzles mounted to the periphery of said body and forming a circumferentially spaced array about said body,
- said spray nozzles each bearing a fine spray hole opening to the body bore,
- means for sealably coupling one end of said body about said bore to said hose for filling said bore with water under pressure,
- and wherein said heavy metal body terminates at the end remote from said hose coupling means in a solid conical end and functioning to seal off said bore at that end and to break through accumulated creosote tending to block the chimney passage when lowered at the end of the garden hose, and wherein water solely in fine water spray mist form is directed radially of said heavy metal body to quickly extinguish the flames with minimal water damage to the chimney interior and the building bearing the chimney.

4,393,942

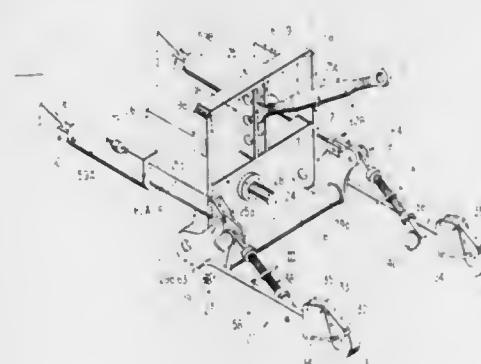
VEHICLE-SUPPORTED THREE-POINT COUPLING AND POSITION RESPONSIVE FLUID BLOCKING DEVICE THEREFOR

Guy Mijot; Leon Derycke, both of Reims; Didier Dienne, Guignicourt, and Roger Martinot, Reims, all of France, assignors to Attelages Lemoine - La Mecano - Soudure Remoise, Reims, France

Filed Feb. 11, 1980, Ser. No. 120,420
Claims priority, application France, Feb. 16, 1979, 7904034
Int. Cl.³ A01B 63/10

U.S. Cl. 172—2

16 Claims



1. A vehicle-supported three-point coupling assembly for coupling an implement to one end of said vehicle, wherein said coupling assembly comprises:

- a rectangular frame assembly fixedly mounted to said vehicle, said frame assembly including a pair of vertically extending sides, a pair of horizontally extending sides interconnecting said vertically extending sides and supporting a yoke for receiving an end of a thrust bar;
- a cross-bar assembly including a pair of traction bars pivotally connected to vertically extending support brackets at one end and extending horizontally away from said vertically extending brackets, said support brackets pivotally connected to said vertically extending sides, said support brackets further being interconnected by a tubular bar, said traction bars supporting at a remaining end thereof an implement holding means, whereby said cross-bar assembly including said traction bars can pivot in a vertical direction pivoting said implement holding means;
- first and second screw adjustment means each connecting one of said vertically extending brackets to a respective one of said traction bars, said screw adjustment means

determining the angular relationship between said cross-bar assembly and said brackets;
a fluid operated jack assembly connected to said vehicle and to said support brackets;
conduit means supplying an operating fluid to and from said jack assembly;
a shutter block means for blocking fluid flow through said jack assembly, said shutter block means having an actuator responsive to a predetermined relative position of said support bracket with respect to said vehicle; and
valve means for controlling the direction of fluid flow through said conduit means and said jack assembly, whereby said cross-bar assembly moves vertically until said support bracket arrives at said predetermined relative position with respect to said vehicle.

4,393,943

TELESCOPING CARRIER FOR FORESTRY EQUIPMENT

Albert Andersson, Skelleftea, Sweden, assignor to Stiftelsen Industriellt Utvecklingscentrum, Skelleftea, Sweden

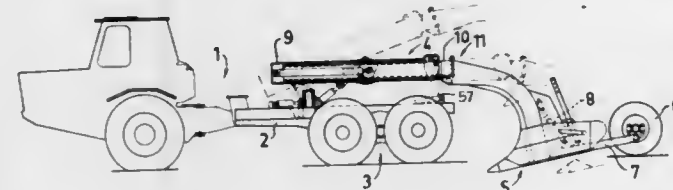
Filed Feb. 21, 1979, Ser. No. 13,616

Claims priority, application Sweden, Feb. 21, 1978, 78019908

Int. Cl.³ A01B 61/04

U.S. Cl. 172-260.5

13 Claims



2. A carrier adapted to be supported on a vehicle, one end of the carrier being provided with means for detachably attaching an implement for forestry cultivation, and the carrier being capable of being connected to the vehicle at at least one connection means between the ends of the carrier, characterized in that the connection means comprises a vertical axle permitting the carrier to be rotated about a vertical axis and in that the carrier consists of at least two telescopically movable members, one of which is capable of being connected to the vehicle by said connection means and another of which is provided with said means for detachably attaching said implement for forestry cultivation, the members being interconnected by a device consisting of a hydraulic circuit including a hydraulic double-acting piston-cylinder means connected to the telescoping members, and an accumulator, the device exerting a force, the force being applied by fluid pressure, the force being operable to urge the telescopically movable members to telescopically contract the contracting force being adapted to urge the implement against a towing resistance toward said vehicle and said device being provided with a hydraulic pressure relief valve between supply and discharge conduits to the piston-cylinder means and set to a predetermined value so that when the towing resistance exceeds the predetermined value, the force urging the members to contract is overcome by said resistance, thus permitting relative movement between the telescopically movable members and permitting said force to retract the members when the towing resistance no longer exceeds the predetermined value, and the device further comprising a direction control valve for said piston-cylinder means, the relief valve being set at a pressure which is higher than the pressure for the direction control valve.

4,393,944

DRILL RIG

Hans Gugger, and John Ackland, both of Brisbane, Australia, assignors to Warman International Limited, Australia

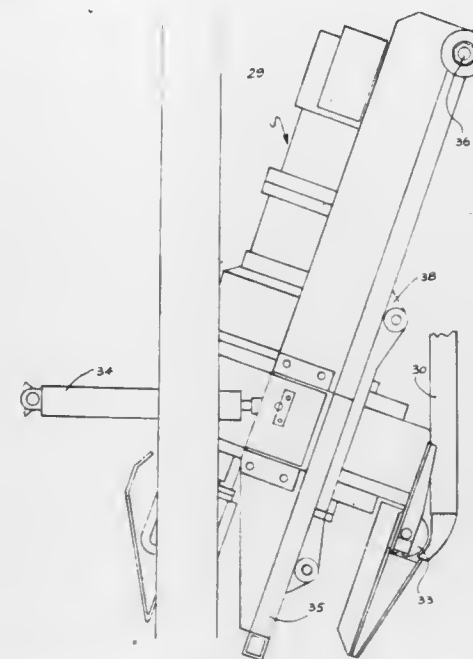
Filed Sep. 11, 1980, Ser. No. 186,298

Claims priority, application Australia, Sep. 18, 1979, PE0543

Int. Cl.³ E21B 7/02, 15/04

U.S. Cl. 173-28

5 Claims



1. A mobile drill rig comprising:

- a mast having a pair of forward and rear mast members connected to each other;
- a base frame located at the lower extremities of said mast members;
- a rotation head comprising a variable speed axial piston motor;
- a main gear box connected to the output of said piston motor;
- a planetary drive adapted to be connected to the input of the main gear box, said rotation head being mounted directly between the mast members for axial movement along the mast members, with the drill line located between the pair of forward mast members; and
- a cradle located at the top of the mast such that the rotation head can move along said mast members into said cradle, said cradle being pivotally connected to said mast members so as to be pivotal about a horizontal axis so that with the rotation head within said cradle the cradle is adapted to be pivoted to move the rotation head further back between the mast members to move the rotation head clear of the drill line.

4,393,945

ROTARY DRILL WITH A KELLY BAR AND HYDRAULIC CHUCK

Charles L. Rassieur, Creve Coeur, Mo., assignor to Central Mine Equipment Company, St. Louis, Mo.

Filed Oct. 22, 1980, Ser. No. 199,429

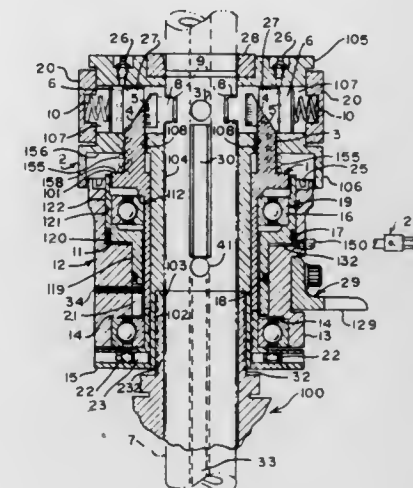
Int. Cl.³ E21B 3/04

U.S. Cl. 173-163

2 Claims

1. In a rotary drilling apparatus wherein a rotary table is adapted to be moved axially while rotating, said rotary table including a spindle having an axially directed passage through it as its center of rotation, a kelly bar extending through said passage, means carried by the rotary table for transmitting positive rotational force from the rotary table to the kelly bar, said kelly bar having shoulder means having radial shoulder surfaces, elongated plunger means carried by said rotary table for selectively engaging and disengaging said kelly bar shoulder surfaces and actuating means carried by said rotary table for causing said plunger means to engage with and disengage from said shoulder means, the improvement comprising a tubular housing, means for holding said housing against rotation and to permit axial movement of said housing with said

table, a chuck body mounted on said spindle and extending axially within and for rotation with respect to said housing, said plunger means being mounted for radial movement in said chuck body, said plunger means having cam surfaces on opposite sides of them intermediate their ends; said actuating means comprising a tube mounted on said chuck body for axial movement with respect thereto, said tube having spaced fingers, straddling said plunger means, each with a wedge-shaped



camming surface for engaging the said cam surfaces of said plungers and moving said plungers outwardly radially upon axial movement of said tube to disengage said plungers from said kelly bar shoulder means, hydraulic means for moving said tube axially selectively, and means for biasing said plungers toward and into engagement with said kelly bar shoulder means when said tube camming means are moved away from said plungers.

4,393,946

WELL PERFORATING APPARATUS

Alain Pottier, Houston, Tex.; Pierre Chesnel, Savigny-sur-Orge, and Bernard Chaintreau, Avon, both of France, assignors to Schlumberger Technology Corporation, Houston, Tex.

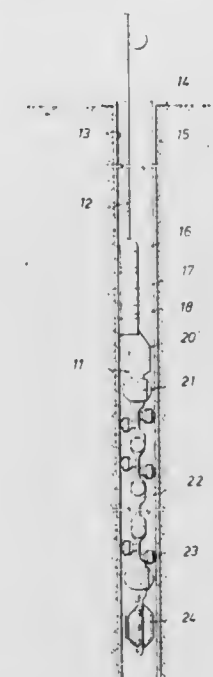
Filed Aug. 10, 1981, Ser. No. 291,868

Claims priority, application France, Aug. 12, 1980, 80 17723; Feb. 10, 1981, 81 02547

Int. Cl.³ E21B 43/117

U.S. Cl. 175-4.56

21 Claims



1. A well perforating apparatus comprising:
(a) an elongated metallic support tube having successive portions which are crushed edge to edge in different predetermined radial directions to form a series of flat-

- shaped support sections on and offset angularly around said support along the longitudinal direction thereof,
- (b) means forming longitudinally spaced attachment holes in said support sections,
- (c) explosive charges having sealed cases fixed to the support in the attachment holes,
- (d) means on each of said support sections forming said longitudinally spaced attachment holes in pairs with a distance between the centers of each pair smaller than the maximum diameter of a charge perpendicular to its axis, said attachment holes being configured to support the charges with axes substantially perpendicular to said support section flat faces,
- (e) rear parts in the charge cases of reduced diameter for engaging in said attachment holes such that two charges are fixed on each of said support sections with the axes of said two charges oriented in opposite radial directions, and
- (f) detonating means connected to said charges to fire them.

4,393,947

SOUND ATTENUATING ROCK DRILL SHANK

Uwe Lutze, Munich; Dieter Scholz, Unterpfaffenhofen, and Ernst Brennsteiner, Munich, all of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Nov. 24, 1981, Ser. No. 324,522

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1980, 3044775

Int. Cl.³ E21B 17/22

U.S. Cl. 175-323

8 Claims



1. Rock drill comprising an axially elongated drill shank, a boring head at one end of said drill shank, a helix extending around and in the axial direction of said shank for carrying borings away from said boring head, said helix spaced radially outwardly from said shank, an axially extending tubular shell coextensive for the axial length thereof with said drill shank and located between said shank and said helix, means formed of a highly polymerized material for spacing said tubular shell radially outwardly from said drill shank, said helix is supported on said tubular shell, wherein the improvement comprises means located between said helix and said drill shank for providing a sound-attenuating effect and said sound-attenuating means comprises first a support element, located between and in contact with said helix and said tubular shell and serving both as a support for said helix and as a barrier preventing the transmission of vibrations between said helix and said tubular shell.

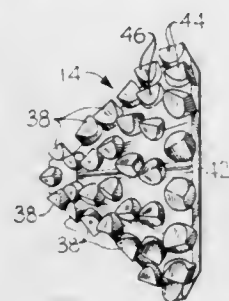
4,393,948

ROCK BORING BIT WITH NOVEL TEETH AND GEOMETRY

Carlos Fernandez, West Covina, Calif., assignor to Boniard I. Brown, West Covina, Calif.

Filed Apr. 1, 1981, Ser. No. 249,814
Int. Cl.³ E21B 10/16

U.S. Cl. 175—374



1. A rock boring bit assembly comprising: a body adapted for engagement with associated driving components; at least one cone rotatively mounted on said body, said cone having an axis; each cone including a plurality of cutting members disposed over substantially all the conical face thereof in generally upstanding relationship to the face, said cutting members having generally rectilinear edges; and at least some of said cutting members being disposed in a plurality of rings, all of said rings extending around said axis, each of said plurality of rings being axially spaced along said axis and overlapping with at least one other ring and having the cutting members of the respective rings interspersed.

4,393,949

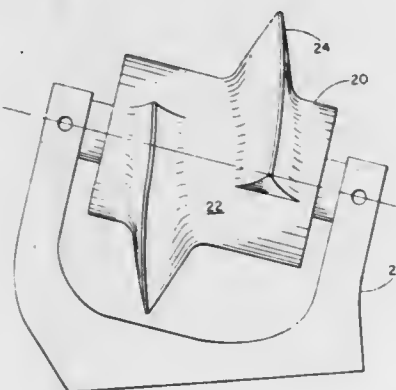
ROCK BORING APPARATUS

Carl R. Peterson, Boxford, Mass., assignor to Peterson Associates, Ltd., Boxford, Mass.

Filed Dec. 29, 1980, Ser. No. 220,906
Int. Cl.³ E21B 10/16

U.S. Cl. 175—377

11 Claims



1. Apparatus for boring holes in rock comprising a boring head rotatable about an axis of advance, and a multiplicity of cutters mounted on said head, at least a plurality of said cutters each comprising a helical disc cutter comprising a cutter body rotatable about a cutter axis, and cutting tooth means forming a helical path about said cutter axis, wherein said path does not close upon itself, the locus of said path upon rotation of said head having a generally conical envelope tapering in the direction of said advance each said cutter body being mounted on said boring head for free rotation about said cutter axis, whereby each

cutting tooth means cuts a substantially circular track about said axis of advance.

4,393,950

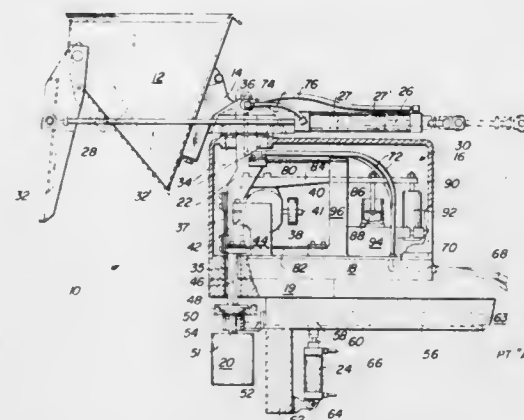
TARE WEIGHING APPARATUS AND METHOD THEREFOR

12 Claims King L. Klopfenstein, Prospect Heights, and Robert H. Connors, Chicago, both of Ill., assignors to Triangle Package Machinery Company, Chicago, Ill.

Filed Jun. 26, 1981, Ser. No. 277,986
Int. Cl.³ G01G 13/14

U.S. Cl. 177—108

16 Claims



1. A high-speed, particulate material batch weighing apparatus for the cyclic weighing and discharge of individual portions of said material which are of a predetermined, uniform weight and wherein errors caused by changes in the tare weight of said apparatus are compensated for, said apparatus comprising: a weighing bucket with a discharge gate; first means for measuring the tare weight of said weighing bucket and discharge gate combination when said discharge gate is open following the discharge of said material therefrom and the stabilization of said tare weight and for generating a first control signal following said measurement; control means integrally coupled to said discharge gate and to said first means for receiving said first control signal and for closing said discharge gate in response thereto; and second means for measuring and comparing the weight of the discharge gate, the weighing bucket and material therein with said tare weight and for generating a second control signal when the weight of said discharge gate, weighing bucket and material therein exceeds said tare weight by said predetermined weight, said second means coupled to said control means for providing said second control signal thereto for discharging the material from said weigh bucket in response thereto.

4,393,951

MEASURING DEVICE OF THE USEFUL LOAD AND OF THE LOAD ON THE AXLES OF A TRUCK

Loos Horst-Rudolf, Villars-sur-Glane, and Bernard Dupre, Marly, both of Switzerland, assignors to Vibro-Meter S.A., Fribourg, Switzerland

Filed Nov. 30, 1981, Ser. No. 325,647

Claims priority, application Switzerland, Dec. 9, 1980, 9066/80

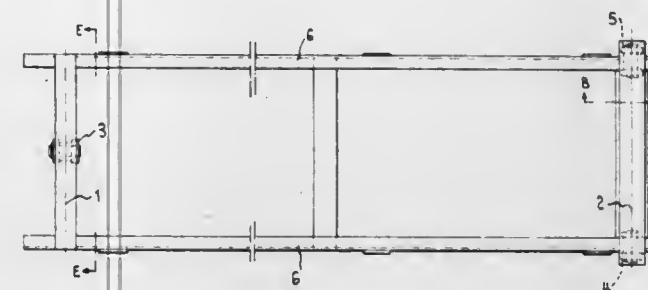
Int. Cl.³ G01G 19/08

U.S. Cl. 177—136

12 Claims

1. Measuring device of the useful load and of the load on the axles of a truck comprising a frame and a tipper, the measurement being effected by load cells mounted between said frame and said tipper, characterized in that the setting and the arrangement of said load cells permits to the tipper a mobility

with respect to the frame with a sufficient number of degrees of freedom so that the load cells are submitted exclusively to the



constraints resulting from the weight of said tipper and of said useful load.

4,393,952

STEERING GEAR FOR A TRACK-LAYING VEHICLE

Joachim Schreiner, Gratkorn, Austria, assignor to Bombardier-Rotax Gesellschaft mbH., Vienna, Austria

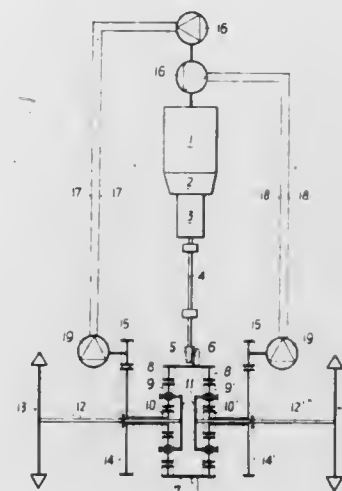
PCT No. PCT/AT80/00024, § 371 Date Mar. 12, 1981, § 102(e)
Date Mar. 10, 1981, PCT Pub. No. WO81/00240, PCT Pub. Date Feb. 5, 1981

PCT Filed Jul. 10, 1980, Ser. No. 242,332

Claims priority, application Austria, Jul. 12, 1979, 4856/79
Int. Cl.³ B62D 11/18

U.S. Cl. 180—6.44

6 Claims



6. A steering arrangement for a track-laying vehicle having an engine, a drive shaft, and right and left drive wheels, the steering arrangement comprising:

right and left planetary-gear transmissions each having a sun gear connected to the respective wheel; a ring gear coaxially surrounding the respective sun gear and connected directly to the drive shaft, the ring gears being joined together for joint rotation; at least one planet gear meshing with the respective sun and ring gears; and a planet carrier carrying the respective planet gear; respective independently operable right and left hydrostatic drive motors connected to the planet carriers of the respective transmissions; and hydrostatic pump means driven by the engine for independently powering and operating the drive motors for adding the rotation of the other inputs to that of the respective outputs.

4,393,953

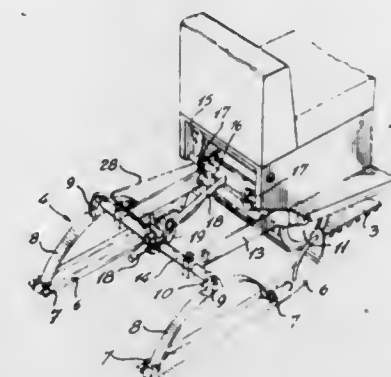
SNOWMOBILE

Roland Boulianne, 227 de la Fabrique St., Jonquiere, Canada (G7X 3N8)

Filed Jun. 8, 1981, Ser. No. 271,772
Int. Cl.³ B62M 27/02

U.S. Cl. 180—190

9 Claims



9. A snowmobile comprising a body having a front end and a rear end, a front ski assembly attached to the body and carrying the rear end thereof, a rear ski assembly and a suspension arm system pivotally attaching the rear ski assembly and the endless track to the rear end of the body for vertical pivoting displacement of the rear ski assembly and the endless track about a transverse pivot axis relative to each other and to the body, said suspension arm system including a pair of suspension arms longitudinally extending in fore-and-aft direction, and pivotally connecting the endless track and the rear ski assembly relative one to the other, and a resilient suspension pivotally connecting the suspension arms relative to the body for resilient up-and-down displacement of the suspension arms relative to the body.

4,393,954

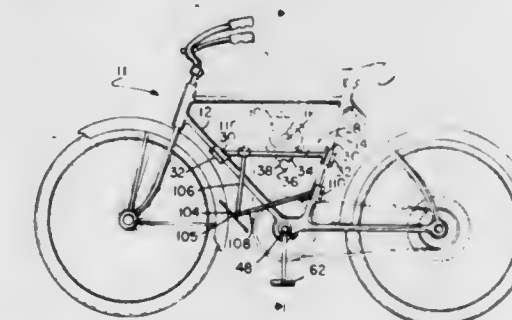
MOTORIZED BICYCLE

Paul B. Soucy, and John J. Soucy, both of 119 West St., Methuen, Mass. 01844

Filed Apr. 17, 1981, Ser. No. 255,156
Int. Cl.³ B62K 11/00

U.S. Cl. 180—205

5 Claims



3. In combination with a bicycle having a pedal crank shaft housing, a pedal crank shaft journaled in said housing, a frame having a front diagonal bar, an upwardly extending bar forming a seat support, a rearwardly extending fork, a forwardly extending fork, a wheel carried by said rear fork, a rear wheel carried by said rear fork and a sprocket assembly on the rear wheel, a motor unit attached to said bicycle frame, power input means for transmitting power output from said motor to said pedal crank shaft, a sprocket assembly mounted on said pedal crank shaft, a chain connecting said sprocket assembly with said rear wheel sprocket assembly, and pedal cranks extending from said pedal crank shaft, the improvement comprising means for engaging said pedal cranks to impart movement to said pedal crank shaft and to disengage said pedal crank when power is transmitted from said motor to said pedal

crank shaft and comprising a cam surface disposed on the pedal crank shaft adjacent the ends of said pedal cranks, a slot disposed in said pedal cranks, a movable pin disposed in said slot, a tension spring disposed in said slot for urging said pin-into engagement with said cam surface, said cam surface having a portion of its surface arranged to engage said pin during operation of said pedal cranks whereby said pedal cranks transmit movement to said pedal crank shaft.

4,393,955

MOTORBUS OR SIMILAR VEHICLE

Albert Van Mullem, Boutersem, Belgium, assignor to PVBA Van Mullem, Tienen, Belgium

Continuation of Ser. No. 140,419, Apr. 14, 1980, abandoned.

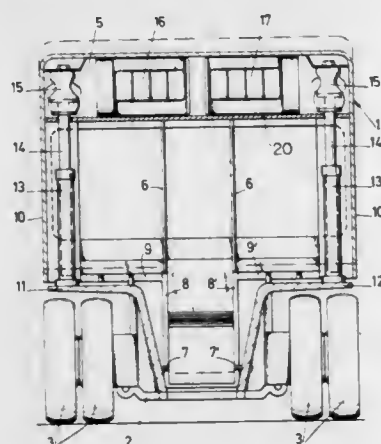
This application Apr. 5, 1982, Ser. No. 365,807

Claims priority, application Belgium, Apr. 12, 1979, 194570

Int. Cl.³ B60K 9/00

U.S. Cl. 180—291

6 Claims



1. A vehicle such as a motor bus having at least a first wheeled support having first wheels adjacent one end thereof and a second wheeled support having second wheels adjacent the other end thereof, said supports including cross members extending between the wheels, a bodywork having a length at least substantially equal to the distance between said wheeled supports, said bodywork defining an upper beam structure, body means suspended from said beam structure and including a lowermost floor with at least a part of the floor at or below the level of the axis of rotation of said wheels, said beam structure defining means for stiffening the bodywork against both transverse and longitudinal bending, and support means for resiliently supporting said beam structure on said wheeled supports, said support means including an upright portion extending upwardly from said wheeled supports and adjacent the side walls of the bodywork, and further including uppermost shock absorbers between said upright portion and said beam structure for providing enhanced stability in the support of the beam structure in its upper disposition.

4,393,956

DRAINING DEVICE USED IN A CAR-MUFFLER

Minoru Tsukui, Hiroshi Sekiguchi, both of Ohta, and Takatoshi Machida, Ashikaga, all of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 7, 1982, Ser. No. 366,442

Claims priority, application Japan, Apr. 8, 1981, 56-50564[U]

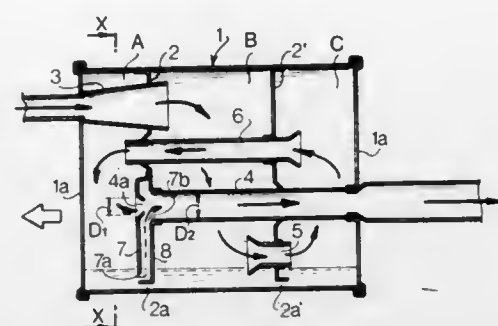
Int. Cl.³ F01N 1/08

U.S. Cl. 181—265

4 Claims

1. A draining device used in a car-muffler characterized by comprising a hollow cylindrical muffler body having a plurality of compartments separated by means of partition plates with they having water passing holes disposed to their bottoms, and inlet pipe for exhaust gas communicated to one of the compartments except of that positioned in the front side of the muffler, some intermediary pipes used to communicate the exhaust gas between the compartments, an outlet pipe commu-

nicating with the front side compartment, and a water drain path having an inlet port opened to the bottom of the front side



compartment and an outlet port opened to the surrounding portion of the outlet pipe.

4,393,957

METHOD OF ELIMINATING TRUCK HUNTING IN RAILWAY TRUCKS

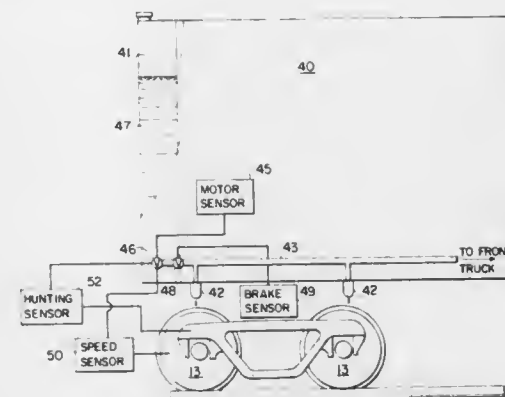
V. T. Hawthorne, 310 Danell Rd., Radnor, Pa. 19087

Filed Jan. 27, 1981, Ser. No. 228,976

Int. Cl.³ B61K 3/00

U.S. Cl. 184—3 R

8 Claims



1. In the operation of a rail vehicle having trucks with rail contacting wheels and brakes with brake shoes associated with each of said wheels, said rail vehicle being associated with other similar rail vehicles and pulled by a locomotive means, said trucks on each of said pulled rail vehicles tending to vibrate or hunt when pulled by said locomotive means at a speed above a critical speed, a method of eliminating said vibration or hunting to increase the critical speed of said rail vehicle to a value above its operating speed comprised of:

sensing the speed of said vehicle and producing a correlated speed signal;
comparing said speed signal to a fixed reference signal correlated to the critical speed; and
applying a low coefficient of friction material to the wheels of said rail vehicle to provide a lubricating film between said wheels and the rail on which they ride only when said speed signal exceeds said reference signal.

4,393,958

PROGRESSIVE-CENTRAL LUBRICATION SYSTEM

Horst Saretzky, Ennepetal, Fed. Rep. of Germany, assignor to De Limon Fluhme GmbH & Co., Düsseldorf, Fed. Rep. of Germany

Filed Feb. 17, 1981, Ser. No. 235,288

Claims priority, application Fed. Rep. of Germany, Mar. 6, 1980, 3008543

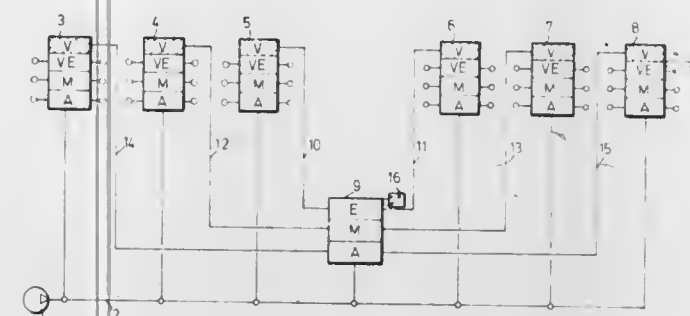
Int. Cl.³ F16N 7/38, 29/00

U.S. Cl. 184—7 D

11 Claims

1. In a progressive central lubricating system having at least two progressive distributors connected to a feed line, of which distributors a first so-called master distributor has a plurality of outlets and a second of the progressive distributors has a con-

trol chamber, a control line for connecting one of the outlets of the master distributor to the control chamber of the second of the progressive distributors, said control chamber having no direct connection to the feed line, the improvement comprising a predetermined additional amount control lines respectively corresponding to the other outlets of the master distributor,



a predetermined amount of other progressive distributors respectively corresponding to the other outlets of the master distributor and having respective corresponding control chambers, the respective corresponding control chambers thereof are each connected by a separate of said additional control lines respectively to the other outlets of the master distributor, and said corresponding control chambers of said other progressive distributors having no direct connection to the feed line.

4,393,959

HYDRAULIC STABILIZER FOR AXLE ON MAST LIFT VEHICLE

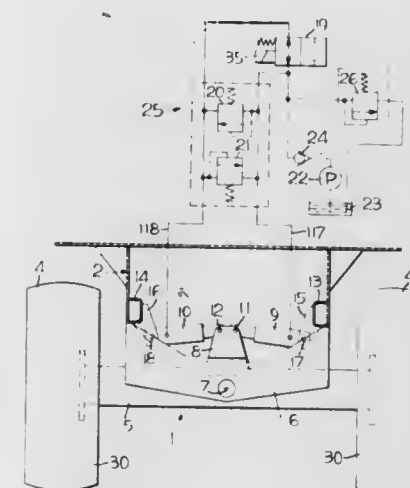
Alvin W. Acker, Topeka, Kans., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 10, 1980, Ser. No. 214,642

Int. Cl.³ B66F 17/00; B60G 21/06

U.S. Cl. 187—9 E

9 Claims



1. A stabilizer on a lift vehicle comprising, a vehicle having a lift mast, a lift carriage reciprocally mounted on said mast for carrying a load, a vehicle chassis, a pivotal axle pivotally supporting said vehicle chassis, a pair of hydraulic cylinders with each cylinder pivotally connected to said axle and to said chassis on opposing sides of said chassis, a hydraulic stabilizer circuit circulating hydraulic fluid in one cylinder and out the other cylinder of said hydraulic cylinders to allow pivoting of said axle, a normally open control valve between said hydraulic cylinders controlling the flow of hydraulic fluid in and out of said hydraulic cylinders, pressure relief valves for cross-over flow between said hydraulic cylinders controlling predetermined stabilizing forces, said control valve closing and interrupting flow in and out of said hydraulic cylinders responsive to the lift of the carriage on said mast lifting above a predetermined height thereby locking said hydraulic cylinders

4,393,960

LOW NOISE RAILROAD RETARDER BRAKE SHOE STRUCTURE

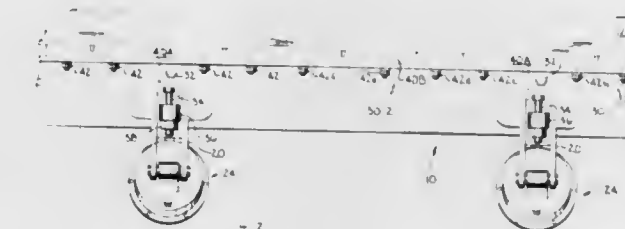
Michael B. Mazur, and Emil M. Punko, both of Brookfield, Wis., assignors to AAA Sales & Engineering, Inc., Oak Creek, Wis.

Filed Jan. 21, 1981, Ser. No. 226,790

Int. Cl.³ B61K 7/02

U.S. Cl. 188—62

17 Claims



1. A low noise railroad car retarder brake shoe structure suitable for being supported by a plurality of adjacent brake beams arranged in tandem in the retarder for braking the wheel of a railroad car passing through the retarder along a rail, said structure comprising:

a series of alternating long brake shoes and short brake shoes affixable to the brake beams, the length of a long brake shoe being such that said shoe symmetrically straddles two adjacent brake beams while leaving a space on the brake beam in the central portion thereof, the length of a short brake shoe being such as to occupy the space on the central portion of the brake beam between two long brake shoes; said long brake shoe being affixable to each of the adjacent brake beams at at least two points, said long brake shoes having braking surfaces containing a plurality of slanting slots opening therein, said slots being omitted in the central portion of said long brake shoe, said short brake shoe having a braking surface containing at least one slanting slot opening therein.

4,393,961

DEVICE FOR COUPLING PARTS OF A SELF-RAISING PLATFORM STRUCTURE

Bart Boon, Schiedam, Netherlands, assignor to RSV-Gusto Engineering B.V., Schiedam, Netherlands

PCT No. PCT/NL80/00022, § 371 Date Feb. 18, 1981, § 102(e)

Date Feb. 18, 1981, PCT Pub. No. WO80/02853, PCT Pub.

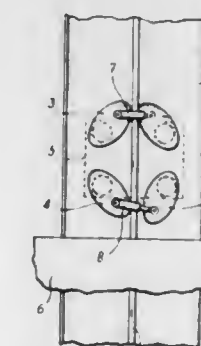
Date Dec. 24, 1980

PCT Filed Jun. 17, 1980, Ser. No. 237,148

Int. Cl.³ E02B 17/06

U.S. Cl. 188—67

4 Claims



1. In a self-raising platform structure, a device for coupling together two bodies in any position with respect to each other, said bodies being mounted for linear displacement with respect to each other in two opposite directions, a platform forming one of said bodies and a leg of said platform structure forming

the other body, said device comprising: at least one pair of pawl means, each pawl means having a pawl each pivotally connected at a pivot point to the same one of said bodies and provided with a part capable of contacting the other one of said bodies, said pawl means being arranged at least on both sides of said other body and the pivot points being disposed in a plane extending transversely to the direction of displacement, said contact parts being shaped in such a manner that upon a pivotal movement of the pawl means towards each other said contact parts approach each other, so that the relative movement between the bodies will be inhibited in one of said two directions while being permitted in the other direction, means for pivoting said pair of pawl means towards and apart from each other, and at least a second pair of pawl means connected to said one body and having the same construction as said first pair of pawl means, and being spaced apart from said first pair of pawl means but mounted in such a manner that upon a pivotal movement thereof towards each other the contact parts of the second pair of pawl means will approach each other so that relative movement between the bodies is inhibited in the other direction, and means for pivoting said second pair of pawl means towards and apart from each other.

4,393,963

DISC BRAKE CALIPER SUPPORT

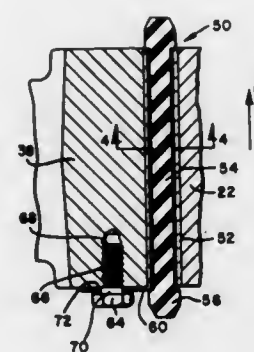
Roger W. Oltmanns, Jr., South Bend, and Larry A. Portolese, Granger, both of Ind., assignors to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 191,188, Sep. 26, 1980, abandoned. This application Aug. 30, 1982, Ser. No. 412,745

Int. Cl.³ F16D 65/02

U.S. Cl. 188—73.45

3 Claims



1. A disc brake comprising:

a rotor having friction faces on opposite sides thereof and rotatable about an axis perpendicular to the plane of said rotor;

a caliper cooperating with a pair of friction element to urge the pair of friction elements into engagement with the friction faces on the rotor to retard rotation of said rotor;

a non-rotating torque member including a pair of circumferentially-spaced arms which define an opening therebetween, said caliper being received in said opening, said torque member arms having axially-extending grooves in registry with corresponding axially extending grooves in said caliper, said grooves cooperating to define a pair of axially-extending apertures between said torque member arms and said caliper;

a pair of resilient assemblies slidably disposed within said axially-extending apertures between said torque member arms and said caliper, one of said resilient assemblies comprising a split metal sleeve providing a first spring rate responsive to initial distortion of said one resilient assembly in a radial direction up to a predetermined amount, and an elastomeric cylinder providing a second additive spring rate which is higher than said first spring rate, said elastomeric cylinder being responsive to further distortion of said resilient assembly in the radial direction beyond the predetermined amount, said split metal sleeve and said elastomeric cylinder providing for circumferential movement of said caliper relative to said torque member in response to distortion of both said split metal sleeve and said elastomeric cylinder to permit said caliper to abut said torque member, said caliper sliding axially along said resilient assemblies and being substantially restrained from circumferential motion by the arms of said torque member, said second additive spring rate increasingly resisting movement of said caliper into abutment with said torque member to reduce the velocity of movement of said caliper at the time when said caliper abuts said torque member in order to diminish the impact during abutment.

4,393,962
SELF-CENTERING DEVICE FOR CALIPER BRAKE ASSEMBLY

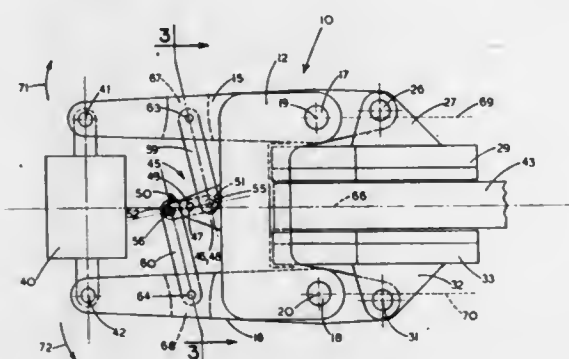
Jacob Kobelt, 6110 Oak St., Vancouver, British Columbia, Canada (V6M 2W2)

Filed Mar. 5, 1981, Ser. No. 240,906

Int. Cl.³ F16D 55/224

U.S. Cl. 188—72.6

10 Claims



1. A caliper brake assembly having a body and a pair of caliper arms hinged relative to the body for rotation about at least one arm hinge axis, the arms cooperating with brake shoes adjacent inner portions of the arms and an actuator adjacent outer portions of the arms, the assembly being further characterized by:

- a rocker means hinged freely to the body for rotation about a rocker axis disposed parallel to the hinge axis,
- a pair of rocker links having outer portions thereof hinged to respective caliper arms at equal distances from the respective hinge axis, and inner portions thereof hinged to the rocker means,

so that movement of one caliper arm is essentially equal and opposite to movement of the remaining caliper arm due to coupling between the caliper arms by the rocker means and rocker links.

4,393,964

HYBRID POWER SYSTEM AND METHOD FOR OPERATING SAME

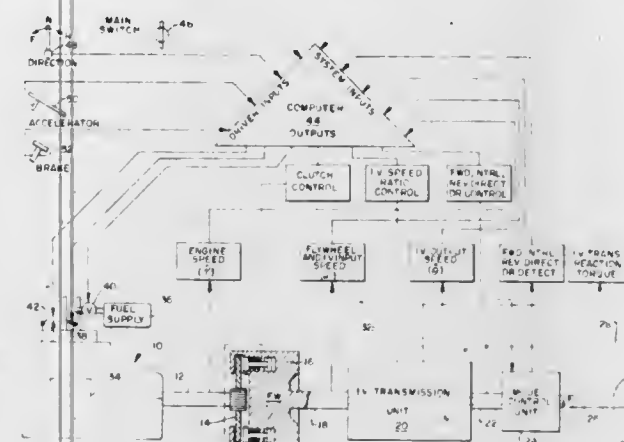
Yves J. Kemper, Birmingham, Mich., assignor to Ipanema Company, Bloomfield Hills, Mich.

Continuation of Ser. No. 23,398, Mar. 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 938,904, Sep. 1, 1978, abandoned. This application Jan. 28, 1981, Ser. No. 229,056

Int. Cl.³ B60K 41/28

U.S. Cl. 192—0.44

34 Claims



1. A hybrid power system for driving an inertial load, said system comprising:

a prime mover having a power shaft and means for converting a succession of power impulses to rotary motion in said power shaft, said means requiring an auxiliary supply of kinetic energy to maintain continuity and smoothness of power shaft rotation during power generating operation of said prime mover;

a flywheel having a kinetic energy storage capacity sufficient to provide said auxiliary supply of kinetic energy; variable speed transmission for transmitting torque between said flywheel and the inertial load;

adjustable coupling means between said prime mover power shaft and said flywheel, said coupling means being adjustable between a condition of full engagement for driving connection of said power shaft, said flywheel and said transmission means, through an intermediate condition of partial engagement in which said flywheel and said power shaft are yieldably connected for transmission of limited torque, and a condition of complete disengagement to disconnect said flywheel and said power shaft, thereby to provide a range of engagement varying from maximum at said condition of full engagement to minimum at said condition of complete disengagement; and means for adjusting said coupling means throughout said range of engagement.

4,393,965

ROTARY ACTUATOR

John Zouzoulas, Williamsville, N.Y., assignor to Andco Actuator Products, Inc., Buffalo, N.Y.

Filed Nov. 13, 1980, Ser. No. 206,644

Int. Cl.³ F16D 21/04

U.S. Cl. 192—48.91

17 Claims

1. An actuator comprising:

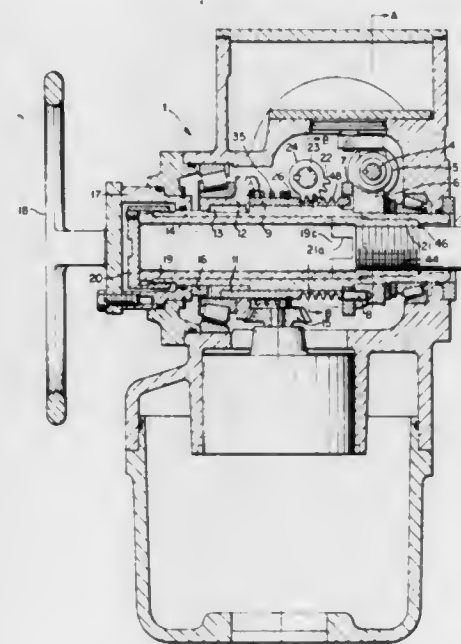
a drive motor;

an output member capable of receiving an output drive rod; drive means including a worm wheel mounted around said output member and freely rotatable relative thereto, said worm wheel being arranged so as to be rotated by said drive motor, and a driving portion mounted on said worm wheel for transmitting power from said worm wheel to said output member;

coupling means for transmitting rotational movement of said output member to an output drive rod, said coupling means including a driver and a stem nut, said driver and said stem nut being arranged within and coupled to said

output member and said stem nut being capable of being attached to an output drive rod to be driven by said actuator;

clutch means mounted on said output member at a location adjacent said drive portion for rotation therewith but being axially movable along said output member, said clutch means having lug members at one end capable of engaging said drive portion and having extension members at its other end coupling said clutch means to said output member so that said clutch means couples said output member to said drive portion of said drive means when said clutch means is arranged in a first position in which said lug members of said clutch means engages said drive portion of said drive means;



bias means for normally biasing said clutch means into its first position;

declutch means capable of causing said clutch means to be moved into a second position so that said lugs are moved out of engagement with said drive portion if rotation of said driving portion ceases;

retaining means for retaining said clutch means in its second position until resumption of rotation of said driving portion, said retaining means including a tripper member that rests upon said driving portion when said clutch means is in its second position; and

said driving portion including deactivating means for automatically deactivating said declutch means upon resumption of rotation of said driving portion and enabling said clutch means to return to its first position.

4,393,966

OPERATION CONTROL APPARATUS OF A COMPRESSOR

Hiroya Kono; Jun Hasegawa, both of Kariya; Mitsukane Inagaki, Anjo, and Hisao Kobayashi, Kariya, all of Japan, assignors to Toyoda Jidosha Kogyo Kabushiki Kaisha and Nippon Denso Company Limited, both of Aichi, Japan

Filed Oct. 14, 1980, Ser. No. 196,642

Claims priority, application Japan, Oct. 26, 1979, 54-138864

Int. Cl.³ F04B 49/02, 49/06; F16D 43/24

U.S. Cl. 192—56 R

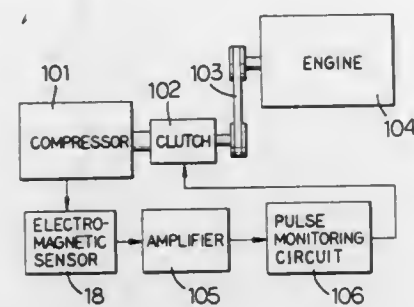
9 Claims

1. An operation control apparatus of a compressor provided with a rotary shaft which is rotated by a driving apparatus by way of a clutch, and a housing for rotatably supporting said rotary shaft, comprising:

a sensed portion disposed on one end surface of said rotary shaft and offset from the axis of said shaft;

an electromagnetic sensor disposed opposite to a locus described by said sensed portion and generating pulse signals in response to variation of the magnetic flux density which

takes place every time said sensed portion passes across said electromagnetic sensor during rotation of said rotary shaft; and



a pulse monitoring circuit connected to said electromagnetic sensor and providing a release commanding signal to said clutch when it receives no pulse signal from said electromagnetic sensor for a predetermined time duration.

4,393,967

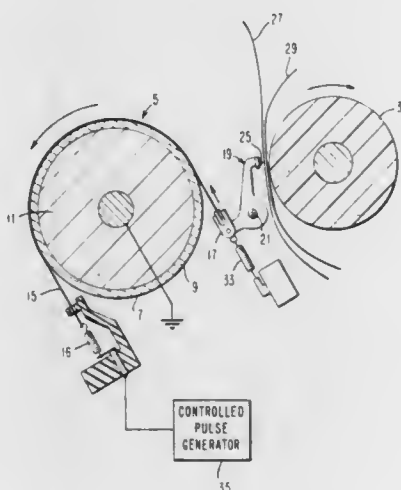
ELECTROSTATIC CLUTCH

Jerome J. Cuomo, Lincolnale; Alfred J. Landon, Peekskill, and Han C. Wang, Yorktown Height, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y. Continuation of Ser. No. 91,310, Nov. 5, 1979, abandoned. This application Oct. 21, 1981, Ser. No. 313,717

Int. Cl.³ F16D 27/00; B65H 29/30; B05D 5/12

U.S. Cl. 192—84 E

24 Claims



1. An electrostatic clutch operable by the Johnsen-Rahbek effect, comprising:

a rotatable drum and a band engageable therewith, said drum including an engageable surface which is a semiconductive surface comprising a layer of substantially pure silicon carbide on a conductive substrate, said layer having a thickness between about 10 μm and 2,500 μm and containing a dopant in an amount effective to cause the resistivity of the layer to be within a range of from about 10^5 to 10^7 ohm-cm.

4,393,968

CLUTCH RELEASE BEARING ASSEMBLIES

Christopher P. Dee, Bishop Tachbrook, England, assignor to Automotive Products Limited, Leamington Spa, England Filed Dec. 18, 1980, Ser. No. 217,808

Claims priority, application United Kingdom, Dec. 22, 1979, 7944327

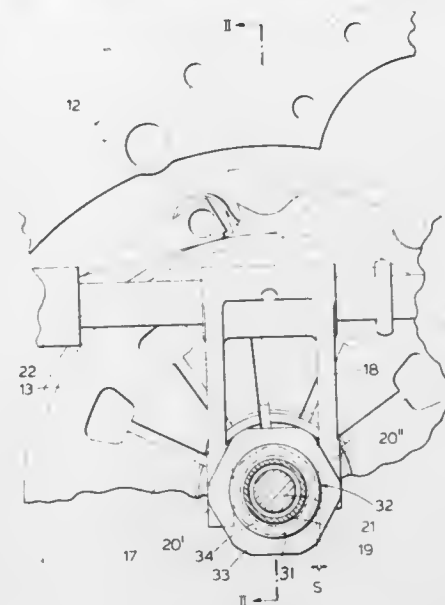
Int. Cl.³ F16D 23/14

U.S. Cl. 192—98

4 Claims

1. An annular release bearing assembly for a pull type friction clutch in which to release the clutch a release fork moves

the assembly away from the clutch driven plate along a guide, said assembly comprising:
a bearing having a stationary race;
a co-axial cylindrical stem secured to the stationary race of the bearing and having at least part with a cross-section in the form of a polygon providing pairs of diametrically opposed flats engageable between the fork arms;



and a radial flange secured on the stem providing an abutment against which the fork arms act during release of the clutch, said flange having portions of reduced radial width which are not engageable with the fork arms, and said flange is orientated relative to the stem so that engagement of the fork arms with any pair of opposed flats on the stem automatically cause the stem to rotate on the bearing and align the radially wider portions of the flange with the fork arms.

4,393,969

ROLLER TABLE FOR USE WITH A POWER SAW

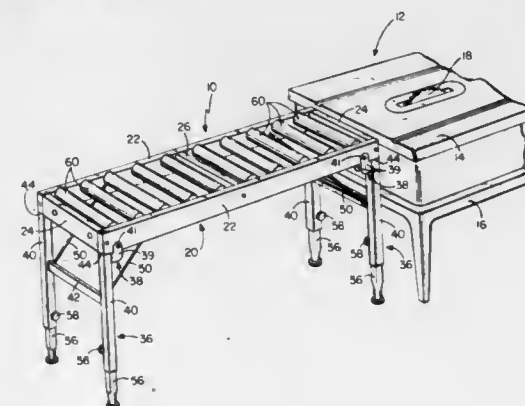
William J. Woell, R.R. 1, Davenport, N. Dak. 58021

Filed Oct. 27, 1980, Ser. No. 200,777

Int. Cl.³ B65G 13/00

U.S. Cl. 193—35 TE

6 Claims



1. For use in combination with a power tool with which large workpieces are used, a self-supporting roller table comprising:

a frame comprising a pair of spaced, parallel, side members and end members joining the side members;
a plurality of support legs at each end of the frame for supporting said frame independently of the power tool at a height compatible for cooperation with said power tool, said legs comprising a pair of leg assemblies at each end of the frame, each leg assembly comprising a pair of legs, each leg comprising a tube section joined to another tube to move as an assembly and having upper and lower ends, said legs each including an adjustable leg portion adjustably telescopically fitted in each tube section;

a plurality of rollers, each roller comprising a plastic pipe section having two open ends and a pair of plastic end plugs having surfaces for respectively concentrically engaging an inside surface of the plastic pipe at both open ends and an integrally molded plastic stub shaft, each side member of the frame having a plurality of apertures formed therein and having annular surfaces for directly receiving the stub shafts of the end plugs to rotatably mount the stub shafts and said rollers in generally parallel spaced apart relationship and directly supported on the annular surfaces; and
hinge means for pivotally mounting the leg assemblies to the frame side members to position the tubes of each assembly below the lower edge of a respective side member and in alignment therewith, the hinge axis of the hinge means being offset from the longitudinal axis of the legs and above the upper ends of the legs so that when the legs are pivoted upright the upper ends of the tube sections of the legs abut against the lower edge of the respective side frame member to directly support the frame and rollers.

4,393,970

HONOR SYSTEM VENDING MACHINE

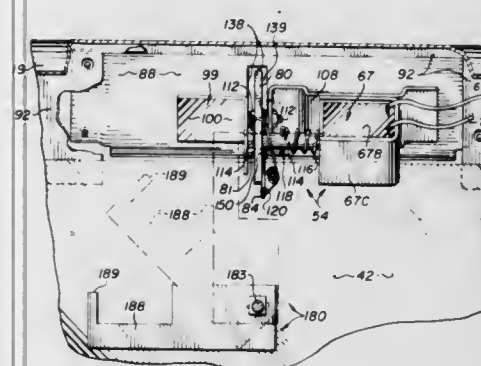
Martin P. Strack, Jr., Conway, Ark., assignor to Polyvend Inc., Conway, Ark.

Filed Jul. 31, 1981, Ser. No. 288,897

Int. Cl.³ G07F 11/28

U.S. Cl. 194—17

14 Claims



1. A coin operated vending machine comprising:
housing means adapted to be disposed upon a supporting surface or structure for containing products to be vended;
door means associated with said housing means and adapted to be moved between an open, product accessible position and a closed position;
latching means for releasably maintaining said door means in a closed position, the latching means comprising:
latch bolt means for engaging said door means;
solenoid means for locking said latch bolt means, said solenoid means including plunger means for engaging said latch bolt means, said solenoid means adapted to disengage said plunger means from said latch bolt means thereby unlocking said latch bolt means in response to solenoid energization; and,
shield means for temporarily preventing said plunger means from lockably engaging said latch bolt means after deenergization of said solenoid means to permit subsequent opening of said door means;
coin acceptor means for switching current to said solenoid means in response to the input of preselected coins, whereby to permit opening of said door means to facilitate a vend; and,
power supply means for supplying current to said coin acceptor means.

4,393,971

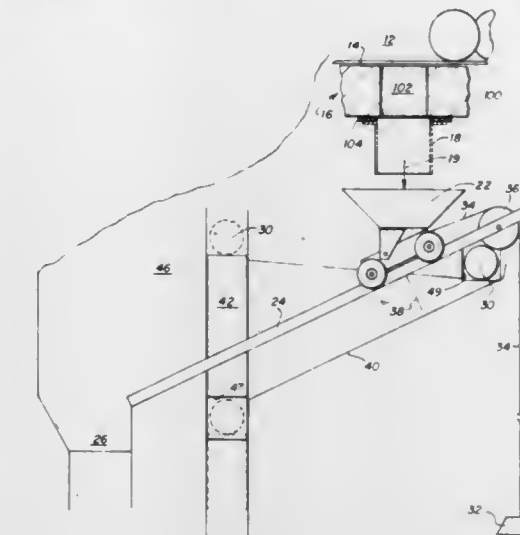
COIN-CONTROLLED VENDING APPARATUS

James H. Wilson, 804 W. Mitchell, #410, Arlington, Tex. 76013 Filed Oct. 27, 1980, Ser. No. 200,762

Int. Cl.³ G07F 11/44, 13/02

U.S. Cl. 194—93

18 Claims



7. The method of vending merchandise from a machine in response to the deposit of a prescribed coin using a manually activated slide, comprising the steps of:

- utilizing the movement of a manually activated slide to move a ball to a position for engaging a merchandise carrier at a loading station for the carrier, and the ball being lifted with an elevator to a position for engaging the merchandise carrier in response to moving the coin slide within the machine;
- utilizing the weight of the ball to operate on the loaded merchandise carrier so as to move said carrier from the loading station to an unloading station;
- disengaging the ball from an operative association with the merchandise carrier at the unloading station after the merchandise has been removed from the carrier; and
- returning the merchandise carrier to the loading station to await the deposit of another coin and the loading of new merchandise.

4,393,972

COIN CHUTE ASSEMBLY

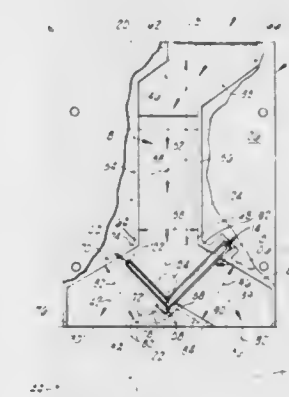
Rex M. Maloy, Broken Arrow, Okla., assignor to Orin W. Coburn, Muskogee, Okla.

Filed Jul. 7, 1980, Ser. No. 166,532

Int. Cl.³ G07D 5/02, 5/08; G07F 1/04

U.S. Cl. 194—99

11 Claims



1. A coin chute assembly comprising:
a housing having a coin receiving opening, a first coin exit opening, a second coin exit opening, and a coin passage-way disposed therein and interconnecting the coin receiving opening with the first and second coin exit openings,

the coin passageway characterized as having an upper coin path, a coin receiving section and a coin reject section, the upper coin path and the coin receiving section being positionable to permit a coin to fall in a substantially downward direction in a mounted position of the coin chute assembly through the upper coin path and the coin receiving section towards the first coin exit opening, and the upper coin path and the coin reject section being positionable to permit a coin to fall in a substantially downward direction in a mounted position of the coin chute assembly through the upper coin path and the coin reject section towards the second coin exit opening;

a gate assembly having a first portion movably disposable in a portion of the coin receiving section and a second portion movably disposable in a portion of the coin reject section, the gate assembly blocking movement of the coin through the coin receiving section of the coin path in one position and directing the coin into the coin reject section of the coin passageway and the gate assembly being movable to one other position for permitting movement of the coin into and through the coin receiving section of the coin passageway and blocking movement of the coin through the coin reject section of the coin passageway; and

wherein the housing comprises a coin receiving end, an opposed second end, a first side and an opposed second side, the first and second sides cooperating to define the coin passageway in the housing, the opposed second side having a first elongated opening extending generally transversely to and intersecting the coin receiving section of the coin passageway, and a second elongated opening extending generally transversely to and intersecting the coin reject section of the coin passageway and wherein the gate assembly is movably disposed in the first and the second elongated openings; and wherein the gate assembly comprises:

- a body member having a first side and an opposed second side;
- a first gate disposed on the first side of the body member extending from the first side of the body, the first gate being positionable within the first elongated opening in the housing;
- a second gate disposed on the first side of the body member and extending from the first side of the body member, the second gate being positionable within the second elongated opening in the housing; and
- means for moving the gate assembly in a direction about perpendicular to the coin passageway, comprising:
 - a pin member having a first end and an opposed second end, the first end of the pin member being secured to the body member of the gate assembly and the pin member extending a distance generally perpendicularly from the body member; and
 - a solenoid operatively connected to the pin member generally near the second end of the pin member for moving the pin member and the gate assembly connected thereto in a direction about perpendicular to the coin passageway to move the first gate and the second gate in the respective first and second elongated openings in the housing.

4,393,973
METHOD AND APPARATUS FOR REMOVING NON-RECTIFIED CAPSULES FROM A CAPSULE RECTIFICATION AND TRANSPORT DEVICE

Charles E. Ackley, Sr., Orelan, and Charles E. Ackley, Jr., Philadelphia, both of Pa., assignors to R. W. Hartnett Company, Philadelphia, Pa.

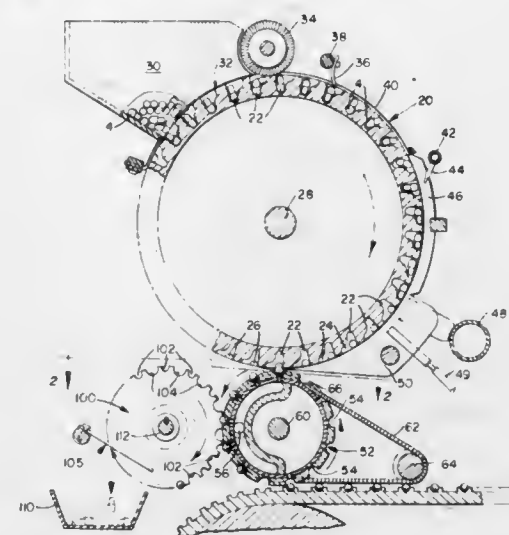
Continuation of Ser. No. 939,066, Sep. 1, 1978, abandoned. This application Jul. 16, 1980, Ser. No. 169,437

The portion of the term of this patent subsequent to Aug. 8, 1995, has been disclaimed.

Int. Cl.³ B65G 47/24

U.S. Cl. 198—384

7 Claims



1. Method for removing improperly rectified telescoping capsules from a travelling capsule array, wherein said capsules have body portions and cap portions of enlarged diameter relative to said body portions, slideably telescoping over said body portions, said method comprising:
 - (a) loading a multiplicity of said capsules into a hopper;
 - (b) transferring the capsules from the hopper to a rotatable transport cylinder having a plurality of capsule carrying cavities at the surface thereof; said capsules being disposed in random fashion in said cavities, one capsule per cavity, arrangement of said cavities on said transport cylinder defining capsule spacing while within said array;
 - (c) rectifying substantially all of said capsules in said cavities on said transport cylinder while occasionally appearing non-rectified capsules continue traveling on said transport cylinder;
 - (d) applying gripping means about all of said capsules, but grasping only said occasionally appearing non-rectified capsules, as said capsules, being substantially rectified, travel in said array; and
 - (e) removing said non-rectified capsules from said traveling array by exerting force on said non-rectified capsules substantially normal to the direction of travel of said array with said gripping means while removing said gripping means from about said rectified capsules thereby leaving said rectified capsules undisturbed in their previously rectified state while said array is moving.
4. In a capsule rectification and transport device, wherein said capsules are caused to travel from an upstream location to a downstream location and wherein said capsules comprise body portions and enlarged cap portions, the combination comprising, hopper means into which a multiplicity of capsules are to be loaded, an endless conveyor, transport means for receiving said capsules from said hopper and for transporting them in a downstream direction along a predetermined path to said endless conveyor, rectification means disposed adjacent to said transport means for rectifying substantially all of said capsules into dispositions in which said cap portions of said rectified capsules lie along one side of a predetermined path and in which said body portions of said rectified capsules lie on the opposite side of said predetermined path, whereby occasionally appearing non-rectified capsules continue to travel on

said transport means, and non-rectified capsule removal means located downstream from said rectification means for removing said occasionally appearing non-rectified capsules from said predetermined path, said removal means being positioned adjacent said predetermined path for contacting said non-rectified capsules as they are carried along said predetermined path, and said removal means comprising engagement means physically structured for grasping the non-rectified capsules and being shaped in such a manner so as to grasp only non-rectified capsules while not being capable of grasping rectified capsules, said removal means having capacity for removing said non-rectified capsules from said path, and means provided for removing said non-rectified capsules from said removal means.

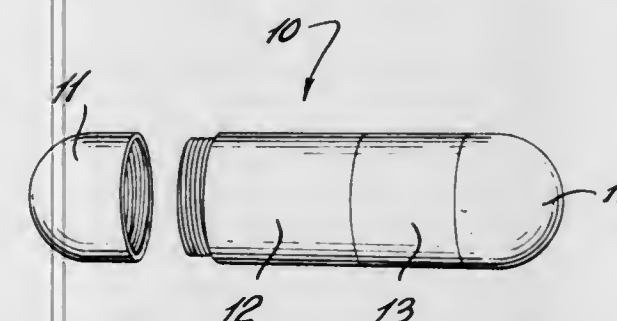
4,393,974
WATERPROOF PLASTIC CONTAINER

Michel Levesque, 2091 Montee de la Station, St. Justine de Newton, Canada (JOP 1T0)

Filed Jul. 13, 1981, Ser. No. 284,081
 Int. Cl.³ A45C 11/00; B65D 6/02, 8/04

U.S. Cl. 206—37

3 Claims



1. A watertight utility capsule comprising a pair of tubular opposite end sections each including a closed end and an open screw threaded end, said closed end defining a rounded outer surface, at least one intermediate tubular extension section open at both ends, selectively engageable end to end one with another and with the tubular opposite end sections and cooperatively forming therewith a tubular fully closed container, one end of each intermediate section and the open end of one opposite end section being internally screw threaded, the other end of each intermediate section and open end of the other opposite end section being externally screw threaded complementarily relative to the internally screw threading of said one end and the open end of said one opposite end section, and said tubular sections assembling end to end by screwing the externally screw threaded ends into the internally screw threaded ends respectively, said tubular sections having a constant cross-section and, when assembled, defining a completely smooth external surface, with flush joints at each pair of assembled tubular sections, the constant transverse section of said tubular section being of predetermined size arranged to fit in one user's anus to concealably carry something dry in the user's anus.

4,393,975
REFRIGERATED LIP STICK CONTAINER

Constance R. Moore, 8351 E. Rose La., Scottsdale, Ariz. 85253

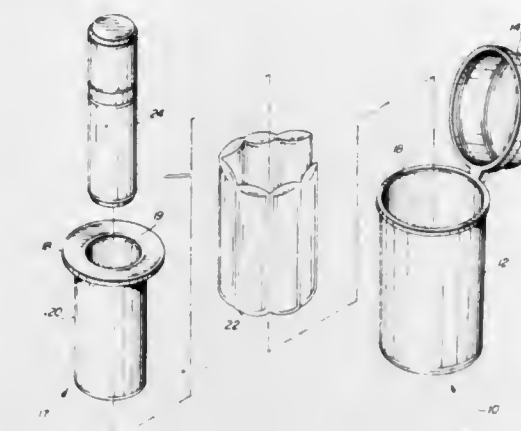
Filed Apr. 1, 1982, Ser. No. 364,524
 Int. Cl.³ B65D 85/72

U.S. Cl. 206—385

6 Claims

1. An apparatus for retaining and refrigerating a lip stick dispenser comprising:
 - (a) a case;
 - (b) a lip stick dispenser located in said case, said lip stick dispenser having a lipstick located therein;
 - (c) retainer means for retaining within said case said lip stick dispenser, said retainer means defining a chamber between said case and said lip stick dispenser;

(d) cover means for closing said case to protect said lip stick dispenser; and



(e) a refrigerant contained within the chamber defined by said retainer means and located around said lip stick dispenser, said case and said cover means enclosing both said refrigerant and said lip stick dispenser together therein.

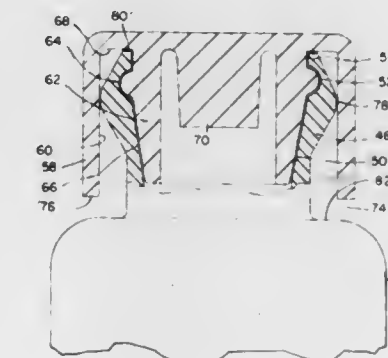
4,393,976
REUSABLE CHILDPROOF CLOSURE

Daniel J. Maguire, 323 W. Waverly Rd., Glenside, Pa. 19038

Filed Mar. 11, 1982, Ser. No. 356,962
 Int. Cl.³ B65D 55/02

U.S. Cl. 215—211

12 Claims



1. In a reusable childproof closure suitable to close the nozzle of a container of the type wherein the nozzle is defined from the container by a shoulder, the improvement which comprises the nozzle comprising a circular wall having an inside surface and an outside surface, a peripheral groove extending radially outwardly from the inside surface of the nozzle; and a cap in overfitting relationship to the nozzle, the cap comprising a top and a hollow, generally cylindrical, closure wall depending from the top, said closure having an inside surface and an outside surface, the outside surface being of dimension and configuration to slide within and cooperate with the inside surface of the nozzle circular wall, a peripheral lip extending radially outwardly from the outward surface of the cap closure wall, the configuration of the nozzle peripheral groove and the configuration of the cap peripheral lip being cooperating and complementing to form a lock therebetween when the cap is applied to the nozzle, the cap further comprising an outer, generally cylindrical skirt, the said skirt being connected to the said cap closure wall by a radial extension and being configured overfit substantially the entire nozzle, whereby the cap can be removed from the nozzle by applying upwardly directed forces at the bottom of the said skirt and sufficient magnitude to force the cap lip out of the nozzle groove.

4,393,977

CHILD RESISTANT PACKAGE

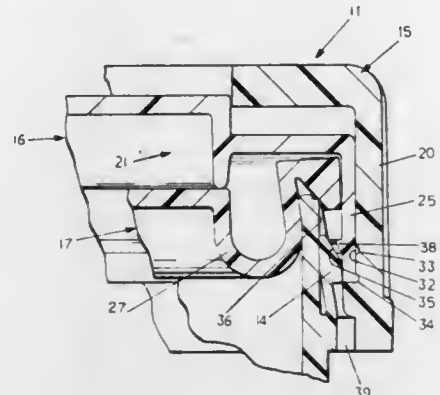
Wendell D. Willingham, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 29, 1982, Ser. No. 362,585

Int. Cl.³ B65D 55/02

U.S. Cl. 215—211

37 Claims



1. A child resistant package comprising a container having a side wall, a bottom wall and an open end, a closure including an outer member and an inner member, said inner member having a portion thereof extending through an opening in the outer member such that axial pressure may be applied through said portion to move the inner member relative to the outer member in an axial direction, a liner insert sealingly engaging the upper end of the container, interengaging means between the inner member and the liner such that when the closure is removed from the container, the liner insert is also removed, spring means between the liner and the inner member yieldingly urging the inner member axially outwardly toward the outer member, said container having radially resilient portions on the side wall, said outer member including a peripheral skirt having portions thereof adapted to engage said radial resilient portions on the container, said inner member having an annular wall adjacent the skirt of the outer member, said annular wall having means thereon operable upon axial inward movement of said inner member to move said radially movable portions of the container to disengage said portions from the portions of the outer member, said wall of said inner member and said skirt of said outer member having interengaging portions which engage upon axially inward movement of the inner member relative to the outer member so that the closure can be removed by axial movement carrying with it the outer member, and the inner member and the insert.

4,393,978

REUSABLE CONTAINER CLOSURE CAP

Milton Kessler, Youngstown, and Myron E. Ullman, Jr., Canfield, both of Ohio, assignors to Kessler Products Co., Inc., Youngstown, Ohio

Division of Ser. No. 182,628, Aug. 29, 1980, Pat. No. 4,354,610. This application Jun. 21, 1982, Ser. No. 390,327

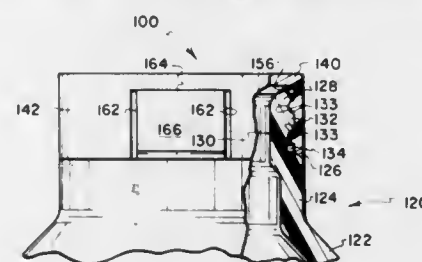
Int. Cl.³ B65D 41/34

U.S. Cl. 215—253

5 Claims

1. A closure cap for sealing the neck portion of a container such as a milk bottle, the neck portion having an upstanding annular rim, a first outer wall portion depending therefrom and having threads thereon and further having a recess thereon, the closure cap being formed of a material having limited flexibility and comprising:

- (a) a disc-like top wall engageable with the rim to effect a substantially fluid-tight seal;
- (b) an annular skirt depending from the top wall, the skirt having on its inner periphery:
 - (i) helical threads configured to mate with the threads on the first outer wall portion of the container neck to secure the closure cap to the bottle, the threads cooperating to form a second substantially, fluid-tight seal;
 - (ii) a radially inwardly projecting tooth for cooperative reception within the recess of the outer wall portion when the closure cap is fully threaded onto the container, the tooth having a configuration precluding axial vertical movement thereof in response to relative unthreading movement of the cap; and,
 - (iii) a pair of spaced generally vertically extending rupture zones on either side of the tooth, the rupture zones extending from the lowermost extremity of the skirt to points generally adjacent the closure disc;
- (c) a tab projecting laterally outwardly of the skirt from a location near the lower edge thereof, the tab being disposed between the vertically extending rupture zones



whereby, upon upward flexure of the tab, the rupture zones will fail and permit the lower skirt area therebetween to be hinged radially outwardly to withdraw the tooth from the recess and permit unthreading removal of the closure cap from the neck of the container, the limited flexibility of the cap material permitting substantial cooperation of the threads notwithstanding rupture of the skirt wall along the rupture lines, where the cap may thereupon be releasably resecured to the container by the threads with the closure disc effecting the first seal to preclude leakage;

- (d) the recess on the outer wall portion of the container neck including an upper wall surface which extends substantially normal to the axis of the container neck; and,
- (e) the closure cap tooth including a flat upper surface for reception in said recess against the upper wall surface thereof, the tooth further having a camming surface thereon to permit minimal deflection of said skirt thereon outwardly as said closure cap is threaded onto the container neck portion prior to the reception of the tooth in the recess.

4,393,979

CLOSURES FOR CONTAINERS

Martin F. Ball, Shrivenham, and Fred Fidler, South Morton, Nr. Didcot, both of England, assignors to Metal Box Limited, Reading, England

Filed Apr. 13, 1981, Ser. No. 253,365

Claims priority, application United Kingdom, Apr. 15, 1980, 8012372

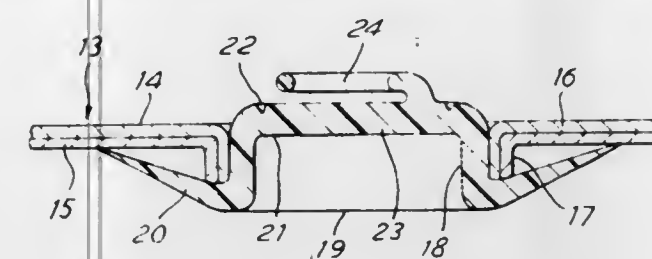
Int. Cl.³ B65D 17/34

U.S. Cl. 220—270

3 Claims

1. A container having a wall, an aperture in the wall, an annulus of gasket material around the aperture on the inside of the container wall and a plug closure including a plug portion, said plug portion including a cylindrical wall and an end wall, said cylindrical wall being disposed in said aperture, said plug closure being constructed from relatively rigid and stiff synthetic copolymeric plastic material, a flange extending generally radially outwardly of the cylindrical wall to surrounding

underlie an annular wall portion of said container wall, said flange being radially outwardly converging in axial cross-section to thereby define a deformable feather edge, said feather



edge terminating in a terminal edge held in formed sealing engagement with the gasket by frictional engagement of the cylindrical wall in said aperture.

4,393,980

LIQUID CONTAINER ARRANGED TO LIMIT UNDESIRABLE DRAINAGE

John S. Armour, Farnborough; Peter M. F. Watson, Wokingham, and Graham L. Donne, Bracknell, all of England, assignors to The Minister of Transport in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

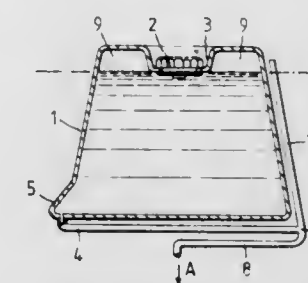
Filed May 28, 1981, Ser. No. 268,030

Claims priority, application United Kingdom, Jun. 17, 1980, 8019788

Int. Cl.³ B65D 25/00; F16K 45/00

U.S. Cl. 220—85 S

5 Claims



1. A liquid tank having a vent arranged to vent the tank when the tank is in a generally upright attitude, a filler arranged to admit liquid into the tank below the upper surface thereof, whereby in use an air space remains in the tank at all times, and a pipe for supplying liquid from the tank, said pipe extending from the base of the tank at a first side thereof and terminating as an open-ended vent in the region of the top of the tank opposite said first side, said pipe including a supply portion extending as a branch from a part of the pipe opposite said first side in the region of the base of the tank.

4,393,981

APPARATUS FOR SUPPLYING A PREDETERMINED NUMBER OF PISTON RINGS TO A WORK STATION

Masahiko Wada, and Masato Ueki, both of Kashiwazaki, Japan, assignors to Kabushiki Kaisha Riken, Tokyo, Japan

Filed May 13, 1981, Ser. No. 263,253

Claims priority, application Japan, May 19, 1980, 55-68417[U]

Int. Cl.³ B65G 59/00

U.S. Cl. 221—289

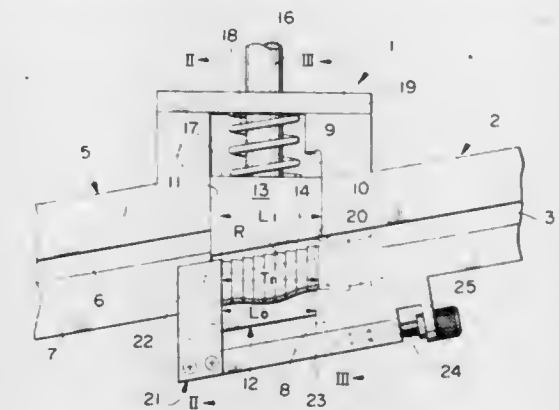
5 Claims

1. Apparatus for supplying a predetermined number of split piston rings to a work station comprising:

- (a) a charge-side chute having a pair of downwardly inclined parallel grooves on opposite side surfaces thereof for holding a supply of rings, said grooves receiving the end portions of the confronting end faces forming the gap of the rings whereby the rings are suspended from and slide down the grooves by gravity;
- (b) a discharge-side chute having a pair of similarly inclined

parallel grooves on opposite side surfaces thereof, said discharge-side chute being spaced from the charge side chute with its grooves extending in a longitudinal direction parallel to but out of alignment with the grooves of the charge-side chute;

- (c) slider means for transferring a predetermined number of rings from the charge chute to the discharge chute interposed between the chutes, said means including a slide plate having inclined parallel grooves on opposite side



surfaces thereof, said plate being vertically movable between a position where the grooves of said slide plate are in alignment with the grooves of said charge-side chute to receive rings from the charge chute and a position where the grooves of said slide plate are in alignment with the grooves of said discharge-side chute to transfer the rings from the slide plate to the discharge chute; and

(d) adjuster means for controlling the number of rings received by the slider means and transferred to the discharge chute.

4,393,982

METERED DISPENSING OF LIQUIDS

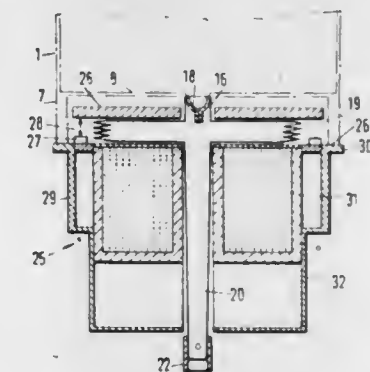
Alexander Kuckens, Hamburg, Fed. Rep. of Germany, assignor to Dagma Deutsche Automaten und Getrankemaschinen GmbH & Co. KG, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 103,904

Int. Cl.³ B65D 83/00

U.S. Cl. 222—209

6 Claims



1. A device for metered dispensing of liquids, especially easily perishable organic liquids, comprising a container in the form of a throw-away package with its outlet opening extending downward in metering position, a metering vessel portion of flexible material communicating with the outlet opening and comprising a tubular member, inlet and outlet openings, and an electromagnetic actuating means for selectively compressing the metering vessel and for actuating closing means at the inlet and outlet of the tubular member, wherein the container is provided with a collar surrounding the outlet opening, in which the metering vessel portion constantly connected to the container can be stored prior to putting the throw-away package into operation, wherein the tubular member of the metering vessel portion is provided with an axially compressible bellows between the closing means, said bellows having a large

diameter as compared to its axial height, and wherein the area of the tubular member arranged therebelow extends through the central opening of the electromagnetic actuating means provided in the form of an annular coil, and the area arranged above the bellows penetrates an anchor plate radially extending above the bellows.

4,393,983

INTERMESHING SCREW-TYPE REFINER

Erik F. Eriksson, Ymsenvägen 9^f, S-121 42 Johanneshov, Sweden

Continuation of Ser. No. 177,749, Dec. 28, 1979, abandoned.

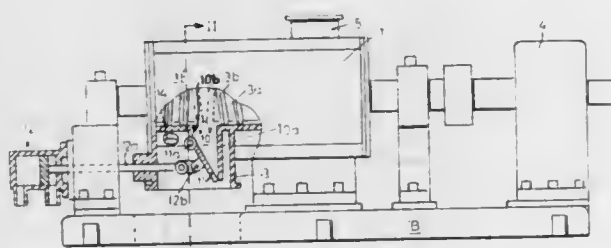
This application Jul. 24, 1981, Ser. No. 286,644

Claims priority, application United Kingdom, Apr. 28, 1978, 17035/78

Int. Cl.³ B30B 3/04, 15/32

U.S. Cl. 222—233

19 Claims



1. Apparatus of the type used for treating cellulose pulp, comprising two intermeshing rotary screws driven synchronously within a housing having lateral and end walls and having a material inlet and a material outlet in the range of respectively an inlet and an outlet end of the housing, each screw on a cylindrical core carrying a surface section constituting a treating screw thread, said screw thread comprising a feeding screw thread section starting near said inlet and having a terminal end spaced from said housing outlet end, said cylindrical core further carrying a feed-reversing surface section starting near the terminal end of said feeding screw thread section and having a terminal end near said housing outlet end, said material outlet being provided in the lateral wall of said housing adjacent the terminal end of the feeding screw thread sections of both screws for discharge of treated material substantially at right angles in relation to a plane through the axes of said screws, an outwardly flaring collar outwardly extending from said lateral housing wall around said material outlet, said collar having an outlet opening extending in a plane oblique to the direction of material discharge, means being provided outwardly of said collar selectively to restrict the outlet area of said collar outlet opening, said restricting means comprising a closure element moveable between a position in which said oblique collar outlet opening is substantially closed and opening positions in which said oblique collar outlet opening is selectively uncovered, adjustable means being provided controlling the movement of said closure element to selectively establish the resistance offered by said restricting means against discharge of material through said outlet.

4,393,984

VAPOR TAP VALVE FOR AEROSOLS

Andre Debard, Buc., France, assignor to Aerosol Inventions and Development AS AID SA, Fribourg, Switzerland

Filed Sep. 12, 1980, Ser. No. 186,661

Claims priority, application France, Sep. 20, 1979, 79 23394

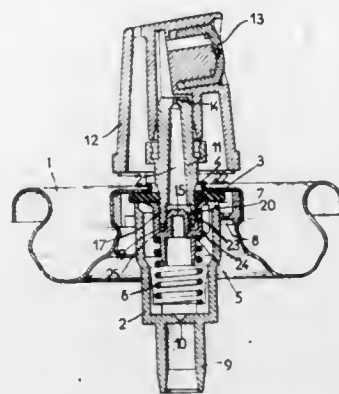
Int. Cl.³ B65D 83/14

U.S. Cl. 222—402.18

5 Claims

1. A vapour tap valve for aerosol packages comprising a mounting cup for crimping onto a container containing liquid and gas, said mounting cup carrying a valve shell held clamped against an annular sealing gasket centred on an axial opening in said mounting cup, said valve shell enclosing and guiding axially a spring-loaded valve member with a spring urging said valve member into sealing engagement with said gasket, said

shell having in the immediate neighbourhood of said gasket at least one passage for admitting additional gas from said container into said shell and having, at the opposite end from said gasket, a liquid inlet tube, said valve member being axially extended by a hollow actuating and dispensing stem for said valve for dispensing a mixture of said liquid and gas, and said stem passing in a sealing manner through said gasket; said valve being characterised in that said actuating stem and said valve member define between them a plurality of passages



4,393,985

LADLE SHROUD SUPPORT ASSEMBLY

Rudi Müller, Bad Oeynhausen, and Wolfgang Löser, Wesel-Flüren, both of Fed. Rep. of Germany, assignors to Vesuvius International Corporation, Wilmington, Del.

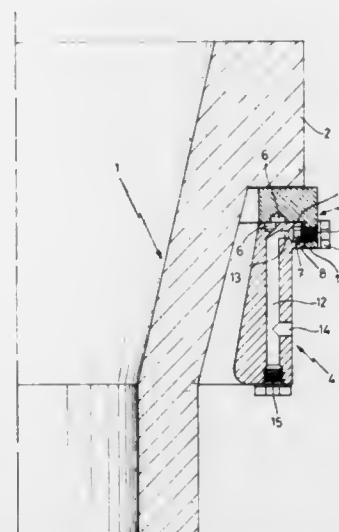
Filed Feb. 11, 1981, Ser. No. 233,367

Claims priority, application United Kingdom, Mar. 7, 1980, 8007825

Int. Cl.³ B22D 41/08

U.S. Cl. 222—591

10 Claims



4. An assembly for supporting a ladle protection shroud cooperable with a movable plate of a rotary slice gate mechanism of a metal pour vessel for protecting the pouring of molten metal into a mould, comprising: a flange (2) extending outwardly from a ladle protection shroud (1), a shroud holding ring (4), an intermediate bearing ring (3) disposed between the flange and the holding ring and configured to define a planar annular sliding surface (5) with the holding ring to enable free rotational motion of the shroud and bearing ring about the

holding ring and interlocking means for slidably coupling the bearing ring to the holding ring and for preventing relative axial motion between said rings.

4,393,986

SURFBOARD CARRYING RACK

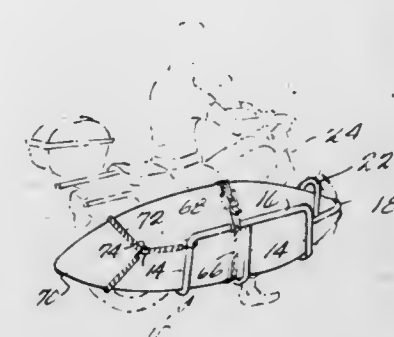
Michael Sirey, 555 Banyan Tree La. #201, Delray Beach, Fla. 33444

Filed Jun. 4, 1982, Ser. No. 385,258

Int. Cl.³ B62J 9/00, 11/00, 7/02

U.S. Cl. 224—32 A

16 Claims



1. A rack for carrying a surfboard on edge longitudinally on a two-wheeled vehicle comprising:
longitudinally extending frame means having a U-shaped end view transverse to the longitudinal extent of said frame means for receiving said surfboard;
means for attaching said frame means to a side of said vehicle;
a first U-shaped restraining member having two legs connected by a bight portion, said legs extending from an end of said frame means so that said bight portion extends transverse to said longitudinal extent of said frame means;
a second U-shaped restraining member having two legs connected by a bight portion, said legs of said second restraining member extending generally upwardly from adjacent said first restraining member so that the respective bight portions of the first and second restraining members function to prevent said surfboard from sliding forward with respect to said vehicle;
means for preventing said surfboard from moving upward out of said frame means; and
means for preventing said surfboard from moving rearwardly with respect to said vehicle out of said frame means.

4,393,987

SUPERPLASTICALLY FORMED STRUCTURE AND METHOD OF MAKING

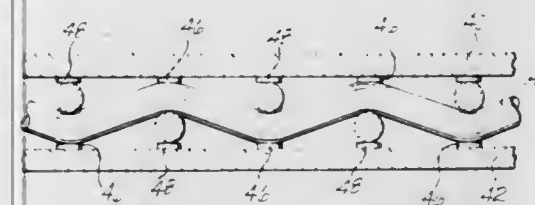
Charles N. Anderson, Kent; Samuel D. Elrod, Seattle, and Gerald O. Miller, Kent, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1981, Ser. No. 307,039

Int. Cl.³ B23K 31/02

U.S. Cl. 228—157

13 Claims



1. A method of superplastically forming a reinforced panel, with steps comprising: placing a grid patterned core material onto a titanium sheet, locating an aluminum shim between the core and the sheet at alternate grid intersections, spot welding the core to the sheet at each intersection not having an aluminum shim, placing a titanium sheet over the core and spot

welding them together at each grid intersection having an aluminum spacer, raising the temperature into superplastic forming range and introducing an inert gas under pressure between the sheets moving the sheets apart and forming a panel reinforced with the core material joined at alternate intersections to opposite face sheets.

4,393,988

SPOON LID

Mary Burke, 2430 Fair Oaks Apt. 187, Sacramento, Calif. 95825

Filed Jul. 15, 1981, Ser. No. 283,444

Int. Cl.³ B65D 43/08, 3/00

U.S. Cl. 229—43

7 Claims



1. A deformable container-lid including a spoon integral therewith comprising in combination:
a lid having substantially planar top and bottom surfaces and a depending perimeter lip adapted to sealingly engage a container;
a tab member formed to serve as an eating utensil folded by a hinge on said bottom surface of said lid inboard of said lip whereby said utensil is adapted to be folded from a stored position parallel to and underlying said bottom lid surface to a hinged outwardly deployed position extending beyond said lip, said tab member having crease and score lines thereon to assist deformation,
said lid and hinge formed from a resilient material having a memory whereby said lid and hinge can be respectively deformed and deployed to dispense material within said container with said utensil, and thereafter restored to an original condition for storage of a portion of the material in the container.

4,393,989

ENVELOPE-TYPE MAILING FOLDER

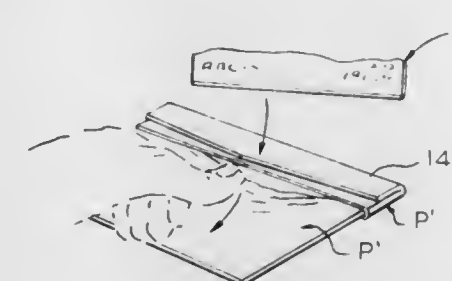
Greg P. Maclin, and Allen M. Brandenburger, both of Stone Mountain, Ga., assignors to Container Corporation of America, Chicago, Ill.

Filed Jul. 30, 1981, Ser. No. 288,350

Int. Cl.³ B65D 27/04, 27/08; G09F 3/18

U.S. Cl. 229—71

1 Claim



1. In an envelope-type mailing folder formed from a unitary blank of foldable paperboard, the combination of:
(a) a rear panel;
(b) a pair of end panels foldably joined to opposite ends of said rear panel and folded to overlies marginal end portions of said rear panel;

- (c) a front panel foldably joined along one side edge to a side edge of said rear panel;
- (d) said front panel overlying said rear panel and said end panels and being secured to the latter to form with both said rear panel and said end panels an internal, primary pocket for receiving material to be transported in said folder;
- (e) a closure flap foldably joined to another side edge of said front panel and being folded to overlie and be secured to said rear panel to close said primary pocket;
- (f) a transparent, plastic film having marginal areas secured to a portion of said front panel, said end panels and an outer surface of said rear panel extending the entire length thereof to form with said rear panel a separate, external secondary pocket for receiving and displaying other material, said plastic film including a pair of sheets having adjacent marginal areas disposed in overlapped relation to provide access to said secondary pocket.

4,393,990

PROCESS AND DEVICE FOR DISPERSING FLAMMABLE GASES INTO THE ATMOSPHERE

Flavien Lazzar, Pau, France, assignor to Societe Nationale Elf Aquitaine (Production), Courbevoie, France

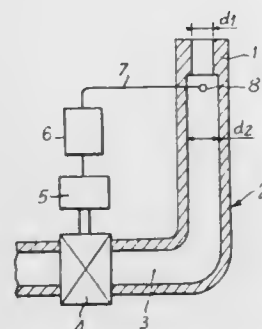
Filed Dec. 2, 1980, Ser. No. 212,114

Claims priority, application France, Dec. 7, 1979, 79 30069

Int. Cl.³ F23D 13/20

U.S. Cl. 239—1

3 Claims



1. A process for dispersing flammable gas into the atmosphere without danger of explosion or combustion comprising, ejecting the gas through at least one opening of specified area, at a pressure above a minimum pressure, and below a maximum pressure, said minimum pressure corresponding to a pressure below which said gas flowing through said opening is explosive, and said maximum pressure corresponding to a pressure above which said gas flowing through said opening exhibits stable ignition in the presence of a flame.

4,393,991

SONIC WATER JET NOZZLE

Nathaniel B. Jeffras, Woodland Hills, and Robert H. Torgersen, Canoga Park, both of Calif., assignors to Automation Industries, Inc., Greenwich, Conn.

Filed May 29, 1981, Ser. No. 268,286

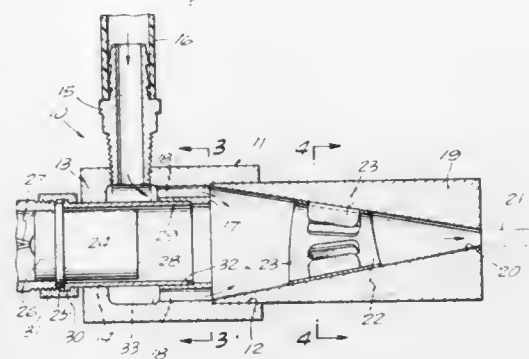
Int. Cl.³ B05B 17/06

U.S. Cl. 239—102

10 Claims

1. A sonic water jet nozzle, comprising:
- a housing including a chamber for containing a source of sonic energy, and walls defining a plurality of substantially parallel passages lying outwardly of the first chamber, one end of each passage being in open communication with said chamber in said housing and the other end of each passage opening to the exterior of said housing;
- means for interconnecting the other ends of the passage at the housing exterior to a source of pressurized fluid;
- a nozzle body having a conical passage therethrough with a relatively large opening at one surface and a relatively small opening at another surface, the centerline of said conical passage being substantially parallel to said plurality of passages;
- said nozzle body being interconnected with the housing such

that the large opening communicates with the chamber and the plurality of passages; and



radially extending finlike means received within said conical passage for retarding rotation of water passing through the nozzle body conical passage.

4,393,992

SPRINKLER HEAD ASSEMBLY

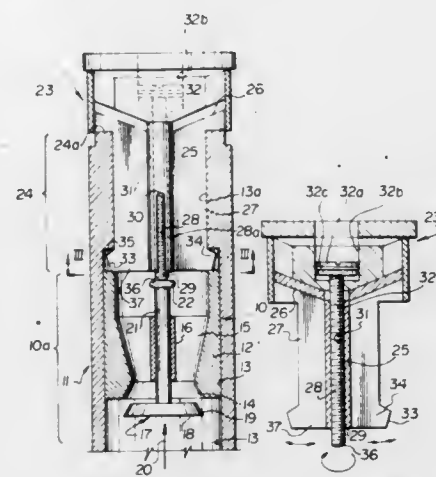
Norman E. Strunk, 401 McMaster Crescent, Saskatoon, Saskatchewan, and Anton P. Pohoreski, Box 100, Asquith, Saskatchewan, both of Canada

Filed Apr. 28, 1981, Ser. No. 258,311

Int. Cl.³ B05B 15/06

U.S. Cl. 239—200

7 Claims



1. A sprinkler head assembly including a hollow sprinkler head assembly tube, a sprinkler tip secured within the upper portion of said hollow sprinkler head assembly tube, and a valve secured within the lower portion of said hollow sprinkler head assembly tube, comprising

- (i) means for retaining said sprinkler tip within said hollow sprinkler head assembly tube, comprising:
- (i) first securing means associated with said hollow sprinkler head assembly tube;
- (ii) second securing means depending from said sprinkler tip for insertion into the upper portion of said hollow sprinkler head assembly tube, said second securing means comprising a pair of diametrically opposite wings, the lower portions of which are normally biased towards one another, a central longitudinally extending tube bifurcated at its lower end interconnecting said wings, an upwardly facing shoulder at the lower portion of each said wings, and means associated with said bifurcated central tube for urging said abutment shoulders apart into secure engagement with said retaining means, said means including a rod disposed within said bifurcated tube, said rod being of slightly greater diameter than said threaded bore; whereby downward longitudinal movement of said rod urges said abutment shoulders apart into secure engagement with said retaining means;
- (iii) retaining means within the upper portion of said hol-

- low sprinkler head assembly tube on the inner wall thereof; and
- (iv) means for urging said securing means into secure engagement with said retaining means, said means comprising said bifurcated tube and said rod; and
- (II) a valve assembly comprising a valve seat secured within said hollow sprinkler head assembly tube, a valve engageable with said seat, said valve including a head and a stem extending therefrom, said stem being provided with a head, means in said valve assembly to support and guide said valve for reciprocal motion relative to said seat, said valve stem being normally in a lower position with the valve in its fully opened position, and means to control the vertical position of said valve relative to said seat, said control means comprising said rod for said securing means into secure engagement with said retaining means whereby, when said rod urges said abutment shoulders apart into secure engagement with said retaining means, said rod also engages said stem head, thereby to limit upward movement of said valve stem.

4,393,993

SPRAY GUN

Ewald Kille, and Guido Zimmermann, both of Friedrichshafen, Fed. Rep. of Germany, assignors to J. Wagner GmbH, Fed. Rep. of Germany

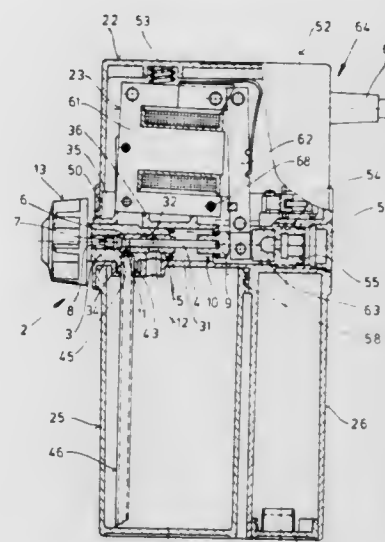
Filed May 27, 1981, Ser. No. 267,666

Claims priority, application Fed. Rep. of Germany, May 30, 1980, 3020539

Int. Cl.³ B05B 9/04

U.S. Cl. 239—332

14 Claims



1. A hand held spray gun and supply unit which comprises a center housing section in the form of an inverted L-shaped member having a horizontal top leg with top and bottom faces and a peripheral side wall, said top leg having a front to rear longitudinally extending bore and a vertical hollow hand grip leg depending from the rear portion of the horizontal leg with a fragmental cylindrical recessed front face along the length thereof under the horizontal leg, a pump assembly removably mounted in said bore including a pump cylinder in said bore and a nozzle overlying the peripheral side wall of the horizontal leg at the front of the bore communicating with said cylinder, said cylinder having an intake extending through the bottom face of said horizontal leg, a piston reciprocally mounted in said cylinder to pump fluid from the intake through the nozzle, a cylindrical supply container removably suspended from the bottom face of said horizontal leg embraced by the vertical leg in the recessed front face thereof, an electric motor mounted on the top face of said horizontal leg driving said piston, said hollow vertical leg providing a chamber adapted to receive a battery to energize said motor, a switch on the top face of said horizontal leg having an actuating button accessible at the peripheral side wall of said horizontal leg, a removable cover on said horizontal leg enclosing said motor

and switch, and a tube depending from the bottom face of the horizontal leg into the container for supplying fluid from the bottom of the container to said intake for discharge through said nozzle.

4,393,994

ELECTROMAGNETIC FUEL INJECTOR WITH FLEXIBLE DISC VALVE

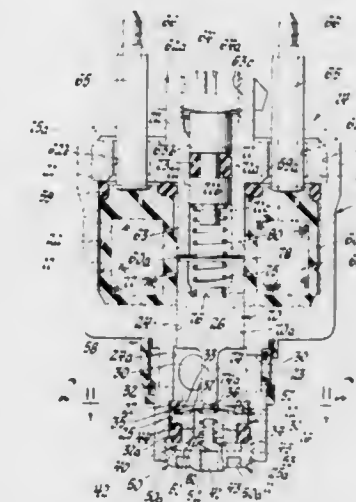
Gerald C. Rieck, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 6, 1981, Ser. No. 251,466

Int. Cl.³ B05B 1/30

U.S. Cl. 239—585

3 Claims



1. An electromagnetic fuel injector including housing means providing a fuel chamber therein intermediate its ends adapted to receive fuel and which has an upstanding annular valve seat therein encircling a discharge passage from said chamber through which fuel is to be ejected; a flexed flexible valve means having spaced apart fingers positioned in said fuel chamber and adapted to be vertically flexed relative to said valve seat to open and close said passage; a solenoid means operatively supported in said housing means, said solenoid means including an axial movable armature positioned to engage one side of said valve means opposite said valve seat and, a valve-closing spring positioned to act on said armature in an axial direction whereby said valve means is forced by said armature into seating engagement with said valve seat; and, a valve-opening spring disposed in said discharge passage and positioned to abut against the opposite side of said valve means to effect unseating of said valve means from said valve seat when said solenoid means is energized.

4,393,995

EMERGENCY LOCKING TYPE RETRACTOR

Masahiro Takamoto, Fujisawa, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 16, 1982, Ser. No. 369,004

Claims priority, application Japan, Apr. 25, 1981, 56-59213[U]

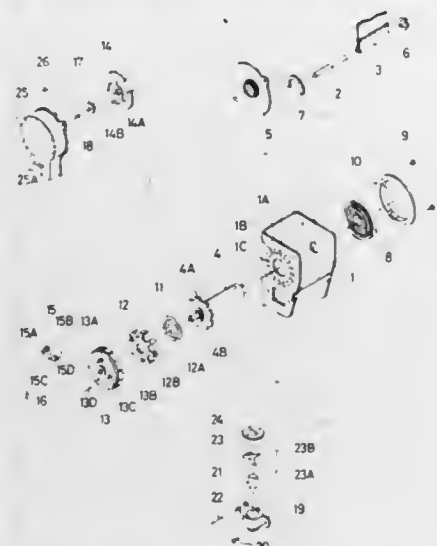
Int. Cl.³ A62B 35/02; B65H 75/48

U.S. Cl. 242—107.4 A

5 Claims

1. An emergency locking type retractor having a retractor base; a take-up reel to which webbing is fastened and which is rotatably supported by said retractor base while being biased in webbing take-up direction; locking means formed around the portion of said retractor base which supports said take-up reel; a latch member supported by said take-up reel for axial sliding movement between a position in which it is engaged with said locking means and a non-engaging position in which it is not engaged with said locking means, said latch member having an engaging portion and a cam portion; a guide member rotatable with said take-up reel and having a guide portion normally engaged with the engaging portion of said latch member and

guiding the movement thereof in the axial direction of said take-up reel; a biasing member for biasing said latch member toward said non-engaging position; a ratchet wheel having a toothed portion and a cam portion engaged with the cam portion of said latch member, said ratchet wheel being loosely fitted on said take-up reel against axial movement; a first latch piece mounted on said ratchet wheel for movement between a first position and a second position and biased toward said first position; an inertia member loosely fitted on said take-up reel for operating said first latch piece; a latch portion secured to said retractor base and engageable with said first latch piece when said latch piece is brought from said first position to said second position by said inertia member rotating relative to said ratchet wheel upon sensing of a webbing draw-out speed ex-



ceeding a predetermined value, thereby stopping rotation of said ratchet wheel; and a vehicle sensing mechanism provided on said retractor base, said vehicle sensing mechanism including a second latch piece and means for sensing a vehicle acceleration or deceleration exceeding a predetermined value to thereby bring said second latch piece from a non-engaging position in which it is not engaged with the toothed portion of said ratchet wheel to a position in which it is engaged with said toothed portion, thereby stopping rotation of said ratchet wheel; whereby when rotation of said ratchet wheel is stopped, said latch member is caused to slide axially by the cam portion of said ratchet wheel through the cam portion of said latch member and is brought to a position in which it is engaged with said locking means, so that the rotation of said take-up reel in webbing draw-out direction is locked.

4,393,996

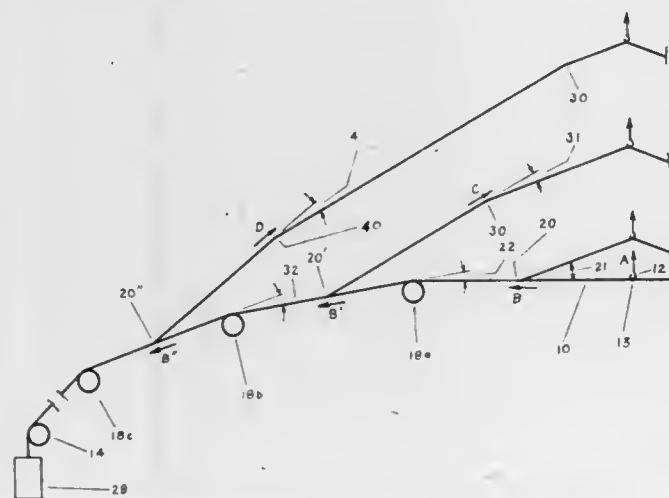
AIRCRAFT ARRESTMENT SYSTEM

Cazimir Tuman, 71 Caleta Dr., Camarillo, Calif. 93010
Continuation-in-part of Ser. No. 170,692, Jul. 21, 1980,
abandoned. This application Feb. 16, 1982, Ser. No. 348,739

Int. Cl.³ B64F 1/02

U.S. Cl. 244—110 C

12 Claims



1. An arrestment system having constraining means placed

across an arrestment area for engagement with a moving body, said engagement causing the formation of transverse waves in the constraining means, including tensile-load absorption means at opposing ends of the constraining means; wherein the improvement comprises:

- stationary guide means positioned against opposing flexible linear portions of said constraining means at the side thereof opposite the direction of said moving body and longitudinally offset from the moving body engagement point;
- said guide means imparting a curved shape having a diminishing radius of curvature to said portions whereby less than total reflection of the transverse waves occurs at the point where said guide means contact the flexible linear portions of said constraining means.

4,393,997

REMOVABLE SECONDARY AIRCRAFT FUEL ENCLOSURE

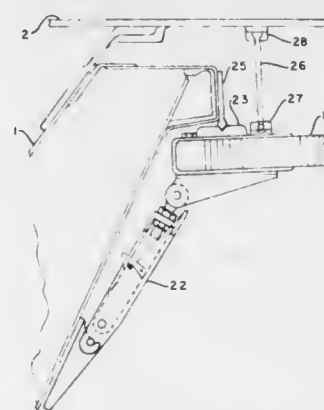
David L. Gibler, Rancho Palos Verdes, and Daniel J. O'Connell, Cypress, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 15, 1982, Ser. No. 368,785

Int. Cl.³ B64D 37/32

U.S. Cl. 244—135 R

3 Claims



1. A removable enclosure for sealing an aircraft fuel tank against fuel leakage into aircraft fuselage compartments, comprising:

- a. a drip pan disposed beneath said tank within said fuselage, said pan defining a shallow trough for collecting liquid from said tank;
- b. a peripheral seal on the surface of said pan;
- c. means defining a drain line, communicating with said trough, for draining said liquid accumulations overboard said aircraft;
- d. first and second upright panels, attached to said aircraft, at respective opposite ends of said pan; and
- e. means for releasably sealing said ends of said pan to said upright panels and the sides of said pan to said fuselage at said peripheral seal, said means including a plurality of overcenter fasteners spaced around the periphery of said pan releasably interconnecting said pan with said aircraft and said upright panels.

4,393,998

TUBE CLAMP

Walter E. Allen, Prospect, Conn., and Douglas D. Wilson, Huntington, W. Va., assignors to Transamerica DeLaval Inc., Princeton, N.J.

Filed Jul. 20, 1981, Ser. No. 285,401

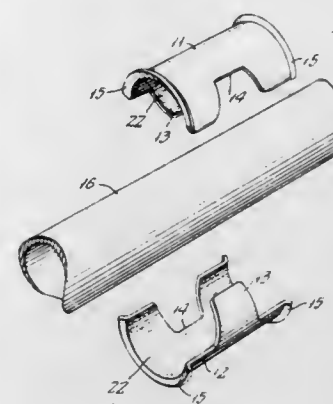
Int. Cl.³ F16L 3/08

U.S. Cl. 248—74 R

4 Claims

1. In clamping apparatus for supporting a metal tube from fixed structure, wherein (a) a split metal sleeve with raised end shoulders comprises identical interlocking halves of greater

than 180° total extent such that each half has self-retaining snap-action assembly capability in respect of the same metal tube, and wherein (b) a fixedly mountable loop clamp surrounds the sleeve with axial play between the end shoulders, the loop clamping being so sized when clamped to said sleeve as to establish a predetermined frictional resistance to sleeve displacement with respect to said clamp, the improvement wherein each of the sleeve halves has a thin layer of friction material bonded thereto, said friction material comprising an uncured nitrile rubber-phenolic resin adhesive which incorporates its curing agents, the bore of the lined sleeve halves being compressed in engagement with the metal tube such that the frictional resistance to displacement of the sleeve on the metal tube is greater than the frictional resistance to sleeve displace-



4,394,000

METAL MIRROR MOUNTING CLIP

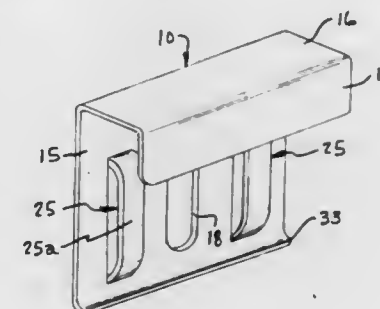
Thomas D. Kurtz, 1101 First Ave., Rock Falls, Ill. 61071

Filed Jan. 2, 1981, Ser. No. 222,122

Int. Cl.³ A47G 1/16

U.S. Cl. 248—466

4 Claims



ment with respect to said clamp, said adhesive being curable to establish a bond of said sleeve to said metal tube in the presence of minimum ambient temperature in the order of 300° F., whereby in aircraft application in the vicinity of an engine with ambient temperatures of at least 300° F., where displacement accommodation of the sleeve on a metal tube is not desirable, said sleeve will become bonded to the metal tube upon operation of the engine; and further whereby in aircraft application in wing or the like structure which is subject to flexure and which is characterized by lesser ambient temperatures, said sleeve will not become bonded to the metal tube but rather will remain capable of displacement on the metal tube for such unusual situations of axial play as the clamp-to-sleeve engagement will not accommodate.

4,393,999

CONVEYOR PALLET CONSTRUCTION

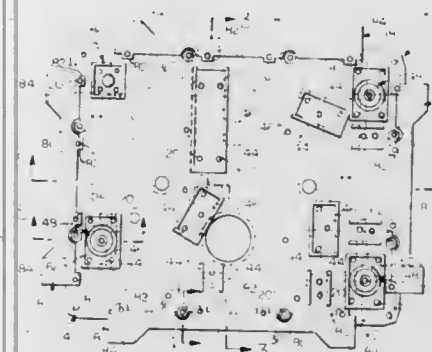
David J. Forshee, Oxford, Mich., assignor to Syn-Trac Systems Inc., Oxford, Mich.

Filed Dec. 29, 1980, Ser. No. 220,798

Int. Cl.³ B65D 19/32, 19/44

U.S. Cl. 248—346

41 Claims



1. In a conveyor driven plastic pallet structure for supporting and translating a device to be processed, assembled and/or tested, the improved combination comprising a top plate, an intermediate grid body and a bottom plate arranged in lamella relationship, said grid body having a plurality of spaced apart intermediate grid members defining open pockets or spaces therebe-

tween and lateral side members defining the perimeter of said grid body,

one or more upstanding fixture devices secured to and upon the upper surface of said top plate for selective engagement and attachment by and to, and disengagement and detachment from a processing, assembling and/or testing machine, and for elevating and lowering said pallet for one or more processing, assembling and/or testing operations on said device supported on and translated by said pallet,

and means fixedly securing said fixture devices to said top plate surface, and securing said top plate, grid body and bottom plate together.

4,394,001

HEIGHT-ADJUSTING MECHANISM FOR CHAIR SEAT

Joseph M. Wisniewski, Marne, Mich., assignor to Haworth, Inc., Holland, Mich.

Filed Mar. 18, 1981, Ser. No. 244,841

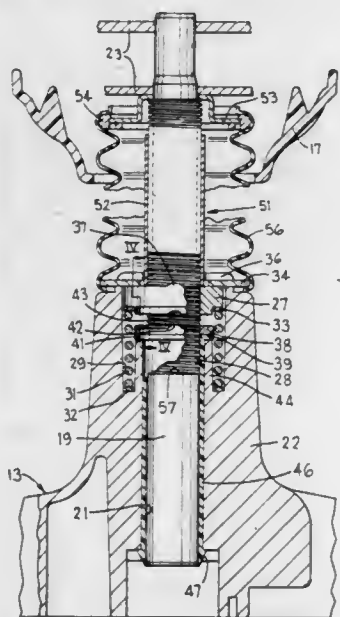
Int. Cl.³ F16M 13/00

U.S. Cl. 248—542

10 Claims

1. In a chair having a seat means, a base having thereon an upwardly-projecting pedestal defining a central opening which projects vertically downwardly therethrough, a vertically-elongated spindle having the upper end portion thereof nonrotatably secured to said seat means, said spindle projecting downwardly so that the lower portion thereof is rotatably positioned and confined within said central opening, said spindle having an elongated central portion thereof provided with external threads, and a load-released height-adjusting mechanism coacting between said spindle and said pedestal for (1) rotatably supporting the seat means when occupied for rotation about the axis of the spindle and (2) permitting the height of said seat means when unoccupied to be vertically adjusted

responsive to rotation of the unoccupied seat means relative to the base, said height-adjusting means including a nut threadably engaged with said spindle, a first clutch means for nonrotatably connecting said nut to said spindle when said seat means is occupied, a second clutch means for nonrotatably connecting said nut to said pedestal when said seat means is unoccupied, and spring means normally urging said nut upwardly relative to said pedestal for effecting engagement of said second clutch means when the seat means is unoccupied, the improvement comprising: an enlarged bore formed in said pedestal and projecting downwardly from the upper end thereof in concentric relationship to said central opening, said second clutch means being mounted adjacent the upper end of said pedestal, said first clutch means being positioned within said bore downwardly a substantial distance below said second clutch means, said nut being disposed vertically between said first and second clutch means, said second clutch means including a second clutch element fixed to said pedestal adjacent the upper end thereof and disposed for engagement with



an opposed upper clutch portion formed on the upper end of said nut when said nut is in a raised position due to said seat means being unoccupied, said first clutch means including a first clutch element which is axially seated on a shoulder formed on said pedestal in axially downwardly spaced relationship from the upper end of said pedestal, said first clutch element being nonrotatably but axially slidably connected to said spindle and being engageable with an opposed lower clutch portion formed on the lower end of said nut when the latter is in its lower position due to said seat means being occupied, and said spring means comprising a coil spring concentrically disposed within said bore and having the lower end thereof seated on said pedestal and the upper end thereof disposed in operative engagement with said nut for continuously urging the latter upwardly toward said second clutch element, said coil spring being disposed in encircling relationship to said first clutch element, whereby said nut is totally disengaged and is spaced axially upwardly from said first clutch element when in said upper position.

4,394,002

MOUNTING FLANGE FOR WAFERSPHERE BOTTOM OUTLET VALVE

Richard B. Polley, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,407

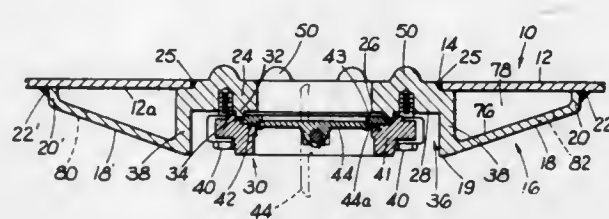
Int. Cl.³ B61D 5/00

U.S. Cl. 251-144

15 Claims

1. A railway tank car valve assembly comprising: a tank bottom having a tank opening therein; a mounting flange mounted adjacent said tank opening; said mounting flange having a tapered portion extending longitudinally on either side of said lading opening; said mounting flange further including a flange body portion located inwardly from said

tapered portion having a flange opening for lading to pass through for entry or exit from the tank; said body portion further including a recess located below the body portion adapted to receive a valve housing having a valve seat and a lading valve located within the housing; first fastener means holding said housing in place within said mounting flange; shaft means to move said valve between open and closed posi-



tions relative to said valve seat extending out of the valve housing, and wedge means extending longitudinally of said mounting flange and located between and engaging both said valve housing and said mounting flange adjacent said shaft means effective to carry impact load components applied through said valve housing to said mounting flange; and thereby protect said shaft means.

4,394,003

CRYOGENIC BUTTERFLY VALVE WITH BI-DIRECTIONAL SEALING CAPABILITY

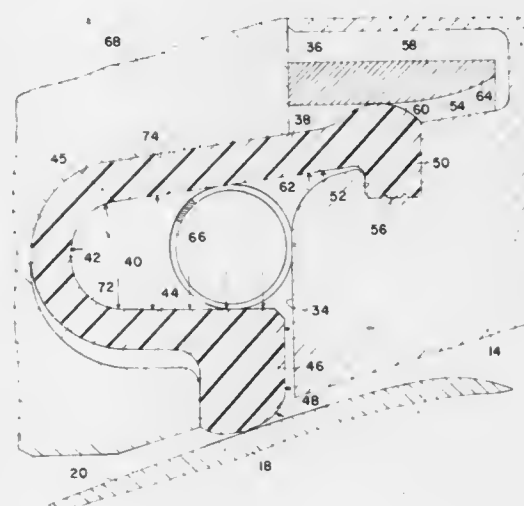
Ritchie W. Whitaker, El Toro, Calif., assignor to The Walworth Company, Valley Forge, Del.

Filed Nov. 16, 1981, Ser. No. 321,591

Int. Cl.³ F16K 25/00

U.S. Cl. 251-173

8 Claims



1. In a valve comprising:
a valve body having a flow passage therethrough;
a valve disc rotatably mounted in said body between valve open and valve closed positions;
an annular sealing surface around the periphery of said valve disc; and
an annular sealing device on said body surrounding said sealing surface;
said sealing device comprising:
an annular relatively wide recess having a relatively narrow opening therefrom;
a resilient seal ring in said recess;
said seal ring being of generally reclining-U configuration, with legs transverse to the axis of rotation of said disc; the radially outer leg being longer than the inner leg so that pressure acting against the outer surface of said seal ring will bias same radially inward;
means clamping and sealing the annular edge of said outer leg in said body; and
a radially extending, dynamic seal inward extension on the

end of said inner leg extending through said narrow opening into sealing engagement with said disc.

4,394,004

CARPET STRETCHING TOOL

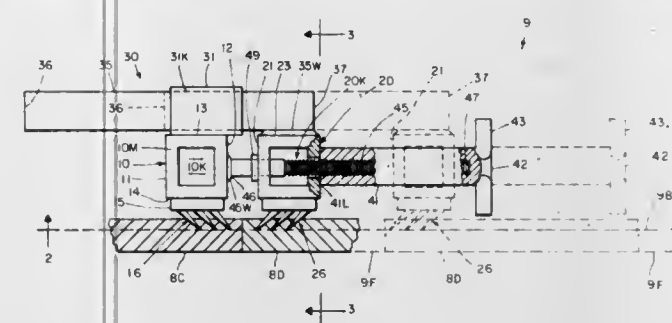
James R. Allen, 3130 S. 17th St., Omaha, Nebr. 68108; John D. Allen, 10302 S. 144th St., Omaha, Nebr. 68138, and Robert A. Knigge, 11808 Cryer Ave., Omaha, Nebr. 68144

Filed May 22, 1981, Ser. No. 266,488

Int. Cl.³ B65H 77/00

U.S. Cl. 254-204

8 Claims



1. A carpet stretching tool extending along a horizontal longitudinal axis and comprising:
A. a pair of laterally extending and substantially parallel barbed bars including a lead-bar longitudinally spaced from a trail-bar, each barbed bar including a plurality of downwardly extending barbs having sharp ends collectively defining the tool horizontal bottom-plane and being adapted to removably engage distinct terminal lengths of carpet to be stretched into proximity;
B. longitudinally extending guide means attached to the respective barbed bars and located in elevation above the downwardly extending barbs, said guide means being adapted to permit relative longitudinal movement between the carpet engaging barbed bars while also maintaining them in substantial upright parallelism, said guide means comprising a cross-sectionally non-circular collar extending upwardly from one of the barbed bars and a cross-sectionally non-circular longitudinally extending shank attached to the other barbed bar and slidably extending through said collar; and
C. force application means attached to the respective barbed bars and occupying a distinct elevation located intermediate the downwardly extending barbs and said guide means shank, said force application means being adapted to cause relative longitudinal movement between the carpet engaging barbed bars through said guide means and including:
i. a longitudinally extending elongate threaded stud located in elevation below said guide means longitudinal shank, said stud being firmly attached to one of the barbed bars and being movably surrounded by the other barbed bar; and
ii. a handle threadedly engaged with said elongate stud remote from the stud attachment and adapted to apply direct pressure upon the movable barbed bar as said handle is moved along the threaded stud whereby the movable barbed bar is caused by said handle to move toward the stud attached barbed bar.

4,394,005

COLLAPSIBLE TRAFFIC BARRICADE

James B. Stewart, 436 Smith St., Marion, Ohio 43302

Filed May 26, 1981, Ser. No. 267,171

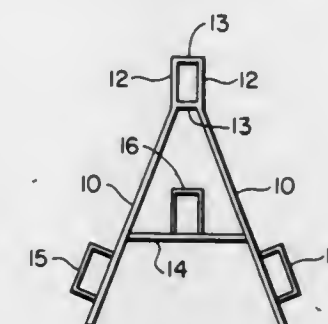
Int. Cl.³ E04H 17/14; E01F 13/00; E04G 1/00, 1/32

U.S. Cl. 256-64

2 Claims

1. A collapsible traffic barricade comprising a reflective panel essentially rectangular in shape and in cross-section, the length of said panel being substantially greater than its height and the height of said panel being substantially greater than its width, two metal leg supports each comprising an upper por-

tion, rectangular in shape and of a size slightly larger than the cross-sectional size of said panel and adapted to receive said panel therein, and being provided with two legs, each of said legs being positioned at obtuse angles to said upper portion of said leg supports both in the plane of said upper portion and in



a plane at right angles to said upper portion, and a horizontal connector connecting said lower portions of said leg supports approximately midway thereof, each of said metal legs being provided on the outside of its lower portion with a rectangular member of a size adapted to receive a reflective panel therein.

4,394,006

MOLTEN METAL FLOW CONTROL

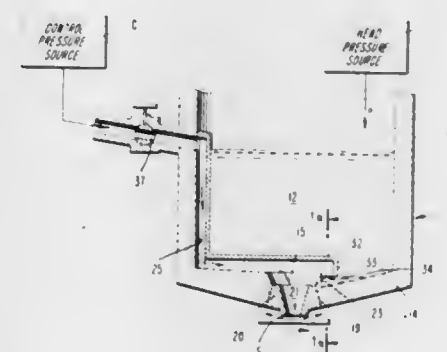
John R. Bedell, Madison, N.J., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Apr. 7, 1982, Ser. No. 367,031

Int. Cl.³ B22D 39/06

U.S. Cl. 266-239

11 Claims



1. A flow control device for supplying molten metal from a crucible or the like for a continuous casting operation or the like comprising:
nozzle means for receiving and discharging metal flow for casting;
a weir upstream of the nozzle discharge for controlling metal flow through said nozzle means; and means for selectively applying pressurized gas against inflowing molten metal in said weir to stop molten metal flow through said weir and said nozzle means whereby said casting operation may be selectively terminated.

4,394,007

DEBURRING CHAMBER FOR THERMAL DEBURRING

Ernst Leisner, Ditzingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/EP80/00056, § 371 Date Apr. 23, 1981, § 102(e) Date Apr. 23, 1981, PCT Pub. No. WO81/00819, PCT Pub. Date Apr. 2, 1981

PCT Filed Jul. 16, 1980, Ser. No. 253,843

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 7927450[U]

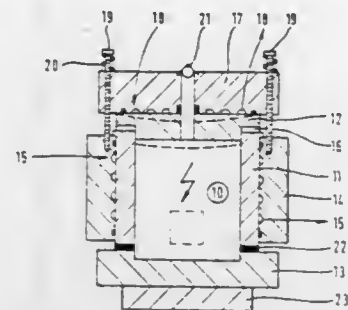
Int. Cl.³ C21D 9/00; B23K 7/00

U.S. Cl. 266-249

8 Claims

1. A chamber for thermal deburring of work pieces compris-

ing readily replaceable parts (11,12,13) fitting together to provide respectively the internal lateral, tip and bottom walls of



said chamber and more permanent backing parts (17,15,23) assuring support and shock-resisting integrity for the chamber.

4,394,008

AUTOMATIC AND MANUAL SHEET FEEDING MECHANISM

Mitsuhiko Sugiyama, Ebina, Japan, assignor to Rank Xerox Limited, London, England

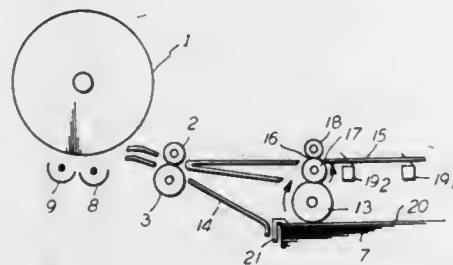
Filed Apr. 20, 1981, Ser. No. 255,935

Claims priority, application Japan, Apr. 25, 1980, 55-54115

Int. Cl.³ B65H 3/06, 1/26

U.S. Cl. 271—9

3 Claims



1. A sheet feed mechanism for a reproduction machine having a photoreceptor surface to which sheets of copy paper are applied for receiving a toner image, and a supply of copy sheets comprising:

- a sheet feed mechanism arranged to feed copy sheets to the photoreceptor surface seriatim from a stack of paper and having a stack contacting roller arranged to contact the top sheet of the stack;
- a second sheet feed roller arranged above said stack contacting roller and in contact therewith;
- a third roller arranged above said second roller and in contact therewith to form a nip therebetween;
- a sheet guide means for guiding sheets manually inserted thereon and moved toward said nip;
- detection means for sensing the presence of a sheet manually inserted on the sheet guide means as it is moved towards said nip;
- means for driving the stack contacting roller; and
- means for moving the stack contacting roller out of contact with said stack while maintaining contact with said second sheet feed roller in response to said detection means sensing the presence of a sheet manually inserted on the sheet guide means, whereby said stack contacting roller rotates in a direction to feed sheets to the photoreceptor surface when in contact with the stack and rotates in the same direction to feed sheets manually through said nip when said stack contacting roller is not in contact with the stack.

4,394,009

SHEET FEEDER WITH BUCKLE RESTRAINT AND FEED ROLL SLIPPAGE

Carl A. Bergman, South Dartmouth; Roy L. Thomas, New Bedford, and Richard A. Bourbeau, North Dartmouth, all of Mass., assignors to Standard Duplicating Machines Corporation, New Bedford, Mass.

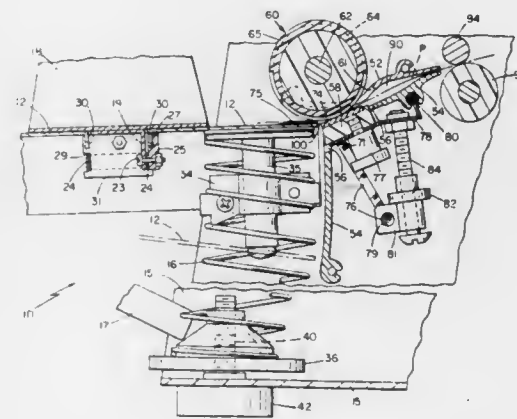
Division of Ser. No. 204,559, Nov. 6, 1980, abandoned, which is a continuation of Ser. No. 33,740, Apr. 26, 1979, abandoned.

This application Dec. 7, 1981, Ser. No. 327,950

Int. Cl.³ B65H 3/06, 9/06

U.S. Cl. 271—10

6 Claims



1. Apparatus for feeding single sheets of paper from a stack of said sheets, comprising:

- a lower guide surface for supporting the under surface of said sheets during feeding thereof,
- an upper guide surface spaced above said lower guide surface,
- separation means for separating a single sheet from said stack and feeding said single sheet along said lower guide surface, said means for separating including a single, centrally-located feed roll providing a moving feed surface,
- registration means downstream of said means for separating, said registration means being activated at the end of a predetermined delay period beginning when said means for separating is activated,
- said delay period being sufficient to assure that said single sheet is moved into engagement with said registration means before the end of said period,
- said upper and lower guide surfaces extending from said feed roll to said registration means,
- said upper guide surface being shaped in the vicinity of said feed roll so as to permit said feed roll to contact said sheets,
- said upper and lower guide surfaces being fixed in predetermined positions during operation of said apparatus,
- the separation between said upper and lower guide surfaces being greater at a location intermediate said separation and registration means than at said means to define a buckle-restraint region intermediate said means wherein buckling of said sheet occurs after engagement with said registration means and before the end of said delay period, and
- said moving feed surface of said feed roll being adapted to slip with respect to said sheet after said sheet has buckled against the surface of said region,
- whereby differences in the amount of time required to feed said sheets from said stack into engagement with said registration means can be accommodated because said delay period can be made longer than the longest feeding time expected and said buckle-restraint region and slipping of said feeding surface can present excessive buckling of sheets arriving before the end of the longer delay period.

4,394,010

SHEET FEEDER

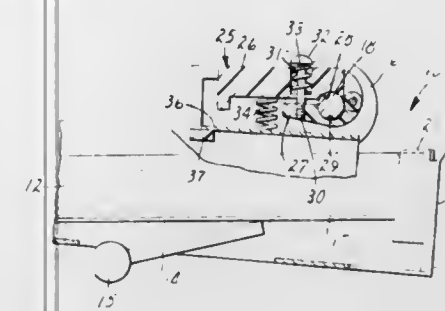
Raymond A. Hogenson, Shoreview, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 23, 1981, Ser. No. 286,338

Int. Cl.³ B65H 3/30

U.S. Cl. 271—22

5 Claims



1. A sheet feeder comprising frame means for supporting a stack of sheets, a feed roll for feeding said sheets having an axle which is rotatably supported on said frame means, means for affording contact of the uppermost sheet within the stack of sheets with said feed roll, drive means for intermittently rotating said axle, a feed roll brake mounted on said axle, including means for releasably coupling said feed roll brake to said axle affording the rotation of said feed roll brake with said axle, until the application of a predetermined force on said feed roll brake in a direction opposing the rotation of said axle by said drive means, and biasing means for applying said predetermined force, and for rotating said feed roll brake, said axle, and said feed roll in a direction opposite to the direction of rotation caused by said drive means upon the cessation of the rotation of said axle by said drive means, thereby urging the uppermost sheets in the stack of sheets in a direction opposite to the feeding direction, and accordingly fanning the uppermost sheets of said stack of sheets.

4,394,011

AUTOMATIC CARD OR TAG DELIVERY APPARATUS

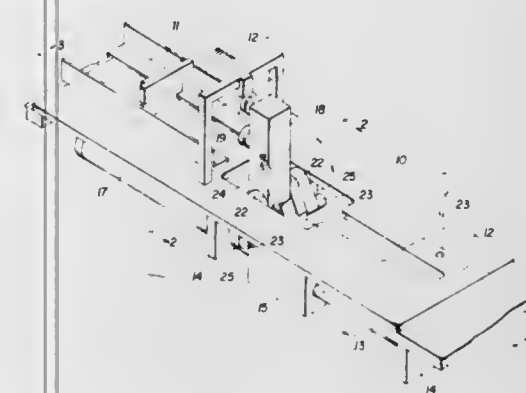
Michael L. Dalton, New Canaan, Conn., assignor to Dalton Systems, Inc., Wilton, Conn.

Filed Aug. 20, 1981, Ser. No. 294,810

Int. Cl.³ B65H 3/08

U.S. Cl. 271—107

7 Claims



1. A delivery apparatus for cards or tags comprising a substantially level support plate, a hopper structure for a stack of vertical cards on one end portion of the support plate, a linear guideway in fixed parallel relationship to the support plate below the support plate, a carriage element movably engaged with said guideway, a linear power actuator connected with said carriage element to drive it in opposite directions on the guideway, a vacuum arm means pivotally attached to the carriage element on a transverse horizontal pivot axis and having attached crank arm means, a spring biasing the vacuum arm means toward a level rest position when the carriage

element is at the other end portion of the support plate, and a fixed stop in the path of movement of said crank arm means at an intermediate part of the support plate and engaging the crank arm means to swing the vacuum arm means to a substantially vertical position above the support plate in opposition to said spring, whereby the vacuum arm means can pick up a vertical card from said hopper structure and swing the card to a level position while transporting the card to said rest position where the card can be attached to an article.

4,394,012

WEIGHTED EXERCISE VEST

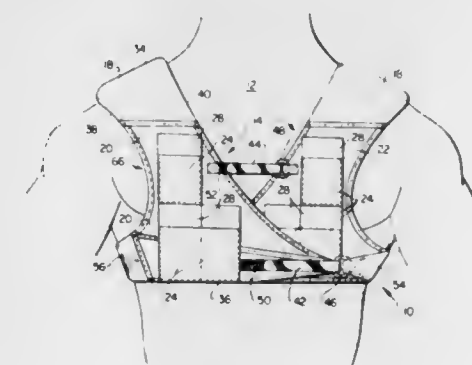
Jeffrey T. Egbert, 22 College Ave., Rexburg, Id. 83440, and Jason S. Egbert, 5036 Whitaker, Pocatello, Id. 83201

Filed Jun. 22, 1981, Ser. No. 275,914

Int. Cl.³ A63B 21/12

U.S. Cl. 272—119

20 Claims



1. An exercise vest adapted to be worn about the chest, back and shoulders of the wearer thereof comprising:

- (a) a contoured shoulder fabric portion adapted to be worn about the back of the neck and over shoulders of the wearer terminating in a horizontal lower back edge and a pair of horizontal lower front edges;
- (b) a trapezoidal back fabric portion terminating in parallel top and bottom edges and symmetrical generally downwardly and inwardly tapered side edges, said top edge being contiguous with and sewn to the lower back edge of said shoulder portion;
- (c) a fabric chest portion comprising right and left flaps adapted to overlap across the chest of the wearer, said right flaps and left flaps being essentially mirror image of each other, each flap being generally trapezoidal in shape having top and bottom parallel edges, said bottom edge being greater in length than said top edge, an outer generally vertical side edge connecting the outermost ends of said top and bottom edges and an inner generally diagonal edge connecting the innermost ends of said top and bottom edges, said inner diagonal edge being greater in length than said outer vertical side edge, said top edges being contiguous with and sewn to the lower front edges of said shoulder portion;
- (d) a pair of adjustable strap securing means interconnecting the lowermost portions of said tapered side edges of said back portion with the lowermost portion of said outer

generally vertical side edges of said right and left flaps of said chest portion;

(e) fastening means for securing said flaps of said chest portion in an overlapping position across the chest of the wearer comprising a pair of straps located on one flap of said chest portion, one strap being affixed at the corner formed by the juncture of the inner diagonal and lower edges of the flap so as to form an extension of said corner and the other strap being affixed along said inner diagonal edge approximately midway between said top and bottom edges, and a corresponding pair of strap receiving loops located on the opposite flap, one of said receiving loops being affixed near the corner formed by the juncture of the outer vertical side edge and the bottom edge and the other receiving loop being affixed along said diagonal edge approximately midway between said top and bottom edges, said straps containing means to secure each strap in a fixed position after said strap has passed through its corresponding receiving loop;

(f) a plurality of weight pockets affixed to said back and chest portions, said weight pockets being of a uniform size and being uniformly distributed thereon;

(g) a plurality of weight modules adapted to be selectively and removably inserted into said weight pockets, each of said weight modules being configured to have a size and shape that fills said weight pockets, said weight modules thereby being constrained from all movement once inserted inside one of said pockets; and

(h) a plurality of identical weights, each of said weights being of a uniform size and mass, and being adapted to be securely held inside of said weight modules.

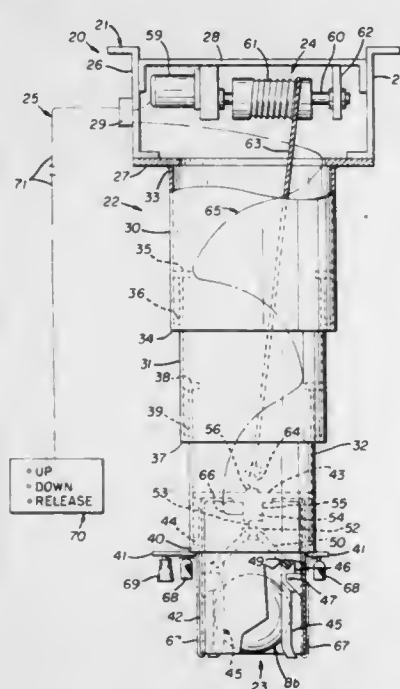
4,394,013

APPARATUS FOR BASKETBALL

James E. Larsen, Lincoln, Nebr., and Charles E. Rogers, Akron, Ohio, assignors to Randall Industries, Inc., Akron, Ohio
Filed May 28, 1982, Ser. No. 383,118
Int. Cl.³ A63B 71/02

U.S. Cl. 273-1.5 R

4 Claims



1. Apparatus for use above a playing court for the game of basketball, comprising: a suspension frame adapted to be secured to a ceiling or structural support above the court; a telescoping elevator unit suspended beneath said frame and having a plurality of coaxially interfitting segments including an outer segment and an inner segment, said outer segment having an upper end adapted to be secured to said frame; a basketball mechanism carried coaxially of said elevator unit inner segment and having arcuately moving paddles to accept and hold a basketball, said paddles being interconnected by a motion linkage to a linkage actuator for selective movement to drop a held basketball toward the playing court; a hoist mechanism mounted on said frame and having a cable trained down and through said elevator unit, the free end of said cable being connected to said basketball mechanism; and, an electrical system to selectively energize said hoist mechanism to raise or lower said elevator unit by movement of said basketball mechanism, and to selectively energize said linkage actuator of said basketball mechanism.

nism mounted on said frame and having a cable trained down and through said elevator unit, the free end of said cable being connected to said basketball mechanism; and, an electrical system to selectively energize said hoist mechanism to raise or lower said elevator unit by movement of said basketball mechanism, and to selectively energize said linkage actuator of said basketball mechanism.

4,394,014

TENNIS RACKET

John A. Balaban, 4142 Graham St., Pleasanton, Calif. 94566
Filed Apr. 27, 1981, Ser. No. 257,992
Int. Cl.³ A63B 49/02

U.S. Cl. 273-73 G

4 Claims



1. A tennis racket having a handle, a bow, and a throat which connects the handle and the bow, said bow having pairs of coaxial holes drilled therethrough to receive strings, an open slot in said throat, said slot being wider than said strings and positioned so that the axis of a hole passing through said throat will lie within said slot, and so that the axes of at least some of said coaxial holes pass through said throat to the exterior of the racket without contacting any portion of the racket.

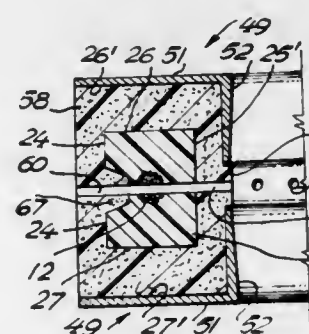
4,394,015

RACKET STRUCTURE

Omar J. Bosnia, Buenos Aires, Argentina, assignor to Taybos Sociedad Anonima, Buenos Aires, Argentina
Filed Jan. 5, 1982, Ser. No. 337,150
Int. Cl.³ A63B 49/02, 49/10

U.S. Cl. 273-73 C

9 Claims



1. A racket structure comprising a one-piece composite member having two contiguous parallel straight end portions continuing into an intermediate open oval shaped, arcuate portion, a bridge portion extending between and connected to said end portions adjacent the beginning of said arcuate portion and closing said open oval shaped, arcuate portion, said bridge and oval portions defining a head frame section for stringing with a taut string, said head frame section to form a striking surface, said parallel straight end portions defining a handle section with a grip, said one-piece composite member having an inner light-weight soft plastic core member defining a longitudinal center line and having an inner face, an outer face and further including a central prestressed longitudinal cord member, said open oval shaped arcuate portion of said core member having between said center line and said outer face, crosswise to said center line arranged spaced apart anchoring recesses each continuing by a bore from said center line towards said inner face, each of said bores being oriented towards the space circumscribed by said frame section, a glass fiber, reinforced outer hard plastic layer, sheathing said core and entering said recesses by way of anchoring portions, each of said anchoring portions including a perforation coaxial with the pertinent

bore, a pair of resilient, flat cover members mounted an opposite sides on said composite member, each cover member having a head portion and a handle portion, each head portion being of oval shape substantially equal to the shape of said head frame section, each handle portion being of substantially the same shape as said handle section, an endless oval shaped inner rim integral with said head portion, the height of said rim being less than half the height of the inner face of said head frame section, and each rim abutting on said inner face and leaving between them a central free portion into which end said bores for said string.

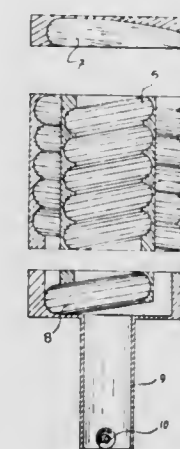
4,394,016

GAME USING THE HELICAL MOVEMENT OF A BALL OR VEHICLE

Pavlos Manos, Louka Ralli 8, Pireaus, Greece
Filed Dec. 16, 1980, Ser. No. 216,977
Claims priority, application Greece, Feb. 23, 1980, 61269
Int. Cl.³ A63F 7/04

U.S. Cl. 273-109

1 Claim



1. An amusement device comprising:
a first cylinder having a helicoidal passageway formed therein;
a second cylinder having a helicoidal passageway formed therein and surrounded by said first cylinder;
wherein said helicoidal passageway from said first cylinder intersects with said helicoidal passageway of said second cylinder forming a continuous passageway in said first and second cylinders, said continuous passageway comprising channels in the walls of said first and second cylinders, and
a hollow handle mounted beneath said first and second cylinders, and
a movable member arranged for free movement within said continuous passageway, and said hollow handle, wherein said movable member comprises a ball.

4,394,017

EARTHQUAKE GAME

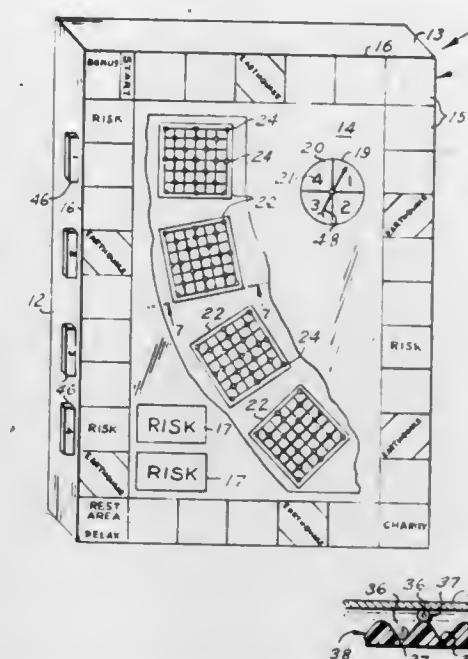
Rick D. Maloy, Rte. 2, Newcomerstown, Ohio 43832
Filed Jun. 5, 1981, Ser. No. 270,894
Int. Cl.³ A63F 3/00

U.S. Cl. 273-237

7 Claims

1. An earthquake game, comprising, in combination, a board, with a pair of side walls, and a pair of end walls fixedly secured to it in a suitable manner, a border of adjacent segments imprinted on said board, for use with a plurality of playing cards, a plurality of square members freely received in openings through said board, for simulating cities, a plurality of mechanisms with circuit means, secured to said board, for vibrating each of said square members, a plurality of building structures

removably received on said square members, a spinner device inscribed on said board, for selecting which square member is



to be vibrated by the players, and a pair of dice for the use of each player, to determine which player will start said game off.

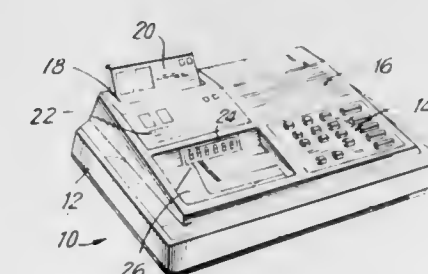
4,394,018

ELECTRONIC LOGIC GAME

Philip Orbanes, Topsfield, Mass., and Julius Cooper, New Hyde Park, N.Y., assignors to Ideal Toy Corporation, Hollis, N.Y.
Continuation of Ser. No. 86,606, Oct. 19, 1979, abandoned. This application Jul. 29, 1982, Ser. No. 403,232
Int. Cl.³ A63F 3/00

U.S. Cl. 273-237

1 Claim



1. An electronic logic game for play by at least one player to identify which one of predetermined "suspects" has committed a "crime", comprising:

a keyboard having manually actuable keyboard switches including an "on" key to initiate play, a "suspect" key to selectively establish a "suspect" questioning mode or a "suspect" accusation mode, numeric keys actuable to enter numerical data for identifying a "suspect" and further actuable to enter predetermined "questions", a "question" key actuable to enable said predetermined "questions" to be asked of the identified "suspect", an "end turn" key actuable to terminate the "questioning" of said identified "suspect", and an "accuse" key actuable to "accuse" an identified "suspect" of being guilty of said "crime";
a visual display including graphic means operable in response to the actuation of said "on" key to provide a visual display representing the location of said "crime" and the identity of the "suspect" who is a "victim" of that "crime", said graphic means being further operable in response to the actuation of said "question" key and a numeric key to provide a visual display representing an "answer" to a "question", and said graphic means being additionally operable in response to the establishing of a

"suspect" questioning mode to provide a visual display of the "alibi" of said identified "suspect";
 audio indicating means for indicating an erroneous "question" of an identified "suspect", for indicating a false "accusation" of an identified "suspect", and for indicating the correct "accusation" of an identified "suspect";
 a plurality of "suspect" cards, each indicating the identity of a respective "suspect" and selected "questions" that may be asked of said respective "suspect"; and
 microprocessor means programmed to store, for each of said "suspects", data indicating the "alibi" of each "suspect" for each "crime", data indicating the "answer" of each "suspect" to each of said selected "questions", data indicating whether each "suspect" is a victim of each "crime", and data indicating whether each "suspect" is guilty of each "crime", said microprocessor means being initially operative to retrieve data stored therein indicating the "victim", "location" and "guilty" "suspect" of a "crime" and to operate said visual display for displaying information representing said "victim" and "location" of said "crime", said microprocessor means being operative in response to the actuation of keys identifying a respective "suspect" to retrieve the data indicating the "answer" of said identified "suspect" to a selected "question" and to operate said visual display for displaying information representing said "answer", and said microprocessor means being operative in response to the actuation of keys identifying an "accused" "suspect" to retrieve said data indicating whether the "accused" "suspect" is "guilty" and to operate said audio indicating means to indicate if said "accused" "suspect" is "guilty".

4,394,019

OIL DRILLING GAME BOARD

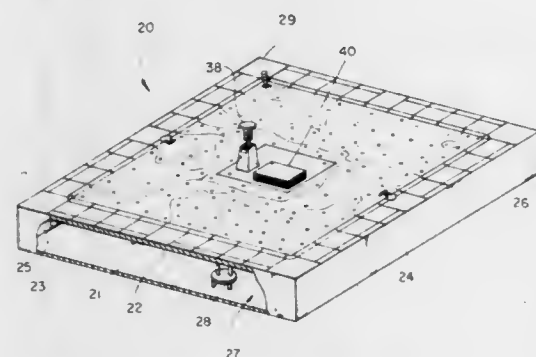
James R. Anthony, and David M. Rush, both of Indianapolis, Ind., assignors to Antfamo, Inc., Carmel, Ind.

Filed Apr. 17, 1981, Ser. No. 255,159

Int. Cl.³ A63F 3/00

U.S. Cl. 273-256

4 Claims



1. An oil well drilling game comprising:
 a game board having a hollow interior and a playing surface thereabove, said playing surface having marked thereon a plurality of oil properties with each property having associated therewith oil well holes extending through said playing surface into said interior;
 a plurality of movable oil well bodies within said interior, said bodies having contact surfaces spaced from said playing surfaces different distances associated with the amount of oil for a given oil well; and
 oil drilling means extendable through to drill any of said holes and operable to contact any of said contact surfaces located therebeneath to indicate the amount of oil for a given oil well and wherein:
 said game board has a circumferentially extending edge portion defining a continuous playing path with said properties positioned on said circumferentially extending edge portion and grouped into different categories, said game board has a center portion surrounded by said edge portion with said oil well holes located in said center portion and grouped into separate oil well holes located in said center portion and

grouped into separate oil field regions providing a separate region for each of said categories, said oil field regions are contiguous with spaces of the particular category associated therewith, at least one of said categories have multiple non-adjacent properties located on said edge portion and contiguous with one of said regions which extends across said center portion between opposite edge portions.

4,394,020

HIGH-SPEED SEAL

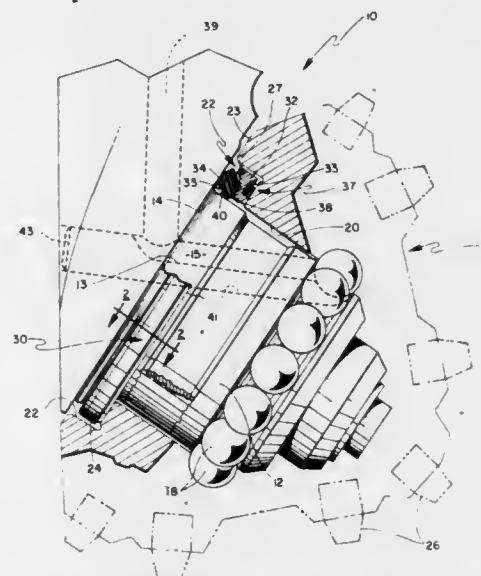
Erwin S. Oelke, Cypress, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Oct. 18, 1982, Ser. No. 434,996

Int. Cl.³ F16J 15/34; F16C 33/78; E21B 10/08

U.S. Cl. 277-1

12 Claims



1. A seal apparatus for a rotary cone rock bit, said seal being positioned in a cavity formed between a journal extending from a leg of said rock bit and a rotatable cone mounted on said journal, said seal comprising:

- a metal ring, said ring having a diameter that will fit within said cavity, a peripheral surface formed by said ring subsequently serving as part of a metal-to-metal seal, an annular seal gland channel formed by said metal ring, said channel being positioned adjacent said peripheral surface,
- a resilient material partially encapsulating said metal ring, said resilient material forming an O-ring type of seal in said cavity formed between said leg of said rock bit and said rotatable cone,
- a separate seal packing ring contained within said seal gland channel in said metal ring, during initial rotation of said cone on said journal, a portion of said separate seal packing ring adjacent said metal peripheral surface eventually wears away exposing said peripheral metal surface to an adjacent cavity wall, said metal surface and said cavity wall subsequently forming a lapped sealing surface, said separate seal packing ring prevents loss of a lubricant stored within said rock bit during the time said peripheral surface of said metal ring is forming a lapped seal against said adjacent wall of said cavity.

4,394,021

CONTACT SEALING

Jouni A. Merilä, Pajala, Sweden, assignor to Luossavaara-Kiirunavaara AB, Stockholm, Sweden

Filed Feb. 19, 1981, Ser. No. 235,858

Claims priority, application Sweden, Feb. 25, 1980, 8001455

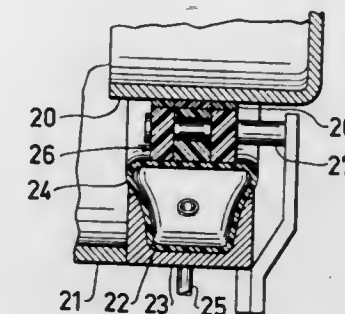
Int. Cl.³ F16J 15/46

U.S. Cl. 277-34.3

1 Claim

1. A contact sealing for sealing an annular space between two relatively rotating members, particularly for sealing a material flow to a rotary drum from an opening in a stationary wall, one of the members being provided with an annular

sealing surface and the other member being provided with an annular bottoming groove facing the sealing surface of said one member, the bottoming groove receiving a closed pressurized flexible and expandable annular hose and an annular sealing member, said sealing member being force-engaged by said hose



to seal about said sealing surface, said sealing member being a flexible strip, having two ends respectively being provided with a groove and a tongue, the groove and tongue being interconnected and secured by an axial stud, and the stud in turn being secured to said other member.

4,394,022

MECHANICALLY EXPANDABLE ANNULAR SEAL

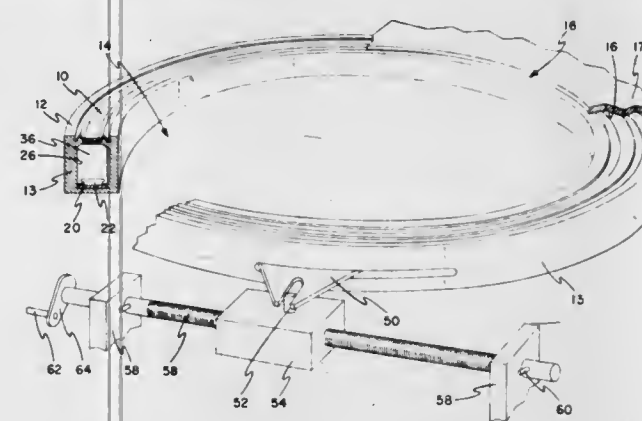
Richard F. Gilmore, Kennewick, Wash. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Sep. 29, 1981, Ser. No. 306,998

Int. Cl.³ F16K 27/04; F16J 15/16; F16L 37/20

U.S. Cl. 277-36

10 Claims



1. An expandable annular reusable seal assembly for hermetically sealing a first generally planar stationary containment surface to a second generally planar stationary containment surface wherein said second containment surface is proximate, spaced apart, and generally parallel with respect to said first containment surface, said seal assembly comprising:

- (a) a rigid, circular ring having a longitudinal axis;
- (b) means for movably and generally parallelly attaching said ring to said first containment surface so that said ring's motion is generally restricted to a rotation about its longitudinal axis;
- (c) a plurality of ring wedges fixed to said ring, each of said ring wedges having a generally identically inclined square-thread helical-shaped surface oriented obliquely away from said ring and obliquely towards said second containment surface, said ring wedges each also having the shape of an annular segment and together similarly disposed in an annular, generally hole-saw-tooth-like array coaxial with said ring;
- (d) a plurality of seal wedges, each of said seal wedges contacting said inclined surface of a corresponding said ring wedge and having a first face generally lying a plane disposed towards, and generally parallel with, said second containment surface, said seal wedges each also having the shape of an annular section and together disposed in a

generally contiguous annular cluster with said first faces together generally lying in a common plane;

- (e) means for slideably attaching each of said seal wedges to its corresponding said ring wedge so that each of said seal wedges is slideable along said ring wedge's inclined surface;
- (f) means for restricting the motion of said seal wedges to be perpendicular to said first containment surface;
- (g) an annular elastomer seal, generally matching said ring, having its inner and outer circumference hermetically attached to said first containment surface, said elastomer seal disposed between said first faces of said seal wedges and said second containment surface, and having a central annular portion attached to said first faces of said seal wedges; and
- (h) mechanical means for rotating said ring from a first angular position to a second angular position, and maintaining said ring at said second angular position, to rotate said ring wedges to slide forth said seal wedges to extend said elastomer seal towards said second containment surface to form a fluidtight annular barrier, and for counter-rotating said ring from said second angular position to said first angular position, and maintaining said ring at said first angular position, to counterrotate said ring wedges to slide back said seal wedges to retract said elastomer seal from said second containment surface to remove said fluidtight annular barrier.

4,394,023

HIGH TEMPERATURE VALVE STEM PACKING WITH COILED GRAPHITE SEAL RINGS

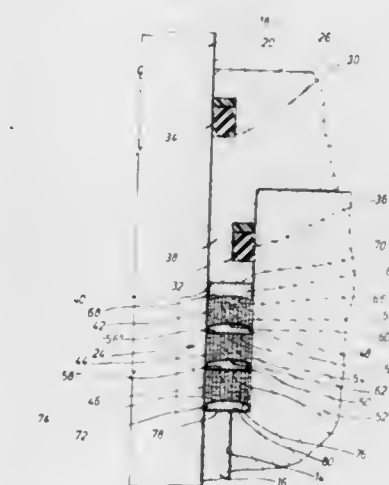
Alberto L. Hinojosa, Houston, Tex., assignor to Daniel Industries Inc., Houston, Tex.

Filed Sep. 29, 1982, Ser. No. 427,463

Int. Cl.³ F16K 31/44; F16J 15/12

U.S. Cl. 277-124

3 Claims



1. A high temperature stem packing assembly for valves, comprising:

- (a) a plurality of graphite seal rings composed of spirally coiled graphite tape originally coiled in such manner as to form generally planar circular end surfaces;
- (b) metal packing adapter ring means being interposed between each of said graphite seal rings, said packing adapter ring means defining convex circular end surface means at one end thereof and planar circular end surface means at the opposite end thereof, said convex circular end surface means deforming the end surface of the seal ring in contact therewith from said originally generally planar circular surface configuration to a corresponding concave configuration mating with said convex circular surface of said adapter ring means.

4,394,024

SEAL FOR USE WITH PIPES TO BE FITTED ONE INTO ANOTHER WITH SPIGOT AND SOCKET ENDS

Johannes C. Delhaes, Voerendaal-Ten Esschen, Netherlands, assignor to Rubber-en Kunststoffabriek ENBI B.V., Netherlands

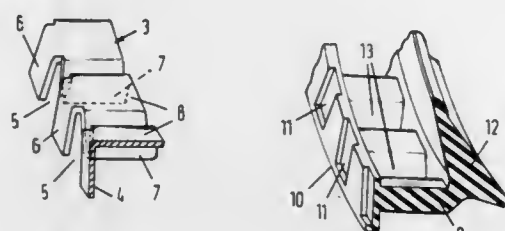
Filed Jun. 2, 1981, Ser. No. 269,718

Claims priority, application Netherlands, Jun. 4, 1980, 8003258

Int. Cl.³ F16J 15/10; F16L 21/00

U.S. Cl. 277-207 A

6 Claims



1. A seal for use with pipes to be inserted one into another by means of spigot and socket ends comprising a sealing sleeve made of an elastomeric material, said sleeve being clamped within the socket by a radially resilient bushing provided with outward corrugations extending parallel to the axis of said bushing, said bushing is provided with a collar which is segmented by cuts extending throughout the entire width of said collar.

4,394,025

PIPE COMPRESSION SEAL FOR BELL AND SPIGOT JOINT

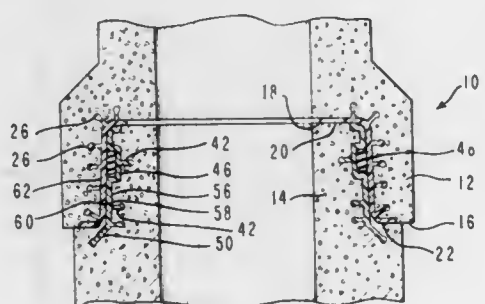
Kenneth W. Anderson, Springfield, Ill., assignor to Anderson Seal Company, Inc., Springfield, Ill.

Filed Nov. 9, 1981, Ser. No. 319,297

Int. Cl.³ F16J 15/10; F16L 21/02

U.S. Cl. 277-207 A

5 Claims



1. A pressure resistant system for joining concrete pipes in end-to-end relationship wherein said first pipe terminates in a bell end and the second pipe terminates in a complimentary spigot end telescopically received therein, the bell end defining a bell end face and an internal offset face radially and axially offset from the bell end face, and the spigot end defining a spigot end face and an external offset face radially and axially offset from the spigot end face, the end face and offset face of said bell end of said spigot being connected, respectively, by inner and outer seal mounting surfaces, said system comprising:

a bell end sealing ring extending from the bell offset face to the bell end face along the bell seal mounting surface, said ring mounting a plurality of mutually spaced, outwardly directed, circumferential flanges embedded in said bell;
a spigot end sealing ring extending from the spigot offset face to the spigot end face along the spigot seal mounting surface, said ring mounting a plurality of mutually spaced, inwardly directed, circumferential flanges embedded in said spigot, the end of said ring adjacent said spigot offset face mounting an integral sealing flange extending outwardly at an angle thereto and embedded in said pipe below the spigot offset

surface, said ring further defining a central, circumferential, concave groove embedded in said spigot; and
an O-ring seal retained in the spigot ring groove between the spigot and bell sealing rings when the spigot end is telescopically received in the bell end.

4,394,026

PANEL EDGE GASKET WITH COMPRESSIBLE SEALING PORTION

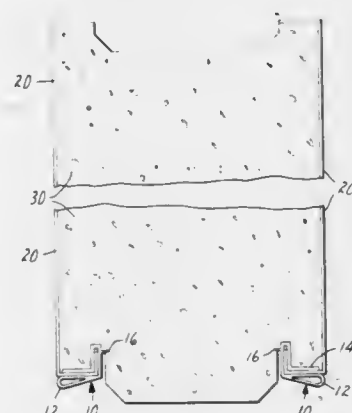
Kenneth L. Kaiser, and William C. Shirley, both of P.O. Box 248, Second & Elm, Hudson, Wis. 54016

Filed Sep. 4, 1981, Ser. No. 299,403

Int. Cl.³ F16J 15/10; E06B 7/23

U.S. Cl. 277-231

7 Claims



1. An edge gasket for a foamed-in-place panel comprising
(a) a compressible sealing portion,
(b) attachment means for attaching said sealing portion to a panel edge, wherein said attachment means is L-shaped with an interior channel which is adapted to engage a substrate having two 90° bends therein, and
(c) a flexible wing carried by said attachment means.

4,394,027

TRACTOR-TRAILER LAND VEHICLE

Robert G. Watkins, Jr., No. 2 Longview Rd., R.D. #4, Coatesville, Pa. 19320

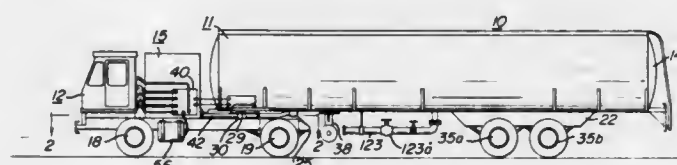
Continuation of Ser. No. 26,056, Apr. 2, 1979, Pat. No. 4,272,089, which is a continuation of Ser. No. 769,518, Feb. 17, 1977, Pat. No. 4,149,732. This application May 11, 1981, Ser. No. 262,217

The portion of the term of this patent subsequent to Apr. 17, 1996, has been disclaimed.

Int. Cl.³ B60P 3/22

U.S. Cl. 280-5 C

5 Claims



1. A fuel transport land vehicle for dispensing jet fuel to an aircraft comprising
a tractor, a trailer having a tank for carrying jet fuel, means for detachably coupling said tractor to said trailer, pumping module means enclosed within a housing having disposed therein means for filtering said jet fuel and means for modulating the flow of said jet fuel from said tank, and means for detachably securing said housing to said tractor whereby said pumping module means may be easily removed from said tractor upon malfunction of said pumping module means.

4,394,028

SKATE

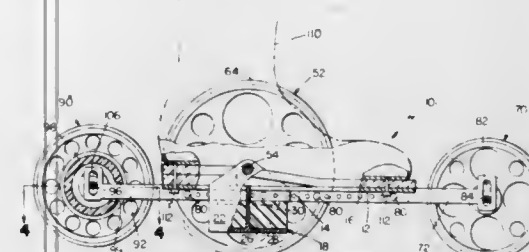
Joseph S. Wheelwright, 551 Tremont St., Boston, Mass. 02116

Filed Mar. 13, 1981, Ser. No. 243,445

Int. Cl.³ A63C 17/04

U.S. Cl. 280-11.19

17 Claims



1. A roller skate comprising
a foot supporting plate carrying means for engaging a human foot thereon,
a front wheel carried by a yoke fixedly connected to said plate,
said front wheel extending above said plate and being in front of said means for engaging,
a pair of side wheels mounted on both sides of said plate and extending above said plate,
means for suspending said plate on said side wheels for lateral tilting motion of said plate and said front wheel relative to said side wheels, and
brake means comprising a rear brake wheel secured to the rear of said plate and activated by movement of a skater's foot,
whereby said plate and front wheel can be tilted as a skater leans during turning while said front and side wheels remain on the ground.

4,394,029

FOOT OPERATED VEHICLE

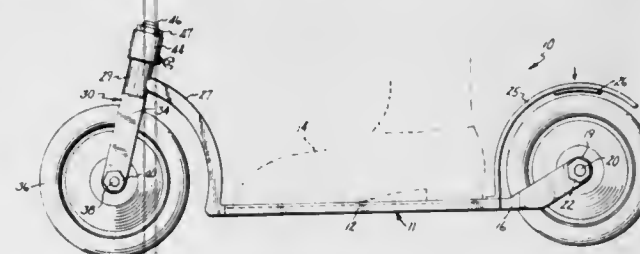
Frank E. Holmgren, P.O. Box No. 8, Big Lake, Minn. 55309

Filed Apr. 3, 1981, Ser. No. 250,762

Int. Cl.³ A63C 17/04; B62K 21/10

U.S. Cl. 280-11.23

14 Claims



1. A foot operated vehicle comprising:
a frame having a generally flat foot support platform and a tubular collar secured to the forward end of the frame positioned in a generally upright orientation;
rear wheel means supporting the rear of the platform;
a steerable front wheel assembly connected to a forward portion of the frame in supportive relationship to the forward portion of the platform, said front wheel assembly including a steering shaft, a front wheel rotatably mounted to the steering shaft, said steering shaft extending through said tubular collar for pivotally connecting the front wheel to the frame for pivotal movement about a generally upright axis, said steering shaft having an upper end portion extended outwardly of the collar;
bias means connected between the frame and the tube collar comprised as a helical spring disposed in surrounding relationship to the upper end portion of the steering shaft extended outwardly of the collar and having one end connected to the collar and an opposite end connected proximate the upper end of the steering shaft, said spring

operable to bias the front wheel in a straight ahead position with respect to the frame whereby upon execution of a turn the forward wheel pivots in the direction of the turn against the influence of the bias means, and is returned to a straight ahead position by the bias means upon completion of the turn, and;

a cap assembled to the top end of the steering shaft for rotation therewith and having downwardly extended cylindrical sidewalls positioned in covering relationship to the spring and in overlapping relationship to the upper end of the tubular collar.

4,394,030

KING PIN CONNECTING MECHANISM

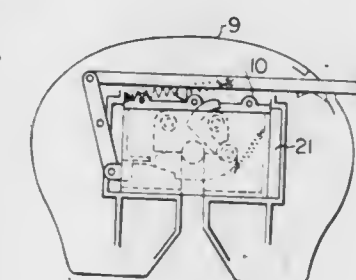
Akira Inoue, Kitakyushu, Japan, assignor to Hitachi Metals, Ltd., Japan

Filed Jan. 26, 1981, Ser. No. 228,180

Int. Cl.³ B62D 53/06

U.S. Cl. 280-434

3 Claims



1. A connecting mechanism for connecting a king pin fixed to a trailer to a fifth wheel plate provided on a tractor, comprising: a substantially enclosed box structure having a slot extending longitudinally in one side thereof for receiving said king pin therein, and having an opening in an adjacent side thereof contiguous with said slot for permitting entry of said king pin into said box structure and into said slot, said box structure having pivotally mounted therein at least a portion of the parts for connecting said king pin, said box structure being detachably attached in a secure manner to the lower face of said fifth wheel plate, with said one side of said box structure adjacent thereto.

4,394,031

EASILY MOUNTABLE SWINGABLE-ARM DRAW-PIN RETAINER

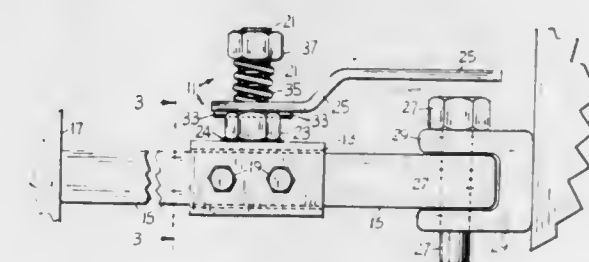
Roy C. Barton, 724 Main St., and Dale A. Smith, Box 169, both of Mt. Vernon, Ill. 62864

Filed May 27, 1980, Ser. No. 153,157

Int. Cl.³ B60D 1/02

U.S. Cl. 280-515

1 Claim



1. In a tow-hitch having a bar attachable to a first vehicle, a therewith-mating clevis attachable to a second vehicle, and a conventional hitch tow-pin coupling insertable downwardly through aligned bores in said bar and said clevis, the improvement comprising: a tow-pin-retaining fully assembled unit having a vertically disposable pivot pin, means for fixing said pivot pin to tow-hitch structure so as to be closely adjacent the axis of said tow-pin in its hitch-coupling arrangement, an arm

mounted on said pivot pin for horizontal swinging to and from a position closely above the top of said tow-pin, and detent means for yieldably holding said arm in its tow-pin-overlying and -retaining position, said tow-pin-retaining unit comprising a short sleeve telescopically slidable over a conventional draw-bar, said pivot pin being firmly fastened to the top of said sleeve, said means for fixing being set screws for releasably anchoring said sleeve to said draw-bar, and said detent means comprising a nut fixed to said pivot pin and radially grooved on its arm-facing surface, rounded protuberances on said arm for engaging in the grooves of said nut, and a coil spring around said pivot pin biasing said arm toward said nut.

4,394,032

SKI SAFETY BINDING

Ralf Storandt, Leonberg; Manfred Richert, Farchant, and Georg Scheck, Leonberg, all of Fed. Rep. of Germany, assignors to Geze GmbH, Leonberg, Fed. Rep. of Germany

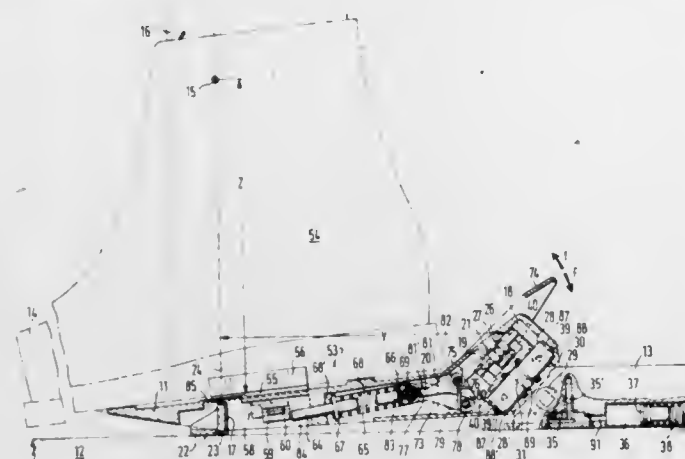
Filed Nov. 26, 1980, Ser. No. 210,615

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1979, 2948275

Int. Cl.³ A63C 9/081

U.S. Cl. 280—618

24 Claims



1. A ski safety binding for protecting a skier during skiing against both a dangerous bending moment acting on a leg of the skier at an endangered section of the skier's leg and a dangerous torsional moment acting about the leg, said ski safety binding comprising: a sole plate; a ski boot securing system carried by said sole plate for releasably securing a ski boot to said sole plate; mounting means for mounting the sole plate on a ski having an upper surface and a longitudinal direction, for limited displacement in said longitudinal direction, and for limited pivotal movement about a transverse axis and about a vertical axis extending substantially along the skier's leg; guide means disposed between said sole plate and said ski and displaced in said longitudinal direction from said vertical axis, said guide means including an inclined guide extending at an inclined angle to said upper surface of the ski in a vertical plane including said longitudinal direction and a transverse guide extending in a direction transverse to said inclined guide; first retaining means for retaining the sole plate in a specified position along said inclined guide; second retaining means for retaining the sole plate in a specified position along said transverse guide; first resilient means permitting resilient deflection of said first retaining means on the occurrence of excessive forces thereon due to said bending moment to allow movement of said sole plate along said inclined guide; second resilient means permitting resilient deflection of said second retaining means on the occurrence of excessive forces thereon due to said torsional moments to allow limited movement of said sole plate along said transverse guide, and sensor means responsive to said limited movement along said inclined guide and to said limited movement along said transverse guide to release said boot securing system.

4,394,033

TEMPERATURE COMPENSATING ELASTIC CONE

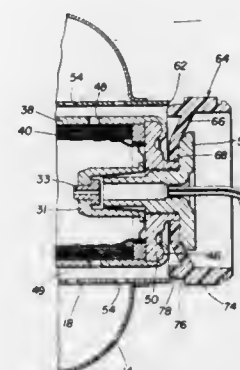
George W. Goetz, Detroit; Arne J. Santti, Lapeer, and Gary R. LaLonde, Sterling Heights, all of Mich., assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Feb. 26, 1981, Ser. No. 238,318

Int. Cl.³ B60R 21/08

U.S. Cl. 280—736

1 Claim



1. A passive occupant-restraint system comprising
 - (a) an inflatable cushion,
 - (b) a fluid generator operatively connected to said cushion,
 - (c) means to fire said generator and create inflation fluid,
 - (d) discharge ports in said generator directing flow of inflation fluid into said cushion, and
 - (e) means coaxial with said generator to vent fluid directly therefrom and beyond said cushion and responsive to an increase in operating temperature, said venting means having a flexible web terminating in an axially extending rib fitting within the end of said generator and moveable substantially axially from that position closing the end of said generator to an open position in response to said increase.

4,394,034

BELT CLAMP FOR RETRACTOR

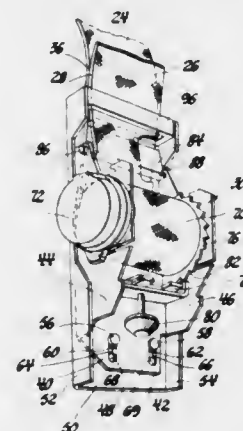
James E. Murphy, Royal Oak, and Kenneth H. Reid, Mt. Clemens, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 8, 1981, Ser. No. 252,028

Int. Cl.³ B60R 21/10

U.S. Cl. 280—801

3 Claims



1. A retractor for vehicle body occupant restraint belt comprising:
 - a frame having a belt reel for winding and unwinding the restraint belt;
 - means mounting the frame for limited movement on the vehicle body;
 - locking means acting between the frame and the reel and selectively operable to lock the reel against belt unwinding rotation;
 - a clamping member carried by the frame independently of

the belt reel for limited movement with the reel and the frame;

a clamping abutment mounted on the vehicle body in spaced relation from the clamping member and from the belt reel and cooperating with the clamping member to define a belt passage through which the belt travels during winding and unwinding from the reel; and

yieldable means acting between the frame and vehicle body to establish the frame at a normal position spacing the clamping member from the clamping abutment to permit travel of the belt therebetween during belt winding and unwinding, said yieldable means yielding upon the occurrence of a predetermined occupant restraint load imposed on the frame subsequent to lockup of the reel by the reel locking means to permit the frame to move relative to the vehicle body in the direction of belt loading and effect clamping of the belt between the clamping member and the clamping abutment to fix the length of the belt against spooling down on the reel.

4,394,035

AUTOMOTIVE VEHICLE SEAT BELT DEVICE

Yoshimi Sato, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

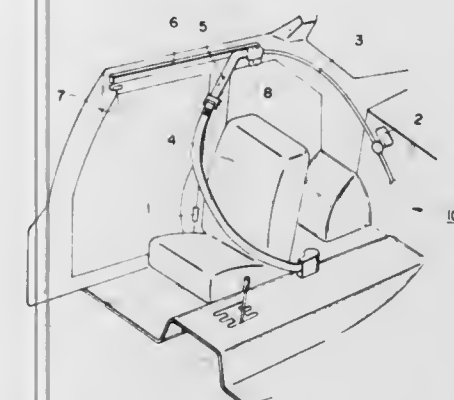
Filed Sep. 17, 1980, Ser. No. 187,870

Claims priority, application Japan, Sep. 19, 1979, 54-119210

Int. Cl.³ A62B 35/00

U.S. Cl. 280—804

14 Claims



1. An automotive vehicle seat belt device, comprising:
 - (a) a slide mechanism fixed to the vehicle, said mechanism comprising:
 - (i) a slide rail; and
 - (ii) a slide element slidably mounted to said rail;
 - (b) a seat belt anchored at one end thereof to the vehicle and connected at the other end thereof to said slide element;
 - (c) a drive motor operably connected to said slide element to move said slide element along said slide rail; and
 - (d) an electric circuit for controlling the operation of said drive motor, comprising:
 - (i) a front travel limit switch operative in response to the position of said slide element;
 - (ii) a rear travel limit switch operative in response to the position of said slide element;
 - (iii) a door switch operative in response to the door position;
 - (iv) first changeover means responsive to a first position of said door switch and a switch for driving said motor in one direction to move said slide element to the front;
 - (v) second changeover means responsive to a second position of said door switch and a first position of said rear travel limit switch for driving said motor in the reverse direction to move said slide element to the rear; and
 - (vi) control switching means for disabling the effect of the movement of said door switch to its first position, said control switching means being actuated in response to predetermined vehicle conditions.

4,394,036

PASSIVE SAFETY BELT ARRANGEMENT

Christian Hildebrandt, Gifhorn-Wilsche, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

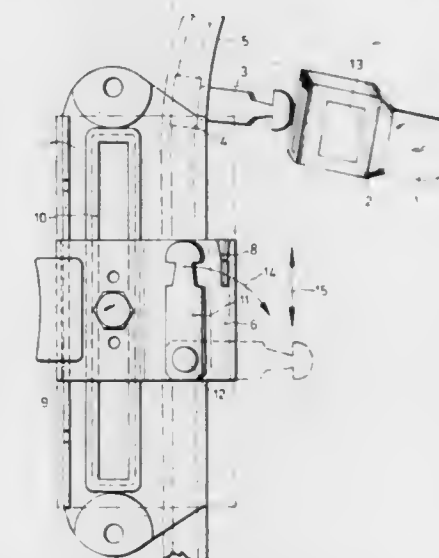
Filed May 19, 1981, Ser. No. 265,226

Claims priority, application Fed. Rep. of Germany, May 20, 1980, 3019158

Int. Cl.³ B60R 21/02

U.S. Cl. 280—804

4 Claims



1. A passive safety belt arrangement for vehicles, for example passenger automobiles, has a safety belt with one end being connectable, by means of a manually-operable closing device, with a slide which can be displaced by a drive means, said slide being displaceable in a guide held on the vehicle body between a release position, in which the belt is lifted off the body of a vehicle occupant, and a restraining position, in which the belt is applied to the body of the vehicle occupant, characterized in that in the region of the restraining position of the slide, a counterpart, which is connectable with the part of the closing device at the belt end, is fastened to a stationary point on the vehicle body.

4,394,037

SPARK-GENERATING ROLLER SKATE ASSEMBLY

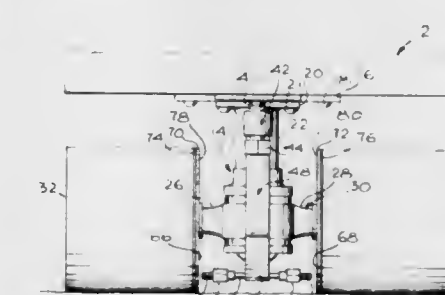
David H. Kuntz, 11810 Bel Ter., Los Angeles, Calif. 90049

Filed Dec. 1, 1980, Ser. No. 211,820

Int. Cl.³ A63C 17/026

U.S. Cl. 280—816

17 Claims



1. An improved spark-generating roller skate assembly, said assembly comprising, in combination:
 - (a) a plurality of rollers;
 - (b) a weight-bearing frame securing said rollers in spaced relation for rotation; and
 - (c) a spark generator comprising:
 - (i) an abrasive disposed on a surface of at least one of said rollers, which surface rotates during skating utilizing said assembly but which surface does not contact the ground during said skating,

- (ii) a sparking element which generates a spark when moved into frictional contact with said abrasive, and
- (iii) a flexible resilient holder bearing said sparking element and arranged to normally position said sparking element out of contact with said abrasive but in a position close enough thereto so that vibrations imparted to said holder during skating utilizing said assembly move said sparking element into and out of brief intermittent contact with said abrasive.

4,394,038

ADHESIVE-BACKED BOOKLET FOR CREDIT CARD TRANSACTION

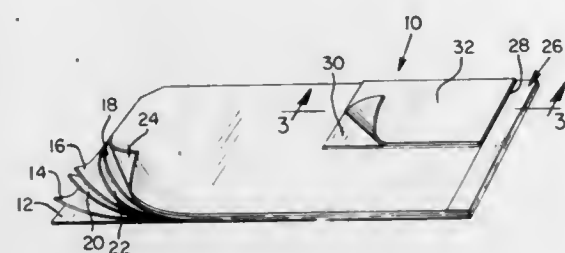
Paul E. Klein, 601 First St., Lake Oswego, Oreg. 97034

Filed Jan. 9, 1981, Ser. No. 223,854

Int. Cl.³ G09F 3/10

U.S. Cl. 282-1 R

5 Claims



1. In combination a transaction record including a card having print-impartible characters, and an imprinting device having a support surface with a defined region for receiving such a card, and a pressure platen cooperative with such surface and manipulatable relative thereto to effect an imprinting operation, said record being imprintable and, comprising a recording sheet placeable on said surface, said sheet having a defined expanse disposed to extend, when said sheet is placed on said surface, over at least a portion of a card received by such defined region, and pressure-responsive adhesive means distributed over the expanse face placeable adjacent said card for capturing and releasably retaining with said sheet said card following an imprinting operation.

4,394,039

MULTIPLE UNIONS FOR SIMULTANEOUSLY JOINING A PLURALITY OF PNEUMATIC OR HYDRAULIC PIPES

Jean-Luc Burquier, Veyrier du Lac, France, assignor to S.A. Des Etablissements Staubli, Faverges, France

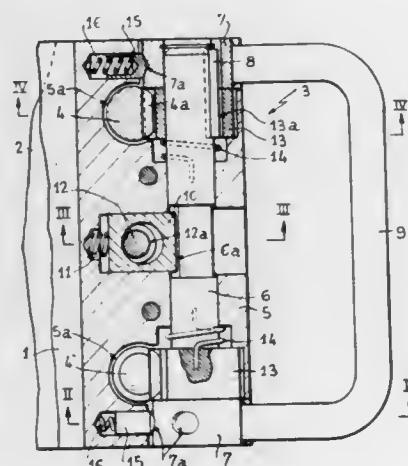
Filed Mar. 16, 1981, Ser. No. 244,482

Claims priority, application France, Mar. 25, 1980, 80 07625

Int. Cl.³ F16L 55/00, 39/00, 37/00

U.S. Cl. 285-85

8 Claims



1. In a multiple union device for simultaneously joining the complementary male and female elements of a plurality of

elementary unions equipped with seals, said union device comprising:

- (a) first and second plates for supporting the male and female elements and operative to be brought close together so as to compress the seals associated with the elements carried by said plates, said second plate having fixed thereto paired toothed columns which project from its surface toward the first plate, and said first plate supporting opposite each pair of columns a block having bores disposed to slidably receive said columns;
- (b) automatic latching means to retain said plates in an operative position in which the seals would be compressed between the male and female elements of the elementary unions, said latching means comprising pillar means fixed to said second plate and projecting toward the first plate, each pillar means being formed with a transverse depression, said first plate and block having a perforation disposed to slidably receive said pillar means, and bolt means slidably carried by said block and having a tooth operative to engage said transverse depression of said pillar means to retain said plates in said operative position, the bolt means being displaceable to disengage the tooth from said depression to permit separation of said plates;
- (c) a shaft rotatably supported by each block and passing adjacent to each bore, a pair of pinions mounted on each shaft and respectively extending into each bore and disposed therein to mesh with one of said toothed columns, the pinions being operative when rotated in a first locking direction to displace said first plate toward said second plate and being operative when rotated in a second unlocking direction to urge said first plate away from said second plate;
- (d) release means carried by said shaft and operative to displace said bolt means to disengage said tooth from said depression when said shaft is rotated in said second unlocking direction; and
- (e) lost-motion connecting means coupling said shaft and said pinions, said connecting means allowing said pinions a predetermined angle of freedom of rotation with respect to said shaft.

4,394,040
GRAPPLE

Richard Marzka, 6051 Knoyle Rd., Erie, Pa. 16510, assignor to

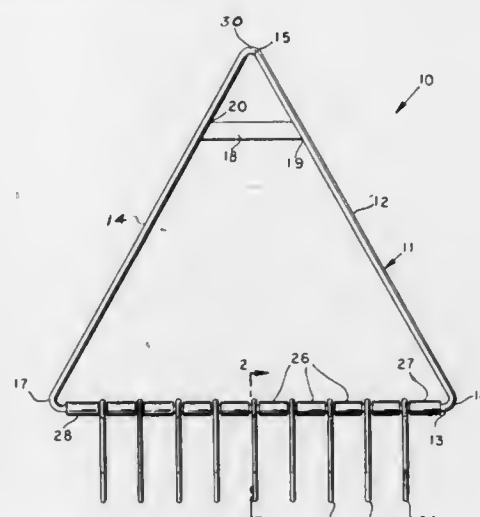
Richard Marzka and Mark R. Krahe, both of Erie, Pa.

Filed Jul. 24, 1981, Ser. No. 286,610

Int. Cl.³ B66C 1/10

U.S. Cl. 294-66 R

3 Claims



1. Apparatus for grapple which comprises: a relatively rigid frame (11), said frame (11) being formed generally in the shape of a triangle having a first straight side (12), a second straight side (13) and a third straight side (14),

said first side and said third side being connected together at a first apex,

said first side and said second side being connected together at a second apex and said second and third sides being connected together at a third apex.,

said first apex being adapted to have a line attached thereto, a plurality of hook members (24,25) swingably mounted on said second side (13), each said hook member having an elongated straight portion (23), an eye formed on one end of said elongated straight portion and a curved hook (24, 25) formed in the other end of said elongated straight portion, said eyes receiving said second side,

a plurality of tubular spacers (26) received on said second side (13), each said spacer being received on said second side between each two adjacent said eyes,

a cross member (18) extending from said first side adjacent said first apex and to said third side and attached to said first side and said third side,

each said hook member having its said curved hook extending in a different direction from the said hooks adjacent thereto,

said hook members terminating in an end portion extending generally parallel to said straight portion and terminating in a flat end.

4,394,041

HOISTING YOKE

Jakob de Nachtegaal, Hendrik Ido Ambacht, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands

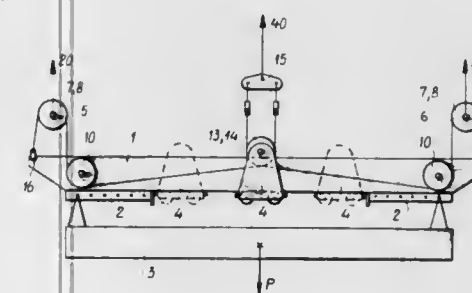
Filed May 14, 1981, Ser. No. 263,605

Claims priority, application Netherlands, May 20, 1980, 8002900

Int. Cl.³ B66C 1/10

U.S. Cl. 294-181 R

2 Claims



1. A hoisting yoke for lifting and displacing a load, comprising an elongated frame, means at opposite ends of the frame for supporting the frame, suspension means intermediate the length of the frame displaceable lengthwise of the frame for sharing the load of the frame, and means responsive to unequal loading of said supporting means at the ends of the frame to move said intermediate means lengthwise of the frame until the loading at the opposite ends of the frame and at the intermediate means are all three equal.

4,394,042

ICE SKATE CARRIER

David H. Smith, 454 Barkentine La., Redwood City, Calif. 94065

Filed Apr. 19, 1982, Ser. No. 369,560

Int. Cl.³ B65D 71/00

U.S. Cl. 294-163

11 Claims

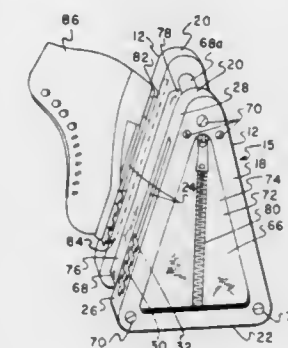
1. In a portable, rigid carrier for a pair of ice skates including: an upright wall having a front side, a rear side, a pair of lateral panels having planar surfaces, a top and a bottom, the improvement comprising:

a central, longitudinal slit extending from lower portion to upper portion of said front and rear sides;

each of said lower portions provided with an adjustment means located in said slit comprising a plurality of pairs of

opposite notches and a peg member removably insertable therebetween;

each of said upper portions of said front and rear sides provided with a spring-loaded locking means positioned between said panels;



4,394,043

SUN VISOR

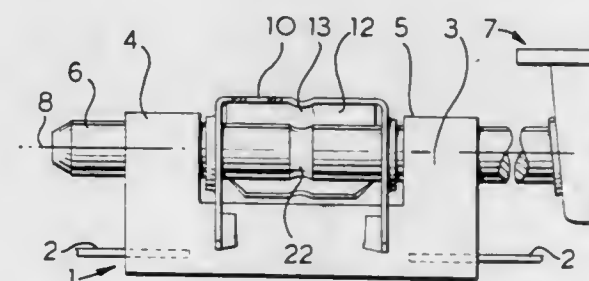
Michael B. Moulding, Hatfield Peverel, England; Klaus Müller, Weil-Haltingen, and Gerhard Mack, Rheinfelden-Adelhausen, both of Fed. Rep. of Germany, assignors to Ford Motor Company, Dearborn, Mich.

Filed Jun. 15, 1981, Ser. No. 273,293

Int. Cl.³ B60J 3/00

U.S. Cl. 296-97 H

6 Claims



1. A sun visor comprising a mounting bracket having a longitudinally extending shaft projecting therefrom, a visor panel mounted on the shaft for rotation about the longitudinal axis of the shaft, and a mounting clip connected to the visor panel for rotation therewith and including a spring leaf which exerts a radial force on the shaft which resists rotation of the visor panel on the shaft, characterized in that the spring leaf and the shaft include complementary interengaging radial formations which engage each other to resist axial movement of the visor panel along the shaft.

4,394,044

REMOVABLE SUNROOF FOR VEHICLES

Louis E. Hough, 22448 Statler, St. Clair Shores, Mich. 48081; Walter J. De Vigili, 16082 Dugan Rd., Roseville, Mich. 48066, and David C. Shifflett, 19466 Highlight Dr., Clinton Township, Clinton County, Mich. 48043

Filed Oct. 8, 1980, Ser. No. 195,150

Int. Cl.³ B60J 7/00

U.S. Cl. 296-218

29 Claims

18. A sunroof assembly for a vehicle having an opening in the roof thereof, comprising:

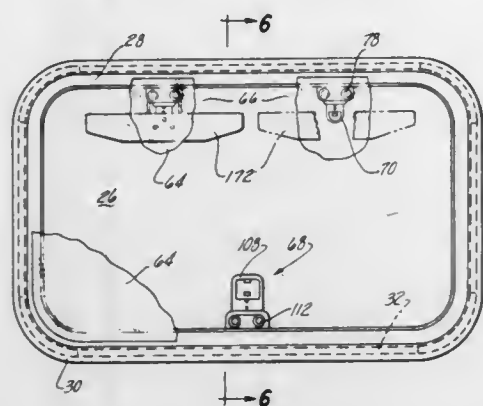
a frame extending around the periphery of said opening;

a compressible seal on said frame and extending around the periphery of said opening;

a sunroof panel adapted to overlie said opening in sealing engagement with said seal; and,

front and rear, spaced apart means for removeably mounting said panel on said frame and each including latch means for latching the front and rear of said panel in an open, elevated position above said roof, said frame including

- (1) a first generally planar section adapted to overlie the top of said roof surrounding the perimeter of said opening,
- (2) a second section having a first surface extending downwardly and away from said first section at an oblique angle relative to said first section, and



- (3) a third section disposed below said roof and having a second surface contiguous with said first surface extending inwardly and away from the perimeter of said opening, said first and second surfaces defining a channel, said second and third sections including a pair of opposed grooves in said first and second surfaces respectively, said compressible seal being disposed within said channel and conformingly engaging said first and second surfaces, said seal extending into said opposed grooves whereby to be held by said grooves within said channel.

4,394,045

SPORTSMAN SLING SEAT AND GAME HAUL

Jack B. Shaw, 2710 Bedford St., and Donald E. Shaw, 101 Merchant St., both of Johnstown, Pa. 15904

Filed Dec. 10, 1980, Ser. No. 214,992

Int. Cl.³ A47C 13/00

U.S. Cl. 297—118

3 Claims



1. A multi-use sportsman's implement comprising: seat means for providing a seat for a user when suspended from a support; sling means for supporting a user's arm when suspended from the neck of said user; chest means for distributing towing forces across the chest of said user when used for towing game; said seat, sling, and chest means comprising a trapezoidal-shaped member, fabricated of flexible material, having an upper base and a lower base, said upper base having a length approximating the width of a man's chest and said lower base having a length greater than said upper base length; first and second strap means respectively disposed and stitched along said upper and lower bases and extending outwardly from a first side and a second side of said

trapezoidal-shaped member, said strap means extending from said first side being continuous from said upper base to said lower base and stitched together distal from said first side to provide large and small loops, and said strap means extending from said second side being continuous from said upper base to said lower base and stitched together distal from said second side to provide large and small loops;

a flat belt slidably receivable through said small loops, said belt adjustably attachable to said support when using said implement as a seat, and to said game when using said implement for game towing such that said user's arms are respectively inserted through said large loops of said first and second sides with said chest means against said user's chest and each of said first strap means across a shoulder of said user to suspend said chest means; and said large loops passable over said user's head to suspend said sling means from said neck when said implement is used as an arm sling.

4,394,046

CONVERTIBLE ROCKER AND HIGH CHAIR

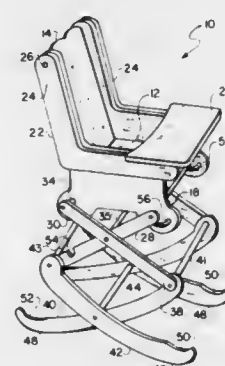
Warren W. Irwin, and Greg W. Irwin, both of 1330 Bluegrass Rd., Vista, Calif. 92083

Filed Jun. 26, 1981, Ser. No. 277,628

Int. Cl.³ A47C 3/02

U.S. Cl. 297—132

6 Claims



1. A convertible rocker and high chair comprising: a chair having a back, arms, and a rigid seat, a skirt depending from the sides of the seat and having a front section and a rear section, two pairs of inner and outer centrally pivoted cross arms pivotally mountable at their upper ends to the chair skirt, two pairs of inner and outer centrally pivoted cross legs curved on their under sides to form rockers when the chair is lowered, the cross legs being pivotally mounted at their upper ends to the lower ends of the cross arms to form a doubly extendable mechanism for raising and lowering the chair, transverse rungs connecting opposite pairs of cross legs and cross arms at their pivot points, the front section of the skirt having a cam aperture with internal cam surfaces, a control rung connecting the upper ends of the inner cross arms and passing through the cam aperture for controlling the extension of the chair, means for securing the control rung within the cam aperture to lock said chair in its upper or lower configuration.

4,394,047

SEAT BACK MOUNTING SYSTEM

Rene J. Brunelle, Wolcott, Conn., assignor to UOP Inc., Des Plaines, Ill.

Filed Jun. 1, 1981, Ser. No. 269,157

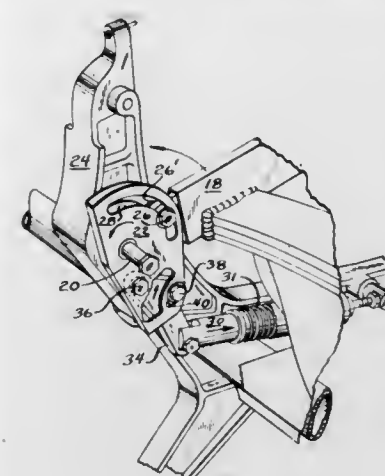
Int. Cl.³ A47C 1/027

U.S. Cl. 297—361

3 Claims

1. A mounting system for a back rest of a multi-passenger vehicle seat comprising a pivotable support element carried by

a seat base frame; said pivotable support element having the back rest pivotally attached thereto so as to permit approximately 90° of frictionally restrained movement of the back rest relative to the pivotable support element in a forward, vertical to horizontal path in response to the application of a relatively large force to the seat back; an actuating link for transmitting pivotal reclining motion of said pivotal support element and said back rest to a generally axially movable portion of a recline lock assembly carried by the seat base frame, said actuat-



ing link being pivotally mounted at its respective ends to said pivotal support element and to said axially movable portion of said recline lock assembly, said actuating link being mounted intermediate its ends to said pivotal support element so as to permit a small degree of frictionally restrained movement relative to said pivotable support element, said small degree of frictionally restrained movement being instituted by the application of a force to the seat back which is considerably smaller than the force required to move said back rest relative to said pivotable support element.

4,394,048

INTERLOCKING MECHANISM OF BOTH SIDE LOCK RECLINER FOR AUTOMOTIVE SEAT

Kenji Sakurai, Toyota, and Noboru Yoshimura, Chiryu, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha, both of Aichi, Japan

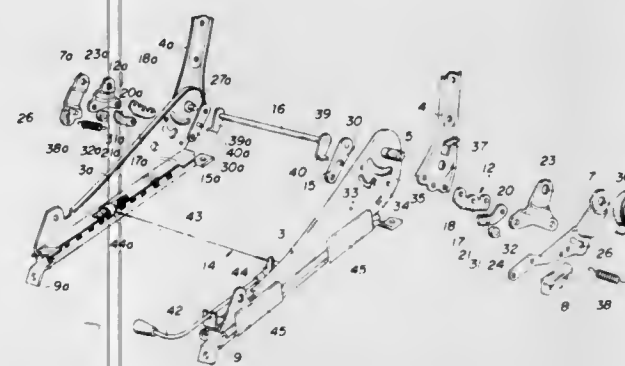
Filed May 11, 1981, Ser. No. 262,503

Claims priority, application Japan, May 16, 1980, 55/67107[U]

Int. Cl.³ A47C 1/026

U.S. Cl. 297—367

4 Claims



1. An interlocking mechanism of a both-side lock recliner for an automotive seat having a pair of right and left engaging mechanisms at both sides of the seat comprising: an interlocking mechanism for simultaneously controlling the lock and the release of the right and left engaging mechanisms and including right and left manipulating levers and auxiliary levers provided symmetrically at both sides of the seat, and an interlocking rod including hooks formed at both ends thereof for engaging between the auxiliary levers of both sides, said both-side manipulating levers rotatably secured to right

and left side hinge shafts secured to right and left side lower arms, respectively at the outside of the lower arms, said both-side auxiliary levers and the interlocking rod rotatably secured to the right and left side hinge shafts secured to the right and left side lower arms, respectively at the inside of the lower arms, said both-side manipulating levers so connected as to be integrally rotated with the respective auxiliary levers through right and left side pins, respectively, said interlocking rod connected to both-side auxiliary levers at the hook ends provided at the positions separate from the rotating coaxial centers thereof.

4,394,049

KNEELING AID DEVICE

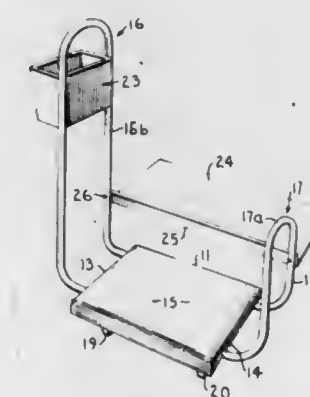
Fred A. Ward, R.R. #1, Cairo, Mo. 65239

Filed Jun. 30, 1980, Ser. No. 164,310

Int. Cl.³ A47C 9/12

U.S. Cl. 297—439

3 Claims



1. A kneeling device, comprising, in combination:
 - (a) a rigid, normally horizontal frame having upper and lower sides thereto and of greater width than depth, whereas to have substantially forward, rear and side edges,
 - (b) a pair of normally substantially vertical bail members rigidly connected to said frame and positioned with one bail adjacent each side edge thereof in opposition to one another, leaving substantial space therebetween for a person to kneel on the upper surface of the frame therebetween without being in contact with either bail when kneeling,
 - (c) upper portions of each of said bail members positioned substantially above the frame and having substantially horizontally oriented portions thereof adapted for grasping, each by one hand of a user of the device, in kneeling down thereon on rising up therefrom,
 - (d) one of the bail members having a substantially relatively higher grasping portion to be grasped by one hand of the user and the other of the bail members having a substantially relatively lower grasping portion to be grasped by the other hand of the user, said grasping portions being said substantially horizontally oriented upper portions of said bail members,
 - (e) the said relatively lower grasping portion of said one bail member so positioned and located in height as to require the initially standing user to lean or stoop to grasp same with one hand and to bear a preponderance of the user's weight and relatively more substantially support the user when the user, grasping both said bail grasping portions with separate hands, is substantially down in kneeling position or beginning to rise therefrom to a standing position,
 - (f) the said relatively higher grasping portion of the other bail so positioned and located in height as to not require the initially standing user to stoop to grasp same with the other hand and to bear a preponderance of the user's weight and relatively more substantially support the user,

when the user, grasping both said portions with separate hands, is beginning to kneel downwardly to the frame upper surface from a standing position or has substantially risen upwardly from the frame upper surface to a standing position,

- (g) two supporting leg members fixed to the underside of the frame and extending normally downwardly therefrom adapted to support the frame in a horizontal position spaced upwardly from a substantially horizontal supporting surface, said leg members being positioned closely adjacent the side edges of the frame, normal to the width axis thereof and extending substantially the depth thereof,
- (h) one of the bail members being of substantially greater height than the other, the said relatively higher bail grasping portion and relatively lower bail grasping portion comprising the uppermost parts of the respective bail members and
- (i) a pair of wheels rotatably mounted next to the side edges of the frame having the highest bail member thereat on the underside of the frame and outboard of the supporting leg member at that side of the frame,
- (j) the two supporting leg members fixed to the underside of the frame being of greater height than the downward extension of the wheels below said frame,

whereby the frame may be tilted off the supporting leg members onto the said wheels by grasping the higher bail member at the top thereof and tilting the frame at an angle to the supporting surface.

4,394,050

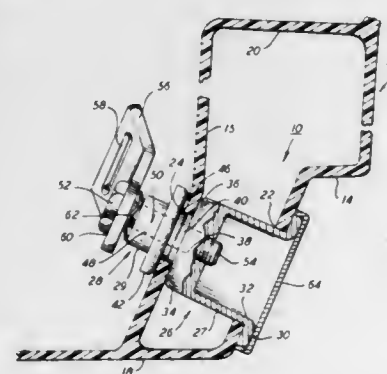
APPARATUS FOR SECURING AN ARTICLE TO A PLASTIC FRAME-LIKE STRUCTURE

Colin R. Spooner, Norfolk, England, assignor to Delorean Research Limited Partnership, Bloomfield Hills, Mich.
Filed Mar. 11, 1981, Ser. No. 242,469

Int. Cl.³ A62B 35/00

U.S. Cl. 297-468

12 Claims



1. Apparatus for securing an article to a plastic structure, the plastic structure including two spaced and adjacently disposed frame-like members each having an opening therein, the apparatus comprising a first mounting member having a first portion of increased perimeter which is greater than the perimeter of the opening in one of the frame-like members, said first mounting member being adapted to extend into the opening in the one frame-like member with the first portion being adapted to engage the one frame-like member adjacent the opening therein on an exterior side thereof, a second mounting member having a second portion of increased perimeter which is greater than the perimeter of the opening in the other of the frame-like members, said second mounting member being adapted to extend into the opening in the other frame-like member with the second portion engaging the other frame member adjacent the opening therein on an exterior side thereof, said first mounting member including another portion adapted to engage an interior side of said other frame-like member, at least one of said first and second mounting members including means for spacing said second portion of said second mounting member and said other portion of said first mounting member, and means for connecting said first and second mounting members together to engage them in the

plastic structure with said second portion of said second mounting member and said other portion of said first mounting member spaced by said spacing means and oppositely disposed, said second mounting member including means for receiving said article.

4,394,051

METHOD OF HYDROSPALLING

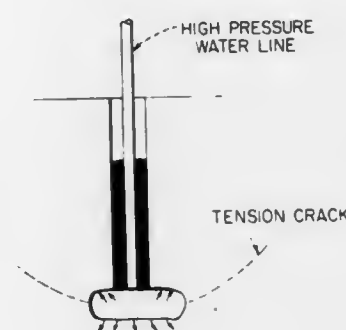
Martin S. Oudenhoven, Lakewood, Colo., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Jun. 3, 1981, Ser. No. 270,038

Int. Cl.³ E21C 37/06

U.S. Cl. 299-16

5 Claims



1. A method of hydrofracturing in situ rock material from its free surface when the material's tensile strength is much less than its compressive strength comprising the steps of:

- (a) forming a small diameter hole no more than 1 inch in diameter to a predetermined depth in the material to be fractured;
- (b) cutting a generally circular slot in the material from near the bottom of the hole formed in step a, said slot extending outwardly from the hole and encircling it;
- (c) mounting and inflating an elongated packer assembly having a fluid conduit therethrough in the hole, said packer terminating at its end remote from the hole's entrance near the intersection of the hole with the slot formed in step b; and
- (d) injecting a fluid under high pressure into said slot's volume through the conduit in the packer assembly to fracture the material with the fracture beginning at or near the periphery of the slot and extending to the material's free surface.

4,394,052

CARPET TAKE-UP DEVICE AND METHOD FOR USING THE SAME

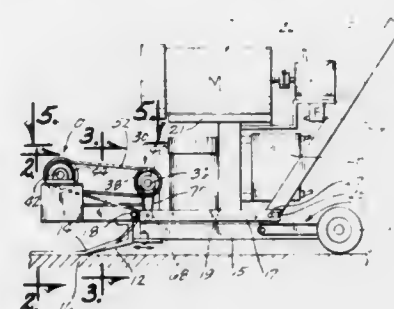
Edgar L. Adams, 1516 E. 29th St., Des Moines, Iowa 50317, and William D. Ludington, R.R. 1, Carlisle, Iowa 50047

Filed Jul. 16, 1981, Ser. No. 283,997

Int. Cl.³ A47L 11/12; B65H 75/02

U.S. Cl. 299-18

11 Claims



1. A carpet take-up device for removing carpet from a supporting surface, said device comprising:

a frame having forward and rearward ends;

a spool mechanism rotatably mounted on said frame for

rotation about a horizontal axis, said spool mechanism being adapted to retentively receive a loose end of said carpet,

- a means for rotating said spool mechanism,
- a blade adapted to wedge beneath said carpet, and having opposite longitudinal ends,
- a rear support wheel,
- a roller bar rotatably mounted to said frame behind and below said spool mechanism and behind and above said blade, and
- said loose end of said carpet passing above said blade, behind and around said roller bar and being connected to said spool mechanism such that rotation of said spool mechanism causes said blade to be pulled forward beneath said carpet to free said carpet from said supporting surface.

4,394,053

NOZZLE HOLDER FOR CUTTER DRUM IN LONGWALL MINING MACHINERY

Herbert Schupphaus, Bochum, Fed. Rep. of Germany, assignor to Gebr. Eickhoff Maschinenfabrik und Eisengießerei m.b.H., Bochum, Fed. Rep. of Germany

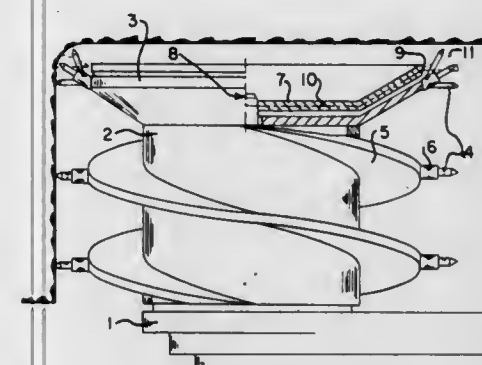
Filed Nov. 24, 1981, Ser. No. 324,529

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1980, 3044874

Int. Cl.³ E21C 35/22, 27/24

U.S. Cl. 299-81

8 Claims



1. In a cutter drum having a cutter drum body rotatably mounted on a shaft and a nozzle holder non-rotatably mounted on said shaft in a location corresponding to the end face of said drum body,

- said nozzle holder being equipped with nozzles distributed over its periphery,
- said nozzles being adapted to form, in the mineral to be loosened with the use of said drum, a spray pattern extending over the peripheral portion of said drum body facing the material being mined,
- a plurality of cutter picks carried on said drum body at said end face thereof,
- said picks projecting beyond said end face of said drum body and being dimensioned and positioned such that when said drum body is rotated about said shaft and said nozzles are fed to form jets of water, the picks will intersect with said jets to produce a pulsating effect.

4,394,054

PLAY-FREE HOOK-TYPE CONNECTION

Gerrit Nieboer, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 1, 1980, Ser. No. 211,551

Claims priority, application Netherlands, Dec. 19, 1979, 7909125

Int. Cl.³ G12B 9/00; A47B 81/06

U.S. Cl. 312-7.2

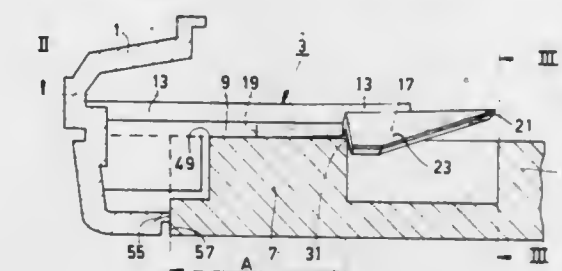
8 Claims

1. A hook-type connection for the play-free connection of a first part to a second part, the hook-type connection comprising:

- a flexible hook with a shank and at least one wing mounted

on said shank, said shank connected to said first part having a pressure edge, and

an abutment which is connected to said second part having an abutment edge with which said pressure edge cooperates, at least one of the two edges enclosing an acute angle with a plane which extends substantially perpendicularly of the longitudinal direction of said shank of said hook,



said hook being locally structurally weakened in the longitudinal direction of said shank when a torque is exerted on said shank by at least said one wing which forms part of said hook and which is connected to said shank adjacent the end which is remote from said first part, said wing having an edge which faces said first part and comprises said pressure edge.

4,394,055

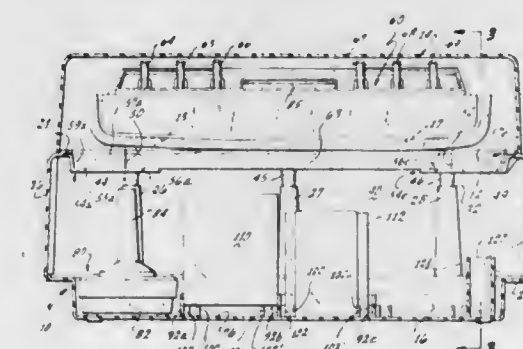
CABINET FOR VIDEO GAME CONSOLES, CARTRIDGES, ACCESSORIES, AND INSTRUCTION BOOKLETS

Richard D. Smith, 28640 Vista Madera, San Pedro, Calif. 90732
Filed Aug. 13, 1981, Ser. No. 292,352

Int. Cl.³ A47B 47/00, 81/06

U.S. Cl. 312-196

10 Claims



1. As an article of manufacture a cabinet for holding video game playing equipment including control consoles and accessories, said cabinet having a top having an opening in it, the periphery of the opening being constructed to provide supporting surfaces for accommodating a plurality of different control consoles having varying configurations, said opening having portions whereby to provide support surfaces and means forming additional support surfaces at said opening which are positioned whereby the said support surfaces can accommodate control consoles having a base portion of smaller dimensions which can extend through said opening to be supported on said additional surfaces, the said cabinet having a lower section constructed for holding accessories, said opening has portions of different width than other portions, said other portions being constructed to accommodate a control console having a base part of a size to be accommodated to be received in the said opening at the position of said other portions, said opening includes inwardly extending ledges having portions extending inwardly from the ends of the said opening, to accommodate a console having a base part extending into the opening, said opening has narrower end portions which form shoulders in the said top between the opening portions, the said ledges including portions extending inwardly

from said shoulders, providing a rectangular configuration to receive and hold a narrower base portion of another console.

4,394,056

DRAWER LOCKING MECHANISM

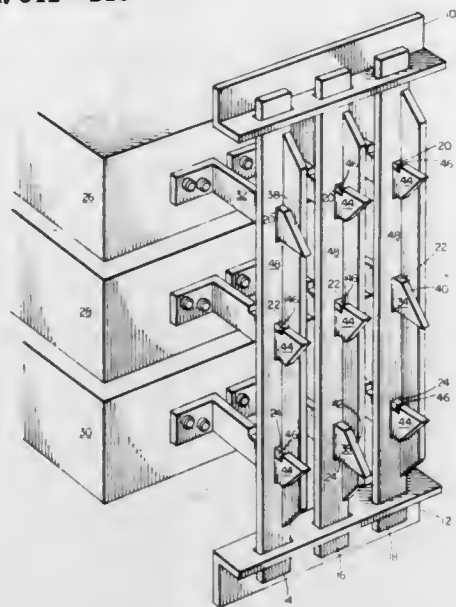
Elden W. Janke, Valencia, Calif., assignor to Teradyne, Inc., Boston, Mass.

Filed Feb. 11, 1981, Ser. No. 233,557

Int. Cl.³ E05B 65/46; E05C 15/04

U.S. Cl. 312-216

7 Claims



1. Locking mechanism for a plurality of vertically oriented horizontally reciprocal members which comprises a first member of said members, a second member of said members, a first vertically limitedly reciprocable locking bar, a second vertically limitedly reciprocable locking bar, first camming means carried by said first member for cooperation with said first vertically limitedly reciprocable locking bar to provide first vertical movement of said first vertically limitedly reciprocable locking bar when said first member is moved away from said first vertically reciprocable locking bar, second camming means carried by said second member for cooperation with said second vertically limitedly reciprocable locking bar to provide second vertical movement of said second vertically limitedly reciprocable locking bar when said second member is moved away from said second vertically reciprocable locking bar, first latch means carried by said first member for cooperation with said first vertically limitedly reciprocable locking bar to prevent horizontal movement of said second member upon said first vertical movement, and second latch means carried by said second member for cooperation with said second vertically limitedly reciprocable locking bar to prevent horizontal movement of said second member upon said second vertical movement.

4,394,057

DOUBLE-MOLDED ELECTRICAL END FITTING ASSEMBLY

James Williams, Abbeville, and Henry K. Wills, Greenwood, both of S.C., assignors to Automation Industries, Inc., Greenwich, Conn.

Filed Apr. 15, 1981, Ser. No. 254,435

Int. Cl.³ H01R 35/00

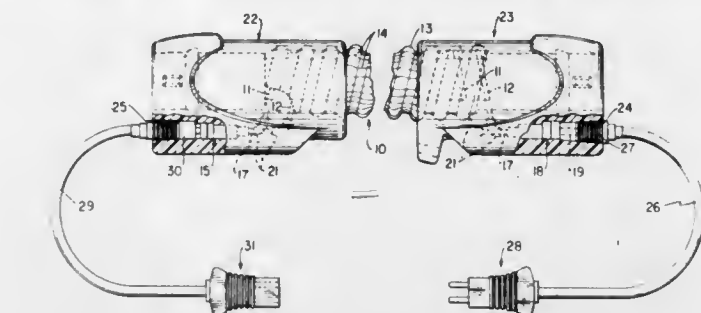
U.S. Cl. 339-15

2 Claims

1. In combination with a flexible hose having a pair of electrical conductors extending throughout its length, a first outer fitting molded about one end of the hose and having a first recess at its extremity, a first removable electrical harness

having a male connector end insertable in the first recess of the first molded fitting, a second outer fitting molded about the other end of the hose and having a second recess at its extremity, a second removable electrical harness having a female connector end insertable in the second recess of the second molded fitting, the improvement which comprises:

(a) a female connector with dual insulated wires molded and enclosed entirely within the first outer fitting, a female plug being included therein and accessible within the first recess of the first outer fitting to receive the male connector of the first harness, said dual wires being electrically connected to said pair of electrical conductors of the hose; and



tor of the first harness, said dual wires being electrically connected to said pair of electrical conductors of the hose; and

(b) a male connector with dual insulated wires molded and enclosed entirely within the second outer fitting, a male plug being included therein and accessible within the second recess of the second outer fitting to receive the female connector of the second harness, said dual wires being electrically connected to said pair of electrical conductors of the hose.

4,394,058

ELECTRICAL CONNECTOR INSERT ASSEMBLY

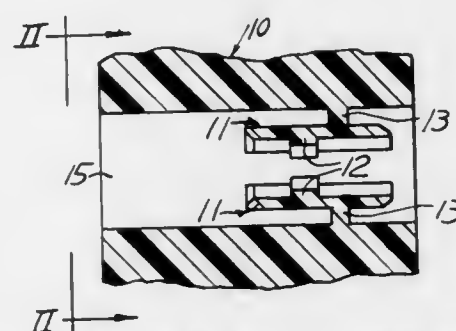
David L. Frear, Afton, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jun. 30, 1981, Ser. No. 279,139

Int. Cl.³ H01R 13/42

U.S. Cl. 339-59 R

8 Claims



1. In combination with an electrical connector having removable contacts said connector of the type having: a housing; a plurality of contacts, each contact having a rear portion, a forward mating portion, and an annular groove between said forward and rear portions, and means for releasably mounting said contacts in said housing including an insert having a plurality of bores therein, each bore having therein a portion of a respective contact having the annular groove therein and a contact retention member, the improvement wherein said contact retention member comprises:

an arcuate segment having forward and rear ends spaced from the wall of said bore and on the inside thereof an inwardly projecting shoulder engaging the annular groove in a respective contact, and on the outside thereof between said ends, means for pivotally mounting to said insert the arcuate segment in each bore so that either end of said arcuate segment may be deflected to disengage the projecting shoulder from the groove in the contact whereby, a tool may be inserted into a bore in said insert

to engage and pivot said arcuate segment in said bore so that the projecting shoulder of the segment disengages from the groove in the contact thereby releasing the contact in said bore for removal from the connector.

4,394,059

CONNECTOR OF A TYPE USED WITH DRY CELL BATTERIES AND MANUFACTURING METHOD

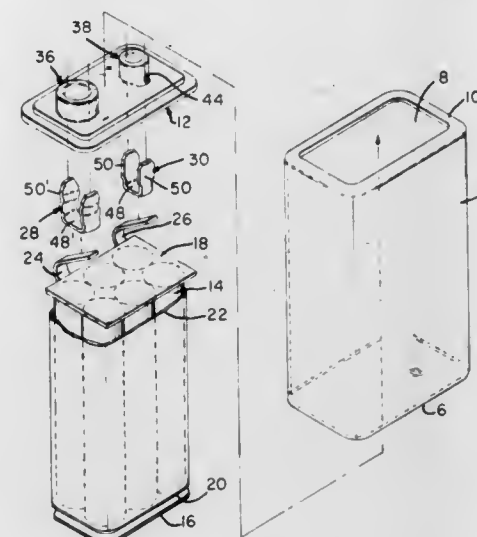
Charles E. Reynolds, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 3, 1981, Ser. No. 289,443

Int. Cl.³ H01M 2/04

U.S. Cl. 339-125 R

22 Claims



1. A connector of the type comprising an insulating support having a snap fastener plug terminal and a snap fastener socket terminal on a first surface thereof, said snap fastener plug and socket terminals being dimensioned to be coupled to a complementary snap fastener socket terminal and a snap fastener plug terminal respectively on a similar connector, said connector being characterized in that:

said support comprises a molded thermoplastic member having an integral plug terminal supporting portion and an integral socket terminal supporting portion on said first surface,

said plug terminal and said socket terminal each being a one-piece stamped and formed sheet metal member having first and second contact portions, each of said terminals being partially inserted through said support so that the first contact portion of each terminal is on said first surface of said support and said second contact portion is on a second surface of said support which is oppositely directed with respect to said first surface,

said first contact portion of said plug terminal being against, and supported by, said plug terminal supporting portion, said first contact portion of said socket terminal being against, and supported by, said socket terminal supporting portion.

4,394,060

LIGHT BEAM SCANNING SYSTEM WITH SAW TRANSDUCER

Carl M. Verber, Columbus; Richard P. Kenan, Upper Arlington, and Richard Ridgway, Columbus, all of Ohio, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 15, 1981, Ser. No. 254,470

Int. Cl.³ G02B 5/14

U.S. Cl. 350-96.13

10 Claims

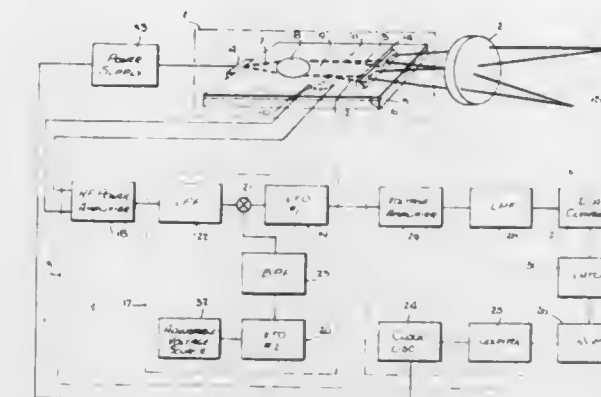
4. A light beam scanning system comprising:

an optical waveguide;

SAW transducer means for generating surface acoustic waves in said waveguide; and

driving means for driving said SAW transducer means, said

driving means comprising a varactor tuned oscillator and a digital linearization circuit for compensating for the



non-linearity of the frequency of said varactor tuned oscillator.

4,394,061

APPARATUS FOR ALIGNING AN OPTICAL FIBER IN AN LED PACKAGE

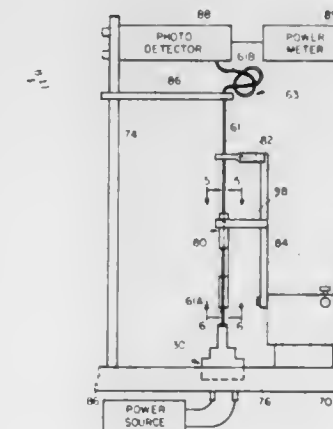
Scott L. Schroeder, Belmont, Calif., assignor to GTE Automatic Electric Incorporated, Northlake, Ill.

Filed Jan. 22, 1982, Ser. No. 341,722

Int. Cl.³ G02B 7/26

U.S. Cl. 350-96.20

18 Claims



1. A ferrule for loosely-releasably supporting a filament over at least the major portion of a limited length thereof and holding the limited length of filament in a straight line so as to reduce bowing of the filament adjacent one end of the ferrule that is proximate the emitting surface of a light emitting element, said ferrule comprising:

an elongated member having a length between opposite ends thereof that extends in a prescribed direction along a given straight line and which corresponds to the limited length; said member having a recess cut into the exterior surface thereof over the breadth thereof for defining first and second sections on opposite sides of the recess and at opposite ends of said member, the recess extending over a prescribed length which is much less than the limited length and having a depth that is at least equal to the distance between the given line and the perimeter of said member;

said first section having a first channel therein extending over the length thereof along the given line and being in front of the bottom of the recess so as to open into the recess, the first channel being dimensioned for receiving the largest filament to be supported and extending into said member to the given line; and

said second section having a second channel therein extending over the length thereof along the given line and being in front of the bottom of the recess so as to open into the recess, the second channel also being dimensioned for

receiving the largest filament to be supported and extending into said member to the given line; the first and second channels overlapping along the given line sufficiently for receiving a filament therein, and being oriented in an end view of said member looking along the given line for forming an angle therebetween that is sufficient for receiving and holding a filament therein.

4,394,062

SPLITTABLE FIBER OPTICAL WAVEGUIDE AND METHOD OF MANUFACTURE

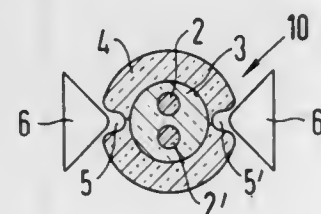
Hartmut Schneider, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich
Filed Feb. 25, 1980, Ser. No. 124,608

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909356

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.33

9 Claims



7. An optical device such as an optical directional coupler comprising a splittable optical fiber waveguide with a split portion, said waveguide having an outer surface and at least one fiber optical core being surrounded by a cladding material, said splittable waveguide having at least a pair of longitudinally extending indentations in an outer surface, each of said indentations having a substantial depth with a corresponding reduction in the thickness of the cladding at each indentation to create starting points for splitting wedges and to receive the splitting wedges and said split portion of the waveguide extending between the pair of indentations.

4,394,063

DEVICE FOR RECONSTRUCTING LAYER IMAGES OF A THREE-DIMENSIONAL OBJECT BY MEANS OF AN ADJUSTABLE IMAGING MATRIX

Hermann Weiss, Hamburg; Erhard Klotz, Halstenbek; Horst Peemöller, Hamburg; Rolf Linde, Haseldorf, and Wilfried Mauser, Hamburg, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, NY

Filed Nov. 17, 1980, Ser. No. 207,325

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946442

Int. Cl.³ G02B 5/32; G03H 1/28; A61B 6/02

U.S. Cl. 350—162.13

8 Claims



1. A device for producing images of layers of a three-dimensional object from a coded image of the object, said coded image being a superposition of perspective images formed by irradiating the object from a large number of radiation source

positions situated in one plane, said radiation source positions forming a distribution, said device comprising: illumination means for irradiating the coded image; a photosensitive element; an imaging matrix comprising a number of imaging elements equal to the number of radiation source positions, said imaging elements being situated in a matrix plane in a distribution which is the same as or linearly proportional to the distribution of radiation source positions, said imaging matrix being illuminated, via the coded image, by the illumination means to form superposed perspective images of the object on the photosensitive element, the superposed perspective images producing an image of a layer of the object on the photosensitive element; and means for changing the positions of the individual imaging elements in the matrix plane while maintaining the distribution of the elements linearly proportional to the distribution of radiation source positions, wherein images of different layers of the object are produced by changing the positions of the imaging elements.

4,394,064

DURABLE CERAMIC ENAMEL SPANDRELS

Samuel Dauson, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 30, 1981, Ser. No. 278,957

Int. Cl.³ G02B 17/00, 27/00

U.S. Cl. 350—259

6 Claims

1. An article for use in curtainwall construction comprising: a. a rigid panel substrate; b. an opaque colored ceramic enamel coating fired on said substrate; and c. a transparent, colorless, protective metal oxide film deposited over said ceramic enamel coating, wherein the dominant wavelength of light reflected by said opaque ceramic enamel coating is not equivalent to the dominant wavelength of light transmitted by said transparent film.

4,394,065

WINDSHIELD VISOR MIRROR

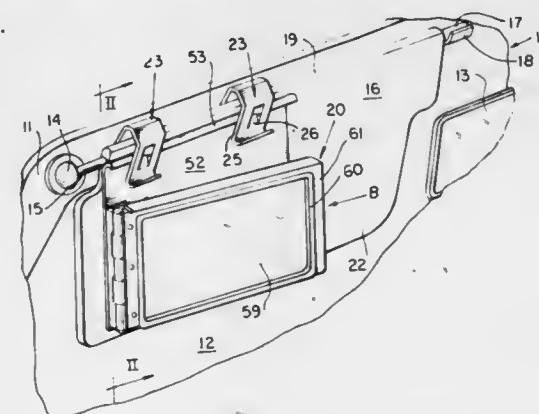
Arthur P. Swanson, 1454 Estate La., Glenview, Ill. 60025

Filed Sep. 21, 1982, Ser. No. 420,899

Int. Cl.³ B60R 1/08

U.S. Cl. 350—304

14 Claims



1. A vehicle windshield visor mounted rear view mirror adapted to reflect to the vehicle driver the area in the traffic lane alongside the driver at the rear end of the vehicle, which comprises a mirror unit having a base, means for mounting the base against a face of a windshield visor and said unit having a mirror with an end adjacent the traffic lane hinged on the base to swing the mirror laterally of the visor face to reflect said area.

4,394,066

REVERSIBLE FLAG TYPE REAR VIEW MIRROR

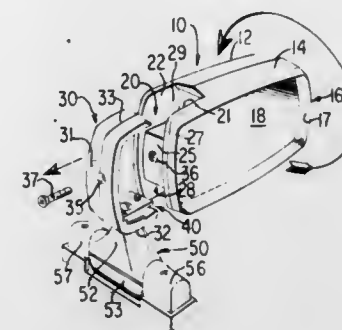
Bernard C. Sharp, White Plains, N.Y., assignor to Parker Hannifin Corporation, Shelton, Conn.

Filed Oct. 24, 1980, Ser. No. 200,469

Int. Cl.³ B60R 1/06

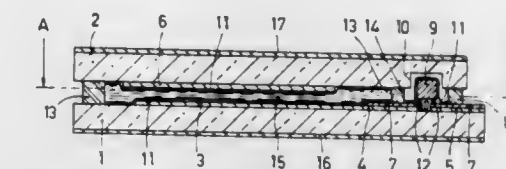
U.S. Cl. 350—307

10 Claims



1. A rear view mirror head comprising a housing member of elongate generally polygonal shape, said member forming a frame for a mirror plate and being provided with a recess extending about and behind one end of said frame, and a substantially U-shaped saddle member fitting in said recess, said saddle member having means fixed thereto for joining said head pivotally with a mirror mounting bracket to be attached to a side of a vehicle body, said housing member and said saddle member respectively having connecting portions which confront in said recess and are joinable for fixing said members together with said housing member facing to either side of said saddle member so that the mirror head is assembleable for use on either the left side or the right side of a vehicle body.

supporting plates; contact pads of said IC crystal connected to said supply electrodes; and a number of external connection



electrodes connected to other contact pads of said IC crystal to be in communication with said supply electrodes.

4,394,068

FLUORESCENTLY ACTIVATED DISPLAY DEVICE WITH IMPROVED SENSITIVITY

Heinz Pape, Ferdinand Quella, and Hans Krueger, all of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

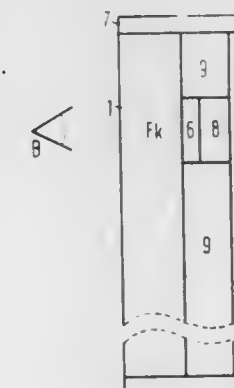
Filed Feb. 14, 1980, Ser. No. 121,372

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1979, 2910952

Int. Cl.³ G02F 1/133, 1/19

U.S. Cl. 350—345

40 Claims



4,394,067

DISPLAY DEVICE

Aloysius M. J. M. Spruijt, Eindhoven; Matheus A. T. Wijburg, Nijmegen; Gerardus C. M. Benschoop, Nijmegen, and Hendrikus J. M. Vos, Nijmegen, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1980, Ser. No. 184,562

Claims priority, application Netherlands, Sep. 7, 1979, 7906695

Int. Cl.³ G02F 1/133, 1/13

U.S. Cl. 350—334

19 Claims

1. A display device comprising two supporting plates separated by a space; a layer of liquid crystal in said space; a rim of sealing material between said two supporting plates and enclosing said layer of liquid crystal; a pattern of electrodes on one of said supporting plates facing said layer of liquid crystal; at least one further electrode on the other of said supporting plates facing said layer of liquid crystal; supply electrodes on said one supporting plate individually driving said pattern of electrodes; at least one non-encapsulated IC crystal accommodated in said rim of sealing material between said two

1. A device for the optical display of information with improved sensitivity and intensity comprising: a plate consisting of a material with an index of refraction greater than 1 and which contains fluorescent particles for collection of light radiation impinging on said plate by means of fluorescent scattering; a passive display having regions controllably switchable between a light absorbing and a light reflective state, said

passive display disposed behind said plate in the line of sight of a viewer; and
a coupling means for coupling selected areas of said plate and said passive display to allow transmission of light in selected patterns to a viewer.

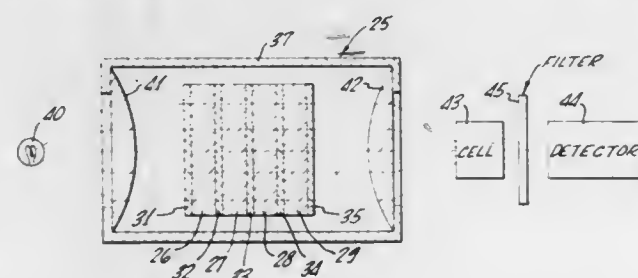
4,394,069

LIQUID CRYSTAL TUNED BIREFRINGENT FILTER
Wilbur I. Kaye, Corona Del Mar, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jun. 5, 1979, Ser. No. 45,725
Int. Cl.³ G02F 1/13

U.S. Cl. 350—347 E

10 Claims



1. A tunable optical filter comprising:
a plurality of polarizers spaced at intervals along a propagation axis, each polarizer being characterized by a plane of polarization;
a plurality of birefringent elements spaced along the propagation axis within the intervals between the polarizers, any two birefringent elements being separated by at least one polarizer, each birefringent element having an optic axis oriented so that the plane defined by the optic axis and the propagation axis forms a 45° angle with the plane of polarization of each of the two polarizers immediately adjacent to and on opposite sides of that birefringent element, and at least one of the birefringent elements comprising a liquid crystal cell whose optic axis changes in response to a voltage applied to the cell;
means for controllably tuning the filter to a selected wavelength by applying to each liquid crystal cell a voltage corresponding to the selected wavelength so that each birefringent element will produce a relative phase shift equal to a multiple of 180° between the ordinary and extraordinary orthogonally polarized components of a light ray having the selected wavelength propagating along the propagation axis;
wherein each birefringent element is characterized as operating at a particular order, the order of an element being defined as the quotient obtained by dividing 360° into said relative phase shift equal to a multiple of 180°; and
wherein said filter includes eight birefringent elements, having orders of 1, 1, 2, 3, 4, 5, 8 and 13, respectively.

4,394,070

HELICHROMIC COMPOUNDS AND DISPLAYS
Harvey A. Brown, Lake Elmo, and William A. Huffman, Minneapolis, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

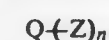
Continuation-in-part of Ser. No. 169,275, Jul. 16, 1980. This application Jun. 22, 1981, Ser. No. 274,184
Int. Cl.³ G02F 1/13; C09K 3/34

U.S. Cl. 350—349

33 Claims

1. A composition consisting essentially of a nematic liquid crystal material and, in admixture therewith, an organic, non-

ionic, nonliquid-crystalline helichromic compound, said helichromic compound being soluble in said nematic liquid crystal material, and said helichromic compound being a dichroic dye and having the general formula



wherein:

Q is a radical selected from the group consisting of azo, azo-stilbene, benzothiazolyl polyazo, methine, azo-methine, merocyanine and methine arylidene radicals;
Z is an organic group capable of imparting helical ordering characteristics to said mixture of nematic liquid crystal and helichromic compound; and
n is an integer having a value of 1 or greater.

4,394,071

LENS SYSTEM WITH FILL-IN LENS

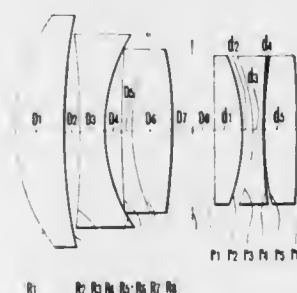
Yasuyuki Yamada, Mitaka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 27, 1981, Ser. No. 296,649

Claims priority, application Japan, Sep. 3, 1980, 55-122179
Int. Cl.³ G02B 9/62, 15/02

U.S. Cl. 350—422

1 Claim



1. A lens system having a main photo-taking lens and a fill-in lens lying in between said main photo-taking lens and the image plane and detachable therefrom, and having the following various conditions:

said fill-in lens having, from front to rear, a positive 1st lens, a negative 2nd lens and a positive 3rd lens;
letting n_1 and v_1 denote the refractive index and Abbe number of the glass of said positive 1st lens respectively, r_5 the radius of curvature of the front surface of said positive 3rd lens, d_5 the axial thickness of said 3rd lens, n_3 and v_3 the refractive index and Abbe number of the glass of said 3rd lens respectively, and f the overall focal length of said main photo-taking lens and said fill-in lens attached thereto, the following relationships are fulfilled:

- (1) $0.3 < r_5/f < 0.6$
- (2) $0.02 < d_5/f < 0.08$
- (3) $1.5 < n_1 < 1.7$
- (4) $30.0 < v_1 < 50.0$
- (5) $1.45 < n_3 < 1.75$
- (6) $45.0 < v_3 < 85$

4,394,072

ZOOM LENS

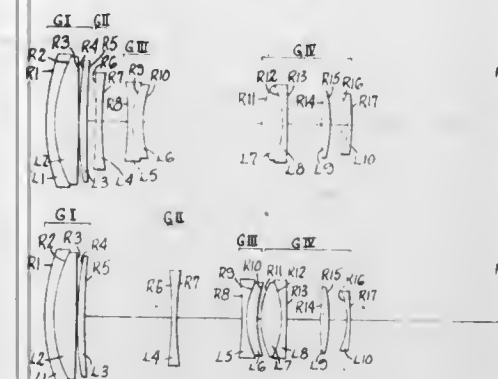
Ellis I. Betensky, New York, N.Y., assignor to Vivitar Corporation, Santa Monica, Calif.

Filed Dec. 5, 1980, Ser. No. 213,611

Int. Cl.³ G02B 15/18

U.S. Cl. 350—427

10 Claims



1. A zoom lens comprising from the object end a first positive group, a second negative group, a third negative group, and a fourth positive group, said second group being a singlet and the absolute value of the ratio of the power of said second group to said first group is less than 1.75, said fourth group from the object end comprising a positive doublet followed by a positive lens and a negative lens.

4,394,073

COMPACT WIDE ANGLE LENS

Koichi Wakamiya, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

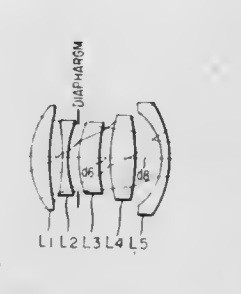
Filed Dec. 10, 1980, Ser. No. 214,887

Claims priority, application Japan, Dec. 28, 1979, 54-1721198

Int. Cl.³ G02B 9/60

U.S. Cl. 350—465

6 Claims



1. A compact wide angle lens system having an angle of view of 60°-70° and a total length as short as the total focal length, f , of the lens system, comprising, in succession from the object side, a first positive meniscus lens component having its convex surface facing the object side, a second biconcave lens component, a third positive lens component having its surface of sharper curvature facing the object side, a fourth positive lens component, and a fifth negative meniscus lens component having its convex surface facing the image side, the lens system satisfying the condition:

$$0.51f < f_4 < 1.38f$$

where f_4 represents the focal length of said fourth component.

4,394,074

FIBEROPTIC-LIGHTED OPTICAL APPARATUS

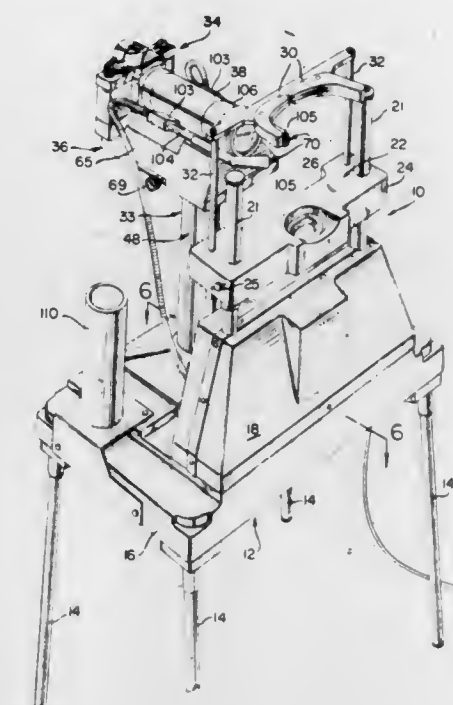
William McMahon, 14102 Willow La., Westminster, Calif. 92683, and Bernard Jensen, Rte. 1, Box 52, Escondido, Calif. 92025

Filed Sep. 22, 1980, Ser. No. 189,154

Int. Cl.³ A61B 3/10

U.S. Cl. 351—206

10 Claims



1. A fiberoptic-lighted optical apparatus for use with a camera for photographing the surface of the eye of a subject, wherein the apparatus comprises:

a housing structure;
means on said housing structure to support and position the subject's head with respect to said camera;
means for mounting and adjusting said camera with respect to the eye of said subject;
dual-light-source means adapted to be activated by the operation of said camera;
a light-transfer medium adapted to receive light from said dual-light source, and project said light remotely therefrom to illuminate said eye of said subject;
said dual-light-source means comprising:
a first light source; and
a second light source, wherein said second light source is positioned in front of and adjacent said first light source, whereby both of said light sources can be transmitted singularly or simultaneously through said light-transfer medium; and
means for individually activating said first light source separately from said second light source, when said second light source is not required;
said light-transfer medium comprising:
a first bundle of light-transmitting fiberoptic strands; and
a second bundle of light-transmitting fiberoptic strands, said strands being positioned adjacent each other, and in adjustable alignment with said first and second light sources, each bundle including a light-receiving end and a light-projecting end, said light-projecting end of each bundle being respectively positioned adjacent opposite sides of the lens of said camera;
means for selectively positioning said light-receiving end of said light-transmitting bundles in front of said dual-light-source means to selectively transmit light to one side or the other of said subject's eye.

4,394,075

SUPPORT APPARATUS

Garrett Brown, 508 Pine St., Philadelphia, Pa. 19106, and Arnold O. Di Giulio, 4522 Woodman Ave., Sherman Oaks, Calif. 91423

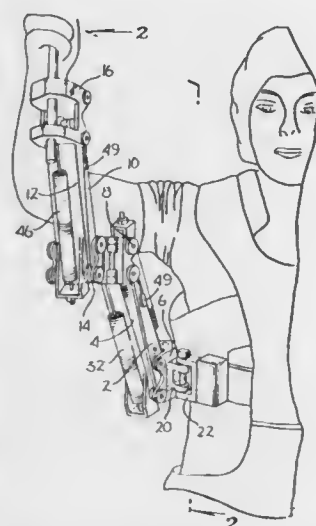
Continuation of Ser. No. 700,544, Jun. 28, 1976, Pat. No. 4,208,028, which is a continuation-in-part of Ser. No. 506,326, Sep. 16, 1974, Pat. No. 4,017,168. This application Jun. 16, 1980, Ser. No. 159,657

The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.

Int. Cl.³ G03B 17/00

U.S. Cl. 352—243

7 Claims



1. A weight support apparatus system especially adapted for operation as a portable device on a moving carrier and capable of being guided by the arm of an operator which comprises:

weight support means comprising first and second ends, the first end being connected to and adapted to support at least part of the weight, the second end being connected to the carrier,

said weight support means comprising at least a pair of first and second interconnected support arms, said support arms being adapted to damp out vibrations due to movement of the carrier,

each of the support arms comprising an upper and a lower longitudinal link and a medial bracket, which upper and lower links and medial brackets respectively form legs of a parallelogram, the respective upper and lower links and the medial bracket of each arm being pivotally interconnected to permit vertical rotative movement of one arm relative to the other, the first and second support arms each comprising respectively a first resilient means and a second resilient means, the first and second resilient means continuously biasing respectively the ends of the support arms that are remote from the carrier upwardly relative to the carrier, the bias of the first and second resilient means being substantially balanced by the weight, the first and second resilient means being connected respectively across the parallelograms to damp out vibrations caused by movement of the carrier and to cause the weight to free-float irrespective of movement of the carrier,

said weight support means substantially freeing the operator's hands from the weight and capable of being guided to a desired position selected by the operator; and rotatable hinge bracket means interconnecting the medial brackets of the support arms, the hinge bracket means comprising a vertical pivot pin to permit horizontal rotatable movement of one arm relative to the other,

whereby the weight is isolated and free-floating at a distance from the operator substantially independent of any unwanted lateral and vertical vibrations caused by motion of the carrier.

4,394,076

INDICIA RECORDING APPARATUS

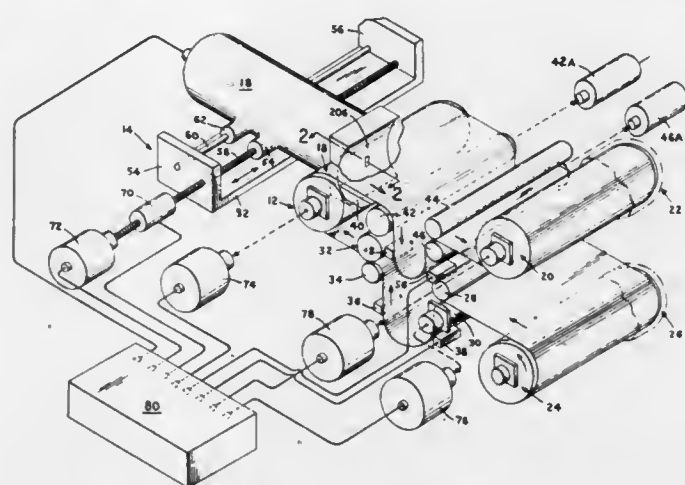
Solomon Manber, Sands Point; David Chiang, Dix Hills, and Mosi Chu, Setauket, all of N.Y., assignors to Amtech Patent Licensing Corp., No. Miami Beach, Fla.

Continuation of Ser. No. 173,966, Jul. 31, 1980, Pat. No. 4,310,226. This application Jul. 10, 1981, Ser. No. 282,279. The portion of the term of this patent subsequent to Jan. 12, 1998, has been disclaimed.

Int. Cl.³ B41B 21/08; G01D 9/38; H04I 15/34

U.S. Cl. 354—5

12 Claims



12. Indicia recording apparatus comprising: a source of a record medium; an accepting means for accepting record medium removed from said source; a supporting means intermediate said source and said accepting means, for supporting a portion of the record medium, a carriage means controllably and repeatedly movable opposite said supporting means and in a direction transverse to the travel of the record medium, and a recording head on said carriage means, said recording head comprising radiation emitting means for emitting intensity modulated radiation toward said supporting means along a plurality of equilelength scan lines, each of said scan lines being in a different plane intersecting said supporting means whereby during a single traverse of said carriage means a transverse band of the record medium is scanned.

4,394,077

DEVICE FOR DETECTING SHARP FOCUSING

Tsunemi Yoshino, Ibaraki; Toshitsugu Kashiwara; Hiroshi Iwata, both of Nara, and Akitoshi Morioka, Osaka, all of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

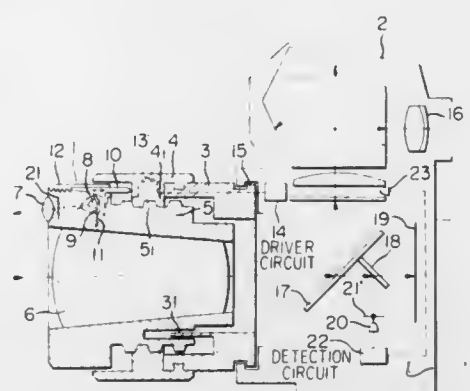
Filed Oct. 21, 1981, Ser. No. 313,668

Claims priority, application Japan, Oct. 27, 1980, 55-150527

Int. Cl.³ G03B 13/18, 15/05

U.S. Cl. 354—25

8 Claims



1. An image focusing device characterized by comprising a light beam projection means which is disposed within a photographic lens, whose optical axis is contained in the same plane which contains the optical axis of said photo-

graphic lens and which can project the light beam toward an object,

a lens-group displacement detection means which is disposed within said photographic lens and which can respond to the axial displacement of said photographic lens for focusing the object so as to cause said light-beam projection means to change the light-beam projection direction,

a photodetection means which is disposed within a camera body at such a position spaced apart from a main mirror by the same distance between the mirror and the film plane at which said photodetection means can intercept the light beam passing through said photographic lens along the optical axis thereof and at which said photodetection means will not interfere with the formation of the image of the object through said photographic lens upon a film plane,

a driver-control means which includes an actuating switch and which, upon closure of said actuating switch, can drive said light-beam projection means, and

a detection circuit which drives a display means responding to the output from said photodetection means to detect whether or not said photographic lens is sharply and correctly focused at the object.

4,394,078

METHOD OF CONTROLLING EXPOSURE

Takaaki Terashita, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 2, 1980, Ser. No. 193,155

Claims priority, application Japan, Oct. 3, 1979, 54-127655

Int. Cl.³ G03B 7/08

U.S. Cl. 354—31

1 Claim

Z 1
Z 2
Z 3
Z 4

1. A method of controlling exposure for a camera based on the scene brightness measured by light measuring elements comprising the steps of:

dividing a light measuring area in a camera into a plurality of zones,

providing at least one light measuring element in each of said zones,

obtaining the maximum or minimum brightness (Bzi) in each of said zones,

obtaining an average brightness (B0) from the outputs of all the light measuring elements provided in said light measuring area,

obtaining a weighted sum of the brightness based on a formula of

$$\sum_{i=1}^n K_{i+2}$$

where K_{i+2} is a coefficient and n is the number of the zones,

computing a scene brightness (B) by use of a formula of

$$B = K_1 + K_2 \cdot B_0 + \sum_{i=1}^n K_{i+2} B_{zi}$$

where K_1, K_2, K_{i+2} are coefficients, and controlling exposure of the camera based on the scene brightness (B).

4,394,079

PHOTOGRAPHIC FLASH DEVICE OPERATIVELY RESPONSIVE TO THE LUMINANCE OF AN OBJECT TO BE PHOTOGRAPHED TO PREVENT OVEREXPOSURE

Yoshiyuki Takematsu, Tokyo, Japan, assignor to Fuji Koei Kabushiki Kaisha, Tokyo, Japan, a part interest

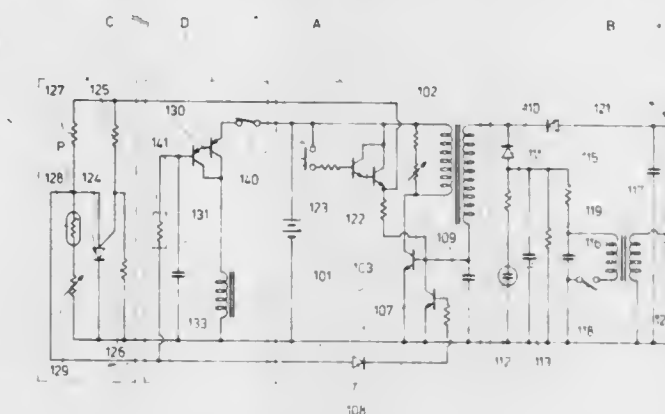
Filed Jun. 23, 1981, Ser. No. 276,510

Claims priority, application Japan, Jun. 26, 1980, 55-85953; Jul. 18, 1980, 55-97571

Int. Cl.³ G03B 15/03

U.S. Cl. 354—33

12 Claims



9. A photographic flash device operatively responsive to the luminance of an object to be photographed and for use with a camera including means for positioning a flash light device into a retracted, nonoperative position and into an extended, operative position, the photographic flash device comprising:

a DC power source; charge storage means coupled to said DC power source for charging thereby; means for triggering said flash light device when the charge level of said charge storage means exceeds a predetermined charge level;

means for detecting the luminance level of an object to be photographed and for inhibiting the charging of said charge storage means when the detected luminance level is greater than a predetermined luminance level; and

means for driving the positioning means to control the positioning of said flash light device in said operative position responsive to the detection of the luminance of the object to be photographed being less than said predetermined level and in said nonoperative position responsive to the detection of the luminance of the object to be photographed being greater than said predetermined level.

4,394,080

WINDING DEVICE FOR CAMERA

Hirovuki Kimura, Kawasaki, and Tateo Yamada, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 261,802, May 8, 1981, abandoned. This application Jul. 2, 1982, Ser. No. 394,506

Claims priority, application Japan, May 13, 1980, 55-63091; May 13, 1980, 55-63097

Int. Cl.³ G03B 1/12, 17/36

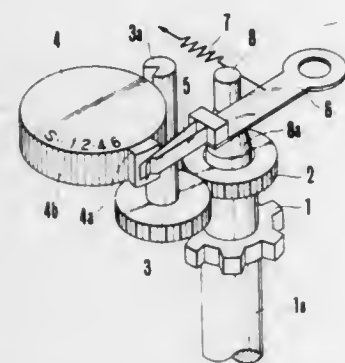
U.S. Cl. 354—173

13 Claims

1. A winding device for a camera in which winding of a loaded film from a winding start position to an exposure start position is made automatically without interrelation to exposure operations, comprising:

display means for displaying the number of film frames exposed during exposure operations, said display means being rotatable in response to winding and rewinding of

the film and being restorable to an initial state before film winding by completion of film rewinding;
control means operative to automatically enable winding of loaded film, said control means being movably supported;
changeover means associated with rotation of said display means, said display means being in contact with said con-



trol means to maintain said control means operative while said display means displays the region from the winding start position to the exposure start position; and
displacing means for displacing said control means out of the operative zone of the changeover means, said displacing means operating in response to a rewind releasing operation.

4,394,081

MAGNETICALLY CONTROLLED SHUTTER

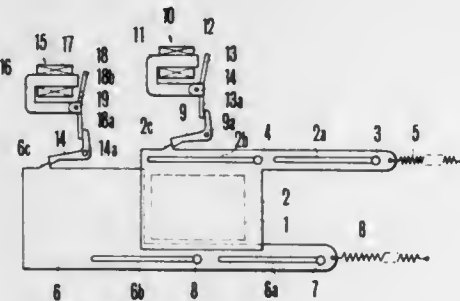
Teiji Hashimoto, and Syuichiro Saito, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 14, 1981, Ser. No. 292,733

Claims priority, application Japan, Aug. 28, 1980, 55-118607
Int. Cl.³ G03B 9/62

U.S. Cl. 354—234

8 Claims



1. A magnetically controlled shutter comprising: a leading shutter blind and a following shutter blind, a leading checking member for holding the leading shutter blind, a following checking member for holding the following shutter blind, and a leading electromagnet for controlling the leading shutter blind and a following electromagnet for controlling the following shutter blind, each acting on the respective checking members as power is supplied thereto for releasing a checking thereof, the electromagnet for controlling the following shutter blind having magnetic action characteristics different from those of the electromagnet for controlling the leading shutter blind, wherein said electromagnets are attraction type magnets, and wherein said electromagnets have respective yokes made of different magnetic substances.

4,394,082

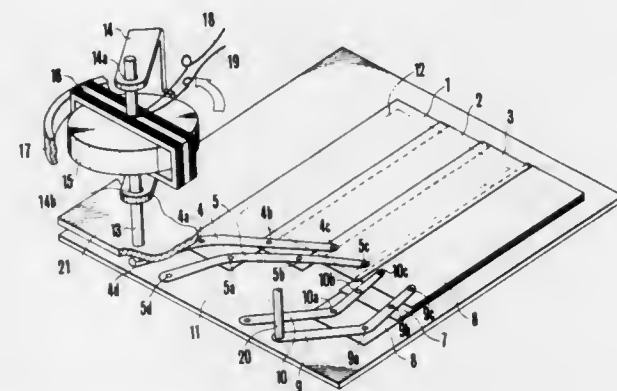
SHUTTER FOR CAMERA

Michio Senuma, Tokyo, and Kunio Watanabe, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 16, 1981, Ser. No. 225,524

Claims priority, application Japan, Jan. 23, 1980, 55-6900[U]
Int. Cl.³ G03B 9/40

U.S. Cl. 354—246

2 Claims



1. A shutter for a camera comprising:
an opening for light to pass therethrough;
a plurality of shutter blades for opening and closing said opening for said light, said plurality of shutter blades comprising
(a) a plastic sheet
(b) a metal layer formed on both surfaces of said plastic sheet, said metal layer having a thickness of between 0.001 to 0.005 mm;
(c) a black coating on the surface of said metal layer;
(d) an embossed member for effecting connection with said shutter blades; and
(e) shutter driving members mounted on said embossed portions of each of said plurality of shutter blades so as to connect said shutter blades to each other, said members opening and closing said plurality of shutter blades.

4,394,083

IMAGING SYSTEM FOR A MULTI-MAGNIFICATION COPIER UTILIZING GRADIENT INDEX LENS ARRAY

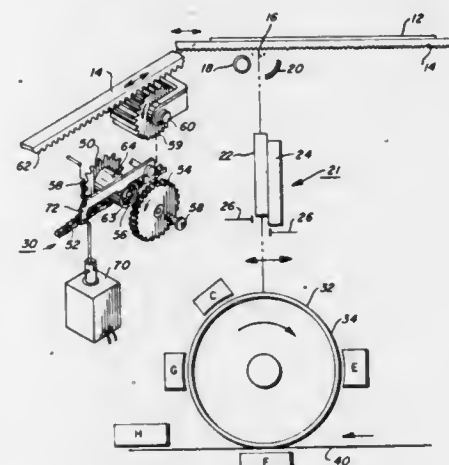
James D. Rees, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1982, Ser. No. 341,409

Int. Cl.³ G03B 27/00, 27/68

U.S. Cl. 355—1

3 Claims



1. An imaging system for a multi-magnification copier wherein a document on an object plane is reproduced onto a photosensitive image plane at a selected magnification, said system including:
a lens array assembly comprising a first gradient index lens array positioned between the object and image planes, to

transmit an image of said document onto said image plane first at a unity magnification,
a second gradient index lens array positioned between the object and image planes, said lens array adapted to transmit an image of said document onto said image plane at a second magnification other than unity, said system further including:
means for preventing transmission of said document image through a selected one of said lens arrays whereby light reflected from said document is transmitted through said other array in the particular magnification onto the image plane,
illumination means placed beneath the object plane and adapted to provide a narrow illumination band of light along the bottom surface of the object plane so as to create a document scan exposure zone,
means for driving said document past said exposure zone, said driving means adapted to move the platen at a first rate associated with said unity magnification, a second rate associated with said second magnification and at least a third rate at one of said magnifications, said third rate resulting in an anamorphic magnification K of said document image at said imaging plane in the scan direction, and means for moving the image plane at a process speed V

4,394,084

LOW-PROFILE ELECTROPHOTOGRAPHIC COPYING MACHINE

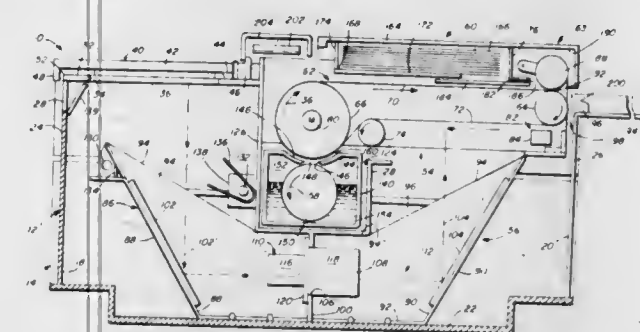
Manfred R. Kuehnle, Lexington, Mass., assignor to Coulter Systems Corporation, Bedford, Mass.

Continuation of Ser. No. 11,309, Feb. 12, 1979, abandoned. This application Jul. 8, 1981, Ser. No. 281,305

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 BE

31 Claims



1. A low-profile electrophotographic copying machine especially suitable for table top use comprising
an electrophotographic imaging belt mounted for rotational and horizontal movement on at least a pair of spaced rollers, to define a pair of substantially parallel horizontally oriented closely proximate upper and lower reaches, the lower reach of which is positioned to define an image plane, at least one of said rollers being driven, drive means for driving the said roller and producing rotational movement of said belt,
a charging station, including a corona generating device arranged adjacent the path of said belt for applying a charge potential thereto as the belt travels therepast and an exposure station located along the path of said belt downstream of said charging station whereat a light image is projected onto said charged belt to form an electrostatic latent image,
a horizontal copy platen arranged substantially parallel with and spaced from said electrophotographic belt generally at about the same level as said upper reach of said electrophotographic belt,
a folded optical projection station including a projection system for projecting light image of a document from the copy platen to said electrophotographic belt at said exposure station to form said electrostatic latent image on said lower reach of said belt at the image plane,
a development station located along the path of said belt

4,394,085

PROCESSING STATION FOR CHARGING, EXPOSING AND DEVELOPING PRINTING MASTERS

Werner Dennyhardt, Bad Kreuznach, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

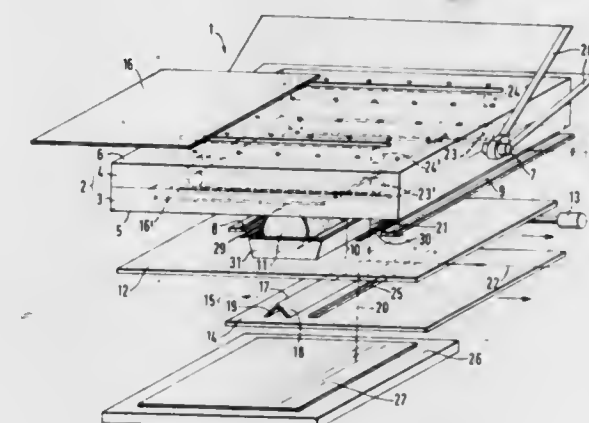
Filed Dec. 2, 1981, Ser. No. 326,482

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1980, 3047205

Int. Cl.³ G03G 15/00, 15/28

U.S. Cl. 355—3 R

12 Claims



1. A processing station for charging, exposing and developing printing masters, comprising an exposure table, at least one corona device, a developing unit and an optical scanning-exposure device; said exposure table being adapted to be rotated through 180° about a pin and comprising two superposed suction tables which are arranged in such a way that their suction plates form the topside and the underside of the exposure table.

4,394,086

PARTICLE CONTAINMENT APPARATUS

James M. Hoffman, Jr., Walworth, and Richard A. Lux, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 24, 1982, Ser. No. 361,695

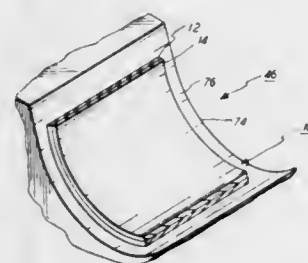
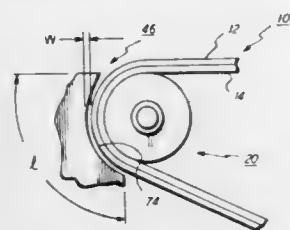
Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 R

10 Claims

1. An apparatus for preventing particle contamination, including
a moving member;

a housing defining a chamber for storing the particles; and means, operatively associated with said housing, for defining a surface area extending in a direction substantially parallel to and spaced from said member with the length of the



surface area parallel to said member being much greater than the space between the surface area of said defining means and said member so as to minimize air flow into and out of the chamber in said housing, thereby preventing the escape of particles from the chamber of said housing.

4,394,087

MECHANICAL ARRANGEMENT FOR CONTROLLING ELECTROPHOTOGRAPHIC APPARATUS

Yutaka Irie, Toyokawa; Kenzo Nagata, Okazaki, and Hideo Ito, Toyokawa, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

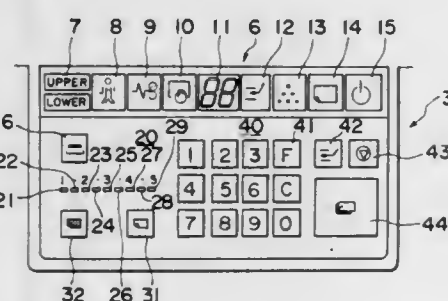
Filed Jun. 4, 1981, Ser. No. 270,398

Claims priority, application Japan, Jun. 13, 1980, 55-80526

Int. Cl.³ G03G 15/00, 15/04

U.S. Cl. 355-14 E

18 Claims



1. A mechanical arrangement including a device to be controlled, an operational device for adjusting an active state of said controlled device through external operations and a control means for controlling the active state of said controlled device in response to operations of said operational device, said operational device comprising:
indicating means for indicating changes in the active state of said controlled device stepwise;
UP operating means for increasing one step by one step an indication of said indicating means; and
DOWN operating means for decreasing one step by one step the indication of said indicating means;
said control means comprising:
means for changing the indication of said indicating means in response to operations of said UP operating means and said DOWN operating means and for changing the active state of said controlled device in accordance with the indication of said indicating means; and
means for setting the indication of said indicating means and the active state of said controlled device to a predetermined standard value when said UP operating means and

said DOWN operating means are operated simultaneously.

4,394,088

COPYING MACHINE

Hiroyuki Hanamoto, and Yoshihiro Horie, both of Toyokawa, Japan, assignors to Minolta Camera Kabushiki Kaisha, Higashi, Japan

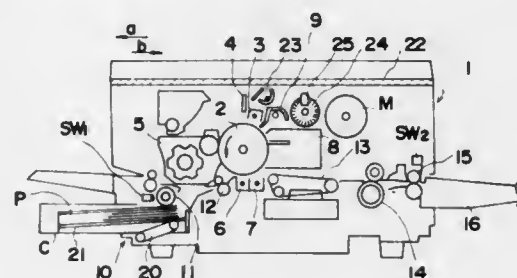
Filed Mar. 22, 1982, Ser. No. 360,426

Claims priority, application Japan, Mar. 27, 1981, 56-45811

Int. Cl.³ G03G 15/00

U.S. Cl. 355-14 R

10 Claims



10. In an improved copying machine having means for recording an image, means for developing an image, means for storing copy paper, a copy paper transportation system for translating copy paper to receive the developed image, to fix it to the copy paper and to position it for removal from the copy machine, means for moving copy paper from the storing means into the paper transportation system, means for determining the presence of copy paper in the storing means and providing a signal, means for determining the movement of the copy paper through the paper transportation system including a paper sensing monitor for providing a signal and a timing means initiated upon energization of a copying cycle to provide a first time period before introduction of copy paper into the paper transportation system, the improvement comprising:
a paper transport error detecting means responsive to the means for determining the movement of the copy paper and enabled by a signal representing a failure of copy paper to reach the paper sensing monitor within a predetermined time; and
control means connected to the paper transport error detecting means and the means for determining the presence of the copy paper in the storing means for disabling the paper transport error detecting means when the means for determining the presence of copy paper renders a no paper signal after energization of a copy cycle and before expiration of the first period of time.

4,394,089

COLOR PHOTOPRINTING WITH A SCANNING MEMORY MASK

Walter L. McIntosh, Woodbridge, and John N. Street, Alexandria, both of Va., assignors to LogEtronics, Inc., Springfield, Va.

Filed Sep. 23, 1981, Ser. No. 304,765

Int. Cl.³ G03B 27/04

U.S. Cl. 355-88

30 Claims

1. A color contact printer for exposing an image receiving media from an image carrying media with a scanning spot of radiant energy, wherein said image receiving media is substantially opaque to at least one spectral component of said radiant energy, said printer comprising:
a. a single means for scanning said image carrying media with at least one scanning spot of radiant energy, said means subsequently being used to expose said image receiving media;
b. at least one photosensor means for measuring the radiant energy passing through the image carrying media, to generate density-related signals;

4,394,090

PROCESS TIMING APPARATUS

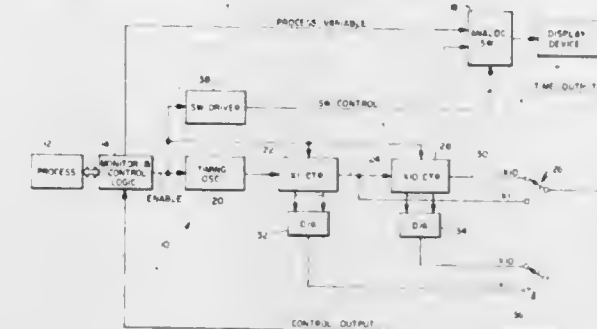
Robert L. Hyde, Bartlesville, Okla., assignor to TRW Inc., Cleveland, Ohio

Filed Apr. 6, 1981, Ser. No. 251,045

Int. Cl.³ G04F 8/00, 10/00

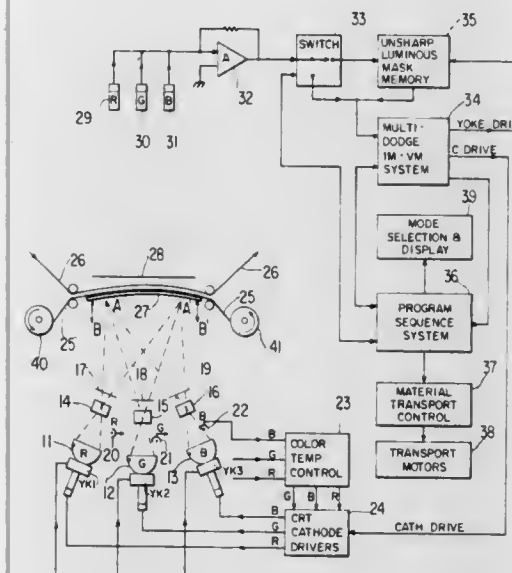
U.S. Cl. 368-121

24 Claims



c. means responsive to said density-related signals for modulating said scanning spot to modify the effective contrast range and exposure level of said density-related signals;
d. luminous mask memory means for storing said modified density-related signals, said signals representing a density-corrected luminous mask of said image;
e. means for bringing said opaque image receiving media into intimate contact with said image carrying media after said luminous mask memory scan has been completed;
f. means for exposing said image receiving media through said image carrying media with said scanning spot of radiant energy, said exposing scan having said density-corrected luminous mask superimposed thereon to alter the exposing effect of said scanning spot to provide a density-corrected image on said image receiving media.
25. A method of automatically modifying the exposure level and contrast excursion limits for a color contact printer wherein an opaque photographic receiving media is used, said method comprising:

a. positioning a color original to be duplicated over a scanning spot light source, said light source having means to vary the respective blue, red and green components of said light;
b. prescanning said original with said scanning spot while



1. In a system for controlling a process, timing apparatus comprising a display device normally operative to display a value representative of a process variable; control means responsive to the process variable attaining a predetermined value for producing a control signal to change the process from a first state to a second state; timing means responsive to the process variable attaining said predetermined value for measuring, during a predetermined period of time, the elapsed time from the time at which the process variable attains said predetermined value and for producing a timing signal having an instantaneous value representative of the elapsed time; and means for displaying on the display device, during said predetermined period of time and in place of the value representative of the process variable, a value dependent upon the relationship between the value of the timing signal and the predetermined period of time.

4,394,091

AIR BEARING AND ANTI-FRICTION BEARING ASSEMBLY

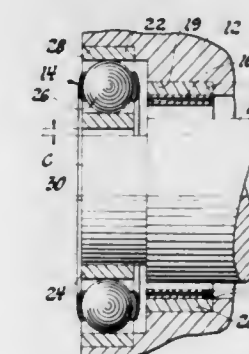
Edward D. Klomp, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 9, 1981, Ser. No. 309,934

Int. Cl.³ F16C 21/00, 35/07

U.S. Cl. 384-101

3 Claims



measuring the light passing through the original to determine its minimum and maximum density, the maximum density of the material, the difference between said minimum and maximum densities (ΔD) and its average density;
c. comparing the ΔD value to a predetermined reference value to generate a scanning spot control signal, said reference value representing the maximum contrast acceptance limits of said photographic receiving media;
d. memory scanning the original while simultaneously (1) modulating the scanning spot with said control signal, and (2) recording the light level passing through the original in a memory storage means, said controlled modulation being effective to alter the contrast excursion limits and determine the exposure level required, said modulated light level representing a modified luminous mask of the original to be duplicated;
e. positioning said opaque photographic receiving media over said color original and in intimate contact therewith;
f. exposing said opaque photographic receiving media with said scanning spot while modulating said spot with the luminous mask signal stored in said memory storage means, whereby the exposure level and contrast excursion limits of said exposure are retained within the predetermined contrast excursion limits of the opaque photographic receiving media.

1. A hydrodynamic foil bearing and anti-friction bearing assembly, comprising,
a shaft housing member having an axial bore,
a rotatable shaft member receivable within the axial bore with a predetermined maximum static eccentricity between the axis of the axial bore and the axis of the shaft member when the shaft member is at zero speed,
a hydrodynamic foil bearing within the axial bore for rotatably supporting the shaft member at a predetermined rotational speed with a predetermined minimum running eccentricity between the axis of the axial bore and the axis of the shaft member,
an anti-friction bearing element within the axial bore axially

adjacent the hydrodynamic foil bearing and including inner and outer races and a complement of rolling elements disposed therebetween, one of the races being secured to one member of the shaft and housing members and the other race being engageable with the other member of the shaft and housing members at zero shaft speed and at low shaft speeds, the other race being eccentrically spaced from the other member by an amount which is less than the maximum static eccentricity and greater than the minimum running eccentricity whereby the bearing element provides the sole support of the shaft member at zero speed, the support of the shaft member being shared between the bearing element and the foil bearing as the shaft member accelerates from zero shaft speed to running shaft speed, with the shaft member being solely supported by the foil bearing at running speed as the other race of the bearing element moves away from the other member and the shaft member rotates within the axial bore at the predetermined minimum running eccentricity.

4,394,092

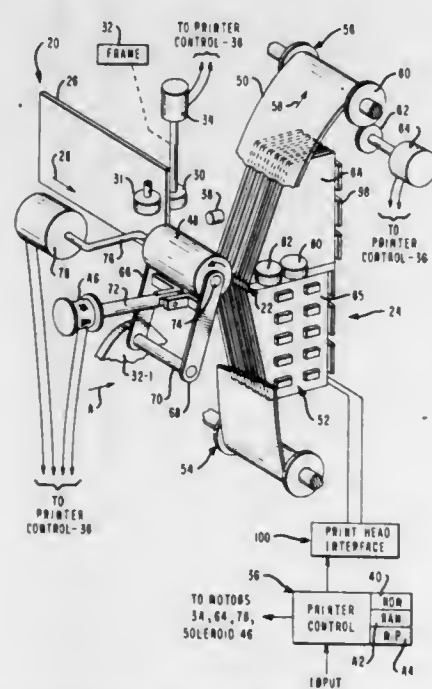
METHOD AND APPARATUS FOR HIGH SPEED THERMAL PRINTING

Miroslav S. Osmera, and Ralf M. Brooks, both of Waterloo, Canada, assignors to NCR Canada Ltd. - NCR Canada Ltee, Mississauga, Canada

Filed Dec. 21, 1981, Ser. No. 333,148
Int. Cl.³ B41J 31/02; G01D 15/10

U.S. Cl. 400-120

22 Claims



1. An electroresistive printing apparatus comprising: a printing station; at least one printing unit at said printing station, with each said printing unit having a face, and with each said face being comprised of a matrix of resistive heating elements arranged in rows and columns so as to produce a printed dot density of a predetermined number of dots per millimeter; means for positioning a record medium at said printing station; means for providing a ribbon containing heat-transferrable ink at said printing station; means for moving relatively said face of said printing unit, said ribbon, and said record medium into and out of printing relationship at said printing station; means for energizing momentarily selected ones of said heating elements in said rows when said ribbon, said record medium and said face are in said printing relationship for transferring said ink to said record medium in accordance

with a pattern of data to be printed so as to partially complete the printing of said pattern; and said moving means including indexing means for providing relative movement (along a line which is substantially perpendicular to said rows) among said face, said ribbon, and said record medium when they are in said printing relationship so as to present said rows of heating elements to an unprinted portion of said record medium to enable progressively the completing of said pattern of data, whereby upon predetermined numbers of energizations of said heating elements and subsequent indexings by said indexing means, said pattern of data is completed.

4,394,093

SUPPORT MEANS FOR PRINT WIRE

Kiyomitsu Asano, Musashino; Masao Jozuka, and Toshikatsu Kondo, both of Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya and Nippon Telecommunication Engineering Company, Tokyo, both of Japan

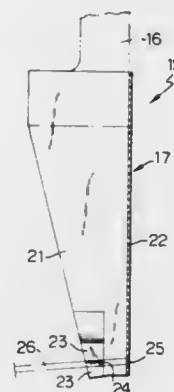
Filed Aug. 5, 1981, Ser. No. 290,298

Claims priority, application Japan, Aug. 12, 1980, 55-111426

Int. Cl.³ B41J 3/12

U.S. Cl. 400-124

3 Claims



1. A print wire support device for a printer wherein a plurality of print wires are selectively driven in a longitudinal direction thereof to perform a printing action, said support device comprising:

an armature including an arm portion carrying each of said print wires, said arm portion being formed of a single planar blank by bending into a structure of a U-shaped cross section having opposite arms and a base, said arm portion having a free end and including a pair of side portions corresponding to the opposite arms of said U-shaped cross section and facing toward each other, free end parts of said side portions being joined at inner surfaces thereof by welding in a plane parallel to said side portions to form a joined portion at said free end part of said arm portion, and a connecting portion corresponding to the base of said U-shaped cross section and connecting said pair of side portions, said joined portion being formed in spaced relation to said connecting portion and having a first supporting aperture formed therethrough substantially perpendicular to said connecting portion, each of said inner surfaces of said parts of the side portions being formed with a groove of semicircular cross section to define a substantially full 360° cylindrical inner surface defining said first supporting aperture when said inner surfaces are welded, said connecting portion having a second supporting aperture formed through the thickness thereof and in alignment with said first supporting aperture along a line substantially perpendicular to said connecting portion, said first and said second supporting apertures being spaced from each other by a predetermined distance along said line of alignment, said print wires each having a fixed end portion welded to a portion of said connecting portion defining said second

supporting aperture, and said fixed end portion extending through said first supporting aperture in contact with said substantially full 360° cylindrical inner surface defining said first supporting aperture such that a bending force applied to said print wire upon said printing action is received by said cylindrical inner surface.

4,394,094

SLIDE MOTION SENSOR FOR SLIDE MOUNT DATA PRINTER

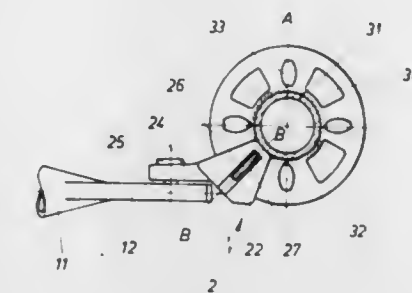
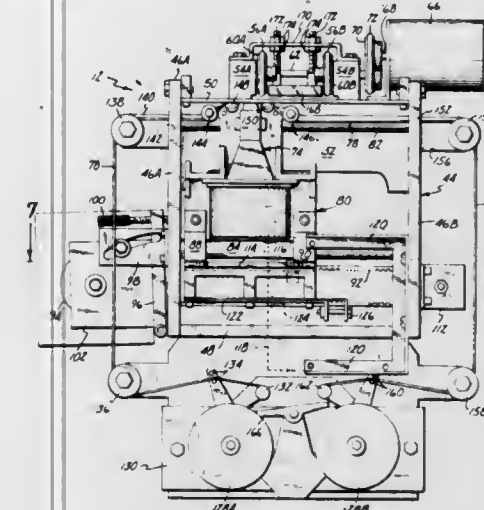
Robert A. Simning, Minneapolis, and Michael E. Schultz, Brooklyn Center, both of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Jan. 21, 1982, Ser. No. 341,297

Int. Cl.³ B41F 17/00

U.S. Cl. 400-124

10 Claims



the flange and an elongated slot formed in the prongs for receiving the fastening wedge, another flat lug projecting outwardly from the terminal end of said shoe at an angle of about 135° relative to the elongated slot, said flat lug having its sides extending parallel to said terminal lug and being pivotally connected thereto.

1. Apparatus for printing alphanumeric information on photographic slide mounts, the apparatus comprising: a slide track along which the photographic slide mounts are advanced, the slide track including a printing station; printer means for printing alphanumeric characters on a slide mount when the slide mount is positioned in the slide track at the printing station; mount indexing means for causing the slide mount to be indexed from station-to-station along the slide track; means for providing an eject signal indicating that a final slide mount of a customer order is at the printing station; a pair of generally parallel conveyor belts adjacent opposite sides of the slide track and extending from the printing station toward the exit end so that a slide mount at the print station is held between the belts and the slide-track and the motion of the slide mount as it enters the print station causes motion of the belts; DC electric motor means responsive to the eject signal and connected to the conveyor belts for driving the conveyor belts to cause slide mounts located between the printing station and the exit end to be driven toward the exit end, the DC electric motor means generating an electric signal in response to motion of the belts as the slide mount enters the print station; and control means responsive to the electric signal generated by the DC electric motor means for controlling the printer means and the mount indexing means.

4,394,095

SCAFFOLDING STRUCTURE

Eberhard Layher, Blankenhornstrasse 17, D-7129 Güglingen-Eisensbach, Fed. Rep. of Germany

Filed Dec. 7, 1981, Ser. No. 328,100

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1981, 8112653[U]

Int. Cl.³ E04G 7/00

U.S. Cl. 403-49

3 Claims

1. A scaffolding structure for use in scaffolding systems

which include vertical supporting elements provided with annular flanges having radially directed apertures for receiving fastening wedges, said scaffolding structure comprising a scaffolding element formed at one end thereof with a terminal lug; a coupling shoe having two prongs arranged one above the other; an open slot formed between the prongs for engaging

4,394,096

ATTACHMENT SYSTEM FOR PLASTIC LINERS

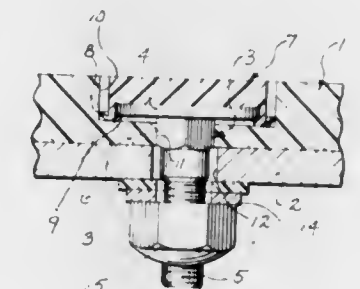
Bruce W. Stevens, Roanoke, Ind., assignor to Menasha Corporation, Neenah, Wis.

Filed Aug. 27, 1981, Ser. No. 297,023

Int. Cl.³ B25G 3/00; F16B 2/14, 21/80; F16G 3/00

U.S. Cl. 403-408

6 Claims



1. In a system attaching a plastic liner to a substrate using a bolt with a plastic capped head that is received in an enlarged recess at the exposed liner surface to be flush with said surface and that has an attachment shank that extends through a shank opening in the liner at the bottom of the recess and into the substrate, the improvement wherein: the recess is straight-sided; the cap is straight-sided and includes a peripheral portion that extends around the periphery of the bolt head and is peripherally smaller than the recess; and the peripheral portion includes a radially outwardly extending sealing skirt that is peripherally larger than the recess and is rolled upwardly when the bolt is inserted into a sealing engagement with the sides of the recess.

4,394,097

RETAINING APPARATUS

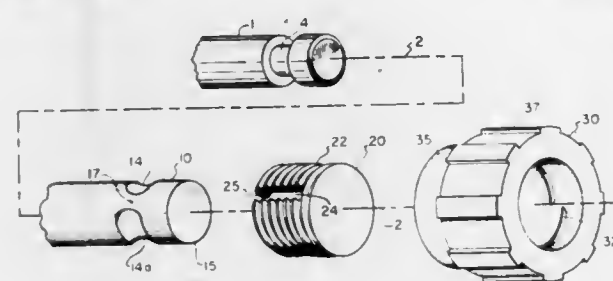
Wilhelm H. Horlacher, Hartford, Conn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Apr. 13, 1981, Ser. No. 253,435

Int. Cl.³ B25G 3/02; F16D 1/00

U.S. Cl. 403—360

4 Claims



1. A retaining assembly for use in mounting on a first member having a cylindrical aperture therein comprising:
 - a cylindrical member sized to extend through the aperture in the first member, said cylindrical member having a surface groove only part way around said cylindrical member near one end thereof to form abutments where the groove ends;
 - an externally threaded one-piece clip member having an inner cavity sized to snap over the end of said cylindrical member, an inner surface of the cavity having a convex partially circumferential ridge extending radially inwardly into the cavity and adapted to fit within the groove on said cylindrical member upon insertion of said cylindrical member into the cavity of said clip member to hold said clip member on the end of said cylindrical member, the ridge having an end portion which cooperates with the abutments to prevent the clip member from rotating with respect to said cylindrical members; and
 - a nut member internally threaded to cooperate with the external threading of said clip member and operable to be tightened against the first member to secure said cylindrical member with respect to the first member.

4,394,098

RADIAL GATE HAVING FINE TUNING OF FLOW CONTROL

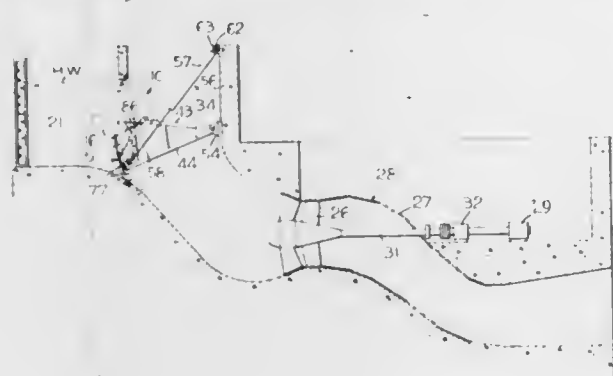
Helmut H. Wirschal, York, and Warren G. Whippen, Dover, both of Pa., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 3, 1980, Ser. No. 203,537

Int. Cl.³ E02B 9/08; F03B 15/04

U.S. Cl. 405—77

2 Claims



1. An apparatus in operable combination with a hydraulic turbine for controlling a flow of water through a waterway in which said turbine, is located, comprising:
 - a radial gate within said waterway upstream of said turbine having a water face plate movable between a closed position for interrupting said flow of water through said waterway toward said turbine and a full open position permitting a generally uninhibited flow of water through said waterway toward said turbine;
 - means for moving said radial gate between said closed and

full open position and operable to maintain said radial gate at preselected incremental open positions intermediate said closed and full open positions to permit a preselected incremental flow of water through said waterway toward said turbine;

a second gate carried by said radial gate and operable independent of the positioning of said radial gate to be selectively moved between a flow blocking position to a maximum open position with said second gate permitting a maximum supplemental flow of water through said waterway to said turbine when in said maximum open position and permitting generally no supplemental flow when in said blocking position; said water face plate of said radial gate having an opening therethrough operable to permit said maximum supplemental flow of water through said radial gate to said turbine and said second gate comprising a flap-gate having a water surface plate sized to completely cover said opening in said radial gate; said flap-gate being supported on said radial gate on a downstream surface thereof in said blocking position wherein said water surface plate covers said opening in said radial gate and movable from said blocking position to a maximum open position to permit said maximum supplemental flow of water through said opening toward said turbine; and means for selectively moving said second gate between said blocking and maximum open positions independent of the positioning of said first gate comprising a power operator operably connected to said flap-gate to move said flap-gate between said flap blocking and maximum open position;

whereby said radial gate is positionable to an intermediate open position permitting only a predetermined amount of water to flow to the turbine which is less than an amount necessary to drive the turbine to achieve a synchronization of the turbine and said flap-gate may be operated to permit a supplemental flow of water to the turbine to fine tune the water flow to achieve synchronization and thereafter said radial gate may be opened to permit full water flow to the turbine.

4,394,099

PLASTIC LENS CONTOUR CUTTING MACHINE

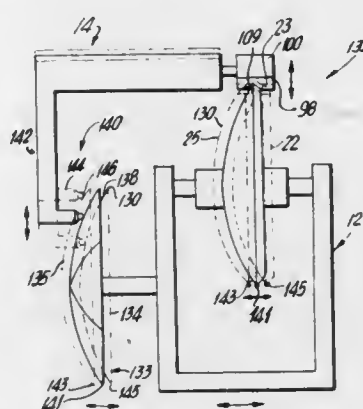
Emil Santinelli, Carmel, N.Y., assignor to Lemay Corporation, Carmel, N.Y.

Filed Jan. 22, 1981, Ser. No. 227,225

Int. Cl.³ B23C 1/18; B24B 9/14

U.S. Cl. 409—104

12 Claims



1. An improved machine for cutting, edging, contouring, and beveling the periphery of a plastic lens, said machine being of the type having a head mounted on a base and carrying a lens pattern and a plastic lens which is to be cut and has a base curvature, means for rotating said pattern and said lens about a common axis, wherein the machine includes a carriage mounted on said base and having a pattern follower in bearing contact with said pattern and having a rotatable cutter with a cutting edge capable of engaging said periphery of said lens, said cutting edge forming a beveling means, means for moving

said carriage substantially perpendicular toward and away from said axis, said movement effecting an engagement of said cutter with said periphery of said lens, the improvement comprising:

said cutter having a cutter edge of a metal of a high hardness and rotatable at high speed, said cutter having a cutting face and a radial plane of rotation, said cutting face forming a clearance angle with said radial plane, said face operative to direct particles along said face away from said radial plane of rotation; and

bevel aligning means including base curve cam means connected to said head and cam tracing means connected to said carriage, said cam means having a surface forming the same base curvature as said lens, said tracing means being in bearing contact with said surface for effecting a movement of said head with said lens in a first direction to a position that aligns the center of said lens with said beveling means, said aligning means including biasing means connected to said head and said base and effecting a movement of said head in a second direction resulting in bearing contact of said surface of said cam means against said tracing means, said surface of said base curve cam means including a plurality of discrete sectors, each of said sectors having a different base curvature surface, said cam means rotatable to effect bearing alignment between the surface of any selected sector and said tracing means, whereby when said selected sector has a surface forming the same base curvature as the base curvature of said lens, said tracing means effects a movement of said head with said lens in said first direction to a position that aligns the center of said lens with said beveling means,

whereby when said lens and said lens pattern are rotated and said cutter is rotated at high speed, said carriage moves toward said axis effecting an engagement of said cutter with said lens periphery to cut and edge said plastic lens and simultaneously form a bevel at the center of said periphery.

4,394,100

PICKUP TRUCK CARGO BOX COVER ASSEMBLY

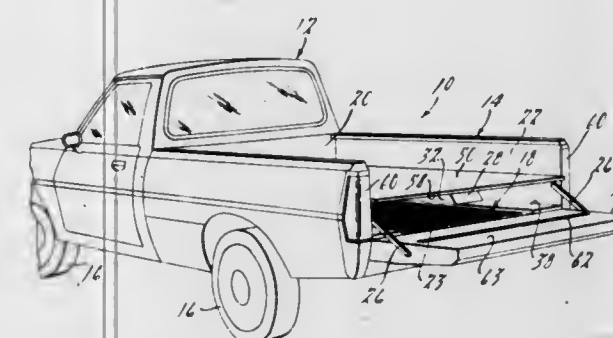
Harold K. Sperlich, Orchard Lake, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Oct. 2, 1981, Ser. No. 307,709

Int. Cl.³ B62D 25/20

U.S. Cl. 410—2

6 Claims



1. In combination with a pickup truck having an open cargo box formed of an upstanding front wall, upstanding sidewalls, a floor and a pivotally mounted rear tailgate defining a cargo area with a rearward access opening, said sidewalls including an opposed pair of wheel housings projecting upwardly from the floor and projecting inwardly into the cargo area, said tailgate hinged for pivotal movement about a horizontal axis between a substantially upright locked position closing at least a portion of the access opening and a lowered position; the improvement comprising:

first horizontally disposed channel means on said front wall extending a predetermined distance thereacross;

second horizontally disposed channel means on said tailgate in opposed relation with said first channel means whereby

said channels define a horizontally extending plane spaced a predetermined distance above said cargo area floor;

each said wheel housing having an upper substantially planar surface located substantially in said horizontally extending plane;

rectangular panel means dimensioned such that its one forward marginal transverse edge is adapted to be snugly received in said first channel means, and

said panel means having a predetermined longitudinal dimension such that with said forward edge snugly received in said front wall channel means its other rearward transverse edge is adapted to be snugly received in said tailgate channel means with said tailgate in its upright closed position whereby said panel means is retained by said tailgate channel means providing a covered load space on the cargo area floor subjacent an upper level cargo area on said panel means.

4,394,101

HEIGHT ADJUSTABLE CARGO CONTAINER LOCKING MECHANISM

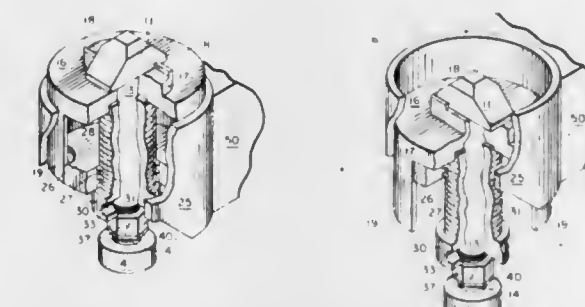
John E. Richer, Oceanside, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 19, 1981, Ser. No. 225,883

Int. Cl.³ B60P 7/13

U.S. Cl. 410—83

15 Claims



10. A locking mechanism for securing a cargo container having standard bottom located receptacle type fittings, comprising:

a housing which is adapted to be disposed beneath a fitting of the container, the housing having a bottom and an open top;

a platform slidably contained within the housing and adapted to be raised upwardly out of and lowered into the housing, the surface area of the platform being of a size to permit said platform to bear against the bottom of a respective fitting when in the upward position out of the housing;

elevator means for raising and lowering the platform;

a locking element mounted on top of the platform and adapted to be received within the container fitting;

means connected to the locking element and extending downwardly through the platform and downwardly through the housing for rotating the locking element within the fitting container.

4,394,102

SERVO AMPLIFICATION SYSTEM

Clarence F. Batchelder, Jamul; Charles E. Thomas, San Diego, and Kent B. Casady, La Jolla, all of Calif., assignors to Clipp Control Corporation, San Diego, Calif.

Filed Dec. 4, 1981, Ser. No. 327,386

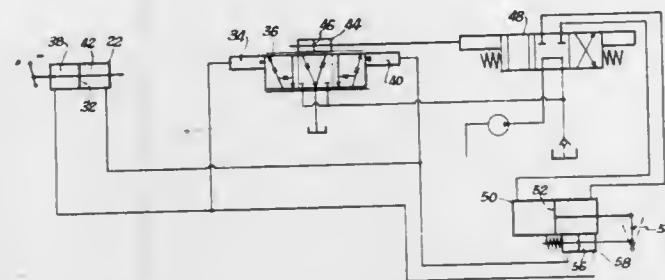
Int. Cl.³ B25J 3/00

U.S. Cl. 414—5

13 Claims

1. A servo amplification system comprising:
 - (a) a control cylinder having a double-acting control piston defining a first and second control chamber on opposite sides of said piston;

- (b) a pilot valve and a pilot cylinder having a double-acting piston and being operated by said pilot valve, said valve having a first and second inlet port connected to said first and second control chamber, respectively, to drive said pilot selectably in a first or second direction;
- (c) a drive cylinder having a drive piston activated by a directional valve operated by said pilot cylinder;
- (d) a feedback cylinder with a double-acting feedback piston



operatively connected to said drive piston to be moved thereby, said feedback cylinder defining first and second feedback chambers on opposite sides of said feedback piston, said first and second feedback chambers communicating with said second and first inlet ports respectively, such that movement of said control piston in a first direction operates, through said pilot valve and cylinder, said drive cylinder which moves a distance proportional to the distance moved by said control cylinder.

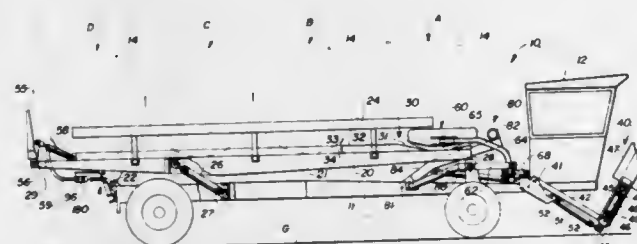
4,394,103

HYDRAULIC SYSTEM FOR A ROUND BALE WAGON
L. Dennis Butler, Kingsburg, and Alan R. Askov, Fresno, both of Calif., assignors to Sperry Corporation, New Holland, Pa.
Filed Jun. 23, 1981, Ser. No. 276,570

Int. Cl.³ A01D 87/12

U.S. Cl. 414—24.5

1 Claim



1. In a bale wagon for picking up bales of crop material from the field, accumulating a plurality of bales and transporting the accumulated bales to a preselected storage location to be unloaded from the bale wagon, said bale wagon having a mobile frame adapted for movement across the field; a bale pickup means pivotally mounted on said mobile frame for individually engaging bales of crop material on the ground and elevating said bales onto the bale wagon; a load bed supported on said frame for accumulating a plurality of bales, said load bed including a receiving portion on which a number of bales may be deposited and arranged in a predetermined manner; means for arranging and positioning said bales deposited on said load bed by said bale pickup means; a hydraulic system including a first hydraulic cylinder for interconnecting said bale pickup means and said frame for pivotal movement of said bale pickup means to elevate bales onto said receiving portion of said load bed, a second hydraulic cylinder interconnecting said means for arranging and positioning said bales and said frame for operatively driving said means for arranging and positioning, control valves for controlling the flow of hydraulic fluid to each respective said hydraulic cylinder and conduit means in operative communication with said control valves and said hydraulic cylinders for transferring a flow of hydraulic fluid therebetween; and power means for operatively powering the flow of

hydraulic fluid through said hydraulic system, an improved hydraulic system comprising:

said first hydraulic cylinder being connected hydraulically in series with said second hydraulic cylinder, such that hydraulic fluid flows between said first and second hydraulic cylinders without passing through one of said control valves; and

a relief valve connected to said conduit means to redirect the flow of hydraulic fluid away from said second hydraulic cylinder to said first hydraulic cylinder after said second hydraulic cylinder has reached the end of its stroke.

4,394,104

CONTAINER STORAGE INSTALLATION
Mario Camerini, Via Puntoni 5, and Giacomo Pizzi, Piazza Cavour 22, both of Livorno, Italy

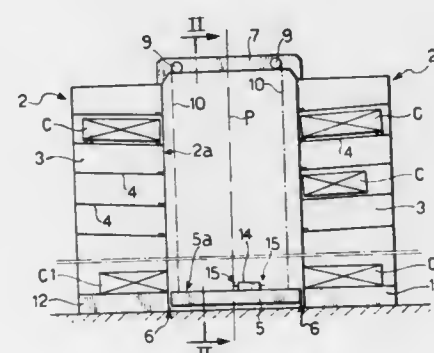
Filed Jul. 16, 1980, Ser. No. 169,245

Claims priority, application Italy, Jul. 16, 1979, 17408 A/79

Int. Cl.³ B65G 1/06

U.S. Cl. 414—276

7 Claims



1. In a container storage installation comprising: a warehouse having a plurality of elongated, container-receiving cells arranged in an array of rows and columns, a servicing passageway common to said cells and into which each cell opens by one end, and a container loading- and unloading unit displaceable horizontally and vertically in the said passageway for loading and unloading a container lengthwise into and from a selected cell, each cell having floor members supporting a container in the cell, and wherein the container comprises a standard corner block at each of its four lower corners, the improvement wherein:

the said floor members in each cell comprise a pair of transversely spaced guide rails extending longitudinally of the cell throughout substantially the whole length of the latter, and a trolley bridging the rails and having a container-supporting upper surface providing a support for a restricted lower front-edge region only of the container substantially corresponding to the lower corner blocks at that end, said trolley being freely rollable on the rails under a thrust applied thereto by a container during loading and unloading into and from the cell;

the rails in each cell are sloping towards the passageway whereby, as the leading end of a container being pushed into a cell takes its support on the trolley, the latter is entrained by the container to climb along the rails thereby to gradually lift the said leading end of the container;

the said loading- and unloading unit comprises a horizontally elongated elevator platform capable of supporting a container on its upper face, and a carriage displaceable on said face from one end to the other end of the platform, said carriage having thereon first means for gripping a container on the platform by an end pair of the corner blocks at the lower rear-edge region of the container to push and pull the container lengthwise thereof for respectively loading and unloading a cell and second means engageable with said end pair of blocks at the lower rear-edge region of said container to raise and lower said rear-edge region relative to said carriage to assist in the transfer of said container; and

wherein the end section of the platform adjacent the warehouse comprises transfer means for delivering to the trolley the said lower front-edge region of a container supported by the platform as the container is pushed by the carriage, said transfer means comprising a power-actuated pad in the upper face of the platform arranged to reciprocate longitudinally of the platform while lifting the said end region of the container by engagement with a corner block in said region.

4,394,105

TIPPING TRAILER

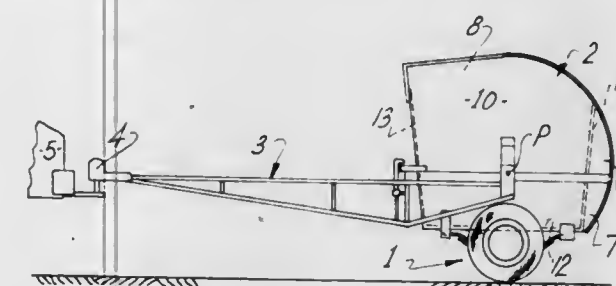
Gordon B. Mitchell, R.D. 3, Hamilton, New Zealand

Filed Apr. 13, 1981, Ser. No. 254,011

Int. Cl.³ B60P 1/28

U.S. Cl. 414—436

5 Claims



1. A tipping trailer comprising a hopper having a base, side, front and rear walls, a pair of trailer wheels mounted to said base arranged to support the hopper from a ground surface during towing, a frame comprising a pair of substantially parallel side arms each being pivotally connected to the sides of the hopper at a point above the trailer wheels and a forward portion connecting the side arms and having a trailer coupling fixed at or near the leading end thereof by which the trailer can be connected to a towing vehicle, and locking means arranged to secure the hopper with respect to the frame during towing, wherein the side walls of the hopper are a matching pair, each having a first curved edge portion extending from the base forming a pair of skids for the hopper, the arrangement being such that upon release of the locking means the hopper and the trailer wheels may tilt about the pivotal connections between the side arms and the sides of the hopper such that an edge of the skids adjacent the base makes contact with the surface below and on reversal of the trailer the hopper and wheels revolve, the hopper rolls back on the curved skids, and the wheels pass upwards between the side arms whereby the hopper is upended.

4,394,106

GLASS HANDLING LIFT TRUCK

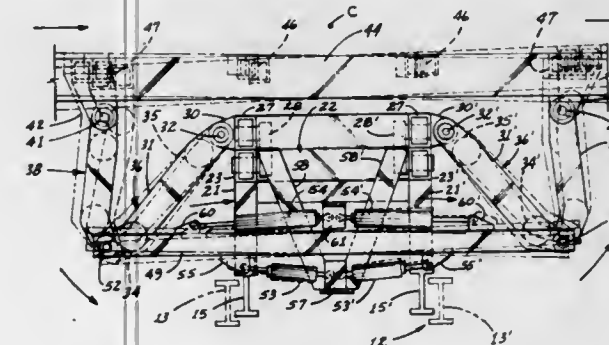
Kenneth A. Frees, St. Peters, and Thomas E. Quick, Florissant, both of Mo., assignors to Missouri Research Laboratories, Inc., St. Charles, Mo.

Filed Aug. 24, 1981, Ser. No. 295,829

Int. Cl.³ B66F 9/14

U.S. Cl. 414—622

8 Claims



1. For use with a lift truck, a lift truck mechanism for han-

dling glass sheets in packs comprising a glass pack lifting frame, gripping means at the sides of said lifting frame for engaging sides of a glass pack and support feet at the bottom of said lifting frame for supporting said glass pack, a framework of said mechanism for attachment to the lift mast of said truck, and further characterized by swinging frame means pivotally interengaging said framework and lifting frame to permit slewing and side-shifting movements of said lifting frame relative to said truck, first controllable motor means for effecting said side-shifting movement and second controllable motor means for effecting said slewing movement, said first motor means comprising first extendable-retractable hydraulic cylinder means effectively interengaging said framework and said swinging frame means, said second motor means comprising second extendable-retractable hydraulic cylinder means effectively interengaging said lifting frame and said swinging frame means, said swinging frame means including a first pair of oppositely disposed swingable frame members swingably engaged to said framework on opposite sides thereof and a second pair of oppositely disposed swingable frame members swingably interengaging distal ends of said first pair with said lifting frame, whereby said lifting frame may be controllably positioned both angularly and laterally relative to said truck for picking up and depositing glass sheets.

4,394,107

TRACTOR MOUNTED FORKLIFT

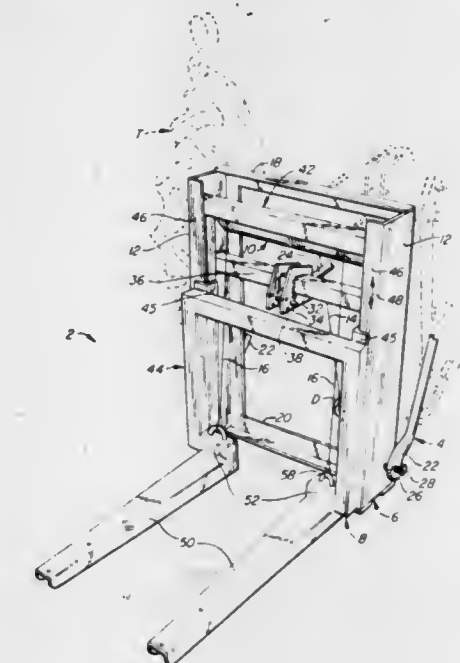
Steve L. Siebert, Clovis, Calif., assignor to D & S Manufacturing, Clovis, Calif.

Filed Nov. 5, 1981, Ser. No. 318,662

Int. Cl.³ B66F 9/06

U.S. Cl. 414—631

7 Claims



1. A forklift assembly for use in conjunction with a vehicle of the type having hitch means moveable in a generally vertical direction, the forklift assembly comprising:

a frame;
means for mounting said frame to the hitch means;
tine assembly means including a generally horizontal extension member moveably mounted parallel to a generally vertical first path along said frame;
roller means rotatably mounted to said frame;
a first cable having one end attached to and wrapped around said roller means in a first direction and having its other end attached to a point on said vehicle, said first direction chosen so that raising said frame along a generally vertical second path by the hitch means causes said first cable to unwind from said roller means; and
means operably coupling said roller means and said tine assembly means for raising said tine assembly along said

first path when said roller is rotated in a second direction, said second direction being opposite said first direction.

4,394,108

FRONT LOADER VEHICLE WITH TELESCOPING BOOM

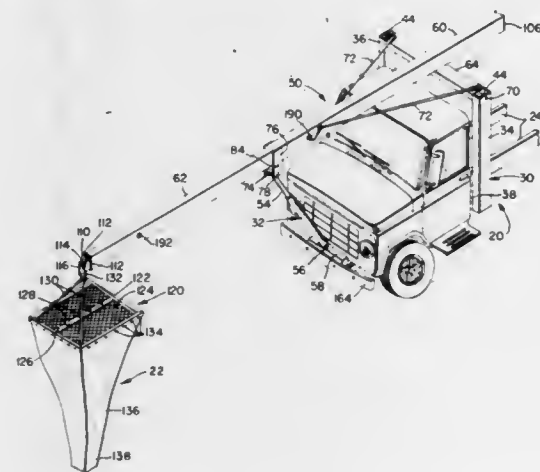
Richard J. Cook, Hayti, and Richard Reade, Caruthersville, both of Mo., assignors to Mid-Continent Aircraft Corporation, Hayti, Mo.

Filed Dec. 21, 1977, Ser. No. 862,972

Int. Cl.³ B66C 23/04

U.S. Cl. 414—680

9 Claims



9. For use in a front loader vehicle which has integral frame structure with front and rear frame portions, a boom arrangement comprising: a front and a rear boom support means adapted respectively for rigid attachment to the front and rear frame portions of the vehicle; a telescoping boom structure; means pivotally mounting the rear end of said boom structure to the rear boom support means to permit elevation of said boom about a rear pivot axis from a horizontal position with the boom structure projected forward to an elevated position extending upward and forward; said front boom support means comprising an extensible power operated motor connected to the boom and adapted to be connected to the front truck frame portions; said boom structure having at least two telescoping elongate members, and comprising: outer and inner tubes, roller means carried by both tubes enabling a free rolling coaction between said tubes, the innermost elongate member being slidable from a fully retracted position to an extended position within the outermost elongate member; means to interlock said elongate members at least in fully retracted and fully extended interrelationship; said innermost tube, when the locking means are disengaged, being unrestrained and free to roll under inertia forces between the retracted and extended limit positions; and abutment means on each of said tubes adapted to provide an abutment telescopic limit engagement at the retracted position and at the extended position of the innermost tube; said means pivotally mounting the rear end of said boom structure including an elongated pivot cross beam disposed normal to said beam adjacent and under the rearward portion of the outermost tube with means rigidly securing said support beam to said outermost tube; and means mounted on the front end of the innermost elongate member for carrying a material dispensing container.

4,394,109

ARRANGEMENT AND EQUIPMENT FOR THE DISPLACEMENT OF BLADES, PARTICULARLY PROPELLER BLADES

Donald Ritchie, Immenstaad, Fed. Rep. of Germany, assignor to Dornier GmbH, Fed. Rep. of Germany

Filed Feb. 8, 1980, Ser. No. 119,806

Int. Cl.³ B64C 11/28

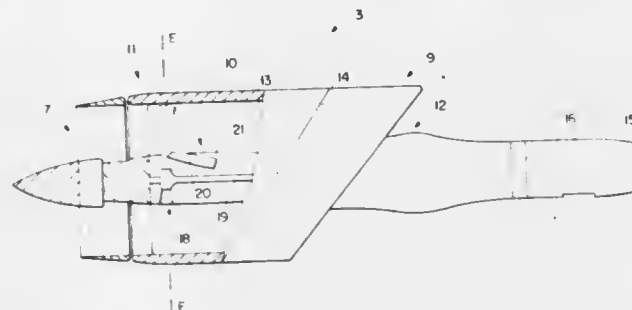
U.S. Cl. 416—142

4 Claims

1. In equipment for the adjustment of rotor blades, particularly propeller blades of fans, turbines, and the like, and espe-

cially for propulsion plants on aircraft adapted to be selectively shut-off in a low-resistance position, said equipment including a rotor hub with blades pivotally mounted thereon, said blades (20) having a longitudinal axis (L_A) and a twist ($\Delta\theta$) about said axis (L_A) between the chord line (S_{PF}) at the blade root and the chord line (S_{PS}) at the blade tip,

the improvement comprising means whereby said blades (20) are each selectively pivotal about pivot support means on the hub into an operational or a collapsed position,



said blades (20) when collapsed forming, by means of the position of pivot axes (33) of said pivot support means, helical cut-outs of a common cylindrical or conical envelope with the longitudinal axes (L_A) extending at a slant imparted by the twist ($\Delta\theta$) with respect to the longitudinal direction of said envelope, the position of the pivot axes (33) at a common base circle being determined by the slant of the pivot axes (33) with respect to the plane of rotation ($E-E$) of said blades (20) and by the slant of the axes (33) with respect to the chord line (S_{PF}) at the blade root.

4,394,110

SWASH-PLATE TYPE COMPRESSOR

Yutaka Ishizuka, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

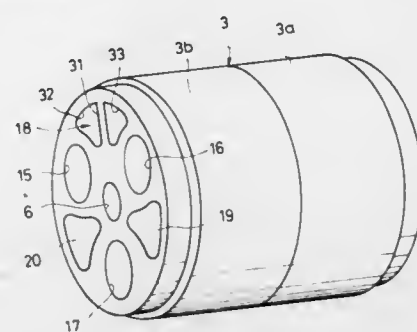
Filed Dec. 3, 1980, Ser. No. 212,496

Claims priority, application Japan, Dec. 13, 1979, 54-172525

Int. Cl.³ F04B 1/18, 39/02

U.S. Cl. 417—269

5 Claims



1. A swash-plate type compressor comprising: a cylindrical cylinder block having two cylindrical members combined together in axial alignment and horizontally disposed, each of said cylindrical members having an outer end face; a drive shaft extending through said cylinder block along an axis thereof and rotatable relative to said cylinder block; a swash plate secured on said drive shaft; and three pistons arranged within said cylinder block in engagement with said swash plate; said cylinder block including: three cylinder bores within which said pistons are slidably disposed, said cylinder bores being formed within said cylindrical members of said cylinder block in circumferentially spaced relation to each other and extending through said cylinder block axially thereof, two of said cylinder bores being located at upper portions of said cylinder block and one being located at a lower portion thereof; three spaces formed within each one of said cylindrical mem-

bers of said cylinder block and opening in said outer end face of said each one cylindrical member, each of said spaces being arranged between adjacent ones of said three cylinder bores, one of said spaces being located at an upper portion of said each one cylindrical member and two of said spaces being located at lower portions thereof, said three cylinder bores being arranged in an array of an inverted triangle with the diametric centers of said cylinder bores located at the vertices of said inverted triangle, said three spaces being arranged in an array of a triangle with the diametric centers of said spaces located at the vertices of said triangle; a chamber located at a central portion of said cylinder block, within which said said swash plate is arranged; said two spaces located at said two lower portions of said each one cylindrical member being in communication with said swash plate chamber, said two lower spaces and said swash plate chamber forming an oil reservoir in which lubricating oil is stored;

a communication bore communicating said one space located at said upper portion of one of said cylindrical members with said one space located at said upper portion of the other of said cylindrical members; and

a vertical partition wall axially extending through said cylinder block, said vertical partition wall dividing said one space located at said upper portion of each of said cylindrical members into a high pressure medium chamber and a low pressure medium chamber, and also dividing said communication bore into two passages;

said high pressure chambers in said cylindrical members being communicated with each other by one of said passages of said communication bore, while said low pressure chambers in said cylindrical members being communicated with each other by the other of said passages of said communication bore, said high pressure medium chambers and said one passage of said communication bore serving as a passage for high pressure medium, and said low pressure medium chambers and said other passage of said communication bore serving as a passage for low pressure medium.

4,394,111

TOP COVER, MOTOR, FAN AND FAN SHROUD ASSEMBLY FOR AN AIR CONDITIONING UNIT

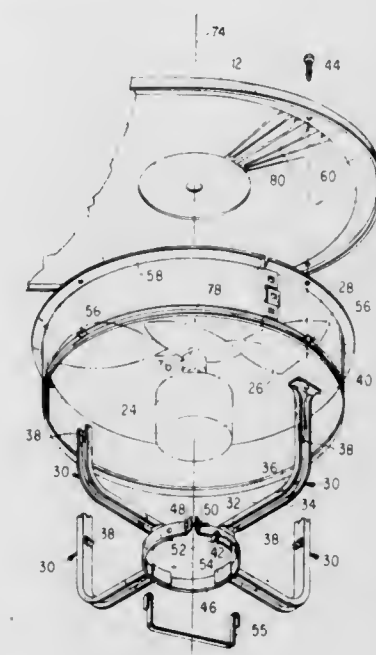
John M. Wiese, Red Bud, and Russell W. Hoeffken, Belleville, both of Ill., assignors to Snyder General Corporation, Red Bud, Ill.

Filed Sep. 11, 1981, Ser. No. 301,080

Int. Cl.³ F28F 13/12; F04B 35/04; F04D 29/54

U.S. Cl. 417—360

10 Claims



1. In an air conditioning unit, a top cover with a vent for the passage of air, a depending cylindrical shroud in communication with said vent, a fan and a motor for driving the fan having

axes in common with the axis of the shroud, motor supporting legs which are connected to the shroud and have end flanged portions in substantially the same plane as the upper end of the shroud, and means for simultaneously fastening said flanged portions of the motor supporting legs to the top cover and drawing the upper end of the shroud snugly against the cover.

4,394,112

COMBINATION ROLLER TOOTH SET HAVING ROLLER TEETH AND CONCAVE SURFACES DISPOSED TO ENGAGE EACH OTHER

George V. Woodling, 22077 Lake Rd., Rocky River, Ohio 44116

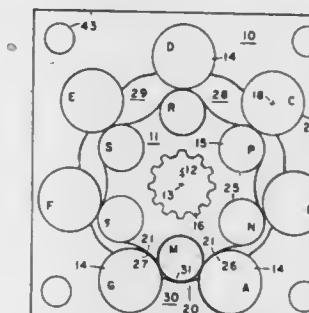
Continuation of Ser. No. 103,905, Dec. 17, 1979, abandoned.

This application Aug. 13, 1981, Ser. No. 292,523

Int. Cl.³ F01C 1/113; F16H 1/28, 55/10

U.S. Cl. 418—61 B

3 Claims



1. An inside and an outside combination roller tooth set comprising an inside rotary body member having a longitudinal rotary body axis, an outside stationary body member surrounding said inside rotary body member and having a longitudinal stationary body axis substantially parallel to said rotary body axis, said rotary body axis and said stationary body axis being displaced from each other, said inside rotary body member being internally unsupported and having freedom of movement to provide a rotational movement about its own rotary body axis and a recycling movement about said stationary body axis, said inside rotary body member having therein a plurality of inside roller teeth disposed substantially parallel to and extending circumferentially around said rotary body axis as a center, all of said inside roller teeth having substantially the same diameter and being spaced apart one from the other in a circumferential direction and defining inside adjacent roller teeth having substantially equal intervals therebetween, said outside body member having therein a plurality of outside roller teeth disposed substantially parallel to and extending circumferentially around said stationary body axis as a center, all of said outside roller teeth having substantially the same diameter and being spaced apart one from the other in a circumferential direction and defining outside adjacent roller teeth having substantially equal intervals therebetween, one of the said plurality of roller teeth being one less in number than the number of the other of said plurality of roller teeth, said inside body member being provided with a plurality of outwardly facing roller recesses into which said inside roller teeth may be respectively mounted, said outside body member being provided with a plurality of inwardly facing roller recesses into which said outside roller teeth may be respectively mounted, said inside and said outside roller teeth facing each other and defining a plurality of contactable cylindrical roller teeth, one of said body members having a plurality of longitudinally extending geometric concave surfaces respectively disposed between and in parallel relation to said adjacent roller teeth thereof, at least one of said geometric concave surfaces and at least a roller tooth in the other of said body members being disposed to engage each other and provide a concave-to-convex contact engagement therebetween, each of said roller teeth in one of said plurality of roller teeth having a diameter greater than the respective intervals between the adjacent roller teeth in the other of said plurality of roller teeth, said concave-to-convex contact engagement in combination with

said plurality of contactable cylindrical roller teeth externally and solely supporting said inside rotary body member for rotational movement about its own rotary body axis and for recycling movement about said stationary body axis.

4,394,114

COMPRESSOR

Teruo Maruyama, Neyagawa; Tadayuki Onoda, Toyonaka, and Tatsuhisa Taguchi, Shiga, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

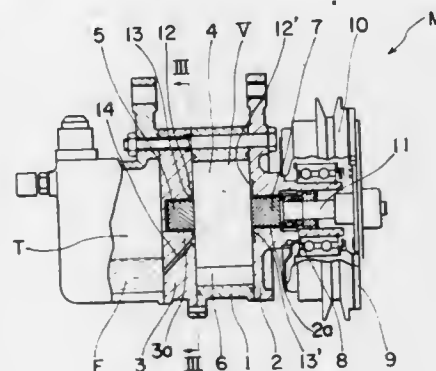
Filed Mar. 24, 1981, Ser. No. 247,084

Claims priority, application Japan, Mar. 27, 1980, 55-39729

Int. Cl.³ F03C 2/00

U.S. Cl. 418-269

10 Claims



4,394,113 LUBRICATION AND PACKING OF A ROTOR-TYPE COMPRESSOR

Karl Bammert, Hanover, Fed. Rep. of Germany, assignor to M.A.N. Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Fed. Rep. of Germany

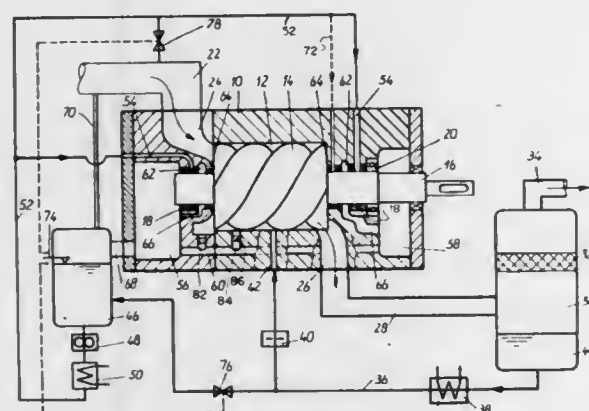
Filed Dec. 5, 1980, Ser. No. 213,722

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1979, 2948992

Int. Cl.³ F01C 1/16

U.S. Cl. 418-98

10 Claims



1. A rotary compressor comprising:

- a housing defining a working space with an intake for receiving gas at low pressure to be compressed, a discharge for discharging compressed gas at high pressure and at least two oil spaces;
- at least one rotor having a shaft rotatably mounted in said working space for compressing gas in said working space;
- a radial plane bearing adjacent each oil space connected between each end of said shaft and said housing for rotatably mounting said rotor;
- a shaft packing surrounding said shaft between each of said bearings and said working space;
- a lubricating oil circuit including, an oil supply tank defining a tank space for receiving oil and gas, a supply conduit for supplying oil from said tank space to each bearing, and a return conduit for returning oil from said oil spaces to said tank space;
- a pressure equalizing connection connected between said lubricating oil circuit and said low pressure intake to equalize the pressure of all of said oil lubricating circuit with pressure in said intake;
- said housing defining a drain space surrounding said shaft and between said packing and said bearing at each end of said shaft for collecting oil flowing out from each bearing on one side of each drain space and gas flowing through each packing from said working space on opposite side of each drain space;
- a drain channel connected respectively between each drain space and each oil space; and
- an oil space conduit connected between said two oil spaces.

1. A compressor which comprises:

- a cylinder having a hollow interior;
- a rotor member rotatably eccentrically mounted in said hollow interior and having a plurality of outwardly open sliding recesses therein;
- a plurality of vanes slidably mounted in corresponding sliding recesses and extending outwardly into sliding contact with the inner surface of said cylinder;
- a rotor shaft on said rotor having the ends extending from the opposite ends of said rotor;
- end plates secured to opposite ends of said cylinder and closing said hollow interior for defining a vane chamber in said cylinder, said ends of said rotor shaft being rotatably supported on said end plates, and the surfaces of said end plates and the surfaces of the ends of said rotor being in spaced opposed relationship to define a clearance therebetween, at least one of said opposed surfaces at least one end said rotor having a ring-like groove therein spaced radially outwardly from said rotor shaft and into which the inner ends of said sliding recesses are open;
- means for supplying a liquid lubricant under pressure into said ring-like groove; and
- a dynamic pressure type fluid thrust bearing in said surface in which said ring-like groove is positioned and being between said ring-like groove and said rotor shaft, and including a plurality of grooves in said surface extending from said ring-like groove to said rotor shaft.

4,394,115

FORMING ARRANGEMENT FOR MACHINES MAKING RECEPTACLES OUT OF THERMOPLASTIC MATERIAL

Jean-Marc Dronet, Falaise, France, assignor to Societe d'Application Plastique Mecanique et Electronique Plastimecanique S.A., Falaise, France

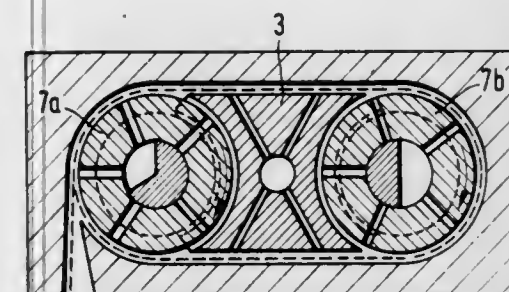
Filed Apr. 3, 1981, Ser. No. 250,595

Claims priority, application France, Apr. 3, 1980, 80 07539

Int. Cl.³ A23G 1/20; B29C 3/00

U.S. Cl. 425-122

5 Claims



1. An improved heat-forming molding machine for producing by deep drawing receptacles of thermoplastic material from plastic strips and sheets including means for feeding a plastic band into the mold cavity of the machine; the improvement comprising,

a fixed mandrel;

a mold having a mold cavity reciprocally movable relative to said fixed mandrel, said mandrel thereby moving into and out of said mold cavity,

said mandrel and/or mold defining a forming chamber adapted to receive a plastic banderole, which forming chamber and mandrel have contours which substantially correspond to that of the mold cavity so that said mandrel has a substantially fixed transverse cross-sectional area with respect to the forming chamber and mold cavity to thereby define a narrow guide passage for the plastic banderole;

said mandrel including a plurality of parts, a first number of these parts having transverse sections which remain fixed relative to said forming chamber and a second number of these parts have transverse sections which rotate relative to said forming chamber, the latter sections forming part of round or curved portions of the forming chamber, said rotatable transverse sections including suction channels for coating and biasing the banderole against the rotatable parts of the mandrel to thereby impart an advancing motion to the banderole, said suction channels being in operative communication with a vacuum source.

4,394,116

MANDREL ADJUSTMENT SYSTEM IN A PLASTIC RESIN BLOW MOLDING MACHINE

Ernest O. Kuenzig, 32 Waverly St., Glen Head, N.Y. 11545, and Frank L. Pennino, 10 Leamore Dr., Farmingdale, N.Y. 11735

Filed Dec. 7, 1981, Ser. No. 327,902

Int. Cl.³ B29D 23/04; B29F 3/06

U.S. Cl. 425-192 R

20 Claims

1. An apparatus in a plastic resin blow molding machine to adjust the vertical position of a vertically aligned mandrel relative to a forming die, the mandrel and forming die forming a tubular parison, in which the mandrel has a cylindrical top shaft portion having external screw threads, the forming die is positioned within a die block, the mandrel top shaft portion extends above the die block, and vertical spacer means are positioned on the die block,

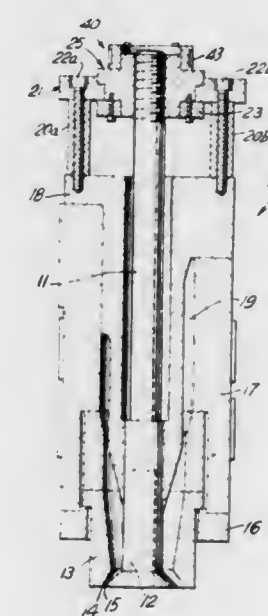
the improvement comprising a horizontally aligned plate member connected to the spacer means and having an orifice therethrough, a mandrel adjustment nut having internal screw threads which mate with the screw threads of the top shaft portion of the mandrel, the adjustment nut being rotatably positioned on the plate member so that it

freely rotates thereon, a ratchet ring means connected to the adjustment nut and having a plurality of spaced ratchet means about its external side wall so that its rotation will rotate the adjustment nut, and

a ratchet wrench means positioned on the ratchet ring means to rotate said ratchet ring means and its connected thereto adjustment nut to lower and raise the mandrel relative to the forming die, said ratchet wrench means having a ratchet pawl which fits, in sequence, into the spaced ratchet means and an arm member to apply rotational pressure to said ratchet ring means through said pawl and to thereby rotate said adjustment nut; and

set means to selectively lock said adjustment nut against rotation relative to the plate member.

10. An apparatus in a plastic resin blow molding machine to adjust the vertical position of a vertically aligned mandrel relative to a forming die, the mandrel and forming die forming a tubular parison, in which the mandrel has a cylindrical top shaft portion having external screw threads, the forming die is positioned within a die block, the mandrel top shaft portion extends above the die block, and vertical spacer means are positioned on the die block,



the improvement comprising a horizontally aligned plate member connected to the spacer means and having an orifice therethrough, a mandrel adjustment nut having internal screw threads which mate with the screw threads on the top shaft portion of the mandrel, the adjustment nut being rotatably positioned on the plate member so that it freely rotates thereon, a ring ratchet means about its external side wall so that its rotation will rotate the adjustment nut, and

a ratchet wrench means removably positioned on the ratchet ring means to rotate said ratchet ring means and its connected thereto adjustment nut to lower and raise the mandrel relative to the forming die, said ratchet wrench means having a pawl which fits said spaced ratchet means and an arm member carrying said pawl and which at least partially spans and grips said ring ratchet means, and clamp means removably attachable to said mandrel and fixed against rotation relative to said spacer means to selectively lock said mandrel against rotation relative to the spacer means while permitting vertical movement of said mandrel.

4,394,117

HOT SPRUE SLEEVE VALVE ASSEMBLY FOR AN INJECTION MOLDING MACHINE

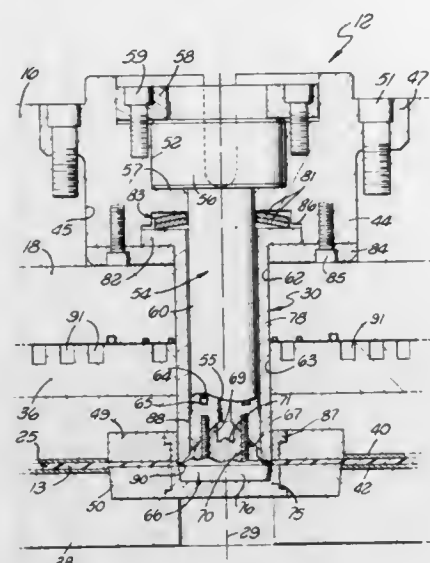
Arnold E. Taylor, Lomita, Calif., assignor to Discovision Associates, Costa Mesa, Calif.

Filed Jun. 10, 1981, Ser. No. 272,431

Int. Cl.³ B29F 1/03

U.S. Cl. 425—549

31 Claims



1. In an injection molding machine for producing centrally apertured record discs, a valve assembly for controlling flow of molten disc-forming material through a sprue bushing into a disc-shaped mold cavity, comprising:

a sleeve valve carried about the sprue bushing for axially sliding movement between a first position retracted from the mold cavity to allow flow of the molten disc-forming material through the sprue bushing into the mold cavity, and a second position advanced into the mold cavity to separate the sprue bushing from the mold cavity for preventing flow of the molten disc-forming material through the sprue bushing into the mold cavity and for molding a central aperture in the record disc; and

means for controlling movement of said sleeve valve between said first and second positions,

said control means moving said sleeve valve to said second position prior to solidification of said disc-forming material within the mold cavity,

said control means comprising a spring for biasing said sleeve valve toward said second position,

said sleeve valve including an angularly set pressure face at its end adjacent the mold cavity and oriented for communication with disc-forming material within the sprue bushing, said sleeve valve being responsive to the pressure of the material within the sprue bushing acting upon said pressure face for movement against said spring to said first position when the pressure reaches a predetermined magnitude.

4,394,118

METHOD AND ARRANGEMENT FOR REDUCING NO_x EMISSIONS FROM FURNACES

Johannes J. Martin, Leopoldstrasse 248, 8000 München 40, Fed. Rep. of Germany

Filed Jul. 8, 1981, Ser. No. 281,309

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1980, 3025851

Int. Cl.² F23J 7/00

U.S. Cl. 431—4

2 Claims

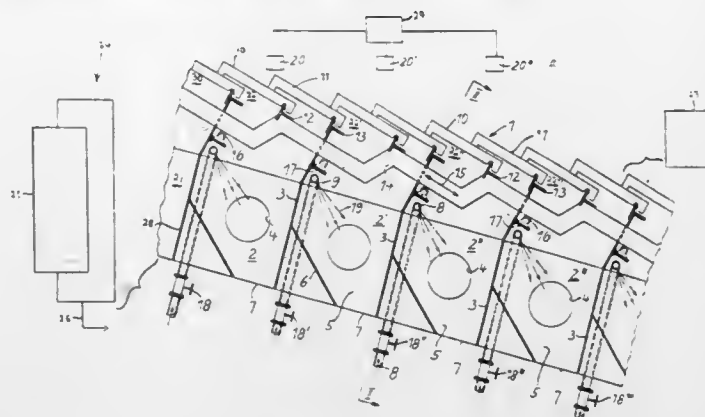
1. A method of reducing NO_x emissions from combustion apparatus, particularly furnaces, comprising the steps of:

(a) establishing combustion in a combustion chamber of the type having a plurality of combustion zones and mixing zones wherein each of said mixing zones communicates with a respective combustion zone, said mixing zones being located below said combustion zones;

(e) introducing into each of said mixing zones a combination

of steam, a portion of which having been generated in a closed steam system, and combustion air and mixing said combination, wherein said combustion air preheated by said steam is introduced in a generally clockwise direction to said steam in at least a portion of said mixing zones;

(c) admitting said mixed combination of steam and combustion air into each of said combustion zones;



(d) monitoring the NO_x concentration of waste gases emitted from each of said combustion zones; and

(e) adjusting the amount of steam introduced into each of said mixing zones in relation to the NO_x concentration of the waste gases emitted from its corresponding combustion zone.

4,394,119

PROCESS FOR COMBUSTING AMMONIA-CONTAINING GASES WHICH ALSO CONTAIN HYDROGEN SULFIDE

Jan Waller, and Philippus Loof, both of The Hague, Netherlands, assignors to Shell Oil Company, Houston, Tex.

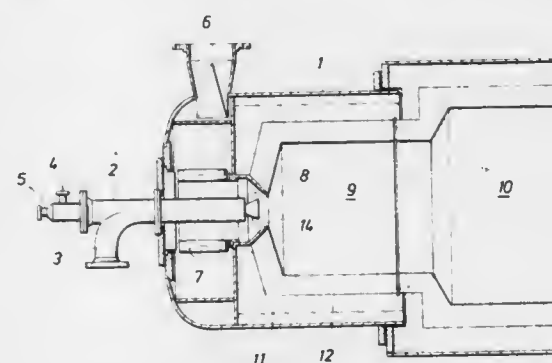
Filed Feb. 5, 1981, Ser. No. 231,839

Claims priority, application Netherlands, Feb. 26, 1980, 8001137

Int. Cl.³ F23D 13/20

U.S. Cl. 431—5

8 Claims



1. A process for combustng two gas streams, a first stream containing ammonia and hydrogen sulfide gases, and a second stream containing hydrogen sulfide gas and no ammonia, in the thermal zone of a sulfur recovery unit in which hydrogen sulfide-containing gases are partially combustng to a mixture of sulfur dioxide and hydrogen sulfide in a ratio of substantially 1:2 by supplying said hydrogen sulfide-containing gases to a burner consisting of a double gun having two concentric tubes and surrounded by an air register, which burner debouches into a mixing zone followed by a combustion zone, comprising supplying said second stream comprising primarily hydrogen sulfide-containing gases to the mixing zone via the outer of the two concentric tubes and mixing said stream in said mixing zone with an oxygen-rich gas or gas mixture supplied to the mixing zone via the air register, and separately supplying said first stream comprising primarily ammonia-containing gases to the thermal zone via the inner of the two concentric burner gun tubes, said ammonia-containing gases leaving the burner

and entering the mixing zone at about the plane of emergence of said hydrogen sulfide-containing gases, and combustng said gases in the combustion zone.

4,394,120

BURNER

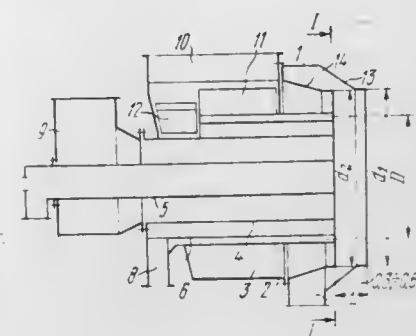
Alexandr V. Golovanov; Vladislav Y. Eschenko; Irsali K. Musaev, and Zakhidzhan S. Talibdzhanov, all of Tashkent, U.S.S.R., assignors to Sredneazitsky Filial Vniipromgaz, Tashkent, U.S.S.R.

Filed Jun. 10, 1981, Ser. No. 272,347

Int. Cl.³ F23Q 9/00

U.S. Cl. 431—284

2 Claims



1. A burner comprising: concentric shells defining annular passages including: a peripheral passage for a low-calorie gas; an intermediate passage for secondary air having auxiliary shells defining an annular passage for a high-calorie gas; a central passage for an air mixture; the circle of an average diameter of said annular passage for a high-calorie gas defining in the outlet section a central zone which amounts to between 0.38 and 0.5 of the total area of the outlet section of the burner; converging nozzles of minimum diameters equal to one another, said converging nozzles being installed in the outer shells of said peripheral passage and of said intermediate passage.

4,394,121

METHOD OF CONTROLLING CONTINUOUS REHEATING FURNACE

Yoshinori Wakamiya, Nishinomiya; Yoshiharu Hamasaki, Takarazuka; Masaki Kutsuzawa, Kobe, all of Japan, and Mitsubishi Denki Kabushiki Kaisha, 03, Tokyo, Japan

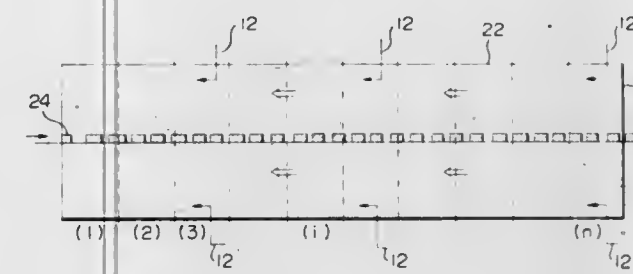
Filed Oct. 14, 1981, Ser. No. 311,331

Claims priority, application Japan, Nov. 8, 1980, 55-158387; Nov. 12, 1980, 55-159974

Int. Cl.³ F27D 3/00; F27B 9/40; C21B 7/24

U.S. Cl. 432—11

1 Claim



1. A method of controlling a continuous reheating furnace, comprising the steps of sensing the flow rates, at a plurality of time points, of fuel and air introduced into each of a plurality of control zones into which a continuous heating furnace is divided; determining the temperature profile within the furnace up to the present time point by using means for determining a change in the temperature profile within the furnace with respect to time from the sensed flow rates of the thus-introduced fuel and air; finding the temperature of each slab introduced into the furnace at the present time point by using said

temperature profile within the furnace determined at the present time point; predicting a future change in the temperature of the furnace on the basis of the thus-determined present temperatures of the slabs and the flow rate of said fuel introduced into each of said control zones, said flow rate set, according to said temperature change determining means; determining the predicted slab temperatures by using said predicted change of said furnace temperature; determining the flow rate of said fuel introduced into each of said control zones so as to render the differences between said predicted slab temperatures and the corresponding objective slab temperatures so as to be not greater than a predetermined value, and controlling the flow rate of said introduced fuel following an objective value based on the flow rate of said fuel so determined.

4,394,122

FURNACE REGENERATOR WITH IMPROVED FLOW DISTRIBUTION

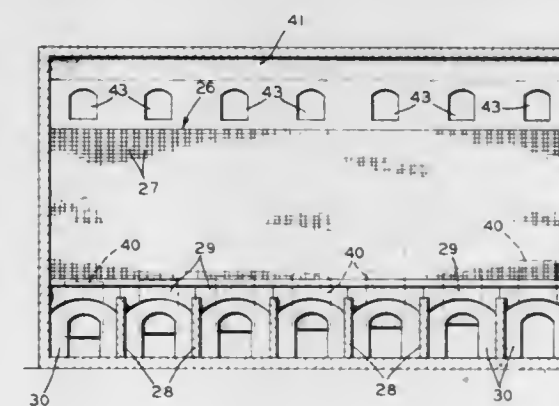
Alejandro G. Bueno, Toledo, and K. Lawrence Stover, Genoa, both of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Sep. 15, 1981, Ser. No. 302,641

Int. Cl.³ F24H 7/00; F27D 17/00

U.S. Cl. 432—30

10 Claims



1. In a method of equalizing the flow of exhaust gas and combustion air throughout the length of elongated regenerators extending along either side of the melting area of a continuous tank-type glass melting furnace, wherein the regenerators include an elongated checkerwork structure defining a multitude of gas passageways extending the complete length of the associated regenerator and having an open plenum space thereabove communicating with a plurality of ports spaced along the melting area, the improvement comprising alternately supplying combustion air to and withdrawing exhaust gas from said regenerators through a plurality of upwardly open chambers spaced therealong and below said checkerwork structure, and apportioning the flow of combustion air supplied and exhaust gases withdrawn among said chambers so as to produce more uniform flow of combustion air and exhaust gases through said checkerwork structure throughout the length thereof.

4,394,123

TILTABLE SUPPORT BRACKET FOR SLIDABLY SUPPORTING QUARTZ SUPPORT TUBES FOR SEMICONDUCTOR WAFER PROCESSING BOARDS, AND PROCESSING APPARATUS EMBODYING SUCH BRACKETS

Robert S. Higuera, Escondido, and John F. Ryan, San Diego, both of Calif., assignors to Northern Telecom, Inc., Nashville, Tenn.

Filed Feb. 9, 1982, Ser. No. 347,175

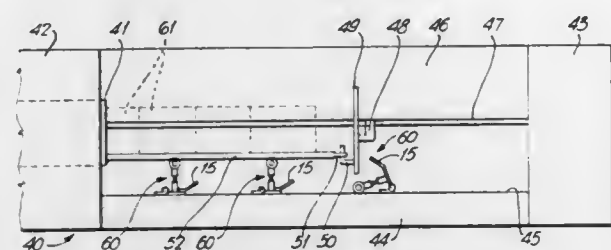
Int. Cl.³ F27D 5/00, 3/00

U.S. Cl. 432—253

11 Claims

1. A tiltable support bracket comprising; two spaced apart pillars;

a rotatable shaft extending between upper ends of said pillars;
a first member attached to and connecting lower ends of said pillars;
a second member hingedly connected to said first member for tilting of said first member about a hinging axis parallel to the rotational axis of said rotatable shaft;
said second member including means for attaching the second member to a support surface;



a projection extending from said first member on a side of said hinging axis remote from said second member;
the arrangement such that contact with said pillars by a third member moving in a first direction will tilt said pillars about said hinging axis to a substantially horizontal position with said projection extending up behind said third member, said third member engaging with said projection on reverse movement of said third member to tilt said pillars about said hinging axis to an upright position.

4,394,124

FLOTATION LIFE SUPPORT DEVICE

Harold W. Cooper, 30 Ensley, Oxford, Mich. 48051

Filed May 18, 1981, Ser. No. 265,040

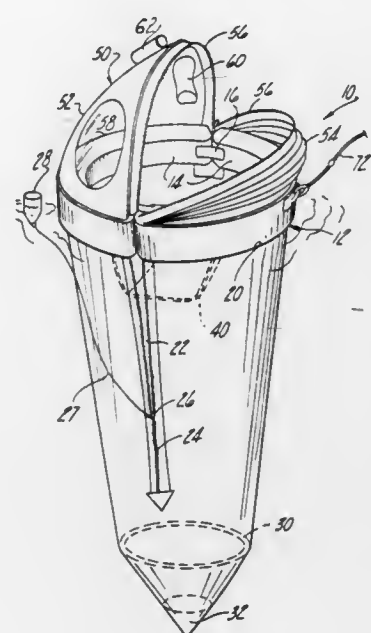
Int. Cl.³ B63C 9/00

U.S. Cl. 441-86

8 Claims

1. A flotation life support device comprising: a buoyant ring member hinged at one circumferential point and forming an opening at a diametrically opposed point, a bag adapted to

depend from said ring member when the latter is in a floating position, said bag having an open end attached to the periphery of said ring member, an opening formed in one side of said bag and being provided with a slide closure, said opening being in alignment with said opening in said ring member, a flexible seat member supported from said ring member within said bag for supporting an occupant, a canopy made of flexible material attached to the periphery at the upper side of said ring mem-



ber, a slide fastener dividing said canopy into two portions extending from said hinge to said opening and being closable to enclose said ring member and the open end of said bag, said slide fastener closing the opening in said bag being in its most open position when the fastener is at a lower end of said opening, and a lanyard having one end attached to said slide fastener and having the other end provided with a flotation element.

CHEMICAL

4,394,125

PROCESS FOR BLEACHING TEXTILES AND FOR COMBATING MICRO-ORGANISMS WITH SULFONATED PHTHALOCYANINE OF ALUMINUM OR ZINC AND CONTAINING HALOGEN OR CYANO SUBSTITUENTS AS PHOTOACTIVATOR

Gerd Hölzle, Liestal; Gerhard Reinert, Allschwil, and Rudolf Polony, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 31, 1981, Ser. No. 298,229

Claims priority, application Switzerland, Sep. 9, 1980, 6764/80; Sep. 9, 1980, 6765/80

Int. Cl.³ D06L 3/00; A01N 43/00; C02F 1/50

U.S. Cl. 8-103

13 Claims

1. In a process for combating micro-organisms in or on an organic or inorganic substrates by treating the substrate with one or more water-soluble phthalocyanines selected from the group consisting of the sulfonated zinc phthalocyanines and the sulfonated aluminium phthalocyanines, in the presence of water and under irradiation with light, the improvement which comprises using a phthalocyanine which is further substituted by a halogen atom or a pseudohalogen group.

4,394,126

DIESTER COMPOSITION AND TEXTILE PROCESSING COMPOSITIONS THEREFROM

Robert B. Wilson, P.O. Box 6786, Greenville, S.C. 29606

Continuation-in-part of Ser. No. 90,092, Nov. 1, 1979,

abandoned, and Ser. No. 203,636, Nov. 3, 1980, Pat. No.

4,293,305. This application Sep. 24, 1981, Ser. No. 305,028

The portion of the term of this patent subsequent to Oct. 6, 1998, has been disclaimed.

Int. Cl.³ D06M 1/00

U.S. Cl. 8-115.6

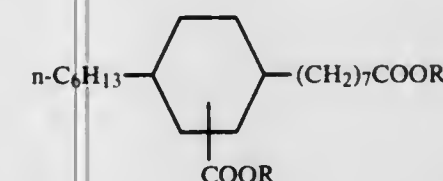
36 Claims



CONVENTIONAL SPIN FINISH (200X)

1. In a textile treating composition containing one or more emulsifiers, dispersing agents and/or antistatic agents comprising one or more of ethoxylated castor oil, ethoxylated hydrogenated castor oil, ethoxylated alkylphenol, ethoxylated primary or secondary alkanol or a salt of a phosphated ethoxylated primary alkanol or alkylphenol, the improvement wherein the composition contains:

(a) a cycloaliphatic diester of the formula



wherein R is substituted or unsubstituted straight or branched chain alkyl of 4-20 carbon atoms, polyoxyalkylene of the formula $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_n\text{CH}_2\text{CH}_2\text{---}$, $\text{HO}(\text{C}_3\text{H}_6\text{O})_n\text{C}_3\text{H}_6\text{---}$, $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_p(\text{C}_3\text{H}_6\text{O})_q\text{C}_3\text{H}_6\text{---}$, or $\text{HO}(\text{C}_3\text{H}_6\text{O})_p(\text{C}_2\text{H}_4\text{O})_q\text{C}_2\text{H}_4\text{---}$ or phosphated polyoxyalkylene, wherein n is 2-22 and the sum of p+q is n;

(b) a high boiling aromatic ester of the formula $\text{ArCOO---R}_1\text{---OOCAr}$ or ArCOOR_2 , wherein Ar is a monocyclic aryl of up to 10 carbon atoms; R₁ is alkylene of 2-8 carbon atoms or polyoxyalkylene of the formula $\text{---C}_6\text{H}_2\text{---}$

$\text{r}(\text{O---C}_6\text{H}_2)_s\text{---}$ in which r is 2 or 3 and s is up to 15; and R₂ is alkyl or alkenyl of 8-30 carbon atoms; wherein the ratio of cycloaliphatic diester to high boiling aromatic ester is 0.1:1 to 10:1 and wherein the combination of cycloaliphatic diester and high boiling aromatic ester constitutes 10-90% by weight of the textile-treating composition.

4,394,127

METHOD OF DEPOSITING PERFUME AND COMPOSITIONS THEREFOR

James B. Melville, Wirral, England, assignor to Lever Brothers Company, New York, N.Y.

Filed Feb. 2, 1981, Ser. No. 230,484

Claims priority, application United Kingdom, Feb. 7, 1980, 8004106; Feb. 7, 1980, 8004107; Feb. 7, 1980, 8004108

The portion of the term of this patent subsequent to Apr. 27, 1999, has been disclaimed.

Int. Cl.³ A61K 7/46; B08B 3/00; C11D 3/50, 17/01

U.S. Cl. 8-137

6 Claims

1. A method of cleaning and depositing perfume on a fabric surface, comprising contacting the fabric surface with an aqueous composition containing a perfume and from about 0.05 g per liter to about 8.5 g per liter, based on the volume of the aqueous composition, of a water-soluble detergent active material, with or without a detergency builder, characterized in that the perfume is added to the aqueous composition in the form of from about 0.005 g per liter to about 0.3 g per liter, based on the volume of the aqueous composition, of particles having an average size of from about 0.1 micron to about 2000 microns, the particles being an intimate mixture of (a) from about 0.5% to about 50% by weight, based on the weight of the particles, of a perfume component; and (b) from about 50% to about 99.5% by weight, based on the weight of the particles of a matrix comprising at least one water-dispersible amine of the formula



where R is an alkyl or alkenyl group having 8 to 22 carbon atoms, R₁ is hydrogen or an alkyl or alkenyl group having 1 to 4 carbon atoms, and R₂ is hydrogen or an alkyl or alkenyl or amino-alkyl group having 1 to 22 carbon atoms, the matrix containing no added cationic material.

4,394,128

METHOD OF SIZING POLYESTER YARN

Hal C. Morris, Warminster, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Oct. 31, 1980, Ser. No. 202,543

Int. Cl.³ D01C 3/02; D06L 1/06, 1/14; B65H 71/00

U.S. Cl. 8-138

12 Claims

1. A method of sizing polyester yarn for weaving comprising the steps of (1) applying thereto a free radical initiated vinyl polymer latex having an acid pH and a weight average molecular weight from about 300,000 to 2,500,000; said polymer in dried film form being hydrophobic and not redispersible in a solution at a pH from about 2 to 7 but redispersible by an aqueous alkaline medium, said polymer being prepared from monomers consisting essentially of, by weight, 45 to 65% butyl acrylate, 28 to 45% styrene and/or methyl methacrylate, and 8 to 14% acrylic acid and/or methacrylic and (2) drying the yarn.

9. The method of claim 1 in which said monomers consist essentially of about 50 to 60% butyl acrylate, 28 to 40% styrene and 10 to 13% methacrylic acid.

11. A method of weaving comprising the steps of preparing a polyester yarn in accordance with the method of claim 1, 2, 3, 4, 5, 6, 7, 8, or 9, weaving the yarn into fabric, and removing said vinyl polymer therefrom by an aqueous alkaline solution.

num diameter of the central conduit exit orifice at the tip of the burner; said second passage means comprising the space between the inside wall of said central conduit and the outside surfaces of the central bunch of tubes; said third passage means comprising an annular bunch of tubes passing through the closed end of said annular passage and making a gastight seal therewith, and wherein the downstream ends of said annular bunch of tubes are retracted upstream from the burner face a distance of about 0 to 12 times the minimum width of the annular exit orifice at the tip of the burner; and said fourth passage means comprising the space between the inside wall of the outer conduit and the outside surfaces of the annular bunch of tubes;

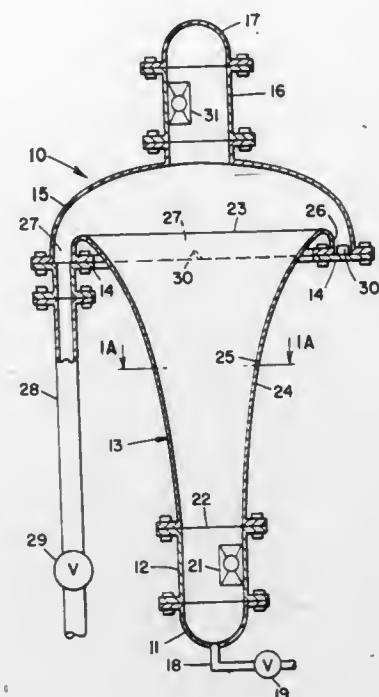
(2) simultaneously passing a separate reactant stream of free-oxygen containing gas with or without mixture with a temperature moderating gas through the unused fluid passage means in each of the central and/or annular sections of said burner which are related to said fluid passage means through which said stream(s) of first solid carbonaceous fuel slurry or hydrocarbonaceous fuel with or without mixture with H₂O are passing;

(3) mixing together said reactant streams from (1) and (2) to produce a well-distributed blend, and reacting said mixture by partial oxidation in the reaction zone of said gas generator at an autogenous temperature in the range of about 1700° to 3500° F., a pressure in the range of about 1 to 300 atmospheres, an atomic ratio of oxygen/carbon in the range of about 0.5 to 1.7, and a weight ratio H₂O/fuel in the range of about 0 to 5.0;

(4) replacing in said central and/or annular section(s) one or more of said reactant stream(s) of first solid carbonaceous fuel slurry or hydrocarbonaceous fuel with or without mixture with H₂O with a replacement stream of a second carbonaceous fuel slurry or hydrocarbonaceous fuel with or without mixture with H₂O; and simultaneously with (4) or after completion of (4);

(5) controlling the temperature and weight ratio H₂O/fuel in the reaction zone at design conditions by adjusting the flow rate(s) of the reactant stream(s) of free-oxygen containing gas with or without mixture with a temperature moderating gas passing through the burner, and if necessary introducing supplemental H₂O into the reaction zone.

discharging the gaseous phase of said mixture from said separator,



second outlet means surrounding said outlet of said vortex section for discharging the separated liquid phase outwardly from said outlet of said vortex section.

4,394,139 DIRECT CONTACT CONDENSER AND SEPARATING METHOD

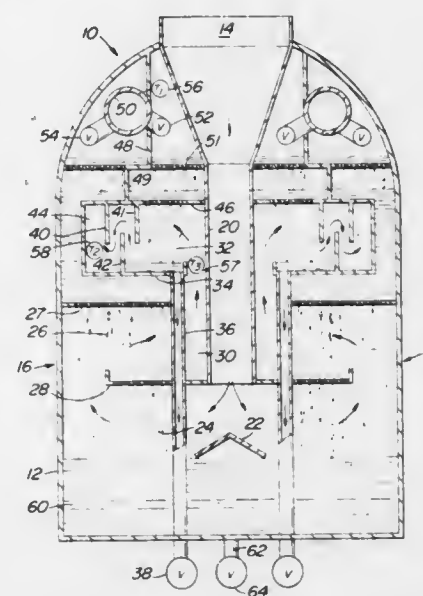
Robert D. Board, Boca Raton, Fla., assignor to Ecolaire Incorporated, West Easton, Pa.

Filed Mar. 4, 1982, Ser. No. 354,825

Int. Cl.³ B01F 3/04

U.S. Cl. 55—20

6 Claims



4,394,138

DIVERGING VORTEX SEPARATOR

John R. Schilling, P.O. Box 4191, Woodside, Calif. 94062

Filed Jan. 19, 1979, Ser. No. 4,805

Int. Cl.³ B01D 45/12

U.S. Cl. 55—1

10 Claims

1. A separator for separating the liquid and gaseous phases of a fluid mixture thereof comprising:

a vertical and upwardly diverging vortex section having a lower inlet, an upper outlet, and a vertically-continuous inner surface between said inlet and said outlet which is circular in configuration normal to the vertical axis of said vortex section throughout its height and which expands substantially hyperbolically,

means for introducing said fluid mixture into said inlet of said vortex section with a substantial component of tangential velocity,

first outlet means above said outlet of said vortex section for

1. A direct contact condenser including a housing having a partition, a manifold water supply conduit having valves for discharge to opposite sides of the partition, means defining a plurality of showers below the elevation of said partition and through which a gas stream will pass sequentially, each shower receiving water from one side of said partition, means for introducing a gas stream sequentially through said showers, the last shower being provided with temperature sensors, means for controlling water flow from said supply conduit to said last shower in response to the differential of said sensors, and collection means for collecting water from said last shower while preventing the collected water from mixing with water from other showers, and an outlet chamber downstream

from said last shower where noncondensable gases collect for subsequent treatment.

4,394,140

DEGASSING SYSTEM AND CENTRIFUGAL PUMP

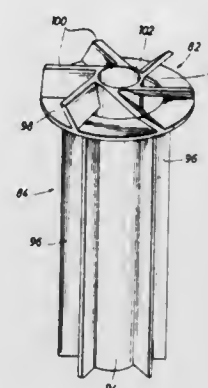
Walter E. Liljestrand, Houston, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Continuation-in-part of Ser. No. 865,989, Dec. 30, 1977, Pat. No. 4,331,458. This application Apr. 5, 1982, Ser. No. 365,402

Int. Cl.³ B01D 19/00, 45/00

U.S. Cl. 55—184

40 Claims



1. In a system for degassing liquid containing mediums, said system including a degassing vessel having an inlet and an outlet and a generally vertical shaft centrifugal pump connected to said vessel for introducing said liquid medium into said vessel, the improvement wherein said pump comprises:

means defining an inlet housing, said inlet housing having at least one inlet for the intake of said liquid medium;

means defining a pump casing having at least one outlet for the discharge of said liquid medium, said pump casing and said inlet housing being in open communication with one another;

a pump impeller rotatably mounted in said pump casing for pumping said liquid medium into said degassing vessel;

a pump frame at least partially defining a vent chamber, said pump frame including an apertured partition, said aperture providing open communication between said vent chamber and said inlet housing;

said inlet housing being disposed between said vent chamber and said pump casing, said pump casing being disposed below said inlet housing;

an inlet impeller rotatably mounted in said inlet housing closely adjacent said apertured partition and operative to direct fluid from said vent chamber into said inlet housing; and egress passage means communicating with said inlet housing adjacent said apertured partition for directing gas accumulating in the upper portion of said inlet housing vertically upwardly away from said inlet housing.

4,394,141

EXPANSION TANK AND WATER BOX DEVICE FOR HEAT EXCHANGER, SUCH AS A RADIATOR OF A MOTOR VEHICLE

Patrick Cadars, Maurepas, and Bruno Hellouin de Cenival, Noisy le Roi, both of France, assignors to VALEO, Paris, France

Continuation of Ser. No. 48,249, Jun. 13, 1979, Pat. No. 4,289,507. This application May 14, 1981, Ser. No. 263,357

Claims priority, application France, Jun. 15, 1978, 78 17966 The portion of the term of this patent subsequent to Sep. 15, 1998, has been disclaimed.

Int. Cl.³ B01D 53/00; F01P 5/10

U.S. Cl. 55—195

45 Claims

1. In a heat exchanger for an automotive vehicle, said heat exchanger including a plurality of substantially parallel heat exchanging tubes and a collector plate having a plurality of openings, each of said openings being traversed, respectively,

by an end of one of said tubes for the purpose of mounting the same, the combination of:

(a) an expansion tank;

(b) said expansion tank having a peripheral edge portion sealingly connected to said collector plate;

(c) a water box disposed inside said expansion tank, said water box comprising a partition separate from said expansion tank;

(d) said partition having a hollow cross sectional profile and two opposed longitudinal edges engaging said collector

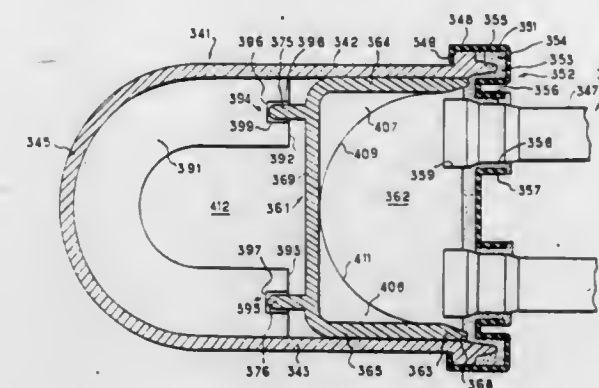


plate on each side of said tube ends, respectively, to define a collector chamber between said partition and said collector plate;

(e) said partition also forming a compensation chamber between said water box and said expansion tank;

(f) means for holding said partition in place between said expansion tank, and said collector plate when said expansion tank and collector plate are sealingly connected; and

(g) said means for holding including at least one rib interposed between said expansion tank and said partition.

4,394,142

WATER SPRAY COOLER

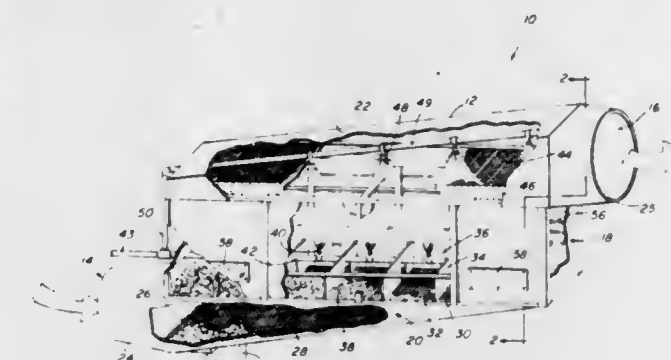
Edward D. Thimons, Bethel Park, Pa.; Kenneth S. Heller, Newton; John F. McCoy, III, Chelmsford, both of Mass., and Austin Whillier, Johannesburg, South Africa, assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Continuation of Ser. No. 185,671, Sep. 10, 1980, abandoned. This application Nov. 2, 1981, Ser. No. 317,638

Int. Cl.³ B01D 47/00

U.S. Cl. 55—242

3 Claims



1. An apparatus for cooling air supplied to underground mines by its direct contact with cooler water comprising:

a housing for the heat exchanger having structural elements therein which form an air inlet chamber to receive an air stream to be cooled and an upper outlet chamber to exhaust the cooled air stream;

said housing also having structural elements which form a water spray chamber between said inlet and outlet chambers, said spray chamber being in fluid communication with the inlet and outlet chambers;

an air inlet port in said housing in fluid communication with

said air inlet chamber to receive air from the underground mine and allow it to enter the housing;
 an air outlet port in the upper portion of said housing in fluid communication with the outlet chamber to allow cooled air to exit from the housing into the underground mine; air deflection means mount in said inlet chamber for deflecting the incoming air to be cooled into the spray chamber, said deflector means comprising a lattice shaped framework;
 water collecting means mounted at the lower end of the inlet chamber;
 water spray means mounted in said spray chamber for supplying a spray of water cooler than the air entering therein from the inlet chamber; and
 a mist eliminator mounted above the spray means in the housing, said eliminator comprising a mesh layer through which the air flows before leaving the outlet chamber whereby incoming mine air is deflected to the spray chamber wherein cooler water is sprayed thereon to cool the air, said sprayed water falling through the flow of incoming air to further cool the air until the water is discharged into the water collecting means.

4,394,143

PROTECTIVE SPARK ELIMINATING SYSTEM FOR A FILTER BAGHOUSE

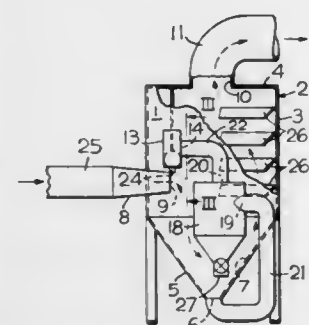
Leonard J. O'Dell, Louisville, Ky., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jul. 2, 1982, Ser. No. 394,851

Int. Cl.³ B01D 50/00

U.S. Cl. 55—261

11 Claims



1. A protective spark eliminating system for removing burning particulates from a hot gas stream, comprising:
 a housing having an outer side wall defining a separating chamber within the housing, a top section enclosing the top of the housing, and a hopper having a bottom outlet enclosing the bottom of the housing;
 a hot gas inlet duct spaced from the top section projecting through the side wall into the chamber providing a hot gas inlet for directing the hot gas stream into the chamber;
 a gas outlet duct in the top section of the housing providing an outlet for directing the hot gas stream out of the chamber; and
 a secondary gas system adapted to circulate a secondary gas stream through the chamber including a blower having a gas inlet and a gas outlet, a gas nozzle connected to the outlet of the blower aligned above the gas inlet duct adapted to maintain a localized gas curtain flowing downwardly across the width of the hot gas inlet, an inertial separator having a gas inlet and a gas outlet, means connecting the gas inlet of the inertial separator to the outlet of the hopper, and means connecting the outlet of the inertial separator to the inlet of the blower; whereby burning particulates in the hot gas stream are directed downwardly by the gas curtain as the hot gas stream enters the separating chamber whereafter the downwardly descending particulates are entrained in the secondary gas stream as it flows to the inertial separator where the particulates are removed from the gas stream which is in turn drawn into the inlet of the blower and directed back to the separating chamber.

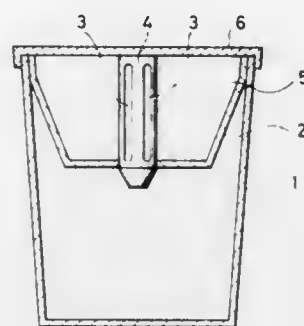
4,394,144
 DEHUMIDIFYING CONTAINER
 Yoshio Aoki, Koga, Japan, assignor to Kaken Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 3, 1981, Ser. No. 299,263

Int. Cl.³ B01D 53/14, 53/26

U.S. Cl. 55—281

8 Claims



3. A dehumidifier, comprising:
 a dehumidifying agent;
 an outer container; and
 an inner container having an upper end and a bottom portion interconnected with a side wall, said inner container containing said dehumidifying agent therein, said inner container having an opening at its upper end and a discharge pipe provided upright from a center of said bottom portion, said discharge pipe having at least one slit which continuously extends in a longitudinal direction of said pipe in a wall thereof and along a substantial length of said wall, said discharge pipe having respective openings at its upper and lower ends, said inner container being detachably fitted into said outer container in such a manner that a space having a predetermined volume is formed between said bottom portion of said inner container and a bottom portion of said outer container.

4,394,145

AIR CLEANERS

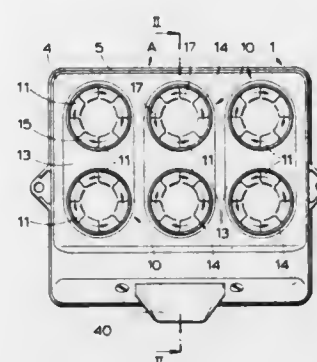
Jarl Sundseth, 23 Lennox Gardens, London, S.W. 1, England

Filed Jul. 21, 1981, Ser. No. 285,474

Int. Cl.³ B01D 45/12

U.S. Cl. 55—347

7 Claims



1. An air cleaner comprising a shallow housing having a first outer end wall and a second inner end wall, said inner and outer end walls connected by a peripheral wall, a plurality of tubular dust separator elements arrayed in the housing for generally straight through flow of air across the thickness of said housing, wherein
 each separator element comprises
 a tubular portion having inner and outer generally cylindrical surfaces,
 an annular inlet generally defined by said first outer end wall of said housing, said inlet further defined by an annular inlet wall and a central dome,
 the inner surface of said tubular portion being of greater diameter than the inlet wall,

inclined vanes connecting said annular inlet wall and said central dome adapted to impart spin to dust-laden air entering said inlet,
 an air outlet generally defined by said second, inner end wall of said housing, said wall having an annular portion extending from the surface thereof toward said air inlet, said air outlet of smaller diameter than said inlet and coaxial with said inlet and the inner surface of said tubular portion,
 an annular space remote to said inlet defined by at least the inner surface of said tubular portion and by the annular inwardly extending portion of the inner housing wall,
 a circumferential dust exit defined in said tubular portion adjacent to said annular space, said exit extending over a limited arc within the range 45° to 90°,
 the housing defines about the separator elements a closed dust collection chamber, said chamber containing means for guiding flow of air in said chamber, the guide means including the generally cylindrical outer surface of said tubular portion, and
 the vanes of the plurality of separator elements being inclined so as to impart left- or right-handed spin to air passing therethrough, with elements having vanes adapted to impart left-handed spin positioned adjacent to elements having vanes adapted to impart right-handed spin in said array of elements,
 whereby dust-laden air entering a first separator element through said air inlet is imparted with left- or right-handed spin and enters said annular space, the circulating air mass in the annular space inducing at the exit a corresponding circulation of an air mass in the dust collection chamber surrounding said first separator element, the opposite direction of flow being imparted to air flow in adjacent separator elements and thereby in the air masses surrounding said adjacent elements reinforcing the circulating flow in the closed dust collection chamber, dust in the spinning air flow mass in the annular space of said first element is directed toward the inner surface of the tubular portion by the imparted spin and held in suspension by the air mass circulating in the annular space, air substantially free of dust leaves said separator element via said air outlet, and dust in the air flow mass passing the exit is separated from the air flow mass in said annular space remote to said inlet by centrifugal force with a radial velocity component and enters the air flow mass in the surrounding dust collection chamber, the dust collection chamber being closed so substantially no air flows through the exit between the separator element and the dust collection chamber.

side walls defining between them a path for the gaseous medium from said inlet to said outlet, a filter medium spanning across said filter chamber between said side walls and having opposite edge portions disposed adjacent the respective side walls, said filter medium comprising a support grid and a filter mat substantially co-extensive with said support grid, and means to guide said medium in a predetermined path through said filter chamber with one surface facing upstream toward said inlet and the opposite surface facing downstream toward said outlet, said support grid being on the downstream side of said filter mat;

flange means projecting inwardly of said chamber from said sidewalls, said flange means being disposed on said opposite side walls in alignment with said predetermined path to underlie the edge portions of said filter medium on the downstream or outlet side of said filter medium and occupy the space between said filter medium and said side walls, and having a series of apertures disposed in longitudinally-spaced relation along the length of said flange means;

means to advance said filter medium longitudinally through said filter chamber between said flange means with the side edges of said filter medium overlying the free edges of said flange means; and

means to assemble the mat of said filter medium onto said support grid and feed the assembled filter medium into the filter chamber with the opposite edge portions overlying the upstream surface of the respective flange means including the series of apertures, said apertures operable to provide fluid communication between the filter chamber outlet and the upstream surface of said flange means in the area where said medium is in overlying relation therewith to effect intimate engagement therebetween, whereby gaseous medium flowing through said filter chamber must pass through said filter medium in its travel from said inlet to said outlet.

4,394,147

INTERNALLY SUPPORTED FILTER

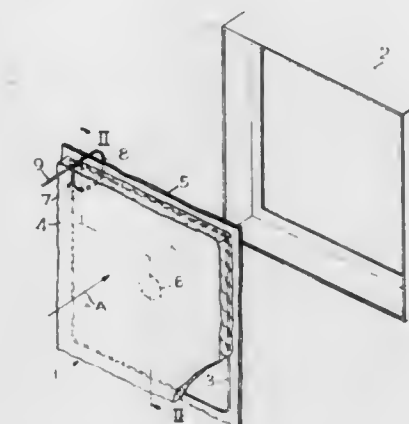
John A. Caddy, and William A. Putman, both of Louisville, Ky., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 30, 1981, Ser. No. 325,756

Int. Cl.³ B01D 46/10

U.S. Cl. 55—357

5 Claims



1. An internally supported composite filter having a single handle adapted to be removably secured in a flow-through mounting structure for separating particulate materials from a gas stream flowing through the mounting structure, comprising:

a closed loop of relatively rigid material forming a thin wire-like frame having a pair of opposing side portions;
 two confronting sheets of filter media having substantially the same peripheral shape as said frame and being secured thereto, said frame being positioned between said sheets inwardly of their outer peripheries;

fastening means securing said sheets together in a relatively

4,394,146

FILTER APPARATUS

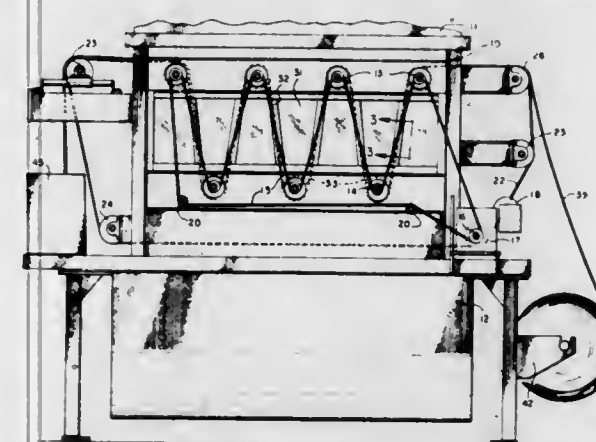
Max Klein, Shrewsbury, N.J., assignor to Crane & Co., Inc., Dalton, Mass., a part interest

Filed Sep. 29, 1981, Ser. No. 306,694

Int. Cl.³ B01D 46/18

U.S. Cl. 55—354

10 Claims



1. A roll type filter apparatus having a filter chamber with an inlet for receiving gaseous medium, an outlet for discharging filtered gaseous medium, said filter chamber having opposite

uncompacted fashion proximate the center of the sheets to retard bulging of the filter during filtering operations; and said handle being formed of a flexible strip, said handle having one end secured to one of said side portions and a free end adapted to be grasped by a workman to accommodate removing the filter by pulling the strip which causes the filter to pivot about the other side portion to peel it out of the mounting structure in a pivotal sliding fashion, thereby essentially minimizing shaking of the filter when the workman removes it from the mounting structure.

4,394,148

SHORT CIRCUIT PROOF DRIVER AND ALARM CIRCUIT FOR A SOLENOID IN A GLASSWARE FORMING MACHINE

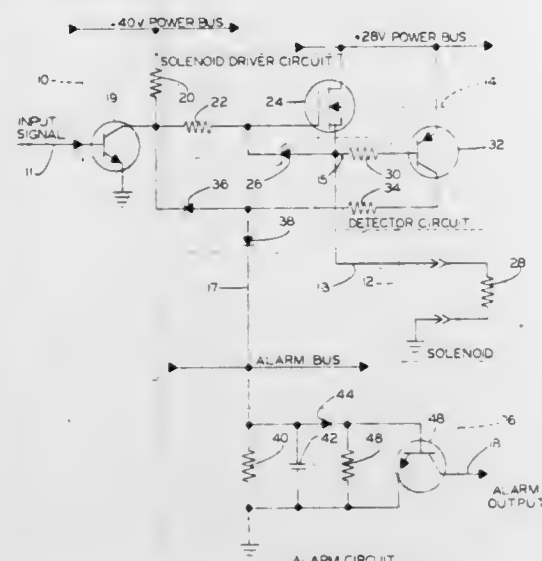
William H. Ryan, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 26, 1981, Ser. No. 314,607

Int. Cl.³ C03B 9/40

U.S. Cl. 65—159

18 Claims



1. In a glassware forming machine including at least one forming means for forming articles of glassware, the forming means including an actuator having a first electrical characteristic when functioning in a normal operating mode and a second electrical characteristic when in a failure operating mode and a source of power connectable to the actuator, a self-protecting driver circuit for selectively actuating the actuator comprising: driver means for selectively connecting the actuator to the source of power whereby the actuator is energized in the normal operating mode; said driver means having an active element for limiting the amount of electrical current drawn therethrough to a predetermined amount when the forming means is short-circuited whereby the actuator remains energized in the failure operating mode.

4,394,149

PLANT NUTRIMENT COMPOSITIONS AND METHOD OF THEIR APPLICATION

Francis C. Szoka, Jr., 76 Summit St., Waltham, Mass. 02154, and Demetrios P. Papahadjopoulos, 3170 Condit St., Lafayette, Calif. 94549

Continuation-in-part of Ser. No. 881,116, Feb. 24, 1978, Pat. No. 4,235,871. This application May 13, 1980, Ser. No. 149,516

Int. Cl.³ C05C 9/00

U.S. Cl. 71—28

8 Claims

1. A method of providing nutrients to agricultural plants possessing plant cells having cell walls and cell membranes, which comprises: applying to the plant a nutritional amount of a plant nutriment, encapsulated in a lipid vesicle, whereby the lipid vesicle encapsulating the plant nutriment is taken up by

the plant and passes into the plant cell where the lipid vesicle is broken down and releases the encapsulated plant nutriment.

4,394,150

SULPHUR-CLAY PRILLS

Barney D. Garrison, Jr., and Barry S. Marjanovich, both of Calgary, Canada, assignors to Canadian Superior Oil Ltd., Calgary, Canada

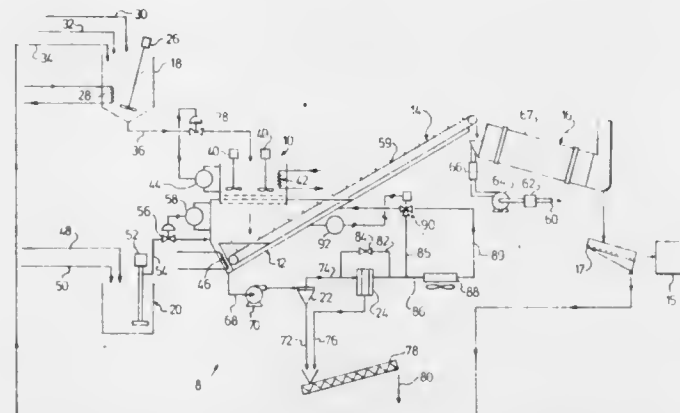
Filed Jan. 29, 1981, Ser. No. 229,642

Claims priority, application Canada, Feb. 29, 1980, 346710

Int. Cl.³ C05G 3/04

U.S. Cl. 71—62

26 Claims



1. A process for producing substantially spherical, water degradable, sulphur-clay particles comprising: passing at least one stream of a mixture comprising molten sulphur and a particulate swelling clay into an aqueous solution of a water soluble electrolyte salt, said solution comprising about 5 to 15%, by weight, of said salt and about 85 to 95%, by weight, of water, maintaining said solution at a temperature effective to cool said mixture below its solidification temperature, allowing the surface tension of the molten sulphur to break up said stream in said solution to form substantially spherical droplets and allowing said droplets to cool and solidify in said solution to form said substantially spherical particles, withdrawing said particles from said solution and drying said particles.

4,394,151

AZOLYL-HYDROXY ALKANOIC ACID COMPOUNDS

Paul de Fraine, Wokingham; John M. Clough, High Wycombe, and Paul A. Worthington, Maidenhead, all of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Jul. 29, 1981, Ser. No. 288,203

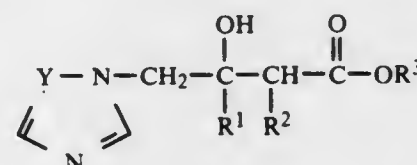
Claims priority, application United Kingdom, Aug. 22, 1980, 8027451

Int. Cl.³ A01N 43/50, 43/64; C07D 233/60, 249/08

U.S. Cl. 71—76

7 Claims

1. A racemic compound having the general formula (I):

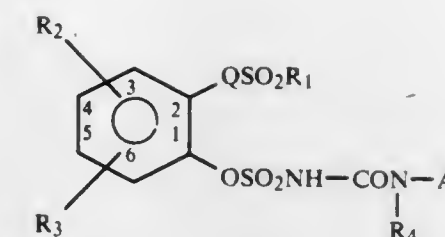


and stereoisomers thereof, wherein R¹ is a straight or branched chain alkyl group having from 1 to 6 carbons, phenyl or phenyl substituted with halogen, alkyl, alkoxy, nitro, phenyl or phenoxy; R² and R³ are together a —CH₂—CH₂— bridging group, or each represents hydrogen, straight or branched chain alkyl groups having from 1 to 6 carbon atoms, phenyl or benzyl or phenyl or benzyl substituted with halogen, alkyl or alkoxy of 1 to 6 carbons, nitro, phenyl or phenoxy, the alkyl moiety of the benzyl being unsubstituted or substituted with

alkyl of from 1 to 6 carbons; and Y is —N— or —CH—, and acid addition salts, alkyl, aralkyl or aryl ethers, alkanolate esters and metal complexes thereof.

6. A method of combating fungal diseases in a plant, which comprises applying to the plant, to seed of the plant, or to the locus of the plant or seed, a fungicidally effective amount of a compound as defined in claim 1.

7. A method of regulating plant growth which comprises applying to the plant, to seed of the plant, or to the locus of the plant or seed, a plant growth regulating amount of a compound as defined in claim 1.



where

Q is O or NR₅;

R₁ is C₁—C₄ alkyl, C₁—C₄ alkyl substituted with 1–3 atoms of F, Cl or Br, CH₂CH₂OCH₃, CH₂CH₂CH₂OCH₃ or

4,394,152

SULFUR-CONTAINING OXIME COMPOUNDS FOR PROTECTING CULTIVATED PLANTS

Elmar Sturm, Aesch; Heinrich Schempp, Arlesheim, and Henry Martin, Allschwil, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 68,123, Aug. 20, 1979, Pat. No. 4,278,613.

This application May 4, 1981, Ser. No. 260,534

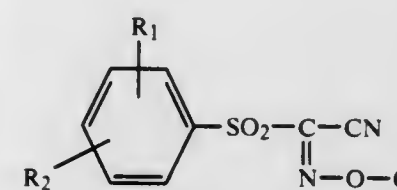
Claims priority, application Switzerland, Aug. 28, 1978, 9081/78

Int. Cl.³ A01N 37/34

U.S. Cl. 71—77

86 Claims

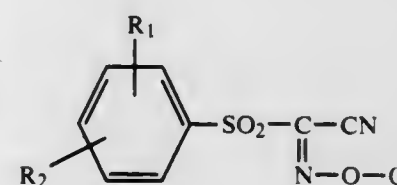
37. A method for protecting crops from injury caused by application of a herbicide, said method comprising applying to the crop seeds a crop protecting amount of a compound of the formula



wherein

each of R₁ and R₂ is hydrogen, halogen or C₁—C₄ alkyl, and Q is a hydrogen, a metal cation or a C₁—C₄ alkyl.

44. A method for protecting plants from injury caused by application of a herbicide, said method comprising dipping the roots of the seedlings of said plants into a solution comprising a crop protecting effective amount of a compound of the formula



wherein

each of R₁ and R₂ is hydrogen, halogen or C₁—C₄ alkyl, and Q is hydrogen, a metal cation or a C₁—C₄ alkyl group.

4,394,153

HERBICIDAL ARYL ESTERS OF N-[(HETEROCYCLIC)-AMINOCARBONYLSULFAMIC ACID

James J. Reap, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 168,345, Jul. 11, 1980, abandoned. This application May 18, 1981, Ser. No. 261,751

Int. Cl.³ A01N 9/22; C07D 239/32

U.S. Cl. 71—92

28 Claims

1. A compound of the formula:

4,394,154

SUBSTITUTED PYRIDYLOXYBENZO-2,1,3-OXADIAZOLES AND THIADIAZOLES AND N-OXIDES THEREOF

Richard J. Anderson, Palo Alto, and Michael M. Leippe, Boulder Creek, both of Calif., assignors to Nabisco Brands, Inc., Parsippany, N.J.

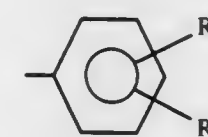
Filed Feb. 22, 1982, Ser. No. 351,070

Int. Cl.³ C07D 498/04, 513/04; A01N 43/40

U.S. Cl. 71—92

6 Claims

1. A compound of the formula:



R₂ is H, F, Cl, Br, OCH₃, NO₂ or C₁—C₂ alkyl;

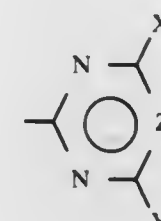
R₃ is H, F, Cl, Br or CH₃;

R₄ is H, CH₃ or OCH₃;

R₅ is C₁—C₄ alkyl;

R₆ and R₇ are independently H, F, Cl, Br, CH₃, CF₃, NO₂ or OCH₃;

A is



X is NH₂, N(CH₃)₂, NHCH₃, C₁—C₄ alkyl, CH₂OCH₃, CH₂OC₂H₅, C₁—C₃ alkoxy, C₃—C₄ alkenyloxy, C₃—C₄ alkynyloxy, OCH₂CF₃ or C₁—C₃ alkyl substituted with 1–3 atoms of F, Cl or Br;

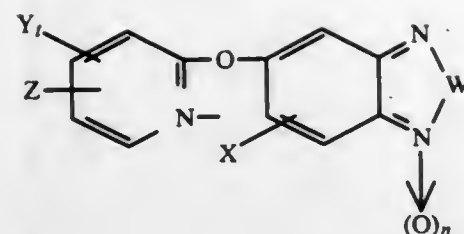
Y is H, CH₃, OCH₃ or Cl;

Z is CH, CCH₃, CBr, CCl, CF or Cl

provided that:

(1) when Y is Cl, then Z is CH and X is NH₂, NHCH₃, N(CH₃)₂, CH₃ or OCH₃; and

(2) when Y is H, then X is OCH₃, CH₃ or CH₂OCH₃, and Z is CH, CCH₃, CBr, CCl, CF or Cl.



wherein,

n is zero or one;

t is zero, one or two;

W is oxygen or sulfur; and

each of Y and Z is independently selected from hydrogen, lower alkyl, lower haloalkyl, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, acetyl, halogen, cyano, nitro and X is hydrogen.

6. A method for the control of weeds which comprises treating said weed or its locus with an herbicidally effective amount of a compound of the formula as defined in claim 1.

4,394,155

SUBSTITUTED PYRIDINE 1-OXIDE HERBICIDES

Howard L. Plant, Milford; Steven E. Cantor; Arthur M. Doweiko, both of Cheshire, all of Conn.; Mark A. Dekeyser, Waterloo, Canada, and Allyn R. Bell, Cheshire, Conn., assignors to Uniroyal, Inc., New York, N.Y. and Uniroyal Ltd., Ontario, Canada

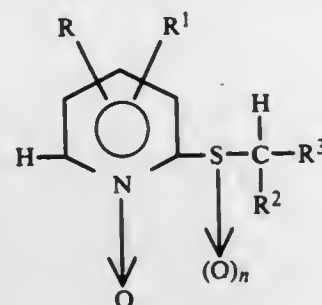
Filed Feb. 5, 1981, Ser. No. 231,813

Int. Cl.³ A01N 43/40; C07D 213/64

U.S. Cl. 71-94

20 Claims

1. A compound having the structural formula



wherein R and R¹ may be the same or different and are C₁ to C₄ alkyl, C₁ to C₄ alkoxy, phenyl or halogen provided that R or R¹ is not halogen if attached in the 3-position of the pyridine ring, and R or R¹ may further be hydrogen provided that one of them is one of the recited moieties other than hydrogen; R² is hydrogen, halogen, methyl or ethyl; R³ is phenyl or phenyl substituted with halogen, C₁ to C₄ alkyl, C₁ to C₄ alkoxy, or nitro; and n is 1 or 2.

19. A herbicidal composition comprising a compound of any of claims 1 to 18 in a herbicidally effective amount in admixture with a carrier therefor.

20. A herbicidal method comprising applying, to a locus at which it is desired to control weeds, a herbicidally effective amount of a compound as in any of claims 1 to 18.

4,394,156 NOVEL N-PHENYL-SUBSTITUTED N-HETEROCYCLIC COMPOUNDS, THEIR PREPARATION AND USE IN AGENTS FOR REGULATING PLANT GROWTH

Hans Tobler, Allschwil; Werner Förty, Basel, and Rolf Schurter, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 111,517, Jan. 14, 1980, abandoned, which is a division of Ser. No. 896,970, Apr. 12, 1978, Pat. No. 4,208,202. This application Oct. 26, 1981, Ser. No. 314,620

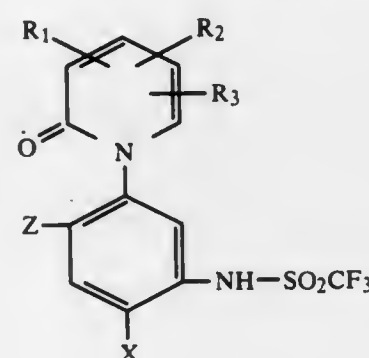
Claims priority, application Switzerland, Apr. 15, 1977, 4702/77; Nov. 9, 1977, 13661/77

Int. Cl.³ A01N 43/40; C01D 213/62; C07D 213/64, 213/68

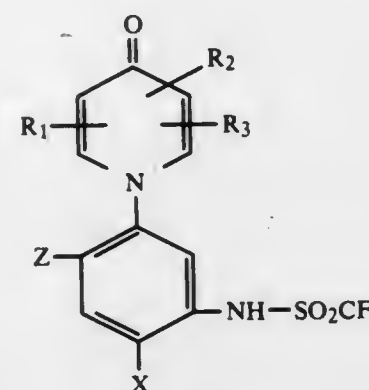
U.S. Cl. 71-94

8 Claims

1. A compound of the formulae Ia or Ib.



(Ia)



(Ib)

or a salt thereof formed with a cation selected from the group consisting of alkali metals, alkaline earth metals, zinc, copper, iron and organic amines, in which formulae

R₁, R₂ and R₃ independently of one another are hydrogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, alkoxycarbonyl having 1 to 4 carbon atoms in the alkyl portion, carboxyl, halogen or cyano, and

X and Z independently of one another are hydrogen, C₁-C₄ alkyl, C₁-C₅ alkoxy or halogen.

6. A composition for regulating plant growth which contains, in addition to carrier materials, an effective plant growth regulating amount of at least one trifluoromethanesulphonamido-phenyl-substituted heterocyclic compound according to claim 1 as the active component.

4,394,157

PYRIDYL-2-OXYPHENYLOXIME DERIVATIVES AND THEIR USE AS HERBICIDES

Georg Pissiotas, Lörrach, Fed. Rep. of Germany, and Hermann Rempfler, Ettingen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 172,575, Jul. 28, 1980, Pat. No. 4,322,241.

This application Jan. 19, 1982, Ser. No. 340,676

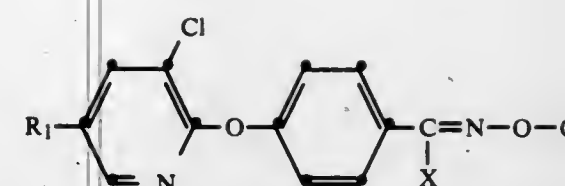
Claims priority, application Switzerland, Aug. 7, 1979, 7230/79

Int. Cl.³ C07D 213/64; A01N 43/40

U.S. Cl. 71-94

4 Claims

1. A compound of the formula



wherein

R₁ is halogen or trifluoromethyl,

X is methyl or cyano, and

Q is lower cyanoalkyl.

3. A method of selectively controlling weeds in crops of cultivated plants, which comprises applying to said crops a herbicidally effective amount of a compound of claim 1.

4,394,158

PYRIDYL-2-OXYPHENYLOXIME DERIVATIVES, AND THEIR USE AS HERBICIDES

Georg Pissiotas, Lörrach, Fed. Rep. of Germany, and Hermann Rempfler, Ettingen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 172,575, Jul. 28, 1980, Pat. No. 4,322,241.

This application Jan. 19, 1982, Ser. No. 340,678

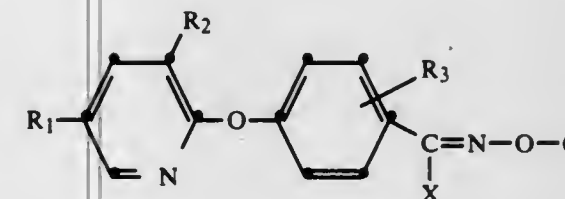
Claims priority, application Switzerland, Jul. 8, 1979, 7230/79

Int. Cl.³ C07D 213/64; A01N 43/40

U.S. Cl. 71-94

8 Claims

1. A compound of the formula



wherein

R₁ is halogen or trifluoromethyl,

each of R₂ and R₃ is hydrogen or halogen,

X is methyl or cyano, and

Q is methylcarbamoyl, phenylcarbamoyl or di-chloro-phenyl carbamoyl.

8. A method of selectively controlling weeds in crops of cultivated plants, which comprises applying to said crops a herbicidally effective amount of a compound of claims 1, 2 or 6.

4,394,159

2-CHLORO-3-(PHENOXY OR PHENYLTHIO)-6-6-NITRO-ANILINES

Wolfgang Buck; Richard Sehring; Gerbert Linden, all of Ingelheim, and Sigmund Lust, Darmstadt, all of Fed. Rep. of Germany, assignors to Celamerck GmbH & Co. KG, Ingelheim, Fed. Rep. of Germany

Continuation of Ser. No. 185,799, Sep. 10, 1980, abandoned, which is a continuation of Ser. No. 127,367, Mar. 4, 1980, abandoned, which is a continuation of Ser. No. 57,500, Jul. 13, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,385

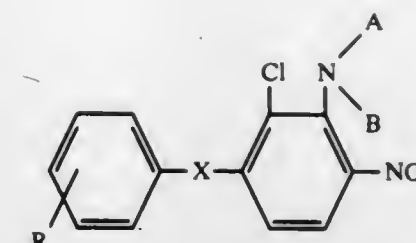
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831262

Int. Cl.³ E05B 65/08, 63/14; C07C 149/42, 87/60

U.S. Cl. 71-98

6 Claims

1. A compound of the formula



wherein

A is hydrogen, alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, chloro-(alkyl of 2 to 6 carbon atoms), hydroxy-(alkyl of 2 to 6 carbon atoms) or allyl;

B is alkyl of 1 to 3 carbon atoms;

R is hydrogen, fluorine, chlorine, bromine, methyl or methoxy; and

X is oxygen or sulfur.

4,394,160

MAKING MAGNETIC POWDERS

Walter O. Freitag, Drescher, and Victor V. Suchodolski, Erdenheim, both of Pa., assignors to Sperry Corporation, New York, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,365

Int. Cl.³ C22C 1/04; H01F 1/02

U.S. Cl. 75-0.5 AA

7 Claims

1. A method of producing magnetic powders having a coercive force in the range of from about 300 Oe to 700 Oe for use in the manufacture of magnetic recording media which comprises:

(a) pre-determining the desired coercive force of said magnetic powders,

(b) preparing a solution of metal salt capable of forming a ferromagnetic material,

(c) maintaining the solution of Step (b) at a pre-selected temperature which is functionally determinate of the desired coercive force, said pre-selected temperature being within a range of from about 0° C. to 50° C.,

(d) preparing a solution of a borohydride reducing agent,

(e) maintaining the solution of Step (d) at a pre-selected temperature which is functionally determinate of the desired coercive force, said pre-selected temperature being within a range of from about 0° C. to 50° C.,

(f) mixing the solutions of Steps (c) and (e) together while applying a magnetic field of a selected magnitude to said mixture during the reducing reaction between said solutions, the temperatures of said reactant solutions of Steps (c) and (e) prior to the mixing being pre-selected so as to control the coercive force of the magnetic powder produced from the mixture of Step (f).

4,394,161

METHOD OF PRODUCING A VANADIUM- AND NITROGEN-CONTAINING MATERIAL FOR USE AS AN ADDITION TO STEEL

Roy R. Hannum, Long Bottom, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 28, 1982, Ser. No. 393,228

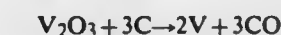
Int. Cl.³ C22B 34/00

U.S. Cl. 75-0.5 BC

1 Claim

1. A method for making a material containing vanadium and nitrogen substantially in the form of V₂N, said method comprising:

(i) providing a mixture of V₂O₃ and carbon in substantially stoichiometric proportions in accordance with the following formula:



(ii) subjecting the mixture in a furnace to a temperature in the range of about 1000° C. to 1500° C. under a reduced

pressure in the range of about 5 mm to 100 microns to cause reaction between mixture constituents and the evolution of CO;

- (iii) continuously maintaining the temperature and pressure in the furnace in the respective ranges specified in (ii) while simultaneously and continuously introducing nitrogen gas into the furnace to provide a nitrogen atmosphere in the furnace until CO is essentially no longer evolved from the mixture; and
- (iv) subsequently cooling the mixture in a nonoxidizing environment.

4,394,162

TREATMENT OF MATTER IN LOW TEMPERATURE PLASMAS

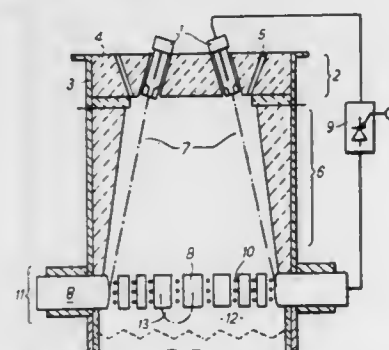
Jozef K. Tylko, Stoneleigh, England, assignor to Plasma Holdings N.V., Curacao, Netherlands Antilles
Division of Ser. No. 138,693, Apr. 9, 1980. This application Apr. 23, 1982, Ser. No. 371,320

Claims priority, application United Kingdom, Apr. 17, 1979, 7913337

Int. Cl.³ C22D 7/00

U.S. Cl. 75—10 R

20 Claims



1. A method of treating particulate matter with low temperature plasma, comprising the steps of:

- (a) producing an electrical arc discharge between spaced stationary electrode structures at least one of which is annular;
- (b) causing at least 50 Hz frequency changes in the power and circulation in the distribution of the discharge about the peripheries of the or each annular electrode structure to produce a region of plasma in the interelectrode space; and
- (c) introducing entrained particulate matter into the plasma region created thereby.

4,394,163

PROCESS FOR THE MANUFACTURE OF CRUDE IRON AND SYNTHESIS GAS

Per H. Collin, Stocksund, Sweden, assignor to Asea AB, Västerås, Sweden

Filed Jun. 19, 1981, Ser. No. 275,325

Claims priority, application Norway, Jun. 23, 1980, 801878

Int. Cl.³ C21C 5/52

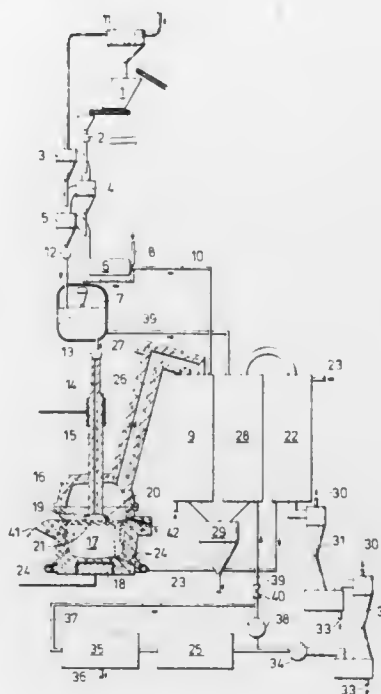
U.S. Cl. 75—11

7 Claims

1. A process for converting an iron oxide into crude iron which comprises: I. introducing in an arc furnace, a fine-grained material essentially containing iron oxide into a plasma zone between an electrode and a melt surface of a crude iron melt, and II. injecting a gaseous or volatile hydrocarbon into said crude iron melt at a depth of at least 30 cm below the surface thereof, comprising:

- a.1 preheating the iron oxide-containing material, or said iron oxide-containing material in admixture with adjusted quantities of slag formers, by means of combustion gases from burning the gases from the prereluction according to a.2 or supplementally with other fuels;
- a.2 prerelucting the preheated concentrate according to a.1;
- a.3 introducing the concentrate prerelucted according to a.2 in

the plasma zone below the electrode in an arc furnace of a direct current type, said furnace containing a crude iron melt, the temperature of said melt, by means of adjusted supply of electrical energy to the arc, is maintained over 1200° C., and the content of dissolved carbon in said melt is maintained above 2% by injecting suitably preheated hydrocarbons into the crude iron melt at a depth exceeding 30 cm below the surface of the melt;



- a.4 precooling the gases leaving the arc furnace by introducing directly into the leaving gases an adjusted flow of coolant, or a mixture of natural gas and water vapor, and
- a.5 recovering a substantial part of the physical heat content of the precooled gases, and purifying from dust said precooled gases by scrubbing.

4,394,164

PROCESS FOR REMOVAL OF HARMFUL IMPURITIES FROM METALLURGICAL SULPHIDE MELTS

Juho K. Mäkinen, Vanha-Ulvila, and Kaarina M. E. Käenniemi, Noormarkku, both of Finland, assignors to Outokumpu Oy, Outokumpu, Finland

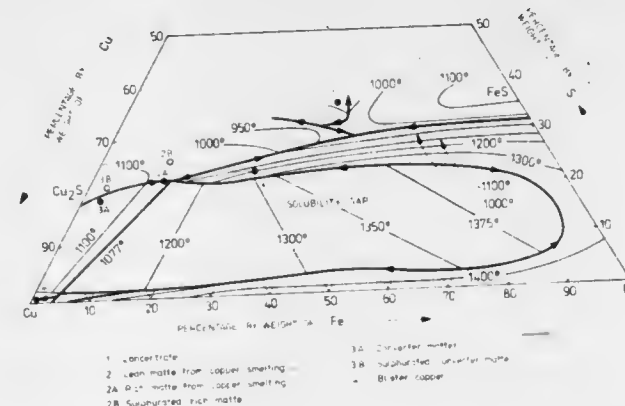
Filed Sep. 25, 1981, Ser. No. 305,508

Claims priority, application Finland, Sep. 26, 1980, 803052

Int. Cl.³ C21B 1/04; C22B 1/02

U.S. Cl. 75—21

10 Claims



- 1. A process for the removal from metallurgical sulphide melts of harmful impurities selected from the group consisting essentially of arsenic, antimony, bismuth and lead, comprising sulphurating the sulphide melt in an inert gas atmosphere by feeding into the melt a sulphur containing agent in an amount such that the sulphur supplied to the sulphide melt is at least 10% in excess of the stoichiometric sulphur amount as calculated from the sulphur requirement of the principal components of the melt.

4,394,165

METHOD OF PRELIMINARY DESILICONIZATION OF MOLTEN IRON BY INJECTING GASEOUS OXYGEN

Shingo Satoh; Takashi Inoue; Minoru Naki, and Yuji Kawauchi, all of Muroran, Japan, assignors to Nippon Steel Corporation, Japan

Filed Nov. 30, 1981, Ser. No. 325,999

Claims priority, application Japan, Aug. 19, 1981, 55-129609

Int. Cl.³ C21C 7/00

U.S. Cl. 75—60

11 Claims

1. A method of preferential desiliconization of molten iron by injecting gaseous oxygen wherein the gaseous oxygen is injected into the molten iron at controlled a rate depending upon the silicon content of the molten iron so as to satisfy the formula (I):

$$0.03 \leq V_{O_2} \leq 1.25 [\%Si] - 0.075 \quad (I)$$

wherein V_{O_2} : the rate of gaseous oxygen feed $Nm^3/min/ton$ pig.) and $[\%Si]$: Si content of the molten iron (%).

4,394,167 METHOD OF CARBOTHERMALLY PRODUCING ALUMINUM

Kenshi Kuwahara, Kanagawa, Japan, assignor to Mitsui Aluminium Co., Ltd., Tokyo, Japan

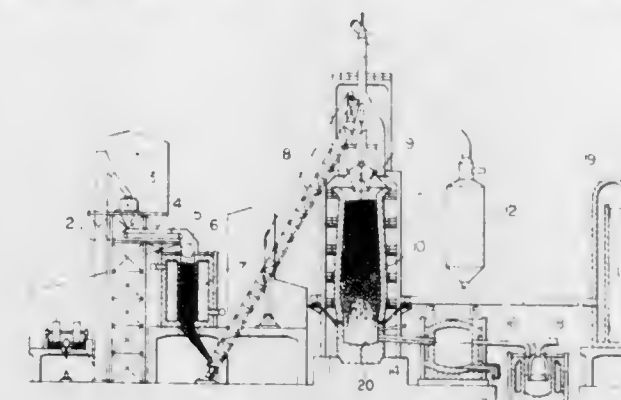
Filed Mar. 6, 1981, Ser. No. 241,053

Claims priority, application Japan, Apr. 22, 1980, 55-53374

Int. Cl.³ C22B 21/02

U.S. Cl. 75—68 A

13 Claims



1. A method of carbothermally producing an aluminum metal from alumina, silica and iron-oxide bearing materials, which comprises:

- (a) providing briquettes of a mix of said materials and a carbonaceous material which contains a sufficient amount of carbon to reduce the oxides in the material and coking said briquettes at a temperature of 600° to 900° C. by direct contact with non-oxidizing gas, to form coked briquettes,
- (b) heating the coked briquettes to a temperature of 2,000° to 2,100° C. with gas for combustion to form an aluminum-silicon-iron alloy,
- (c) scrubbing the resulting alloy in the nascent state with a molten lead splash to preferentially absorb the aluminum in the alloy into the molten lead,
- (d) separating the silicon and iron of the alloy from the aluminum-absorbed molten lead,
- (e) cooling the aluminum-absorbed molten lead to cause it to separate into liquid layers of aluminum and lead, respectively, and
- (f) subjecting the aluminum layer to distillation to distill off lead present and recover aluminum metal in substantially pure form.

4,394,166

SCRAP METAL RECOVERY PROCESS

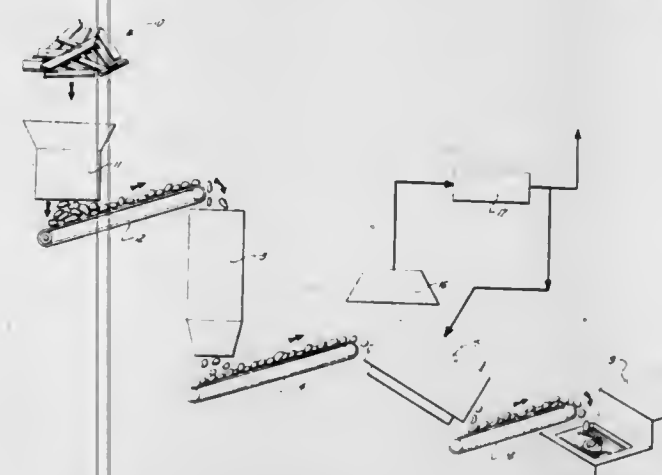
James A. Kennedy, Newnan, Ga., assignor to The William L. Bonnell Company, Newnan, Ga.

Filed May 28, 1982, Ser. No. 382,880

Int. Cl.³ C22B 21/00

U.S. Cl. 75—65 R

9 Claims



1. Method for recycling aluminum scrap containing thermal barrier material, said method comprising the steps of:

- (a) comminuting said scrap to pieces from about 18 to about 4 inches in length thereby preparing a relatively uniformly sized aluminum scrap product;
- (b) conveying said comminuted aluminum scrap product to a storage hopper;
- (c) continuously feeding the comminuted aluminum scrap product from said storage hopper to an indirect-fired rotary kiln;
- (d) heating said scrap product in said indirect-fired rotary kiln to a temperature of about 800° to 900° F. for a period of about one-half to one hour thereby substantially completely removing said thermal barrier material as combustible gas and cinder producing a satisfactory aluminum melt furnace feed product;
- (e) collecting and burning said combustible gases and smoke in a waste heat recovery afterburner to provide heating values for said step (d);
- (f) transferring heating values provided in step (e) to said indirect-fired rotary kiln; and
- (g) feeding said feed product from said indirect-fired rotary kiln to an aluminum melt furnace for melting.

4,394,168

AUSTENITIC WEAR RESISTANT STEEL

Tor Hartvig, and Petter Fjellheim, both of Raufoss, Norway, assignors to A/S Raufoss Ammunisjonsfabrikker, Raufoss, Norway

Filed Feb. 2, 1981, Ser. No. 230,630

Claims priority, application Norway, Jul. 7, 1980, 802044

Int. Cl.³ C22C 38/38

U.S. Cl. 75—126 A

9 Claims



ALLOY 18 ROUNDED CARBIDES 100x

1. An austenitic wear resistant steel having good wear resistance and serviceability when subjected to abrasive and com-

bined abrasive stresses and impact stresses consisting essentially of, in percentage by weight:

16-25.	Mn
1.0-2.0	C
0.5-5.0	Cr
0.2-2.0	Si
0.1-0.5	Ti
0.3-4.0	Mo
0.0-0.5	one or more of Ce, Sn, V, W or Nb (Cb)
0.0-5.0	Ni
0.0-5.0	Cu
0.0-0.1	P (impurity)
0.0-0.1	S (impurity)
remainder to 100%	Fe.

4,394,169

HIGH STRENGTH AUSTENITE STEEL HAVING EXCELLENT COLD WORK HARDENABILITY

Koji Kaneko, Yoshihide Fuchino, and Tsuyoshi Inoue, all of Kobe, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

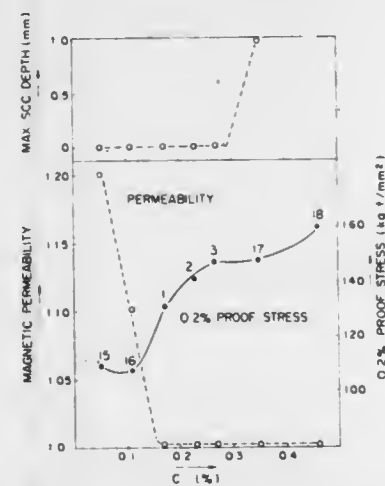
Filed May 13, 1982, Ser. No. 377,842

Claims priority, application Japan, May 15, 1981, 56-72997

Int. Cl.³ C22C 38/02

U.S. Cl. 75—128 A

3 Claims



1. High strength austenitic steel having excellent cold work hardenability, consisting essentially of the following elements:

- C . . . 0.1-0.3 wt.%;
 - Si . . . a positive amount and up to 1.5 wt.%;
 - Mn . . . 16-22 wt.%;
 - Cr . . . 14-18 wt.%;
 - V . . . 0.8-1.7 wt.%;
 - N . . . 0.3-0.6 wt.%;
 - Ni . . . less than 0.8 wt.%; and
 - Fe and inevitable impurities . . . balance,
- with a proviso that the C-, N- and V-contents satisfy the following inequalities:
- $C+N-(V/10) \geq 0.4$ wt.%; and
 - $C+N+(V/5) \geq 0.75$ wt.%.

4,394,170

COMPOSITE SINTERED COMPACT CONTAINING HIGH DENSITY BORON NITRIDE AND A METHOD OF PRODUCING THE SAME

Akira Sawaoka, Yokohama; Masatada Araki, Handa; Shinroku Saito, Yokohama, and Tamotsu Akashi, Aichi, all of Japan, assignors to Nippon Oil and Fats Company, Limited, Tokyo, Japan

Filed Nov. 14, 1980, Ser. No. 206,700

Claims priority, application Japan, Nov. 30, 1979, 54/154245

Int. Cl.³ B22F 3/14; C22C 29/00

U.S. Cl. 75—233

2 Claims

1. A composite sintered compact consisting of 15-60% by

volume of high density boron nitride and the remainder being a cermet, said high density boron nitride consisting of 4-16% by volume of zincblende-type boron nitride and 96-84% by volume of wurtzite-type boron nitride, and said cermet consisting of 70-95% by volume of at least one ceramic material selected from the group consisting of aluminum nitride, magnesium nitride, titanium nitride, silicon nitride, chromium nitride, hafnium nitride, zirconium nitride, tantalum nitride, molybdenum nitride, niobium nitride, vanadium nitride, aluminum oxide, yttrium oxide, zirconium oxide, titanium boride, zirconium boride, hafnium boride, tungsten boride, tantalum boride, chromium boride, molybdenum boride, titanium carbide, boron carbide, chromium carbide, silicon carbide, hafnium carbide, zirconium carbide, vanadium carbide, tungsten carbide, niobium carbide, tantalum carbide and mixtures and solid solutions thereof; and 30-5% by volume of at least one metal selected from the group consisting of nickel, cobalt, chromium, manganese, iron, molybdenum, tungsten, vanadium, aluminum, magnesium, silicon, titanium, zirconium and hafnium, said composite sintered compact having a Vickers hardness not higher than about 2,680 kg/mm².

4,394,171

THICK FILM CONDUCTOR COMPOSITIONS

Kumaran M. Nair, East Amherst, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 289,114, Aug. 3, 1981,

abandoned. This application Mar. 10, 1982, Ser. No. 354,814

Int. Cl.³ C09D 5/24

U.S. Cl. 106—1.14

10 Claims

1. A palladium/silver metallization suitable for the manufacture of printed terminations, which is an admixture of:

- A. 50-95% by weight finely divided particles of metallic materials comprising by weight
 - (1) 6 to 60 parts palladium metal;
 - (2) 94 to 40 parts silver metal or alloys thereof in the same proportions; and
- B. 5-50% by weight finely divided particles of a bismuth-free low-melting, low viscosity devitrifiable glass comprising 50-80% by weight Pb₃O₄ and 10-30% GeO₂.

4,394,172

NON-DUSTING AND FAST-WETTING IMPRESSION MATERIAL AND METHOD OF PREPARING SAME

Max Scheuble, Zurich, and Paul Munsch, Oberhasli, both of Switzerland, assignors to Dentsply Research & Development Corp., Del.

Continuation-in-part of Ser. No. 181,417, Aug. 26, 1980,

abandoned. This application Aug. 17, 1981, Ser. No. 293,143

Int. Cl.³ A61C 9/00; C08L 1/08, 5/04

U.S. Cl. 106—38.5 D

6 Claims

1. In a dry powdered impression material comprising an alginic acid salt component and a filler component, wherein said material exhibits a tendency toward dusting in its dry powdered state, wherein said material is mixable with water to form an impression paste capable of setting to a solid, and wherein said material exhibits a further tendency toward dusting upon admixture with water, the improvement comprising a coating on at least a portion of the powdered components rendering said material substantially non-dusting in its dry powdered form and during admixture with water, said coating being readily and rapidly wet, dispersed or dissolved by water and present in an amount of from about 1-10% by weight based on the total weight of the dry powdered components.

4,394,173

SPORTING AND RECREATIONAL FACILITY SLIDE

Christian Aste, Innsbruck, Austria, assignor to Horst Schwamm, Sistrans and Friedbert Pezzei, Grinzens, both of, Austria

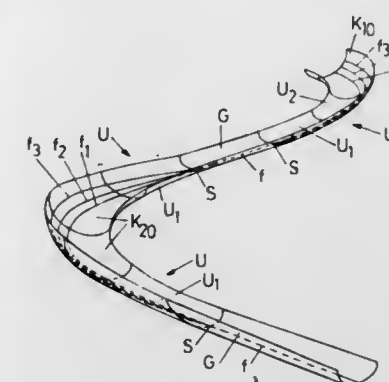
Filed Apr. 28, 1981, Ser. No. 258,274

Claims priority, application Austria, May 5, 1980, 2368/80; May 5, 1980, 2372/80

Int. Cl.³ A63G 21/00, 25/00, 21/04

U.S. Cl. 104—69

7 Claims



1. A sporting or recreational slide, particularly for use with unsteered vehicles, said slide comprising:

a plurality of joined sections which form a sliding surface and which form regions which are, when viewed from above, straight regions, circular-arc regions and clothoid-shaped intermediate regions between and joining adjacent straight and circular-arc regions;

said intermediate region having a first end at said straight region and a second end at said circular-arc region; and said sliding surface at the outer curved side of said intermediate region having a cross-sectional shape which continuously changes between said first and second ends, said cross-sectional shape at said first end comprising a quarter of an ellipse corresponding to the cross-sectional shape of said sliding surface at said straight region, and the ratio between the major axis and the minor axis of the ellipse continuously decreasing toward said second end.

4,394,174

PHOSPHATE CEMENT AND MORTAR

Ernst A. Tomic, Wilmington, Del., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Jun. 1, 1982, Ser. No. 383,453

Int. Cl.³ C04B 9/04

U.S. Cl. 106—85

18 Claims

1. A storable cement product containing (a) magnesium oxide in the form of particles which have a surface area of less than about 1 square meter per gram, and up to 90 percent of which pass through a 200-mesh screen and 10 percent of which are held on a 170-mesh or coarser screen; and (b) aluminum phosphate; components (a) and (b) being adapted to be combined with water and an inert aggregate of mixed particle sizes in amounts such as to form a mixture therewith comprising, by weight, about from 3 to 25 percent of component (a), about from 10 to 15 percent of component (b), about from 5 to 10 percent water, and about from 50 to 82 percent aggregate, and thereupon to undergo a reaction which raises the temperature of a 45-kilogram sample of the mixture to a peak temperature in the range of about from 40° to 90° C. at a rate such that said peak temperature is reached after the elapse of at least 10 minutes after the formation of said mixture.

4,394,175

SELF-LEVELLING CEMENTITIOUS MIXES

Leslie W. Cheriton, 3 Meadow Way Wing, Leighton Buzzard, Bedfordshire, LU7 OTG, and Philip J. Ansell, 20 Grove Way, Simpson, Milton Keynes, Buckinghamshire, both of England

Filed May 7, 1981, Ser. No. 261,325

Int. Cl.³ C04B 7/35

U.S. Cl. 106—90

14 Claims

1. A self-levelling screeding composition in the form of a free flowing paste, said composition comprising sand and other fillers, water, and hydraulic cement component comprising a portland cement and a high alumina cement characterized in that the cements are present in a weight ratio of 20-80:80-20 and in that the composition further includes a plasticiser component in a weight ratio of about 1% of the cement component to make the mix workable and sufficient of a set retarder component to delay the initial setting time about one hour.

4,394,176

METHOD OF PRODUCING SILICATE-CONTAINING GRANULATES

Hendrik Loggers, Amerongen, Netherlands, assignor to Aarding Weerstandlas B.V., Netherlands

Filed Jan. 21, 1982, Ser. No. 341,046

Int. Cl.³ C04B 15/13

U.S. Cl. 106—120

9 Claims

1. A method of producing calcium silicate-containing granulates by mixing a calcium oxide bound-containing product with a silicon-containing product, water and, if desired, a filler, subsequently forming granulates from said mixture by means of a heating treatment, while maintaining said granulates in a heated vapour atmosphere, wherein said heated vapour atmosphere is formed by having a heating fluid chosen from moist and non-moist heating fluids acting indirectly upon the granulates in such a way that any direct moisture condensation from the heating fluid upon the granulates is prevented.

4,394,177

COATING COMPOSITION

Akira Fujioka, Osaka; Kazuo Sakiyama, Ibaraki; Akio Takigawa, and Motoaki Yoshida, both of Nishinomiya, all of Japan, assignors to Sumitomo Chemical Company, Limited and Nippon Sheet Glass Co. Ltd., both of Osaka, Japan

Filed Jan. 5, 1981, Ser. No. 222,565

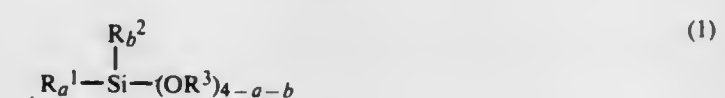
Claims priority, application Japan, Jan. 10, 1980, 55-1532

Int. Cl.³ C09K 3/00

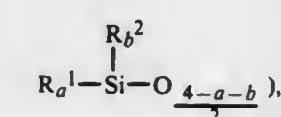
U.S. Cl. 106—287.14

12 Claims

1. A transparent, abrasion-resistant coating composition having high adhesiveness for transparent polymers, which comprises: as component (A), at least one hydrolyzate selected from the group of epoxy group-containing silicon compounds represented by the general formula (1):

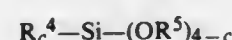


wherein, R¹ stands for an organic group containing an epoxy group, R² for hydrogen atom, a hydrocarbon group having 1 to 6 carbon atoms or vinyl group, R³ for a hydrocarbon group having 1 to 5 carbon atoms, alkoxyalkyl group or acyl group having 1 to 4 carbon atoms, a for an integer of 1 to 3 and b for an integer of 0 to 2, providing that a + b ≤ 3 is satisfied, said one hydrolyzate being used in an amount of 100 parts by weight (of solids; calculated as



as component (B), at least one member selected from the group

consisting of hydrolyzates of organic silicon compounds represented by the general formula (2):



wherein, R^4 stands for a hydrocarbon group having 1 to 6 carbon atoms, vinyl group, methacryloxy group, amino group, mercapto group, or organic group containing fluorine or chlorine, R^5 for a hydrocarbon group having 1 to 5 carbon atoms, alkoxyalkyl group or acyl group having 1 to 4 carbon atoms and c for an integer of 0 to 3; colloidal silica and organic titanium compounds, said one member being used in an amount within the range of from 1 to 567 parts by weight (of solids, calculated as $R_c^4-Si-O(4-c)/2$ in the case of an organic silicon compound represented by the general formula (2), as SiO_2 in the case of colloidal silica or as $R_d^6-Ti-O(4-d)/2$ in the case of an organic titanium compound, wherein R^6 stands for an unhydrolyzed group containing no hydroxy group and d for an integer of 1 to 4); and as component (C), a curing catalyst selected from the group consisting of ammonium perchlorate and ammonium chloride.

4,394,178

BULK LACTULOSE/LACTOSE SEPARATION BY SELECTIVE ADSORPTION ON ZEOLITIC MOLECULAR SIEVES

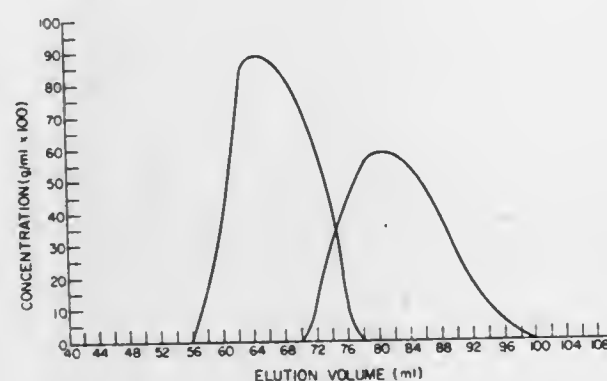
Chien C. Chao, Millwood, and John D. Sherman, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 10, 1981, Ser. No. 329,501

Int. Cl.³ C13D 3/12; C07H 1/06

U.S. Cl. 127-46.3

5 Claims



1. A process for separating lactulose from admixture with lactose by selective adsorption which comprises contacting a mixture comprising said compounds at a temperature of from 30° C. to 100° C. and at a pressure sufficient to maintain the system in the liquid phase with an adsorbent composition comprising at least one crystalline aluminosilicate zeolite selected from a group consisting of modified zeolite Type Y having a cation site concentration of from about 40 to about 10 equivalents per mole unit cell and a face centered cubic unit cell having an a_0 for the decahydrated form of from 24.3 to 24.6 Å in which the zeolitic cations are more than 50% barium or potassium, whereby lactulose is selectively adsorbed thereon; removing the nonadsorbed portion of said mixture from contact with the zeolite adsorbent; and desorbing the lactulose therefrom by contacting said adsorbent with a desorbing agent and removing the desorbed lactulose.

4,394,179 ABRASIVE-CONTAINING CONTACT LENS CLEANING MATERIALS

(2) Edward J. Ellis, Georgetown, and Joseph C. Salamone, Marblehead, both of Mass., assignors to Polymer Technology Corporation, Wilmington, Mass.

Continuation-in-part of Ser. No. 51,960, Jun. 25, 1979, abandoned. This application Oct. 15, 1980, Ser. No. 197,223

Int. Cl.³ B08B 11/00; 7/00; C11D 3/14, 17/08

U.S. Cl. 134-7

3 Claims

2. A method of cleaning an ophthalmic hard contact lens, said method comprising:
applying an aqueous cleaning solution containing a silica gel abrasive having an average particle size of no more than 10 microns of a particle size sufficient for use in lens polishing present in an amount of from 0.1% by weight to a value below that which would cause damaging scratching or changing of the power of the lens,
a surface active agent in an amount of from 0.1 to 30% by weight and a separate suspending agent to a surface of a lens and abrading said surface to remove unwanted surface deposits if present without changing the power of the lens or adversely affecting or scratching said lens, said suspending agent being selected from the class consisting of inorganic salts and hydrophilic polymers.

4,394,180

METHOD OF FORMING HIGH RESISTIVITY REGIONS IN GAAS BY DEUTERON IMPLANTATION

Geoffrey Dearnaley, Abingdon, England; Kenneth Steeples, Edinburgh, Scotland, and Ian J. Saunders, Morecambe, England, assignors to United Kingdom Atomic Energy Authority, London, England

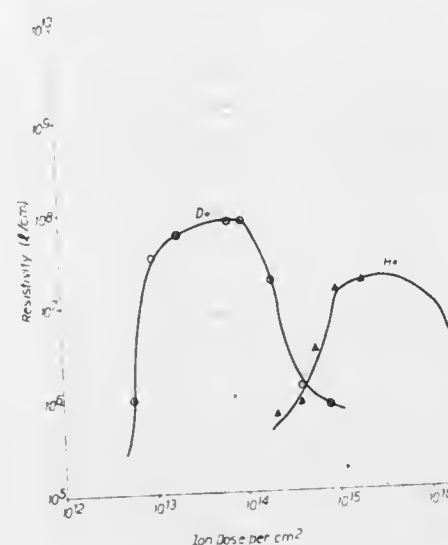
Filed Jun. 12, 1980, Ser. No. 158,871

Claims priority, application United Kingdom, Jun. 12, 1979, 7920389

Int. Cl.³ H01L 21/263

U.S. Cl. 148-1.5

9 Claims



1. A process for producing a semi-conductor device having regions of high resistivity in a semi-conductor substrate body comprising gallium arsenide or other related compounds and mixed crystals which show similar electrical behavior to gallium arsenide, comprising the sole operation of implanting deuterons only into the said regions of the substrate body with energies only up to a maximum value corresponding to a desired depth of penetration into the substrate body.

4,394,181

METHODS OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A CHANNEL REGION SPACED INSIDE CHANNEL STOPPERS

Keith H. Nicholas, Reigate, England, assignor to U.S. Philips Corporation, New York, N.Y.

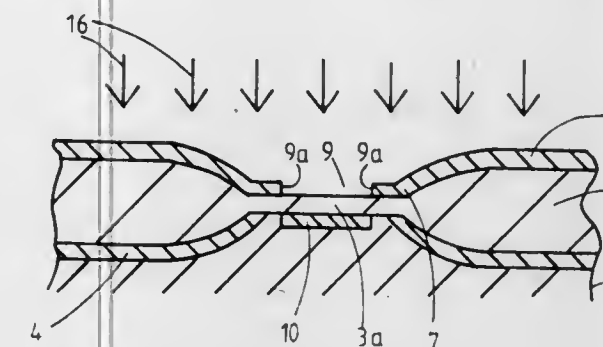
Filed Sep. 28, 1981, Ser. No. 306,041

Claims priority, application United Kingdom, Oct. 3, 1980, 8031992

Int. Cl.³ B01J 17/00; H01L 21/263

U.S. Cl. 148-1.5

10 Claims



1. A method of manufacturing a semiconductor device with an insulated gate field effect transistor having a channel region comprising the steps of
providing a first masking layer on a major surface of a semiconductor body of one conductivity type,
introducing a dopant into unmasked areas of said semiconductor body through said first masking layer to form channel stoppers of said one conductivity type, said channel stoppers having a higher concentration of said dopant than adjoining portions of said semiconductor body,
oxidizing said unmasked areas of said semiconductor body to form an oxide layer inset on said semiconductor body, said channel stoppers being present below said inset oxide layer,
removing said first masking layer to expose a first window bounded by said inset oxide layer,
providing a second masking layer on said inset oxide layer and inside said first window for masking against ion implantation, said second masking layer providing a second window having sides parallel to the channel length situated within said first window, said sides determining the width of the channel region to be spaced apart from said channel stoppers, and
implanting ions characteristic of a second conductivity type through said second window to form said channel region.

4,394,182

MICROELECTRONIC SHADOW MASKING PROCESS FOR REDUCING PUNCHTHROUGH

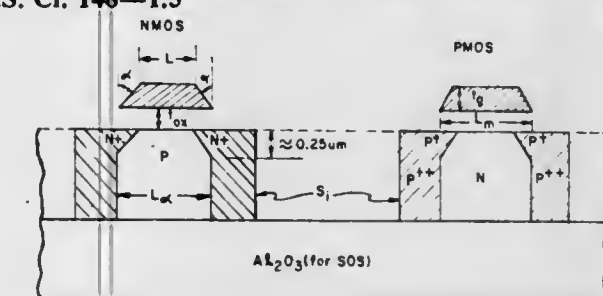
Roy L. Maddox, III, Westminster, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Oct. 14, 1981, Ser. No. 311,206

Int. Cl.³ B01J 17/00; H01L 21/263

U.S. Cl. 148-1.5

26 Claims



1. A process for controlling the impurity profile distribution in a body of semiconductor material which includes a conductive layer, comprising the steps of:

defining a masking member on a laterally extending major surface of said body in a predetermined pattern;
etching said surface and said body through said conductive layer using said masking member as a mask so as to form a truncated, pyramidal shaped gate element having sides which slope to form tapered gate edges; and
ion implanting active regions of said semiconductor circuit using said gate element as a mask so as to form active regions having lighter and shallower degenerately doped portions under said tapered gate edges, a channel region being defined under said gate element between said active regions, the length of said channel region extending between said active regions under said gate element, the length of said channel between said degenerately doped portions being less than the length of said channel region beneath said degenerately doped portions.

4,394,183

SOLIDIFICATION OF MOLTEN MATERIALS

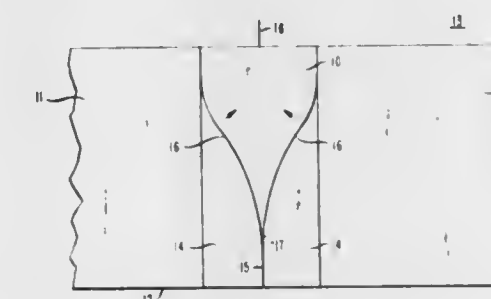
Kenneth A. Jackson, Plainfield, and Lionel C. Kimerling, Westfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 18, 1981, Ser. No. 322,575

Int. Cl.³ H01L 21/24

U.S. Cl. 148-1.5

24 Claims



1. A method comprising
establishing, within an at least two component molten material, an advancing freezing interface which is curved, with at least two tangents from portions of the interface which intersect, the solubility of at least one of the components of the melt being higher in the melt phase than in the solid phase, whereby the at least one component solidifies along the locus of intersecting tangents, with an enriched concentration higher than the average concentration of that component taken over the entire initial molten zone just before the onset of solidification.

4,394,184

DETERMINATION OF GRAIN REFINERS IN PHOSPHATE CONVERSION COATING BATHS

Richard G. Adams, Audubon, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Mar. 26, 1982, Ser. No. 362,572

Int. Cl.³ C23F 7/08

U.S. Cl. 148-6.15 R

14 Claims

1. A process for determining the concentration of a phosphorous containing organic grain refiner in an aqueous, acidic conversion coating bath which includes an inorganic divalent metal phosphate comprising, determining the chemical oxygen demand of the bath, precipitating the grain refiner from a portion of the bath by raising the pH to above about 4.0 in the presence of excess metal ion, determining the chemical oxygen demand of the precipitated portion of the bath, and determining the concentration of grain refiner in the bath from the difference between the chemical oxygen demand of the bath and the precipitated portion of the bath.

4,394,185

PROCESSING FOR COPPER BERYLLIUM ALLOYS
Henry T. McClelland, Shoemakersville, and Joseph B. Kuhn, Reading, both of Pa., assignors to Cabot Beryllco, Inc., Reading, Pa.

Filed Mar. 30, 1982, Ser. No. 363,682
Int. Cl.³ C22F 1/08

U.S. Cl. 148—11.5 C

7 Claims

1. In a process for producing formed parts from a copper beryllium alloy, which process includes the steps of: preparing a copper beryllium melt; casting the melt, hot working the cast copper beryllium; solution annealing the copper beryllium; optionally cold working the solution annealed copper beryllium; forming the copper beryllium; and age hardening the formed copper beryllium at a temperature of from 400° to 1200° F. for a period of at least 4 minutes; the improvement comprising the step of preaging the solution annealed or solution annealed and cold worked copper beryllium, prior to forming, at a temperature of from 400° to 1000° F. for a period of up to 180 seconds, the copper beryllium being at final gauge prior to preaging.

4,394,186

METHOD FOR PRODUCING A DUAL-PHASE STEEL SHEET HAVING EXCELLENT FORMABILITY, HIGH ARTIFICIAL-AGING HARDENABILITY AFTER FORMING, HIGH STRENGTH, LOW YIELD RATIO, AND HIGH DUCTILITY

Takashi Furukawa, Machida, and Kazuo Koyama, Kimitsu, both of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

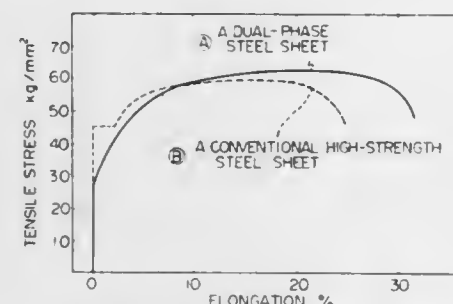
Filed Dec. 4, 1980, Ser. No. 213,175

Claims priority, application Japan, Dec. 15, 1979, 54-163277
The portion of the term of this patent subsequent to Aug. 25, 1998, has been disclaimed.

Int. Cl.³ C21D 8/02

U.S. Cl. 148—12 F

7 Claims



	YIELD STRENGTH	TENSILE STRENGTH	HOMOGENEOUS ELONGATION	TOTAL ELONGATION	n VALUE	YIELD RATIO
	kg/mm²	kg/mm²	%	%		
(A)	29.6	62.6	21.0	31.5	0.30	0.47
(B)	45.5	60.0	17.5	25.0	0.21	0.76

1. A method for producing a dual-phase steel sheet mainly composed of a ferrite phase and at least one rapidly-cooled transformed phase selected from the group consisting of a martensite phase, a bainite phase and a retained austenite phase, and having a tensile strength not lower than 40 kg/mm², excellent formability and high artificial-aging hardenability after forming, comprising the steps of:

hot rolling a steel containing from 0.01 to 0.12% carbon and from 0.7 to 1.7% manganese, followed by coiling; continuously annealing the steel sheet, which has undergone the hot rolling, at an annealing temperature in the range of from 730° to 900° C., and;

cooling in two successive stages from the annealing temperature to a temperature lower than 200° C. at an average primary cooling rate (R_1) in the range of 1° C./second < R_1 < 30° C./second over a primary cooling stage from said annealing temperature down to an intermediate temperature (T) in the range of 420° < T < 700° C., and at an average secondary cooling rate (R_2) in the range of 100° C./second < R_2 < 300° C./second over a secondary cooling stage from the intermediate temperature (T) down to a temperature not higher than 200° C., said secondary

average cooling rate (R_2) being high enough within its said range so as to provide the cooled steel sheet with said excellent formability and high artificial-hardenability after forming.

4,394,187

METHOD OF MAKING STEELS WHICH ARE USEFUL IN FABRICATING PRESSURE VESSELS

Hiroo Ohtani, and Seiichi Watanabe, both of Amagasaki, Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Filed Feb. 25, 1981, Ser. No. 238,030

Int. Cl.³ C22C 38/22, 38/32; C21D 8/02

U.S. Cl. 148—12 F

4 Claims

1. A method of manufacturing a steel plate which consists essentially of 0.05 to 0.20% of C, 0 to 0.15% of Si, 0.46 to 1.00% of Mn, 2.00 to 3.50% of Cr, 0.80 to 1.20% of Mo, 0.00015 to 0.0009% of B, 0.005 to 0.070% of Sol. Al, and the balance of Fe, said method including heating a slab for the plate rolling at a temperature of not more than 1150° C.

2. A method of manufacturing a steel plate which consists essentially of 0.05 to 0.20% of C, 0 to 0.15% of Si, 0.46 to 1.00% of Mn, 2.00 to 3.50% of Cr, 0.80 to 1.20% of Mo, 0.00015 to 0.0009% of B, 0.005 to 0.070% of Sol. Al, and the balance of Fe, said method including gradually cooling the steel at a rate of not more than 30° C./hour immediately after plate rolling.

4,394,188

PROCESS FOR PRODUCING FERRITE STAINLESS STEEL SHEETS HAVING EXCELLENT WORKABILITY

Jirou Harase, Munakata, and Tadashi Nakayama, Kitakyushu, both of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

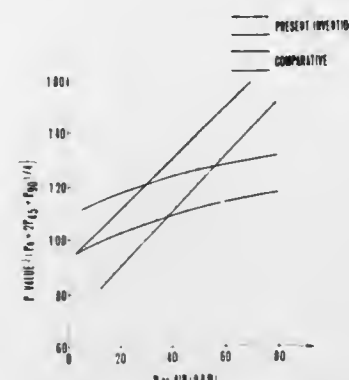
Filed Aug. 6, 1981, Ser. No. 290,713

Claims priority, application Japan, Aug. 9, 1980, 55-108813

Int. Cl.³ C21D 8/04

U.S. Cl. 148—12 EA

3 Claims



1. A process for producing a SUS 430 type ferrite stainless steel sheet having excellent workability, comprising hot rolling a ferrite stainless steel slab containing 0.03 to 0.1% C, 0.08 to 0.5% sol. Al and not less than 70 ppm N with a total reduction of at least 80% in the temperature range from 1150° to 900° C. at the central portion of the slab thickness, reduction by at least one pass of the hot rolling being not less than 35%, coiling at a temperature not lower than 800° C. and, without subjecting the hot rolled steel sheet to annealing, cold rolling the hot rolled steel sheet by a single step into a final thickness.

4,394,189

HIGH PERFORMANCE TUBULARS FOR CRITICAL OIL COUNTRY APPLICATIONS AND IMPROVED PROCESS FOR THEIR PREPARATION

James B. Greer, Houston, Tex., assignor to Lone Star Steel Company, Dallas, Tex.

Continuation-in-part of Ser. No. 261,919, May 8, 1981, Pat. No. 4,354,882. This application Jun. 14, 1982, Ser. No. 387,793

The portion of the term of this patent subsequent to Oct. 19, 1999, has been disclaimed.

Int. Cl.³ C21D 9/08

U.S. Cl. 148—12 R

23 Claims

1. A process for manufacturing high performance tubulars having minimum yield strengths ranging from 80,000 to 140,000 psi characterized by improved sulfide stress cracking resistance and improved dimensional control comprising the steps of providing a killed steel bloom comprising in amounts by weight 0.20 to 0.35 percent carbon, 0.35 to 0.90 percent manganese, 0.75 to 1.50 percent chromium, 0.15 to 0.75 percent molybdenum, 0.25 percent maximum nickel, 0.35 percent maximum copper, 0.040 percent maximum phosphorus, 0.04 percent maximum sulfur, 0.35 percent maximum silicon, and the balance iron, except normal steelmaking impurities, upset forging the killed steel bloom in a closed end cylindrical die to form an extrusion billet, hot piercing the extrusion billet while still in the upset forging die, cold machining the outside diameter and the inside diameter to be concentric and cold machining the nose of the extrusion billet, reheating and extruding the extrusion billet to form an extruded shell wherein the cross-sectional area of the extruded shell is in the range of 10 to 40 percent larger than the cross-sectional area of the finished tubular, subjecting the extruded shell to a first intercritical heat treatment to recrystallize and refine the grain structure, removing surface defects by grinding, sizing the ground, heat treated extruded shell by cold working to the finished tubular dimensions, subjecting the sized tubular to a second intercritical heat treatment to recrystallize and refine the grain structure, and subjecting the finished tubular to a quench and temper process wherein the tubular is austenitized, quenched, and tempered to produce a substantially tempered martensitic structure having a minimum yield strength in the range of 80,000 to 140,000 psi.

4,394,190

MAGNETIC GATE AND METHOD OF PRODUCTION THEREOF

Wilhelm Ertl, Ottobrunn; Ulrich Lachmann, and Heinrich Pertsch, both of Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich

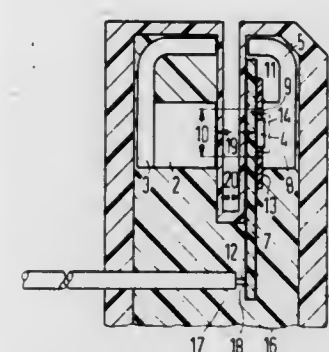
Filed Jan. 16, 1981, Ser. No. 225,686

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001771

Int. Cl.³ H01L 43/06

U.S. Cl. 148—31.55

4 Claims



1. Magnetic gate, comprising a magnetically permeable metal piece having first and second parts being spaced apart from each other, a pole shoe being integral with said second part of said metal piece and protruding toward said first part of said metal piece, a thin intermediate carrier being firmly connected to said pole shoe, finger-like contact structures integral with said intermediate carrier, a semiconductor chip having an

integrated circuit being soldered to said finger-like contact structures, a synthetic material plate with contact structures being disposed on said intermediate carrier, outer junction wires being connected to outer ends of said contact structures of said synthetic material plate, a magnet being fastened to said first part of said metal piece and protruding toward said second part of said metal piece, said magnet having a magnetic pole with an at least partly flat surface being opposite said pole shoe and semiconductor chip defining an open space therebetween, said first and second parts of said metal piece being separated by the direct interposition of said magnet, open space, semiconductor chip and pole shoe, and synthetic insulation material embedding and fixing said metal piece, magnet and pole shoe in place.

4,394,191

STACKED POLYCRYSTALLINE SILICON FILM OF HIGH AND LOW CONDUCTIVITY LAYERS

Yasuo Wada, Tokyo; Hiroo Usui, Machida; Makoto Ohkura, Hachioji; Masanobu Miyao; Masao Tamura, both of Tokorozawa, and Takashi Tokuyama, Higashikurume, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

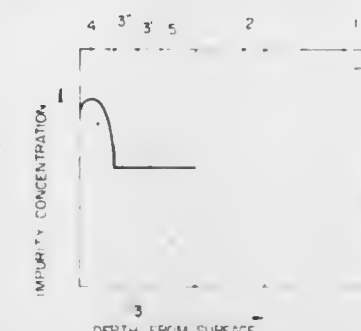
Filed Dec. 17, 1980, Ser. No. 217,224

Claims priority, application Japan, Dec. 17, 1979, 54-162760

Int. Cl.³ H01L 21/263; B05D 3/06

U.S. Cl. 148—33.1

10 Claims



1. A polycrystalline silicon film comprising a second layer and a first layer formed on the second layer, the second layer being formed by impurity doping and thermal annealing prior to forming the first layer, said second layer having an activated impurity concentration that is not higher than a solid solubility, and the first layer being formed on said second layer and having an activated impurity concentration that is higher than the solid solubility, whereby a polycrystalline film having a low resistivity is formed.

4,394,192

METHOD FOR PRODUCING LOW SILICON STEEL ELECTRICAL LAMINATION STRIP

Prabhat K. Rastogi, Munster, Ind., assignor to Inland Steel Company, Chicago, Ill.

Filed Jul. 2, 1981, Ser. No. 279,830

Int. Cl.³ H01F 1/00

U.S. Cl. 148—120

11 Claims

1. In a method for producing cold rolled steel strip for use in electric motor laminations, the steps of: providing a steel consisting essentially of the following composition in wt.% before cold rolling:

carbon	.06 max.
manganese	.55-.75
silicon	.15-.25
aluminum	.15-.25
phosphorus	.12 max.
sulfur	.025 max.
iron	essentially the balance;

hot rolling said steel into steel strip;
coiling said hot rolled steel strip while the steel is at a coiling

temperature in the range 1250°-1400° F. (682°-760° C.) and then allowing said coiled strip to cool; cold rolling said steel strip; continuously annealing said steel strip at a strip temperature in the range 1250°-1400° F. (682°-760° C.) for about 2-5 minutes, and then allowing said strip to cool; and temper rolling said strip to produce a reduction of about 5-7.5%; whereby said steel strip, after said temper rolling step, has a grain size and crystallographic orientation which, upon subsequent magnetic annealing at a temperature in the range 1400°-1550° F. (760°-843° C.) for about 1-2 hours in a decarburizing atmosphere, produces an average ferritic grain size of about 3.5-5.0 ASTM and a preponderance of crystallographic planes containing the easiest direction of magnetization.

4,394,193

METHOD AND DEVICE FOR THE CONTINUOUS, CONTACTLESS MONITORING OF THE STRUCTURE STATE OF COLD STRIP

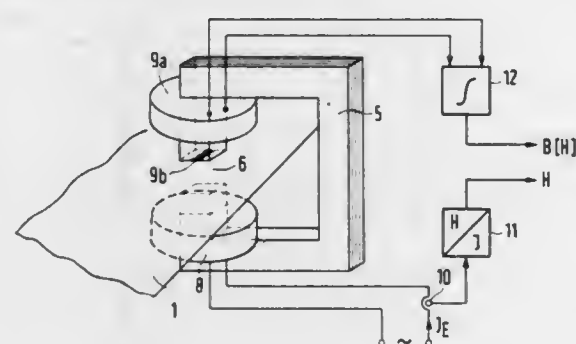
Manfred Gfrerer, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Apr. 16, 1981, Ser. No. 254,613

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1980, 3015894

Int. Cl.³ C21D 1/54

U.S. Cl. 148-129

5 Claims



1. A method for continuous monitoring of the internal structure of a metal strip subjected to an annealing treatment, said method comprising the steps of:

- inducing a first magnetic flux of cyclically varying intensity in the strip at one point in the annealing treatment; simultaneously measuring the intensity of the first flux modified by said strip;
- forming a first predetermined functional relationship between the measured intensity and the induced intensity to determine energy lost due to variation of the intensity of the first flux;
- inducing a second magnetic flux of cyclically varying intensity in said strip at a later point in the annealing treatment; simultaneously measuring the intensity of the second flux modified by said strip;
- forming a second predetermined functional relationship between the measured intensity and the induced intensity of the second flux to determine energy lost due to variation of the intensity of the second flux;
- comparing the energy lost due to variation of the first flux to energy lost due to variation of the second flux to obtain a measure of the change of internal structure of the metal strip between the first and second points, and
- controlling the annealing process as a measure of said change.

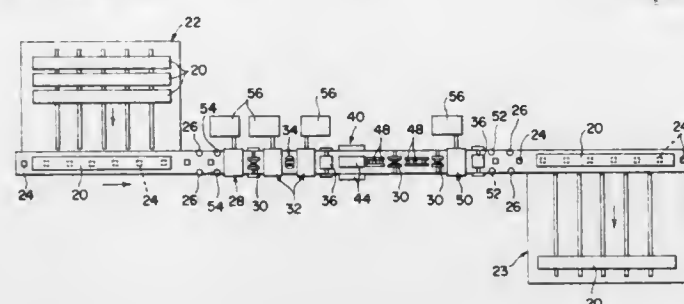
4,394,194 METHOD FOR HEAT TREATING STRUCTURAL MEMBERS

George L. Satava, Arlington, Tex., and Carroll L. Deemer, Euclid, Ohio, assignors to Midland Steel Products, Cleveland, Ohio

Filed Sep. 29, 1980, Ser. No. 192,430
Int. Cl.³ C21D 1/18

U.S. Cl. 148-131

22 Claims



1. A method for induction heat treating and quenching of a structural member of carbon steel to a uniform martensitic structure, said structural member having a web and at least one flange substantially perpendicular thereto consisting of induction preheating the structural member to a temperature in the range of 900° to 1400° F. by means of at least one coil utilizing the frequency in the range of 180 to 3000 cycles; continuing in a separate induction heating stage to heat the structural member to the austenitizing temperature in the range of 1450° to 1800° F. by the use of at least one coil having a higher frequency than that of the prior step; liquid quenching the structural member with a multiplicity of nozzles immediately, said nozzles being disposed at an angle in the direction of the advance of the structural member and the pressure regulated from the bottom of the quench zone liquid quench within the range of 10 to 20 pounds per square inch, from the top of the quench zone liquid quench in the range of 1.5 to 6 pounds per square inch and from the sides of the quench zone liquid quench in the range of 5 to 25 pounds per square inch of the structural member to minimize distortion thereof; concurrently restraining the member by its web in a series of segmented restraining rolls placed on the bottom and the top thereof so as to present slots through which the liquid may be sprayed to quench the structural member until the structural member has reached a temperature below 1000° F. to minimize localized bow distortion; induction heating the structural member to a tempering temperature in the range of 750° to 1250° F. by the use of a coil having a frequency in the range of 180 to 3000 cycles; and subsequently restraining the structural member while cooling to avoid camber distortion by passing the structural member through web restraining and tapered roll flange forming rolls, followed by tapered vertical restraint rolls, and finally flange surface engaging rolls to minimize cambering distortion.

4,394,195

COOLING OF CENTER PLATE TO AVOID SOFTENING
Harold T. Ried, and Edgar C. Weaver, both of St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

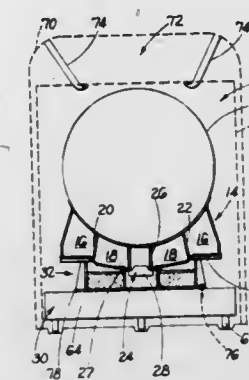
Filed Jul. 16, 1982, Ser. No. 398,750
Int. Cl.³ C21D 9/00

U.S. Cl. 148-149

18 Claims

1. Apparatus for heat treating a railway car body while maintaining a portion thereof unheat treated comprising: a heat treat furnace having means for heating a railway car body; movable support means for moving the railway car body into the heat treating furnace; an insulating box located on said support means; said insulating box including end support

means for supporting a portion of said railway car body and center support means for supporting at least a portion of the railway car body; an opening within said insulating box adapted to receive a portion of said railway car body which is not to be heat treated; insulating means surrounding said center car support means; means for introducing a cooling medium into said center support means whereby said cooling medium maintains said car body depending portion at a sufficiently low temperature to avoid substantial softening of the depending portion and whereby said heat treating furnace heat treats the remaining portion of said car to a desired heat treating temperature.



13. A method of heat treating a railway freight car body while maintaining a selected portion in an unsoftened state comprising: locating an insulating box adapted to receive a depending portion of a railway car which is not to be softened upon a movable support member; providing insulating adjacent said depending portion to prevent heat from a heat treating furnace from softening said depending member; circulating a cooling medium into the area where said depending member is located while heat treating the railway freight car body and removing the railway freight car from the heat treating furnace and disconnecting the flow of said cooling media into said insulating material.

4,394,196

METHOD OF ETCHING, REFILLING AND ETCHING DIELECTRIC GROOVES FOR ISOLATING MICRON SIZE DEVICE REGIONS

Hiroshi Iwai, Takaidonishi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

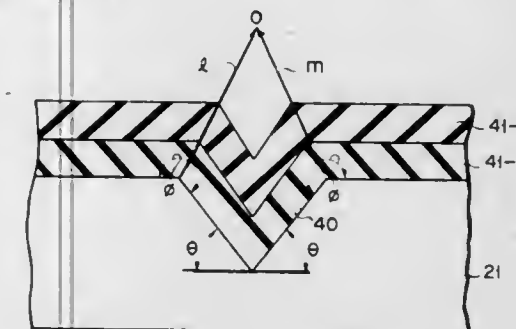
Filed Jul. 13, 1981, Ser. No. 282,642

Claims priority, application Japan, Jul. 16, 1980, 55-97223; Jul. 16, 1980, 55-97224; Nov. 29, 1980, 55-168582

Int. Cl.³ H01L 21/76, 27/00

U.S. Cl. 148-187

22 Claims



1. A method for manufacturing a semiconductor device comprising:

- (a) forming at least one groove at a predetermined portion of a semiconductor substrate;
- (b) depositing insulating material on the surface of the semiconductor substrate including the groove, said insulating material being deposited until on the non-grooved surface of the substrate a depth greater than one half the opening

- width of the groove is achieved, thereby filling the groove with insulating material;
- (c) doping at least a part of the surface of the insulating material with low melting point material and melting this doping material by heat treatment;
- (d) etching the insulating material by the depth thereof on the non-grooved surface of the semiconductor substrate to form a field region consisting of insulating material left in the groove; and
- (e) forming an active element in that region of the semiconductor substrate which is isolated, at least in part, by said field region.

4,394,197

COOK-OFF RESISTANT BOOSTER EXPLOSIVE
Irving Kabik, Silver Spring, and Vernon D. Ringbloom, West Friendship, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 19, 1981, Ser. No. 265,133
Int. Cl.³ C06B 45/10

U.S. Cl. 149-19.3

4 Claims

1. An explosive composition having a mild cook-off character comprising:
 - A. a mixture of explosives comprising
 - (1) from 58 to 62 weight percent of 1,3,5-triamino-2,4,6-trinitrobenzene, and
 - (2) the remainder being a second explosive selected from the group consisting of cyclotetramethylenetetranitramine, cyclotrimethylenetetranitramine, and mixtures thereof; and
 - B. a compatible binder of polytetrafluoroethylene having a glass transition temperature (T_g) greater than 105° C.

4,394,198

WATER-IN-OIL EMULSION EXPLOSIVE COMPOSITION

Fumio Takeuchi, and Masao Takahashi, both of Aichi, Japan, assignors to Nippon Oil and Fats Company, Limited, Tokyo, Japan

Filed Aug. 17, 1981, Ser. No. 293,094

Claims priority, application Japan, Aug. 25, 1980, 55-115819; Sep. 8, 1980, 55-124201

Int. Cl.³ C06B 45/02

U.S. Cl. 149-21

6 Claims

1. A water-in-oil emulsion explosive composition comprising a disperse phase formed of an aqueous oxidizer solution consisting of (a) an inorganic oxidizer salt selected from the group consisting of ammonium nitrate, and a mixture of ammonium nitrate with at least one of sodium nitrate and calcium nitrate, (b) water and (c) at least one member selected from lithium, sodium, potassium, calcium and ammonium salts of weak acid and condensed phosphoric acid; a continuous phase formed of a combustible material consisting of (d) fuel oil and/or wax; (e) an emulsifier; and (f) hollow microspheres or microbubbles.

4,394,199

EXPLOSIVE EMULSION COMPOSITION
Philip Barnhard, IV, Spanish Fork, and Lyman G. Bahr, Payson, both of Utah, assignors to Agnus Chemical Company, Northbrook, Ill.

Filed Sep. 8, 1981, Ser. No. 299,742

Int. Cl.³ C06B 45/02

U.S. Cl. 149-21

9 Claims

1. A water-in-oil emulsion explosive composition consisting essentially of (a) an aqueous phase comprised of a solution of oxidizing salts, (b) an oil phase consisting essentially of a nitro-paraffin having three carbon atoms and optionally a hydrocarbon, (c) an emulsifying agent, and (d) at least one sensitizing agent.

4,394,200

PILE EXTILE ARTICLES AND PROCESS AND DEVICE FOR THEIR MANUFACTURE

Pierre Grosjean, Lyons, France, assignor to Rhone-Poulenc-Textile, Paris, France

Continuation of Ser. No. 84,638, Oct. 5, 1979, abandoned. This application Mar. 5, 1981, Ser. No. 240,814

Claims priority, application France, Oct. 13, 1978, 78 29473; Oct. 13, 1978, 78 29475; Japan, Oct. 13, 1978, 53/29474

Int. Cl.³ D04H 11/00

U.S. Cl. 156—72

1 Claim



1. A process for introducing pile textile elements in the form of bundles of a plurality of substantially parallel filamentary textile materials having a base stably joining the materials at one end of the bundle into the meshes of a flexible meshed grid wherein the dimension of the base is slightly greater than the openings of the meshes of said grid, comprising

- (1) seating said pile textile element in a truncated cone-shaped inserting tool which is open at its wide end, said cone being defined by a plurality of radially inwardly compressible fingers along the generatrices of the cone,
- (2) passing the cone-shaped inserting tool with the pile textile element seated therein through a mesh of the grid from one side to the other side thereof,
- (3) removing the cone-shaped tool from the pile textile element while leaving the element locked in said mesh by means of said base,
- (4) radially inwardly collapsing said fingers so that the diameter of the wide end of the cone becomes narrower than the opening of the meshes of the meshed grid,
- (5) passing the opened end of the collapsed cone through an empty mesh of said grid from said other side to said one side,
- (6) expanding said fingers to their normal opening so that the step (1) may be repeated, and
- (7) repeating the steps (1)-(6) at least once.

4,394,201

CONCRETE SLAB ASSEMBLY, ESPECIALLY FOR BUILDING FACADES

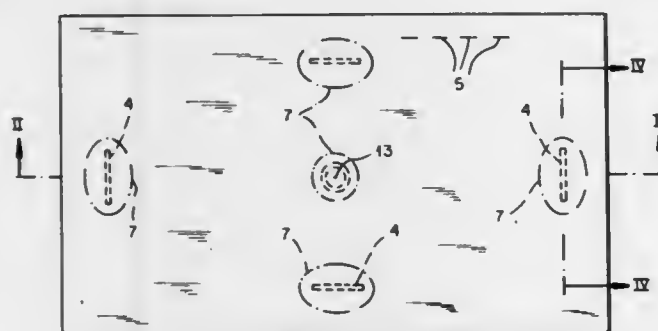
Ernst Haeussler, Grashofstr. 47, 4300 Essen 1, Fed. Rep. of Germany

Division of Ser. No. 202,746, Oct. 31, 1980. This application Dec. 28, 1981, Ser. No. 334,595

Int. Cl.³ B32B 31/16; E04B 2/28

U.S. Cl. 156—73.6

4 Claims



1. A method of making a composite panel comprising the steps of:

- casting a first reinforced concrete slab in a horizontal form-

work bed with tubular anchors projecting from said first slab;

casting a second reinforced concrete slab in a horizontal formwork bed with convoluted wire reinforcing rings having a ring plane lying in the plane of said second slab disposed at locations corresponding to said tubular anchors, the convolutions of said ring lying transverse to said ring plane; and

turning over said first slab upon the setting thereof and lowering it toward said second slab prior to the setting thereof and vibrating said anchors into the concrete of said second slab and into the rings thereof.

4,394,202

METHOD FOR RELINING AN UNDERGROUND GAS LINE OR THE LIKE WITHOUT EXCAVATION

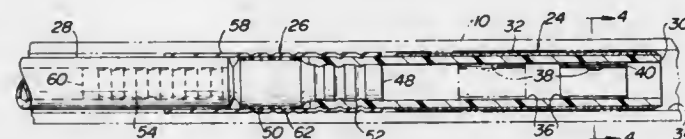
William R. Thomas, Malvern, and George S. Sykora, Strafford-Wayne, both of Pa., assignors to UMAC, Inc., Paoli, Pa. and Brooklyn Union Gas Company, Brooklyn, N.Y., a part interest

Filed Jan. 22, 1981, Ser. No. 227,336

Int. Cl.³ B32B 35/00

U.S. Cl. 156—94

22 Claims



1. A method of repairing or relining a pipeline or the like, comprising the steps of:
- obtaining access to an opening into the pipeline;
- mounting an expandable sealing unit by means of a connecting means to the end of a predetermined length of flexible tubing;
- positioning said expandable sealing unit with said flexible tubing connected thereto at a selected position within said pipeline;
- heating said expandable sealing unit by means of a heating unit positioned within said expandable sealing unit;
- expanding, in response to said heating, said expandable sealing unit to expand to form a tight seal between the outer surface of said expandable sealing unit and the interior surface of said pipeline; and,
- removing said heating unit from the internal portion of said expandable sealing unit whereby said pipeline is provided with a flexible tubing mounted within the pipeline to be repaired and sealably connected to said pipeline.

4,394,203

PROCESS FOR MANUFACTURE OF THREE-DIMENSIONAL ROTATIONAL PARTS AND MACHINE FOR THE IMPLEMENTATION OF SUCH PROCESS

Bruno Bompard, and Alain Bruyere, both of Lyons, France, assignors to Commissariat a l'Energie Atomique and Societe Brochier et Fils, both of Paris, France

Filed Jun. 23, 1981, Ser. No. 276,536

Claims priority, application France, Jul. 1, 1980, 80 14640 The portion of the term of this patent subsequent to Oct. 19, 1999, has been disclaimed.

Int. Cl.³ B65H 81/00

U.S. Cl. 156—175

14 Claims

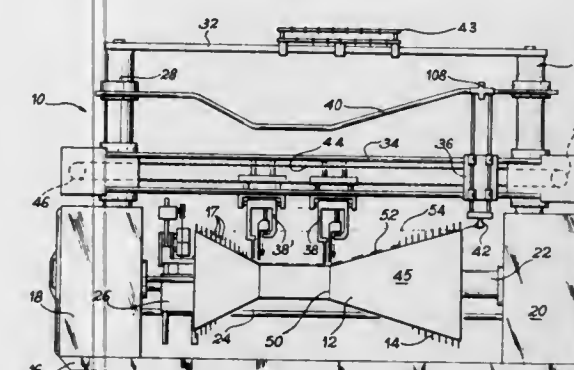
1. A process for the manufacture of rotational parts from a three-dimensional material comprising the steps of producing a supporting mandrel provided with longitudinal and circumferential rows of barbs which between them define longitudinal corridors and circumferential corridors,

circumferential threads mounting the longitudinal threads continuously along the contour of the mandrel, in the said corridors, some of the longitudinal threads being placed in only a portion of length of the corresponding longitudinal corridors, and having extremities which do not extend out of the corresponding longitudinal corridors,

maintaining said extremities continuously following their application to said mandrel by winding at least one holding thread in at least one circumferential corridor next to said extremities, simultaneously to the placing of the corresponding layer of longitudinal threads, said extremities of at least some of the longitudinal threads being temporarily maintained by means of a first retractable member before the holding thread is wound on,

densifying the assembly thus obtained, and finally eliminating the supporting mandrel, whereby said rows of barbs and said sheets of threads define the three-dimensional material.

5. A process for the manufacture of rotational parts from a



three-dimensional material comprising the steps of producing a supporting mandrel provided with longitudinal and circumferential rows of barbs which between them define longitudinal corridors and circumferential corridors, placing superimposed layers of longitudinal threads and of circumferential threads in the said corridors, densifying the assembly thus obtained, then eliminating the supporting mandrel, placing some of the longitudinal threads in only a portion of the length of the corresponding longitudinal corridors, extremities of said some longitudinal threads being temporarily held in position by a first retractable member, said some longitudinal threads being then caused to come back into the corresponding longitudinal corridors over said first retractable member, said extremities being then held in position inwards of the first retractable member by a second retractable member, said first retractable member being then withdrawn in a direction that is substantially tangential with respect to the mandrel, and at least one holding wire being wound on in at least one circumferential corridor next to said extremities, thereby continuously holding said extremities in position.

4,394,204

METHOD FOR HEAT SEALING

James L. Hutcheson, Mechanicsville, Va., assignor to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 132,494, Mar. 21, 1980, abandoned, and Ser. No. 75,844, Sep. 14, 1979, abandoned, said Ser. No. 132,494, is a division of Ser. No. 75,844. This application Jul. 18, 1980, Ser. No. 170,052

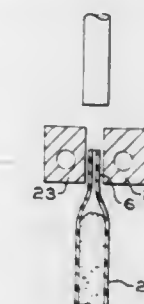
Int. Cl.³ B32B 31/00, 31/20

U.S. Cl. 156—275.1

8 Claims

1. In a method of forming a heat seal on the open end of a flexible container after filling of said flexible container and cleaning of said open end of said flexible container, said cleaning producing moisture on said open end of said flexible container, said flexible container comprising a pair of generally planar walls which have been heat sealed to one another, comprising positioning said open end of said flexible container between a pair of heated bars and subsequently positioning said open end of said flexible container between a pair of chilled bars the improvement comprising maintaining a sufficient gap

between said heated bars such that no pressure is applied to said open end of said flexible container while said open end of said flexible container is positioned between said pair of heated bars, evaporating said moisture from said open end of said flexible container while said open end of said flexible container



is positioned between said pair of heated bars and applying sealing pressure to said open end of said flexible container while cooling said open end of said flexible container while said open end of said flexible container is positioned between said pair of chilled bars to thereby provide a hermetic seal on said open end of said flexible container.

4,394,205

METHOD FOR VULCANIZATION BONDING OF FLUORINE-CONTAINING ELASTOMERS TO VULCANIZED NATURAL AND SYNTHETIC ELASTOMERS

Donald R. Blenner, Erie, Pa., assignor to Lord Corporation, Erie, Pa.

Filed Mar. 15, 1982, Ser. No. 358,162

Int. Cl.³ C09J 5/02

U.S. Cl. 156—307.3

3 Claims

1. A method for bonding an unvulcanized fluorinated elastomer to a previously vulcanized non-fluorinated elastomer, wherein said unvulcanized elastomer is cured in situ against said vulcanized elastomer, said method comprising:
- exposing at least one surface of said vulcanized elastomer to a fluorine-containing compound selected from the group consisting of sulfur tetrafluoride, boron trifluoride and phosphorus pentafluoride;
- coating at least a portion of said at least one surface which has been exposed to said fluorine-containing compound with (a fluorinated elastomeric) an adhesive for fluorinated elastomers;
- applying to the adhesive-coated portion of said at least one surface an unvulcanized fluorinated elastomer composition; and
- curing said unvulcanized fluorinated elastomer composition.

4,394,206

APPARATUS AND METHOD FOR APPLYING AN ELONGATED TAB TO A MOVING SUBSTRATE

Victor H. Clausen, and Charles E. Asbury, both of Vancouver, Wash., assignors to H. B. Fuller Company, Saint Paul, Minn.

Filed Dec. 17, 1981, Ser. No. 331,647

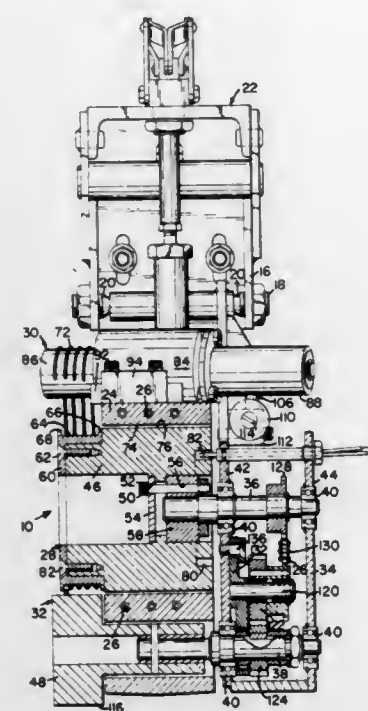
Int. Cl.³ B32B 31/10; B65D 65/34

U.S. Cl. 156—322

12 Claims

12. A method of extending the period of time during which an elongated flexible member coated with a thermoplastic adhesive is in engagement with a heating roll, comprising the steps of:
- (a) providing a second roll having an axis spaced from the axis of the heating roll;
- (b) successively coiling the flexible member about both rolls; and
- (c) spacing said coils axially along said rolls so that they do not engage one another by pivoting said second roll with

its axis moving in a plane generally parallel to said axis of said heating roll to a position at which said axes are out of



parallel alignment so that the angle between said axes in said plane is increased in size.

4,394,207

APPARATUS FOR SEALING THE VALVE IN A VALVE BAG

Ernst R. Berthelsen, Terndrup, and Christian Hejlesen, Vadum, both of Denmark, assignors to Bates Ventilsaekke Co. A/S, Norresundby, Denmark

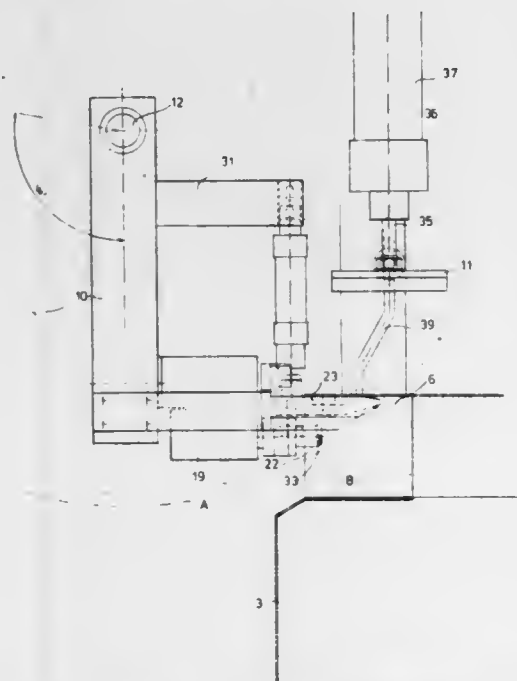
Filed Feb. 26, 1982, Ser. No. 352,767

Claims priority, application Denmark, Mar. 3, 1981, 946/81

Int. Cl.³ B65B 7/02

U.S. Cl. 156—578

10 Claims



1. An apparatus designed to seal the valve of a valve bag with adhesive, and of the kind where the bags arrive from a bagging machine vertical or somewhat reclining, and which apparatus comprises an adhesive sprayer designed in such fashion that it can be inserted in the bag valve there to apply an apportioned quantity of the adhesive onto the inside of the valve and next be withdrawn, and also comprising a piston member designed so as to apply pressure to the bag valve after the application of adhesive and closing it in the process, characterized in that mounted over and connected to the adhesive sprayer (9) there is an in cross-section bow-shaped shield (23)

with rounded front, in such a way that the front ends of shield (23) and adhesive sprayer (9) are flush over and under each other, or that the shield (23) protrudes in relation to the sprayer (9), and where the assembly consisting of adhesive sprayer (9) and shield (23) are suspended or has moving organs in such a way that the assembly during insertion into the bag valve (6) describe a curved motion (A) in the vertical middle of the bag valve, so that when penetrating the bag valve (6) the assembly will lift up the valve, and where the adhesive sprayer (9) is designed to apply adhesive to the lower inside of the bag valve (6).

4,394,208

ULTRASONIC BONDING

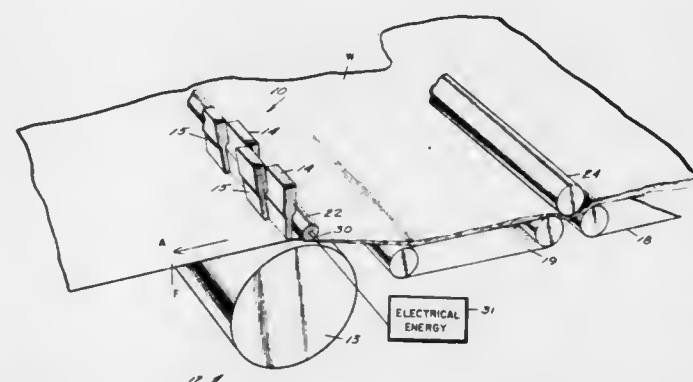
Kenneth Y. Wang, Greensboro, N.C., and Berlie R. Hill, Cana, Va., assignors to Burlington Industries, Inc., Greensboro, N.C.

Filed Aug. 6, 1981, Ser. No. 290,714

Int. Cl.³ B29C 27/08; B32B 31/20

U.S. Cl. 156—580.1

15 Claims



11. Apparatus for vibration welding of material comprising means for transporting in a first direction a web of material to be vibration welded; a plurality of ultrasonic vibration sources disposed to act upon substantially the entire width of the web; anvil means cooperating with said vibration sources to effect welding, said anvil means disposed on the opposite side of the web as said ultrasonic vibration sources; a roller of hard material extending substantially the entire width of the web; and means for mounting said roller just before any of said ultrasonic vibration sources so that said roller applies a force to the web.

4,394,209

ARRANGEMENT FOR AFFIXING THE BOTTOM OF A THERMOPLASTIC CONTAINER

Dieter Kolb, Tuebingen, Fed. Rep. of Germany, assignor to Christian Majer GmbH & Co. KG., Tuebingen, Fed. Rep. of Germany

Filed Mar. 22, 1982, Ser. No. 360,883

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1981, 8108746

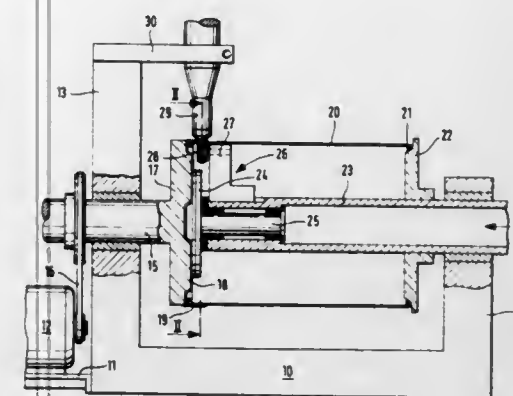
Int. Cl.³ B29C 27/08; B32B 31/16

U.S. Cl. 156—580.1

7 Claims

1. An improved arrangement for weldingly connecting a cylindrical synthetic thermoplastic container to a bottom also of synthetic thermoplastic material having an annular connecting edge portion integral therewith, the improvement comprising in combination, a machine frame; counter pressure means rotatably and axially adjustably mounted in said machine frame; ultrasonic welding means operatively mounted on said machine frame and adapted to coact with said counter pressure means;

a first disc rotatably mounted in said machine frame coaxially with respect to said counter pressure means; a drive motor operatively connected to said first disc for drivingly rotating it;



said counter pressure means comprising at least one freely rotatably mounted anvil roller which is adapted to counter-pressure the connecting edge of the bottom or inside the container towards said ultrasonic welding means.

4,394,210

PROCESS FOR FORMING A LEAD FILM

Kiyoshi Morimoto, Mobarra, and Toshinori Takagi, Nagaoka-kyo, both of Japan, assignors to Futaba Denshi Kogyo K.K., Chiba, Japan

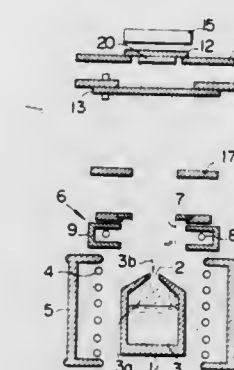
Filed Mar. 27, 1981, Ser. No. 248,212

Claims priority, application Japan, Mar. 31, 1980, 55-40441

Int. Cl.³ C30B 23/08

U.S. Cl. 156—608

5 Claims



1. A process for forming a lead film including a closed type crucible having at least one injection nozzle, means for heating and vaporizing lead, an ionization chamber, an acceleration electrode having an acceleration voltage, a shutter, a substrate, temperature control means for controlling the temperature of said substrate, and a vacuum chamber surrounding said crucible, said heating and vaporizing means, said ionization chamber, said acceleration electrode, said shutter, said substrate, and said temperature control means, wherein said process comprises:

heating and vaporizing said lead in said crucible to form a pressurized lead vapor; injecting said lead vapor through said at least one injection nozzle into said vacuum chamber; maintaining a pressure differential between said vacuum chamber and said lead vapor in said crucible at a ratio of less than or equal to 10^{-2} ; using said pressure differential to form a vapor stream of said lead; generating electron beams within said ionization chamber; directing said electron beams through said vapor stream so as to form an ionized portion of said vapor stream; accelerating said ionized portion of said vapor stream toward said substrate with said acceleration electrode;

impinging said vapor stream upon said substrate such that said lead film is deposited thereon; using said shutter for selectively shielding said substrate from the flow of said vapor stream; controlling the packing density of said lead film by regulating said acceleration voltage; and controlling the surface flatness of said lead film by regulating said temperature control means such that the temperature of said substrate is maintained below the melting point of lead.

4,394,211

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A LAYER OF POLYIMIDE RESIN

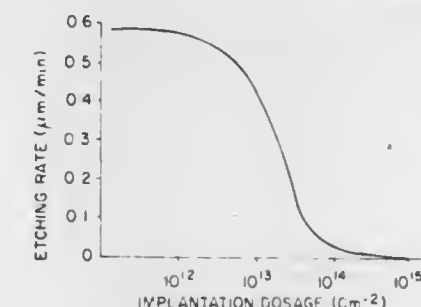
Nobuhiro Uchiyama, Yokohama; Masataka Shingu, Kawasaki, and Saburo Tsukada, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 8, 1982, Ser. No. 415,929

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06; B29C 17/08

U.S. Cl. 156—628

6 Claims



1. A method of manufacturing a semiconductor device comprising the steps of:

forming on a substrate a polyimide resin layer, implanting an ion into a portion of said polyimide resin layer to substantially decrease the etching rate of said portion of said polyimide resin layer, are carrying out a selective etching of said polyimide resin layer so that the etching is substantially blocked by said portion of said polyimide resin layer.

4,394,212

BLEED-FAST CATIONIC DYESTUFFS

Alex Pociluyko, Glen Mills, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Division of Ser. No. 88,288, Oct. 26, 1979, Pat. No. 4,359,419, which is a division of Ser. No. 902,661, May 4, 1978, Pat. No. 4,221,562. This application Nov. 9, 1981, Ser. No. 319,854

The portion of the term of this patent subsequent to Jul. 20, 1999, has been disclaimed.

Int. Cl.³ D21H 3/80

U.S. Cl. 162—162

2 Claims

1. A dyed, non-woven, absorbent, cellulosic web having good bleed fastness comprising cellulosic fibers and a water-insensitive cationic dyestuff on said cellulosic fibers, said dyestuff comprising the reaction product of a dialdehyde selected from the group consisting of glyoxal and glutaraldehyde and a cationic, water-soluble dyestuff having a functional group capable of reacting with the dialdehyde to form a water-insensitive reaction product dyestuff wherein the functional group of the water-soluble dyestuff is a lower alkylene amine of the formula $-(CH_2)_nNH_2$ wherein n is from 1 to 5.

4,394,213

HYDROXY-ALUMINUM/LIGNIN SULFONATE COMPOSITIONS

Richard L. Ferm, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jul. 1, 1981, Ser. No. 279,299

Int. Cl.³ D21H 3/18

U.S. Cl. 162—163

15 Claims

1. A composition comprising about 30% by weight to about 95% by weight water and about 70% by weight to about 5% by weight of a solute, said solute comprising a mixture of a lignin sulfonate salt and a polymeric hydroxy-aluminum salt in a weight ratio of lignin sulfonate to hydroxy-aluminum of from about 1:4 to about 4:1.

4,394,214

CONSTRUCTION OF UNIVERSAL EGG CELL CUSHION AND METHOD

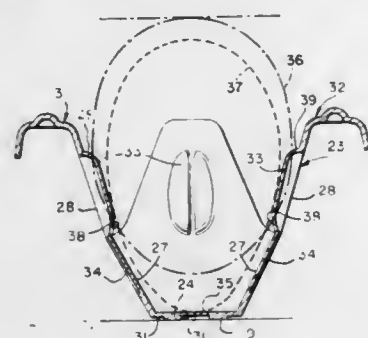
Kenneth D. Bixler, Huntington, N.Y.; Henry A. Lord, Cape Elizabeth, Me., and Richard F. Reifers, New Canaan, Conn., assignors to Diamond International Corporation, New York, N.Y.

Filed Sep. 29, 1981, Ser. No. 306,980

Int. Cl.³ D21J 7/00

U.S. Cl. 162—228

5 Claims



1. The method of forming a vertically elongated hollow thin walled cushion or pillopad on a side wall of an egg cell, including

fastening to the screen side of the egg cell perforated mold an elongated grooved bubble shaped segment, and sucking, by the application of vacuum, pulp fibres from a pulp slurry on the screen and over the grooved bubble segment to form a relatively thin layer of pulp fibres in relation to the surface of said bubble segment, the vacuum on the side of the screen opposite from the bubble segment side is also present in the groove and serves to insure that fibres form in relation to the surface of said bubble segment.

4,394,215

APPARATUS FOR CONVERTING COAL INTO LIQUID PRODUCTS

Berend Jager; Andries Brink, both of Sasolburg, and Cornelis Kleynjan, Lochvaal, all of South Africa, assignors to Sasol One (Proprietary) Limited, Sasolburg, South Africa

Division of Ser. No. 156,684, Jun. 5, 1980, Pat. No. 4,318,797.

This application Nov. 23, 1981, Ser. No. 324,264

Claims priority, application South Africa, Jun. 18, 1979, 79/2997

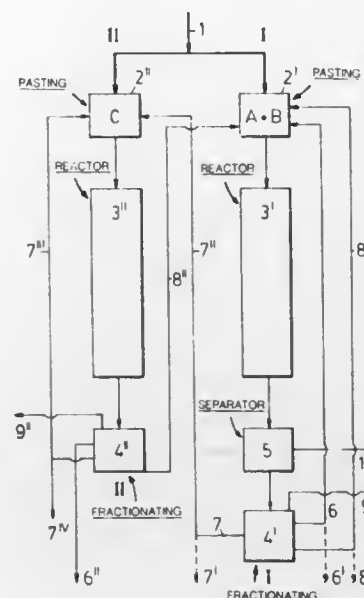
Int. Cl.³ B01D 11/02; C10C 3/08; C10G 21/00

U.S. Cl. 196—14.52

12 Claims

1. An apparatus for carrying out a coal liquefaction process comprising in parallel separate and distinct first and second coal digestion reactors for digesting particulate coal in a pasting oil under pressure, first and second separate and distinct coal slurring means feeding separately into the first and second reactors respectively, fractionating means coupled to said first and second reactors and adapted to produce light oil, middle oil and heavy or residue fractions, means for recycling to the first slurring means heavy or residue fraction derived at least in part from the discharge of the second reactor, means

for recycling to the second slurring means middle oil derived at least in part from the discharge of the first reactor, and



means for discharging as a product light oil derived from the discharge of the second reactor.

4,394,216

VAPOR CONDENSATE RETURN MEANS IN A VAPOR GENERATING AND RECOVERY APPARATUS

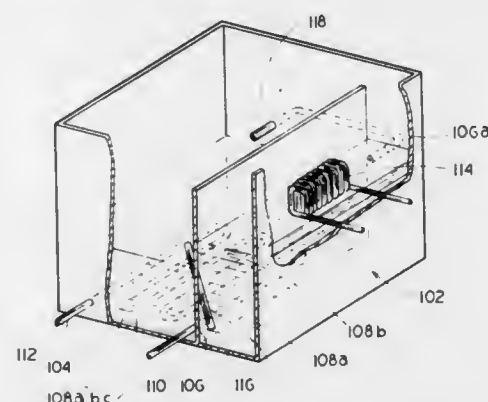
James W. McCord, 9101 Nottingham Parkway, Louisville, Ky. 40222

Filed Dec. 24, 1981, Ser. No. 334,169

Int. Cl.³ B01D 3/02

U.S. Cl. 202—170

12 Claims



1. A vapor generating and recovery apparatus comprising: a housing having a vaporizing chamber and a condensing chamber therein separated by a first weir of preselected height;

means to add heat to said vaporizing chamber and means to remove heat from said condensing chamber; and, means to transfer condensate from said condensing chamber, to said vaporizing chamber, said means to transfer condensate including means to separate components within the condensate and return said separated components in separate streams to said vaporizing chamber, said means to remove heat being disposed within said condensing chamber below the upper extremity of said weir and spaced sufficiently above said means to transfer condensate for providing a constant vapor blanket over the means to remove heat from the condensing chamber.

9. A vapor generating and recovery apparatus comprising: a housing having a vaporizing chamber sub-divided into a plurality of sub-chambers by weirs of preselected height, and a condensing chamber separated from said vaporizing chamber by a first weir of a preselected height greater than that of any said weirs sub-dividing said vaporizing chamber;

means to add heat to at least one of said sub-chambers of said vaporizing chamber, and means to remove heat from said condensing chamber; means to transfer condensate from said condensing chamber to at least one of said vaporizing sub-chambers, said transfer means including means to separate components within the condensate and in returning at least one of said separated components to at least one of said vaporizing sub-chambers, said means to remove heat being disposed within said condensing chamber below the upper extremity of said weir.

4,394,217

APPARATUS FOR SERVICING COKE OVENS

Wilhelm Holz, Gelsenkirchen; Helmut Lukaszewicz, Bottrop, and Karl Gregor, Bochum, all of Fed. Rep. of Germany, assignors to Ruhrkohle Aktiengesellschaft, Essen and Gewerkschaft Schalker Eisenhütte, Gelsenkirchen, both of, Fed. Rep. of Germany

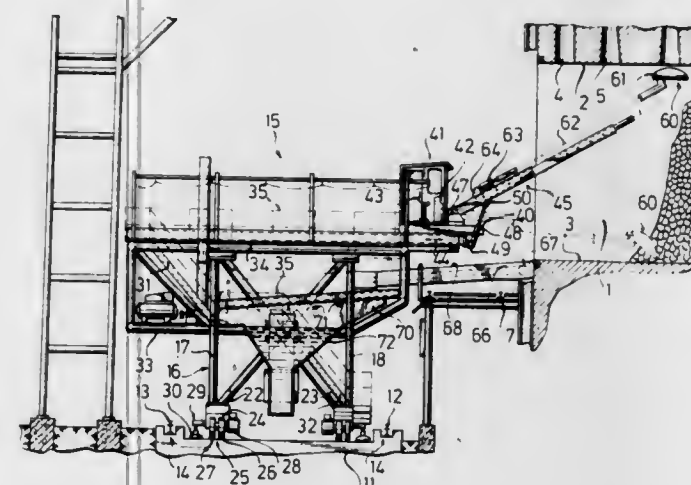
Filed Mar. 27, 1981, Ser. No. 248,452

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1980, 3011781

Int. Cl.³ C10B 33/06, 39/04, 39/12, 43/06

U.S. Cl. 202—227

13 Claims



1. Apparatus for servicing coke ovens in a battery, each coke oven having a floor and the battery having a pusher machine side and a coke side, said apparatus comprising:

a gantry having a plurality of vertical supports, each with a controllable and individually driven trackless running gear for moving said gantry along either side of the coke oven battery;

a boom machine mounted on said gantry and movable with respect thereto in a direction transverse to the direction of movement of the gantry along the battery;

a boom having one end mounted on said boom machine for horizontal rotation and vertical pivoting with respect to said boom machine, said boom having a connection head for a work implement at the other end;

a work implement for servicing the coke ovens coupled to said connection head;

an adjustable feed conveyor mounted in said gantry and extendable to the floor of the coke ovens for receiving material discharged from the coke ovens;

coke quenching means mounted in said gantry for receiving material from said feed conveyor;

receiving means mounted in said gantry for receiving material from said coke quenching means; and

a discharge conveyor coupled to said receiving means for discharging the material from said servicing apparatus.

4,394,218

COKE QUENCH CAR EMISSION CONTROL SYSTEM

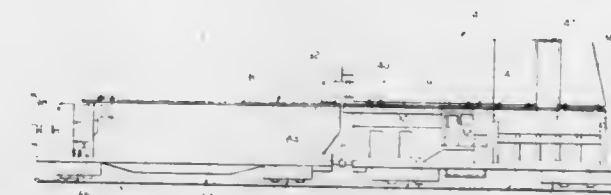
Joerg P. Baum, Hoesel, Fed. Rep. of Germany, assignor to Baumco Gesellschaft fur Anlagentechnik mbH, Essen, Fed. Rep. of Germany

Filed Jan. 11, 1982, Ser. No. 338,275

Int. Cl.³ C10B 33/00, 33/14, 45/00

U.S. Cl. 202—263

12 Claims



1. A system for capturing emissions from coke as it is pushed from an oven including:

a first transporter movable in a path adjacent said oven, coke receiving means and gas cleaning means mounted adjacent each other on said first transporter, guide means mounted on said first transporter and extending over said coke receiving means and said gas cleaning means,

a second transporter mounted on said guide means and movable thereon from a first position above said coke receiving means to a second position above said gas cleaning means,

said second transporter having hood means mounted thereon, said coke receiving means being open at its upper end for receiving coke, said hood means being open at its lower end and sized to cover the opening in said coke receiving means,

said hood means also having a port for receiving coke from a coke oven, and coupling means for coupling said hood means to said gas cleaning means

when said second transporter is positioned above said coke receiving means whereby emissions collected by said hood means are transmitted to said gas cleaning means, the opening in said coke receiving means being exposed when said second transporter is in its second position to permit the coke and in said coke receiving means to be quenched.

4,394,219

FRACTIONATING LIQUIDS

Thomas W. Mix, Wellesley, and Jay S. Dweck, Framingham, both of Mass., assignors to Merix Corporation, Wellesley, Mass.

Continuation-in-part of Ser. No. 161,880, Jun. 23, 1980, abandoned, which is a continuation of Ser. No. 45,839, Jun. 5, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 287,035

Int. Cl.³ B01D 3/42

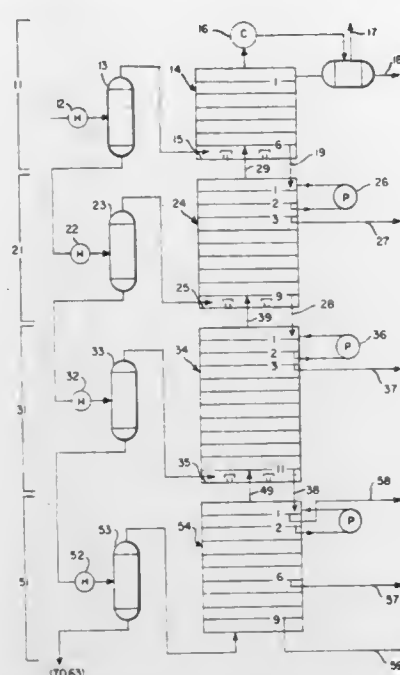
U.S. Cl. 203—1

8 Claims

1. A method of fractionating feed liquid containing fractions having different volatilities, said method being carried out in fractionating tower apparatus including a plurality of multi-stage segments, heaters, and vaporizers, said method comprising

heating said feed liquid, by means of said heaters and vaporizers, to different temperatures to flash vapor fractions of different volatilities, feeding said flashed vapor fractions to different multi-stage segments of said fractionating tower apparatus, fractions of higher volatilities being fed to higher segments, withdrawing liquid sidestreams from a plurality of said segments, separately feeding reflux liquid from at least one segment to a segment below it, and controlling the level of heavy components in at least one

selected liquid sidestream withdrawn from a segment below a segment where vapor is flashed by limiting the temperature at which said vapor is flashed to below the



temperature of the vapor in the tower whose composition most closely matches the composition of the flashed vapor.

4,394,220

PROCESS FOR RECTIFICATION OF PROPANE NITRATION STREAM

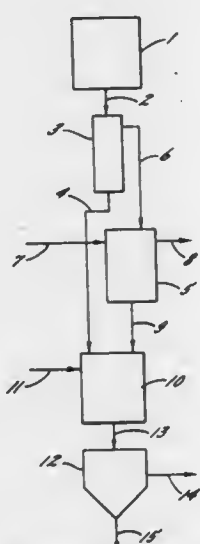
Richard S. Egly, West Terre Haute, and Cecil E. Turnquist, Terre Haute, both of Ind., assignors to Angus Chemical Company, Northbrook, Ill.

Continuation of Ser. No. 182,921, Sep. 2, 1980, abandoned. This application Oct. 22, 1981, Ser. No. 313,862

Int. Cl.³ B01D 3/34, 15/00

U.S. Cl. 203—42

3 Claims



1. In a method for rectifying the crude production stream obtained from the process of vapor phase nitration of hydrocarbon to produce nitroalkanes, which includes passing the vapor phase nitration stream from a nitration chamber through a condenser to condense a substantial portion of the normally-liquid components and separate said normally-liquid components from normally-gaseous components, forming absorber bottoms by passing the gaseous components into a water absorber to wash the gas, said absorber bottoms including nitroalkanes, acetaldehyde, nitrogen, nitrogen oxides and oxygenated compounds, stripping the condenser liquid and absorber bottoms by distillation to form a condensate including a water layer and an oil layer, said oil layer comprising crude nitroalkanes and low boiling components, stripping the low boiling components from the condensate in a heads column, and frac-

tionating the oil layer to produce fractions of nitroalkane components, the improvement comprising, subjecting the condenser liquid and absorber bottoms solely to extractive distillation with substantially pure water to remove sufficient impurities therefrom so that the condensate is relatively free of impurities, thereby avoiding carbonaceous build-up in the heads column and fractionator during extraction of the nitroalkanes.

4,394,221

METHOD OF DEODORIZING AND/OR DEACIDIFYING HIGH-BOILING ORGANIC COMPOUNDS, PARTICULARLY EDIBLE OILS

Hermann Stage, Hartmut Hammer, both of Köln-Niehl, and Walter Kühns, Dormagen, all of Fed. Rep. of Germany, assignors to Firma Wilhelm Schmidding GmbH & Co., Cologne, Fed. Rep. of Germany

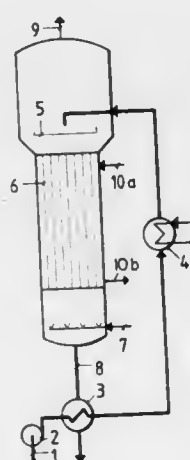
Filed Apr. 4, 1980, Ser. No. 137,535

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914101

Int. Cl.³ B01D 1/06, 1/14; C11B 3/14

U.S. Cl. 203—89

8 Claims



1. A method of removing volatile impurities from a high-boiling, heat-sensitive organic liquid, which method comprises (a) passing said high-boiling, heat-sensitive organic liquid which contains volatile impurities downwardly through a multiplicity of parallel, vertically-oriented tubular flow channels so as to divide said organic liquid into a multiplicity of free falling films, said flow channels having inside diameters of 34 to 72 mm and lengths of 6 to 16 meters, the liquid load application being controlled to a rate of between 1 and 2.5 m³/m.hour/meter of flow channel circumference, (b) concurrently passing a heated medium along a major portion of the length of said vertically-oriented tubular flow channels, and (c) concurrently passing a carrier vapor consisting of steam upwardly through said vertically oriented flow channels in counterflow to the flow of said liquid films, the steam exiting the upper ends of said flow channels with the volatile impurities and the organic liquids exiting the lower ends of said flow channels in purified form,

the initial temperatures of said organic liquid in step (a) and said heated medium in step (b) and the flow rate of steam of step (c) being controlled such that the working pressure in said flow channels is between 2 and 10 mbar and the pressure drop thereacross is less than half of the head pressure, the working temperature in the flow channels is below the decomposition point of the organic liquid, the viscosity of the free falling liquid films is less than 0.003 Pa.s, the Reynolds number of the liquid is over 100, the warm-up of the liquid in the flow channels is between 10° and 20° K., the exchange time in the flow channels is between 10 and 20 seconds and the initial temperature of the heated medium is a maximum of 5° K. above the exiting temperature of the purified organic liquid.

4,394,222

METHOD FOR DETERMINING THE OXYGEN CONTENT IN GASES, UNINFLUENCED BY TEMPERATURE VARIATIONS

Franz-Josef Rohr, Abtsteinach, Fed. Rep. of Germany, assignor to Brown, Boveri & Cie AG, Mannheim-Käfertal, Fed. Rep. of Germany

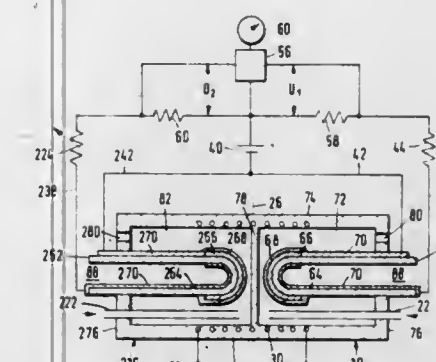
Filed Nov. 19, 1980, Ser. No. 208,432

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1979, 2946775

Int. Cl.³ G01N 27/46

U.S. Cl. 204—1 T

4 Claims



1. Method for determining the oxygen content in gases influenced by temperature variations of the gases which comprises passing said gases in contact with a first electrochemical measuring cell connected to a voltage source, said electrochemical cell having a solid electrolyte which is heated to an operating temperature, and through which a diffusion-limited electric current flows which depends on the oxygen content of the gases and the magnitude of which is determined as a first electrical signal measuring the oxygen content of the gases, the combination therewith of deriving a second electrical signal from the oxygen content of an auxiliary gas with a constant oxygen content by passing the auxiliary gas in contact with a second electrochemical measuring cell which is approximately identical to the first measuring cell with respect to design, operation and operating conditions to obtain said second electrical signal, and forming a temperature-independent quotient from the two electrical signals and employing the quotient as a measure of the oxygen content of the gases, wherein a heater is disposed in the first measuring cell to heat the electrolyte which is an oxygen ion-containing solid electrolyte, a first electrode adjacent an inside surface of the electrolyte and a second electrode adjacent the opposite outside surface, said electrodes connected to the voltage source to form an electric circuit, with one of said electrodes acted on by said gases causing an electric current which flows as a function of the oxygen content of said gases, wherein the second measuring cell also has a solid electrolyte with electrodes on the inside and outside surfaces of the electrolyte, wherein the solid electrolytes of the first and the second measuring cells consist of one piece, wherein the outer electrode for the first cell and for the second cell each is surrounded by an interspace with openings for the introduction and discharge for the feed gases and the auxiliary gas, wherein the interspace of the first cell is connected to said gases and the interspace of the second cell is connected to the auxiliary gas with a double-throw switching device to enable switching the flow of gases from the first interspace to the second interspace and the flow of auxiliary gas from the second interspace to the first interspace and the reverse, wherein the electrodes of the second cell are connected to the voltage source to form a second electric circuit, with said auxiliary gas acting on one of said electrodes causing an electric current to flow in the second circuit as a function of the oxygen content of the auxiliary gas, wherein the two electric circuits are connected to a divider for forming the quotient of said two determined electric current signals, and wherein the temperature-independent quotient is fed to a receiving device acting as an indicating, regulating or controlling device.

4,394,223

TIN AND GOLD PLATING PROCESS

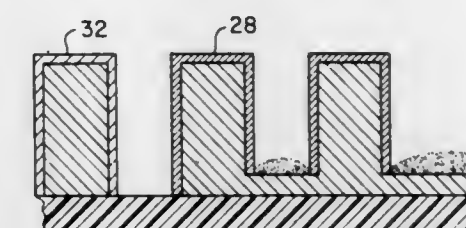
R. Dean Hall, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 6, 1981, Ser. No. 308,973

Int. Cl.³ C25D 5/02, 5/56

U.S. Cl. 204—15

5 Claims



1. A method for plating two metals onto a copper clad substrate comprising the steps of:

- defining, by utilizing photoresist material, a circuit pattern on the copper cladding which results in protected copper and unprotected copper;
- etching away the unprotected copper until only a thin layer of copper remains;
- applying resistive material on selected areas of the thin layer of copper in such a manner that first portions of the circuitry to be plated with a first metal are connected to one another via the resistive material while other portions of the circuitry not to be plated with said first metal are not connected via the resistive material to said first portion;
- etching away to completion the unprotected copper and then removing all photoresist and resistive material;
- applying resistive material to said selected areas of copper in order to protect them from plating;
- electroplating said first portions of the circuitry with said first metal;
- electroless plating said other portions of the circuit with a second metal by immersing the entire substrate in a plating bath; and
- removing all resistive material and then etching away the remainder of the thin copper layer.

4,394,224

TREATMENT OF TITANIUM PRIOR TO BONDING
Alauddin Mahoon, and Richard P. J. Kohler, both of Weybridge, England, assignors to British Aerospace Public Limited Company, London, England

Filed Apr. 21, 1981, Ser. No. 256,251

Claims priority, application United Kingdom, Apr. 24, 1980, 8013459

Int. Cl.³ C25D 11/34

U.S. Cl. 204—57

6 Claims

1. A method of treating articles of Titanium or Titanium alloy to form an adhesive receptive oxide layer upon a surface region thereof, which method includes applying to the surface to be treated a mixture of aqueous solutions of sodium hydroxide in a solution concentration of from 0.5 to 5 molar and Hydrogen Peroxide in a solution concentration of from 0.1 to 1 molar, maintaining the applied mixture within a temperature range within which the Hydrogen Peroxide is relatively stable, and impressing a voltage of from 3 to 15 V on the mixture to provide an anodic treatment thereby producing an environmentally stable adhesive bonding surface.

4,394,225

**PROCESS FOR THE ADDITION OF
IODOPERFLUOROALKANES ONTO ETHYLENIC OR
ACETYLENIC COMPOUNDS BY ELECTROCATALYSIS**
Auguste Commeyras, Clapiers, and Patrick Calas, Montpellier,
both of France, assignors to Produits Chimiques Ugine Kuhl-
mann, Courbevoie, France

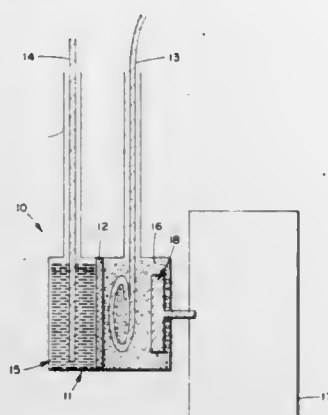
Filed Jun. 29, 1981, Ser. No. 278,609

Claims priority, application France, Jul. 8, 1980, 80 15121

Int. Cl.³ C25B 3/10

U.S. Cl. 204—59 R

6 Claims



1. A process for the addition of an iodoperfluoroalkane of the formula $\text{CF}_3(\text{CF}_2)_n\text{I}$, in which n is an integer from 1 to 19, onto an ethylenic or acetylenic alcohol or ether having the unsaturation between the second and third carbon atoms, comprising forming a mixture of said alkane and said alcohol or ether and subjecting said mixture to electrocatalysis in an electrolytic cell.

4,394,226

**ELECTROLYTIC METHOD FOR PRODUCING
QUATERNARY AMMONIUM HYDROXIDES**

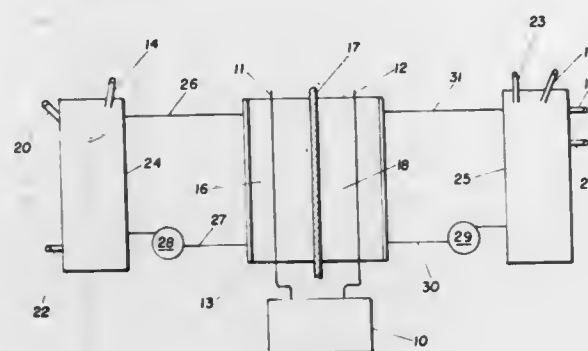
Robert C. Wade, Ipswich, and Lawrence J. Guilbault, Topsfield,
both of Mass., assignors to Thiokol Corporation, Chicago, Ill.

Filed Jul. 28, 1981, Ser. No. 287,594

Int. Cl.³ C25B 1/00, 3/00

U.S. Cl. 204—72

13 Claims



1. A process for producing quaternary ammonium hydroxide in an electrolytic cell having an anode compartment containing an anode and a cathode compartment containing a cathode, said anode and cathode compartments being separated by a cationic membrane that has been treated with a mineral acid prior to use in the process and is capable of rejection of passage of essentially all halide anions from said anode compartment to the cathode compartment and capable of permitting a passage of hydrated quaternary ammonium cations from the anode to cathode compartment, comprising: feeding a solution of a quaternary ammonium halide into said anode compartment; feeding water into said cathode compartment; establishing and maintaining a sufficient electrical potential between said anode and cathode to produce a flow of electrical current across said cell thereby causing halide ions to lose an electron at said anode, and combine to form halogen molecules, hydrated quaternary ammonium ions to migrate

through said membrane from said anode compartment into said cathode compartment and to combine with hydroxide ions to form quaternary ammonium hydroxide that is essentially free of halide, and to dissociate water at the cathode to form hydrogen and hydroxide ions; and removing a product containing greater than 25 wt. % of quaternary ammonium hydroxide from said cathode compartment.

4,394,227

**ELECTROCHEMICAL PROCESS FOR THE
PREPARATION OF BENZANTHRONES AND PLANAR,
POLYCYCLIC AROMATIC OXYGEN-CONTAINING
COMPOUNDS**

Horst Jäger, Bettingen; Eric Plattner, Seltisberg; Jacques Ber-
sier, Riehen, and Christos Comninellis, Prilly, all of Switzer-
land, assignors to Ciba-Geigy AG, Basel, Switzerland

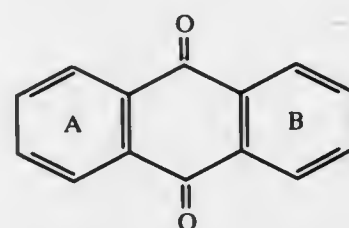
Filed Mar. 2, 1982, Ser. No. 354,109

Claims priority, application Switzerland, Mar. 5, 1981,
1475/81; May 8, 1981, 2996/81Int. Cl.³ C25B 3/04

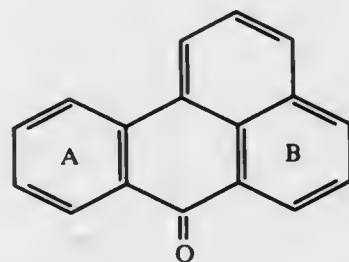
U.S. Cl. 204—73 R

22 Claims

1. An electrochemical process for the preparation of benzanthrone and planar, polycyclic aromatic oxygen-containing compounds, which comprises carrying out the reaction in an electrolytic cell which is separated by a diaphragm into a cathode compartment and an anode compartment and which contains an acid in the cathode compartment, in which process an anthraquinone of the formula



is converted electrochemically in the cathode compartment into the semiquinone form and the latter being reacted with glycerol to give the benzanthrone of the formula



in which the benzene rings A and B can be substituted, and, in the anode compartment, the cations of a transition metal salt are simultaneously converted from a lower oxidation stage into a higher oxidation stage, the cations in their higher oxidation stage being used for the chemical oxidation of planar, polycyclic aromatic compounds to give the corresponding oxygen-containing compounds, said chemical oxidation either carried out directly in the anode compartment or subsequently in a separate reactor vessel; and isolating from the catholyte and anolyte the respective products formed.

4,394,228

**RANEY ALLOY COATED CATHODE FOR
CHLOR-ALKALI CELLS**

Thomas J. Gray, Guilford, Conn., assignor to Olin Corporation,
New Haven, Conn.

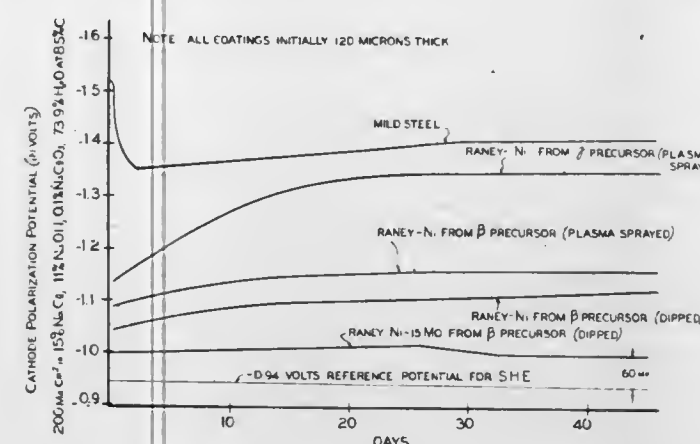
Continuation of Ser. No. 179,150, Aug. 18, 1980, Pat. No.

4,370,301. This application Dec. 23, 1981, Ser. No. 334,058

Int. Cl.³ C25B 1/34, 11/04

U.S. Cl. 204—98

16 Claims



1. In a process of producing alkali metal hydroxide comprising electrolyzing an aqueous alkali metal chloride brine in an electrolytic cell having an anode, a cathode comprising a substrate with a catalytic surface thereon, said anode being separated from cathode by a synthetic fluorocarbon resin permionic membrane, the improvement wherein

- said membrane is a member of a class consisting of cationic exchange membranes of hydrophilic phosphonated, sulfonated or carboxylated fluorocarbon telomers; and
- said cathode surface comprises a Raney nickel alloy, said Raney alloy being predominantly derived from an adherent layer of $\text{Ni}_x\text{Mo}_{1-x}\text{Al}_3$ beta structured precursory crystalline surface layer where x is between 0.80 and 0.95.

4,394,229

**CATHODE ELEMENT FOR SOLID POLYMER
ELECTROLYTE**

Malcolm Korach, Pittsburgh, Pa., assignor to PPG Industries,
Inc., Pittsburgh, Pa.

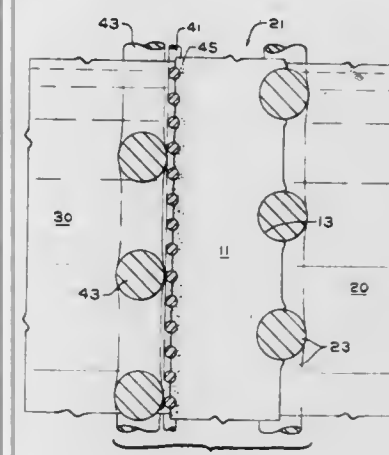
Division of Ser. No. 155,277, Jun. 2, 1980, Pat. No. 4,345,986.

This application May 3, 1982, Ser. No. 373,951

Int. Cl.³ C25B 1/34, 9/00

U.S. Cl. 204—98

1 Claim



1. In a method of electrolyzing an aqueous alkali metal chloride brine, comprising feeding the brine to the anolyte compartment of a solid polymer electrolyte electrolytic cell having an electrolyte impermeable permionic membrane with an anodic portion and a cathodic portion, anodic means in contact with the anodic portion, and cathodic means in contact with and removably and compressively bearing upon the cathodic portion, the improvement wherein the cathode means

removably bearing upon the permionic membrane comprise a microporous ductile member consisting essentially of sintered metallic materials, having a thickness of from about 0.1 millimeter to 1 millimeter, and conforming to the permionic membrane.

4,394,230

**METHOD AND APPARATUS FOR SPLITTING WATER
MOLECULES**

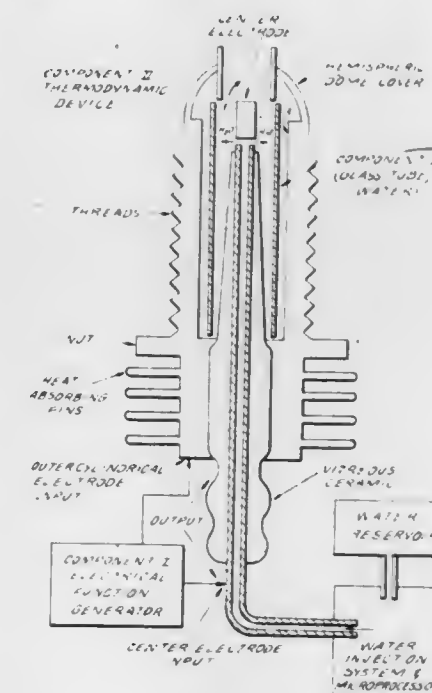
Henry K. Puharich, Rte. 1, Box 97, Delaplane, Va. 22025

Filed Jun. 10, 1981, Ser. No. 272,277

Int. Cl.³ C25B 1/04, 1/10, 9/04

U.S. Cl. 204—129

9 Claims



1. A method for splitting water molecules into hydrogen and oxygen comprising

- generating complex electrical wave forms matching the complex wave form resonant frequencies of tetrahedral water molecules;
- applying said generated wave forms in resonance to said water molecules to shatter said molecules, thereby liberating hydrogen and oxygen.

4,394,231

**CATHODE FOR THE ELECTROLYTIC PRODUCTION
OF HYDROGEN**

Edgard Nicolas, Meise-Eversem, Belgium, assignor to Solvay &
Cie, Brussels, Belgium

Continuation of Ser. No. 163,086, Jun. 26, 1980. This application

Aug. 28, 1981, Ser. No. 297,311

Claims priority, application France, Jun. 29, 1979, 79 17441

Int. Cl.³ C25B 1/02, 11/06

U.S. Cl. 204—129

10 Claims

1. In a process for the production of hydrogen in an electrolytic cell, wherein hydrogen is electrolytically produced on the active zone of a cathode, the improvement consisting in that the cathode active zone essentially consists of a metal oxide produced by the thermal decomposition of a thermally decomposable compound of a metal selected from the group consisting of cobalt, iron, manganese and nickel, said metal oxide being produced in situ on a support made of an electrically conducting material selected from the group consisting of cobalt, chromium, iron, manganese, nickel and alloys of these metals.

4,394,232

PICKLING OF ALUMINUM

Robertus Exalto, Amsterdam, and Adriaan Kwakernaak, Aalsmeer, both of Netherlands, assignors to Fokker B.V., Schiphol-Oost, Netherlands

Filed Feb. 11, 1982, Ser. No. 347,973

Claims priority, application Netherlands, Feb. 12, 1981, 8100686

Int. Cl.³ C25F 1/04

U.S. Cl. 204—144

7 Claims

1. A pickling process for aluminum articles, comprising the steps of:

- providing a pickling bath consisting essentially of a suspension of carbon particles in sulfuric acid,
- immersing an aluminum article to be pickled into said bath, and
- maintaining said article in said bath for a period of time sufficient to effect complete pickling of said article.

4,394,233

PROCESS FOR PREPARING ETHYL α -CHLOROETHYL CARBONATE

Sang-Woo Park, Seoul, Rep. of Korea, assignor to The Korea Advanced Institute of Science and Technology, Seoul, Rep. of Korea

Filed Jul. 28, 1981, Ser. No. 287,641

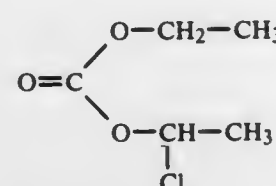
Claims priority, application Rep. of Korea, Dec. 23, 1980, 4891/80

Int. Cl.³ B01J 19/12

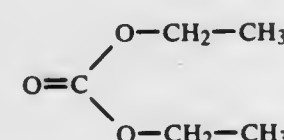
U.S. Cl. 204—158 HA

5 Claims

1. A process for preparing ethyl α -chloroethyl carbonate having the formula:



which comprises chlorinating diethylcarbonate having the formula:



with chlorine gas in the presence of ultraviolet radiation.

4,394,234

METHOD OF PROCESSING ELECTRICALLY CONDUCTIVE MATERIAL BY GLOW DISCHARGE

Naotatsu Asahi, Katsuta; Sizuka Yamaguchi, Hitachi, and Katsuyoshi Terakado, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

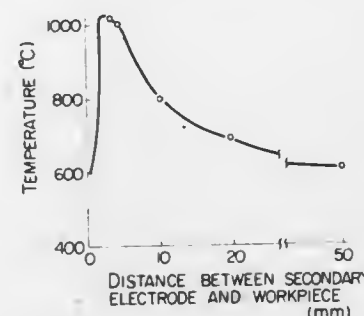
Filed Aug. 4, 1980, Ser. No. 174,748

Claims priority, application Japan, Feb. 2, 1979, 54-10472; Sep. 14, 1979, 54-117298; Jan. 23, 1980, 55-5790

Int. Cl.³ C01B 21/30; C21D 1/48

U.S. Cl. 204—164

20 Claims



1. A surface treatment process wherein glow discharge is established between a cathode and an anode of a power source to carry out heat treatment of a workpiece under a reduced pressure condition in a container, comprising the steps of placing the workpiece which has a conductive surface and which is electrically connected to the cathode in said container, positioning a secondary electrode which has a conductive surface and which is electrically connected to the cathode close to a selected treatment portion of said workpiece, and effecting a glow discharge between the conductive surfaces of said workpiece and the secondary electrode and said anode; the distance between the workpiece and the secondary electrode being set to be 2 to 25 mm to increase the surface temperature of the selected treatment portion of said workpiece and to increase the heat treatment effect on said selected treatment portion of said workpiece and the pressure of the treatment atmosphere being varied in the range 0.1 to 10 Torr to control the treatment temperature.

4,394,235

HEAT-SEALABLE POLYPROPYLENE BLENDS AND METHODS FOR THEIR PREPARATION

John G. Brandt, Clemmons; Joyce H. Dickerson, and William R. Schmitt, both of Winston-Salem, all of N.C., assignors to RJ Archer Inc., Winston-Salem, N.C.

Filed Jul. 14, 1980, Ser. No. 168,905

Int. Cl.³ C08L 23/12; B29D 7/24; C08J 7/18; C08F 212/08

U.S. Cl. 204—165

31 Claims

1. A heat-sealable film consisting essentially of a corona discharge treated, biaxially oriented film comprising a blend of stereoregular polypropylene containing about 5% to about 25% by weight based on the total composition of a terpene-styrene or substituted styrene copolymer consisting of about 85% to about 25% terpene and about 15% to about 75% styrenic monomer.

4,394,236

MAGNETRON CATHODE SPUTTERING APPARATUS

Merrill G. Robinson, Ann Arbor, Mich., assignor to Shatterproof Glass Corporation, Detroit, Mich.

Filed Feb. 16, 1982, Ser. No. 348,804

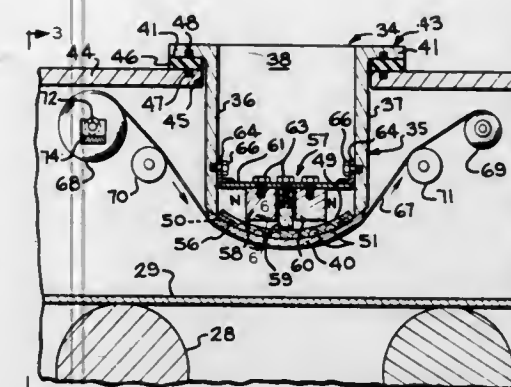
Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 R

8 Claims

8. A method of sputtering thin films of a selected coating material upon substantially planar substrates in which there is provided a fixed elongated cathode member having a convex surface, establishing in back of said surface a magnetic field providing an erosion pattern on a target consisting of a contin-

uous foil of the material to be sputtered, drawing said continuous foil across and in contact with said convex surface, and



passing beneath said foil target the substrates to receive the coating material sputtered from said foil.

4,394,237

SPECTROSCOPIC MONITORING OF GAS-SOLID PROCESSES

Vincent M. Donnelly, Berkeley Heights; Daniel L. Flamm, Chatham Township, Morris County, and Robert F. Karlicek, Jr., Kenilworth, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 17, 1981, Ser. No. 284,468

Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 E

14 Claims

1. A process for fabricating devices comprising the steps of introducing a gas into proximity to a material surface, inducing a change in said material surface, spectroscopically monitoring said gas and controlling said process in accordance with said spectroscopic monitoring characterized in that the quantitative concentration of a plurality of species in said gas is monitored by inducing fluorescence from said plurality of species with a light source external to said gas wherein at least one of said species fluoresces through a spectroscopic fragmentation process or multiple photon process, and wherein based on the quantitative measurement of said fluorescence the conditions of said fabrication process are adjusted to yield a desired result.

4,394,238

METHOD OF MAKING A MEASURING ELECTRODE ASSEMBLY AND ELECTRODE MADE THEREBY

Jerzy Golimowski, Warsaw, Poland; Laszlo Sipos, V. Gorica, Yugoslavia, and Paul Valenta, Aachen, Fed. Rep. of Germany, assignors to Kernforschungsanlage Julich GmbH, Julich, Fed. Rep. of Germany

Division of Ser. No. 136,932, Apr. 3, 1980, Pat. No. 4,302,314.

This application Mar. 25, 1981, Ser. No. 247,325

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914193

Int. Cl.³ G01N 27/30; H01R 43/00

U.S. Cl. 204—400

6 Claims



1. A method of making a measuring electrode assembly which comprises the steps:

of bonding a disk of electrode material to one end of an

elongated conductive element with an electrically conductive adhesive;

immersing said element and said disk bonded thereto into a hardenable synthetic resin to harden into a clump therearound; and

machining said clump to turn the same into a cylindrical sheath surrounding said element and said disk and exposing a face of said disk by machining said clump flush with said face.

4,394,239

ELECTRO-CHEMICAL SENSOR FOR THE DETECTION OF REDUCING GASES, IN PARTICULAR CARBON MONOXIDE, HYDRAZINE AND HYDROGEN IN AIR

Dieter Kitzelmann, Bonn, and Jacques Deprez, Frechen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

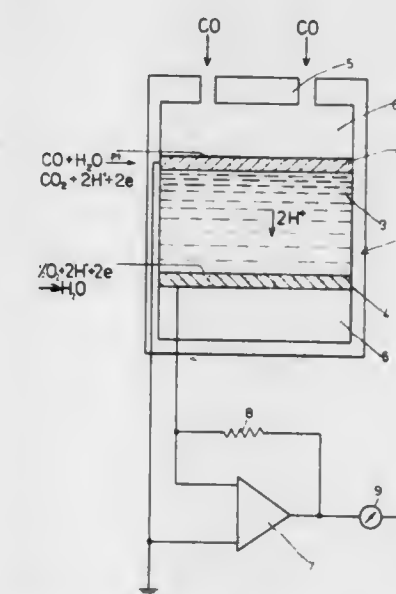
Filed Aug. 24, 1981, Ser. No. 295,277

Claims priority, application Fed. Rep. of Germany, Sep. 9, 1980, 3033796

Int. Cl.³ G01N 27/54

U.S. Cl. 204—414

4 Claims



1. In an electro-chemical sensor for the measurement of carbon monoxide, hydrogen or hydrazine in ambient air, comprising a catalyst containing measuring electrode exposed to ambient air and communicating through an aqueous acid electrolyte with a non-polarizable counter electrode, the improvement comprising:

- a body of an aqueous hygroscopic polymer gel in which ionogenic substances are dissolved, the gel body having sticky surfaces,
- the measuring electrode comprising a porous sheet-like matrix, coated with catalyst particles,
- the matrix being firmly anchored at the surface of the polymer gel in a self-supporting manner and the catalyst particles being embedded with part of their surfaces in the gel and with the remaining surface portions protruding from the gel.

4,394,240

COMBINED SULFUR OXIDE/OXYGEN MEASURING APPARATUS

Alfred R. Pebler, Penn Hills, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 16, 1982, Ser. No. 358,769

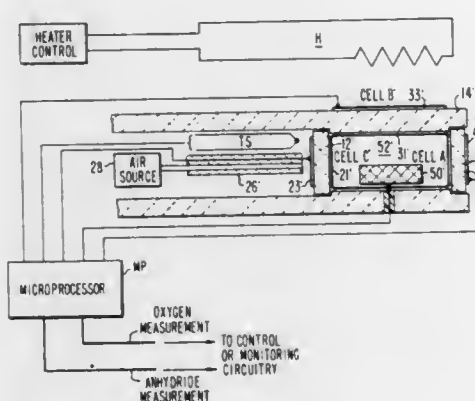
Int. Cl.³ G01N 27/58

U.S. Cl. 204—412

4 Claims

1. A multi-sensor gas measuring apparatus for generating signals indicative of the partial pressure of oxygen and the partial pressure of a selected anhydride, i.e., SO_x, NO_x, etc. of a monitored gas environment comprising,

first and second solid electrolyte electrochemical cells each cell including an oxygen ion conductive solid electrolyte element having a sensing electrode and a reference electrode disposed on opposite surfaces thereof, a third solid electrolyte electrochemical cell including a solid electrolyte element containing oxy-anions of the selected anhydride having a sensing electrode and a reference electrode disposed on opposite surfaces thereof, said first, second and third solid electrolyte electrochemical cells being combined to form an enclosure having a cavity therein, a reference composition of said selected anhydride and oxygen being located within said cavity, said reference electrodes of said first, second and third solid electrolyte electrochemical cells being exposed to said reference composition, said sensing electrode of said first solid electrolyte electrochemical cell being exposed to a gas environment of



known oxygen partial pressure, said first cell generating a signal indicative of the oxygen partial pressure of the reference composition, said sensing electrodes of said second and third cells being exposed to said monitored gas environment, said second cell generating a signal indicative of the difference in oxygen partial pressure between the monitored gas environment and the reference composition, said third cell generating a signal indicative of the difference between the partial pressure of the combination of oxygen and the selected anhydride in the monitored gas environment and the partial pressure of the combination of oxygen and the selected anhydride in the reference composition, and circuit means connected to said first, second and third cells and responding to the signals generated by providing an indication of both the partial pressure of oxygen and the partial pressure of the selected anhydride within said monitored gas environment.

4,394,241

HIGH SPEED PLATING OF FLAT PLANAR WORKPIECES

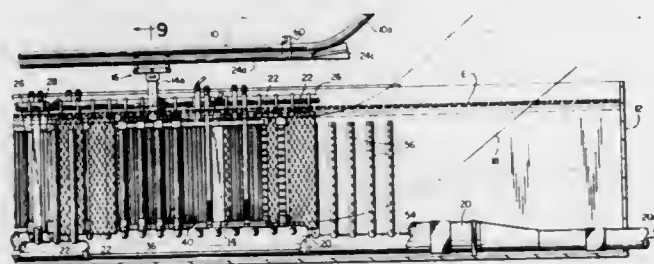
George R. Scanlon, Pine Meadow, Conn., assignor to Napco, Inc., Terryville, Conn.

Filed Jun. 25, 1981, Ser. No. 277,191

Int. Cl.³ C25D 17/06, 17/28

U.S. Cl. 204—198

26 Claims



1. Apparatus for electroplating generally flat planar workpieces which may have small openings onto one or both workpiece surfaces, said apparatus comprising:

- racks supporting each workpiece in a generally vertical plane,
- transport means for moving each rack along a path, a portion of which path is in the plane of the workpiece so supported in its rack,
- means defining a receptacle adapted to contain an electrolytic solution through which solution said racks move along said portion of said path,
- pressure manifold means at the bottom of said receptacle, and comprising a conduit on the longitudinal centerline of said receptacle,
- means for providing electrolyte to said manifold means under pressure,
- a plurality of nozzle defining towers arranged in at least two longitudinally extending rows, said towers projecting upwardly from said manifold means and nozzles directed toward the portion of said path of said workpieces in said receptacle to spray solution on both workpiece surfaces as they move between said towers, comprising upstanding pipes the lower ends of which pipe communicate directly with said conduit to define a space between said pipes for receiving said racks, and rack guiding rails mounted to said pipes for receiving at least the lower edge of said rack therebetween to guide the rack during movement along said portion of said path between said nozzle defining towers or pipes,
- a primary electrical power supply,
- means for connecting said racks to one terminal of said electrical power source,
- means for supporting metal to be plated in said receptacle, said metal support means connected to the other terminal of said electrical power source, and
- said means for providing electrolyte to said pressure manifold means including pumping means and return manifold means in said receptacle for recirculating the solution and to provide the desired pressure and flow rate of the solution at said nozzles in said towers.

4,394,242

CLAMP, TOOL, AND ELECTROLYSIS CELL ANODE MOUNT

John F. Clark, Pittsburgh, Pa., assignor to Adnovum AG, Horn, Switzerland

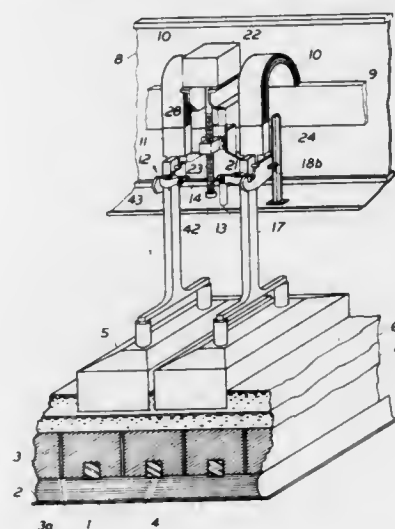
Division of Ser. No. 115,621, Jan. 28, 1980, Pat. No. 4,269,673.

This application Oct. 20, 1980, Ser. No. 198,800

Int. Cl.³ C25C 3/10; C25D 17/04; B25B 13/58, 5/04

U.S. Cl. 204—243 R

6 Claims



1. In a clamp including means for providing a backing against which articles to be clamped can be placed, gate means mounted for pivoting about an axis into and out of confrontation with said backing means, said axis passing through said gate means, gate engaging means for preventing further pivoting of the gate means when the gate means is in confrontation with the backing means, and means for forcing the gate means

toward the backing means at least when the gate means is in confrontation with said backing means, at least the portion of the gate means at said axis moving toward the backing means during operation of the forcing means in forcing the gate means toward the backing means, the means for forcing including a bolt secured at one end in the backing means and extending along said axis, with the gate means pivoting on the bolt, and a nut on the bolt end opposite to the end secured at the backing means, any engagement of the nut with the gate means being insufficient to pivot the gate means into and out of confrontation with said backing means, wherein the improvement comprises the fact that the direction of pivoting of the gate means away from the gate engaging means out of confrontation with said backing means is the same as the rotational direction of loosening of said nut and the direction of pivoting of the gate means toward the gate engaging means into confrontation with said backing means is the same as the rotational direction of tightening of said nut.

4. In an electrolysis cell having a superstructure (8), a clamp as claimed in claim 1, the clamp being adjustably mounted on the super structure for clamping as an article to be clamped, an anode bar (17).

4,394,243

ELECTRODE FOR AN ELECTROCHEMICAL METAL MACHINE PROCESS

Gerhard Hoffmann, Berglen-Steinach, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

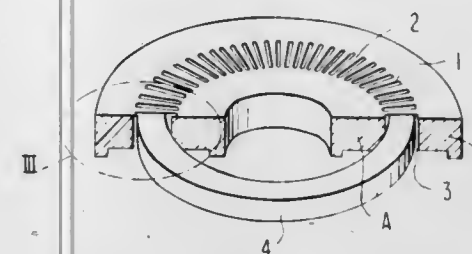
Filed Sep. 19, 1980, Ser. No. 188,742

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1979, 2938402

Int. Cl.³ C25B 11/03; B23P 1/02; C25F 7/00

U.S. Cl. 204—284

9 Claims



1. An electrode for an electrochemical metal-removing process for a workpiece having an edge, characterized in that the electrode is formed of a metal sheet which extends at right angles to a direction of sinking of the electrode in the metal removing process, the metal sheet is provided with perforations adapted to extend laterally beyond a line defined by said edge to be processed so as to enable the production of end-faced contours,

means disposed against the metal sheet on the side thereof leading in the direction of sinking for insulating a surface coextensive with said perforations to prevent electrochemical metal removal therefrom.

4,394,244

DIAPHRAGMS FOR ALKALINE WATER ELECTROLYSIS AND METHOD FOR PRODUCTION OF THE SAME AS WELL AS UTILIZATION THEREOF

Jiri Divisek, and Jürgen Mergel, both of Jülich, Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Filed Jul. 7, 1980, Ser. No. 166,448

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1979, 2927566

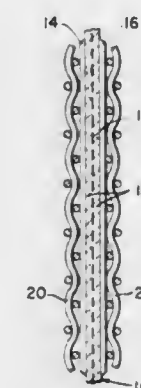
Int. Cl.³ C25B 13/04

U.S. Cl. 204—295

12 Claims

1. A diaphragm for alkaline water electrolysis and made of a porous sinter material, comprising a porous sinter metal oxi-

dized at least partially to metal oxide of partial oxidation in structure thereof, the partial oxidation penetrating the whole



4,394,245

SPUTTERING APPARATUS

Yoshio Homma; Sukeyoshi Tsunekawa, both of Hachioji; Hiroshi Morisaki, Yokohama, and Seiki Harada, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 8, 1982, Ser. No. 346,959

Claims priority, application Japan, Feb. 18, 1981, 56-21550

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

11 Claims

1. A sputtering apparatus comprising at least one cathode and at least one substrate electrode facing the cathode and having an electrode surface plate, the improvement wherein the electrode surface plate of said at least one substrate electrode facing said cathode has at least a portion thereof that is made of a soft magnetic material having an initial permeability of at least 100.

4,394,246

ELECTROPHORESIS APPARATUS WITH FLOW CONTROL

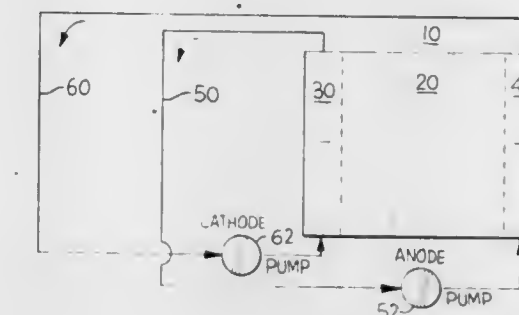
David W. Richman, Chesterfield, and Charles D. Walker, Ballwin, both of Mo., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed May 24, 1982, Ser. No. 381,049

Int. Cl.³ G01N 27/26, 27/40

U.S. Cl. 204—301

7 Claims



1. In an apparatus for conducting a continuous free flow electrophoresis separation procedure, the apparatus comprising:

a rectilinear buffer filled separation chamber defined by two elongate spaced apart parallel plates forming a front and back to the chamber, two sides, an end comprising a collection manifold having a plurality of spaced apart collection tubes, an end comprising a buffer solution inlet manifold assembly;

two buffer filled electrode chambers, each disposed adjacent to one of the sides of the separation chamber in electrical communication therewith; and

at least one sample inlet port located at or near the inlet of the chamber;
the improvement comprising means for controlling buffer flow across the separation chamber in a direction substantially parallel to an electrical field created between the electrode chambers, the means comprising first and second buffer flow paths, the first flow path connecting the outlet of the first electrode chamber with the inlet of the second electrode chamber, and the second flow path connecting the outlet of the second electrode chamber with the inlet of the first electrode chamber, the buffer solution in each flow path being driven by separate pump means.

4,394,247

LIQUEFACTION OF COALS USING RECYCLABLE SUPERACID CATALYST

George A. Olah, 2252 Gloaming Way, Beverly Hills, Calif. 90210

Filed Aug. 5, 1981, Ser. No. 290,260

Int. Cl.³ C10G 1/06

U.S. Cl. 208—10

5 Claims

1. A process for the liquefaction of coals or other predominantly hydrocarbonaceous materials by treatment thereof with hydrogen gas under superatmospheric pressure of 25–150 atmospheres at temperatures of 50°–250° C. in the presence of a superacidic system comprising anhydrous hydrogen fluoride and boron trifluoride, present in a mole ratio of about 0.5 to 2 to 1.

4,394,248

COAL LIQUEFACTION PROCESS

John G. Gatsis, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Sep. 18, 1981, Ser. No. 303,665

Int. Cl.³ C10G 1/06

U.S. Cl. 208—10

21 Claims

1. A process for producing hydrogen-enriched hydrocarbonaceous products from coal which comprises:

- (a) contacting said coal in a solvent extraction zone at solvent extraction conditions with a solvent, hydrogen and a residual oil containing asphaltenes and at least one finely divided, unsupported metal sulfide; and
- (b) recovering hydrogen-enriched hydrocarbonaceous products.

4,394,249

CATALYTIC DEWAXING PROCESS

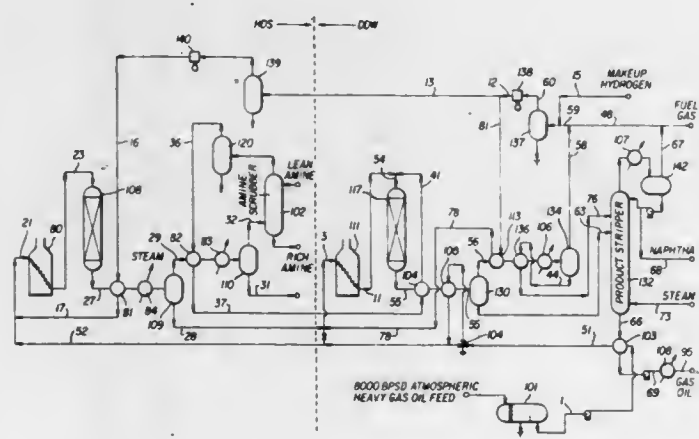
Roderick C. Shen, Belle Mead, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 3, 1981, Ser. No. 289,026

Int. Cl.³ C10G 47/16

U.S. Cl. 208—89

27 Claims



1. A process for dewaxing at least one petroleum feedstock comprising:

hydrodesulfurizing the feedstock, thereby obtaining a substantially sulfur-free hydrocarbon material;
separating the hydrocarbon material into a gaseous fraction and a liquid fraction;
conducting the liquid fraction directly into a heater of a catalytic dewaxing unit and subsequently into the catalytic dewaxing unit, wherein it is contacted with a highly siliceous zeolite ZSM-5 type porous crystalline material, and conducting an effluent from the catalytic dewaxing unit to a first heat exchanging means;
conducting the gaseous fraction into the first heat exchanging means, wherein the gaseous fraction is preheated by the catalytic dewaxing unit effluent; and
conducting the thus-obtained preheated gaseous fraction into the catalytic dewaxing unit.

15. In a catalytic process for dewaxing at least on petroleum feedstock comprising contacting the petroleum feedstock with a highly siliceous ZSM-5 type zeolite porous crystalline material at a temperature of about 550° F. to about 1100° F. and at a pressure of about 15 psig to about 3000 psig, the improvement which comprises desulfurizing the petroleum feedstock prior to the introduction thereof into the catalytic dewaxing process so that the hydrocarbon effluent of the desulfurization step contains less than about 3% by weight of sulfur;

separating the hydrocarbon effluent into a gaseous fraction and a liquid fraction;
conducting the liquid fraction directly into a heater of a catalytic dewaxing unit and subsequently into the catalytic dewaxing unit, wherein it is contacted with a highly siliceous zeolite ZSM-5 type porous crystalline material, and conducting an effluent from the catalytic dewaxing unit to a heat exchanging means;
conducting the gaseous fraction into the first heat exchanging means, wherein the gaseous fraction is preheated by the catalytic dewaxing unit effluent; and
conducting the thus-obtained preheated gaseous fraction into the catalytic dewaxing unit.

4,394,250

DELAYED COKING PROCESS

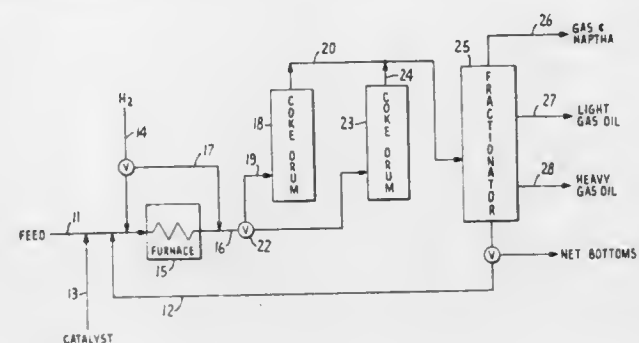
Arnold L. Grossberg, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jan. 21, 1982, Ser. No. 341,338

Int. Cl.³ C10G 47/26

U.S. Cl. 208—108

4 Claims



1. In a delayed coking process comprising heating a hydrocarbon feedstock to cracking temperatures and thereafter introducing the heated feedstock into a coking drum under delayed coking conditions wherein the heated feedstock soaks in the drum in its contained heat which is sufficient to convert the feedstock to cracked vapors and coke, the improvement comprising adding a cracking catalyst in an amount in the range of about 0.1 to about 3% by weight based on the hydrocarbon feedstock and hydrogen in an amount in the range of about 50 to about 500 SCF per barrel of the hydrocarbon feedstock to the feedstock thereby causing an increase in the distillate yield from the process.

4,394,251

HYDROCARBON CONVERSION WITH CRYSTALLINE SILICATE PARTICLE HAVING AN ALUMINUM-CONTAINING OUTER SHELL

Stephen J. Miller, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Apr. 28, 1981, Ser. No. 258,496

Int. Cl.³ C10G 47/16, 11/05, 35/095

U.S. Cl. 208—111

15 Claims

1. A hydrocarbon conversion process, comprising contacting, under hydrocarbon conversion conditions, a hydrocarbonaceous feedstock with a particle, comprising an inner portion and an outer portion disposed as a shell around said inner portion wherein said outer portion has the same crystal structure as said inner portion, said inner portion comprising an intermediate pore size crystalline silicate having a silica:alumina mole ratio greater than about 200:1, and said outer portion having a silica:alumina mole ratio of less than about 100:1 and wherein said particle is prepared by a process comprising:

- (1) initiating crystallization in a crystallization medium substantially free of aluminum to produce the intermediate pore size crystalline silicate;
- (2) adding a source of aluminum to said crystallization medium; and
- (3) crystallizing onto said crystalline silicate the isostructural outer portion which comprises alumina.

4,394,252

METHOD OF REFORMING GASOLINE TO RAISE THE OCTANE THEREOF UTILIZING LOW VALENCE TI, V OR CR COMPOSITED WITH NON-OXIDIZING HIGH SURFACE AREA SUPPORT

William K. T. Gleim, 1250 NW 120th St., Seattle, Wash. 98125

Filed Dec. 29, 1981, Ser. No. 335,447

Int. Cl.³ C10G 35/04, 35/06

U.S. Cl. 208—134

6 Claims

1. In a method of reforming a gasoline feed in the presence of a reforming catalyst to raise the octane number thereof, the improvement which comprises utilizing a reforming catalyst comprising:

- (a) a catalytic component selected from the group consisting of titanium, vanadium and mixtures thereof, said catalytic component being present in divalent form or in an admixture of the divalent form and the metal, the ratio of the catalytic component in divalent form to the catalytic component present as the metal being at least 1:1; and
- (b) a high surface area support for said catalytic component which will not oxidize said catalytic component at reforming conditions to a valence state higher than the divalent valence state.

4,394,253

HYDROCARBONS HYDROPROCESSING WITH IMOGOLITE CATALYST

Robert A. Van Nordstrand, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Sep. 26, 1979, Ser. No. 78,867

Int. Cl.³ C10G 45/08

U.S. Cl. 208—251 H

14 Claims

1. A process for hydrogen treating a hydrocarbon feed which comprises contacting said feed, at hydrogen treating conditions, with a catalyst comprising shaped catalytic bodies including (1) dispersed rods of fibrous form imogolite and (2) at least one inorganic oxide gel, said gel bonding said rods together in substantially random mutual orientation in said catalytic bodies, at least 40% of the total pore volume in said catalytic bodies being provided by pores with diameters between about 200 Angstrom units and 1,000 Angstrom units.

4,394,254

METHOD FOR SEPARATING STRAIGHT CHAIN HYDROCARBONS USING ZEOLITES HAVING LARGE CRYSTALS

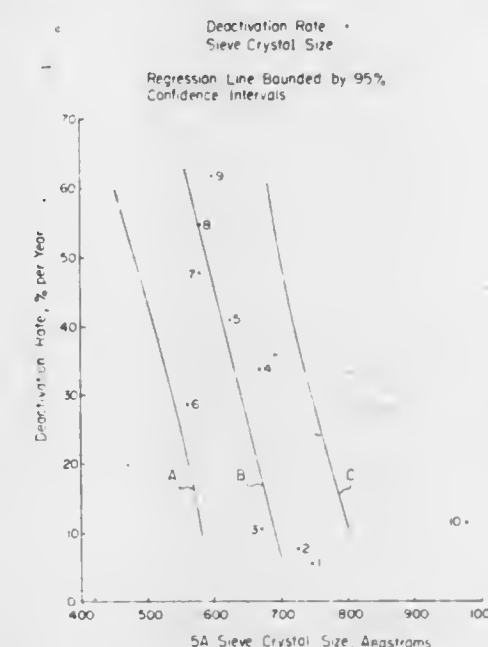
Paul H. Lewis, Groves, and Gerald V. Nelson, Nederland, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Apr. 26, 1982, Ser. No. 371,840

Int. Cl.³ C10G 25/03

U.S. Cl. 208—310 Z

23 Claims



1. A method for separating straight chain hydrocarbons from a hydrocarbon fraction having straight chain hydrocarbons, nonstraight chain hydrocarbons and a sulfur compound comprising the steps of contacting said hydrocarbon fraction having more than about 800 parts per million by weight of total sulfur including more than about 15 parts per million mercaptan with a 5A zeolite which selectively absorbs said straight chain hydrocarbons to the substantial exclusion of said nonstraight chain hydrocarbons, said zeolite having crystals of an average size larger than about 700 angstroms, said crystal size being measured along one edge of the zeolite crystal; and then desorbing said straight chain hydrocarbons from said zeolite.

4,394,255

ISOMERIZATION PROCESS

Semyon Kukes, Gerhard P. Nowack, and Marvin M. Johnson, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 7, 1982, Ser. No. 395,940

Int. Cl.³ C07B 5/23

U.S. Cl. 585—667

6 Claims

1. A process for the isomerization of an aliphatic mono-olefin hydrocarbon feed to shift the internal double bond therein to produce a corresponding terminal olefin which comprises subjecting said mono-olefin hydrocarbon under isomerization conditions to the action of a catalyst comprising zirconium phosphate and zirconium phosphonate wherein the catalyst used is prepared from an aryl phosphonic acid and a compound of zirconium.

4,394,256

APPARATUS FOR SEPARATING ABRASIVE BLASTING MEDIA FROM DEBRIS

James R. Goff, Rte. 1, Box 247AB, Seminole, Okla. 74868

Continuation-in-part of Ser. No. 232,465, Feb. 9, 1981, Pat. No. 4,364,823. This application Dec. 11, 1981, Ser. No. 330,042

The portion of the term of this patent subsequent to Dec. 21, 1999, has been disclaimed.

Int. Cl.³ B07B 7/04

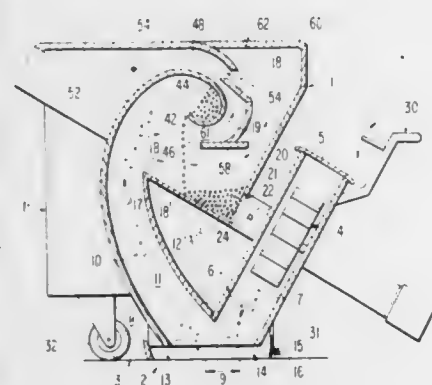
U.S. Cl. 209—135

31 Claims

1. An apparatus for separating debris from spent abrasive in

an abrasive blasting apparatus in which the debris and spent abrasive are recirculated from a blast zone at high speed along a recirculation chamber comprising

means for receiving said debris and spent abrasive from said recirculation chamber and allowing a quantity of said debris and spent abrasive to collect thereby forming a pile of said debris and spent abrasive with a face of said pile exposed to incoming debris and spent abrasive from said recirculation chamber; wherein said pile has an angle of repose whereby additional incoming debris and spent abrasive fall down said face to form a substantially unobstructed, vertical, uniform curtain of falling debris and spent abrasive;



means for providing a stream of fluid through said recirculation chamber;

means having a first opening below said receiving means for drawing off a first portion of said stream of fluid from said recirculation chamber;

wherein said drawing means has a second opening for the passage therethrough of a second portion of said stream of fluid not passing through said first opening; and

whereby said falling curtain of debris and spent abrasive is washed by said stream of fluid as it passes from said recirculation chamber to said drawing means to entrain debris from said falling curtain in said stream of fluid.

4,394,257

FROTH FLOTATION PROCESS

Samuel S. Wang, Cheshire, and Michael J. Scanlon, Stratford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

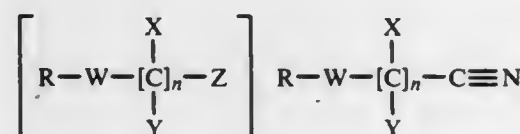
Continuation of Ser. No. 95,839, Nov. 19, 1979, abandoned. This application Jun. 21, 1982, Ser. No. 390,574

Int. Cl.³ B03D 1/14

U.S. Cl. 209—166

14 Claims

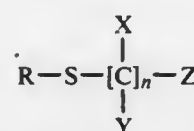
1. A process for collecting mineral values from a sulfide ore wherein said process comprises mixing ground ore with water to form an aqueous ore pulp, adding to said aqueous ore pulp an effective amount of a frother, aerating said aqueous ore pulp and thereafter recovering said mineral values, wherein the frother is of the general structure:



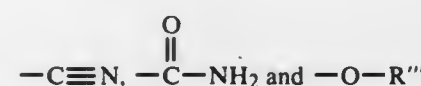
wherein R is taken from the group consisting of a saturated aliphatic radical of 1 to 12 carbon atoms, inclusive, a phenyl and an alkylaryl wherein the alkyl group consists of a saturated aliphatic radical of 1 to 6 carbon atoms, inclusive, W is taken from the group consisting of oxygen, imino and alkyl substituted imino wherein the alkyl radical consists of a saturated aliphatic radical of 1 to 12 carbon atoms, inclusive, n is an integer of 1 to 4, inclusive, and X and Y are individually either

hydrogen or a saturated aliphatic radical of 1 to 8 carbon atoms, inclusive.

8. A process for collecting mineral values from an ore wherein said process comprises mixing ground ore with water to form an aqueous ore pulp, adding to said aqueous ore pulp an effective amount of a frother, aerating said aqueous ore pulp and thereafter recovering said mineral values, wherein the frother is of the general structure:



wherein R is taken from the group consisting of a saturated aliphatic radical of 1 to 12 carbon atoms, inclusive, a phenyl and an alkylaryl wherein the alkyl group consists of a saturated aliphatic radical of 1 to 6 carbon atoms, inclusive; n is an integer of 1 to 4, inclusive, X and Y are individually either hydrogen or a saturated aliphatic radical of 1 to 8 carbon atoms, inclusive; and Z is taken from the group consisting of



wherein R'' and R''' are aliphatic radicals having 1 to 8 carbon atoms, inclusive.

4,394,258

FROTH FLOTATION APPARATUS WITH WATER RECOVERY AND METHOD

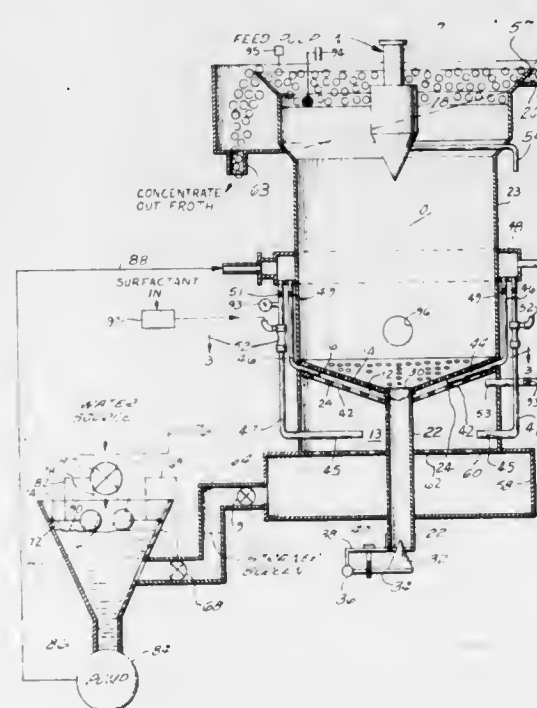
Donald E. Zipperian, Tucson, Ariz., assignor to The Diester Concentrator Co., Inc., Fort Wayne, Ind.

Filed Jun. 25, 1981, Ser. No. 276,809

Int. Cl.³ B03D 1/24

U.S. Cl. 209—170

31 Claims



1. Apparatus for separation of minerals from an aqueous pulp containing a mixture of mineral and gangue particles by froth flotation comprising:

an upstanding flotation compartment adapted to contain a relatively quiescent body of aqueous pulp, feed means for introducing aqueous pulp into said flotation compartment,

froth-collecting means disposed adjacent to the upper end of said flotation compartment for collecting a float fraction of said aqueous pulp, aeration means for applying aerated water to said flotation compartment near the bottom

whereby bubbles of air are introduced throughout substantially the entire cross-section of said flotation compartment,

said aeration means including a constriction plate substantially spanning said flotation compartment, said constriction plate having a plurality of bubble-receiving apertures spaced throughout the area thereof,

tailing-discharge means for discharging an aqueous non-float fraction of unfloat particles of said aqueous pulp from said flotation compartment, water-collecting means below said constriction plate for receiving water from said aeration means, means for inhibiting passage of said non-float fraction from said flotation compartment to said water-collecting means, and pump means for pumping water from said water-collection means back to said aeration means, whereby the water that is collected is recirculated and aerated for application to said flotation compartment.

4,394,259

VACUUM PNEUMATIC CONVEYING APPARATUS AND METHOD FOR TRANSFERRING FOOD PRODUCTS

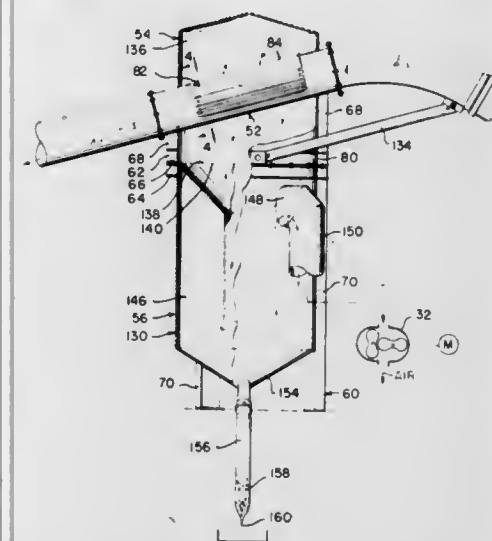
John R. Benny, Seattle; Robert W. Buher, Kent, and Paul K. Smith, Kirkland, all of Wash., assignors to TEMCO, Inc., Bellevue, Wash.

Filed Oct. 27, 1981, Ser. No. 315,368

Int. Cl.³ B03B 7/00; A22C 25/08

U.S. Cl. 209—250

20 Claims



1. A vacuum pneumatic conveying apparatus utilized to convey food products, such as to convey fish from a fishing boat to a fish tender or to a processing factory keeping the fish from being injured via avoiding damaging contact with any of this apparatus, comprising:

(a) a frame assembly of a horizontal base, a vertical support high rise support on this base, and a separator support on this vertical support;

(b) a combined assembly of an in line upper primary product separator, and a lower secondary liquid separator mounted on the frame assembly via the separator support and the vertical high rise support at a substantial elevation above the horizontal base, with this upper primary product separator to separate the fish from the air, essentially being a chamber with an open bottom having inside a downwardly directed internal conduit which extends from its top outside entry downwardly and outwardly to its lower outside exit and this internal conduit has an upwardly and sideways facing longitudinally gridded air exit to allow the air to escape into this chamber of the upper primary product separator, and with the secondary liquid separator to separate liquid from air, essentially being a chamber with an open top to match the open bottom of the chamber of the upper primary product separator, having: a funnel like central interior passage; a higher circumferentially located air exit for air enroute to a blower; and a lower centered gurry and liquid exit;

(c) a rotary positive displacement blower mounted on the

horizontal base of the frame assembly, and having a conduit connected from its inlet blow, to the higher circumferentially located air exit above of the secondary liquid separator, and having its exit directing the exhaust air to a silencer, and having a silencer to direct the exhaust air into the atmosphere at a convenient location;

(d) a movable inlet depending conduit to receive and to guideably fly fish from its point of inlet, having a nozzle, which is moved about in a hold of a fishing boat, with fish thereafter flying up through this inlet to the combined assembly above of the in line upper primary product separator, and the lower secondary liquid separator, and having at its top, an exit fastening assembly for joining this movable inlet with the top outside entry of the inside downwardly directed internal conduit positioned within the chamber of the upper primary product separator;

(e) a movable outlet depending conduit to receive and to guide fish leaving the lower outside exit above, of the downwardly directed internal conduit within the chamber of the upper primary product separator, with their momentum assuring their continuation of travel by gravity downwardly to be collected and then discharged for example on sorting conveyors of a fish processing factory, having at its entry a fastener assembly for joining with the lower outside exit of the downwardly directed internal conduit, and having at its exit an easily manipulated self sealing flexible discharge sleeve capable of holding back a sufficient changing group of fish until their combined weight overcomes the barometric pressure head, to thereafter intermittently force open this otherwise self sealing flexible discharge sleeve; and

(f) a smaller movable outlet depending conduit to receive and to guide gurry and liquid leaving the combined assembly of the in line upper primary product separator and the lower secondary liquid separator, having a fastener assembly for joining it to the lower secondary liquid separator, which in turn has the lower centered gurry and liquid exit to also receive the fastener assembly, and having a self sealing flexible discharge sleeve capable of holding back a sufficient temporarily collecting grouping of particles of gurry and liquid, until their combined weight overcomes the barometric pressure head, to thereafter intermittently force open this otherwise self sealing flexible discharge sleeve and the departing liquid and gurry is collected, eventually to be disposed of as waste or a waste product.

4,394,260

CONTROL DEVICE FOR A ROTARY VALVE-CONTROLLED JIGGING MACHINE

Siegfried Heintges, Haltern; Werner Strauss, and Karl-Heinz Weiffen, both of Bochum, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

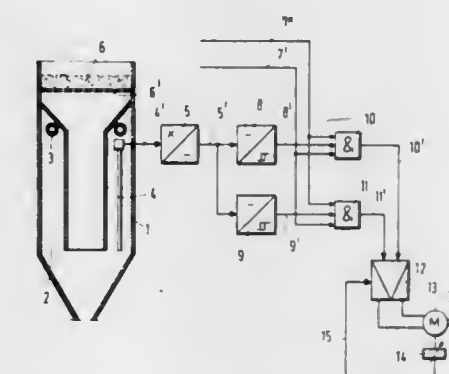
Filed Oct. 15, 1981, Ser. No. 311,873

Claims priority, application Fed. Rep. of Germany, Oct. 15, 1980, 3038921

Int. Cl.³ B03B 5/24

U.S. Cl. 209—500

9 Claims



1. Apparatus for controlling a rotary valve jigging machine which has an air chamber disposed in a separating liquid below

a jiggling screen and air is supplied to and exhausted from the air chamber through inlet and outlet air lines, respectively, comprising: sensing means in the air chamber for producing an electrical signal corresponding to the stroke of the liquid pulsations; an outlet throttling valve in said outlet air line; and control means connected between said sensing means and said throttling valve for adjusting said throttling valve in response to the electrical signal being outside predetermined limits, said control means comprising first and second means connected to said sensing means and responsive to the magnitude of said electrical signal to produce respective first and second signals when said electrical signal transgresses respective predetermined upper and lower threshold values, and electrical servo-mechanism means connected between said first and second means and said throttling valve for adjusting said throttling valve in response to said first and second signals.

4,394,261

SYSTEM FOR CONTROLLING CLARIFICATION OF BOILER FEED WATER AND THE LIKE

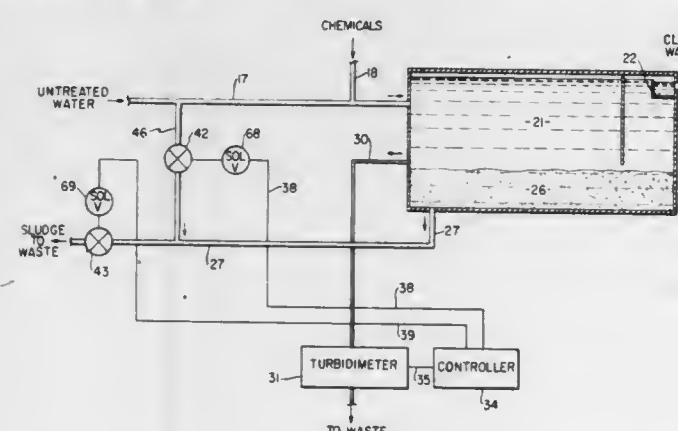
Henry D. Moser, Post Falls, Id., assignor to Texaco Inc., White Plains, N.Y.

Filed Mar. 5, 1982, Ser. No. 355,007

Int. Cl.³ C02B 1/20

U.S. Cl. 210—96.1

2 Claims



1. In combination with a system for controlling clarification of boiler feed water and the like by precipitation, said system comprising a settling tank having an inlet and an outlet for said water, means for adding a chemical to said inlet water to cause said precipitation, a drain line and first valve means for drawing off precipitate from the bottom of said tank, a small sampling line connected into said tank at a predetermined level above the bottom of said tank for continuously sampling water from said tank, means for continuously measuring turbidity of said sampled water, comprising a switch having a closed position if said turbidity exceeds a predetermined minimum and an open position if not, and means for backwashing said precipitate draw-off, comprising a second valve means for controlling flow through a connecting line between said inlet water and said drain line while said first valve means is closed, timing and control means for checking said turbidity at first predetermined intervals and for activating said first valve means for second predetermined intervals if said turbidity exceeds a predetermined minimum and for activating said second valve means with disabling of said first valve means at third predetermined regular intervals, said timing and control means comprising first timing means for opening said first valve means for said second predetermined intervals, first circuit means for connecting said turbidity switch to said first timing means for activating said first timing means only when said turbidity exceeds said predetermined minimum

second timing means for checking said turbidity at said first predetermined intervals, second circuit means for connecting said second timing means to said first timing means for activating said second timing means whenever said turbidity switch is closed, and third timing means for opening said second valve means at said third predetermined regular intervals.

4,394,262

SYSTEM FOR MINIMIZING BACKWASH WATER USAGE ON SELF-CLEANING STRAINERS

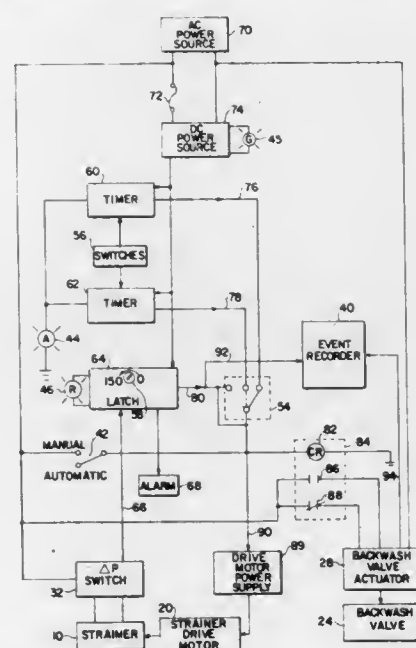
Ronald G. Bukowski, and Timothy L. Johnson, both of Erie, Pa., assignors to Zurn Industries, Inc., Erie, Pa.

Filed Aug. 6, 1982, Ser. No. 406,580

Int. Cl.³ B01D 29/38

U.S. Cl. 210—103

8 Claims



1. In an automatic backwashing strainer system including a backwashing strainer with a backwash outlet; a backwash valve for controlling the flow of backwash water through the backwash outlet; an actuator operating the backwash valve, and control means for automatically activating the actuation, the improvement in said control means comprising: (a) a first timer which periodically produces a first control signal for a variable duration and with a variable cycle time; (b) a second timer which periodically produces a second control signal for a variable duration and with a variable cycle time, wherein the duration of the second control signal is shorter than the duration of the first control signal and the cycle time of the second control signal is longer than the cycle time of the first control signal; (c) a differential pressure switch which produces a differential pressure signal whenever the pressure drop across the strainer exceeds a predetermined upper limit and maintains said differential pressure signal until said pressure drop reaches a predetermined lower limit; (d) a latch responsive to the differential pressure signal which produces a third control signal while the differential pressure switch is activated and which maintains the third control signal for a variable time delay after the pressure drop across the strainer reaches the predetermined lower limit; (e) means for varying the duration and cycle time of the first and second control signals; (f) means for varying the time delay of the third control signal; and (g) means for selecting, in response to operating conditions of the backwashing strainer system, one or more of said control signals to activate the actuator, such that the

strainer is cleaned with a minimum usage of backwash water.

4,394,263

CONNECTING DEVICE FOR PNEUMATIC AND/OR HYDRAULIC CIRCUITS IN COLUMN CHROMATOGRAPHY

Werner Dosch, Mainz, and Heinz Wagner, Mainz-Marienburg, both of Fed. Rep. of Germany, assignors to Carlo Erba Strumentazione S.p.A., Rodano, Italy

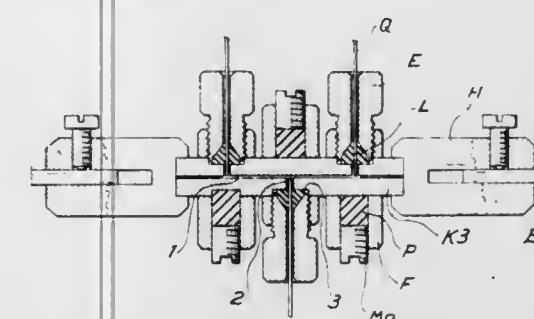
Filed Dec. 4, 1981, Ser. No. 327,548

Claims priority, application Fed. Rep. of Germany, Dec. 4, 1980, 3045654

Int. Cl.³ B01D 15/08

U.S. Cl. 210—198.2

15 Claims



1. A connecting device for use in pneumatic and/or hydraulic circuits, to be used in separation techniques, as in capillary column chromatography, for systems of partition and commutation of a fluid flow carrying a sample to be analyzed, in which chemically inert gaskets and fittings are used, comprising: a pneumatic or hydraulic distribution panel (S1) which comprises at least a mechanically stable, thick wall glass or fused silica body (K1, K2, K3), having a capillary channel (1) therein, and further having a series of side fittings in the form of transverse holes (2), to define a multiple T-fitting, said transverse holes (2) housing capillary tubes (Q) adapted for conveying gas or liquid, and said capillary tubes (Q) being constructed such that their ends are easily removable, pneumatically sealed and substantially free from dead volumes; said holes (2) having an inlet in the thick-wall body (K1, K2, K3) which is flattened to provide a bearing surface (3) for a gasket, and said thick-wall body (K1, K2, K3) carrying holding couplings (F), each of which can be fixed in correspondence with a hole (2), and each coupling (F) having a set screw (E) adapted for sealingly securing the end of a tube (Q) inserted in a transverse hole (2) through a gasket (L) pressing on said bearing surface (3).

4,394,264

MAGNETIC LIQUID FILTER

Werner Schimion, Hilchenbach, and Josef Herbrand, Brühl, both of Fed. Rep. of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

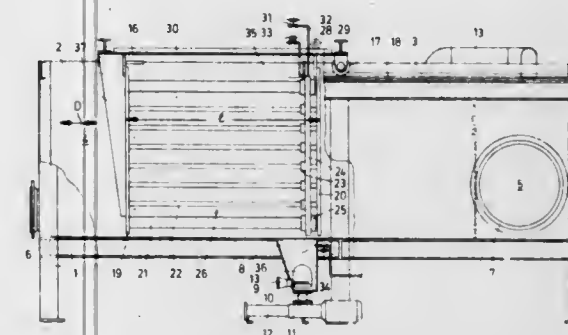
Filed Sep. 16, 1981, Ser. No. 302,759

Claims priority, application Fed. Rep. of Germany, Sep. 17, 1980, 3035003

Int. Cl.³ B01D 35/06; B03C 1/06; C02F 1/48

U.S. Cl. 210—222

26 Claims



25. A machine for filtering particles, in particular magneti-

cally attractable particles, from a liquid, said machine comprising:

a housing having a vessel;
a weir in said vessel subdividing same into an elongated treatment compartment having a predetermined compartment length and an outlet compartment, said housing being formed in said treatment compartment with a sump; means for introducing a liquid to be cleaned into said treatment compartment and for withdrawing liquid from said outlet compartment;
a carriage displaceable longitudinally on said vessel above said treatment compartment and suspending a vertical carriage frame in said treatment compartment;
an array of horizontally extending spaced magnetic bars carried on said carriage frame in said treatment compartment, said bars each having a bar length measured parallel to said treatment compartment that is substantially less than said compartment length;
respective scrapers fixed on said housing above said sump and engaging said bars;
respective annular nozzles fixed on said scrapers surrounding and directed at the respective bars;
means for feeding a fluid under pressure to said nozzles to direct annular fluid streams at the respective bars and thereby loosen particles from the bars adjacent the scrapers;
means for displacing said carriage with said bars longitudinally relative to said housing and scrapers through a distance equal generally to said bar length and thereby scraping particles off said bars, whereby the particles freed from said bars drop in said treatment compartment; and means for withdrawing liquid from said sump.

26. A machine for filtering particles, in particular magnetically attractable particles, from a liquid, said machine comprising:

a housing having a vessel;
a weir in said vessel subdividing same into an elongated treatment compartment having a predetermined compartment length and an outlet compartment, said housing being formed in said treatment compartment with a sump; means for introducing a liquid to be cleaned into said treatment compartment and for withdrawing liquid from said outlet compartment;
a carriage displaceable longitudinally on said vessel above said treatment compartment and suspending a vertical carriage frame in said treatment compartment, said frame including horizontally spaced end members each having a plurality of vertically and horizontally spaced holes;
an array of horizontally extending spaced magnetic bars carried on said carriage frame in said treatment compartment, said bars each having a bar length measured parallel to said treatment compartment that is substantially less than said compartment length, said bars further having respective ends received in the respective holes of the end members, said ends of said bars being each formed with a radially outwardly open groove, each of said end members being provided with a slidable element engageable in the respective grooves;
respective scrapers fixed on said housing above said sump and engaging said bars and including nozzles directed at the respective bars;
means for feeding air under pressure to said nozzles;
means for displacing said carriage with said bars longitudinally relative to said housing and scrapers through a distance equal generally to said bar length and thereby scraping particles off said bars, whereby the particles scraped off said bars drop in said treatment compartment; and means for withdrawing liquid from said sump.

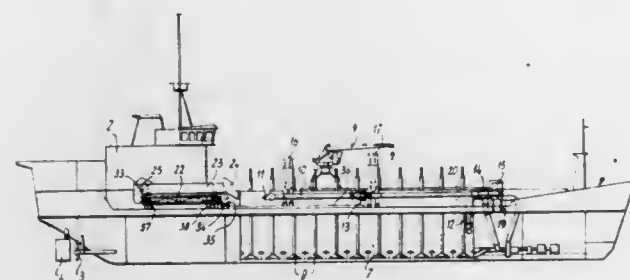
4,394,265

VESSEL IN PARTICULAR SUCTION DREDGER PROVIDED WITH MEANS FOR REMOVING OIL FROM A WATER SURFACE

Nicolaas J. van Drimmelen, Alblasterdam; James P. Barneveld Binkhuysen, Papendrecht; Johan van Renssen, Maassluis, and Pieter Verboom, Alblasterdam, all of Netherlands, assignors to IHC Holland N.V., Papendrecht, Netherlands
Filed Dec. 20, 1979, Ser. No. 105,530
Int. Cl.³ E02B 15/04

U.S. Cl. 210—242.3

18 Claims



1. In a suction dredger comprising a vessel having a hold for the storage of dredged material, means for emptying said hold, a suction conduit with a suction head, a suction-pressure pump in the suction conduit having a pressure conduit debouching within the hold, said vessel having its own power and control means, collecting means positionable at the side of the vessel and adapted to intersect the water surface and having means for sucking up oil floating upon the water surface and collected by the collecting means, said vessel having tanks for the storage of the sucked up oil-water mixture; the improvement in which said tanks are comprised by the open hold of the vessel normally serving for the storage of dredged material and the means for sucking up oil have said pressure conduit debouching into said hold, each said collecting means comprising a sweeping arm connected to a connection arm which is connected swingably about at least a horizontal axis to a carrier attached to the edge of the deck, said connection arm extending rearwardly from said carrier and having its rear end carrying the sweeping arm via a universal joint.

4,394,266

PRESSURE FILTER ADAPTER AND CONTAINMENT VESSEL

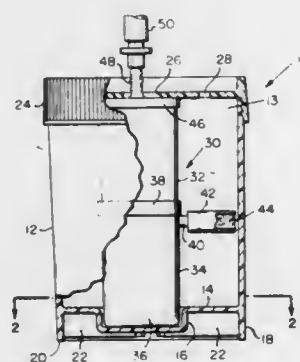
Ravinder C. Mehra, Fairport, and Raj K. Aggarwal, Penfield, both of N.Y., assignors to Sybron Corporation, Rochester, N.Y.

Filed Nov. 16, 1981, Ser. No. 321,435

Int. Cl.³ B01D 35/14

U.S. Cl. 210—244

2 Claims



1. A containment vessel for receiving a vacuum filter unit comprising:

- a hollow cylindrical body having a closed bottom portion, a cylindrical side wall upstanding from said bottom portion, and an open top;
- said bottom portion including a raised floor defining a cylindrical well extending below the plane of said floor for accommodating the base of the filter unit, said well being located off center relative to said bottom providing

a varying radial clearance between said filter unit and said sidewall around their respective circumferences; and
(c) a screw closure for said open top, said closure having a first central opening through which to communicate with said filter unit and a second vent opening radially spaced from said central opening.

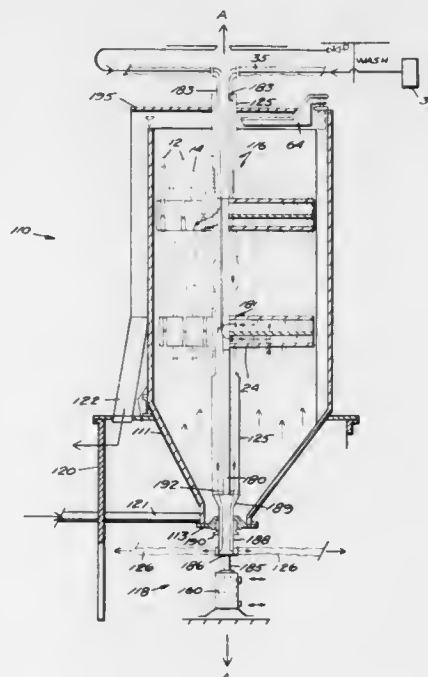
4,394,267

DIFFUSER ASSEMBLY

Johan C. F. C. Richter, Oslo, Norway, and Ole J. Richter, Karlstad, Sweden, assignors to Kamy, Inc., Glens Falls, N.Y.
Filed Jul. 12, 1982, Ser. No. 397,407
Int. Cl.³ B01D 33/00

U.S. Cl. 210—331

12 Claims



1. In an elongated upright hollow vessel which includes side and bottom walls, the improvement comprising: a plurality of withdrawal screens extending substantially parallel to the vessel direction of elongation, and spaced from each other in directions perpendicular to the vessel direction of elongation; non-rotatable conduit means for supporting said withdrawal screens and for providing for passage of fluid from said withdrawal screens to an area remote from said withdrawal screens and exterior of said vessel; means for only reciprocating said conduit means with attach withdrawal screens up and down in a direction substantially coincident with the direction of elongation of the vessel; and means for introducing fluent material to be treated into said vessel and withdrawing treated fluent material therefrom; and

said means for only reciprocating consisting essentially of a linear actuator located below the bottom wall of said vessel within the cross-sectional area of the vessel, for avoiding boiling problems as a result of liquor suck-up during start-up; and wherein said conduit means for providing passage of fluid from said withdrawal screens includes a central conduit substantially concentric with said linear actuator and reciprocal with said linear actuator, said central conduit operatively passing through the bottom wall of said vessel.

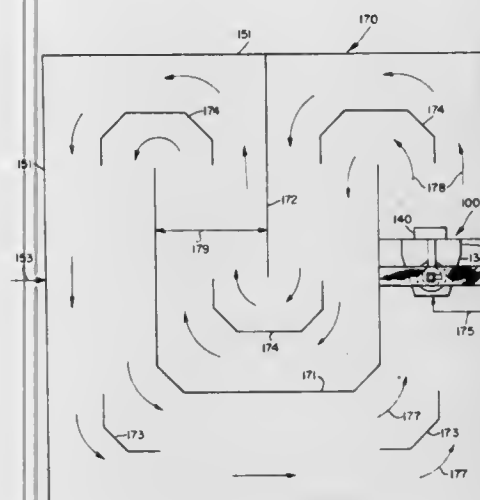
4,394,268

CONVERSION OF PLUG FLOW AND COMPLETE MIX AERATION BASINS TO BARRIER OXIDATION DITCHES

John H. Reid, 7 Stansbury Ct., Fredericksburg, Va. 22401
Division of Ser. No. 28,383, Apr. 9, 1979, which is a division of Ser. No. 957,432, Nov. 3, 1978, which is a continuation-in-part of Ser. No. 848,705, Nov. 4, 1977, which is a continuation-in-part of Ser. No. 649,995, Jan. 19, 1976, abandoned. This application
Sep. 14, 1979, Ser. No. 75,412
Int. Cl.³ C02F 3/20

U.S. Cl. 210—628

25 Claims



1. A method for converting a reactor basin of an activated sludge waste water treatment process, said reactor basin including at least one aerating device, to a barrier oxidation ditch, said method comprising the steps of:

- removing said at least one aerating device;
- forming an endless channel within said reactor basin, said endless channel having substantially parallel sides and a floor; and
- placing a single barriered circulator/aerator within said endless channel, said barriered circulator/aerator comprising:
 - barrier means for separating mixed liquor within said endless channel into upstream liquor within an intake channel and downstream liquor within a discharge channel, and providing hydraulic support to said downstream liquor;
 - a flow passage through said barrier means for providing fluid communication between said intake channel and said discharge channel;
 - at least one pump means disposed within said fluid communication passage for propelling said upstream liquor through said passage from said intake channel to said discharge channel, around said endless channel back to said intake channel, and
 - at least one aeration means disposed within said fluid communication passage for dispersing an oxygen-containing gas into said propelled upstream liquor to form freshly aerated mixed liquor.

4,394,269

METHOD FOR CLEANING SOLUTION USED IN NUCLEAR FUEL REPROCESSING

Othar K. Tallent, Oak Ridge; Karen E. Dodson, Knoxville, and James C. Mailen, Oak Ridge, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 12, 1981, Ser. No. 262,831

Int. Cl.³ G21F 9/12

U.S. Cl. 210—690

3 Claims

1. A method of processing a solution containing (1) a hydrocarbon diluent, (2) a phosphate selected from the group consisting of tri-n-butyl phosphate and tri-2-ethylhexyl phosphate, and (3) a degradation product selected from the group consist-

ing of (a) monobutyl phosphate, (b) dibutyl phosphate, (c) mono-2-ethylhexyl phosphate, (d) di-2-ethylhexyl phosphate, and (e) a complex of plutonium, uranium, or a fission product thereof with monobutyl phosphate, dibutyl phosphate, mono-2-ethylhexyl phosphate, or di-2-ethylhexyl phosphate, comprising contacting said solution with silica gel having alkali metal ions absorbed thereon.

4,394,270

APPARATUS FOR THE CHEMICAL CONDITIONING OF SLUDGES

Achim Hartmann, Pulheim, and Dieter Schinkitz, Leverkusen, both of Fed. Rep. of Germany, assignors to Kronos Titan-G.m.b.H., Fed. Rep. of Germany

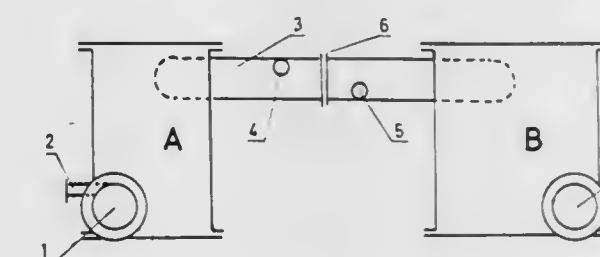
Filed Aug. 3, 1981, Ser. No. 289,441

Claims priority, application Fed. Rep. of Germany, Aug. 13, 1980; 3030558

Int. Cl.³ C02F 11/14

U.S. Cl. 210—726

24 Claims



1. An apparatus for the conditioning of sludges comprising: a. first and second vertically arranged cylindrical vessels, each vessel having a sealed bottom and a sealed top;

- an overflow pipe connecting the first and second cylindrical vessels installed tangentially to the upper portions of the first and second cylindrical vessels;
- a sludge feed pipe connected to a source of sludge, said sludge feed pipe being installed in a direction tangentially opposite the overflow pipe above the bottom of the first vessel;
- a feed tube connected to a source of a first conditioning material, said feed tube being installed tangentially into the sludge feed pipe;
- two further feed tubes being respectively connected to sources of a second and a third treating material, said two further feed tubes being installed tangentially into the overflow pipe; and
- a discharge pipe installed in a direction tangentially opposite the overflow pipe above the bottom of the second vessel, said apparatus being further constructed and arranged whereby the sludge entering the sludge feed pipe is mixed with the first conditioning material, spirals upward through the first vessel, passes through the overflow pipe wherein it is mixed with the second and third conditioning material, passes into the second vessel, spirals downward thereby further mixing the sludge and the conditioning materials and is discharged through the discharge pipe.

6. A process for the conditioning of sludge comprising:

- feeding sludge to the lower part of a first vertically arranged cylindrical vessel having a sealed bottom and a sealed top;
- treating the sludge by the addition of a flocculant;
- mixing the sludge and flocculant in an intensive manner by conveying the sludge and flocculant in a spiral flow upward through the first vessel to form a sludge mixture;
- transferring the sludge mixture to the upper part of a second vertically arranged cylindrical vessel having a sealed bottom and a sealed top;
- adjusting the pH of the sludge mixture by the addition of a fluid neutralizing agent;
- mixing the sludge mixture and neutralizing agent in an intensive manner by conveying the sludge mixture and neutralizing agent in a spiral flow downward through said

second vessel to form a homogeneous conditioned sludge; and
g. recovering the conditioned sludge.

4,394,271

APPARATUS AND METHOD FOR FILTRATION OF MOLTEN METAL

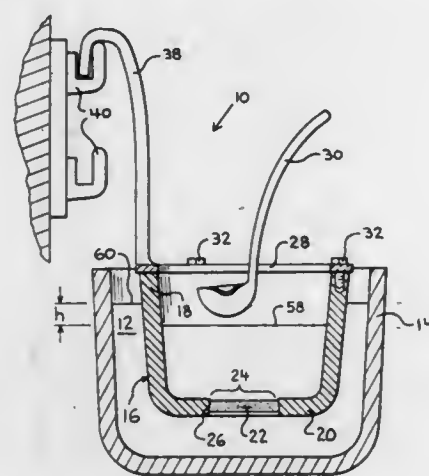
Daniel E. Groteke, 1228 Ridge Cliff Rd., Cincinnati, Ohio 45215

Filed Apr. 23, 1981, Ser. No. 256,829

Int. Cl.³ C22B 9/02

U.S. Cl. 210—773

18 Claims



1. A liquid metal filter apparatus for purifying a metal bath, comprising:

a crucible having a rim and a bottom;
a portion of said crucible being a porous ceramic material having an open cell structure characterized by a plurality of interconnected pores, said ceramic material serving as a filter;

a shock resistant ring attached to said rim;
a brace rigidly attached to said ring; and
a bracket rigidly positioned external to the molten metal bath and said brace being attached to said bracket for rigidly positioning said crucible with respect to the molten metal bath.

15. A method for filtration of liquid metal from a molten bath comprising:

providing a crucible with a rim and a ring attached thereto, said ring being more shock resistant than said crucible, said crucible having a bottom with a passage therethrough which is fitted with a porous filter;
submerging said filter into said liquid metal while maintaining said rim above the surface of said liquid metal;
rigidly positioning said crucible with respect to the molten metal bath by means of a brace rigidly attached to said ring and to a bracket external to said liquid metal bath;
allowing liquid metal to pass through said filter to fill said crucible; and
extracting said liquid metal from said crucible.

4,394,272

LIQUID CLARIFIER AND METHOD

Herbert R. Damerau, Farmington Hills, Mich., assignor to Pecor Corporation, Taylor, Mich.

Filed Nov. 17, 1980, Ser. No. 207,214

Int. Cl.³ B01D 29/38

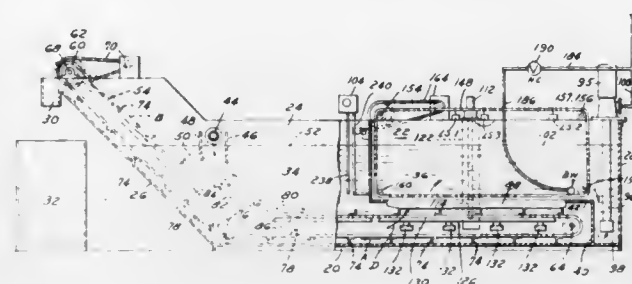
U.S. Cl. 210—779

17 Claims

1. A liquid clarifier comprising, in combination:

a settling tank;
a clean-liquid tank;
a filter between the tanks through which liquid flows from the settling to the clean-liquid tank;
a flight conveyor in the settling tank having a forwarding run arranged to scrape the bottom of the settling tank and move sludge to a discharge chute and a return run arranged adjacent the filter; and
means for selectively positioning the conveyor return run either close to the filter to scrape a filter cake formed thereon or position the return run in spaced non-scraping relation.

17. The method of clarifying a liquid comprising:
delivering the liquid to a settling tank;
holding the liquid in the tank to allow contaminants to settle therefrom;



removing sludge from the tank by arranging a flight conveyor so that a forwarding run scrapes the bottom of the tank;
moving liquid in the settling tank through a filter into a clean tank; and
shifting the return run of the flight conveyor into and out of scraping relation with the filter in accordance with the clogged condition thereof.

4,394,273

DEFOAMERS FOR AQUEOUS LIQUIDS CONTAINING SOLUBLE ZINC SALTS

Michael H. Hoff, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed Dec. 10, 1981, Ser. No. 329,350

Int. Cl.³ C09K 7/02; E21B 43/00; B01D 19/04

U.S. Cl. 252—8.55 R

9 Claims

1. A defoaming composition comprising a mixture of 2,6,8-trimethyl-4-nonanone and the triethoxylated derivative of 2,6,8-trimethyl-4-nonanol wherein the volume ratio of 2,6,8-trimethyl-4-nonanone to the triethoxylated derivative of 2,6,8-trimethyl-4-nonanol is in the range from about 9:1 to about 1:9.

4,394,274

Patent Not Issued For This Number

4,394,275

COMPOSITE MATERIAL FOR SLIDING SURFACE BEARINGS

Wolfgang Bickle, Reilingen; Rolf Funke, Bad Schönborn, and Rolf Pfoh, Rauenberg, all of Fed. Rep. of Germany, assignors to Karl Schmidt GMBH, Neckarsulm, Fed. Rep. of Germany

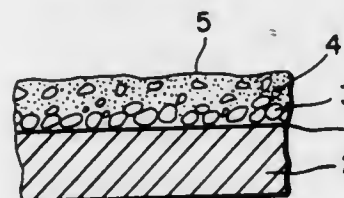
Filed Jul. 15, 1981, Ser. No. 283,394

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1980, 3027409

Int. Cl.³ C10M 5/18

U.S. Cl. 252—12

8 Claims



1. A composite material for a sliding surface bearing comprising a supporting shell of steel, which is covered by a bearing metal layer comprising sintered porous bronze having a porosity of 25 to 45%, the voids of which are filled with a fluorocarbon-lead mixture comprising 30 to 60% by weight polyvinylidene fluoride and 20 to 50% by weight lead, said bearing metal layer in turn covered by an anti-friction layer comprising 30 to 60% by weight polyvinylidene fluoride and

20 to 50% by weight lead, said anti-friction layer having pockets or grooves therein containing a lubricant.

4,394,276

METHOD FOR IMPROVING FUEL ECONOMY OF INTERNAL COMBUSTION ENGINES USING SULFUR-CONTAINING ALKANEDIOLS

Vernon R. Small, Jr., Rodeo, Calif., assignor to Chevron Research Company, San Francisco, Calif.

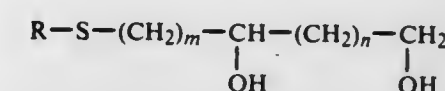
Filed Oct. 26, 1981, Ser. No. 314,630

Int. Cl.³ C10M 1/38, 1/20

U.S. Cl. 252—32.7 E

14 Claims

1. A lubricating oil composition comprising a major proportion of an oil of lubricating viscosity and a minor effective amount of a sulfur-containing alkane diol friction-reducing additive of the formula



wherein R is alkyl containing from 5 to 30 carbon atoms, m is 1 or 2 and n is 0 or 1.

4,394,277

METHOD FOR IMPROVING FUEL ECONOMY OF INTERNAL COMBUSTION ENGINES USING BORATED SULFUR-CONTAINING 1,2-ALKANE DIOLS

Vernon R. Small, Jr., Rodeo, Calif., assignor to Chevron Research Company, San Francisco, Calif.

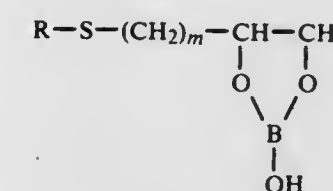
Filed Oct. 26, 1981, Ser. No. 314,631

Int. Cl.³ C10M 1/54, 1/38

U.S. Cl. 252—32.7 E

19 Claims

1. A borated sulfur-containing 1,2-alkane diol of the formula



wherein R is alkyl containing 5 to 30 carbon atoms and m is 1 or 2.

4,394,278

FRICTION REDUCING ADDITIVES AND COMPOSITIONS THEREOF

Andrew G. Horodysky, Cherry Hill, and Joan M. Kaminski, Clementon, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 26, 1981, Ser. No. 267,105

Int. Cl.³ C10M 1/54, 5/22; C07F 5/04

U.S. Cl. 252—46.3

19 Claims

1. A reaction product produced by (1) reacting a hydrolyzed imidazoline with a mercaptan and an aldehyde, followed by (2) reacting the product of (1) with a boron compound.

8. A lubricant or liquid hydrocarbon fuel composition comprising a major proportion of a lubricant or fuel and an antifriction or antioxidant amount of a product produced by (1) reacting a hydrolyzed imidazoline with a mercaptan and an aldehyde, followed by (2) reacting the product of (1) with a boron compound.

4,394,279

ANTIOXIDANT COMBINATIONS OF SULFUR CONTAINING MOLYBDENUM COMPLEXES AND AROMATIC AMINE COMPOUNDS FOR LUBRICATING OILS

Louis deVries, Greenbrae, and John M. King, San Rafael, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Aug. 7, 1981, Ser. No. 290,914

The portion of the term of this patent subsequent to Jan. 25, 2000, has been disclaimed.

Int. Cl.³ C10M 1/20, 1/32, 1/38, 1/54

U.S. Cl. 252—46.4

17 Claims

1. A lubricating oil additive comprising a combination of (a) an oil soluble sulfur containing molybdenum complex prepared by (1) reacting an acidic molybdenum compound and a basic nitrogen compound selected from the group consisting of a succinimide, carboxylic acid amide, Mannich base, phosphonamide, thiophosphonamide, phosphoramidate, dispersant viscosity index improvers, or mixtures thereof to form a molybdenum complex wherein from 0.01 to 2 atoms of molybdenum are present per basic nitrogen atom, and (2) reacting said complex with carbon disulfide in an amount to provide 0.1 to 4 atoms of sulfur per atom of molybdenum, and (b) an oil soluble aromatic amine compound or mixtures thereof, wherein the aromatic amine compound of component (b) is present in an amount of from 0.02 to 10 parts by weight per part by weight of the sulfur containing molybdenum complex of component (a).

4,394,280

ION CONDUCTIVE MIXED CRYSTAL

Ulrich von Alpen, Schlossborn; Reinhard Bräutigam, Hofheim, and Antony Oliapuram, Frankfurt, all of Fed. Rep. of Germany, assignors to Varta Batterie A.G., Hanover, Fed. Rep. of Germany

Filed Apr. 19, 1982, Ser. No. 369,364

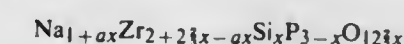
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1981, 3123099

Int. Cl.³ H01G 9/02

U.S. Cl. 252—62.2

2 Claims

1. A mixed crystal for use as the ion conductive solid electrolyte in galvanic elements formed of the components Na₂O, ZrO₂, P₂O₅ and SiO₂, wherein the composition is expressed by the general formula



a being a constant with a numerical value between 0.8 and 0.9 and x being a variable parameter with numerical values of 1.8 to 2.3.

4,394,281

COMPOSITION FOR USE IN A MAGNETICALLY FLUIDIZED BED

Ronald E. Rosensweig, Summit, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 218,087, Dec. 19, 1980, Pat. No. 4,368,131, which is a continuation-in-part of Ser. No. 943,384, Sep. 18, 1978, abandoned. This application Sep. 22, 1982, Ser. No. 421,041

Int. Cl.³ B01J 21/04, 35/02

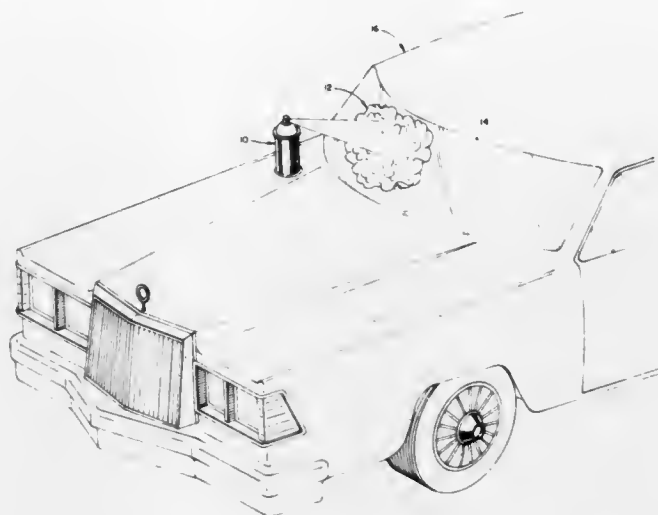
U.S. Cl. 252—62.55

5 Claims

1. As a composition of matter, a particulate material which can be oriented within, and formed into a magnetically stabilized fluidized bed to provide high magnetization at a low applied field which comprises particles of geometrically elongate shape which have a major axis at least 1.2 times the length of the minor axis, the particles being of average diameter (minor axis) ranging from about 10 μm to about 4000 μm and contain a nonferromagnetic component, composited with a plurality of elongate ferromagnetic components, the ferromag-

netic components being multidomain, having dimensions of at least 1 μ m in all directions, elongated in two directions, and having a length:diameter (L/D) ratio of at least 2 and not more than 313, the nonferromagnetic component being comprised of alumina within which said ferromagnetic components are dispersed as inclusions within the interior of the composite particles, and aligned with the major axis of said particles the ferromagnetic components being oriented with their long dimensions essentially parallel, the ferromagnetic components constituting at least 0.5 percent, but not more than $\pi/2(L/D+1)$, of the total volume of each particle, where L/D is the average ratio of the longest dimension of a ferromagnetic inclusion relative to the shortest dimension, and, in said magnetically stabilized fluidized bed, the particles can rotate, or turn to line up said ferromagnetic components essentially parallel to the direction of the field, and wherein a catalytically effective amount of a catalytically active metal is dispersed on the surface of the composite, and the composite particles are catalytically active.

propylene glycol mixed with propylene glycol monostearate and water wherein said ice release composition is applied to



4,394,282

COMPOSITION FOR USE IN A MAGNETICALLY FLUIDIZED BED

Robert L. Seiver, Baton Rouge, La., assignor to Exxon Research and Engineering Co., Florham Park, N.J.
Continuation-in-part of Ser. No. 218,088, Dec. 19, 1980, Pat. No. 4,368,132, which is a continuation-in-part of Ser. No. 943,552, Sep. 18, 1978, abandoned. This application Sep. 22, 1982, Ser. No. 421,046

Int. Cl.³ B01J 21/00, 23/00, 35/02

U.S. Cl. 252—62.55

4 Claims

1. As a composition of matter, particulate material which can be oriented within, and formed into a magnetically stabilized fluidized bed to provide an effective demagnetization coefficient of from about 0.0027 to about 0.174, which comprises particles containing a non-ferromagnetic refractory, porous inorganic oxide component composited with a plurality of elongate ferromagnetic components, each ferromagnetic component being multidomain, having dimensions of at least 1 μ m in all directions, elongated in two directions, and having a length:diameter (L/D) ratio of at least 2 but not more than 313, said ferromagnetic components being present in the composite particles as inclusions within a matrix formed by said nonferromagnetic component, and oriented in such a way that there is a preferred direction in each particle such that all the ferromagnetic components in said particle have a long dimension essentially parallel with said preferred direction and constituting at least 0.5%, but not more than $\pi/2(L/D+1)$, of the total volume of each particle, where L/D is the average ratio of the longest dimension of the ferromagnetic components relative to the shortest dimension, and, in said magnetically stabilized fluidized bed, the particles can rotate, or turn to line up said preferred direction parallel to the direction of the field such that essentially all of the ferromagnetic components have a long dimension essentially parallel to the direction of the field, and wherein a catalytically effective amount of a catalytically active metal is dispersed on the surface of the composite particles, and the composite particles are catalytically active.

4,394,283

STABLE ICE RELEASE AGENT

Lorenzo Spratt, P.O. Box 41138, Dallas, Tex. 75241

Filed Apr. 20, 1981, Ser. No. 255,524

Int. Cl.³ C09K 3/18

U.S. Cl. 252—70

5 Claims

1. In a pressurized container which is provided with a spray valve, an ice release composition consisting of propylene glycol mixed with propylene glycol monostearate and water and a propellant.

3. A method for inhibiting the bonding of ice precipitates to a substrate comprising the step of applying directly to the substrate a layer of an ice release composition consisting of

said substrate from a pressurized sealed container which contains said ice release composition and a propellant.

4,394,284

STABILIZED METHYLCHLOROFORM COMPOSITION

Alvetta Pryor, Houston, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 234,279, Feb. 3, 1981, abandoned, which is a continuation-in-part of Ser. No. 169,864, Jul. 17, 1980, abandoned. This application Aug. 2, 1982, Ser. No. 403,961

Int. Cl.³ C23G 7/52; C11D 5/02

U.S. Cl. 252—153

3 Claims

1. A stabilizer composition for 1,1,1-trichloroethane wherein the stabilizer consists essentially of 1.5 to 4 vol. % dioxane, 0.75 to 2 vol. % butylene oxide and 0.1 to 1.0 vol. % 3-butyne-1-ol based on the total volume of stabilizer and trichloroethane.
3. A stabilized 1,1,1-trichloroethane solvent employed in a vapor degreasing process which consists essentially of 2.0 to 3.0% dioxane, 0.75% butylene oxide, 0.5% 3-butyne-1-ol, 1.5% of ethyl or isopropyl nitrate and the remainder trichloroethane all based on the total volume of solvent plus inhibitors.

4,394,285

PRINS REACTION PRODUCTS OF DIISOAMYLENE, DERIVATIVES THEREOF, ORGANOLEPTIC USES THEREOF AND PROCESSES FOR PREPARING SAME

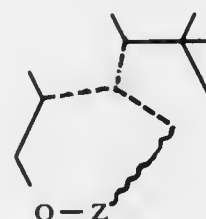
Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 267,850, May 28, 1981, Pat. No. 4,359,412. This application Jun. 24, 1982, Ser. No. 391,575

Int. Cl.³ C11D 3/50, 9/44

U.S. Cl. 252—174.11

1 Claim

1. A process for augmenting or enhancing the aroma of a perfumed article which is a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base an aroma augmenting or enhancing quantity of at least one compound defined according to the structure:



wherein one of the dashed lines is a carbon-carbon double bond and each of the other of the dashed lines is a carbon-car-

bon single bond; wherein the wavy line: ~ is a carbon-carbon single bond or no bond at all; wherein Z represents hydrogen, —CH₂—, or C₂—C₄ acyl; with the proviso that when the wavy line: ~ is no bond at all, Z represents hydrogen or C₂—C₄ acyl and when the wavy line: ~ is a carbon-carbon single bond, then Z represents —CH₂—.

4,394,286

PARTIALLY HYDROLYZED, DMT PROCESS RESIDUE, AND USEFUL PROPYLENE OXIDE DERIVATIVE THEREOF

William H. Millick, III, Wilmington, N.C., assignor to Hercules, Wilmington, N.C.

Filed May 20, 1981, Ser. No. 265,503

Int. Cl.³ C08G 18/48; C09K 3/00; C07C 69/76; C08F 6/00
U.S. Cl. 252—182

9 Claims

1. As a composition of matter, partially hydrolyzed, DMT process residue, characterized by an Acid No. of about 150–375 mg. KOH/g.

4. As a composition of matter, a mixture of partially hydrolyzed, DMT process residue characterized by an Acid No. of about 150–375 mg. KOH/g, and a glycol containing 4 or more carbon atoms.

8. As a composition of matter, a mixture consisting essentially of the propylene oxide reaction product of partially hydrolyzed, DMT process residue, which residue is characterized by an Acid No. of about 150–375 mg. KOH/g., and dipropylene glycol up to about 20% of the mixture.

4,394,287

INCORPORATION OF FINELY DIVIDED ADDITIVES AT THE SURFACE OF MICROCAPSULE WALLS

Joseph A. Scarpelli, Dayton, Ohio, assignor to Eurand America, Inc., Dayton, Ohio

Filed Apr. 10, 1981, Ser. No. 252,919

Int. Cl.³ B01J 13/02

U.S. Cl. 64—4.32

6 Claims

1. A method for preparing en masse, in an aqueous manufacturing vehicle, microcapsules with a substantially water-insoluble core and containing incorporated at their surface under a thin polymer film a substantially water-insoluble finely divided additive which comprises the steps of:

- (a) producing an aqueous suspension of microcapsules containing a substantially water-insoluble core material and having as at least one wall material component an anionic hydrophilic polymeric colloid which produces a solid wall around the core,
- (b) then adding substantially water-insoluble finely divided additive under stirring to produce a fine dispersion, and
- (c) adding cationic hydrophilic polymeric colloid solution without further addition of anionic hydrophilic colloid to cause the colloid to envelop the additive and deposit it on the capsule wall under a thin film.

4,394,288

ACTIVATED AMMONIUM NITRATE PLASTIC FOAM BLOWING AGENT

Sambasiva R. Allada, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 251,618, Apr. 6, 1981, abandoned. This application Feb. 25, 1982, Ser. No. 351,849

Int. Cl.³ C09K 3/00

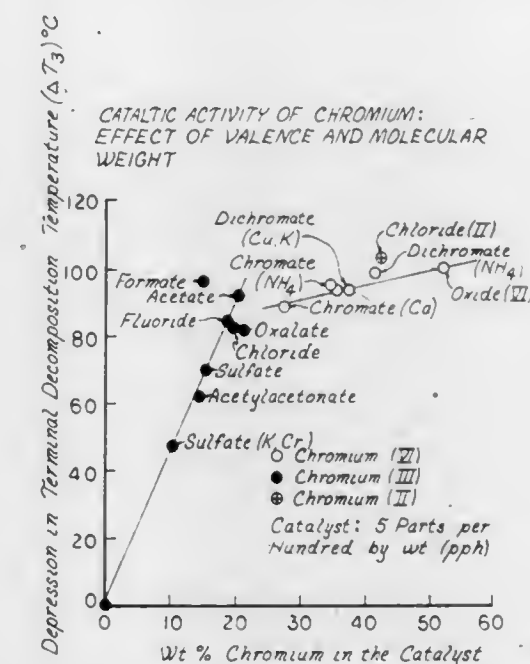
U.S. Cl. 252—350

4 Claims

1. A blowing agent system for foaming expandable resinous thermoplastic material masses, comprising an intimate, generally "fluffy" and finely divided powder composition of:

- (a) ammonium nitrate; and
- (b) up to about 10 parts per hundred by weight, based on total composition weight, of a chromium compound selected from the group consisting of: inorganic and organic salts of chromium; oxides of chromium excepting the

crystalline sesquioxide but including amorphous forms thereof; and mixtures of same;
said composition having an average particle size range on the order of between about $\frac{1}{2}$ and about 50 microns;



(c) up to about 4 percent by weight, based on total composition weight of a surfactant or soap additament.

4,394,289

CONTINUOUS FOAM GENERATING SYSTEM

Lamar W. Brown, 1185 Clearview Dr., Ringgold, Ga. 30736, and James E. Bartenfield, 1104 W. Pine Dr., Dalton, Ga. 30720

Filed Jul. 1, 1981, Ser. No. 279,336

Int. Cl.³ B01F 3/04, 5/06

U.S. Cl. 252—359 E

3 Claims



1. Apparatus for producing foam continuously, said apparatus comprising:

- a body member defining a foam generating chamber, said body member having an inlet in communication with said foam generating chamber and an outlet in communication with said foam generating chamber at a point remote from said inlet, said inlet and outlet being in an imaginary substantially non-horizontal plane;
- means for introducing a foamable liquid into said inlet;
- means for introducing a gas into said inlet simultaneously with said foamable liquid;
- turbulator means substantially filling said foam generating chamber for foaming, mixing and homogenizing said foamable liquid and gas;
- first baffle means disposed within said body member and extending from said outlet toward said inlet, said first baffle means defining a first zone within said foam generating chamber;
- second baffle means disposed within said body member and disposed about said first baffle means, said second baffle

means defining a second zone within said foam generating chamber between said first baffle means and said second baffle means;
said body member defining a third zone within said foam generating chamber between said body member and said second baffle means;
said third zone communicating with said inlet and with said second zone at one end of said second baffle means; and said second zone communicating with said first zone at the other end of said second baffle means, said second zone not being communicable with said third zone at said other end of said second baffle means and said first zone communicating with said outlet.

4,394,290

REGENERATION OF SUPPORTED CATALYSTS CONTAINING PALLADIUM AND/OR PLATINUM AND TELLURIUM

Rolf Schnabel, Schifferstadt; Hans-Martin Weitz, Bad Dürkheim, and Rolf Fischer, Heidelberg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

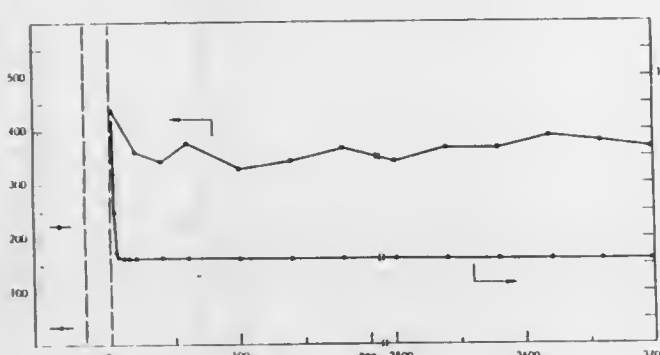
Filed Dec. 29, 1981, Ser. No. 335,503

Claims priority, application Fed. Rep. of Germany, Jan. 23, 1981, 3102087

Int. Cl.³ B01J 23/96; C07C 69/16, 67/055

U.S. Cl. 252-412

10 Claims



1. A process for regenerating a supported catalyst for acyloxylations, which catalyst contains palladium or platinum or mixtures thereof as well as tellurium, with or without copper, the copper content A being from 0 to 2, where A is the number of gram atoms of copper per gram atom of the palladium or platinum or mixtures thereof, which process comprises:

impregnating the catalyst to be regenerated with a copper solution in such an amount that the regenerated catalyst has a copper content $B=A+C$, where A has the above meaning and C is a number from 0.5 to 6;
drying the impregnated catalyst at from 50° to 200° C.;
then treating the catalyst with a reducing agent at from 100° to 500° C.; and
finally heating the catalyst at from 400° to 900° C.

9. A process as claimed in claim 1, wherein the reducing agent is selected from the group consisting of hydrogen, hydrazine, methanol and formaldehyde.

10. A process as claimed in claim 1, wherein the final heating step at 400°-900° C. is carried out for a period of about 15 minutes to 4 hours.

4,394,291

POLYOLEFIN POLYMERIZATION PROCESS AND CATALYST

Gil R. Hawley, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 4, 1981, Ser. No. 240,533

Int. Cl.³ C08F 4/64

U.S. Cl. 252-429 B

35 Claims

1. A catalyst for the polymerization of alpha olefins comprising the product resulting when reactants comprising

(a) a metal dihalide wherein the metal is selected from Groups IIA and IIB of the Periodic Table, and
(b) a transition metal compound wherein the transition metal is selected from the group consisting of Groups IVB and VB transition metals and the transition metal is bonded to at least one atom selected from the group consisting of oxygen, nitrogen, and sulfur, and said oxygen, nitrogen, and sulfur atoms are in turn bonded to a carbon atom of an organic radical are (1) reacted to produce a first catalyst component, and (2) said first catalyst component is reacted with at least one organoaluminum precipitating agent selected from compounds of the general formula AlR_nX_{3-n} wherein each R is individually selected from saturated and unsaturated hydrocarbyl radicals containing 1 to 20 carbon atoms per radical, X is a halogen, and n is any number such that $1 \leq n \leq 2$, and then (3) the product of that reaction is reacted with at least one halogen-containing compound of Groups IVA and VA capable of adding halogen to the product of step (c).

4,394,292

CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

Yasuharu Yamada, Osaka, and Kiyoshi Kawai, Toyonaka, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 138,148, Apr. 7, 1980, Pat. No. 4,347,157. This application Feb. 23, 1982, Ser. No. 351,451

Claims priority, application Japan, Apr. 25, 1979, 54-51641; Jan. 28, 1980, 55-9200

Int. Cl.³ C08F 4/02, 4/64

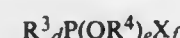
U.S. Cl. 252-429 B

22 Claims

1. A solid catalyst component for olefin polymerization prepared by a method consisting essentially of reacting an organo-magnesium compound represented by the formula,



wherein R^5 and R^6 are each an alkyl, aryl, aralkyl or alkenyl group having 1 to 20 carbon atoms, and X is a chlorine, bromine or iodine atom, in solution, with an alkoxy phosphorus compound of the formula,



wherein R^3 and R^4 are each a hydrocarbon group having 1 to 20 carbon atoms, X is a halogen atom, and d, e, and f are numbers satisfying the equations at the same time,

$$0 \leq d < e, 0 < e \leq 3, 0 \leq f < 3, \text{ and } d + e + f = 3$$

to produce a solid product which is a catalyst carrier, and supporting a titanium compound and/or a vanadium compound on said solid product.

4,394,293

CATALYST FOR THE PHOTOLYTIC PRODUCTION OF HYDROGEN FROM WATER

Michael Gratzel, and John Kiwi, both of Vaud, Switzerland, assignors to Engelhard Corporation, Iselin, N.J.

Filed Sep. 5, 1980, Ser. No. 184,673

Claims priority, application United Kingdom, Sep. 8, 1979, 7931250; Switzerland, Jul. 8, 1980, 8022338

Int. Cl.³ B01J 31/02; C08K 3/08

U.S. Cl. 252-430

12 Claims

1. A stabilized catalyst for promoting electron transfer to water protons for mediating evolution of hydrogen gas by photolysis comprising an active catalytic reducing amount of Noble metal particles in finely divided form and a water permeable protective agent adsorptive to said metal particles and being polyvinyl alcohol.

4,394,294

MEMBRANE CATALYST FOR HYDROGENATION OF ORGANIC COMPOUNDS AND METHOD FOR PREPARING SAME

Vladimir M. Gryaznov, Lomonosovsky prospekt 14, kv. 504; Viktor S. Smirnov, Kutuzovsky prospekt 26, kv. 555; Valentin M. Vdovin, Leninsky prospekt 23, kv. 90; Margarita M. Ermiлова, ulitsa Cherkizovskaya 10, korpus 2, kv. 103, all of Moscow; Liya D. Gogua, ulitsa Arakishvili, 7, kv. 7, Tbilisi; Nina A. Pritula, ulitsa 3-ya Frunzenskaya, 14, kv. 87, and Galina K. Fedorova, ulitsa Pyatnitskaya, 39, kv. 6, both of Moscow, all of U.S.S.R.

Filed Jan. 7, 1981, Ser. No. 223,074

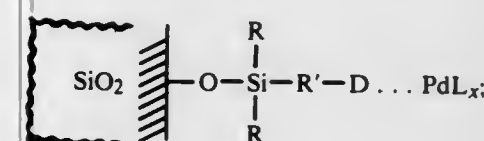
Claims priority, application U.S.S.R., Jan. 20, 1977, 2451417

Int. Cl.³ B01J 31/08, 31/06

U.S. Cl. 252-430

11 Claims

1. A membrane catalyst for hydrogenation of organic compounds comprising a porous metal substrate selected from the group consisting of porous stainless steel, porous copper and porous nickel, having thereon a vulcanized film comprising a polyorganosiloxane polymer and a heterogenized palladium complex of the formula



wherein

R=alkyl, alkoxy or chlorine

 $R' = -C_6H_4-$ or $-(CH_2)_n-$ and $n=1-10$ $D=PR''_2$ wherein R'' =alkyl or phenyl; $N R'''_2$ wherein R''' =alkyl or C_6H_4N $L = -Cl, Br \text{ or } OCOCH_3$.

4,394,295

COORDINATION COMPLEXES AS POLYESTERIFICATION CATALYSTS

Kurt Weinberg, Upper Saddle River, N.J., and Gordon C. Johnson, Armonk, N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 31, 1981, Ser. No. 336,293

Int. Cl.³ C08L 67/02

U.S. Cl. 252-431 C

17 Claims

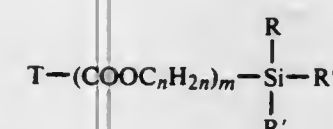
1. A polyesterification catalyst for the manufacture of solid fiber-forming polyesters or copolyester of dicarboxylic acid compounds and aliphatic glycols comprising a coordination complex of (A) and (B), wherein:

(A) is a metal alkoxy halide selected from the group consisting of

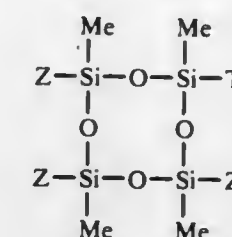


wherein m is at least one of titanium, zinc, germanium, tin, lead, antimony and; R is alkyl, aryl, alkylaryl, arylalkyl, haloalkyl having from 1 to 20 carbon atoms; a and b are integers having a value of from 1 to 3; the sum of (a+b) is equal to or less than the integer 4; x is at least one of F, Cl, Br or I, with the proviso that when M is antimony a is an integer having a value of from 1 to 4 and the sum (a+b) is equal to or less than 5;

(B) is a silicon compound selected from the group consisting of:



-continued



(II)



(III)



(IV)

wherein T is $\text{CH}_2=\text{CX}-$ or $(\text{R}^*\text{O})_2\text{PCH}_2\text{CHX}-$;
 $\text{O}=\text{C}$

X is hydrogen or methyl and is methyl only when m is one;
 R^* is alkyl or haloalkyl having from 1 to 4 carbon atoms;
 R^{**} is methyl, ethyl, butyl, acetoxy, methoxy, ethoxy or butoxy;

R is methyl, ethyl, butyl, methoxy, ethoxy, butoxy, or trimethylsiloxy;

R' is methyl, methoxy, ethoxy, butoxy or trimethylsiloxy;

R'' is methoxy, ethoxy, butoxy, trimethylsiloxy or vinyl-dimethylsiloxy;

R''' is methyl, ethyl, butyl or trimethylsilyl;

Me is methyl;

Z is methyl or T;

Q is an NCCH_2- , $\text{NH}_2\text{CH}_2\text{NHCH}_2-$, $\text{NC}-\text{HS}-$ or $\text{HSCH}_2\text{CH}_2\text{S}-$ group;

n is an integer having a value of from 2 to 5;

m is an integer having a value of zero or one;

x is an integer having a value of from 1 to 100; and

y is an integer having a value of from 1 to 100;

wherein the mole ratio of A:B in said coordination complex is from 2:1 to 1:10.

4,394,296

BORON TRIFLUORIDE-WATER-SILICA CATALYST
Ajay M. Madgavkar, Irvine, Calif., and Harold E. Swift, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 104,415, Dec. 17, 1979, Pat. No. 4,308,414. This application Aug. 3, 1981, Ser. No. 289,456

Int. Cl.³ B01J 21/02, 37/00

U.S. Cl. 252-433

7 Claims

1. A three-component hydrocarbon conversion catalyst comprising particulate silica having boron trifluoride and water adsorbed thereon, said catalyst obtainable by the adsorption on said particulate silica of water and boron trifluoride from a liquid hydrocarbon in the presence of an atmosphere comprising boron trifluoride.

4,394,297

ZINC TITANATE CATALYST

John H. Kolts, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 267,230, May 26, 1981, Pat. No. 4,368,344.

This application Sep. 30, 1982, Ser. No. 430,628

Int. Cl.³ B01J 27/14, 23/08; H01B 1/06

U.S. Cl. 252-437

6 Claims

1. A catalyst composition comprising zinc, titanium and a promoter at least one member of which is selected from the group consisting of aluminum, phosphorus, indium, and tin wherein said zinc and titanium are present in said catalyst composition in the form of zinc titanate which is prepared by calcining a mixture of zinc oxide and titanium dioxide in the

presence of free oxygen at a temperature in the range of about 650° C. to about 1050° C.

4,394,298

HYDROGENATION CATALYST

Gerhard P. Nowack; Marvin M. Johnson, and Donald C. Tabler, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 111,053, Jan. 10, 1980, abandoned. This application Aug. 3, 1981, Ser. No. 289,350

Int. Cl.³ B01J 23/46, 23/74, 27/24

U.S. Cl. 252—438

1 Claim

1. A hydrogenation catalyst comprising a suitable support and ruthenium (III) hexacyanocobaltate.

4,394,299

PALLADIUM-RHODIUM CATALYST FOR PURIFICATION OF CRUDE TEREPHTHALIC ACID

Imre Puskas, Glen Ellyn, and David E. James, Batavia, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Oct. 29, 1981, Ser. No. 316,338

Int. Cl.³ B01J 23/46, 23/44; C07C 51/42

U.S. Cl. 252—447

22 Claims

11. A catalyst composition for purification of terephthalic acid which comprises crystallites of palladium and rhodium adsorbed on a porous activated carbon support material, said support material having a surface area of at least 600 m²/g wherein said catalyst composition is prepared by contacting said support with (a) an aqueous solution of an amine and a palladium salt in the presence of an organic carboxylic acid wherein concentration of said amine is sufficient to solubilize said palladium salt and mole ratio of said acid to said amine is at least 0.75 and with (b) an aqueous solution of a rhodium compound and an alkali metal nitrite wherein penetration of said palladium and rhodium crystallites into said porous support is within the range of from about 70 to 150 micrometers of the surface of said support.

12. The composition of claim 11 wherein said amine is selected from the group consisting of ammonia, pyridine, the picolines and the lutidines.

14. The composition of claim 11 wherein said acid has from 2 to 5 carbon atoms and is selected from the group consisting of acetic acid, propionic acid, butyric acid, isobutyric acid, n-valeric acid and mixtures thereof.

4,394,300

ZEOLITE CATALYST MODIFIED WITH GROUP IVB METAL

Chin C. Chu, North Brunswick, and Warren W. Kaeding, Westfield, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 137,881, Apr. 7, 1980, Pat. No. 4,278,827. This application Nov. 14, 1980, Ser. No. 206,820

Int. Cl.³ B01J 29/28

U.S. Cl. 252—455 Z

11 Claims

1. A catalyst composition comprising: a crystalline zeolite material characterized by a constraint index of within the approximate range of 1 to 12 and a silica to alumina mole ratio of at least 12; said zeolite further comprising at least 0.25 weight percent of one or more Group IVB metals incorporated into said zeolite in the form of a Group IVB metal oxide and at least 0.25 weight percent of phosphorus incorporated into said zeolite in the form of an oxide of phosphorus.

2. The composition of claim 1 wherein said Group IVB metal is germanium.

4. The composition of claim 1 wherein said Group IVB metal is tin.

6. The composition of claim 1 wherein said Group IVB metal is lead.

4,394,301

CATALYTIC HYDROCRACKING, HYDRODESULFURIZATION, AND/OR HYDRODENITROGENATION OF ORGANIC COMPOUNDS EMPLOYING PROMOTED ZINC TITANATE AND A ZEOLITE AS THE CATALYTIC AGENT

Lloyd E. Gardner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 145,639, May 1, 1980, Pat. No. 4,324,647. This application Jan. 18, 1982, Ser. No. 340,148

Int. Cl.³ B01J 29/10, 29/16

U.S. Cl. 252—455 Z

14 Claims

1. A catalyst composition comprising zeolite, zinc, titanium, and at least one promoter selected from the group consisting of vanadium, chromium, cobalt, nickel, molybdenum, tungsten, rhenium, platinum, palladium, rhodium, ruthenium, and compounds thereof.

4,394,302

HYDRODESULFURIZATION CATALYST ON LITHIUM-CONTAINING SUPPORT AND METHOD FOR ITS PREPARATION

J. Wayne Miller, Yorba Linda, and Howard D. Simpson, Irvine, both of Calif., assignors to Union Oil Company of California, Brea, Calif.

Filed Oct. 26, 1981, Ser. No. 314,526

Int. Cl.³ B01J 21/04, 23/04, 23/24

U.S. Cl. 252—465

34 Claims

1. A method for preparing a catalyst which method comprises incorporating a porous refractory oxide with a lithium component, calcining the lithium-incorporated porous refractory oxide to form a lithium component-containing composition having a substantially increased average pore diameter than that of said porous refractory oxide and incorporating a Group VIB metal component with said composition.

4,394,303

LARGE PORE SHAPED HYDROPROCESSING CATALYSTS

Kirk R. Gibson, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed May 12, 1981, Ser. No. 262,856

Int. Cl.³ B01J 23/84, 35/02

U.S. Cl. 252—470

4 Claims

1. A catalyst for hydroprocessing heavy hydrocarbonaceous feedstocks that contain at least 10 ppm nickel plus vanadium comprising:

a porous shaped catalyst particle comprising an elongated extrudate having an asymmetric quadralobe cross-section characterized by having the centers of the four component circles define two substantially equilateral triangles joined on a base, having substantially all of the points within said particle within 0.02 inch from the nearest external surface of said particle, said particle having an average pore diameter within the range of 120 Angstroms to 700 Angstroms, said particle having between 4 and 15 weight percent of a catalytic metal from Group VIB and between 0 and 10 weight percent of a catalytic metal from Group VIII; where said weight percents are based on the catalytic metals content of the total particle weight, calculated as reduced metal, such that when contacted with a heavy hydrocarbonaceous feedstock containing at least 10 ppm nickel plus vanadium under hydroprocessing conditions substantial metal penetration occurs to a depth of at least 0.012 inch from the nearest surface of said support.

4,394,304

ELECTRICALLY CONDUCTING POLYMER BLENDS

Gary E. Wnek, Natick, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Jan. 29, 1982, Ser. No. 344,143

Int. Cl.³ C08F 8/22, 255/02, 257/02; H01B 1/12

U.S. Cl. 252—520

11 Claims

1. A method of forming a conductive polymer comprising a blend of at least one processable polymer, polyacetylene and a dopant, the method comprising:

(a) impregnating at least one processable polymer with a Ziegler-Natta catalyst;

(b) exposing said impregnated polymer to acetylene gas, whereby substantially linear molecules of polyacetylene are formed within a matrix of the processable polymer; and

(c) introducing a dopant into the polyacetylene, whereby a conductive blend is formed.

4,394,305

ALPHA-OXYALKYLENE AMINE OXIDE COMPOUNDS USEFUL IN DETERGENTS

Eugene P. Gosselink, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

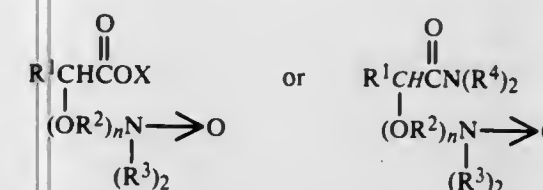
Filed Mar. 17, 1981, Ser. No. 244,533

Int. Cl.³ C11D 3/30, 3/32; C07C 103/127, 69/22

U.S. Cl. 252—528

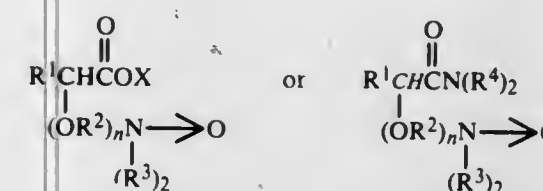
35 Claims

1. A compound of the formula:



wherein R¹ is hydrogen or a C₁-C₂₀ hydrocarbyl group; R² is a C₂-C₆ alkylene group; n is from 1 to about 20; each R³ is a C₁-C₂₀ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; each R⁴ is hydrogen, a C₁-C₂₀ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; and X is hydrogen, a water-soluble metal, ammonium or substituted ammonium cation, a C₁-C₈ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; provided that the total number of carbon atoms in hydrocarbyl groups at the R¹, R³, and X or R⁴ substituents is from about 8 to about 40.

24. A detergent composition comprising from about 0.005% to about 99% by weight of an amine oxide surfactant of the formula:



wherein R¹ is hydrogen or a C₁-C₂₀ hydrocarbyl group; R² is a C₂-C₆ alkylene group; n is from 1 to about 20; each R³ is a C₁-C₂₀ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; each R⁴ is hydrogen, a C₁-C₂₀ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; and X is hydrogen, a water-soluble metal, ammonium or substituted ammonium cation, a C₁-C₈ hydrocarbyl group or a C₂-C₃ alkylene oxide group containing from 1 to about 10 alkylene oxide units; provided that the total number of carbon atoms in hydrocarbyl groups at the R¹, R³, and X or R⁴ substituents is from about 8 to about 40.

4,394,306

BROMINE CONTAINING FIRE RETARDANT COMPOSITIONS OF MATTER

Manny Ravey, Haifa, Israel, assignor to IMI (Tami) Institute for Research & Development Ltd., Haifa, Israel

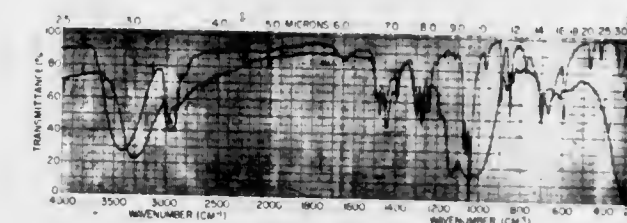
Filed Apr. 22, 1981, Ser. No. 256,476

Claims priority, application Israel, May 23, 1980, 60149

Int. Cl.³ C09K 3/28

U.S. Cl. 252—609

15 Claims



1. A composition of matter of the formula



wherein m=1.6 to 2.3 and x=0.75 to 1.10, obtained by the hydroxymethylation 2-bromomethyl-2-hydroxymethyl-propane-1,3-diol, 2,2-bis(bromomethyl)propane-1,3-diol, 2-bromomethyl-2-hydroxymethyl-1,3-dibromopropane, and mixtures thereof, containing an average of 1.7 to 2.5 hydroxyl groups per molecule, with formaldehyde or its polymeric forms, said compositions of matter being useful as active or additive fire retardants for polymeric materials.

11. Fire retardant compositions comprising compounds, according to claim 1, together with phosphorus-containing reactive fire retardant component.

4,394,307

TRACK RECORDING PLASTIC COMPOSITIONS

Gregory Tarle, 2665 Kenney Dr., San Pablo, Calif. 94806

Filed Feb. 18, 1981, Ser. No. 235,691

Int. Cl.³ C08K 5/11

U.S. Cl. 524—776

15 Claims

1. An improved nuclear particle track recording solid plastic composition consisting essentially of about 98% by weight of polymeric di-ethylene glycol bis allyl carbonate and an effective amount to reduce roughening caused by etchants up to about 2% by weight of an alkyl phthalic acid ester admixed therein.

4,394,308

METHOD OF PRODUCING

α-L-ASPARTYL-L-PHENYLALANINE METHYLESTERS

Prathivadibhayankaram S. Sampathkumar, Parsippany, and Basant K. Dwivedi, Randolph, both of N.J., assignors to Chemicasa GmbH, Switzerland

Continuation of Ser. No. 150,881, May 27, 1980, abandoned.

This application Sep. 25, 1981, Ser. No. 305,693

Int. Cl.³ C07C 103/52

U.S. Cl. 260—112.5 R

4 Claims

1. A method of preparing α-L-aspartyl-L-phenylalanine alkylester in high yield without substantial isomer formation of the alkylester, which method comprises:

(a) reacting L-aspartic acid with an alcohol, to provide an esterified aspartate compound with the beta-carboxyl group blocked by the ester group, and having a free alpha-carboxyl group;

(b) reacting the amino group of the esterified aspartate compound with a carbobenzoxy halide, to provide an N-carbobenzoxyl, esterified, L-aspartate compound with a free alpha-carboxyl group;

(c) reacting the N-carbobenzoxyl, esterified, aspartate compound in a coupling reaction with an alkylester of L-phenylalanine, by reaction of the free amino group of the

L-phenylalanine with the free alpha-carboxyl group of the aspartate compound, to provide a coupled aspartate-phenylalanine compound;

(d) hydrogenating the coupled compound, to reintroduce into the molecule the free amino group and one of the free carboxyl groups of the aspartate portion of the coupled compound; and

(e) recovering the L-aspartyl-L-phenylalanine alkylester in a high yield, without substantial racemization of the α -L-aspartyl-L-phenylalanine alkylester.

4,394,309

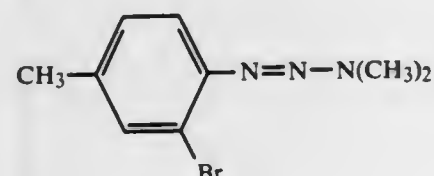
PROCESS FOR THE PREPARATION OF N,N-DIMETHYL-N-(2-BROMO-4-METHYLPHENYL)-TRIAZENE

Claus Stölzer, Wuppertal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Mar. 30, 1981, Ser. No. 249,247

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1980, 3014122

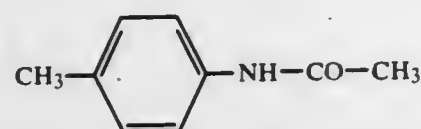
Int. Cl.³ C07C 113/00, 113/04, 103/27, 87/60
U.S. Cl. 260—140 9 Claims

1. A process for the preparation of N,N-dimethyl-N-(2-bromo-4-methyl-phenyl)-triazene of the formula

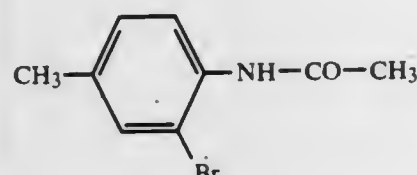


consisting essentially of

(a) reacting N-acetyl-p-toluidine of the formula



with bromine at a temperature between about 0° and 100° C., to give the intermediate product of the formula



(b) reacting the intermediate product with hydrochloric acid by either

(i) adding a dilute solution of aqueous hydrochloric acid to the intermediate product in its reaction solution and heating the mixture to a temperature between about 50° and 120° C., or

(ii) precipitating the intermediate product from its reaction solution by mixing with water and filtering off, and without purification or drying heating the precipitate with dilute aqueous hydrochloric acid to a temperature between about 50° and 120° C., thereby to form a solution of 2-bromo-4-methylaniline hydrochloride,

(c) reacting the resulting aqueous solution with an alkali metal nitrite at a temperature between about -20° and +30° C., and

(d) reacting the product with dimethylamine at a temperature between about 0° and 50° C.

4,394,310 1-AMINO-2-SULFO-(4'-PYRAZOLONYL-PHENYL)-AMINOANTHRAQUINONE COMPOUNDS AND A PROCESS FOR THEIR PREPARATION

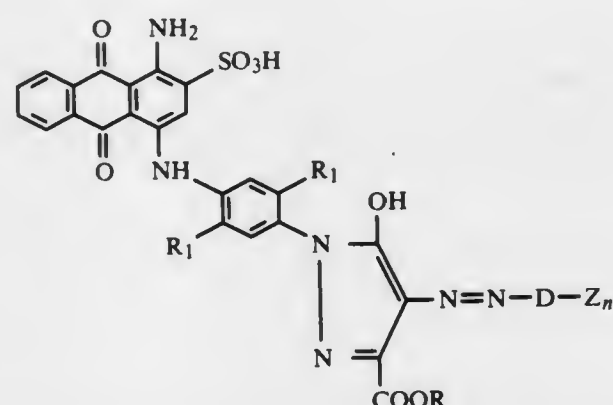
Hermann Fuchs, Königstein, and Klaus Filzinger, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 75,534, Sep. 13, 1979, abandoned. This application Oct. 31, 1980, Ser. No. 202,779

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840120

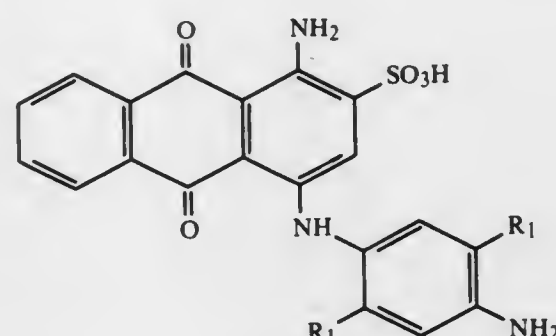
Int. Cl.³ C09B 62/45, 62/503, 62/505; D06P 1/384
U.S. Cl. 260—162 5 Claims

1. A water-soluble anthraquinone-azo compound in the form of a free acid having the formula

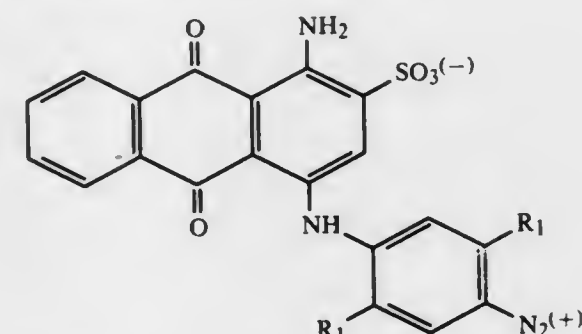


wherein each R₁ is sulfo or when one R₁ is hydrogen the other R₁ is sulfo; R is hydrogen or lower alkyl; D is unsubstituted benzene or unsubstituted naphthalene or benzene or naphthalene which is substituted by 1 to 3 substituents selected from the group consisting of lower alkyl, lower alkoxy, halogen, nitro and sulfo and is substituted by the a fibre-reactive group Z which is the group —SO₂—CH₂—CH₂—Z₁ or —SO₂—CH=CH₂, in which Z₁ is hydroxy or an inorganic or organic radical which can be eliminated to form —SO₂—CH=CH₂ and n is 1 or 2.

4. A process for the preparation of a compound defined in claim 1, which comprises diazotizing a compound of the formula

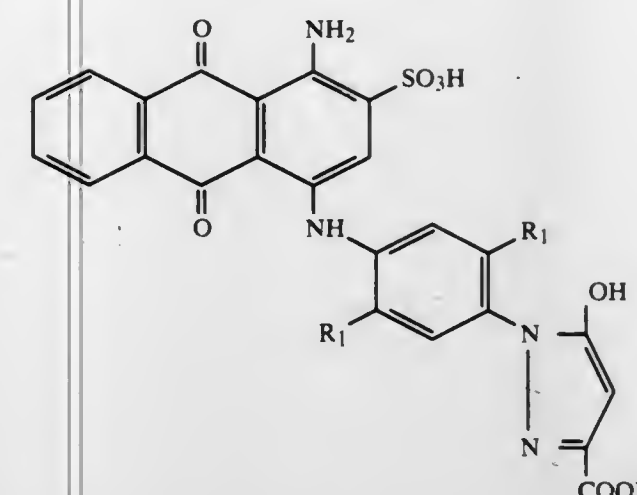


in which R₁ is defined as in claim 1, by means of an equivalent quantity of sodium nitrite, in the presence of a mineral acid, to give the diazo compound of the formula



in which R₁ is defined as in claim 1, and coupling the diazo-

nium salt at a pH in the range of from 3.5 to 5.5 with an acetyl-succinic acid ester of a lower alkanol, adjusting then the pH to a value within the range from 9 to 13 to form the pyrazolone compound of the formula



in which R and R₁ are defined as in claim 1, and coupling this compound with the diazonium compound of an amine of the formula



in which D, Z and n are defined as in claim 1.

4,394,311

PRODUCTION OF 2-BENZAZEPINES

Eugene J. Trybulski, Parsippany, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

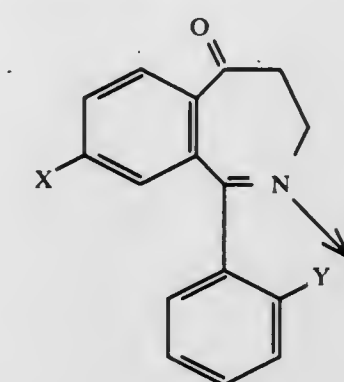
Division of Ser. No. 150,509, May 16, 1980, Pat. No. 4,318,854, which is a continuation-in-part of Ser. No. 10,118, Feb. 7, 1979, abandoned. This application Nov. 23, 1981, Ser. No. 324,208

Int. Cl.³ C07D 223/16

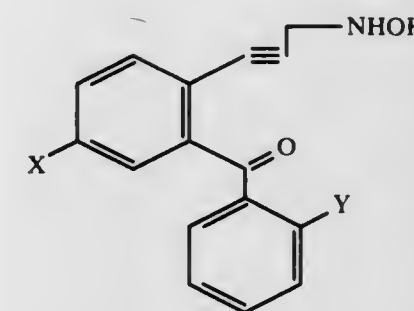
U.S. Cl. 260—239 BB

1 Claim

1. A process to produce a compound of the formula



wherein X and Y are selected from the group consisting of hydrogen, halogen and trifluoromethyl, which consists essentially of the reaction of a compound of the formula



wherein X and Y are as above, with a mixture of a catalytic amount of mercuric sulfate and an excess of a C₁ to C₄ carbox-

ylic acid in an inert solvent at from about -10° C. to room temperature.

4,394,312

PROCESS FOR PREPARING RIFAMYCIN DERIVATIVES

Moon H. Han, and Baik L. Seong, both of Seoul, Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Seoul, Rep. of Korea

Filed Apr. 30, 1982, Ser. No. 373,807

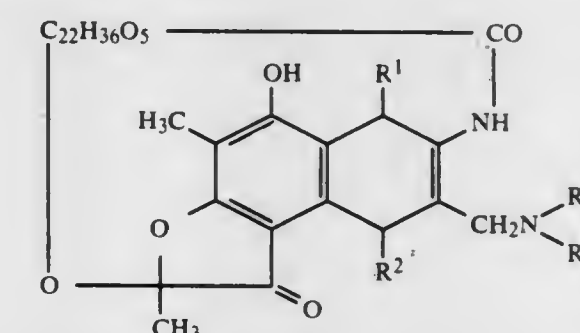
Claims priority, application Rep. of Korea, Oct. 15, 1981, 3897/1981[U]

Int. Cl.³ C07D 498/08

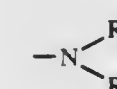
U.S. Cl. 260—239.3 P

4 Claims

1. A process for preparing 3-dialkylaminomethyl rifamycin S derivatives having the formula:



wherein R¹ and R² are oxo (=O); and R³ and R⁴ are methyl, ethyl, propyl, isopropyl, butyl or pentyl, or are connected by methylene bridge where



represents piperidine or 3-methylpyrrolidine which process comprises contacting rifamycin S with 1 to 1.5 equimolar amount of an appropriate iminium salt in an organic solvent at a temperature ranging from room temperature to the boiling point of the solvent for a time sufficient to complete the reaction.

4,394,313

SYMMETRICAL AZETIDINONE ALDEHYDE DISULFIDES AND PROCESS

Stjepan Kukolja, Carmel, and Janice L. Pfeil, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

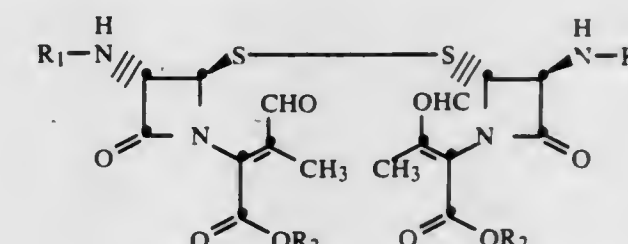
Division of Ser. No. 138,023, Apr. 7, 1980, Pat. No. 4,293,495. This application May 18, 1981, Ser. No. 264,996

Int. Cl.³ C07D 403/12, 487/04, 403/14

U.S. Cl. 260—245.4

15 Claims

1. A process for preparing symmetrical azetidinone aldehyde disulfide compounds of the formula



which comprises:

(1) reacting a 2 α -alkoxy cephalosporin ester of the formula

4,394,327

HERBICIDALLY ACTIVE PHENOXY- α -PHENOXY-ALKANECARBOXYLIC ACID DERIVATIVES

Otto Rohr, Therwil, Switzerland; Georg Pissiotas, Lörrach, Fed. Rep. of Germany; Beat Böhner, Binningen, and Kurt Burdeska, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

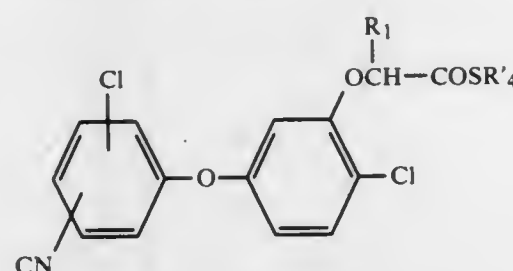
Division of Ser. No. 83,906, Oct. 11, 1979, abandoned, which is a continuation-in-part of Ser. No. 883,021, Mar. 3, 1978, abandoned. This application May 14, 1981, Ser. No. 263,650
Claims priority, application Switzerland, Mar. 8, 1977, 2867/77; Jul. 4, 1977, 8182/77

Int. Cl.³ C07C 153/07, 121/75; A01N 41/00

U.S. Cl. 260—455 R

4 Claims

1. A compound of the formula



wherein

the floating substituents Cl and CN are in the 2- and 4-positions,

R₁ is hydrogen or C₁-C₄ alkyl, and

R₄' is C₁-C₈ alkyl unsubstituted or substituted by halogen or cyano or interrupted by oxygen, sulfur, a carbonyl or a carboxyl oxy group; C₂-C₈ alkenyl optionally substituted by halogen; C₂-C₈ alkynyl optionally substituted by halogen; C₃-C₈ cycloalkyl; C₃-C₈ cycloalkenyl; phenyl unsubstituted or substituted by halogen, cyano, nitro, C₂-C₄ alkyl, C₁-C₄ alkoxy or trifluoromethyl; or benzyl unsubstituted or substituted by halogen, cyano, nitro, C₁-C₄ alkyl, C₁-C₄ alkoxy or trifluoromethyl.

4,394,328

PRODUCTION OF PEROXYDICARBONATES

James A. Barter, Akron, and David E. Kellar, Barberton, both of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 920,886, Jun. 30, 1978, abandoned. This application Mar. 27, 1980, Ser. No. 134,370
Int. Cl.³ C07C 68/02

U.S. Cl. 260—463

7 Claims

1. In a process for preparing peroxydicarbonate represented by the formula R—OCO—OO—OCO—R wherein R is an alkyl or cycloalkyl radical derived from a monohydric alcohol and containing up to 18 carbon atoms by reacting, at a temperature of from -10° C. to 30° C., a chloroformate of the formula R—OCO—Cl, wherein R is as defined above, with hydrogen peroxide and alkali metal hydroxide and recovering undiluted peroxydicarbonate from the reaction mixture, wherein the improvement resides in adding aqueous alkali metal hydroxide solution, containing from 20 percent to 40 percent by weight alkali metal hydroxide, to a continuously stirred batch of an aqueous unemulsified, non-colloidal mixture consisting essentially of chloroformate and hydrogen peroxide the mixture containing from 4 to 12 percent stoichiometric excess of hydrogen peroxide based on the quantity of chloroformate and having a hydrogen peroxide content of from about 10 percent to about 35 percent by weight based on the quantity of water in the mixture, sufficient alkali metal hydroxide solution being added to the mixture so as to provide from 1 to 10 percent stoichiometric excess of alkali metal hydroxide based on the quantity of chloroformate in the mixture.

4,394,329

2-HYDROXYMETHYL-1,3-PROPANEDIOL NITRATE ESTER

Michael W. Barnes, Brigham City, Utah; assignor to Thiokol Corporation, Chicago, Ill.

Division of Ser. No. 52,155, Jun. 26, 1979, abandoned, which is a division of Ser. No. 854,946, Nov. 25, 1977, abandoned. This application Oct. 8, 1980, Ser. No. 195,273
Int. Cl.³ C07C 77/02; C06B 45/10, 25/00

U.S. Cl. 260—467

4 Claims

1. A compound 2-hydroxymethyl-1,3-propanediol trinitrate, said compound being a water white liquid at room temperature.

4,394,330

PHOSPHONATE DERIVATIVES OF POLYALKYLENE POLYAMINES AS FLAME RETARDANTS

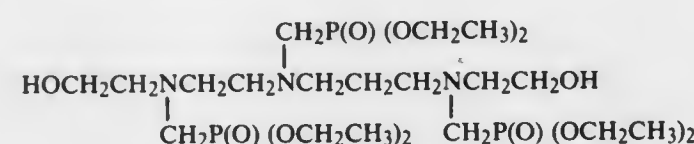
Thomas A. Hardy, Tarrytown, N.Y., and Sophia Y. Liu, Fremont, Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 959,390, Nov. 9, 1978, abandoned, which is a continuation of Ser. No. 755,278, Dec. 29, 1976, abandoned. This application Feb. 28, 1980, Ser. No. 125,591
Int. Cl.³ C07F 9/40; C08G 18/00

U.S. Cl. 260—932

1 Claim

1. A composition having the structural formula:



4,394,331

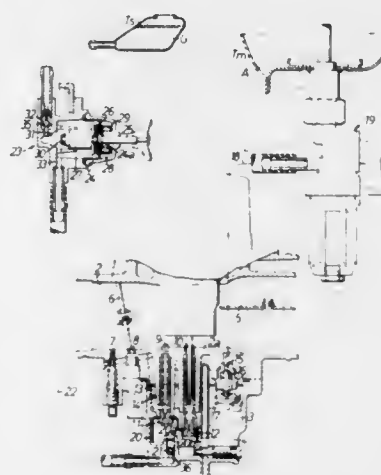
CARBURETOR

Yousuke Okabe, Niiza, and Osamu Shoji, Kawagoe, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 6, 1981, Ser. No. 238,632
Int. Cl.³ F02M 1/16

U.S. Cl. 261—18 B

1 Claim



1. In a carburetor including an intake bore having a venturi portion therein, a throttle valve disposed in said intake bore at the downstream side of said venturi portion, a primary nozzle opening to a portion of said intake bore between said throttle valve and said venturi portion, and a secondary nozzle opening to said venturi portion, said primary nozzle and said secondary nozzle being in communication with a float chamber through a primary jet and a secondary jet, respectively;

an improvement which comprises: a slow fuel passage shunting from a portion between said primary nozzle and said primary jet, said slow fuel passage being communicated with an idle port and a by-pass port both of which open to said intake bore in the vicinity of said throttle valve; a

cup-shaped member disposed beneath the level of the fuel in said float chamber and defining therein a downwardly opened space, said primary jet opening to an uppermost portion of the space in said cup-shaped member while said secondary jet opening to an intermediate portion of the space in said cup-shaped member, a main fuel tank storing an alcoholic fuel therein and communicating with said float chamber through a float chamber; and an auxiliary fuel tank storing gasoline therein and communicating with the space in said cup-shaped member through a metering pump.

4,394,332

CRUCIBLELESS PREPARATION OF RAPIDLY SOLIDIFIED FINE PARTICULATES

Ramaswamy V. Raman, and Robert S. Carbonara, both of Columbus, Ohio, assignors to Battelle Memorial Institute, Columbus, Ohio

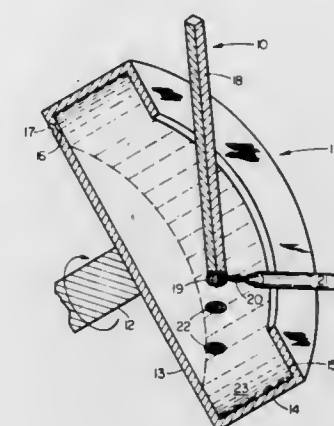
Continuation of Ser. No. 163,907, Jun. 27, 1980, abandoned.

This application Oct. 29, 1981, Ser. No. 316,003

Int. Cl.³ B01J 2/06

U.S. Cl. 264—8

10 Claims



1. A method of making solid fine particulates from a normally solid material, which at a temperature within 25 percent of its equilibrium melting point °K has a surface tension in the range of 10 to 2500 dynes/cm. and a viscosity in the range of 0.001 to 1 poise when a molten material, comprising the steps of:

- heating an unconfined portion of a mass of the solid material to a molten state so as to permit droplets of molten material to fall therefrom;
- providing a moving ring-like mass of a centrifugally disposed rotating liquid quench fluid;
- positioning said portion subjected to heating and said moving ring-like mass in relation to each other that the droplets of molten material fall into contact with said moving ring-like mass of the centrifugally disposed rotating liquid quench fluid;
- breaking said droplets through said contact into fragments and cooling said fragments into solid fine particulates by said moving ring-like mass of the centrifugally disposed rotating liquid quench fluid; and
- subsequently separating the solid fine particulates from the liquid quench fluid.

4,394,333

PROCESS FOR THE PRODUCTION OF BLOW MOLDED ARTICLES ACCOMPANIED WITH THE RECOVERY OF A BLOWING GAS

Hatahiko Fukushima, Katano; Tadabiko Handa, Takarazuka, and Kenji Kodama, Hirakata, all of Japan, assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 30, 1981, Ser. No. 259,140

Claims priority, application Japan, May 9, 1980, 55/62086

Int. Cl.³ B29C 17/07, 25/00

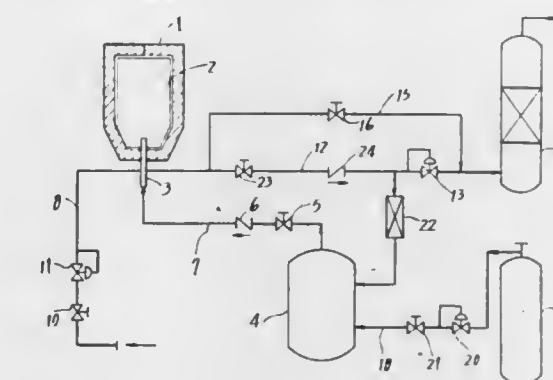
U.S. Cl. 264—37

14 Claims

1. In a process for the production of a blow molded thermo-

plastic article comprising the steps of extruding the thermoplastic material into a molten state to form a parison, introducing from a storage means a blowing gas containing a reactive gas component into the parison and expanding said parison to form the resulting blow molded article, the improvement which comprises:

adjusting within said storage means said blowing gas to a preselected level of pressure and concentration of said reactive gas before introducing the blowing gas into said



parison, purging said blowing gas from the interior of said blow molded article with a purging gas, recovering a mixture of said purging gas and said blowing gas containing a high concentration of the reactive gas component, during an initial stage of said purging, in said storage means and disposing of the remaining mixture of blowing gas and purging gas after the pressure and reactive gas component concentration reaches a preselected level in said storage means.

4,394,334

PROCESS AND APPARATUS FOR DEBURRING MOULDED PARTS PRODUCED BY PRESSING

Gunter H. Kiss, Berlin, Fed. Rep. of Germany, assignor to Ligntock Verfahrenstechnik GmbH, Berlin, Fed. Rep. of Germany

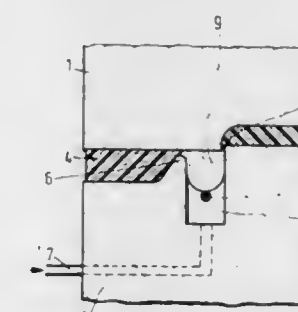
Filed Jan. 22, 1982, Ser. No. 341,643

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1981, 3102220

Int. Cl.³ B29J 5/06

U.S. Cl. 264—80

12 Claims



1. A process for deburring moulded parts produced by pressing large edge contours of poor heat-conducting materials formed of crushed, glued, organic, raw materials comprising the steps of:

- thermally decomposing the material of a small circumferential zone between the edge contour of the moulded part to be deburred and the waste shoulder during pressing of the moulded part; and
- removing the decomposed material from the edge contour when the moulded part is removed from the press tools.

thereby stretching said zones of said given and other rings into oriented strands, said zones in the given ring all being stretched to substantially the same stretch ratio and said zones in the other rings all being stretched to substantially the same stretch ratio.

4,394,343

PROCESS FOR THE FORMING OF COUPLING PIECES FROM A THERMOPLASTIC

Petrus M. Acda, and Jacob Karreman, both of Enkhuizen, Netherlands, assignors to Polva Nederland B.V., Enkhuizen, Netherlands

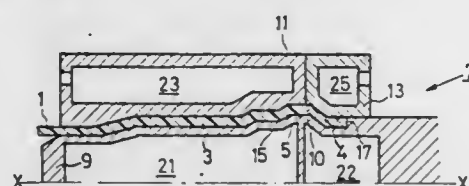
Filed Dec. 12, 1979, Ser. No. 102,655

Claims priority, application Netherlands, Dec. 12, 1978, 7812063

Int. Cl.³ B29C 7/00

U.S. Cl. 264—296

3 Claims



1. Process for the forming of coupling pieces from a thermoplastic, which coupling pieces comprise at least one annular undercut and present a free end and a terminal part which is located between the free end and the location of the greatest depth of the undercut and which is narrowed in the direction from the greatest depth of the undercut, in which process the thermoplastic is formed with the aid of a forming core which is provided with an annular rib, and the external surface of which corresponds to the internal surface of the coupling piece to be formed, the forming being carried out at a pressure and a temperature which are such that the forming core is closely surrounded by the thermoplastic, so as to form a coupling piece with an annular undercut, part of the coupling piece preformed in this way is cooled, the narrowed terminal part of the coupling piece, from the free end to the greatest depth of the undercut, being kept at a temperature which is such that this part remains elastically deformable, at least the part of the forming core provided with the annular rib is then withdrawn from the narrowed terminal part while provoking an elastic deformation of this terminal part, the elastically deformed terminal part is then cooled to a temperature at which the thermoplastic is no longer deformable, and the coupling piece formed in this way is completely withdrawn from the forming core, characterized in that the narrowed terminal part of the preformed coupling piece is postformed to give the desired final shape, after it has been elastically deformed and before it has completely cooled.

4,394,344

HEAT PIPES FOR USE IN A MAGNETIC FIELD

Richard W. Werner, San Ramon, and Myron A. Hoffman, Davis, both of Calif. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Apr. 29, 1981, Ser. No. 258,818

Int. Cl.³ F28D 15/00

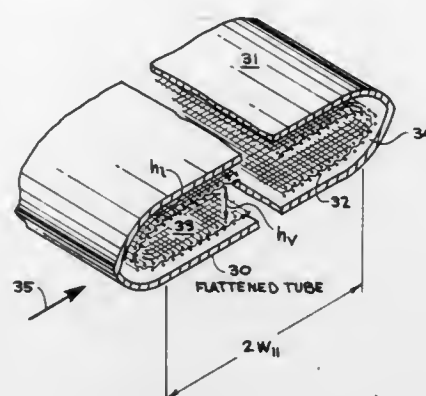
U.S. Cl. 376—146

10 Claims

4. A heat pipe in combination with a magnetic field perpendicular to the longitudinal axis of the heat pipe, said heat pipe having a cross section wherein a first distance is greater than a second distance, said first distance being substantially parallel to said magnetic field, and said second distance being substantially perpendicular to said magnetic field, whereby magnetic pressure drop across said heat pipe is decreased while in the magnetic field.

8. In a magnetic confinement reactor having at least one heat pipe for transferring heat and positioned so that a longitudinal axis of the heat pipe is perpendicular to a magnetic field, the

improvement comprising: a heat pipe constructed to decrease magnetic pressure drop thereacross and having a cross section with a first distance greater than a second distance, said first



distance being substantially parallel to said magnetic field and said second distance being substantially perpendicular to said magnetic field, whereby a magnetic pressure drop across the heat pipe is decreased.

4,394,345

ULTRASONIC METHOD AND APPARATUS

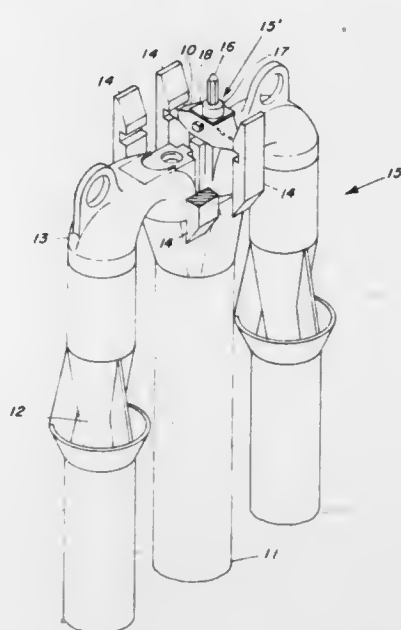
John G. De Briere; Mary M. Lemanowicz; David L. Richardson, and Willem Vanderputten, all of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.

Filed Dec. 29, 1980, Ser. No. 220,431

Int. Cl.³ G21C 17/00

U.S. Cl. 376—245

26 Claims



1. An apparatus for detecting cracks in the jet pump beam of a jet pump arrangement of a nuclear reactor, wherein said arrangement includes a downwardly directed jet pump having a nozzle for receiving pressurized driving water, a riser pipe positioned adjacent said jet pump for supplying said driving water, a pipe elbow connecting the top of said riser pipe to the inlet of said nozzle, and a removable jet pump beam assembly, including a jet pump beam bearing on said elbow to hold said elbow in place, said apparatus comprising an ultrasonic signal production means, and communicating means for communicating said signals from said production means to and from a jet pump beam, said communicating means being straddlingly mountable over a jet pump beam, and said ultrasonic signals being directionally oriented toward the upper surface of said jet pump beam, whereby incipient cracks appearing on said surface are timely ultrasonically detectable.

4,394,346

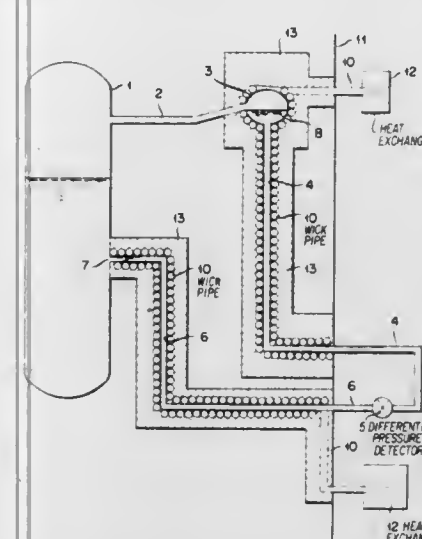
WATER LEVEL GAUGE FOR A NUCLEAR REACTOR

Shinichi Morooka, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 12, 1980, Ser. No. 215,655

Claims priority, application Japan, Dec. 20, 1979, 54-175507[U]; Jan. 29, 1980, 55-8578[U]
Int. Cl.³ G01F 23/16; G21C 17/02
U.S. Cl. 376—258

5 Claims



1. A water level gauge for a nuclear reactor having a reference water level container communicating with a fluid in the upper part of a nuclear reactor pressure vessel through an upper part pressure tube, a differential pressure detector with two inlets for detecting a differential pressure between the reference water level in the reference water level container and the water level inside the nuclear reactor pressure vessel, a reference water head tube connecting one of said two inlets of the differential pressure detector with the reference water level container, and a lower part pressure tube connecting the other inlet of the differential pressure detector with a predetermined measuring point of part of the nuclear reactor pressure vessel, characterized by further comprising heat conduction means for absorbing heat from the reference water head water inside said reference water head tube and from the water inside said lower part pressure tube and for conducting the heat to the outside of a housing of the nuclear reactor pressure vessel, and a heat exchanger for removing the heat conducted to the outside of the housing by said heat conduction means.

4,394,347

BRAZING FILLER METAL COMPOSITION AND PROCESS

John H. McMurray, Stratford, and Jule Miller, Derby, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Jul. 9, 1981, Ser. No. 281,793

Int. Cl.³ C22C 19/05

U.S. Cl. 420—453

2 Claims

1. A brazing filler metal composition consisting essentially of, by weight, from about 8.0% to about 11.0% chromium; from about 2.0% to about 3.0% boron; from about 3.0% to about 4.5% silicon; from about 2.5% to about 4.0% iron; from about 7.0% to about 9.0% tungsten; a maximum of 0.06% carbon and the remainder nickel.

4,394,348

PROCESS FOR THE PREPARATION OF ALUMINIUM ALLOYS

Francis R. F. Hardy, Chester, and Martin G. Griffiths, Warrington, both of England, assignors to Interlox Chemicals Ltd., London, England

Filed Sep. 22, 1980, Ser. No. 189,163

Claims priority, application United Kingdom, Oct. 15, 1979, 7935699

Int. Cl.³ C22C 1/02

U.S. Cl. 420—528

14 Claims

1. In a process for the production of a strontium-modified aluminium alloy which comprises admixing an aluminium-bearing material and a strontium-bearing material, said aluminium-bearing material consisting of aluminium or aluminium alloyed with at least one member selected from the group consisting of magnesium and silicon, and heating the admixed materials to form a strontium-modified aluminium alloy, the improvement wherein said strontium-bearing material comprises strontium peroxide.

4,394,349

APPARATUS FOR THE FLUIDIZED CATALYTIC CRACKING OF HYDROCARBON FEEDSTOCK

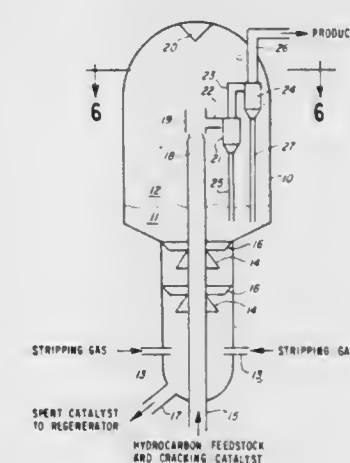
Robert R. Cartmell, Crown Point, Ind., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jul. 6, 1981, Ser. No. 280,901

Int. Cl.³ F27B 15/08; C10G 35/14, 47/30

U.S. Cl. 422—147

6 Claims



1. An apparatus for the fluidized catalytic cracking of a hydrocarbon feedstock, the apparatus comprising:

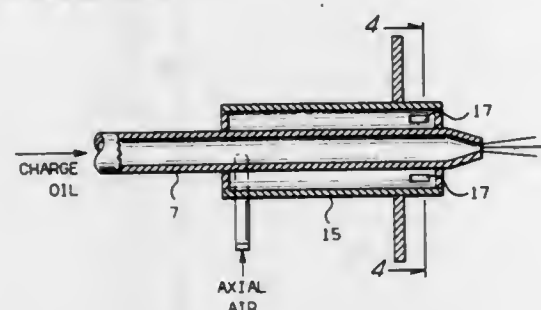
- (a) a disengaging vessel having a dense catalyst phase and a dilute catalyst phase;
 - (b) a vertically ascending riser reactor having means at its upstream end for the introduction of the feedstock and the catalyst, the riser reactor further having a downstream end communicating with the interior of the vessel;
 - (c) a collar having two open ends in communication with the interior of said disengaging vessel and positioned along the same axis as the downstream end of the riser reactor, the collar further being positioned in close proximity to, but not in contact with, the riser reactor such that an annular space is defined between the riser reactor and the collar, the collar having a diameter greater than the diameter of the riser reactor at its downstream end; and
 - (d) a cyclone separation system located within the vessel and having:
 - (i) an outlet communicating with the interior of the vessel to discharge catalyst into the dense phase;
 - (ii) an outlet connected to vent the cracked hydrocarbons outside the vessel; and
 - (iii) an inlet directly and laterally communicating with the collar;
- whereby vapors from the vessel may enter the annular space defined by the collar through one open end thereof and

may thereafter enter the cyclone separation system through said inlet.

4,394,350 METHOD AND APPARATUS FOR VORTEX FLOW CARBON BLACK PRODUCTION

Paul J. Cheng, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Division of Ser. No. 145,094, Apr. 30, 1980, Pat. No. 4,321,248.
This application Nov. 6, 1981, Ser. No. 318,780
Int. Cl.³ C09C 1/48; B01J 10/00
U.S. Cl. 422—150

5 Claims



1. An apparatus for producing carbon black which comprises:

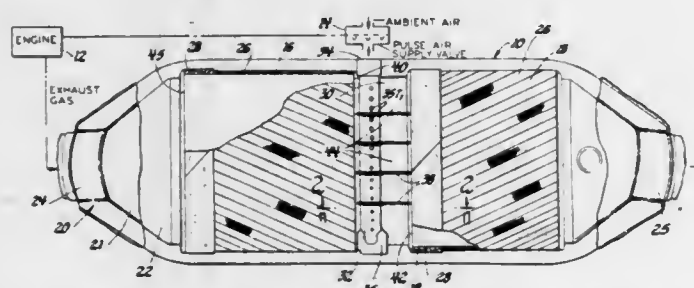
- a carbon black reactor having at least a combustion zone,
- a means for introducing combustion gas in a precombustion or combustion zone of said carbon black reactor in a manner to produce a vortex of combustion gases traveling axially in said reactor, and
- a means for producing an axially moving vortex of fluid which contains feedstock internally to said combustion gas vortex said means for producing a feedstock containing vortex comprising (1) a first centrally located tubular member with a feedstock outlet nozzle at the downstream end and (2) a second tubular member, closed at both ends, and disposed about said first tubular member to form an annular space, the downstream end of said second member being located upstream of said feedstock outlet, said second member having an inlet means for cooling air at the upstream end and a plurality of tangential slots circumferentially disposed at the downstream end to produce a flow of a fluid which contains feedstock in a vortex of cooling air moving axially in said reactor interfacing with the vortex of (b) under conditions to produce carbon black.

4,394,351 DUAL-MONOLITH CATALYTIC CONVERTER WITH SECONDARY AIR INJECTION

Richard A. Gast, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Sep. 8, 1981, Ser. No. 299,843
Int. Cl.³ F01N 3/32

U.S. Cl. 422—171

6 Claims



1. For use with an exhaust gas pulsed air supply means providing a pulsed air supply, a dualmonolith catalytic converter adapted to receive exhaust gases and having an upstream located substrate with a catalyst and an in-line downstream located substrate with a catalyst cooperating to purify

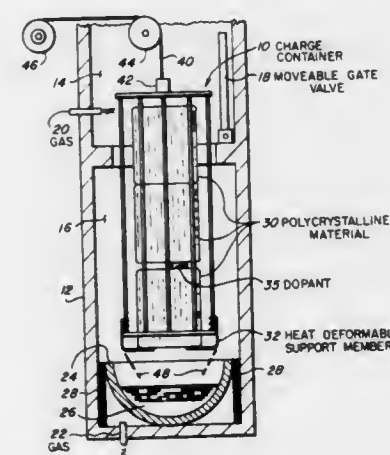
the exhaust gases, said converter having a configuration such that exhaust gas flow is non-uniformly distributed across the upstream frontal areas of each of the substrates, said converter further having a chamber located between said substrates, an air distribution tube having an open end adapted to be connected to said pulsed air supply and extending through and across said chamber and terminating with a closed end, said tube within said chamber having a plurality of holes which are sized and spaced along said tube such that they nonuniformly distribute the pulsed air supply throughout said chamber in a manner to provide a resultant air flow distribution conforming with the non-uniform distribution of exhaust gas, a plurality of flow dividers spaced along said tube and extending substantially parallel to each other in a manner to partition said chamber into a plurality of discrete channels each open to selected ones of said holes to receive one portion only of the non-uniform distribution of the pulsed air supply, and one portion only of the non-uniformly distributed exhaust gas whereby said non-uniform air flow distribution is maintained between said channels while said exhaust gas is flowing between said substrates to prevent the exhaust gas from entering the downstream substrate with an improper mix of pulsed air so that the conversion efficiency of said downstream substrate is maximized.

4,394,352 MELT RECHARGE APPARATUS

Robert W. Helda, deceased, late of Scottsdale, Ariz.; by Cynthia Hazeltine, executor, Phoenix, and H. Ming Liaw, Scottsdale, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Mar. 17, 1980, Ser. No. 130,913

Int. Cl.³ C30B 15/02
U.S. Cl. 422—232

3 Claims



1. An improved recharging apparatus including a container into which charge material can be loaded, wherein the improvement comprises thermally deformable tantalum support means closing an end of said container and capable at room temperature of supporting the weight of said charge material, said means deformable at an elevated temperature to release said charge material.

4,394,353 SEPARATION OF RARE EARTH METALS USING A CATION EXCHANGER

Tetsuya Miyake, Tokyo; Kunihiko Takeda, Yokohama; Hatsuaki Onitsuka, Fujisawa; Kazuo Okuyama, Yokohama, and Yasuki Shimamura, Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 4, 1980, Ser. No. 213,110

Claims priority, application Japan, Dec. 19, 1979, 54-165245; Dec. 20, 1979, 54-166087; Apr. 30, 1980, 55-57472; Aug. 5, 1980, 55-107302; Aug. 8, 1980, 55-109068; Aug. 9, 1980, 55-109644; Aug. 11, 1980, 55-110068; Aug. 12, 1980, 55-110493; Aug. 27, 1980, 55-117968

Int. Cl.³ C01F 17/00

U.S. Cl. 423—21.5

10 Claims

1. In a process for the separation of one rare earth metal from another in a mixture of rare earth metals by passing a retaining agent solution through a bed of a cation exchanger to convert the cation exchanger into that of a retaining agent type, passing a solution of the mixture through the cation exchanger to form a rare earth metal adsorption zone on the bed of the cation exchanger, passing a complexing agent solution through the cation exchanger to effect migration of the rare earth metal adsorption zone through the bed of the cation exchanger and separating a fraction of one of the rare earth metals, the improvement which comprises using as the cation exchanger a cation exchanger having a micro-void volume ratio of 0.58 to 0.95 and a degree of crosslinking of 8 to 17 or having a micro-void volume ratio of 0.50 to 0.95 and a degree of crosslinking of 17 to 80 and passing the materials through the cation exchanger at a rate such that the migration velocity of the rare earth metal adsorption zone through the cation exchanger is from about 5 m per day to about 500 m per day.

4,394,354 SILVER REMOVAL WITH HALOGEN IMPREGNATED ACTIVATED CARBON

Ronald S. Joyce, Pittsburgh, Pa., assignor to Calgon Carbon Corporation, Pittsburgh, Pa.

Filed Sep. 28, 1981, Ser. No. 305,889

Int. Cl.³ C22B 11/00

U.S. Cl. 423—25

6 Claims

1. A process for removing the anionic silver thiosulfate complex from an aqueous solution comprising contacting said solution with halogen impregnated activated carbon containing at least 0.1 weight percent halogen, said halogen being selected from the group consisting of iodine, bromine or any combination of iodine and bromine.

4,394,355 RECOVERY OF CATALYTICALLY-USEFUL COBALT AND LIKE METAL MOIETIES FROM THEIR SOLID OXALATES WITH EDTA SALTS

James D. Fruge, Pampa, Tex., assignor to Celanese Corporation, New York, N.Y.

Filed Mar. 2, 1982, Ser. No. 354,251

Int. Cl.³ C07C 51/235, 55/07; C01G 51/00, 3/00

U.S. Cl. 423—27

9 Claims

1. In a process for treating a solid comprising the oxalate of a metal of the group consisting of cobalt, copper, and manganese to recover therefrom an aqueous solution containing a water-soluble salt of said metal substantially free from oxalate moiety, the improvement which comprises:

leaching said solid with an aqueous solution of a water-soluble salt of ethylenediaminetetraacetic acid (EDTA) to form a leach liquor containing in solution the metal moiety of said metal oxalate in the form of the EDTA-metal complex;

mixing said leach liquor with a solution containing dissolved calcium ions in a quantity at least stoichiometrically equivalent to the oxalate ions contained in said leach liquor to form a mixture comprising a precipitate of solid calcium

oxalate and a solution containing said EDTA-metal complex;

separating said calcium oxalate precipitate from said mixture to produce a clarified solution of said EDTA-metal complex;

acidifying said clarified solution with an effective amount of a strong acid to decompose said complex to form solid EDTA and a dissolved salt of said metal; and

removing said solid EDTA from said acidified solution leaving said metal salt dissolved therein.

8. In a process for oxidizing an organic feedstock with a catalyst comprising cobalt in a liquid phase comprising a carboxylic acid to produce a liquid oxidate comprising a carboxylic acid and wherein cobalt initially contained in said catalyst is converted to cobalt oxalate, in which process said cobalt oxalate is separated as a solid from said oxidate and converted to a cobalt salt which can be re-used as catalyst in said process, the improvement which comprises:

leaching said solid with an aqueous solution of a water-soluble salt of ethylenediaminetetraacetic acid (EDTA) to form a leach liquor containing in solution the cobalt moiety of said cobalt oxalate in the form of the EDTA-cobalt complex;

mixing said leach liquor with a solution containing a quantity of calcium ions sufficient to react with said complex to form a mixture comprising a precipitate of solid calcium oxalate and a solution containing said EDTA-cobalt complex;

separating said calcium oxalate precipitate from said mixture to produce a remaining clarified solution of said EDTA cobalt complex;

acidifying said clarified solution with an effective amount of a strong acid other than sulfuric acid to decompose said complex to form solid EDTA and a dissolved cobalt salt; removing said solid EDTA from said acidified solution leaving a clarified cobalt salt solution; and

returning said clarified cobalt salt solution to said oxidation process for re-use as catalyst therein.

4,394,356 RECUPERATION OF CYANIDES FROM RINSING SOLUTIONS OF CYANIDIC PROCESSES FOR ELECTRODEPOSITION OF METALS

Michael F. Peuser, Rua Princesa Isabel, 266, Apto 181, Sao Paulo 04601, and Jose B. Bartolo, Nicolau-210-Diadema, San Paulo 09900, both of Brazil

PCT No. PCT/BR80/00002, § 371 Date Sep. 25, 1980, § 102(e) Date Sep. 25, 1980, PCT Pub. No. WO80/01563, PCT Pub. Date Aug. 7, 1980

PCT Filed Jan. 18, 1980, Ser. No. 285,222

Int. Cl.³ C01C 3/08; C02F 1/58

U.S. Cl. 423—43

3 Claims

1. A process for recuperation of a cyanide from a rinsing solution of a cyanidic process for electrodepositing of copper, the solution containing a soluble complex cyanide of an alkali metal and copper, comprising adding to the solution a soluble simple salt of bivalent copper reacting with said complex cyanide and any free cyanide ions in said solution to form and precipitate an insoluble cyanide of copper, and separating said precipitant for reuse, said precipitation, being conducted without using hydrochloric acid by adding sodium bisulfite to the solution to reduce the pH of the solution to between 1.5 and 4.0 and the copper ion of the simple salt to a cuprous state for precipitating insoluble cuprous cyanide.

3. A process for recuperation of a cyanide from a rinsing solution of a cyanidic process for electrodepositing of cadmium, the solution containing a soluble complex cyanide of an alkali metal and cadmium, comprising conducting the process in two stages, in a first whereof the solution is diluted to a cadmium content below 17 g/l, a soluble salt of zinc and a strong acid is added to the diluted solution to precipitate insoluble zinc cyanide, and the precipitate is separated from the solution, and in the second stage adding to the solution from

the first stage an alkali compound reacting with cadmium ions in the solution to form and precipitate an insoluble cadmium salt, and separating the precipitate.

4,394,357

SEPARATION OF COBALT AND NICKEL BY OXIDATIVE PRECIPITATION WITH PEROXYMONOSULFURIC ACID

Diana M. Mounsey, Runcorn, and David B. Mobbs, Handforth, both of England, assignors to Interex Chemicals Ltd., London, England

Filed Nov. 16, 1981, Ser. No. 321,575

Claims priority, application United Kingdom, Dec. 5, 1980, 8039084

Int. Cl.³ C01G 51/00

U.S. Cl. 423—140

19 Claims

1. In a process for the separation of cobalt and nickel from an aqueous acidic sulphate solution thereof in which Caro's Acid is introduced into said aqueous solution, and is at least partially neutralised by introduction of a neutralising agent, resulting in a cobalt-containing precipitate, and the resultant precipitate is separated from the residual aqueous phase, the improvement which comprises employing at least a stoichiometric amount of Caro's Acid based on the amount of peroxomonosulphuric acid required theoretically to oxidise all the cobalt in solution to cobalt (III), said Caro's Acid containing not more than 1 mole of hydrogen peroxide per 8 moles of peroxomonosulphuric acid, maintaining the aqueous solution of cobalt and nickel at a pH of not more than pH 4.7 and at a minimum pH ranging from pH 3.1 when the nickel to cobalt mole ratio in the solution before Caro's Acid introduction is 1:1 or lower up to pH 3.5 when said mole ratio is 40:1 or higher, by introduction therein of an alkali metal hydroxide or carbonate, for a period of at least 2 hours after introduction of Caro's Acid solution commences, during which period cobalt hydroxide precipitates out of solution.

4,394,358

PRODUCTION OF GRANULAR ALKALI METAL DIPHOSPHATES OR TRIPHOSPHATES

Alexander Maurer; Renate Adrian; Herbert Panter, all of Hürth; Gero Heymer, and Dieter Nölker, both of Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 17, 1981, Ser. No. 303,100

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1980, 3035820

Int. Cl.³ C01B 25/30

U.S. Cl. 423—305

9 Claims

1. In the process for making granular, partially or completely hydrated alkali metal diphosphates or triphosphates, wherein pulverulent, anhydrous or partially hydrated alkali metal diphosphates or triphosphates are intensively mixed and granulated in the presence of water and a phosphate salt other than the alkali metal diphosphate or triphosphate, the improvement which comprises: intensively mixing and granulating alkali metal diphosphates or triphosphates consisting to an extent of at least 20% of particles with a size of less than 0.045 mm and hydrated to an extent of less than 90%, based on the phosphates' theoretical content of water of hydration, in the presence of a quantity of water at most necessary for completely hydrating the alkali metal diphosphates or triphosphates and in the presence of an ammonium polyphosphate, this latter presenting a degree of condensation of 3 up to about 1000 and being used in proportion of about 0.5 to 50 weight %, based on the quantity of water used.

4,394,359

PROCESS FOR MAKING GRANULATED CONDENSED PHOSPHATES

Horst-Dieter Wasel-Nielen; Alexander Maurer, and Renate Adrian, all of Hürth, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 18, 1981, Ser. No. 303,425

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1980, 3035805

Int. Cl.³ C01B 25/40

U.S. Cl. 423—305

8 Claims

1. A process for converting pulverulent, water-soluble, condensed phosphates of the following general formula (I)



in which M stands for sodium, potassium or ammonium and n stands for a number between 4 and about 100, to a granulate, wherein the pulverulent, water-soluble, condensed phosphate is thoroughly agitated and granulated in the presence of water and of a phosphate salt other than the condensed phosphate, which comprises: thoroughly agitating and granulating a condensed phosphate of the general formula (I) or a mixture of the phosphate with an anhydrous or partially hydrated alkali metal phosphate in the presence of water and aiding the formation of a granulate from the pulverulent material with a granulating aid comprising an ammonium polyphosphate of the following general formula (II)



in which n stands for an integral average value of 3 to 1000, m stands for a whole number of up to n+2, and the m/n-ratio is between about 1.0 and 1.67, the water being used in a proportion of about 0.05 to 5.0 weight %, the ammonium polyphosphate of general formula (II) being used in a granulation-assisting proportion of about 0.003 to 1 weight %- and the alkali metal phosphate being used in a proportion of up to about 40 weight %, the percentages being all based on the quantity of the condensed phosphate of general formula (I).

4,394,360

PROCESS FOR REDUCING IRON IN PHOSPHORIC ACID SOLUTION

Klaus Schrödter, and Klaus Lehr, both of Hürth, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 30, 1981, Ser. No. 325,811

Claims priority, application Fed. Rep. of Germany, Dec. 4, 1980, 3045645

Int. Cl.³ C01B 15/16, 25/26

U.S. Cl. 423—317

9 Claims

1. A process for reducing iron from the trivalent to bivalent oxidation stage with the aid of a reductant, the iron being present in phosphoric acid solution, which comprises using red phosphorus as the reductant and effecting the reduction in the presence of at least 5 ppm of copper, based on the weight of the solution at temperatures within the range of 10° to 90° C. by keeping the red phosphorus in contact with the iron-containing phosphoric acid solution over a period at least necessary for the reduction of iron.

4,394,361

METHOD OF PURIFYING PHOSPHORIC ACID

Sidney Berkowitz, Highland Park, and Richard A. Mohr, Martinsville, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed May 24, 1982, Ser. No. 381,279

Int. Cl.³ C01B 25/16

U.S. Cl. 423—321 S

12 Claims

1. In the purification of wet process phosphoric acid by the solvent extraction of sulfuric acid acidulated phosphatic ores

wherein there is formed an aqueous phase containing the major part of the impurities and a solvent phase containing purified phosphoric acid and separating both said phases, and recovering the phosphoric acid the improvement which comprises extracting the phosphoric acid with an organic, essentially water-insoluble liquid extractant consisting essentially of an organic phosphate selected from the group consisting of an alkyl phosphate, an aryl phosphate or an alkyl aryl phosphate diluted with an organic solvent selected from the class consisting of diisobutyl ketone, acetophenone, benzophenone, 3-octanone, 1-octanol and 1-decanol.

4,394,362

CRYSTALLINE SILICATE PARTICLE HAVING AN ALUMINUM-CONTAINING OUTER SHELL

Stephen J. Miller, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Apr. 28, 1981, Ser. No. 258,497

Int. Cl.³ C01B 33/28; B01J 29/06

U.S. Cl. 423—328

20 Claims

1. A particle, comprising an inner portion and an outer portion disposed as a shell around said inner portion wherein said outer portion has the same crystal structure as said inner portion, said inner portion comprising an intermediate pore size crystalline silicate having a silica:alumina mole ratio greater than about 200:1, and said outer portion having a silica:alumina mole ratio of less than about 100:1 and wherein said particle is prepared by a process comprising:

- (1) initiating crystallization in a crystallization medium substantially free of aluminum to produce the intermediate pore size crystalline silicate;
- (2) adding a source of aluminum to said crystallization medium; and
- (3) crystallizing onto said crystalline silicate the isostructural outer portion which comprises alumina.

4,394,363

PROCESS FOR THE GRANULATION OF PRECIPITATION PRODUCTS FORMED FROM AMMONIUM COMPOUNDS

Egon Haese, Bochum; Rolf Willms, Witten, and Karl D. Schulteiss, Bochum, all of Fed. Rep. of Germany, assignors to Dr. C. Otto & Comp. G.m.b.H., Bochum, Fed. Rep. of Germany

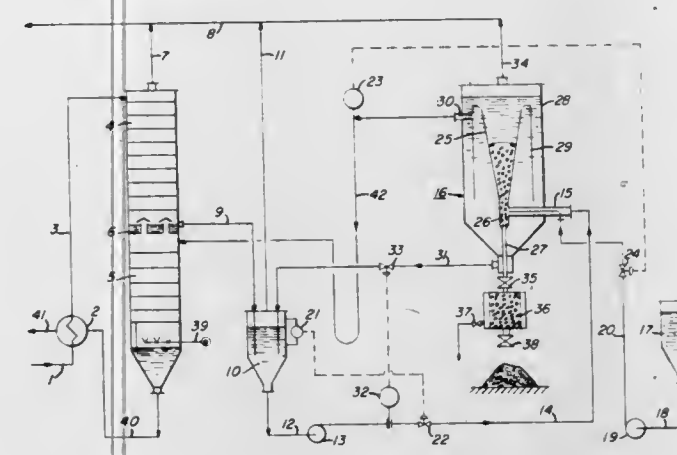
Continuation of Ser. No. 115,648, Jan. 28, 1980, abandoned. This application Apr. 29, 1981, Ser. No. 258,880

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1979, 2903289

Int. Cl.³ C01C 1/02

U.S. Cl. 423—356

6 Claims



1. A process for the granulation of precipitation products formed from the reaction of ammonium compounds with alkaline-earth compounds, which comprises introducing into a liquid-filled reaction chamber above the bottom thereof a first aqueous stream containing the said ammonium compounds and introducing a second aqueous stream containing the said alkaline-earth compounds such that the said alkaline-earth compounds are immediately and intimately mixed with the said

ammonium compounds to effect a liquid phase reaction and form alkaline-earth compound precipitation products in the form of granules which are difficultly soluble in water, withdrawing the said granules from the bottom of the said reaction chamber and separately recovering from said reaction chamber a third aqueous stream containing an essentially particle-free aqueous solution of free ammonia and a fourth aqueous stream containing an aqueous solution of free ammonia and suspended particles of said precipitation products.

4,394,364

SEPARATION OF BORIC ACID FROM MIXTURES THEREOF WITH SULPHURIC ACID

Josef Haki, Allschwil, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Continuation-in-part of Ser. No. 960,814, Nov. 15, 1978, abandoned. This application Jul. 16, 1979, Ser. No. 57,740

Claims priority, application Switzerland, Nov. 16, 1977, 13992/77

Int. Cl.³ C01B 35/10, 17/90

U.S. Cl. 423—483

11 Claims

1. A process for the separation of boric acid from a boric acid-containing aqueous sulphuric acid mother liquor, the concentration of boric acid in said mother liquor being at least 2% by weight based on the H₂SO₄, comprising adjusting the concentration of the sulphuric acid towards 50% by weight H₂SO₄, based on H₂SO₄ and H₂O, with the proviso that the final concentration lies within the range of from 49 to 51% by weight, and with the further proviso that where the initial sulphuric acid is dilute, the concentration thereof is adjusted towards 50% by weight by distilling off water, and then separating the boric acid which precipitates out of the mother liquor.

4,394,365

METHOD FOR CURTAILING PHOSPHOROUS IMPURITY IN THE PRODUCTION OF HYDROGEN FLUORIDE

Bohdan Gnyra, Kingston, Canada, assignor to Alcan International Limited, Montreal, Canada

Filed Dec. 17, 1981, Ser. No. 331,772

Claims priority, application United Kingdom, Jan. 5, 1981, 8100110

Int. Cl.³ C01B 7/22

U.S. Cl. 423—485

8 Claims

1. A process for the production of hydrogen fluoride by reaction of sulphuric acid of a concentration in excess of 95% by weight at a temperature of 195°-240° C. with fluorspar, containing phosphorous impurities, characterised in that for the purpose of reducing the phosphorous impurities in the generated gaseous hydrogen fluoride, the reaction of sulphuric acid with fluorspar is carried out in the presence of aluminium sulphate in an amount of about 0.4-2.5%, expressed as % Al on the basis of the fluorspar.

4,394,366

PROCESS FOR PRODUCTION OF COCL₂ SOLUTION FROM COBALTIC OXIDE-HYDRATE

Victor A. Ettel, Mississauga; Eric A. Devuyt, Toronto, and Alexander Illis, Mississauga, all of Canada, assignors to Inco Limited, Toronto, Canada

Filed May 4, 1981, Ser. No. 260,059

Claims priority, application Canada, Nov. 14, 1980, 364745

Int. Cl.³ C01G 53/08

U.S. Cl. 423—493

5 Claims

1. A process for producing cobaltous chloride from cobaltic hydroxide while avoiding the generation of chlorine which comprises slurrying in water cobaltic hydroxide to be dissolved and treating the resulting slurry with a reducing agent from the group consisting of methanol, formaldehyde and formic acid and with hydrochloric acid such that the contact

of said acid with said slurry occurs in the presence of said reducing agent and the rate of said acid addition is controlled to maintain the slurry at a pH above 1.

4,394,367

PROCESS FOR RECOVERY OF CHLORINE FROM HYDROGEN CHLORIDE

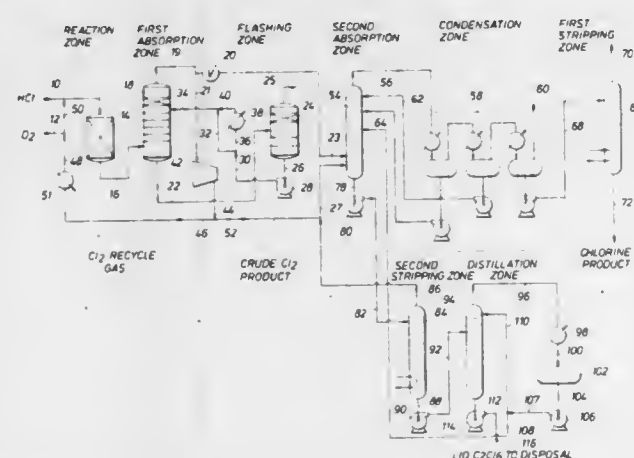
Elton G. Foster, Houston, Tex., assignor to Shell Oil Co., Houston, Tex.

Filed Mar. 11, 1982, Ser. No. 357,031

Int. Cl.³ C01B 7/04

U.S. Cl. 423—502

6 Claims



1. In a process wherein chlorine is produced by contacting oxygen and hydrogen chloride and minor amounts of organic impurities in the presence of a chloride of a metal having an atomic number of 21 to 30, both inclusive, at hydrogen chloride oxidizing conditions in a reaction zone thereby forming a reaction mixture comprising chlorine, hydrogen chloride, water, carbon dioxide and halogenated impurities, the steps which comprise

- contacting said reaction mixture in a first absorption with zone with sulfuric acid having a temperature lower than the temperature of the reaction mixture exiting the reaction zone to partially cool and to dry said reaction mixture;
- contacting the partially cooled reaction product from step (a) in a second absorption zone with carbon tetrachloride thereby absorbing in said carbon tetrachloride substantially all of the halogenated impurities and a small amount of the chlorine contained in said partially cooled reaction product;
- cooling the unabsorbed product from step (b) in a condensing zone thereby forming in said condensing zone a liquid phase consisting essentially of chlorine and hydrogen chloride, and a vapor phase consisting essentially of unreacted oxygen, carbon dioxide and hydrogen chloride;
- stripping said liquid phase from step (c) in a first stripping zone to remove as overhead hydrogen chloride and removing chlorine as bottom product;
- stripping the absorption product from step (b) in a second stripping zone to remove chlorine as an overhead stream and leaving a bottom product comprising carbon tetrachloride, and impurities which originated from the reaction zone; and
- distilling by fractional distillation said bottoms product from step (e) in a distillation zone to recover carbon tetrachloride as overhead product, said distillation column being operated at a pressure sufficient to remove said impurities as a liquid bottoms product.

4,394,368 HIGH TEMPERATURE HYDROLYSIS OF ALUMINUM SULFATE SOLUTIONS

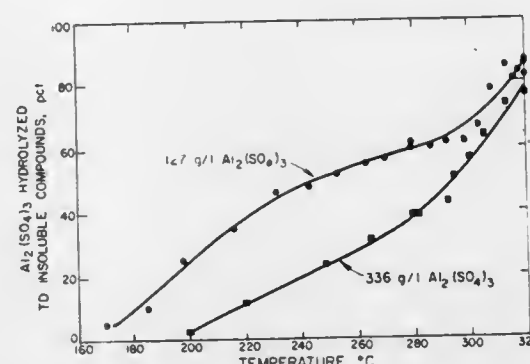
Donald E. Shanks, Reno, Nev., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Dec. 4, 1981, Ser. No. 327,539

Int. Cl.³ C01F 7/26, 7/74

U.S. Cl. 423—556

3 Claims



1. A process for hydrolysis of dilute aqueous aluminum sulfate solution containing about 100–300 grams per liter of aluminum sulfate and minor amounts of impurities consisting essentially of maintaining said solution in a closed system at a hydrolysis temperature above 300° C. for a time sufficient to convert a high percentage of the aluminum sulfate to the insoluble basic aluminum sulfate, Al(OH)SO₄, and subsequently quenching the closed system in water.

4,394,369

HYDROGEN PEROXIDE PROCESS

Wayne Ranbom, Pennington, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed May 24, 1982, Ser. No. 381,592

Int. Cl.³ C01B 15/02

U.S. Cl. 423—588

14 Claims

1. An improved process for producing hydrogen peroxide by the alternate reduction and oxidation of a substituted anthraquinone and its tetrahydro derivative as the working compound, dissolved in a solvent to constitute a liquid working solution wherein the improvement resides in using a solvent comprising an N-substituted-2-pyrrolidone wherein the substituted moiety is a hydrocarbon containing 6 to 12 carbon atoms.

4,394,370

BONE GRAFT MATERIAL FOR OSSEOUS DEFECTS AND METHOD OF MAKING SAME

Steven R. Jefferies, 5802 Leith Walk, Baltimore, Md. 21239

Filed Sep. 21, 1981, Ser. No. 304,367

Int. Cl.³ A61K 9/00, 35/32

U.S. Cl. 424—15

12 Claims

1. A bone graft material capable of inducing the formation of osseous tissue in the animal in which it is implanted, said bone graft material consisting essentially of a collagen conjugate containing:

from about 65 to about 95 weight percent reconstituted collagen having dispersed substantially uniformly therein from about 35 to about 5 weight percent of (a) demineralized bone particles, (b) solubilized bone morphogenic protein, or (c) mixtures of demineralized bone particles and solubilized bone morphogenic protein, said bone graft material adapted to induce the formation of osseous tissue when implanted in an animal.

4,394,371

DENTRIFRICE PREPARATION

Giulio G. Barberio, Urmston, England, assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Apr. 7, 1982, Ser. No. 366,260

Claims priority, application United Kingdom, Apr. 7, 1981, 81/10857

Int. Cl.³ A61K 7/16, 7/18

U.S. Cl. 424—52

4 Claims

1. A dentifrice preparation in an unlined aluminium tube containing a dentifrice vehicle and dispersed therein a non-toxic anticaries amount of a water-soluble alkali metal monofluorophosphate, 20–75% by weight of dentally acceptable alkaline earth metal orthophosphate polishing material, 0.01–20% by weight of a water-soluble sodium trimetaphosphate and an amount of at least 0.4% by weight phytic acid effective to reduce attack by the dentifrice on the aluminium of an unlined aluminium tube.

4,394,372

PROCESS FOR MAKING LIPID MEMBRANE STRUCTURES

James L. Taylor, Naperville, Ill., assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 219,186, Dec. 22, 1980,

abandoned. This application Jan. 15, 1982, Ser. No. 339,567

Int. Cl.³ A61K 45/02, 37/26, 47/00

U.S. Cl. 424—85

18 Claims

1. A process for producing vesicles wherein a solution containing lipids, amphiphiles and other membrane materials, capable of forming vesicles, in a solvent system is dispersed in an aqueous solution and, subsequently, at least a portion of that solvent system is stripped off, characterized in that said solvent system comprises at least two organic components, S₁ and S₂, wherein:

- S₁ is highly soluble in the aqueous solution;
- S₂ is hydrophobic;
- S₂ is more volatile than the aqueous solution;
- the membrane materials are not entirely soluble in S₂ alone;
- the mixture of S₁ and S₂ forms an interface with the aqueous solution; and
- the membrane materials may be dissolved in a mixture of S₁ and S₂.

4,394,373

METHOD OF ACHIEVING HEMOSTASIS

William G. Malette, 667 Parkwood La., Omaha, Nebr. 68132, and Herbert J. Quigley, Jr., 9511 Mockingbird Dr., Omaha, Nebr. 68127

Filed Apr. 6, 1981, Ser. No. 251,321

Int. Cl.³ A61K 31/60, 35/56

U.S. Cl. 424—95

14 Claims

1. The method of achieving hemostasis in bleeding open wounds which comprises placing chitosan in contact with the wound.

4,394,374

THYMUS GLAND EXTRACTS

Richard N. Ushijima, 43 Nanea Ave., Wahiawa, Hi. 96786

Filed Jun. 15, 1981, Ser. No. 273,581

Int. Cl.³ A61K 7/32

U.S. Cl. 424—95

16 Claims

1. A process for producing a thymus extract in the substantial absence of added acids and organic solvents comprising: comminuting defatted thymus glands; mixing the comminuted glands with water at a ratio of not more than 300 g of comminuted glands per 400 ml of water; maintaining the resulting mixture at an elevated temperature and for a time sufficient that large proteins and proteolytic enzymes are at least partially denatured; mechanically separating the mixture, by centrifugation or

equivalent means, into oils, undissolved solids, and an aqueous solution including protein substances; decanting to isolate the aqueous solution; after the aforesaid steps, forming a precipitate including the protein substances by adding a source of sulfate ions to the aqueous solution in an amount sufficient to produce a precipitate yield at least as great as a yield obtained when from 400 to 600 ml. of distilled water are mixed with each 300 g. of comminuted glands to produce the aqueous solution and from 9.5 to eleven parts to saturated ammonium sulfate solution are combined with each seven parts of the aqueous solution at room temperature; separating the precipitate from supernatant liquid by centrifugation or equivalent means; combining the precipitate with water so that a portion of the precipitate dissolves to form an extract solution; dialyzing the extract solution to remove dissolved, low molecular weight substances from the extract solution; and purifying the extract solution by removing any undissolved precipitate from the extract solution by centrifugation or equivalent means.

4,394,375

CEPHALOSPORIN DERIVATIVES, AND COMPOSITIONS CONTAINING THEM

Peter H. Bentley; Kenneth D. Hardy, and Peter H. Milner, all of Horsham, England, assignors to Beecham Group Limited, England

Filed Jun. 5, 1981, Ser. No. 271,008

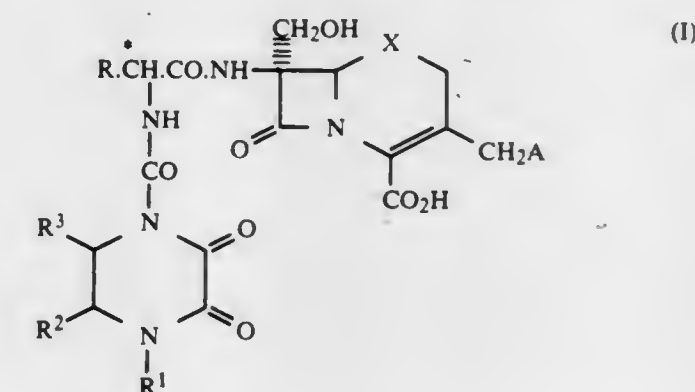
Claims priority, application United Kingdom, Jun. 6, 1980, 8018674

Int. Cl.³ A61K 31/545; C07D 501/57

U.S. Cl. 424—114

13 Claims

1. A compound of formula (I) or a pharmaceutically acceptable salt or in vivo hydrolysable ester thereof:



wherein

R is phenyl, 4-hydroxyphenyl, or a 5- or 6-membered heterocyclic ring containing up to three heteroatoms selected from oxygen, sulphur or nitrogen, optionally substituted with hydroxy, amino, halogen or C₁₋₆ alkoxy; R¹ represents hydrogen or C₁₋₆ alkyl; R² and R³ are the same or different and represent hydrogen, C₁₋₆ alkyl, halogen, amino, hydroxy, or C₁₋₆ alkoxy; X represents oxygen or sulphur; and A represents hydrogen, or acetoxy.

4,394,376

METHOD FOR PREVENTING HYPERTRIGLYCERIDEMIA

Hiroshi Kamimae, Yokohama, and Tadashi Ishikawa, Sagami, both of Japan, assignors to Nihon Nosan Kogyo K.K., Yokohama, Japan

Filed Feb. 22, 1982, Ser. No. 351,176

Claims priority, application Japan, Feb. 25, 1981, 56-025428

Int. Cl.³ A61K 33/18

U.S. Cl. 424—150

5 Claims

1. A method for preventing hypertriglyceridemia in humans

comprising ingesting a hypertriglyceridemia preventing amount of iodine-enriched whole egg or egg yolk in the daily diet.

4,394,377

RUMINANT ANIMAL PERFORMANCE BY CO-ADMINISTERING CHOLINE AND PROPIONATE ENCHANCERS

Howard R. Spires, Sunnyvale, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jul. 31, 1981, Ser. No. 289,001

Int. Cl.³ A61K 37/00, 31/35, 31/14

U.S. Cl. 424—177

32 Claims

1. A method for increasing the availability of supplemental dietary choline to an animal with a developed rumen, which method comprises co-administering a diet-supplementing amount of choline or a choline compound with a propionate-enhancing amount of a propionate-enhancing antibiotic compound.

4,394,378

3-(TRIMETHOXYSILYL) PROPYLDIDECELYLMETHYL AMMONIUM SALTS AND METHOD OF INHIBITING GROWTH OF MICROORGANISMS THEREWITH

Stewart E. Klein, Richardson La., Harrison, N.Y. 10528

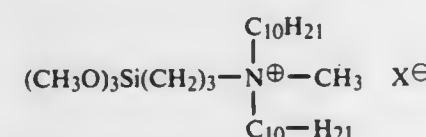
Filed Jul. 8, 1981, Ser. No. 281,319

Int. Cl.³ C07F 7/10; A61L 13/00

U.S. Cl. 424—184

9 Claims

1. A silyl quaternary ammonium compound having the formula



wherein X is selected from the group consisting of fluoride, chloride, bromide, iodide, sulfate and acetate.

4,394,379

AMIDE PHOSPHOROTHIOLATE DERIVATIVES AND THEIR USE AS PESTICIDES

Osamu Kirino, Ashiya; Masachika Hirano, Ibaraki; Hisami Takeda, and Toshiro Kato, both of Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation-in-part of Ser. No. 58,565, Jul. 18, 1979, abandoned. This application Jan. 17, 1980, Ser. No. 113,133

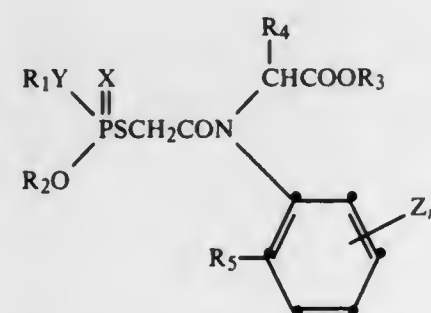
Claims priority, application Japan, Jul. 21, 1978, 53/89712

Int. Cl.³ A01N 57/14; C07F 9/165, 9/40

U.S. Cl. 424—211

13 Claims

1. A compound of the formula



wherein X is an oxygen or sulfur atom, Y is an oxygen or sulfur atom or imino group, R₁ and R₂, which may be the same or different, are each a C₁-C₃ alkyl group, R₃ is a C₁-C₄ alkyl group, R₄ is a hydrogen atom or methyl group, R₅ is a C₁-C₃ alkyl, methoxy or ethoxy group, Z is a hydrogen atom, a methyl group or chlorine atom and n is 1 or 2.

10. A method for controlling insects, mites, nematodes and

/or fungi which comprises contacting the insects, mites, nematodes and/or fungi with an insecticidally, mitocidally, nematocidally and/or fungicidally effective amount of at least one amide phosphorothiolate derivative as defined in claim 1.

4,394,380

2-(2-ALKOXYALKYL)-1,2,4-TRIAZOLE COMPOUNDS AND THEIR USE AS FUNGICIDES

Sugavanam Balasubramanian, Wokingham, and Margaret C. Shephard, Maidenhead, both of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 882,205, Feb. 27, 1978, Pat. No.

4,315,016, which is a continuation-in-part of Ser. No. 720,664, Sep. 7, 1976, abandoned. This application Jul. 24, 1981, Ser. No. 286,552

Claims priority, application United Kingdom, Sep. 10, 1975, 37242/75

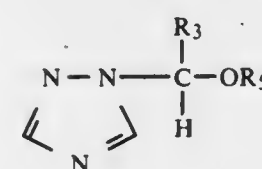
The portion of the term of this patent subsequent to Feb. 9, 1999, has been disclaimed.

Int. Cl.³ A01N 43/64; C07D 249/08

U.S. Cl. 424—269

9 Claims

1. A compound of general formula:



wherein R₃ is alkyl having up to 5 carbon atoms, phenyl optionally substituted with one substituent selected from the class consisting of halogen, nitro or alkyl having up to 4 carbon atoms, or benzyl optionally substituted on the α-carbon atom with alkyl having up to 4 carbon atoms, and R₅ is alkyl having up to 5 carbon atoms, alkenyl having up to 5 carbon atoms, or a fungicidal acid salt of such a compound.

7. A method of combating fungal diseases in a plant, said method consisting essentially of the step of applying to the plant, seed of the plant or to the locus of the plant or seed, a fungicidally effective amount of a compound or salt as claimed in claim 1.

4,394,381

METHOD FOR THE RELIEF OF PAIN

George F. Sherrill, Newport Beach, Calif., assignor to George F. and Irene Sherrill 1978 Trust No. 1 and George F. and Irene Sherrill 1978 Trust No. 2, both of Newport Beach, Calif. part interest to each

Continuation-in-part of Ser. No. 29,698, Apr. 13, 1979, Pat. No. 4,267,007, which is a continuation of Ser. No. 781,170, Mar. 25, 1977, abandoned. This application Dec. 8, 1980, Ser. No. 214,563

Int. Cl.³ A61K 31/40, 31/14, 31/505, 31/44

U.S. Cl. 424—274

20 Claims

1. A method for the relief in humans of pain which is susceptible to topical treatment comprising the topical application to the distressed areas of a person of an amount of an anesthetic composition effective to relieve said pain, wherein the composition comprises an effective amount of at least 0.1% captan and an effective amount of surface active quaternary ammonium salt bactericide.

4,394,382

DIHYDROBENZOPYRAN COMPOUNDS AND PHARMACEUTICAL COMPOSITION COMPRISING SAID COMPOUNDS

Masami Shiratsuchi, Musashimurayama; Noboru Shimizu, Higashimurayama; Hiromichi Shigyo, Fuchu; Yoshinori Kyotani, Higashiyamato; Hisashi Kunieda, Higashimurayama; Kiyoshi Kawamura, Tokorozawa; Seiichi Sato; Toshihiro Akashi, both of Higashimurayama; Masahiko Nagakura, Sayama; Naotoshi Sawada, Kawasaki, and Yasumi Uchida, Ichikawa, all of Japan, assignors to Kowa Company, Ltd., Japan

Filed Jun. 9, 1981, Ser. No. 271,927

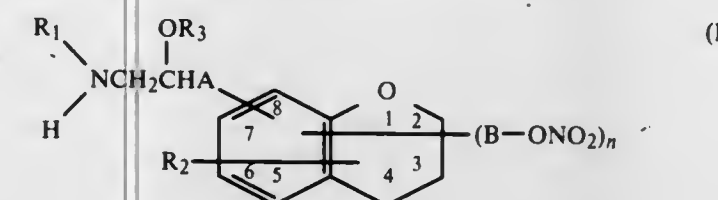
Claims priority, application Japan, Jun. 17, 1980, 55/80841; Dec. 25, 1980, 55/182854

Int. Cl.³ A61K 31/35; C07D 311/04

U.S. Cl. 424—283

3 Claims

1. A compound represented by the following



wherein

A represents a direct bond or the bond —CH₂—O—,

R₁ represents a member selected from the group consisting of a C₃-C₅ alkyl group, a hydroxy-(C₃-C₅ alkyl) group, a lower alkylamino-lower alkyl group, a nitrato-(C₃-C₅ alkyl) group and a phenyl-(C₁-C₅ alkyl) group, provided that the phenyl may be substituted by a lower alkoxy group,

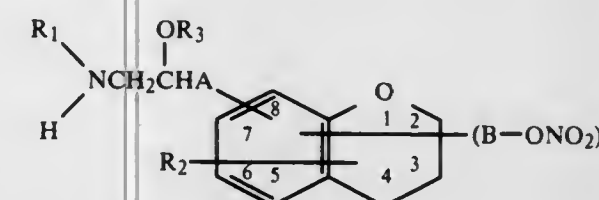
R₂ represents a member selected from the group consisting of hydrogen, halogen, OH, NO₂, a carbamoyl group, a lower alkyl group, a lower alkoxy group, a lower alkyl-eneoxy group and an acetyl group,

R₃ represents hydrogen or NO₂

B represents a direct bond, a C₁-C₇ alkylene group, a —O— lower alkylene group or a —CONH—lower alkylene group, and

n represents 1 or 2; and an acid addition salt thereof.

2. A pharmaceutical composition comprising (1) an amount, effective for treatment of diseases of the cardiovascular system, of a compound represented by the following formula (I) or a pharmaceutically acceptable acid addition salt thereof and (2) a pharmaceutically acceptable diluent or carrier,



wherein

A represents a direct bond or the bond —CH₂—O—,

R₁ represents a member selected from the group consisting of a C₃-C₅ alkyl group, a hydroxy-(C₃-C₅ alkyl) group, a lower alkylamino-lower alkyl group, a nitrato-(C₃-C₅ alkyl) group and a phenyl-(C₁-C₅ alkyl) group, provided that the phenyl may be substituted by a lower alkoxy group,

R₂ represents a member selected from the group consisting of hydrogen, halogen, OH, NO₂, a carbamoyl group, a lower alkyl group, a lower alkoxy group, a lower alkyl-eneoxy group and acetyl group,

R₃ represents hydrogen or NO₂

B represents a direct bond, a C₁-C₇ alkylene group, a —O—

lower alkylene group or a —CONH—lower alkylene group, and n represents 1 or 2.

4,394,383

N-ALKOXYSULFENYL CARBAMATES USEFUL AS INSECTICIDES

Mitsuyasu Kawata; Noriharu Umetsu, and Tetsuo R. Fukuto, all of Riverside, Calif., assignors to Regents of the University of California, Berkeley, Calif.

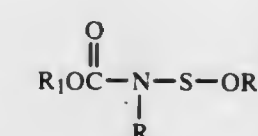
Filed Sep. 28, 1981, Ser. No. 306,437

Int. Cl.³ A01N 47/24; C07D 307/86; C07C 161/00

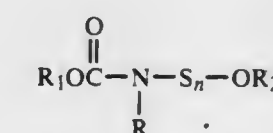
U.S. Cl. 424—285

9 Claims

1. A composition having pesticidal activity comprising about 60 to 95 percent by weight of a carbamate of the formula:



wherein R is a hydrocarbyl group containing from 1 to 12 carbon atoms; R₁ is a hydrocarbyl group containing from 1 to 20 carbon atoms or is a benzoheterocyclic ring containing 5 or 6 members in the heterocyclic portion, said heterocyclic portion containing one or two O or S atoms; and R₂ is a hydrocarbyl group containing only atoms of carbon and hydrogen and from 1 to 24 carbon atoms, or is a substituted hydrocarbyl group of 1-24 carbon atoms containing, in addition to atoms of carbon and hydrogen, at least one other atom; and from about 5 to about 40 percent by weight of a polysulfide derivative of said carbamate of the formula:



wherein n is an integer between 2 and about 4 and the other variables are as above.

4,394,384

AMINOTHIAZOLE CYCLOALKENYLOXYIMINO ACETAMIDO CEPHEM DERIVATIVES

Takao Takaya, Kawanishi; Hisashi Takasugi, Kohamanishi; Masayoshi Murata, Mino, and Akiteru Yoshioka, Kyoto, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Sep. 2, 1980, Ser. No. 183,167

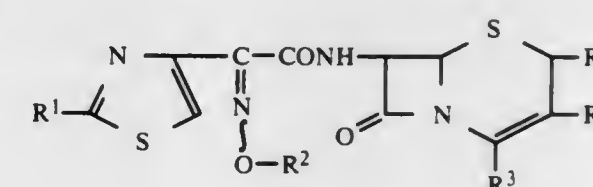
Claims priority, application United Kingdom, Sep. 3, 1979, 7930515; Jun. 2, 1980, 8018006

Int. Cl.³ A61K 31/545; C07D 501/34, 501/56

U.S. Cl. 424—246

11 Claims

1. A cephem compound of the formula:



wherein

R¹ is amino or a protected amino group;

R² is cyclopentenyl or cyclohexenyl;

R³ is carboxy or a protected carboxy group;

4,394,391

RADIOIMMUNOASSAY REAGENTS

Jan I. Thorell, Beleshogsvagen 1, S-21618 Malmö, Sweden

Filed Feb. 19, 1980, Ser. No. 122,212

Int. Cl.³ A61K 45/00, 47/00; A01N 25/10

U.S. Cl. 424—366

11 Claims

1. A composition for separating free and bound radioligands within a radioimmunoassay, said bound radioligand being formed as a reaction product from reagents of the radioimmunoassay; the composition comprising individual particles capable of sedimenting in said assay and containing:

- (1) as a first active component, an attenuator having a high capacity to absorb emitted radiation of the radioligand and being selected from the group consisting of silver, cadmium, tungsten, bismuth and oxides thereof, and
- (2) as a second active component a material capable of binding said free radioligand or reaction product and being selected from the group consisting of charcoal, antibodies, antigens and biologically non-immune active binders.

4,394,392

PROCESSES FOR PRODUCING COMPOSITE ICE CONFECTIONS, AND PRODUCTS THEREOF

David Tresser, Bedford, England, assignor to Thomas J. Lipton, Inc., Englewood Cliffs, N.J.

PCT No. PCT/GB80/00120, § 371 Date Mar. 20, 1981, § 102(e) Date Mar. 17, 1981, PCT Pub. No. WO81/00190, PCT Pub. Date Feb. 5, 1981

PCT Filed Jul. 21, 1980, Ser. No. 244,797

Claims priority, application United Kingdom, Jul. 20, 1979, 7925374; Jul. 20, 1979, 7925375; Jul. 20, 1979, 7925401; Jul. 20, 1979, 7925402; Jul. 20, 1979, 7925447

Int. Cl.³ A23G 9/04, 9/24

U.S. Cl. 426—101

14 Claims

1. A process for producing a composite edible product containing a dry edible material selected from the group consisting of biscuits and wafers and a water-containing edible confection selected from the group consisting of ice or ice cream which comprise the steps of:

- (a) spraying a relatively water-impermeable fat-containing edible material which when measured at 46° C. has a viscosity of η_{33} at least 10 poise, η_{100} at least 2.0 poise, and η_{CA} at least 1.2 poise, from an atomizing spray gun onto a dry edible material selected from the group consisting of biscuits and wafers, and
- (b) combining the water-containing edible confection with the sprayed dry edible material.

4,394,393

METHOD FOR PEELING CITRUS FRUIT

Paul F. Sage, Box 191-F, Babson Park, Fla. 33827

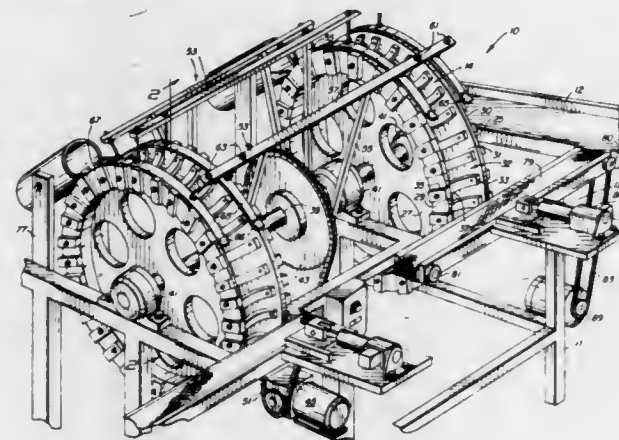
Division of Ser. No. 141,376, Apr. 18, 1980, Pat. No. 4,318,339.

This application Nov. 23, 1981, Ser. No. 324,380

Int. Cl.³ G01N 33/02; A23N 7/00

U.S. Cl. 426—231

1 Claim



1. A method for removing the peel and albedo from the pulp of citrus fruit comprising the steps of:

coring the fruit;
slicing the fruit into twelve uniform segments;
placing the fruit segments in a conveyor to laterally transport individual fruit segments;
sensing the position of a concave rotary carrier;
pushing the fruit segment into the concave rotary carrier when the rotary carrier is at a predetermined loading position;
confining the fruit segment to a radial position on the concave rotary carrier;
forcing the fruit segment substantially towards the center of the concave rotary carrier so that the peel of the fruit is molded against the concave surface of the concave rotary carrier;
rotating the rotary carrier;
forcing the fruit segment through a pointed concave severing knife having a concave surface substantially the same as the concave surface in the rotary carrier and disposed an incremental distance away from the rotary carrier at least equal to the thickness of the peel and albedo layer of the fruit segment, the severing knife being oriented so as to have a substantial vertical component whereby the pulp will fall from the severing knife by the action of gravity.

4,394,394

PROCESS FOR PRODUCING DRY DISCRETE AGGLOMERATED GARLIC AND ONION AND RESULTING PRODUCTS

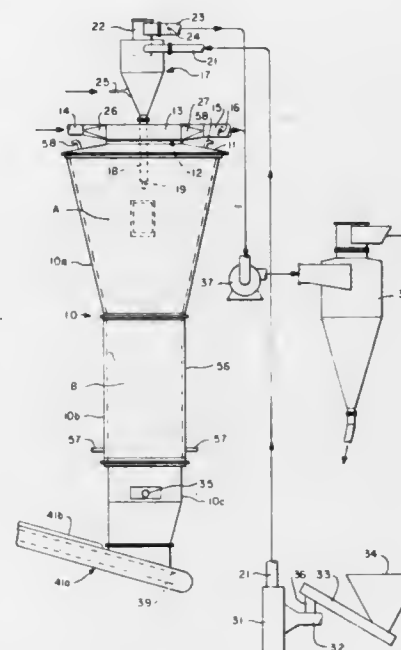
Louis J. Nava, Redwood City, and Neal L. Ewing, Livermore, both of Calif., assignors to Foremost-McKesson, Inc., San Francisco, Calif.

Filed Aug. 25, 1980, Ser. No. 180,615

Int. Cl.³ A23B 7/02; A23L 1/224, 1/223

U.S. Cl. 426—285

5 Claims



1. A method for the production of a dry free flowing agglomerated product from dry powder material selected from the group consisting of garlic and onion or combinations thereof, the method making use of an upright structure forming superposed upper and lower treatment chambers that are in free unobstructed communication, the method comprising the steps of dispersing the dry powder in the air stream and continuously introducing the air stream and dispersed powder into the upper portion of the upper chamber, simultaneously introducing atomized water into the upper chamber and causing the dispersed powder particles to be co-mingled with water droplets, the resulting wetting of the powder particles by contact with water droplets causing the particles to become sticky whereby random contacts of the wetted particles in the upper chamber form dispersed moist porous aggregates that are sticky and have little firmness, continuously introducing hot drying air into the lower portion of the lower chamber,

whereby such air progresses upwardly through the lower chamber and upwardly into the upper chamber, the air pressure within both the upper and lower chambers being maintained slightly below atmospheric, and causing the dispersed moist aggregates continuously to progress in free flight downwardly by gravity from the upper chamber into and through the lower chamber whereby sufficient moisture is removed from the dispersed aggregates while progressing through the lower chamber in free flight to render them nonsticky and firm, the aggregates while sticky having minimum contact and adherence with the walls of the chambers, and then subjecting the aggregates to drying to the desired final moisture content.

4,394,395

PROCESS FOR THE PRODUCTION OF A MOLDED FOOD PRODUCT BY SINTERING

Walter Rostagno, La Tour-de-Peilz, and Alfred Morand, Blonay, both of Switzerland, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Oct. 13, 1981, Ser. No. 310,744

Claims priority, application Switzerland, Oct. 31, 1980, 8114/80

Int. Cl.³ A23P 1/00; A23C 9/18; A23F 5/38; A23G 3/00

U.S. Cl. 426—285

8 Claims

1. A process for the production of a food product in the form of an individual article made from a powder-form starting material comprising the steps of:

- (a) introducing a food powder having a particle size of from 0.1 to 3.0 mm and a moisture content of less than 20% by weight into the cells of a mold, said food powder capable of being superficially softened under the effect of heat and having a high level of fluidity;
- (b) lightly compacting the food powder in the cells by applying a pressure on the powder of from 1 to 8 kg/cm²;
- (c) subjecting the compacted powder to a sintering treatment in a furnace for 3 to 10 minutes at a product temperature of from 45° to 120° C. such that the individual particles melt at their surface and adhere to one another to form an individual article;
- (d) removing the articles from the mold; and then
- (e) cooling the articles.

4,394,396

SHRIMP PROCESSING

Lawrence A. Shimp, Robbinsville, N.J., and John E. Steinhauer, Malvern, Pa., assignors to FMC Corporation, Philadelphia, Pa.

Filed Oct. 9, 1981, Ser. No. 309,873

Int. Cl.³ A23L 1/325

U.S. Cl. 426—332

6 Claims

1. A process for inhibiting the loss of moisture of raw shrimp on thawing or cooking while retaining their natural appearance after processing comprising contacting the shrimp with an aqueous solution of a phosphate salt mixture of sodium tripolyphosphate and sodium acid pyrophosphate, said salts being present in a weight ratio of 80:20 to 60:40, the pH of said solution being about 6.2 to 7.1, the concentration of said salt mixture in the solution being 0.5 wt % to saturation.

4,394,397

PROCESS FOR PRODUCING PASTA PRODUCTS

Josephine E. Lometillo, Sepulveda, and John M. Wolcott, Burbank, both of Calif., assignors to Carnation Company, Los Angeles, Calif.

Filed Oct. 2, 1981, Ser. No. 308,071

Int. Cl.³ A23L 1/16

U.S. Cl. 426—557

11 Claims

1. A process of producing instant cooking pasta products having a porous, cellular structure which consists essentially of forming a particulate mixture containing a major proportion by weight of a farinaceous starch-containing material, from 1% to 26% by weight of gluten, from 0.25% to 0.75% by weight of microcrystalline cellulose, between

1% to 3.5% by weight of an edible vegetable oil, and from 0%-less than 2% of a phosphatide, introducing the particulate mixture into an extrusion cooker together with an amount of water sufficient to provide an expandable mixture capable of being carried through the extrusion cooker, subjecting said expandable mixture to severe mechanical working under temperatures sufficiently high to cook the mixture, thereby gelatinizing the starch and thermosetting the gluten contained therein, and pressure sufficiently high that the pressure drop across the die orifice will result in flashing off of water in the mixture as steam, extruding the hot, pressurized mixture through a plurality of die orifices into atmospheric conditions, thereby expanding the cooked material by flashing of contained water to steam, and drying the extruded product to a maximum moisture content of about 10%, thereby producing an expanded product having a porous cellular structure which may be hydrated for consumption by contact with hot water for a short period of time and which upon hydration has a firm texture and good integrity without becoming pasty or sticky.

4,394,398

METHOD FOR REMOVING ROT FROM POTATOES

Donald C. Wilson, San Jose, Calif., assignor to FMC Corporation, Chicago, Ill.

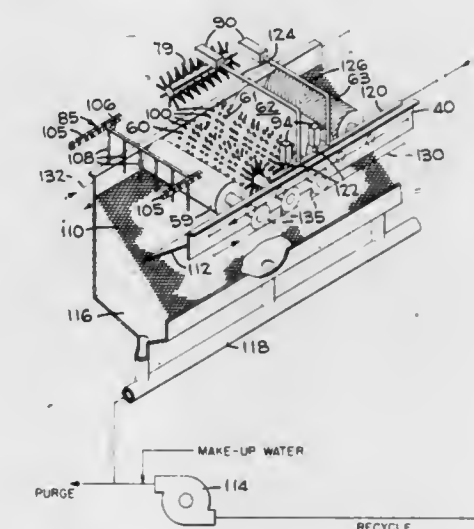
Continuation of Ser. No. 149,791, May 14, 1980, abandoned.

This application Dec. 14, 1981, Ser. No. 331,092

Int. Cl.³ A23L 1/216

U.S. Cl. 426—481

12 Claims



6. A method for removing the decayed peel and decayed flesh portions from the skin and underlying sound portions of a potato with apparatus including potato supporting means and a plurality of rubber fingers consisting essentially of: the steps of supporting the potato, contacting substantially all portions of the surface of the potato with the fingers with sufficient force to crack the skin encompassing the decayed portions and to penetrate the decayed portions of the potato surface without damaging the peel or flesh of sound portions of the potato, and directing streams of liquid against substantially all portions of the surface of the potato at a sufficient pressure for washing the potato and for forcing liquid through cracks and underneath the decayed peel for lifting the decayed peel and removing the decayed flesh while removing a minimum of sound peel and sound flesh of the potato.

4,394,399

LOW CALORIE TABLE SYRUP PRODUCT

William L. Keyser, East Dundee, and Diane S. Kinney, St. Charles, both of Ill., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Jun. 25, 1981, Ser. No. 277,173

Int. Cl.³ A23L 1/09

U.S. Cl. 426—658

4 Claims

1. An edible, fluid, fat-free syrup composition for use as a table syrup containing not more than 60 calories per fluid ounce consisting essentially of water and not more than 43.3% by weight of the composition sugar solids, 0.5 to 1.0% by weight of the composition a medium viscosity carboxymethyl cellulose gum having a high degree of carboxymethyl substitution or a derivative thereof, 0.1 to 1.0% by weight of the composition salt, 0.01 to 0.5% by weight of the composition an edible anti-mycotic agent, 0.01 to 0.10% by weight of the composition sodium hexametaphosphate, and 0.01 to 0.5% by weight of the composition a flavorant.

4,394,400

METHOD AND APPARATUS FOR DEPOSITING COATINGS IN A GLOW DISCHARGE

Geoffrey W. Green, Malvern, and Alan H. Lettington, Worcester, both of England, assignors to National Research Development Corporation, London, England

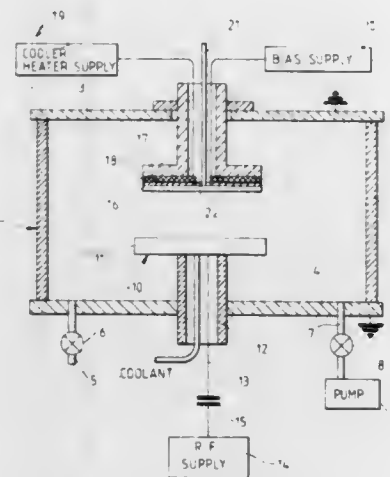
Filed Jan. 13, 1981, Ser. No. 224,825

Claims priority, application United Kingdom, Jan. 16, 1980, 8001383

Int. Cl.³ B05C 3/02; C23C 11/00

U.S. Cl. 427—38

12 Claims



1. A method of depositing a coating on a substrate, comprising the steps of:

providing a plasma containing ions of material to be deposited as a coating in a chamber having a cathode structure, arranging the substrate in the plasma between the anode and cathode structures and electrically separated therefrom, said substrate surface being shaded from a direct stream of positively charged ions from the anode structure toward the cathode structure and spaced from the cathode structure to receive neutral ions of the coating material directly from the cathode structure, and

controlling the substrate temperature independently of the plasma temperature, the arrangement being such that positively charged ions of coating material in the plasma are attracted to and strike the cathode structure and a significant number of atoms of coating material leave the cathode structure and strike the substrate to form the coating.

2. Apparatus for depositing a coating on a substrate comprising:

a vacuum tight chamber, a pump for providing a vacuum within the chamber, means for introducing a gas within the chamber, means including an anode and a cathode structure within the

chamber for establishing a plasma including ions of material to be coated on said substrate within the chamber, means for supporting said substrate in the plasma between the anode and cathode structures and electrically separated therefrom said substrate surface being shaded from the direct stream of positively charged ions from the anode towards the cathode structure and spaced a predetermined distance from the cathode to receive neutral ions directly from the cathode structure

means for controlling the temperature of the substrate independently of the temperature of the plasma, anode structure and cathode structure, the arrangement being such that a plasma may be formed in the chamber so that ions of the coating material will strike the cathode and a significant number of atoms leave the cathode to strike the substrate and form the required coating.

4,394,401

METHOD OF PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION OF PHOSPHOSILICATE GLASS FILM

Yoshimi Shioya, Yokohama; Mamoru Maeda, Tama; Kanetake Takasaki, Tokyo, and Mikio Takagi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

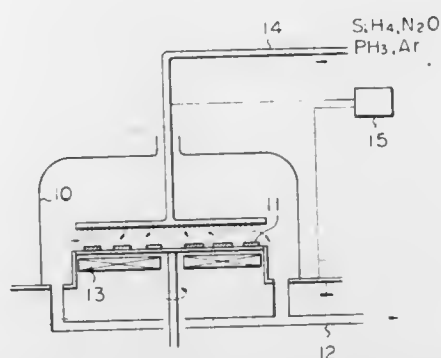
Filed Aug. 7, 1981, Ser. No. 290,978

Claims priority, application Japan, Aug. 8, 1980, 55-108164

Int. Cl.³ H01L 21/316

U.S. Cl. 427—39

10 Claims



1. A method of plasma enhanced chemical vapor deposition of a phosphosilicate glass film on a substrate comprising the step of exposing the substrate to a reaction gas mixture including SiH₄, N₂O and PH₃, said deposition being effected under conditions such that the reaction gas mixture has a mol ratio of N₂O to SiH₄ (N₂O/SiH₄) which is greater than or equal to 50 and a mol ratio of PH₃ to SiH₄ (PH₃/SiH₄) which is less than or equal to 0.08.

4,394,402

PROCESS FOR TREATING ACETYLENE POLYMER OR DOPED ACETYLENE POLYMER

Naoshi Yasuta, Yokohama; Yoshio Matsumura, Yamato, and Teizo Kotani, Yokohama, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed May 19, 1981, Ser. No. 265,186

Claims priority, application Japan, May 21, 1980, 55-66555

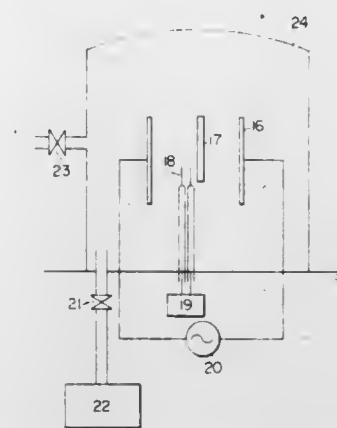
Int. Cl.³ B05D 3/06

U.S. Cl. 427—40

11 Claims

1. A process for treating an acetylene polymer or a doped acetylene polymer, which comprises: plasma polymerizing a gasifiable organic compound under

reduced pressure by plasma excitation of said organic compound; and



depositing a polymer film on a solid surface of the acetylene or doped acetylene polymer positioned in said polymerization reaction system.

4,394,403

PHOTOPOLYMERIZABLE COMPOSITIONS

George H. Smith, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 467,899, May 8, 1974, abandoned. This application Apr. 2, 1975, Ser. No. 564,421

Int. Cl.³ G03C 1/68; C08F 8/18; B05D 3/06

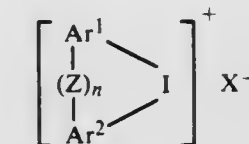
U.S. Cl. 427—42

41 Claims

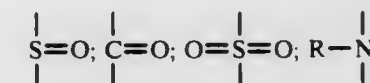
1. A photopolymerizable composition comprising:

(a) an organic material which is cationically polymerizable; and

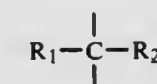
(b) about 0.5 to 30 parts by weight, per 100 parts by weight of said organic material, of an aromatic iodonium complex salt photoinitiator of the formula



wherein Ar¹ and Ar² are aromatic groups having 4 to 20 carbon atoms and are selected from the group consisting of phenyl, thienyl, furanyl, and pyrazolyl groups; Z is selected from the group consisting of an oxygen atom; a sulfur atom;



where R is hydrogen, lower alkyl or acyl; a carbon-to-carbon bond; or



where R₁ and R₂ are selected from the group consisting of hydrogen, an alkyl radical having 1 to 4 carbon atoms, and an alkenyl radical having 2 to 4 carbon atoms; and n is zero or 1; and X⁻ is a halogen-containing complex anion selected from the group consisting of tetrafluoroborate, hexafluorophosphate, hexafluoroarsenate, hexachloroantimonate, and hexafluoroantimonate.

4,394,404

METHOD FOR PRODUCING MAGNETIC RECORDING MEDIUM

Yoshihisa Suzuki; Takanoli Kaizuka; Yoshiaki Hanyu; Mituyoshi Otake, and Yoichi Hidano, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 118,742, Feb. 5, 1980, Pat. No. 4,313,989.

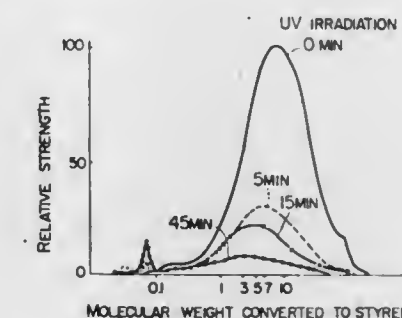
This application Aug. 17, 1981, Ser. No. 293,090

Claims priority, application Japan, Feb. 9, 1979, 54-13349

Int. Cl.³ H01F 10/02

U.S. Cl. 427—48

13 Claims



1. In a process for producing a magnetic recording medium comprising the steps of dispersing magnetic particles in a binder and a solvent, coating the resulting magnetic particles dispersion on a flexible support, orienting the magnetic particles, drying the magnetic particles dispersion at a high temperature to prepare a magnetic layer, smoothing the surface of the magnetic layer and slitting the resulting flexible support, the improvement which comprises irradiating the magnetic particles dispersion or the magnetic layer with ultraviolet rays at the step of coating the magnetic particles dispersion or after the coating step to form a layer which prevents the oozing out of a substance from the magnetic layer which causes sticking trouble, said layer which prevents the oozing out of a substance from the magnetic layer being derived from some of said binder and being formed on the surface of the magnetic layer, whereby sticking trouble during use of said magnetic recording medium is substantially prevented.

4,394,405

METHOD OF MAKING FORCE TRANSDUCER FLEXURE

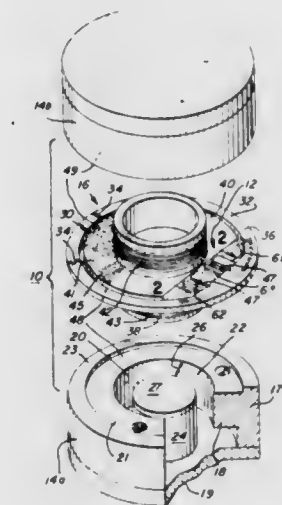
Kim W. Atherton, Bellevue, Wash., assignor to Sundstrand Data Control, Inc., Redmond, Wash.

Filed Jul. 14, 1981, Ser. No. 283,130

Int. Cl.³ B05D 5/12

U.S. Cl. 427—58

32 Claims



1. A method of manufacturing a flexure for use in connecting a force sensing element to a mounting base in a force transducer comprising: providing a blank with two opposed surfaces;

removing material from a first portion and a first indicator portion of one of said surfaces;
removing material from a second indicator portion in the other of said surfaces wherein at least a portion of said indicator portion is directly opposite from said first indicator portion; and
discontinuing removal of material from said first portion when at least a portion of the material of said blank between said first and second indicator portions disappears such that at least a portion of said indicator portion surfaces meet.

12. In the manufacture of a force transducer having a movable element hinged to a base by a bendable flexure, the movable element having an electrical circuit component thereon, the improved method of forming the flexure section, comprising:

providing a transducer blank having a flexure section with parallel faces generally at right angles to the sensitive axis of the movable element; and
removing material from a portion of at least one face of said flexure section to form a conductor receiving channel, the bottom surface of such channel lying substantially in the neutral bending plane of said flexure section.

18. The flexure forming method of claim 12 including the step of applying a conductor on the bottom surface of each of said channels and extending from said base to said movable element.

4,394,406

DOUBLE POLYSILICON CONTACT STRUCTURE AND PROCESS

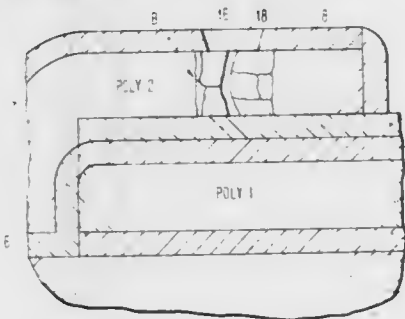
James R Gardiner, Wappingers Falls; Stanley R. Makarewicz, New Windsor; Martin Revitz, Poughkeepsie, and Joseph F. Shepard, Hopewell Junction, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,647

Int. Cl.³ H01L 21/36

U.S. Cl. 427—86

1 Claim



1. A process for fabricating a contact structure for a semiconductor device including at least two superimposed polysilicon conductors comprising the steps of:

- forming a first insulating layer 2 (FIG. 3) on a semiconductor substrate A to a preselected thickness, said insulating layer 2 being formed of silicon dioxide and having a thickness in the order of 300 to 700 Å,
- forming a first conductive polysilicon layer 3 (FIG. 3) on the first insulating layer 2, said polysilicon layer 3 having a thickness in the order of 3000 Å to 5000 Å,
- forming a first dielectric layer 4 (FIG. 4) on the first conductive polysilicon layer 3, said first dielectric layer 4 being formed of silicon dioxide and having a thickness in the order of 1000 Å to 4000 Å,
- patterning the first insulating 2 and dielectric 4 and conductive polysilicon layers 3 into a preselected shape (FIG. 5),
- patterning a second dielectric layer 5 (FIG. 5) on the first dielectric layer as an etch barrier to selected etchants, said second dielectric layer 5 being selected from the group consisting of silicon nitride and aluminum oxide, said second dielectric layer 5 having a thickness in the order of 200 to 1000 Å,
- forming a second conductive polysilicon layer 7 (FIG. 7)

on the second dielectric layer 5 and superimposed, in part at least, on the first conductive polysilicon layer 3, said second polysilicon layer 7 having a thickness in the order of 3000 to 5000 Å,

G. forming a third dielectric layer 8 (FIG. 7) on the second conductive polysilicon layer 7, said third dielectric layer 8 being formed of silicon dioxide and having a thickness in the order of 1000 to 2000 Å,

H. etching a contact opening 16' (FIG. 9) in the third dielectric layer 8 to expose the second conductive polysilicon layer 7 overlying the first conductive polysilicon layer 3 whereby the second dielectric layer 5 prevents the etchant from exposing the first conductive polysilicon layer 3 by way of voids existing in the second conductive polysilicon layer 7 due to enlarged polysilicon grains, and

I. forming a metal contact 12' in the opening 16' (FIG. 9), whereby the second dielectric layer 5 prevents the etchant from attacking the first dielectric layer 4 overlying the first conductive polysilicon layer 3 and exposing the surface of the first polysilicon layer 3 to the metal 12 thereby physically joining together the first and second conductive polysilicon layers 3, 7.

4,394,407

METHOD FOR THE MANUFACTURE OF A LAYER FROM A THERMOCHROME LACQUER, AND ITS USE

Eva Blazso, Baar, Switzerland, assignor to LGZ Landis & Gyr Zug AG, Zug, Switzerland

PCT No. PCT/CH80/00039, § 371 Date Feb. 12, 1981, § 102(e) Date Feb. 12, 1981, PCT Pub. No. WO81/00084, PCT Pub. Date Jan. 22, 1981

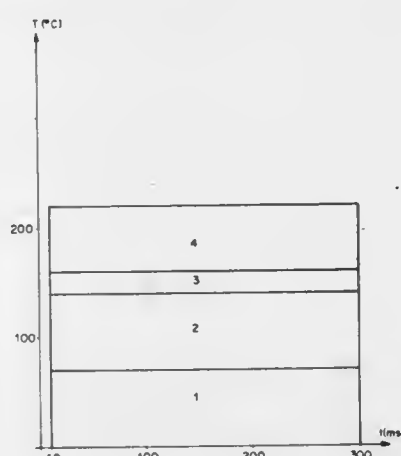
PCT Filed Mar. 21, 1980, Ser. No. 233,783

Claims priority, application Switzerland, Jun. 27, 1979, 5987/79

Int. Cl.³ B41M 3/12

U.S. Cl. 427—150

6 Claims



1. In a method of coating a smooth surface with a thermochrome, water-resistant layer, with the aid of two reaction components being substantially free of any water and storable separately, and with the aid of a film-forming component and a hardener,

one reaction component being an organic sulfur compound splitting off sulfur in ionized form only upon being heated above 70° C., and thereby assuming a dark discoloration, the other reaction component being a metal compound produced with the aid of a resin base selected from the group consisting of a methacrylic acid dissolved in aromatic solution means and a compound containing epoxy groups said metal compound being selected from the group consisting of an oxide, an inorganic salt, or a soap of a monocarboxylic acid with 2, 8, 10, 12, 14, 16, 18, 20, 22 or 38 C-atoms, or a dicarboxylic acid metal compound wherein the metal is selected from the group consisting of bismuth, copper, silver, gold, mercury, thallium, lead,

vanadium, molybdenum, tungsten, rhenium, iron, cobalt, nickel, palladium, or platinum,
the steps comprising:
dispersing said metal compound in said resin base, mixing said reaction components with said film-forming component and said hardener to yield a multi-component substantially transparent resin, suitable of being used for screen printing, thereby setting off an exothermal reaction generating a temperature not higher than about 40° C., and
applying said multi-component resin to said surface and allowing it to harden thereon at room temperature for at least 30 minutes, whereby said multicomponent resin is hardened to a substantially bone-dry state.

4,394,408

APPARATUS AND METHOD FOR APPLYING ADHESIVE TO A CONTAINER EDGE PORTION

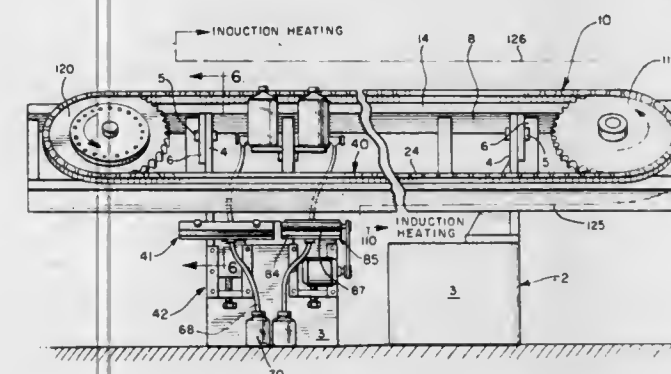
John Walter, Evergreen Park, Ill.; Donald J. Roth, Westport, Conn., and Charles S. Kubis, Willowbrook, Ill., assignors to The Continental Group, Inc., Stamford, Conn.

Filed Mar. 8, 1982, Ser. No. 355,500

Int. Cl.³ B05C 3/20, 7/00; B05D 3/12, 7/22

U.S. Cl. 427—231

13 Claims



1. Apparatus for applying adhesive to the free edge of an open ended can comprising:
means for moving and rotating the can in a predetermined path;
an adhesive dip tank disposed along said path containing adhesive having a top surface, and
means for holding the can at an acute angle to the said top surface of the adhesive and immersing a section of the edge of the can into the adhesive while said can is rotated and moved in said path.

4,394,409

COMPOSITE WOOD ARTICLE AND METHOD OF MANUFACTURE

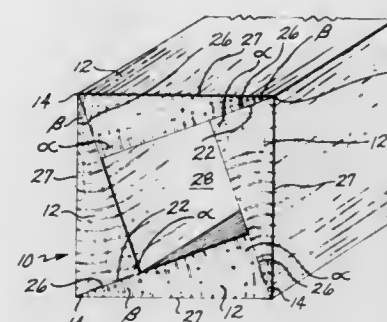
James E. Hertel, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Continuation of Ser. No. 835,944, Sep. 22, 1977, abandoned. This application Mar. 23, 1981, Ser. No. 246,924

Int. Cl.³ E04C 3/30; F16L 9/00; B32B 31/00; B27B 1/00

U.S. Cl. 428—36

4 Claims



1. An elongated wood article comprising:
a plurality of four elongated triangular-shaped pieces joined

together into the cross-sectional shape of a parallelogram and with at least two pairs of two opposed pieces being substantially similar in cross-sectional size,
said triangular-shaped pieces being joined together along elongated joints, each piece being joined to two adjacent pieces with one surface thereof being joined over its entire surface and the other surface thereof being joined over less than a whole portion of its surface thereby resulting in an elongated hollow section in the article.

4,394,410

DISPOSABLE FOIL BROILING SHEET

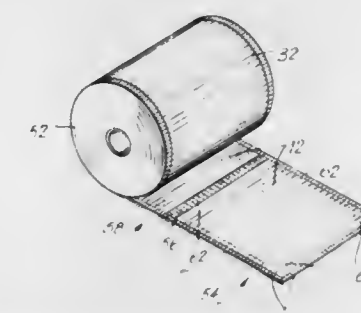
Harold Osrow, and Armando A. Araujo, both of New York, N.Y., assignors to Osrow Products Company, Inc., Old Bethpage, N.Y.

Continuation-in-part of Ser. No. 121,140, Feb. 13, 1980, abandoned. This application Aug. 6, 1981, Ser. No. 290,603

Int. Cl.³ B32B 3/24, 3/28, 15/04

U.S. Cl. 428—43

7 Claims



- A tripartite, laminate, generally flat, self-form-maintaining, thin, cooking, rectangular, sheet element comprising:
 - a generally flat, foraminous, rectangular, upper layer composed of non-combustible, impermeable, malleable aluminum foil,
 - a generally flat, continuous, rectangular, central core layer composed of a dry bibulous material capable of absorbing hot liquid fat, and
 - a generally flat, rectangular, lower, imperforate layer composed of non-combustible, impermeable, malleable aluminum foil coextensive and in registry with the upper layer, whereby rendered fat from a fat-containing comestible being broiled in a broiling chamber while resting on said element will drain through the foramina in said upper foil layer, to be absorbed in said core layer, trapped by said lower foil layer and contained between said upper and lower foil layers, so that spattering of the rendered fat in the chamber will be reduced,
- said upper and lower layers extending peripherally beyond the boundaries of the core layer and being peripherally sealed together by continuous seams to form a peripheral margin having a thickness not in excess of 4 mils,
- the periphery of said tripartite element being sufficiently deformable to be manually bendable with great ease and to be pinched together at the corners of the rectangular element to form peripheral flanges on all edges of the cooking sheet, which flanges are self-form-maintaining so that the element can be formed into the shape of a shallow pan,
- the thickness of each of the foil layers being between 1 mils and 2 mils,
- the sizes of the foramina ranging between 1/64" and 1/8" across.

4,394,411

STRUCTURAL PANEL OF GYPSUM WITH TEXTILE CASING AND METHOD FOR PRODUCING SAME
 Manfred Krüll, Heiligkreuzsteinach; Udo Lobert, Neuenburg; Dieter Stamm, Heidelberg, and Klaus Veaser, Müllheim, all of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Mar. 8, 1982, Ser. No. 355,698
 Claims priority, application Fed. Rep. of Germany, Apr. 4, 1981, 3113682

Int. Cl.³ B32B 1/04, 31/18

U.S. Cl. 428—70

8 Claims

1. A structural panel comprising gypsum within an enclosure of a mineral and/or fiberglass fabric impressed therein, said fabric having larger pores on the inside facing said gypsum and containing at least two kinds of fibers, with fibers on the inside of the fabric facing the gypsum being of relatively larger diameter than the other fibers in the fabric, and said fibers of said fabric being cemented together by a bonding agent containing from about 30 to about 85 percent by weight, referred to the weight of the bonding agent, of a hydroxide of aluminum, iron and/or silicon.

4,394,412

COMPOSITE MEMBER COMPRISING METALLIC SHEET BENT TO BE ARCuate IN SECTION AND RIGID SYNTHETIC RESIN COATING

Hideomi Yamamoto; Haruzo Watanabe, both of Shiga; Hidehiko Kishie, Shijonawate, and Toshio Nishihara, Shiga, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

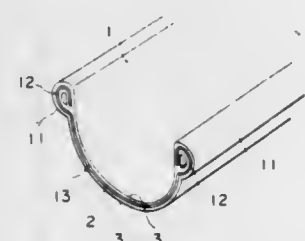
Filed May 8, 1981, Ser. No. 261,924

Claims priority, application Japan, Mar. 31, 1981, 56-48768

Int. Cl.³ B32B 1/00, 3/00

U.S. Cl. 428—174

5 Claims



1. A composite member bent to be arcuate in transversal section, comprising:

- a metallic sheet bent to be arcuate in transversal section with respect to a first center of curvature and formed with a plurality of small arcuate sectional protuberances extending in the longitudinal direction and distributed only in the transversal direction, each of said small arcuate sectional protuberance being curved with respect to a second center of curvature,
- said first center of curvature and each said second center of curvature being selected to be positioned on the same side with respect to said metallic sheet, and
- a rigid synthetic resin layer covering both main surfaces of said metallic sheet, said composite member being formed in a length, the length of said metallic sheet being selected to be substantially the same as the length of said length of the composite member, and
- said plurality of small arcuate sectional protuberances being formed as protuberances extending continuously throughout the length of said metallic sheet.

4,394,413

FLAME RETARDANT DRYER FABRICS

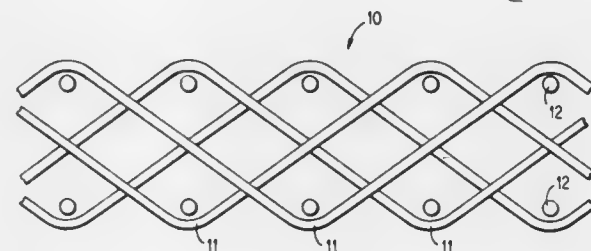
William T. Westhead, Waycross, Ga., assignor to Scapa Dryers, Inc., Waycross, Ga.

Filed Feb. 9, 1981, Ser. No. 232,678

Int. Cl.³ B32B 7/00

U.S. Cl. 428—257

24 Claims



1. A flame retardant dryer fabric comprising:
- a plurality of interwoven machine direction and cross-machine direction yarns; and
 - an admixture of resin and flame retardant coating said machine direction and cross-machine direction yarns, said resin being chosen for its known ability to provide fabric stability, wear and abrasion resistance, heat and hydrolysis resistance, resistance to chemical attack, modulus, and oil and dirt resistance; said flame retardant being compatible with said resin; and said admixture being free of nucleation and being an integral part of said fabric.

4,394,414

AQUEOUS SIZING COMPOSITION FOR GLASS FIBERS FOR USE ON CHOPPED GLASS FIBERS

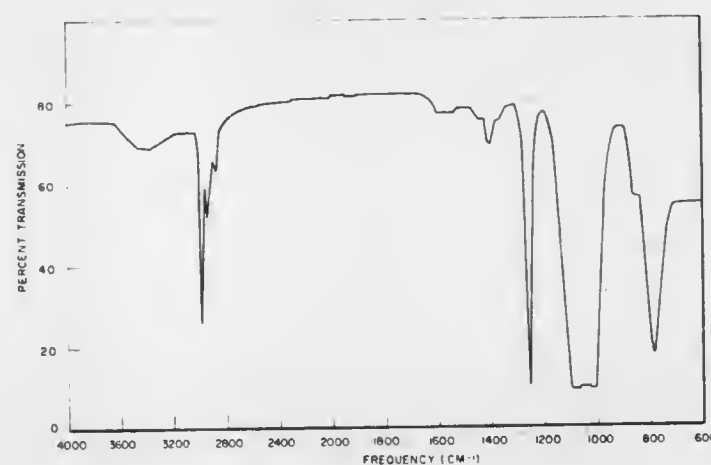
Daniel G. Brown, Caroleen, and Donald L. Motsinger, Forest City, both of N.C., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 29, 1981, Ser. No. 268,541

Int. Cl.³ D04H 1/58; C08L 83/06

U.S. Cl. 428—288

21 Claims



1. An aqueous sizing composition for glass fibers, comprising:

- a. one or more cationic lubricants,
- b. water soluble or dispersible amide selected from the group consisting of monoamides, diamides, melamine, diamides of saturated dicarboxylic acids, carbamides, non-polymers of amine-containing amides and mixtures thereof,
- c. curable silicone polymer in a cationic aqueous emulsion; and
- d. water in an amount to give a solids content in the range of about 0.1 to about 5 weight percent wherein the major amount of the solids of the sizing composition is comprised of cationic lubricant and emulsion.

4,394,415

ELECTROMAGNETIC WAVE ENERGY ABSORBING MATERIAL

Shunji Tsuda, 12-12-604 Nishi-kamata, 7-chome, Ota-ku, Tokyo, Japan

Filed Jun. 21, 1982, Ser. No. 390,192

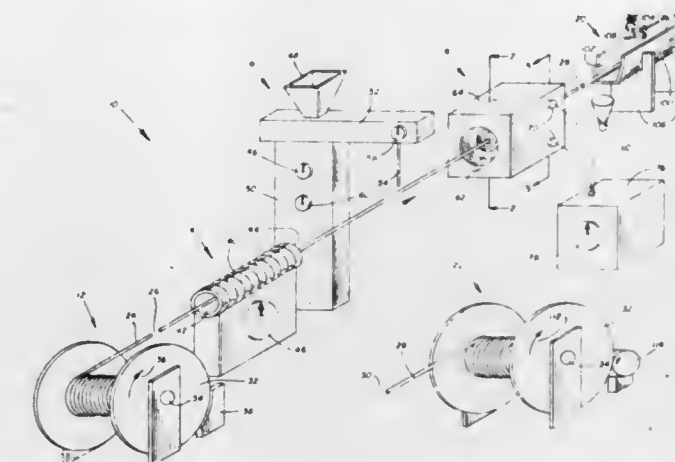
Claims priority, application Japan, Aug. 5, 1981, 56-122711

Int. Cl.³ B32B 15/04, 15/20, 7/02

U.S. Cl. 428—332

4 Claims

1. An electromagnetic wave energy absorbing material comprising an aluminum material having a microporous aluminum oxide layer having a thickness of 0.1–1.4 micron on its surface, wherein 0.05–1.5 g/m² of at least one of elements of metals and semiconductors selected from the group consisting of cobalt, silver, lead, molybdenum, copper, chromium, selenium, silicon, germanium, iron, manganese, nickel, zinc, tin and palladium is contained in the micropores of the microporous aluminum oxide layer.



the requirements of ANSI/NEMA Standards Publication No. MW1000-1977.

4,394,418

AQUEOUS SIZING COMPOSITION AND GLASS FIBERS MADE THEREWITH FOR REINFORCING THERMOSETTING POLYMERS

Chester S. Temple, McKees Rocks, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 24, 1981, Ser. No. 334,349

Int. Cl.³ B32B 9/00

U.S. Cl. 428—391

36 Claims

1. An aqueous sizing composition for glass fibers to yield sized glass fiber strands useful in reinforcing thermosetting polymers, comprising:

- (a) poly(vinylacetate) silane copolymer,
- (b) epoxy polymer,
- (c) one or more glass fiber lubricants,
- (d) an organo silane coupling agent selected from the group consisting of amino-organo-silane coupling agents, lubricant modified amino-organo-silane coupling agents, epoxy-containing silane coupling agents and a mixture of two or more of these agents,
- (e) one or more nonionic surfactants,
- (f) polyethylene-containing polymer in an amount of 0 to about 25 weight percent of the solids of the aqueous sizing composition,
- (g) wax in an amount of about 0 to about 5 weight percent of the solids of the aqueous sizing composition where an amount of the polyethylene-containing polymer is present when the wax is absent and an amount of wax is present if the polyethylene-containing polymer is absent and when both are present, the weight ratio of the polyethylene-containing polymer to wax is in the range of about 25:1 to about 1:25,
- (h) organic hydrocarbon acid to give the composition a pH in the range of about 4 to about 9, and
- (i) water to give a total solids content in the range of about 1 to about 30 weight percent.

FILM-PAPER FIBER LAYER LAMINATE AND PROCESS FOR PREPARATION THEREOF

Yoshikazu Shimizu, Amagasaki, and Kathuhiro Yamaguchi, Osaka, both of Japan, assignors to Azona Co., Ltd., Kobe, Japan

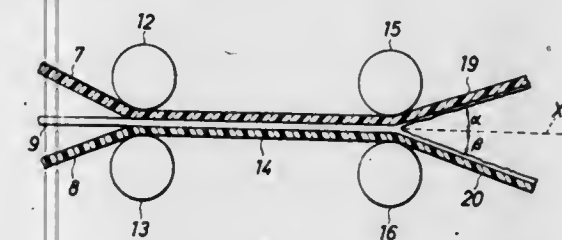
Division of Ser. No. 213,642, Dec. 5, 1980, abandoned. This application May 26, 1981, Ser. No. 267,380

Claims priority, application Japan, Dec. 12, 1979, 54-161150

Int. Cl.³ B32B 27/10, 27/28

U.S. Cl. 428—341

3 Claims



1. A film-paper fiber layer laminate comprising a film selected from the group consisting of a polyvinyl chloride film, a polyethylene film, a polypropylene film, a polystyrene film, a polyacetate film, a polycarbonate film, a polyester film, a polyamide film, a polyimide film and a chlorinated rubber film; and a thin paper fiber layer bonded to the film, the basis weight of the paper fiber layer being 5 to 15 g/m².

4,394,417

MAGNET WIRE

George D. Hilker, Fort Wayne, Ind., assignor to Phelps Dodge Industries, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 931,314, Aug. 7, 1978. This application Apr. 20, 1981, Ser. No. 255,473

Int. Cl.³ B32B 27/00

U.S. Cl. 428—383

7 Claims

1. A magnet wire or other coated filament comprising: an elongated filament and an essentially concentric and continuous coating superimposed on said filament, said coating being chosen from the group of materials consisting of polyamides, polycarbonates, polysulfones, epoxys, polyether imides, poly-

4,394,419

PRINTED CIRCUIT MATERIAL

Jiri K. Konicek, Bennington, Vt., assignor to Oak Industries Inc., Rancho Bernardo, Calif.

Filed Jun. 12, 1981, Ser. No. 272,988

Int. Cl.³ C23F 1/00; C25D 5/10

U.S. Cl. 428—416

10 Claims

1. A product useful in the manufacture of printed circuits including:

- (a) a carrier layer of copper fully removable by etching and having a thickness on the order of about 10–35 microns,
- (b) a thin layer of copper having a thickness in the range of

1-12 microns to be used in the formation of electrical circuit paths, and
(c) an intermediate metallic layer positioned between the (a) and (b) layers and secured thereto, said intermediate layer having a thickness in the range of 0.1-2.0 microns and being selected from the group consisting of nickel, a nickel-tin alloy, a nickel-iron alloy, lead, and a tin-lead alloy, said intermediate layer adhering sufficiently to the (b) layer of copper to prevent removal thereof by an etchant removing the (a) layer of copper.

4,394,420

MAGNETIC RECORDING MEDIUM

Kiminori Tamai, and Masashi Hayama, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

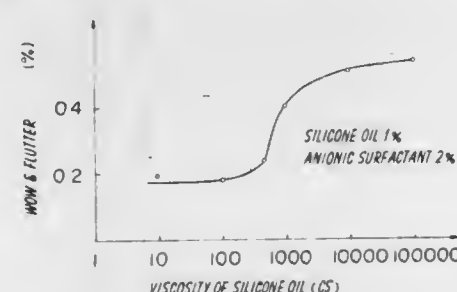
Filed Oct. 29, 1981, Ser. No. 316,407

Claims priority, application Japan, Nov. 19, 1980, 55-163056

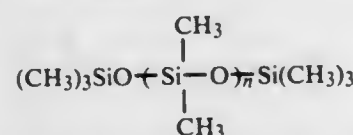
Int. Cl.³ B32B 9/04

U.S. Cl. 428-447

1 Claim



1. In a magnetic recording medium having a magnetic layer which comprises a magnetic powder, a binder and a nonionic or anionic surfactant in an amount of 1.0 to 5.0 wt. % based on said magnetic powder, the improvement comprising within said magnetic layer of 0.5 to 5.0 wt. % based on said binder of a silicone oil of the formula



where n is a value such that the viscosity of the silicone oil is 500 c.s. or lower at 25° C., whereby the blooming of the surfactant and the plasticization of the magnetic layer are diminished.

4,394,421

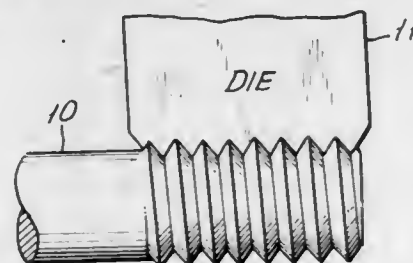
THREAD FORMING OF SINTERED POROUS METAL SHAPES

William J. Chmura, Southington, and Ronald S. Slusarski, Berlin, both of Conn., assignors to Textron Inc., Providence, R.I. Continuation of Ser. No. 55,508, Jul. 9, 1979, abandoned. This application Feb. 18, 1981, Ser. No. 235,641

Int. Cl.³ B21H 3/04; B22F 3/24, 5/06; B32B 5/14

U.S. Cl. 428-547

16 Claims



1. A method of producing a thread rolled sintered cylindrical metal product which comprises:
forming a sintered cylindrical powder metal (P/M) blank of density ranging from about 75% to 92% of the actual density of said metal having a selected diameter larger than the final pitch diameter of a predetermined roll threaded product produced therefrom and not exceeding the outside diameter of said predetermined roll threaded product,

the P/M blank diameter selected being substantially inversely related to the density of said blank, the P/M diameter selected being correlated to produce a substantially full thread,
and then thread rolling said sintered P/M blank using a threading die of the same thread gage as the predetermined roll threaded product to be produced,
whereby a thread rolled P/M product is produced having a porous core and highly densified threads, the density of the threads at the surface and sub-surface thereof from the root to the crest being at least about 95% of the actual density, with the density of the core ranging from about 75% to 92% of the actual density of the metal forming the product.

4,394,422

BONDED STRUCTURE AND PROCESS OF MAKING SAME

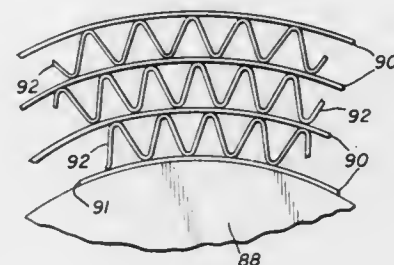
Ray J. Van Thyne, 1070 Valley Lake Dr., Inverness, Ill. 60067, and John J. Rausch, Rte. 2, Box 177, Antioch, Ill. 60002, assignors to Ray J. Van Thyne; John J. Rausch and Material Sciences Corporation, all of Mount Prospect, Ill.

Filed Jun. 8, 1981, Ser. No. 271,127

Int. Cl.³ B32B 3/28; C23C 9/00

U.S. Cl. 428-592

24 Claims



A bonded structure comprising at least two adjacent ferrous-based components having a layer diffused in the surface of both of said parts to bond them, together, wherein both of said components are sheets of ferrous-based material and at least one of said sheets has spacer means bonded to the other of said sheets to create at least one channel therebetween, said bonded structure being made by the steps of placing said components in juxtaposition, and contacting said juxtaposed components with a molten alloy bath consisting essentially of lead and at least one diffusing element, thereby to create a layer diffused into the surfaces of both of said components which bonds them together.

4,394,423

CLOSURE DEVICE FOR LEAD-ACID BATTERIES

Konstantin Ledjeff, Schwalbach, Fed. Rep. of Germany (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Sep. 29, 1981, Ser. No. 307,000

Claims priority, application Fed. Rep. of Germany, Dec. 3, 1980, 3045480

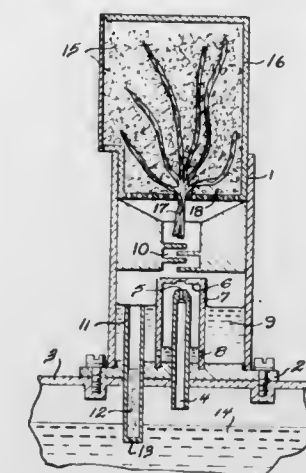
Int. Cl.³ H01M 2/12

U.S. Cl. 429-86

4 Claims

1. A closure device for attaching to a lead-acid battery for removing poisons from gases produced and discharged during battery use, comprising the combination of a filter of activated carbon and means for preventing explosion, said means for preventing explosion comprising a nozzle having an inlet communicating with a passageway from said battery and a constricted discharge for gases directed towards an impingement surface, a closed-end tube disposed around said nozzle and having a closed end forming said impingement surface, said closed-end tube having a side-wall opening for gas discharge at

an end portion opposite to said impingement surface and an open-end vertical tube outside said closed-end tube, said open-end tube having an open upper end at a level above said side wall openings in said closed-end tube but below said constricted discharge of said nozzle and below said filter of activated carbon to provide means for maintaining a liquid level through which said gases must pass, said open end tube having a porous medium of wettable material in its lower end portion for positioning in communication with and at least partially below the surface of acid electrolyte within said battery.



1. A photoconductive member comprising: a support, a photoconductive layer constituted of an amorphous material containing silicon atoms as a matrix and containing hydrogen atoms or halogen atoms, and an intermediate layer provided between them, said intermediate layer having a function to bar penetration of carriers from the side of the support into the photoconductive layer and to permit passage from the photoconductive layer to the support of photocarriers generated in the photoconductive layer by projection of electromagnetic waves and movement of the photocarriers toward the side of the support, and said intermediate layer being constituted of an amorphous material containing silicon atoms and carbon atoms as constituents and wherein said intermediate layer is non-photoconductive in the visible light region and is from 30 to 1,000 Angstroms in thickness.

4,394,424

PRINTING SCREEN AND METHOD OF MAKING SAME

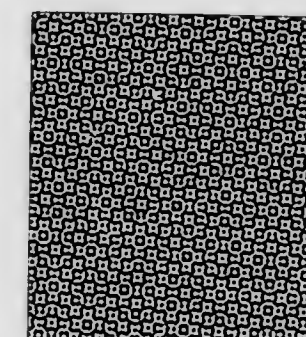
Frank A. Sportelli, 7 Redwood Ct., Glen Cove, N.Y. 11542

Filed Aug. 11, 1981, Ser. No. 292,087

Int. Cl.³ G03F 5/00; G03C 5/00

U.S. Cl. 430-6

20 Claims



1. A method of making a photoprinting image element, said method comprising:

- providing a negative screen having two sets of parallel equispaced lines located thereon, each said set being perpendicular to each other,
- providing a photographic film to be exposed,
- exposing the negative screen onto the photographic film in two separate exposures,
- said negative screen being disposed at a predetermined angle in each said separate exposure,
- each said predetermined angle being at a different angle with respect to each other, and
- developing the exposed photographic film to produce a photoprinting image element having a regular screen pattern as shown in FIG. 2.

3. The method as defined in claim 1 wherein:

the negative screen is a gravure negative screen, and there is a separate exposure at each of the predetermined photoprinting angles of 105° and 75°.

4,394,425

PHOTOCONDUCTIVE MEMBER WITH α-Si(C) BARRIER LAYER

Isamu Shimizu, Yokohama; Shigeru Shirai, Yamato, and Eiichi Inoue, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

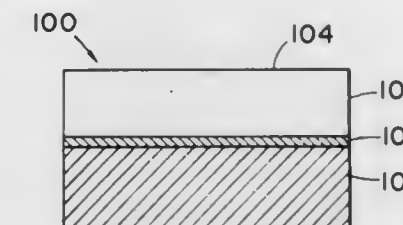
Filed Sep. 4, 1981, Ser. No. 299,576

Claims priority, application Japan, Sep. 12, 1980, 55-127542; Sep. 12, 1980, 55-127543; Sep. 13, 1980, 55-127490; Sep. 24, 1980, 55-133209; Sep. 24, 1980, 55-133210; Sep. 24, 1980, 55-133211

Int. Cl.³ G03G 5/082, 5/14

U.S. Cl. 430-65

98 Claims



1. A photoconductive member comprising: a support, a photoconductive layer constituted of an amorphous material containing silicon atoms as a matrix and containing hydrogen atoms or halogen atoms, and an intermediate layer provided between them, said intermediate layer having a function to bar penetration of carriers from the side of the support into the photoconductive layer and to permit passage from the photoconductive layer to the support of photocarriers generated in the photoconductive layer by projection of electromagnetic waves and movement of the photocarriers toward the side of the support, and said intermediate layer being constituted of an amorphous material containing silicon atoms and carbon atoms as constituents and wherein said intermediate layer is non-photoconductive in the visible light region and is from 30 to 1,000 Angstroms in thickness.

4,394,426

PHOTOCONDUCTIVE MEMBER WITH α-Si(N) BARRIER LAYER

Isamu Shimizu, Yokohama; Shigeru Shirai, Yamato, and Eiichi Inoue, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 22, 1981, Ser. No. 304,568

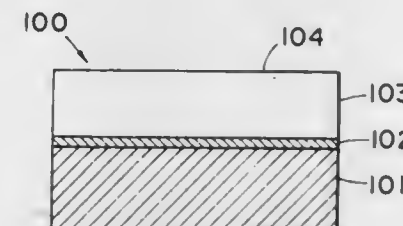
Claims priority, application Japan, Sep. 25, 1980, 55-134114; Sep. 25, 1980, 55-134115; Sep. 25, 1980, 55-134116; Sep. 30, 1980, 55-137149; Sep. 30, 1980, 55-137150; Sep. 30, 1980, 55-137151

The portion of the term of this patent subsequent to Nov. 16, 1999, has been disclaimed.

Int. Cl.³ G03G 5/082, 5/14

U.S. Cl. 430-65

98 Claims



1. A photoconductive member comprising: a support, a photoconductive layer constituted of an amorphous material containing silicon atoms as a matrix and containing hydrogen atoms or halogen atoms, and an intermediate layer provided between them, said intermediate layer having a function to bar penetration of carriers from the side of the support into the photoconductive layer and to permit passage from the photo-

conductive layer to the support of photocarriers generated in the photoconductive layer by projection of electromagnetic waves and movement of the photocarriers toward the side of the support, and said intermediate layer being constituted of an amorphous material containing silicon atoms and nitrogen atoms as constituents and wherein said intermediate layer is non-photoconductive in the visible light region and is from 30 to 1,000 Angstroms in thickness.

4,394,427

ELECTROPHOTOGRAPHIC SENSITIZING SCREEN WITH PERIPHERALLY CLOGGED APERTURES

Masaji Nishikawa; Norio Amemiya; Tadairo Yasuda, and Shigeru Nakayama, all of Hachioji, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 981,315, Nov. 28, 1979, abandoned.

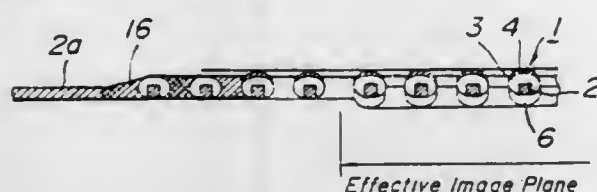
This application Mar. 26, 1981, Ser. No. 247,783

Claims priority, application Japan, Jun. 24, 1977, 52-74969; Jun. 24, 1977, 52-74970; Jun. 24, 1977, 52-74971; Jun. 24, 1977, 52-74972; Jun. 24, 1977, 52-74973

Int. Cl.³ G03G 5/04

U.S. Cl. 430—68

6 Claims



1. An electrophotographic sensitizing screen formed from a conductive mesh having a plurality of apertures therein extending over the surface and to the peripheral edges thereof in a regular array, said mesh including an insulating layer applied thereto, a conductive layer overlying said insulating layer, and a photosensitive layer overlying said conductive layer the improvement comprising clogged apertures extending inwardly of the peripheral edges of said screen to define a peripheral area, said apertures in said peripheral area clogged with an insulative synthetic resin to block the passage of corona ions therethrough, said area of said screen interiorly of said peripheral area serving as an image area, said conductive layer extending over said image area at least to said peripheral area.

4,394,428

PHOTOCONDUCTIVE COMPOSITION AND ELEMENTS COMPRISING TWO DIFFERENT COMPOUNDS HAVING A DIOXABORIN NUCLEUS ON A DERIVATIVE THEREOF

James A. Van Allan; Jerome H. Perlstein; George A. Reynolds, and Thomas E. Goliber, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 24, 1981, Ser. No. 305,257

Int. Cl.³ G03G 5/09

U.S. Cl. 430—83

5 Claims

1. A photoconductive element comprising a support and a layer of a photoconductor composition comprising:
(a) an electron-donating photoconductor; and sensitizing amounts of
(b) a first electron acceptor selected from cyanine and styryl methine dyes having a 1,3,2-dioxaborin nucleus and
(c) a second electron acceptor selected from methine-free compounds having a nucleus selected from the group consisting of 1,3,2-dioxaborin; 1,3,2-oxazaborin and 1,3,2-diazaborins.

4,394,429

DEVELOPMENT PROCESS AND APPARATUS

Dan A. Hays, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

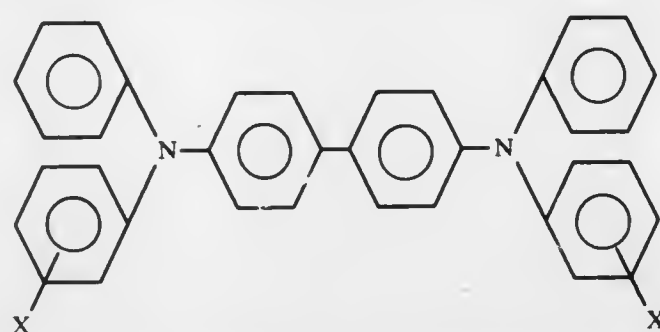
Continuation-in-part of Ser. No. 155,889, Jun. 2, 1980, abandoned. This application Sep. 21, 1981, Ser. No. 304,437

Int. Cl.³ G03G 13/08, 13/09

U.S. Cl. 430—102

13 Claims

1. An improved process for causing the development of electrostatic latent images on an imaging member, comprising providing a development zone ranging in length of from about 0.5 centimeters to about 5 centimeters, which development zone is encompassed by a tensioned deflected flexible imaging member and a transporting member wherein the flexible imaging member is comprised of a supporting substrate, a photogenerating layer, and a transport layer comprised of electrically active diamine molecules dispersed in an inactive resinous binder, the diamine molecules being of the formula



wherein X is selected from the group consisting of (ortho) CH₃, (meta) CH₃, (para) CH₃, (ortho) Cl, (meta) Cl, (para) Cl, causing the deflected flexible imaging member to move at a speed of from about 5 cm/sec to about 50 cm/sec, causing the transporting member to move at a speed of from about 6 cm/sec to about 100 cm/sec, said deflected flexible imaging member and said transporting member moving at different speeds, the ratio of the velocity of the transporting member to the flexible imaging member being greater than zero and less than 1 with the development time ranging from 0.83 seconds to about 5·10³ seconds, maintaining a distance between the flexible imaging member and the transporting member of from about 0.05 millimeters to about 1.5 millimeters, adding insulating developer particles to the development zone, which particles are comprised of electrically insulating toner particles, and electrically insulating magnetic carrier particles, the flexible imaging member being deflected by the electrically insulating developer particles, wherein the deflection of the flexible imaging member caused by the insulating developer particles contained in the development zone is in the form of an arc of from about 10° to about 50°, contained in the development zone, introducing a high electric field in the development zone, wherein the developer particles contained in the development zone are agitated, and the insulating toner particles migrate from one layer of carrier particles to another layer of carrier particles in the development zone, the carrier particles rotating in one direction and subsequently in another direction, whereby toner particles are continuously made available immediately adjacent the deflected flexible imaging member, said process being accomplished in the absence of a magnetic field.

4,394,430

ELECTROPHOTOGRAPHIC DRY TONER AND DEVELOPER COMPOSITIONS

Thomas A. Jadwin, Rochester, and Robert C. Storey, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 14, 1981, Ser. No. 254,028

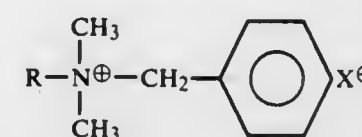
Int. Cl.³ G03G 9/10

U.S. Cl. 430—110

7 Claims

1. A two-component electrophotographic developer comprising magnetic carrier particles and a dry particulate electro-

photographic toner comprising a major amount of binder polymer and dispersed therein as a charge control agent in an amount of 0.01 to 3 weight percent of the particulate toner, a quaternary ammonium salt of the formula:



wherein R is alkyl of 12 to 24 carbon atoms and X[⊖] is an anion.

4,394,431

METHOD FOR DEVELOPING AN ELECTROSTATIC LATENT IMAGE WITH A LIQUID DEVELOPER

Takashi Saito, Ichikawa; Junichi Sakurayama, and Tsuyoshi Watanabe, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

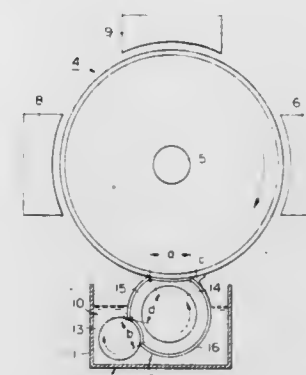
Continuation of Ser. No. 97,861, Nov. 27, 1979, abandoned. This application Oct. 1, 1981, Ser. No. 307,523

Claims priority, application Japan, Dec. 12, 1978, 53-153966

Int. Cl.³ G03G 15/10

U.S. Cl. 430—119

6 Claims



1. A method for developing an electrostatic latent image comprising the steps of bringing a rigid member into pressure contact with a rotary member having a porous elastic member in the form of a layer provided about the periphery thereof to cause said elastic member to be refreshed therein with liquid developer in accordance with the elastic deformation of the elastic member, urging said rotary member against an electrostatic latent image bearing surface and rotating said rotary member to supply the liquid developer to said bearing surface, thereby carrying out development of the electrostatic latent image, and regulating the amount of elastic deformation of said elastic member in the direction of its thickness produced by the pressure contact thereof with said rigid member to be equivalent to or larger than the elastic deformation of said elastic member in the direction of its thickness produced by the pressure contact thereof with said bearing surface.

4,394,432

METHOD FOR PRINTING A PLURALITY OF DUPLICATED COPIES FROM THE SAME ELECTROSTATIC CHARGE LATENT IMAGE

Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 9,585, Feb. 5, 1979, abandoned. This application May 29, 1981, Ser. No. 268,329

Claims priority, application Japan, Feb. 8, 1978, 53-13995

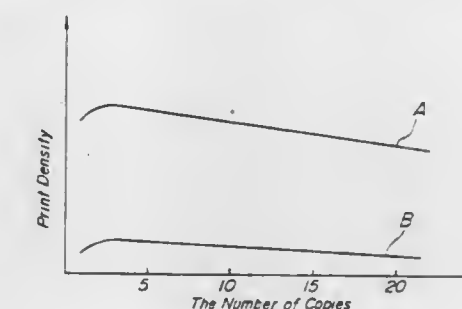
Int. Cl.³ G03G 13/16

U.S. Cl. 430—120

5 Claims

1. An improved method of printing a plurality of duplicated copies with the aid of a single electrostatic charge latent image formed on an electrostatic charge retentive member to form an electrostatic charge latent image corresponding to an image of a document to be duplicated on a charge retentive member and developing the latent image with a developer to form a visible

toned image on the charge retentive member; transferring the toned image onto an image receiving member; fixing the transferred toned image on the image receiving member; and successively repeating the developing, transferring and fixing steps for the same and single latent image so as to form a plurality of duplicated copies, the improvement comprising the step of: gradually increasing the total amount of the developer



supplied to the latent image on the charge retentive member while maintaining the toner concentration substantially constant for developing the latent image in such a manner, that both a large variation in print density at a higher density part in the image and a small variation in print density at a lower density part for successive copies are simultaneously corrected.

4,394,433

DIAZONIUM IMAGING SYSTEM

Kenneth G. Gatzke, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 101,143, Dec. 7, 1979, abandoned. This application Jul. 23, 1981, Ser. No. 286,197

Int. Cl.³ G03C 1/60, 5/18, 1/727

U.S. Cl. 430—151

18 Claims

1. An article comprising a light sensitive, positive-acting, heat developable, dry layer on a substrate, the dry ingredients of said layer comprising at least 25% by weight of a polymeric binder, at least 0.3% by weight of a leuco dye capable of being oxidized to a colored form upon only heating, a sufficient amount of a photosensitive diazonium salt to oxidize said leuco dye to a colored form in non-light struck portions of said layer, and less than 0.1 mole nitrate ion per 1.0 mole leuco dye, said leuco dye in said layer being present in a concentration sufficient to provide an increase in optical density upon development of at least 0.2.

18. A process for imaging an article comprising a light sensitive, positive-acting, heat developable, dry layer on a substrate, the dry ingredients of said layer comprising at least 25% by weight of a polymeric binder, at least 0.3% by weight of a leuco dye capable of being oxidized to a colored form upon only heating, a sufficient amount of a photosensitive diazonium salt to oxidize said leuco dye to a colored form in non-light struck portions of said layer, and less than 0.1 mole nitrate ion per 1.0 mole leuco dye, said leuco dye in said layer being present in a concentration sufficient to provide an increase in optical density upon development of at least 0.2, said process comprising the steps:

- exposing said article to an image-wise distribution of radiation to destroy said diazonium salt in light-struck areas, and
- heating said article to enable said diazonium salt to oxidize said leuco dye to a colored form in non light-struck areas to produce said positive image.

4,394,442

POST-STRETCH WATER-DISPERSIBLE SUBBING COMPOSITION FOR POLYESTER FILM BASE

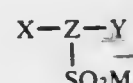
Conrad E. Miller, Hendersonville, N.C., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 15, 1982, Ser. No. 357,908
Int. Cl.³ G03C 1/78

U.S. Cl. 430—532 6 Claims

1. An article of manufacture comprising an energy-treated biaxially oriented polyester film base coated with

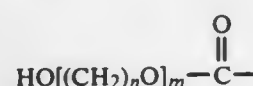
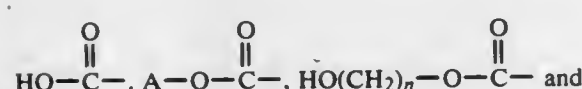
- (1) a subbing layer applied from an aqueous dispersion of a linear copolyester having a relative viscosity of from about 1.3 to about 1.7 measured as a 0.58% solution in m-cresol at 25° C. which comprises the reaction product of substantially equimolar equivalents of at least two dicarboxylic acids and at least one dihydric alcohol, said dicarboxylic acid equivalents being supplied by a plurality of acid reactants which, based on a total of 100% (molar) acid equivalents, includes from about 0.1% (molar) to about 10% (molar) equivalents of an aromatic sulfonated compound having a structural formula,



wherein:

M is a monovalent cation selected from the group of an alkali metal, ammonium substituted ammonium, and quaternary ammonium;

X and Y are monovalent radicals individually selected from the group having structural formulas consisting of



wherein

A is a lower alkyl group having 1-5 carbon atoms; m and n are positive integers of less than 20 with n being greater than 1; and Z is a trivalent aromatic radical; and wherein said copolyester is not branched, cross-linked, or used with a crosslinking agent; and

- (2) a gelatin-containing layer contiguous thereto.

4,394,443

METHOD FOR CLONING GENES

Sherman M. Weissman, New Haven, Conn.; Dennis Pereira, Westerly, R.I., and Ashwani Sood, New Haven, Conn., assignors to Yale University, New Haven, Conn.

Filed Dec. 18, 1980, Ser. No. 217,643

Int. Cl.³ C12Q 1/68; C12P 21/00, 21/02; C12N 15/00; C12P 19/34; G01N 33/50

U.S. Cl. 435—6 12 Claims

1. A method for isolating and indentifying a recombinant clone having a DNA segment therein coding for at least one desired heterologous polypeptide, at least a short amino acid sequence of which is known, said method comprising the steps of:

- (a) effecting cDNA synthesis on a mixture of mRNAs containing a target mRNA coding for said at least one polypeptide, and isolating the resultant cDNA mixture;
- (b) inserting said resultant cDNA into recombinant cloning vehicles, and transforming hosts with said vehicles; and
- (c) separating the transformants and isolating and identifying a recombinant clone containing a DNA segment which is homologous over at least a portion thereof to at least one oligonucleotide probe specific for said DNA segment, said identification being effected by hybridization with said

probe; wherein said probe is an extension of the nucleotide sequence of an oligonucleotide primer having a nucleotide sequence complementary to a region of said target mRNA coding for a portion of said known amino acid sequence, said oligonucleotide probe being produced by separately effecting cDNA synthesis in the presence of said oligonucleotide primer and only three deoxynucleotide triphosphates, isolating and separating extended cDNA fractions having at least three more nucleotides than said primer, sequencing said extended fractions, and recovering at least one oligonucleotide complementary to a longer region of said target mRNA coding for a longer portion of said known amino acid sequence.

4,394,444

COFACTOR INDICATOR COMPOSITIONS

Erma C. Cameron, Mishawaka; Claude R. Gunter, Elkhart, and Rodric H. White-Stevens, Howe, all of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Jun. 21, 1982, Ser. No. 390,252

Int. Cl.³ C12Q 1/60

U.S. Cl. 435—11 36 Claims

1. A composition for the determination of an analyte in a sample which composition comprises:

- an analyte-responsive component comprising a pyridine nucleotide susceptible of reduction in response to the presence of said analyte and at least one constituent inter-reactive with said analyte to cause reduction of the pyridine nucleotide;
- a hydroxylase capable of being uncoupled and a pseudosubstrate capable of uncoupling said hydroxylase, which hydroxylase and pseudosubstrate, in the presence of the reduced form of said pyridine nucleotide, are effective to generate hydrogen peroxide;
- a peroxidatively active substance; and
- a hydrazone indicator comprising a hydrazone and a coupler, which indicator, when in its oxidized form, cannot be reduced by said pyridine nucleotide.

4,394,445

ENZYMATIC GLYCERIDE HYDROLYSIS

Paul T. Nix, 62 Forest Dr., Jackson, N.J. 08527; Janet M. Santoro, 70 Kingsly Way, Freehold, N.J. 07728, and Joyce E. Stephens, P.O. Box 51, Avon-by-Sea, N.J. 07717

Continuation of Ser. No. 187,664, Sep. 16, 1980, abandoned, and a continuation of Ser. No. 13,862, Feb. 22, 1979, abandoned. This application Dec. 15, 1981, Ser. No. 331,449

Int. Cl.³ C12Q 1/44

U.S. Cl. 435—19 9 Claims

1. A composition useful for the hydrolysis of a glycerol ester in an aqueous medium comprising a mixture of from about 65 to 91 units of *Rhizopus arrhizus* lipase and from about 35 to 9 units of *Pseudomonas fluorescens* lipase per 100 units of total lipase.

4,394,446

PROCESS FOR THE PREPARATION OF THE ANTIBIOTIC OXANOSINE

Hamao Umezawa; Nobuyoshi Shimada, both of Tokyo; Hiroshi Naganawa, Honmachi; Tomohisa Takita, Asaka; Masa Hamada, Naito, and Tomio Takeuchi, Tokyo, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Nov. 20, 1981, Ser. No. 323,650

Claims priority, application Japan, Nov. 22, 1980, 55-165159
Int. Cl.³ C12P 19/40; C12N 1/20; C12R 1/465

U.S. Cl. 435—88 3 Claims

1. A process for the preparation of the antibiotic oxanosine which comprises cultivating *Streptomyces capreolus* MG265-CF3, ATCC No. 31963 until a substantial amount of oxanosine

is accumulated in the culture medium, and recovering the oxanosine from the culture medium.

4,394,447

PRODUCTION OF HIGH-PYRUVATE XANTHAN GUM ON SYNTHETIC MEDIUM

Martin C. Cadmus, and Clarence A. Knutson, Jr., both of Peoria, Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed May 23, 1978, Ser. No. 908,601

Int. Cl.³ C12P 19/06, 19/04; C12R 1/64

U.S. Cl. 435—104 3 Claims

1. In a process for producing polysaccharides by fermentation of a carbohydrate-containing nutrient medium with the bacterium *Xanthomonas campestris*, wherein said bacterium is cultivated on said medium under conditions suitable for its growth, the improvement comprising:

- a. providing (NH₄)₂HPO₄ as the primary nitrogen source in said nutrient medium at a level of at least 0.15 g./100 ml. of medium;
- b. providing a total phosphate level in said nutrient medium of at least 0.25 g./100 ml. of medium; and
- c. recovering from said fermentation medium a polysaccharide isolated from residual solids in said medium wherein said polysaccharide has a pyruvic acid content of at least 3.3% by weight.

4,394,448

METHOD OF INSERTING DNA INTO LIVING CELLS

Francis C. Szoka, Jr., 76 Summit St., Waltham, Mass. 02154, and Demetrios P. Papahadjopoulos, 3170 Condit St., Lafayette, Calif. 94549

Continuation-in-part of Ser. No. 881,116, Feb. 24, 1978, Pat. No. 4,235,871. This application Apr. 24, 1980, Ser. No. 143,455
Int. Cl.³ C12N 15/00

U.S. Cl. 435—172 11 Claims

1. A method of inserting deoxyribonucleic acid into a living cell, which comprises: encapsulating the acid material in a lipid vesicle and bringing the vesicle in contact with said cell, whereby insertion occurs.

4,394,449

STABILIZATION OF COENZYMES IN AQUEOUS SOLUTION

Ivan E. Modrovich, 1043 Mesa Dr., Camarillo, Calif. 93010

Filed Feb. 13, 1980, Ser. No. 121,225

The portion of the term of this patent subsequent to Jul. 7, 1998, has been disclaimed.

Int. Cl.³ C12N 9/96; C12Q 1/58, 1/50, 1/34

U.S. Cl. 435—188 27 Claims

1. A stabilized aqueous coenzyme solution for use in the clinical assay of a selected biological constituent through the enzymic reaction of an enzyme or enzymes with selective substrates for the enzymes and a labile coenzyme, said aqueous coenzyme solution comprising:

- (a) at least one first enzyme and a first substrate for selectively reacting with the first enzyme in the assay of the selected biological constituent;
- (b) a labile coenzyme for interacting with the first enzyme and first substrate, which labile coenzyme degrades in said aqueous solution to a coenzyme conversion product; and
- (c) an enzyme and substrate system comprising at least one second enzyme and a selective second substrate for the second enzyme, which second enzyme and second substrate react in said aqueous enzyme solution with the coenzyme conversion product to form the coenzyme.

4,394,450

METHOD FOR PURIFICATION OF URICASE

David A. Brock, and Surendra K. Gupta, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Mar. 1, 1982, Ser. No. 353,484

Int. Cl.³ C12N 9/06; C12Q 1/62

U.S. Cl. 435—191 7 Claims

1. A method for purifying uricase by decreasing the amount of active catalase present which comprises adjusting the pH of a catalase-containing uricase preparation to a pH in the range of about 11 to 13 to inactivate said catalase, and recovering therefrom a uricase preparation substantially free of active catalase.

4,394,451

CULTURE MEDIUM AND CONDITIONS FOR GROWTH OF MAGNETIC BACTERIA

Richard P. Blakemore, Durham, N.H., and Ralph S. Wolfe, Champaign, Ill., assignors to BioMagnetech Corp., New York, N.Y.

Filed Oct. 30, 1980, Ser. No. 202,160

Int. Cl.³ C12N 1/20; C12R 1/01; C12P 3/00

U.S. Cl. 435—253 27 Claims

1. An aqueous culture medium for the growth of a biologically pure culture of magnetic bacteria, comprising, per 100 ml, about 2-30 μM of ferric citrate, about 10-1000 mg of an organic compound selected from the group consisting of fumaric acid, tartaric acid, malic acid, succinic acid, lactic acid, pyruvic acid, oxaloacetic acid, malonic acid, β-hydroxybutyric acid, maleic acid, galactose, rhamnose, melibiose, acetic acid, adipic acid, and glutaric acid, a vitamin source, a mineral source, a nitrogen source, an acetate source, and a pH buffer, said pH buffer resulting in a pH of said aqueous culture medium of about 5.2-7.5.

4,394,452

SYNTHETIC STOOL

Roland Hartl, Eppertshausen, and Dieter Helm, Heppenheim, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed May 30, 1978, Ser. No. 910,285

Claims priority, application Fed. Rep. of Germany, May 31, 1977, 2724438; May 2, 1978, 2819284

Int. Cl.³ G01N 33/72; C09K 3/00

U.S. Cl. 436—66 2 Claims

1. A synthetic human stool, spreadable on a substrate and adaptable to use as a control standard in the diagnostic detection of occult blood in the stool, said synthetic stool consisting essentially of a matrix of a member selected from the group consisting of oxygen-containing organic polymers which are difficultly soluble in water and oxygen-containing inorganic solids difficultly soluble in water, a non-bleeding coloring agent adherent to said matrix and simulating the color of a human stool, a liquid selected from the group consisting of water and lubricants, and a predetermined amount of hemolyzed human blood, said coloring agent on treatment with hydrogen peroxide showing no change in color or no change in color interfering with such a diagnostic detection of occult blood.

4,394,453

ENVELOPES FOR TUNGSTEN-HALOGEN LAMPS

William H. Dumbaugh, Jr., Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Sep. 8, 1981, Ser. No. 299,737

Int. Cl.³ C03C 3/08

U.S. Cl. 501—66 2 Claims

1. A glass envelope for a tungsten-halogen incandescent lamp, said glass exhibiting a strain point of at least 670° C., a coefficient of thermal expansion (0°-300° C.) of 42-45×10⁻⁷/°C., a liquidus temperature below 1150° C., and a viscosity at the liquidus temperature greater than 2×10⁴

poises, and consisting essentially, expressed in weight percent on the oxide basis, of

SiO ₂	60.0 ± 1.5
Al ₂ O ₃	17.0 ± 1.0
B ₂ O ₃	5.0 ± 0.8
CaO	11.4 ± 0.8
MgO	7.5 ± 0.8

the total Al₂O₃ + SiO₂ being held between 74.5-78, the weight ratio SiO₂:Al₂O₃ being held between about 3.3-3.8, and the weight ratio CaO:MgO being held between about 1.3-1.8.

4,394,454

METHOD FOR MAKING SINTERED DOLOMITE WITH A LOW POROSITY AND A GOOD HYDRATION STABILITY

Karlheinz Rösener, Dusseldorf; Alfred Roeder, Duisburg; Wolfgang Münchberg, Hagen; Herbert Richrath, Hagen, and Max Chmiel, Hagen, all of Fed. Rep. of Germany, assignors to Dolomitwerke GmbH, Wulfrath, Fed. Rep. of Germany
Filed Jan. 25, 1982, Ser. No. 342,449

Claims priority, application Fed. Rep. of Germany, May 9, 1981, 3118481

Int. Cl.³ C04B 35/04

U.S. Cl. 501-112

11 Claims

1. In a method for making a dolomite sinter with a low porosity and a good hydration stability made of milled raw dolomite comprising the steps of adding foreign oxides to milled pure raw dolomite powder having a low content of foreign oxides, pressing the milled raw dolomite powder-foreign oxide admixture into briquets, and heating the briquets to a sintering temperature, the improvement comprising:

adding a member selected from the group consisting of burnt dolomite, dolomite hydrate, semi-burnt dolomite and combinations thereof in quantities of between 3 and 20% by weight, relative to the total mixture, to said raw dolomite powder and wherein said foreign oxides are added in such quantities such that the total content of foreign oxides is 1 to 3% by weight calculated on the ignition loss free mixture.

4,394,455

SPINEL SLIP CASTING COMPOSITION AND ARTICLES

Dale M. Bertelsman, Lake Jackson; William M. Eckert, Angleton, and Stanley J. Morrow, Clute, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 217,712, Dec. 18, 1980, abandoned. This application Aug. 31, 1981, Ser. No. 298,048

Int. Cl.³ C04B 35/04

U.S. Cl. 501-117

13 Claims

1. A casting composition comprising
(A) 10 to about 60 percent by weight of a powder of a spinel prepared by coprecipitation of metal hydroxides or metal compound convertible to the metal hydroxides, dried and calcined to between about 400° and 1400° C.; and
(B) the balance water and a sufficient deflocculating agent to form a substantially stable dispersion of the powder.

4,394,456

TEMPERATURE-COMPENSATING CERAMIC DIELECTRICS

Yukio Sakabe, Kyoto, and Goro Nishioka, Hirakata, both of Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto, Japan

Filed Apr. 7, 1982, Ser. No. 366,328

Claims priority, application Japan, Apr. 13, 1981, 56-56175

Int. Cl.³ C04B 35/46; H01B 3/12

U.S. Cl. 501-138

2 Claims

1. A temperature-compensating ceramic dielectric consisting essentially of a composition consisting essentially of 35 to 65 wt.% of neodymium titanate (Nd₂Ti₂O₇), 10 to 35 wt.% of

barium titanate (BaTiO₃), 10 to 35 wt.% of titanium oxide (TiO₂), 1 to 6 wt.% of bismuth oxide (Bi₂O₃) and 1 to 10 wt.% of lead oxide (Pb₂O₄), and including 1 to 6 wt.% of zinc oxide (ZnO) and 1 to 6 wt.% of silicon oxide (SiO₂).

4,394,457

POROUS COMPOSITE MATERIAL AND PROCESS FOR PREPARING SAME

Tatsuo Ogasa, Yokohama, Japan, assignor to Agency of Industrial Science & Technology, Japan

Division of Ser. No. 72,185, Sep. 4, 1979, Pat. No. 4,252,907.

This application Apr. 28, 1980, Ser. No. 144,205

Claims priority, application Japan, Nov. 18, 1978, 53-142522

Int. Cl.³ C08J 9/40, 9/42

U.S. Cl. 521-54

4 Claims

1. A porous foamed material comprising a porous, foamed body formed of hydrophobic polymer having a multiplicity of pores dispersed in said body and each communicating with the surface of the body and providing a porosity of 10-70% for said body, said hydrophobic polymer being selected from the group consisting of polyolefin resins, styrene resins, acrylic resins and polyvinyl chloride resins, and having a layer provided over at least a portion of the interior surface of each of said pores and containing a hydrophilic polymer selected from the group consisting of polyvinyl alcohol, polyacrylic acid, polyvinyl pyrrolidone, polyethylene glycol and a salt of polyacrylic acid, in a weight ratio of 1-25 parts of said hydrophilic polymer per 100 parts of said hydrophobic polymer, said porous foamed material being the product of emulsification of an aqueous solution containing said hydrophilic polymer and a foaming agent into a solution of said hydrophobic polymer in an organic solvent, wherein liquid particles of said aqueous solution are dispersed in said organic solvent to form an emulsion, followed by removal of non-solids from the emulsion and by foaming of the remaining solid obtained from said emulsion to obtain said porous, foamed body.

4,394,458

ALKALI METAL BOROHYDRIDE CONCENTRATE

Robert C. Wade, Ipswich, Mass., assignor to Thiokol Corporation, Chicago, Ill.

Division of Ser. No. 272,867, Jun. 12, 1981, abandoned. This application Jul. 14, 1982, Ser. No. 398,057

Int. Cl.³ C08J 9/06

U.S. Cl. 521-82

5 Claims

1. A method of making a solid, substantially inert, and stable alkali metal borohydride blowing agent concentrate, comprising:

- dry blending from 0.5% to 20% by weight of dried alkali metal borohydride with a dried inert resinous polymer in which reactive protonic hydrogen atoms are substantially absent to form a mixture thereof containing less than about 0.1% by weight adsorbed water;
- heating said mixture to a temperature above the melting point of said resin to form a molten mixture;
- extruding said molten mixture to form a solid, stable and substantially inert concentrate; and
- forming said extruded and cooled concentrate into pellets.

4,394,459

FAST-CURING FOAMABLE COMPOSITION BASED ON ETHYLENE TERPOLYMERS

John Rys-Sikora, Bel Aire, Md., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Division of Ser. No. 303,479, Sep. 18, 1981, Pat. No. 4,370,423.

This application Sep. 2, 1982, Ser. No. 414,452

Int. Cl.³ C08J 9/06

U.S. Cl. 521-84

4 Claims

1. A crosslinked closed-cell microcellular foamed article with bulk density of at least 0.02 g/cm³ comprising a terpolymer of

- ethylene;
- 10 to 40 percent by weight of a softening monomer selected from the group consisting of alkyl acrylates and methylacrylates having linear or branched alkyl groups of 1 to 18 carbon atoms, vinyl esters of saturated carboxylic acids having 1 to 18 carbon atoms and vinyl alkyl ethers wherein the alkyl group contains 1 to 18 carbon atoms; and
- 1.0 to 20 percent by weight carbon monoxide.

4,394,460

ETHYLENE-CHLOROTRIFLUOROETHYLENE COPOLYMER FOAM

Daniel C. Chung, Middlesex; William A. Miller, Bridgewater, and Eugene R. Baumgaertner, Florham Park, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 213,716, Dec. 8, 1980, Pat. No. 4,331,619.

This application Dec. 4, 1981, Ser. No. 327,326

Int. Cl.³ C08J 9/08, 9/10

U.S. Cl. 521-92

34 Claims



1. A composition comprising:

- a copolymer of ethylene and chlorotrifluoroethylene, the copolymer having between 40 and 60 mol percent of ethylene units and correspondingly between about 60 and about 40 mol percent of chlorotrifluoroethylene units;
- an effective amount of a blowing agent selected from the group consisting of hydrozodicarboxylates, diesters of azodicarboxylic acid and carbazides; and
- at least one nucleating agent selected from the group consisting of talc, magnesium carbonate, calcium carbonate, barium carbonate, zinc carbonate, lead carbonate, magnesium oxide, calcium oxide, barium oxide, zinc oxide and lead oxide.

4,394,461

AZOCARBOXYLATE BLOWING AGENT

Paul E. Stott, Houston, Tex., assignor to Uniroyal, Inc., New York, N.Y.

Filed Sep. 30, 1982, Ser. No. 430,101

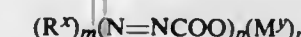
Int. Cl.³ C08J 9/10

U.S. Cl. 521-113

10 Claims

1. A foamable and curable polyester composition consisting essentially of, all parts by weight (unless otherwise indicated):

- 100 parts liquid unsaturated polyester resin;
- 0.1-10 parts azocarboxylate of the formula



wherein M is a metal; x is the valence of R and is 1-6, y is the valence of M and is 1-4, and mx=ny=p where p=1-24; and R is:

- A, a mono- or polyvalent radical: C₁-C₁₀ alkyl, haloalkyl; C₅-C₆ cycloalkyl; C₇-C₉ aralkyl; C₇-C₉ alkaryl; phenyl, halophenyl; naphthyl; C₄-C₁₀ oxydialkylene oxydiphenylene; or
- COOM¹, where M¹ is the same as or different from M, or

- COOR¹ where R¹ is A; or
- COR², where R² is A or NH₂
- 0.1-4.0 parts hydrogen peroxide, organic peroxide or organic hydroperoxide,
- 0.1-20 parts proton donor
- 3-1000 ppm, based on metal, of metal promoter,
- 0-2.0 parts surface active agent, and
- 0-250 parts filler.

4,394,462

MIXTURES OF POLYMERS FOR MEDICAL USE

Christian Pusineri, Serezin du Rhone, and Jean Goletto, Ecully, both of France, assignors to Hospal-Sodip, S.A., Meyzieu, France

Division of Ser. No. 103,894, Dec. 17, 1979. This application Sep. 13, 1982, Ser. No. 417,323

Int. Cl.³ C08J 9/14

U.S. Cl. 521-137

1 Claim

1. Process for the preparation of a foamed composition having good compatibility with biological materials consisting of a mixture of vinyl chloride polymer and a polyether-urethane with tertiary amine and/or ammonium groups with the proportion of the polyether-urethane being from 1 to 99 percent by weight, relative to the total mixture, on a blowing agent or a solvent in an inadequate amount to solubilize the total amount of the composition, and in that this paste is then extruded at a temperature below 100° C. to foam said mixture of polymers.

4,394,463

RIGID POLYURETHANE FOAMS MADE FROM AMINO POLYOLS MODIFIED WITH EPOXY RESINS

Michael Cuscurida; Neal J. Grice, and George P. Speranza, all of Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 183,558, Sep. 2, 1980, Pat. No. 4,309,532.

This application Aug. 3, 1981, Ser. No. 289,560

Int. Cl.³ C12P 5/02

U.S. Cl. 521-167

2 Claims

1. An improved rigid polyurethane foam produced by the reaction of a modified amino polyol, an organic polyisocyanate and one or more foam catalysts where in the improvement comprises making the modified amino polyol by the reaction of components comprising

- a rigid foam polyol initiator having an active hydrogen functionality equal to or greater than four,
- an amine,
- one or more alkylene oxides and
- an epoxy resin.

4,394,464

MODIFIED POLYIMIDE FOAMS AND METHODS OF MAKING SAME

John Gagliani, 6280 Lance Pl., San Diego, Calif. 92120, and John V. Long, 1756 E. Lexington Pl., El Cajon, Calif. 92021

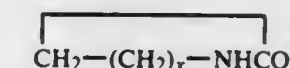
Filed Jun. 21, 1982, Ser. No. 390,778

Int. Cl.³ C08J 9/22, 9/24, 9/32

U.S. Cl. 521-180

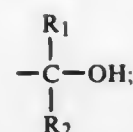
13 Claims

1. The method of making a resilient, flame resistant modified polyimide foam which comprises the steps of: reacting an aromatic dianhydride with an oximine having the general formula:



wherein "X" is an integer from 2 to 4, in a mole ratio of oximine to dianhydride between about 1.5:1 and about 0.05:1 to produce an N-substituted aliphatic imide; dissolving said imide in a reactive solvent esterifying agent to esterify said imide;

adding thereto a diamine;
drying the resulting solution; and
heating the dry material to a selected foaming temperature of from about 120° C. to about 320° C. for a period of from about 10 to about 60 minutes;
whereby a resilient foam having good flame resistance is produced comprising polyimide and polyimide-amide with proportions depending on the selected foaming temperature.



or prepolymer thereof or mixtures thereof; and a catalytic amount of a metal salt of a carboxylic acid catalyst wherein the metal constituent of said salt of a carboxylic acid is capable of existing in at least two valence states.

4,394,465

DENTAL MATERIALS BASED ON ORGANIC PLASTICS IN PASTE FORM

Wolfgang Podszun, Cologne; Michael Walkowiak, Leverkusen, and Hans-Hermann Schulz, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 5, 1980, Ser. No. 184,570

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2938875

Int. Cl.³ A61K 6/08; C08K 3/36, 3/40

U.S. Cl. 523—116

14 Claims

1. A dental material which is based on organic plastics and is in paste form, characterized in that it comprises (a) 18 to 50% by weight of a polymerisable binder, (b) 20 to 65% by weight of a crosslinked bead polymer with an average particle size of 5 to 100 μm and (c) 5 to 45% by weight of glass beads with an average particle size of 5 to 80 μm.

4,394,466

FULVENE BINDER COMPOSITIONS

Bruce A. Gruber, Worthington; Heimo J. Langer, and William R. Dunnivant, both of Columbus, all of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

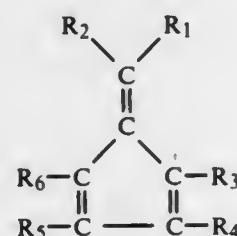
Division of Ser. No. 174,970, Aug. 4, 1980, Pat. No. 4,320,218. This application Nov. 10, 1981, Ser. No. 320,026

Int. Cl.³ C08K 5/09

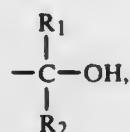
U.S. Cl. 523—141

19 Claims

1. A molding composition which comprises a major amount of aggregate and an effective bonding amount up to about 40% by weight of the aggregate of a composition capable of curing in the presence of oxygen containing a fulvene of the formula:



wherein each R₁ and R₂ individually is hydrogen or a hydrocarbon containing 1 to 10 carbon atoms, or a hydrocarbon containing one or more oxygen bridges in the chain; or a furyl group; or are interconnected to form a cyclic group, each R₃ and R₆ individually is hydrogen or methyl, each R₄ and R₅ is hydrogen or methyl or



provided that a maximum of only one such R₃, R₄, R₅ and R₆ is methyl and provided that a maximum of any one such R₄ and R₅ is

4,394,467

SIZED CARBON FIBERS CAPABLE OF USE WITH POLYIMIDE MATRIX

Robert Edelman, Staten Island, N.Y., assignor to Celanese Corporation, New York, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,108

Int. Cl.³ B32B 5/00, 27/06; D02G 3/00

U.S. Cl. 523—205

26 Claims

1. A carbon fiber having a flexible coating on the surface thereof in a concentration of approximately 0.3 to 5.0 percent by weight based upon the weight of the carbon fiber of a sizing composition which comprises a polyamic acid oligomer, and is capable of yielding a rigid polyimide at elevated temperatures which is derived from the reaction of at least one aromatic diamine, at least one aromatic dianhydride, and at least one aromatic tetracarboxylic acid diester in which the carboxylic acid groups and ester groups are ortho disposed, wherein said polyamic acid oligomer is an intermediate in the formation of said rigid polyimide.

4,394,468

FIBER REINFORCED POLYOXYMETHYLENE MOLDING COMPOSITIONS

Shau-Zou Lu, Whitehouse Station, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Feb. 3, 1982, Ser. No. 345,287

Int. Cl.³ C08L 71/02; C08F 3/40; C08J 3/20

U.S. Cl. 523—205

10 Claims

1. An improved fiber reinforced polyoxymethylene molding composition comprising the admixture of:
(i) a polyoxymethylene polymer; and
(ii) an effective amount of a fibrous reinforcement, wherein said fibrous reinforcement is surface treated with a vinyl polymer which is selected from the group consisting of polyvinylacetate, copolymers of vinyl acetate and other ethylenically unsaturated monomers and partially hydrolyzed vinyl acetate polymer.

4,394,469

POLYSILOXANE TREATED ANTIMONY COMPOUNDS

Julius J. Stratta, Yorktown Heights, N.Y.; Lloyd M. Robeson, White House Station, N.J., and Richard V. Girardi, Mahopac, N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

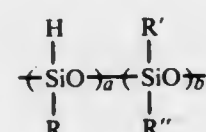
Filed Mar. 29, 1982, Ser. No. 363,103

Int. Cl.³ C08K 9/06

U.S. Cl. 523—212

18 Claims

1. An inorganic antimony compound surface modified with up to about 10 percent by weight of a polysiloxane having the formula:



wherein R, R' and R'' are individually alkyl, alkenyl, aryl, alkylaryl, alkoxy, ether, ester, carboxyl, or amino groups hav-

ing from 1 to 18 carbon atoms, and a+b equals from 2 to 1,000 provided a/b is greater than 0.5.

4,394,470

COLORED POLYETHYLENE TEREPHTHALATE MOULDING COMPOUND AND MOULDED PRODUCTS MADE THEREFROM

Marcel A. Werner, Huissen; Arnold Venema, and Michael G. H. Pisters, both of Arnhem, all of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Mar. 19, 1982, Ser. No. 359,846

Claims priority, application Netherlands, Mar. 20, 1981, 8101373

Int. Cl.³ C08K 5/15

U.S. Cl. 524—56

16 Claims

1. A coloured polyethylene terephthalate moulding compound, characterized in that in the moulding compound there is uniformly distributed 10–25000 ppm of caramel.

4,394,471

COMPOSITIONS OF ALKYLENE-ALKYL ACRYLATE COPOLYMERS HAVING IMPROVED FLAME RETARDANT PROPERTIES

Michael J. Keogh, Bridgewater, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 127,509, Mar. 5, 1980, abandoned, which is a continuation-in-part of Ser. No. 944,336, Sep. 21, 1978, Pat. No. 4,243,579. This application Feb. 11, 1981, Ser. No. 232,480

The portion of the term of this patent subsequent to Jan. 6, 1998, has been disclaimed.

Int. Cl.³ C08K 5/34, 3/26, 3/22, 3/30

U.S. Cl. 524—92

22 Claims

1. A flame retardant alkylene-alkyl acrylate copolymer composition comprising an alkylene-alkyl acrylate copolymer, from about 1 to 30 weight percent of a halogenated flame retardant additive, and more than 20, up to about 30 weight percent of at least one of calcium or magnesium oxide, carbonate, hydroxide or sulfate; said weight percents based on the total weight of the composition.

4,394,472

STABILIZED POLYISOPRENE COMPOSITION

Tadahiko Ito; Toshio Arai; Nobuo Satoh, and Hiroshi Harada, all of Ibaraki, Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1981, Ser. No. 332,827

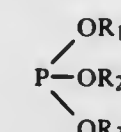
Claims priority, application Japan, Dec. 25, 1980, 184540

Int. Cl.³ C08K 5/34, 5/52

U.S. Cl. 524—100

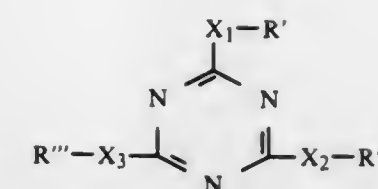
9 Claims

1. A stabilized polyisoprene composition comprising 100 parts by weight of polyisoprene and 0.15–3.0 parts by weight of a binary system antioxidant consisting of a phosphite type antioxidant represented by the formula:



wherein R₁, R₂ and R₃, which may be the same or different, represent aryl or alkaryl groups having 6 to 33 carbon atoms, and

a triazine derivative type antioxidant represented by the formula



wherein X₁, X₂ and X₃, which may be the same or different, are selected from the group consisting of —NH—, —O—, and —S—, and R', R'', and R''', which may be the same or different, represent alkyl groups having 2 to 15 carbon atoms, or alkyl-substituted or unsubstituted hydroxyphenyl groups having 1 to 10 carbon atoms in the alkyl group, or 2,4,6-tris (3',5'-di-*t*-butyl-4'-hydroxyphenylethoxy)-1,3,5-triazine, wherein the weight ratio of the phosphite type antioxidant to the triazine derivative type antioxidant is 70/10–95/5.

4,394,473

RUBBER COMPOUNDING BAGS AND FILM MADE FROM SYNDIOTACTIC 1,2-POLYBUTADIENE

John P. Winter, and Mladomir Tomic, both of Appleton, Wis., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Oct. 6, 1981, Ser. No. 309,046

Int. Cl.³ B65D 25/08; C08F 36/00

U.S. Cl. 524—226

42 Claims

1. A package which comprises (A) an article selected from at least one of unvulcanized or vulcanized rubber or compounding ingredients for unvulcanized rubber packaged in (B) a bag or film made of syndiotactic 1,2-polybutadiene containing at least one antiblock agent additive and also containing at least one slip agent additive selected from the group consisting of fatty acids and metal salts thereof, fatty acid amides, and ester waxes and partially saponified products thereof, the thickness of said bag or film being in the range of about 0.5 to about 10 mils.

19. A method of compounding rubber which comprises mixing unvulcanized rubber with a package comprising at least one compounding ingredient for unvulcanized rubber packaged in a coextruded bag or film made of syndiotactic 1,2-polybutadiene containing at least one antiblock agent additive and also containing at least one slip agent additive selected from the group consisting of fatty acids and metal salts thereof, fatty acid amides, and ester waxes and partially saponified products thereof, the total thickness of said bag or film being in the range of about 0.5 to about 10 mils, said coextruded bag or film comprising at least an inside layer and an outside layer, said inside layer being comprised of syndiotactic 1,2-polybutadiene containing a greater amount of one or more of said antiblock agents than the outside layer.

37. A compounded rubber comprised of a mixture of an unvulcanized rubber and a package comprising at least one compounding ingredient for unvulcanized rubber packaged in a coextruded bag or film made of syndiotactic 1,2-polybutadiene containing at least one antiblock agent additive and also containing at least one slip agent additive selected from the group consisting of fatty acids and metal salts thereof, fatty acid amides, and ester waxes and partially saponified products thereof, the total thickness of said bag or film being in the range of about 0.5 to about 10 mils, said coextruded bag or film comprising at least an inside layer and an outside layer, said inside layer being comprised of syndiotactic 1,2-polybutadiene containing a greater amount of one or more of said antiblock agents than the outside layer.

4,394,474

PRODUCT AND PROCESS FOR REDUCING BLOCK AND INCREASING SLIP OF LINEAR LOW DENSITY ETHYLENE COPOLYMER FILMS

Osborne K. McKinney, and David P. Flores, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 21, 1981, Ser. No. 256,268
Int. Cl.³ C08K 5/16; B29D 7/02

U.S. Cl. 524—232

14 Claims

1. A process for reducing block, and increasing slip, of extrusion-cast films of linear low density ethylene copolymers which inherently exhibit high block and low slip, said process comprising

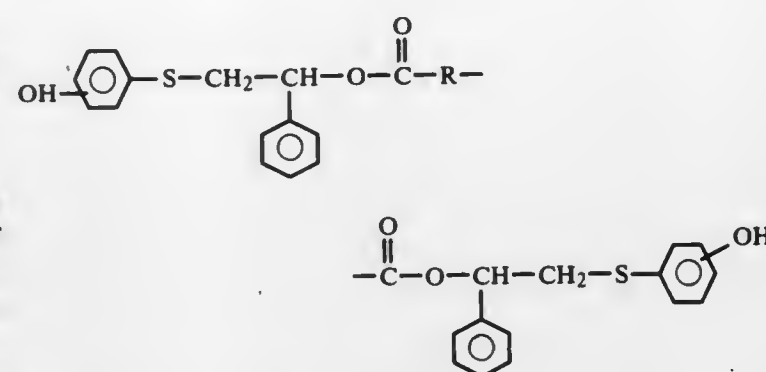
incorporating into the said copolymer, prior to extrusion-casting into films, an effective amount in the range of about 0.05 to about 1.5 weight percent of at least one secondary fatty acid amide and about 0.02 to about 2 weight percent of finely-divided natural mineral, and

extrusion-casting the mixture into a thin film, wherein the linear low density ethylene copolymer comprises ethylene copolymerized with a sufficient amount of at least one alpha, beta-ethylenically unsaturated alkene having from 3 to 12 carbons, to provide a copolymer having a density in the range of about 0.90 to about 0.94 gms. cc.

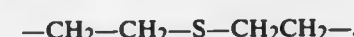
said copolymers having a melt index in the range of about 0.1 gm./10 min. as measured by ASTM-D-1238(E) to about 20 gms./10 min. as measured by ASTM-D-1238(D).

13. The film produced by the process of claim 1, having an average thickness in the range of about 0.3 to about 8 mils.

incorporated therein a stabilizing amount of a compound having the following structural formula:



wherein R is an alkylene radical containing 2 to 10 carbon atoms, a phenylene radical, or a radical of the structural formula:



4,394,477

COATING COMPOSITION

James B. Screeton, Heathfield House, Lynstead, Nr. Sittingbourne, Kent, England

Filed Oct. 29, 1981, Ser. No. 316,358

Claims priority, application United Kingdom, Oct. 30, 1980, 8034934

Int. Cl.³ C08K 5/09

U.S. Cl. 524—319

8 Claims

1. A coating composition comprising a pigment component dispersed in a binder component, wherein the pigment component contains in particular form both a white mineral pigment and a laminar solid and the binder component substantially consists of a copolymer selected from a vinyl acetate veo va copolymer and a vinyl acetate laureate copolymer dissolved in an alcohol.

4,394,478

OXIDIZED CARBONACEOUS MATERIALS AND VULCANIZED AND VULCANIZABLE RUBBER COMPOSITIONS REINFORCED WITH SUCH CARBONACEOUS MATERIALS

Jon W. Martin, Los Alamitos, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jun. 29, 1981, Ser. No. 278,921

Int. Cl.³ C08K 3/18, 3/10

U.S. Cl. 524—424

3 Claims

1. A composition comprising a major amount of diene rubber and a minor amount of oxidized carbonaceous material comprising carbon in an amount of about 80% to about 99%; oxidized iron dispersed in, intimately associated with and at least partially bonded to the carbon in an amount of about 1% to about 15%; and hydrogen in an amount of about 0.1% to about 1.5% by weight.

4,394,479

VINYL ACETATE INTERPOLYMER LATICES

Irving Serlin, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 22, 1980, Ser. No. 218,994

Int. Cl.³ C08F 2/24; C08L 29/04

U.S. Cl. 524—459

20 Claims

1. An aqueous latex consisting essentially of a partially neutralized acid-modified interpolpolymer of a C₄-D₆ vinyl ester and a protective colloid, wherein the vinyl ester interpolpolymer comprises from about 3 to about 7 weight percent of carboxylic acid groups supplied by an interpolpolymerized C₄-C₁₀ vinylene monobasic carboxylic acid monomer, wherein the neutral-

izing agent is a volatile base, wherein the concentration of protective colloid is less than about 0.8 parts by weight per 100 parts by weight of the interpolpolymer and wherein the particle size of the latex is in the range of from 0.05 to about 0.5 microns.

12. A method of preparing an aqueous latex consisting essentially of a partially neutralized acid-modified interpolpolymer of a C₄-C₆ vinyl ester and a protective colloid, wherein the vinyl ester interpolpolymer comprises from about 3 to about 7 weight percent of carboxylic acid groups supplied by an interpolpolymerized C₄-C₁₀ vinylene monobasic carboxylic acid monomer, wherein the neutralizing agent is a volatile base, wherein the concentration of protective colloid is less than about 0.8 parts by weight per 100 parts by weight of the interpolpolymer and wherein the particle size of the latex is in the range of about 0.05 to about 0.5 microns, said method comprising:

A. interpolpolymerizing the vinyl ester and vinylene monobasic carboxylic acid monomer in aqueous suspension at a pH in the range of about 6.0 to about 6.2 in the presence of the protective colloid while adding incrementally sufficient of the volatile base to neutralize from about 10 to about 30 percent of the vinylene monobasic carboxylic acid monomer; and

B. adjusting the pH of the interpolpolymer suspension to a value in the range of about 6.2 to about 7.5 and agitating the interpolpolymer suspension to form the latex.

4,394,480

LOW SHRINKAGE UNSATURATED POLYESTER RESIN COMPOSITION

Norihsa Ujikawa, and Kyosuke Fukushi, both of Aichi, Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

Filed Mar. 24, 1982, Ser. No. 361,168

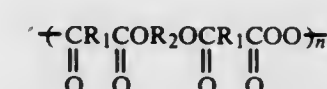
Claims priority, application Japan, Apr. 1, 1981, 56-048769

Int. Cl.³ C08L 67/06

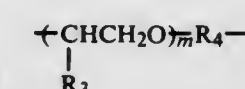
U.S. Cl. 525—43

16 Claims

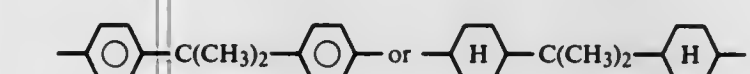
1. A low-shrinkage unsaturated polyester resin composition comprising (a) from 20 to 70% by weight of unsaturated polyester resin, (b) from 20 to 70% by weight of a first polymerizable monomer and (c) from 1 to 20% by weight of a block copolymer mixture having acid groups, said block copolymer mixture having been prepared by first copolymerizing (i) a polymeric peroxide having the formula



wherein R₁ is alkylene or substituted alkylene having 1 to 18 carbon atoms, cycloalkylene or substituted cycloalkylene having 3 to 15 carbon atoms, phenylene or substituted phenylene; R₂ is alkylene or substituted alkylene having 2 to 10 carbons atoms,



wherein R₃ is hydrogen or methyl, R₄ is alkylene or substituted alkylene having 2 to 10 carbon atoms and m is an integer of 1 to 13,



and n is an integer of 2 to 20, with (ii) a second monomer component selected from the group consisting of monomer A, monomer B, mixture of monomer A and an unsaturated organic acid, and mixture of monomer B and an unsaturated organic acid, wherein monomer A consists of 70 to 100% by weight of vinyl acetate and up to 30% by weight of fourth monomer copoly-

merizable with vinyl acetate, and monomer B consists of 0 to 100% by weight of one or more styrene series monomers and 0 to 100% by weight of one or more unsaturated organic acid esters,

whereby to obtain a copolymer having peroxy bonds in the molecule, and then block copolymerizing said copolymer having peroxy bonds in the molecule with a third monomer component which is selected from the same group as, but is different from, the said second monomer component that was used in the first copolymerization step, with the provisos that one of said second and third monomer components is a mixture of one of monomer A or monomer B and said unsaturated organic acid and the other of said second and third monomer components is the other of monomer A or monomer B.

4,394,481

CATIONIC ARCYLAMIDE AND RUBBER MODIFIED ASPHALTS

Anthony V. Grossi, Newark; Leon A. Hagelee, Minerva Park; Louis T. Hahn, and Alfred Marzocchi, both of Newark, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 11, 1981, Ser. No. 329,902

Int. Cl.³ C08F 289/00; C08G 83/00; C08H 5/00

U.S. Cl. 525—54.5

21 Claims

14. A chemically modified asphalt reaction product produced by charging into a reactor an acrylamide having a double bond, asphalt, a vinyl aromatic monomer, and a rubbery polymer which is a homopolymer of a diene or a copolymer of a diene and an olefinically unsaturated monomer and heating the materials at an elevated temperature for several hours so as to produce said reaction product.

4,394,482

MODIFIED ASPHALT COMPOSITION

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation of Ser. No. 167,985, Jul. 14, 1980, abandoned. This application Mar. 22, 1982, Ser. No. 360,124

Int. Cl.³ C08L 95/00

U.S. Cl. 525—54.5

16 Claims

1. A chemically modified asphalt composition comprising (1) an asphalt which has been reacted with a polymerizable vinyl aromatic monomer and a rubbery polymer and (2) a terpene resin, said terpene resin being present in an amount sufficient to reduce the viscosity of said reacted asphalt.

4,394,483

SAPONIFICATION OF ETHYLENE COPOLYMERS SUSPENDED IN KETONE

Victor J. Hobes, Dinslaken, and Wolfgang Payer, Wesel, both of Fed. Rep. of Germany, assignors to Ruhechemie Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 2, 1981, Ser. No. 326,565

Claims priority, application Fed. Rep. of Germany, Dec. 6, 1980, 3046144

Int. Cl.³ C08F 8/12

U.S. Cl. 525—60

9 Claims

1. In a process for the production of ethylene copolymers comprising by weight

- (1) more than 60% polyethylene,
- (2) 0 to 20% polyesters of C₃ to C₁₂ alkenecarboxylic acids with C₁ to C₈ primary alcohols,
- (3) 1 to 20% C₃ to C₁₂ polyalkenecarboxylic acids, ps comprising saponifying a feedstock comprising by weight a granular polymer or
- (a) at least 50% ethylene,
- (b) 2 to 50% esters of C₃ to C₁₂ alkenecarboxylic acids with C₁ to C₈ primary alcohols,
- (c) 0 to 30% vinyl esters of saturated monobasic, aliphatic carboxylic acids with 1 to 6 carbon atoms, and

(d) up to 3% C₃ to C₁₂ alkenecarboxylic acids, the improvement which comprises said feedstock having a particle size of 0.1 to 8.0 mm, and being suspended in a liquid phase consisting essentially of a ketone, there being 1 part of said feedstock to 1-10 parts of said ketone, said ketone being of the formula



wherein R and R' are individually a straight or branched chain alkyl radical having 1 to 6 carbon atoms, and carrying out the saponification of the polyester of alkenecarboxylic acids with primary alcohols at 40° to 75° C. in the presence of at least one alkaline saponifying agent, while retaining the granular structure thereof.

4,394,484

POLYPENTABROMOSTYRENE, PROCESS FOR THE PRODUCTION AND USE

Herbert Jenkner, Pulheim; Robert Strang, Cologne, and Peter Adermann, Rösrath, all of Fed. Rep. of Germany, assignors to Chemische Fabrik Kalk GmbH, Cologne, Fed. Rep. of Germany

Filed Jul. 7, 1981, Ser. No. 280,979

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1980, 3025666

Int. Cl.³ C08F 112/04

U.S. Cl. 525—72

9 Claims

1. Polypentabromostyrene having a bromine content of between 76% and 80% and a softening point above 280° C. and which is thermally decomposed at a temperature of above 400° C.

2. A process for preparing polypentabromostyrene having a bromine content of between 76% and 80% and a softening point above 280° C. and which is thermally decomposed at a temperature of 400° C., comprising heating pentabromostyrene to a temperature of 100° C. to 150° C. in an alcoholic solvent having a boiling point of above 100° C. in the presence of an effective amount of a polymerization catalyst.

4,394,485

FOUR COMPONENT ADHESIVE BLENDS AND COMPOSITE STRUCTURES

Ashok M. Adur, Rolling Meadows, Ill., assignor to Chemplex Company, Rolling Meadows, Ill.

Filed Mar. 31, 1982, Ser. No. 363,894

Int. Cl.³ C08L 51/06, 23/26

U.S. Cl. 525—74

11 Claims

1. A modified polyolefin blend consisting essentially of:

(A) HDPE having a density of about 0.94-0.97 g/cc;

(B) at least one polypropylene polymer or copolymer;

(C) LDPE having a density of about 0.91-0.94 g/cc; and

(D) a polyethylene polymer grafted with at least one grafting monomer polymerizable ethylenically unsaturated carboxylic acid or acid derivative.

4,394,486

HIGH SOLIDS COATINGS WITH ENHANCED FLEXIBILITY AND IMPACT STRENGTH

Mohinder S. Chattha, Livonia, and Ares N. Theodore, Farmington Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 28, 1981, Ser. No. 334,684

Int. Cl.³ C08L 61/28, 37/00

U.S. Cl. 525—162

40 Claims

1. A thermosetting coating composition exhibiting improved flexibility and impact strength and having excellent weatherability and comprising:

(A) a modified hydroxy acrylic copolymer which is the stepwise reaction product of:

(i) a copolymer bearing pendant hydroxyl groups and having a number average molecular weight (M_n) of between about 1000-5000, said copolymer being prepared from (a) between about 5 and about 40 weight percent of monoethylenically unsaturated hydroxy alkyl ester of the formula $\text{CH}_2=\text{CR}_1-\text{COOR}_2$ wherein R_1 is H or an alkyl group and R_2 is a hydroxy alkyl group and (b) between about 95-60 weight percent of other monoethylenically unsaturated monomers;

(ii) dicarboxylic acid anhydride comprising at least about 50 percent by weight of an alkyl hexahydrophthalic anhydride, wherein (i) and (ii) are reacted in an amount sufficient to esterify between about 30 and about 100 percent of said pendant hydroxyl groups of said copolymer thereby generating pendant carboxyl groups; and

(iii) a monoepoxide functional monomer comprising at least about 90 percent by weight C₂-C₁₀ monoepoxide functional monomers, wherein said monomer is reacted with said pendant carboxyl groups of the polymer reaction product of (i) and (ii) in an amount so as to provide at least about 1.0 equivalent of epoxide groups per equivalent of said pendant carboxyl groups to generate pendant hydroxyl groups;

(B) an amine-aldehyde crosslinking agent;

(C) 0-50 weight percent based on the total weight of (A),

(B) (C) and (D) of a hydroxy functional additive having a number average molecular weight (M_n) of between about 150 and about 6000; and

(D) solvent said amine-aldehyde crosslinking agent being included in said composition in an amount sufficient to provide at least about 0.60 equivalents of nitrogen crosslinking functionality for each equivalent of hydroxyl functionality included in said composition either as a hydroxyl group on said modified hydroxy acrylic copolymer or as a hydroxyl group on said hydroxy functional additive.

4,394,487

ADSORBENT FOR THE AFFINITY-SPECIFIC SEPARATION OF MACROMOLECULAR MATERIALS

Werner Müller, Bielefeld, and Hans Bünnemann, Steinhagen, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Division of Ser. No. 880,914, Feb. 24, 1978, Pat. No. 4,335,226.

This application Oct. 7, 1981, Ser. No. 309,543

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1977, 2709094

Int. Cl.³ C08F 267/10, 8/00

U.S. Cl. 525—281

7 Claims

1. Process for the preparation of an adsorbent for the affinity-specific separation of nucleic acids, comprising a polymeric carrier material onto which an affine residue group consisting of a base and/or structure specific complex former for nucleic acids, is covalently bound wherein said polymeric carrier material is first formed from at least one monomer which additionally possesses a functional group via which the affine residue for the biopolymer can be bound directly or via a polymeric spacer, the polymeric carrier material is optionally comminuted to the desired particle size and then the affine residue for the biopolymer is grafted on either directly or by copolymerization in the presence of at least one further monomer as co-monomer so that particles of the desired size are produced.

4,394,488

ZINC PEROXIDE PROCESS

Chan J. Kim, and Ahti A. Koski, both of Sarnia, Canada, assignors to Polysar Limited, Ontario, Canada

Filed Jul. 20, 1982, Ser. No. 400,008

Claims priority, application Canada, Aug. 10, 1981, 383563 Int. Cl.³ C08J 3/24; C08C 19/04; C08F 236/12; C08C 19/42

U.S. Cl. 524—432

9 Claims

1. A process for the production of a mixture of butadiene-acrylonitrile polymer and zinc peroxide which comprises: (I) forming an aqueous mixture in a reactor equipped with means for agitation and means for temperature control, said aqueous mixture comprising (a) from about 15 to about 30 weight percent of zinc oxide made by the French Process being at least about 99 weight percent pure and having an average particle size of from about 0.1 to about 0.5 micron, (b) from about 0.0075 to about 0.2 parts by weight of sulphuric acid per part by weight of zinc oxide, (c) from about 1 to about 5 moles of hydrogen peroxide per mole of zinc oxide, and (d) the balance to 100 weight percent being water, said aqueous mixture being formed by adding said zinc oxide to a preformed mixture in said reactor of said sulphuric acid, said hydrogen peroxide and said water while maintaining the contents of said reactor in an agitated condition and at a temperature of from about 20° to about 35° C. throughout the addition of said zinc oxide and then for a further time of from about 1 to about 4 hours, thereby producing an aqueous slurry of a mixture of zinc peroxide and zinc oxide containing less than about 0.05 weight percent of residual hydrogen peroxide; and (II) transferring said aqueous slurry to a mixing vessel, adding thereto and mixing therewith a stream of an aqueous latex of a butadiene-acrylonitrile polymer, said polymer containing from about 20 to about 45 weight percent acrylonitrile and having a molecular weight characterized by a Mooney (ML 1+4 at 100° C.) of from about 35 to about 65, contacting the resulting mixture with an aqueous stream of calcium chloride to coagulate said mixture, separating said coagulated product from the aqueous phase, recovering and drying said product to a water content of less than about 1 weight percent to yield a final product containing from about 48 to about 57 weight percent of said polymer and from about 43 to about 52 weight percent of said mixture of zinc peroxide and zinc oxide wherein said final product contains at least about 27.5 weight percent zinc peroxide.

4,394,489

FLUOROELASTOMER CURATIVES

Carl A. Aufdermarsh, Newark, Del., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Feb. 25, 1982, Ser. No. 352,328

Int. Cl.³ C08F 4/72

U.S. Cl. 525—370

7 Claims

1. In a nitrile-substituted fluoroelastomer composition containing a curing agent, the improvement wherein the curing agent comprises about from 1 to 10 parts per 100 parts by weight of elastomer of an organotin compound having the general formula $\text{R}_x\text{SnY}_{4-x}$ wherein x is 0-3, R is aryl of 6-10 carbon atoms or alkyl of 1-4 carbon atoms, and Y is at least one of allyl, propargyl, and allenyl.

4,394,490

WATER DISPERSIBLE POLYESTER COMPOSITIONS

William C. T. Tung, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sep. 28, 1982, Ser. No. 425,146

Int. Cl.³ C08F 283/00; C08G 63/76; C08L 63/00

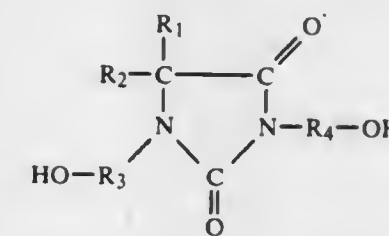
U.S. Cl. 525—438

10 Claims

1. A water dispersible polyester, comprising: a polyester, said polyester comprising a mixture of units in the polymer chain made from the reaction product of a diacid component and a diol, said diacid component comprising up to 30 mole percent by weight of a compound selected from the group consisting

of an alkyl dicarboxylic acid having from 4 to 20 carbon atoms, a diester of an alkyl dicarboxylic acid having from 6 to 20 carbon atoms, and combinations thereof, at least 70 mole percent of an aromatic dicarboxylic acid or ester thereof selected from the group consisting of an aryl dicarboxylic acid having from 8 to 20 carbon atoms, an alkyl substituted aryl dicarboxylic acid having from 9 to 20 carbon atoms, a diester of an alkyl substituted aryl dicarboxylic acid having from 11 to 20 carbon atoms, a diester of an aryl dicarboxylic acid having from 10 to 20 carbon atoms, and combinations thereof;

said diol comprising up to 30 mole percent of a diol selected from the group consisting of a glycol having from 2 to 12 carbon atoms, a glycol ether having from 4 to 12 carbon atoms, or combinations thereof, said diol component also having at least 70 mole percent of a hydantoin compound having the formula



wherein R₁ and R₂ can be the same or different and is an alkyl having from 1 to 2 carbon atoms, and where R₃ and R₄ can be the same or different and is an alkyl having from 1 to 4 carbon atoms.

8. A water dispersible polyester according to claim 1, 2, 4, 5, or 7, wherein said dispersible polyester has been cured by a curing agent, so that said polyester is water insoluble.

9. A water dispersible polyester according to claim 8, wherein said curing agent is an epoxy compound.

4,394,491

ADDITION POLYMERIZABLE ADDUCT OF A POLYMERIC MONOAH AND AN UNSATURATED ISOCYANATE

Dwight K. Hoffman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 8, 1980, Ser. No. 195,155

Int. Cl.³ C08L 71/02, 75/08

U.S. Cl. 525—452

9 Claims

1. An ethylenic addition polymerizable adduct of a monoahl and an active ethylenically unsaturated isocyanate monomer, said monoahl being an organic compound containing only one active hydrogen moiety capable of reacting with the isocyanate moiety of the isocyanate monomer to form the adduct, said adduct being represented by the formula:



wherein each A is individually —O—, —S— or



wherein R₁ is hydrogen or alkyl; Y is oxyalkyl or oxyaryl; Z is an oxycarbonylaminoalkyl ester of an α,β -ethylenically unsaturated carboxylic acid; each R''' is individually alkylene, arylene hydroxyalkylene, aminoalkylene, alkoxyalkylene, aryloxyalkylene, arylalkylene, hydroxyaryloxyalkylene or haloalkylene; and m is a whole number such that $-(\text{R}'''\text{A})_m\text{R}'''$ has a number average molecular weight from about 60 to about 100,000 and being capable of stabilizing a dispersion of a polymer comprising the adduct in a continuous liquid phase.

4,394,492

CURING EPOXIDE RESINS IN AN AQUATIC ENVIRONMENT

Christopher M. Andrews, Cambridge, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 21, 1982, Ser. No. 390,466

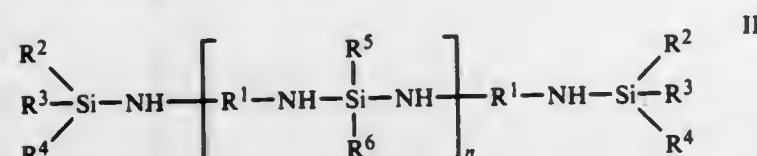
Claims priority, application United Kingdom, Jun. 30, 1981, 8120155

Int. Cl.³ C08L 61/00, 61/06

U.S. Cl. 525—504

8 Claims

1. Curable compositions comprising
 - (a) an epoxide resin and
 - (b) a silamine of the formula



where

R¹ represents the divalent residue of an aromatic or araliphatic diprimary amine after removal of the two primary amino groups,

R², R³, R⁴, R⁵, and R⁶, which may be the same or different, each represent an alkyl group of 1 to 8 carbon atoms or an aryl group of 6 to 10 carbon atoms,

and

n represents zero or an integer of from 1 to 10.

4,394,493

CROSSLINKABLE POLY(OXYALKYLENE) GRAFT COPOLYMERS

David J. Bartkovitz, North Tarrytown, and George H. Greene, Croton-on-Hudson, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Sep. 30, 1981, Ser. No. 307,211

Int. Cl.³ C08F 283/06

U.S. Cl. 525—530

2 Claims

1. A graft copolymer of N-(isobutoxymethyl)acrylamide and a poly(oxyalkylene) having up to about 70 percent by weight of said N-(isobutoxymethyl)acrylamide grafted onto a poly(oxyalkylene) polymer having the formula:



wherein R'' is a hydrocarbon radical containing up to 10 carbons having a valence of a, a is an integer having a value from 1 to 4, R' is a hydrogen atom or a monovalent hydrocarbon radical containing up to 6 carbons, n has a value of 2 to 4, and z is an integer having a value of about 2 to about 800, wherein said graft copolymer is crosslinkable and film formable.

4,394,494

DENTAL FILLING MATERIAL

Mikio Miyake, Yamanishi; Shinya Kitoh, and Satoshi Hayashi, both of Hiratsuka, all of Japan, assignors to Lion Corporation, Tokyo, Japan

Filed Jun. 22, 1981, Ser. No. 275,704

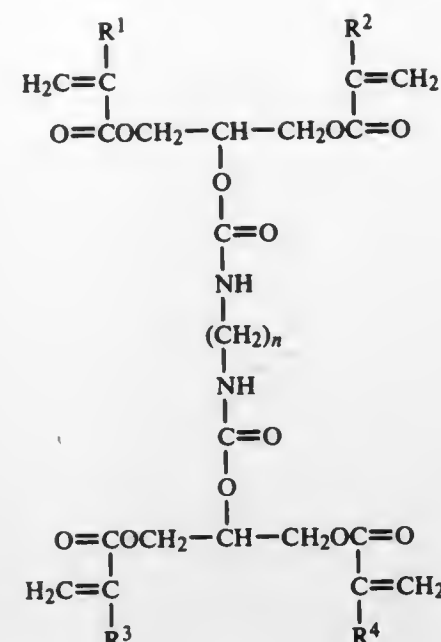
Claims priority, application Japan, Jul. 4, 1980, 55-91408; Nov. 12, 1980, 55-158982

Int. Cl.³ A61K 6/02; C08F 26/02; C07C 125/06

U.S. Cl. 526—301

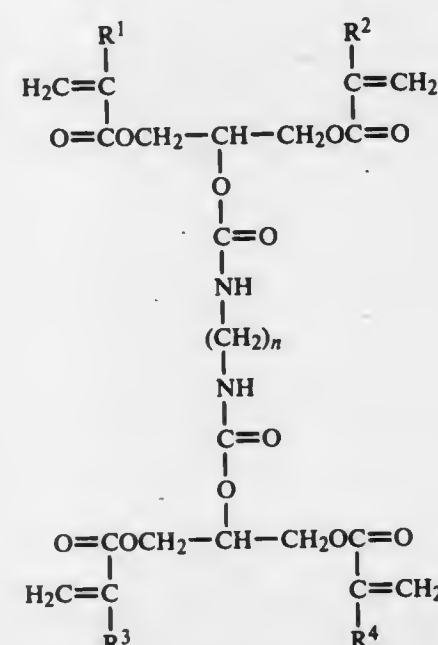
19 Claims

1. A polymerizable monomer having the formula:



wherein R¹, R², R³ and R⁴ are each hydrogen or a methyl group and n is equal to a value varying from 2 to 10.

2. A dental filling composition, comprising: a polymerizable monomer having the formula I:



wherein R¹, R², R³ and R⁴ are each a hydrogen or a methyl group and n is equal to a value varying from 2 to 10 and a filler material.

4,394,495

DIISOCYANATES USEFUL AS A STRUCTURAL COMPONENT IN THE PREPARATION OF POLYURETHANE PLASTICS

Hans-Joachim Scholl, Cologne, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 29, 1982, Ser. No. 344,120

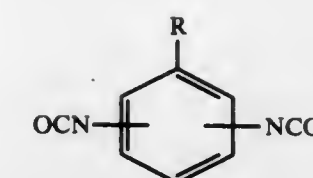
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1981, 3105776

Int. Cl.³ C08G 18/76

U.S. Cl. 528—67

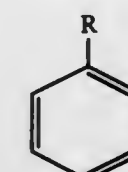
2 Claims

1. A mixture of homologues and isomers of diisocyanates corresponding to the formula:



in which R represents a saturated, straight-chained aliphatic hydrocarbon radical having 8 to 15 carbon atoms prepared by

- (a) dinitrating a mixture of homologues and isomers of hydrocarbons corresponding to the formula



which mixture, at 1013 mbar, has a boiling range according to ASTM D 86 of 10°–50° C. within the temperature range of from 270°–330° C.;

- (b) hydrogenating the product of (a) to form a mixture of diamino compounds; and
- (c) phosgenating the diamino compounds of (b).

4,394,496

EPOXIDATION PRODUCTS OF

1,1,1-TRI-(HYDROXYPHENYL) ALKANES

Paul G. Schrader, Antioch, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 234,237, Feb. 13, 1981, abandoned, which is a continuation-in-part of Ser. No. 906,384, May 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 646,730, Jan. 5, 1976, abandoned, which is a

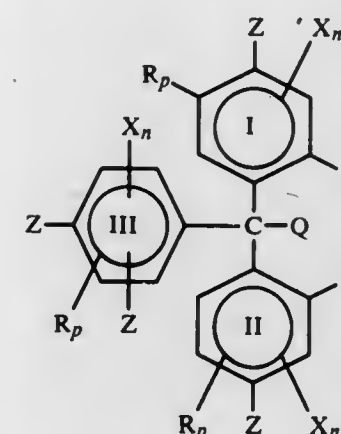
continuation-in-part of Ser. No. 173,259, Aug. 19, 1971, abandoned. This application Oct. 30, 1981, Ser. No. 316,586

Int. Cl.³ C08G 59/32

U.S. Cl. 528—98

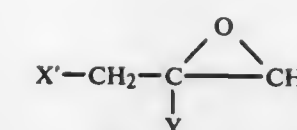
33 Claims

1. The epoxidation product of a phenolic compound of the formula



wherein:

- Q is H or an alkyl group of from 1 to about 10 carbon atoms; each R independently represents an alkyl group of from 1 to about 12 carbon atoms, phenyl or cycloalkyl of from 3 to about 6 carbon atoms; each Z independently represents H or OH, with the proviso that at least one Z group on each of Rings I, II and III is OH; each X independently represents bromo, chloro or nitro; each p independently is 0, 1 or 2, each n independently is 0, 1, or 2, the sum of n+p for each ring being 0, 1, 2 or 3 when each Z is other than hydrogen, and an epihalohydrin of the formula:



wherein X' is Cl or Br and Y is H or —CH₃;

said epoxidation product having an average epoxide functionality of from about 2.5 to about 6.0, or at least about 70% of theoretical for the number of available hydroxyls, whichever is greater.

23. The cured epoxidation product of claim 1.

4,394,497

SOLID MATERIALS PREPARED FROM EPOXY RESINS AND PHENOLIC HYDROXYL-CONTAINING MATERIALS

Donald L. Nelson, and Bryan A. Naderhoff, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 29, 1982, Ser. No. 362,799

Int. Cl.³ C08G 59/00, 65/14

U.S. Cl. 528—101

9 Claims

1. Solid compositions resulting from reacting, in the presence of an effective quantity of a suitable catalyst,

(I) at least one material having an average of more than one 1,2-epoxy group per molecule with

(II) at least one material having an average of more than one phenolic hydroxyl group per molecule;

wherein at least one of (I) or (II) contains with respect to (II) or has been prepared from with respect to (I) a reaction product of

- (A) at least one aromatic compound containing (1) at least one aromatic ring, (2) at least one aromatic hydroxyl group and (3) which aromatic ring has at least one ortho or para position capable of being alkylated, and
- (B) at least one unsaturated aliphatic or cycloaliphatic hydrocarbon containing 4 to 6 carbon atoms or one or more dimers or oligomers thereof, or mixtures thereof.

4,394,498

METHOD FOR PROVIDING PARTICULATES OF LIQUID CRYSTAL POLYMERS AND PARTICULATES PRODUCED THEREFROM

John R. Kastelic, Rockaway, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Aug. 24, 1981, Ser. No. 295,339

Int. Cl.³ B29D 27/00; C08G 63/18; B02C 11/08

U.S. Cl. 528—193

26 Claims

1. A method of providing particulates of a polymer which is capable of forming an anisotropic melt phase and suitable for use in a thermally and chemically resistant coating which method comprises providing a foamed melt of said polymer, forming an article comprised of said polymer which contains a multitude of voids, and masticating said article to an extent sufficient to form particulates of said polymer.

24. Particulates of a polymer produced by the method of claim 1 which exhibit a length to diameter ratio of less than about 10:1 and a maximum cross-sectional dimension of less than about 100 microns.

4,394,499

POLYIMIDE RESINS

Joseph G. Robinson, Winchcombe, and David I. Barnes, Cheltenham, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Aug. 4, 1981, Ser. No. 290,089

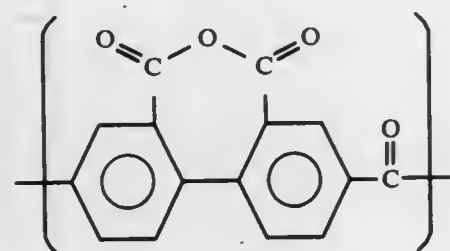
Claims priority, application United Kingdom, Aug. 22, 1980, 8027411

Int. Cl.³ C08G 73/10

U.S. Cl. 528—229

10 Claims

1. An improved phenanthrene based polyimide resin comprising a reaction product of (1) diphenic anhydride oligomers comprising two to about six moieties of



and (2) from 0.1 to 0.6 of an equivalent quantity of an aromatic primary diamine and from 0.9 to 0.4 of an equivalent quantity of a monofunctional primary amine or ammonia.

4,394,500

BEAD POLYMERIZATION PROCESS FOR PREPARING POLYBENZIMIDAZOLE

George N. Milford, Jr., Waynesboro, Va., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 7, 1981, Ser. No. 290,865

Int. Cl.³ C08G 69/04

U.S. Cl. 528—313

5 Claims

1. Process for the preparation of polybenzimidazole in the form of small particles from at least one aromatic compound selected from the group consisting of o-diamino-substituted carboxylic acid compounds by contacting at least one o-diamino-substituted carboxylic acid compound with an excess of polyphosphoric acid dehydrating agent in an inert, nonsolvent, liquid medium, heating to 120°–230° C. for 1–4 hours with stirring, cooling to room temperature with continued stirring and filtering to remove polybenzimidazole which is washed to remove impurities.

4,394,501

COMPOSITION FOR PREVENTING PLATE OUT IN EXTRUSION EQUIPMENT

Walfrida G. E. Kuipers-Klewik, Hengelo; Johannes Akkerman, le Dedemsvaart, and Johan Gons, AA Dedemsvaart, all of Netherlands, assignors to Wavin B.V., Zwolle, Netherlands

Filed Feb. 4, 1981, Ser. No. 231,271

Claims priority, application Netherlands, Apr. 2, 1980, 8000690; Nov. 19, 1980, 8006314

Int. Cl.³ C08K 3/34

U.S. Cl. 528—485

4 Claims

1. A plastic composition incorporating additives to prevent plate out on molding tools and extruders consisting essentially of particles of polymers of vinylchloride and vinylidene chloride and copolymers thereof and additives selected from the group comprising stabilizers and lubricating agents wherein at least one of said stabilizers and lubricating agents is a metal compound, free of liquids and blowing agents, and a drying agent capable of binding water at temperatures greater than

120° C. and pressures greater than 10 atmospheres and capable of preventing ionization of hydrochloric acid at said tempera-



tures and pressures, said drying agent being an expanded and finely ground aluminum silicate.

4,394,502

IMMUNOTHERAPEUTIC AGENT FOR TUMORS COMPRISING LIPOPOLYSACCHARIDE AS AN ACTIVE COMPONENT

Chisato Maruyama, No. 20-6, 1-chome, Mukogaoka, Bunkyo-ku, Tokyo-to, Japan

Continuation-in-part of Ser. No. 147,127, May 6, 1980, Pat. No. 4,329,452. This application Aug. 18, 1981, Ser. No. 293,999

Claims priority, application Japan, Jul. 4, 1979, 54-84681 The portion of the term of this patent subsequent to May 11, 1999, has been disclaimed.

Int. Cl.³ C08B 37/00; A61K 31/72; C07H 13/02

U.S. Cl. 536—119

5 Claims

1. An immunotherapeutic agent for tumors, which comprises as an effective component lipopolysaccharide comprising, arabinomannan as a polysaccharide and fatty acids bonded to said arabinomannan through an ester linkage, the fatty acid content in said lipopolysaccharide being 3 to 28%, said lipopolysaccharide being obtained by hot water extraction and purification of the cell body of human tubercle bacillus, *Mycobacterium tuberculosis* strain Aoyama B or *Mycobacterium tuberculosis* strain H37Rv.

4,394,503

CEPHALOSPORIN DERIVATIVES

Hajime Kamachi, Ciba; Jun Okumura, Yokohama; Takayuki Naito, Kawasaki, and Masahisa Oka, Yokoyama, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

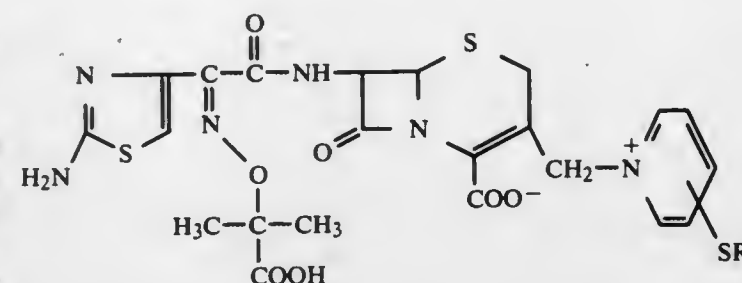
Filed Dec. 7, 1981, Ser. No. 328,331

Int. Cl.³ C07D 501/38; A61K 31/545

U.S. Cl. 544—25

4 Claims

1. A compound of the formula



wherein R is methyl, ethyl or isopropyl, or a pharmaceutically acceptable salt, physiologically hydrolyzable ester or solvate thereof.

4,394,504

CEPHALOSPORIN DERIVATIVES

Thomas J. Commons, Wayne, and John R. Potoski, Spring City, both of Pa., assignors to American Home Products Corporation, New York, N.Y.

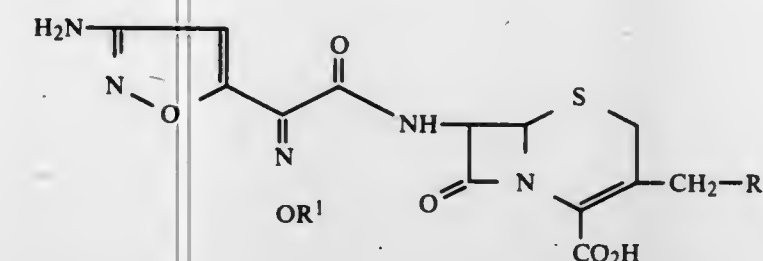
Filed Oct. 7, 1981, Ser. No. 309,361

Int. Cl.³ C07D 501/34

U.S. Cl. 544—28

3 Claims

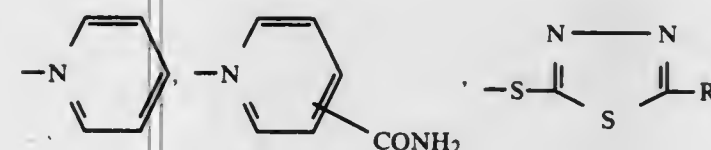
1. A compound of the formula:



in which:

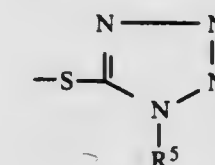
R¹ is H, alkyl of 1 to 4 carbon atoms, alkenyl of 2 to 4 carbon atoms, alkynyl of 2 to 4 carbon atoms, arylalkyl of 7 to 10 carbon atoms, 2-carboxyprop-2-yl, carboxymethyl, alkanoyl of 2 to 4 carbon atoms or α-phenylalkanoyl of 8 to 10 carbon atoms;

R² is H, hydroxy, alkanoyloxy of 2 to 6 carbon atoms, carbamoyloxy,



where

R⁴ is hydrogen or alkyl of 1 to 4 carbon atoms or



where

R⁵ is hydrogen or alkyl of 1 to 4 carbon atoms, vinyl, sulfonyloxymethyl or carboxymethyl; or a pharmaceutically acceptable salt thereof.

4,394,505

5-FLUOROURACIL DERIVATIVES

Susumu Kamata, Takarazuka, and Wataru Nagata, Nishinomiya, both of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Apr. 16, 1982, Ser. No. 369,110

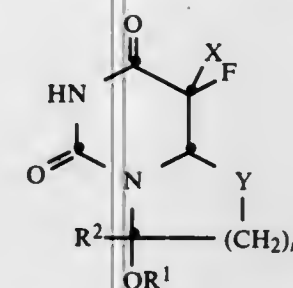
Claims priority, application Japan, Apr. 28, 1981, 56-64738

Int. Cl.³ C07D 487/04, 498/04, 513/04

U.S. Cl. 544—91

5 Claims

1. A compound of the formula



wherein

R¹ is hydrogen, C₁–C₅alkyl, C₆–C₁₀aryl, C₇–C₁₀aralkyl, piperidylethyl]benzanilide (I), which comprises:

C₁–C₁₂alkanoyl, C₂–C₆alkoxycarbonyl, C₁–C₅alk-
anoyloxymethyl, carbamoyl or tri-C₁–C₅alkylsilyl;
R² is hydrogen, C₁–C₅alkyl, C₆–C₁₀aryl or C₇–C₁₀aralkyl;
X is hydrogen, halogen or C₂–C₆alkoxycarbonyl;
Y is O, NR' (R' is hydrogen or C₁–C₅alkyl), S, SO or SO₂;
and
n is an integer of 1–3.

4,394,506

AGRICULTURAL SULFONAMIDES

George Levitt, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 29,281, Apr. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 15,341, Mar. 1, 1979, abandoned, which is a continuation-in-part of Ser. No. 965,070, Nov. 30, 1978, abandoned, which is a

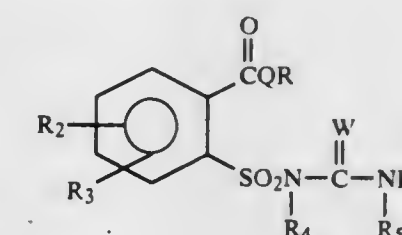
continuation-in-part of Ser. No. 910,965, May 30, 1978, abandoned. This application Nov. 30, 1979, Ser. No. 98,781

Int. Cl.³ C07D 239/28, 239/30

U.S. Cl. 544—321

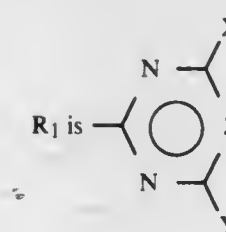
8 Claims

1. A compound of the formula



wherein

Q is O;
W is O;
R is C₁–C₄ alkyl;
R₂ is H;
R₃ is H;
R₄ is H;
R₅ is H or CH₃;



X is H, CH₃, OCH₃ or OC₂H₅;

Y is H, Cl, CH₃, OCH₃ or OC₂H₅; and
Z is CH.

4,394,507

PROCESS FOR PRODUCTION OF ENCAINIDE

Gary D. Madding, Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind.

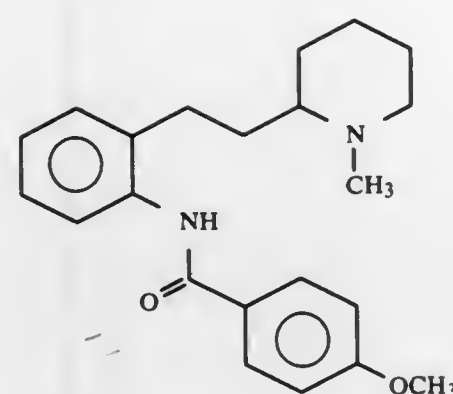
Filed Dec. 14, 1981, Ser. No. 330,298

Int. Cl.³ C07D 211/02, 211/34

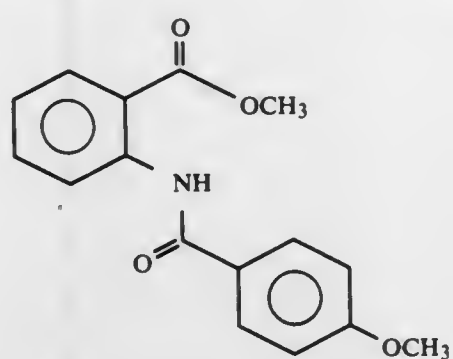
U.S. Cl. 546—185

2 Claims

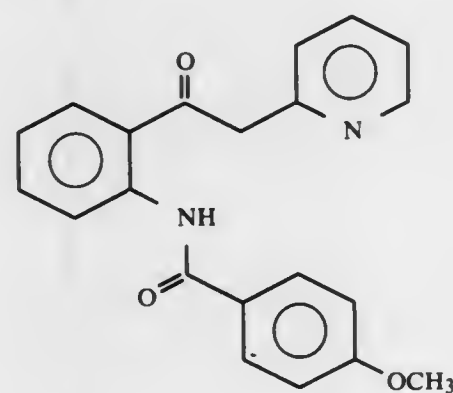
1. A process for preparing 4-methoxy-2'-[2-(1-methyl-2-piperidylethyl)benzanilide (I), which comprises:



(a) reacting methyl N-p-anisoylanthranilate (III)



with 2-picolyllithium to give 2-(2-pyridylacetyl)-p-anisylidene (II);



- (b) hydrogenating an acid addition salt of II in glacial acetic acid in the presence of a platinum catalyst until hydrogen uptake reaches 3 equivalents;
- (c) replacing the platinum catalyst with palladium-on-carbon catalyst and continuing hydrogenation until 2 more equivalents of hydrogen are absorbed; and
- (d) adding excess 37% formalin and continuing hydrogenation until hydrogen absorption ceases.

4,394,508

CHEMICAL COMPOUNDS

Ronnie R. Crenshaw, Dewitt, and Aldo A. Algieri, Fayetteville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

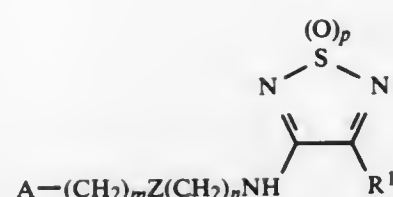
Continuation-in-part of Ser. No. 163,831, Jul. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 117,182, Jan. 31, 1980, abandoned, which is a continuation-in-part of Ser. No. 72,517, Sep. 4, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 240,034

Int. Cl.³ C07D 417/12, 285/10

U.S. Cl. 546—209

1. A compound of the formula

(I)



wherein

p is 1 or 2;

R¹ is hydroxy or NR²R³;

R² and R³ each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, cyclo(lower)alkyl, (lower)alkyl, hydroxy(lower)alkyl, (lower)alkoxy(lower)alkyl, (lower)alkylthio(lower)alkyl, 2-fluoroethyl, 2,2,2-trifluoroethyl or cyano(lower)alkyl, or, when R² is hydrogen, R³ may also be cyclo(lower)alkyl, amino(lower)alkyl, (lower)alkylamino(lower)alkyl, di(lower)alkylamino(lower)alkyl, pyrrolidino(lower)alkyl, piperidino(lower)alkyl, piperazino(lower)alkyl, substituted pyridyl(lower)alkyl wherein the pyridyl ring may contain one substituent selected from (lower)alkyl, (lower)alkoxy, hydroxy, amino and halogen, amino, (lower)alkylamino, di(lower)alkylamino, hydroxy, (lower)alkoxy, 2,3-dihydroxypropyl, cyano, amidino, (lower)alkylamidino, A'-(CH₂)_mZ'(CH₂)_n-, phenyl, phenyl(lower)alkyl, substituted phenyl or substituted phenyl(lower)alkyl, wherein the phenyl ring may contain one or two substituents independently selected from (lower)alkyl, hydroxy, (lower)alkoxy and halogen or one substituent selected from methylenedioxy, trifluoromethyl and di(lower)alkylamino; or R² and R³, taken together, may be -CH₂CH₂X(CH₂)_r;

r is an integer of from 1 to 3, inclusive;

X is methylene, sulfur, oxygen or N-R⁴, provided that, when r is 1, X is methylene;

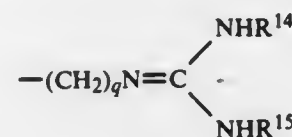
R⁴ is hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkanoyl or benzoyl;

m and m' each are independently an integer of from zero to 2, inclusive;

n and n' each are independently an integer of from 2 to 4, inclusive;

Z and Z' each are independently sulfur, oxygen or methylene;

A and A' each are independently phenyl, imidazolyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, thiadiazolyl, oxadiazolyl, furyl, thienyl or pyridyl; provided that A and A' independently may contain one or two substituents, the first substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl, (lower)alkoxy,



and -(CH₂)_qNR⁵R⁶, and the second substituent being selected from (lower)alkyl, hydroxy, trifluoromethyl, halogen, amino, hydroxymethyl and (lower)alkoxy;

q is an integer of from 0 to 6, inclusive; R¹⁴ and R¹⁵ independently are hydrogen or (lower)alkyl, or, if R¹⁴ is hydrogen, R¹⁵ also may be (lower)alkanoyl or benzoyl, or R¹⁴ and R¹⁵, taken together, may be ethylene; and

R⁵ and R⁶ each are independently hydrogen, (lower)alkyl, (lower)alkenyl, (lower)alkynyl, (lower)alkoxy(lower)alkyl, cyclo(lower)alkyl or phenyl, provided that R⁵ and R⁶ may not both be cyclo(lower)alkyl or phenyl; or R⁵ and R⁶, taken together with the nitrogen atom to which they are attached, may be pyrrolidino, methylpyrrolidino, dimethylpyrrolidino, piperidino, methylpiperidino, dime-

58 Claims

thylpiperidino, hydroxypiperidino, homopiperidino, heptamethyleneimino or octamethyleneimino; or a nontoxic, pharmaceutically acceptable salt, hydrate, solvate or N-oxide thereof.

4,394,509

2-[(PHENYLTHIO)METHYL OR ETHYL]PYRIDINE DERIVATIVES

Roger Crossley, Reading, England, assignor to John Wyeth and Brother Limited, Maidenhead, England

Division of Ser. No. 232,452, Feb. 9, 1981, Pat. No. 4,327,102.

This application Jan. 21, 1982, Ser. No. 341,430

Claims priority, application United Kingdom, Feb. 20, 1980, 8005668; Feb. 20, 1980, 8005669

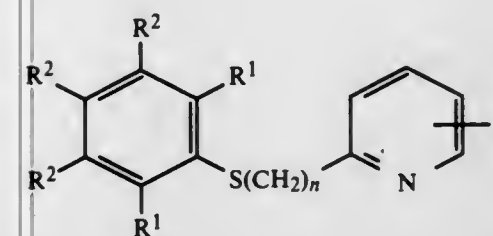
The portion of the term of this patent subsequent to Jun. 29, 1999, has been disclaimed.

Int. Cl.³ C07D 213/32, 213/44

U.S. Cl. 546—339

6 Claims

1. A compound of formula II:



wherein R represents hydrogen or lower alkyl, R¹ represents hydrogen or fluorine, R² represents hydrogen, fluorine or chlorine, n is 1 or 2 and at least one of R, R¹ and R² is other than hydrogen, and the pharmaceutically acceptable salts thereof.

4,394,510

PROCESS FOR PREPARING AN ISOXAZOLYLUREA

Eddie V. P. Tao, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Feb. 2, 1981, Ser. No. 230,555

Int. Cl.³ C07D 261/14

U.S. Cl. 548—240

12 Claims

1. A process for preparing 1-(5-t-butylisoxazol-3-yl)-3,3-dimethylurea without isolation of intermediates, consisting essentially of

- (1) combining a C₁-C₆ alkyl pivalate with acetonitrile in the presence of sodium hydride, potassium t-butoxide or sodamide at from about 80° to about 110°, extracting the reaction mixture with water, acidifying the water layer, extracting the acidic water layer with an inert organic solvent, and extracting the organic layer with aqueous sodium hydroxide;
- (2) combining the basic aqueous layer with hydroxylamine or a salt thereof, adjusting the pH of the mixture to from about 7.5 to about 8.5, and holding the mixture at from about 70° to about 100°, combining the mixture with from about 0.5 to about 2 moles of concentrated hydrochloric acid per mole of pivalate, holding the mixture at from about 50° to about 100°, combining the mixture with from about 1 to about 3 moles of concentrated hydrochloric acid per mole of pivalate, holding the mixture at from about 50° to about 100°, cooling the mixture, extracting the mixture with cyclohexane, making the aqueous layer basic with sodium hydroxide, cooling the basic mixture, extracting the mixture with ethyl acetate, and drying the organic layer;
- (3) slowly adding the dried organic layer to a solution of phosgene in ethyl acetate at from about -25° to about 5°, holding the mixture at from about 60° to about 100°, and cooling the mixture;
- (4) combining the cooled mixture with dimethylamine, holding the mixture at from about 60° to about 100°, cooling the mixture, neutralizing the mixture with aqueous acid,

concentrating the organic layer to a volume of from about 180 to about 300 ml. per gram-mole of pivalate, adding the hot concentrated solution to water, cooling the mixture to from about 0° to about 10°, and separating the solid product.

4,394,511

IMIDAZOLE 4(5)-DITHIOCARBOXYLIC ACIDS OR SALTS

Natsuo Sawa, and Tokuichi Saeki, both of Kagawa, Japan, assignors to Shikoku Chemicals Corporation, Kagawa, Japan

Filed Apr. 21, 1982, Ser. No. 370,354

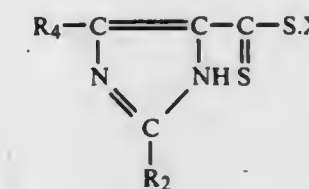
Claims priority, application Japan, Apr. 23, 1981, 56/62240

Int. Cl.³ C07D 233/84

U.S. Cl. 548—343

13 Claims

1. An imidazole-4(5)-dithiocarboxylic acid compound represented by the following general formula:



wherein R₂ stands for a hydrogen atom or a monovalent hydrocarbon group having up to 20 carbons, R₄ stands for a hydrogen atom or an alkyl group having up to 4 carbon atoms, and X stands for a hydrogen atom or an alkali metal atom.

4,394,512

1-(SUBSTITUTED PHENYL) AMINOANTIPYRIN COMPOUNDS

Hans-Georg Batz, Tutzing, Fed. Rep. of Germany, assignor to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Jan. 23, 1981, Ser. No. 228,011

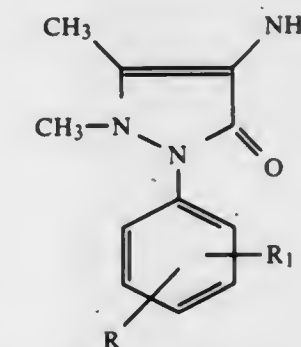
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1980, 3004129; Oct. 7, 1980, 3039207; Jan. 13, 1981, 3100807

Int. Cl.³ C07D 231/46

U.S. Cl. 548—365

3 Claims

1. A compound of the formula



wherein R represents the group N(R₂)₂, in which each R₂ is an alkyl group of 1 to 3 carbon atoms, or one R₂ is an acyl group of 1 to 3 and the other R₂ is an alkyl group of 1 to 3 carbon atoms, and R₁ has the same meaning as R or is a hydrogen atom or NH₂.

4,394,513

N-AZOLYL ACETANILIDES, THE MANUFACTURE THEREOF, AND THEIR USE AS

Karl Eicken, Wachenheim; Wolfgang Rohr, Mannheim, and Bruno Wuerzer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Dec. 31, 1979, Ser. No. 108,541

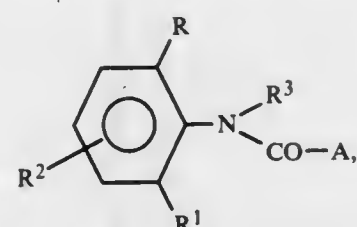
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1979, 2901593

Int. Cl.³ C07D 403/12

U.S. Cl. 548—374

3 Claims

1. An N-azolyacetanilide of the formula



where R denotes hydrogen or C₁-C₄-alkyl; R¹ denotes hydrogen, C₁-C₄-alkyl or halogen; R² denotes hydrogen or methyl; R³ denotes A; and A denotes N-azolylmethyl in which the heterocyclic ring of the N-azolylmethyl is a pyrazole, 1,2,4-triazole or imidazole ring which ring is unsubstituted or substituted by from one to three radicals selected from the group consisting of methyl, methoxy and chlorine, with the proviso that both of the heterocyclic rings cannot be imidazole.

4,394,514

PROCESSES FOR PREPARING 4-SUBSTITUTED INDOLES

Lawrence I. Kruse, Haddonfield, N.J., assignor to SmithKline Beckman Corporation, Philadelphia, Pa.

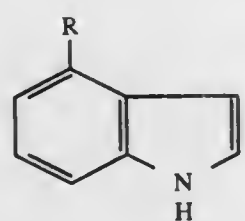
Continuation-in-part of Ser. No. 259,123, Apr. 30, 1981, abandoned. This application Jun. 29, 1981, Ser. No. 278,016

Int. Cl.³ C07D 209/04

U.S. Cl. 548—508

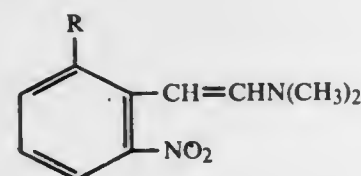
5 Claims

1. The method of preparing a 4-substituted indole of the following formula:

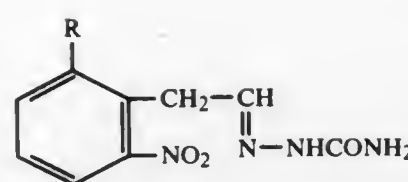


in which R is lower alkoxy, lower alkyl, benzyloxy or carbalkoxy, said alkoxy or alkyl groups being of 1-6 carbons, comprising the steps of:

(A) reacting a o-nitro-β-dimethylaminostyrene of the formula:



in which R is as defined above, with semicarbazide or an acid addition salt thereof at ambient temperature in aqueous dimethylformamide or dimethylacetamide until the reaction is substantially complete to give a semicarbazone of the formula



in which R is as defined above, and
(B) reacting said semicarbazone under standard low pressure catalytic hydrogenation conditions over a noble metal hydrogenation catalyst until the reaction is complete to give the desired 4-substituted indole.

4,394,515

10,11-DIHYDRO-11-OXODIBENZO[b,f]THIEPIN COMPOUNDS

Joshua Rokach, Chomedey-Laval, Canada; Clarence S. Rooney, Worcester, and Edward J. Cragoe, Jr., Lansdale, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 917,211, Jun. 23, 1978, abandoned, which is a continuation-in-part of Ser. No. 819,200, Jul. 26, 1977, abandoned. This application Apr. 6, 1981, Ser. No. 251,221

Int. Cl.³ C07D 337/14

U.S. Cl. 549—12

2 Claims

1. A compound which is 10,11-dihydro-11-oxodibenzo[b,f]thiepin-3-carboxylic acid.

2. A compound which is 10,11-dihydro-11-oxodibenzo[b,f]thiepin-3-carboxylic acid-5-oxide.

4,394,516

PROCESS FOR THE PREPARATION OF A FURAN DERIVATIVE

John W. Clitherow, Sawbridgeworth, England, assignor to Glaxo Group Limited, London, England

Filed May 7, 1982, Ser. No. 375,963

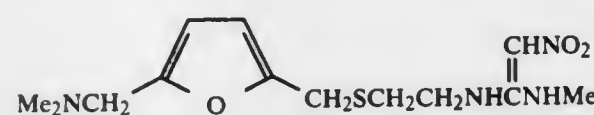
Claims priority, application United Kingdom, May 7, 1981, 8113944

Int. Cl.³ C07D 307/52

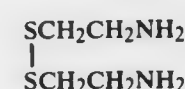
U.S. Cl. 549—495

9 Claims

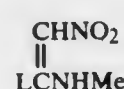
1. A process for the preparation of ranitidine of formula (I)



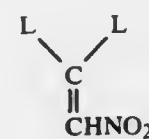
which comprises reacting cystamine of formula (II)



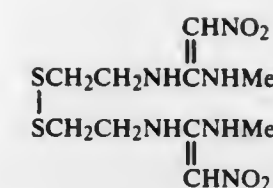
either with a nitroethenamine of formula (III)



where L is a leaving group, or with a compound of formula (IV)



where L is a leaving group, followed by reaction with methylamine, to give a disulfide of formula (V)



which is then reacted with 5-[(dimethylamino)methyl]-2-furan-methanol under acid conditions.

4,394,517

QUATERNARY AMMONIUM FUNCTIONAL SILICON COMPOUNDS

Eugene R. Martin, Onsted, Mich., and Jeffrey A. Tripp, Hillsdale, Australia, assignors to SWS Silicones Corporation, Adrian, Mich.

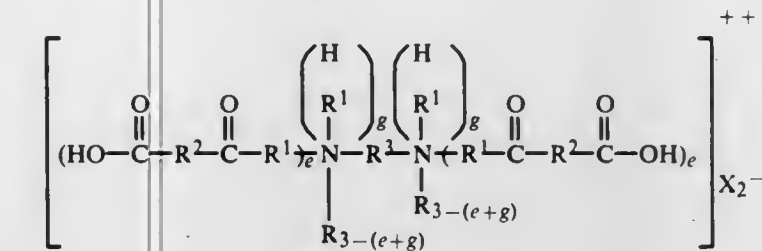
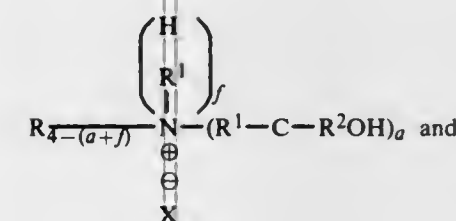
Filed May 21, 1982, Ser. No. 380,487

Int. Cl.³ C07F 7/10

U.S. Cl. 556—419

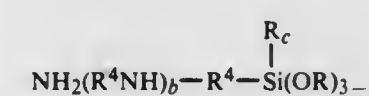
18 Claims

1. A process for preparing quaternary ammonium functional silicon compounds which comprises reacting a carboxylic acid functional quaternary ammonium compound selected from the group consisting of compounds having the formulas

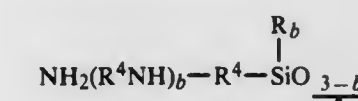


with an aminofunctional silicon compound selected from the group consisting of

(a) Silanes having the formula



(b) Siloxanes having at least one unit of the formula



(c) and mixtures thereof, at a temperature of from 0° up to about 175° C., in which R is a monovalent hydrocarbon radical having from 1 to 22 carbon atoms, R¹ is a hydrocarbonoxy radical having the formula -(C_nH_{2n}O)_n, R² is a divalent hydrocarbon radical selected from the group consisting of (CH₂)_n, CH=CH and cyclic divalent hydrocarbon radicals selected from the group consisting of C₆H₄, C₆H₈, C₆H₁₀, and C₁₀H₆, R³ is a divalent hydrocarbon radical having from 2 to 10 carbon atoms, R⁴ is selected from the group consisting of a saturated divalent hydrocarbon radical having up to 10 carbon atoms, a divalent hydrocarbonoxy radical in which the oxygen is in the form of an ether linkage and an unsaturated divalent hydrocarbon radical having from 3 to 10 carbon atoms, X is an anionic radical, a is a number of from 1 to 4, b is 0, 1 or 2, c is 0, 1, 2 or 3, e is a number of from 1 to 3, f is a

number of from 0 to 3, in which the sum of a+f cannot exceed 4, g is a number of from 0 to 2, in which the sum of e+g cannot exceed 3, n is 2, 3 or 4; r is a number of from 1 to 50 and y is a number of from 0 to 10.

4,394,518

ORGANIC FIBERS HAVING IMPROVED SLIP PROPERTIES

Peter Huber; Peter August; Helga Lampelzammer, all of Burg-hausen, and Willi Primas, Simbach, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

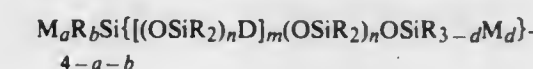
Continuation of Ser. No. 876,454, Feb. 9, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,895

Int. Cl.³ C07F 7/10

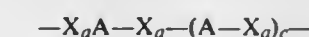
U.S. Cl. 556—424

2 Claims

1. A polymeric organosilicon compound of the formula



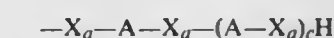
wherein R is selected from the group consisting of hydrocarbon radicals and substituted hydrocarbon radicals having from 1 to 10 carbon atoms, D is a radical of the formula



where X is selected from the group consisting of



where R' is hydrogen or R, R'' is a bivalent aliphatic hydrocarbon radical, A is selected from the group consisting of a bivalent aromatic hydrocarbon radical and a substituted bivalent aromatic hydrocarbon radical, M is a radical of the formula



a is 0 or 1, b is 0, 1 or 2, c is 0 or a number of from 1 to 5, d is 0 or 1, m is 0 or a number of from 1 to 20, n is a number of from 1 to 1,000 with the proviso that at least one X_a A -X_d -A radical is present per molecule in which a is 1.

4,394,519

AMINO ACID BLOCKING AGENTS

Louis A. Carpino, and Beri Cohen, both of Amherst, Mass., assignors to Research Corporation, New York, N.Y.

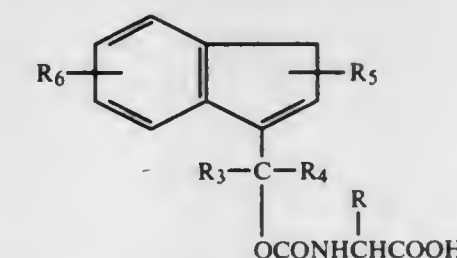
Filed Jan. 19, 1982, Ser. No. 342,296

Int. Cl.³ C07C 125/067

U.S. Cl. 560—32

9 Claims

1. A protected amino acid of the formula:



wherein R is an amino acid residue; R₃ and R₄ are each hydrogen, alkyl, aryl or aralkyl; R₅ is up to three hydrogen atoms, alkyl, aryl, alkaryl or aralkyl, halogen or nitro; and R₆ is up to four hydrogen atoms, fused phenyl, alkyl, aryl, alkaryl, aralkyl, halogen or nitro; the alkyl, aryl, alkaryl or aralkyl group containing up to nine carbon atoms.

4,394,520

5-UREIDO-3-THIA HEXANEDIOIC ACID

Gregoire Kalopissis, Paris, France, assignor to Societe Anonyme dite: L'Oreal, Paris, France

Division of Ser. No. 871,839, Jan. 24, 1978, Pat. No. 4,204,064, which is a division of Ser. No. 714,004, Aug. 12, 1976, Pat. No. 4,085,217, which is a division of Ser. No. 501,615, Aug. 29, 1974, Pat. No. 3,976,781, which is a division of Ser. No. 203,046, Nov. 29, 1971, Pat. No. 3,849,576, which is a continuation-in-part of Ser. No. 736,960, Jun. 14, 1968, abandoned, which is a continuation-in-part of Ser. No. 427,976, Jan. 25, 1965, abandoned, and Ser. No. 602,480, Dec. 19, 1966, abandoned, Ser. No. 794,363, Jan. 27, 1969, abandoned, Ser. No. 801,840, Feb. 24, 1969, abandoned, Ser. No. 817,193, Apr. 17, 1969, abandoned, Ser. No. 858,161, Sep. 15, 1969, Pat. No. 3,671,643, Ser. No. 12,122, Feb. 17, 1970, abandoned, and Ser. No. 36,405, May 11, 1970, abandoned. This application Dec. 31, 1979, Ser. No. 108,829

Claims priority, application France, Jan. 29, 1964, 64 961897; Luxembourg, Dec. 22, 1965, 50125; France, Jun. 21, 1967, 67 111396; Jul. 28, 1967, 67 116160; Luxembourg, Jan. 29, 1968, 55371; Feb. 23, 1968, 55553; Feb. 19, 1969, 58042; Apr. 19, 1969, 55935; Belgium, Jun. 3, 1969, 74877; Luxembourg, May 12, 1969, 58634; Apr. 23, 1971, 63056; Apr. 23, 1971, 63057

Int. Cl.³ C07C 149/437

U.S. Cl. 562—557

1 Claim

1. 5-ureido-3-thia hexanedioic acid.

4,394,521

PROCESS FOR THE PRODUCTION OF THE SCHIFF'S BASES OF 2,6-DICHLORO-5-HYDROXY-ANILINE

Reinhard Sappelt, Meersburg, Fed. Rep. of Germany, assignor to Lonza-Werke G.m.b.H., Weil am Rhein, Fed. Rep. of Germany

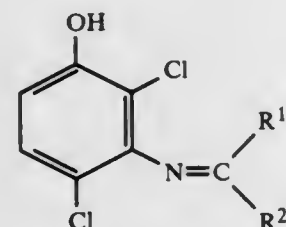
Filed Apr. 28, 1981, Ser. No. 258,522

Int. Cl.³ C07C 119/10

U.S. Cl. 564—271

25 Claims

1. Process for the production of 2,6-dichloro-5-hydroxy-anilins having the formula:



wherein R¹ and R² are the same or different and each is an alkyl radical having 1 to 4 C atoms, comprising reacting 2,4-dichloro-3-aminophenol with a ketone having the formula:



wherein R¹ and R² have the same meaning as above.

4,394,522

CATALYTIC HYDROGENATION OF DI(4-AMINOPHENYL)METHANE

Gary F. Allen, New Martinsville, W. Va., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Jun. 1, 1981, Ser. No. 268,979

Int. Cl.³ C07C 85/24

U.S. Cl. 564—451

10 Claims

1. A process for the catalytic hydrogenation of di(4-aminophenyl)methane to a liquid di(4-aminocyclohexyl)methane containing from 15% to 40% by weight of the trans, trans isomer comprising hydrogenating di(4-aminophenyl)methane in the presence of an unsupported ruthenium dioxide catalyst under a hydrogen pressure of at least 2500 psi and at a temperature of from 150° to 210° C.

4,394,523

CATALYTIC HYDROGENATION OF DI(4-AMINOPHENYL)METHANE

Gary F. Allen, New Martinsville, W. Va., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed Jun. 1, 1981, Ser. No. 269,200

Int. Cl.³ C07C 85/24

U.S. Cl. 564—451

15 Claims

1. A process for the catalytic hydrogenation of di(4-aminophenyl)methane to a liquid di(4-aminocyclohexyl)methane containing from 15% to 40% by weight of the trans, trans isomer comprising hydrogenating di(4-aminophenyl)methane in the presence of (i) a ruthenium-on-alumina catalyst (ii) at least 25% by weight of an aliphatic alcohol selected from the group consisting of methanol, ethanol, n-propanol, and isopropanol, based on the weight of the total weight of the di(4-aminophenyl)methane and the alcohol, and (iii) ammonia, the amount of ammonia present being such that the molar ratio of ammonia to di(4-aminophenyl)methane is from 0.5:1 to 10:1, the hydrogenation being conducted at a hydrogen pressure of at least 500 psi, at a temperature of from 150° C. to 217° C., and for a time not exceeding 60 minutes.

4,394,524

PREPARATION OF POLYALKYLENE POLYAMINES FROM AMMONIA, ALKYLENEAMINE, AND ALKANOLAMINE

Michael E. Ford, Trexlertown, and Thomas A. Johnson, Ore-field, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

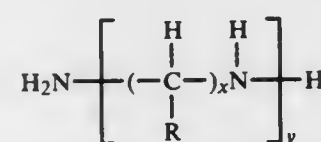
Filed Aug. 31, 1981, Ser. No. 297,687

Int. Cl.³ C07C 85/06

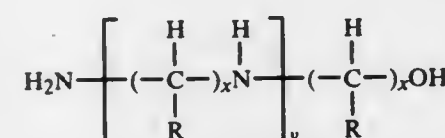
U.S. Cl. 564—479

22 Claims

1. A process for preparing a noncyclic polyalkylene polyamine which comprises: contacting ammonia, an alkyleneamine compound having two primary amino groups of the general formula:



wherein R is hydrogen or a lower alkyl (C₁-C₄) radical, x is a number from 2 to about 6, and y is a number from 1 to about 4, and an alkanolamine compound having primary or secondary hydroxyl groups of the general formula:



wherein R is hydrogen or a lower alkyl (C₁-C₄) radical, x is a number from 2 to about 6, and y is a number from 0 to about 3; in the presence of an effective amount of a phosphorus-containing substance or a salt of a sulfur-containing substance, or the corresponding acid, at a temperature sufficient to effect reaction between the ammonia, the alkyleneamine compound and the alkanolamine compound under a pressure sufficient to maintain the reaction mixture essentially in liquid phase.

4,394,525

PROCESS FOR HYDROGENATING ALDEHYDES

Roger F. Vogel, Butler; George Marcelin, Pittsburgh, and Harold E. Swift, Gibsonia, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jun. 29, 1981, Ser. No. 278,821

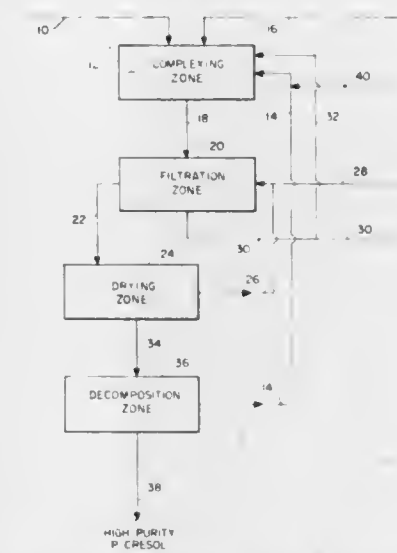
Int. Cl.³ C07C 45/62

U.S. Cl. 568—462

23 Claims

1. A process for hydrogenating an aliphatic aldehyde having from two to 20 carbon atoms which comprises contacting the same with hydrogen in the presence of a catalyst composed of about three to about 60 weight percent nickel mounted on an amorphous support containing (1) at least one Group IIA metal compound selected from the group consisting of magnesium, calcium, strontium and barium compounds, (2) alumina and (3) aluminum phosphate, such support having an average pore radius of from about 10 Å to about 300 Å, a surface area ranging from about 80 m²/g to about 350 m²/g and a pore volume of from about 0.33 cc/g to about 1.5 cc/g, said Group IIA metal compound being present in an amount ranging from about two to about 35 mole percent, alumina in an amount ranging from about 15 to about 60 mole percent and aluminum phosphate in an amount ranging from about 25 to about 80 mole percent wherein said unsaturated organic compound is passed over said catalyst at a liquid hourly space velocity of about 1.0 to about 12 while maintaining in the reaction zone a temperature of about 30° to about 200° C. and a hydrogen partial pressure of about 0 to about 500 pounds per square inch gauge.

dehydrated inorganic halide salt selected from the group consisting of calcium bromide, magnesium chloride, lithium bro-



mide and manganese bromide, said complex formed in the presence of meta-cresol and a non-aqueous solvent.

4,394,527

METHOD FOR THE LIQUID PHASE OXIDATIVE FLUORINATION OF AROMATIC COMPOUNDS

Robert G. Fischer, Jr., Fairfield, and Arnold Zweig, Westport, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Oct. 22, 1979, Ser. No. 87,135

Int. Cl.³ C07C 17/12

U.S. Cl. 570—143

4 Claims

1. A process for monofluorinating a benzene nucleus which comprises: reacting at a temperature ranging from about 25° C. to about 100° C. in the liquid phase a benzene compound with argentic fluoride in the range of from about 0.1 mol to about 1 mol per mol of said benzene compound, said compound being dissolved in an inert solvent therefor present in amounts ranging from about 99% to 50% solvent and the remainder being said benzene compound for a time sufficient to convert said argentic fluoride to argentous fluoride, and recovering said fluorinated benzene compound in good yield and purity.

4,394,528

HIGH ENERGY FUEL COMPOSITIONS

Dennis H. Fisher, Westerville, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Jun. 8, 1981, Ser. No. 271,451

Int. Cl.³ C10L 1/04

U.S. Cl. 585—14

4 Claims

PARA-CRESOL HALIDE SALT COMPLEX USEFUL FOR SEPARATING PARA-CRESOL FROM META-CRESOL

Gerd Leston, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Division of Ser. No. 53,438, Jun. 29, 1979, Pat. No. 4,267,389.

This application Sep. 26, 1980, Ser. No. 191,203

Int. Cl.³ C07C 37/68, 37/66

U.S. Cl. 568—716

5 Claims

1. A complex between para-cresol and an anhydrous or

cyclopentadiene and methyl cyclopentadiene or a trimer of cyclopentadiene.

ELECTRICAL

4,394,529 SOLAR CELL ARRAY WITH LIGHTWEIGHT SUPPORT STRUCTURE

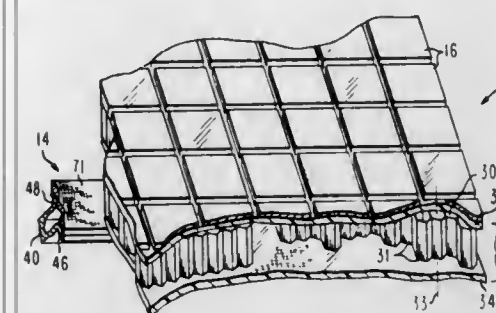
Raj N. Gounder, Robbinsville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 5, 1981, Ser. No. 290,176

Int. Cl.³ H01L 31/04; B32B 27/04

U.S. Cl. 136—245

14 Claims



5. A solar generator comprising:
a composite structural sheet member including at least one layer of epoxy-reinforced polyparabenzamide woven fabric,
a plurality of epoxy-reinforced carbon fiber stiffener elements secured to one side of said sheet member, said elements having a long axis, and
an array of solar cells secured to a surface of said layer, wherein said stiffener elements in a direction parallel to said long axis, said sheet, and said solar cells all have effectively the same coefficient of thermal expansion.

4,394,530 POWER SWITCHING DEVICE HAVING IMPROVED HEAT DISSIPATION MEANS

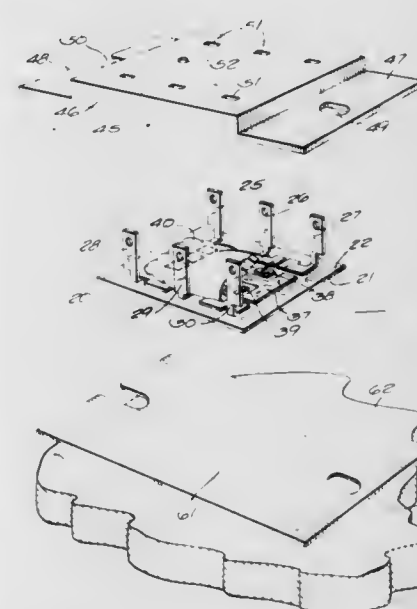
Lance R. Kaufman, 1821 W. Daisy La., Milwaukee, Wis. 53209

Filed Sep. 19, 1977, Ser. No. 834,601

Int. Cl.³ H01L 23/36

U.S. Cl. 174—16 HS

6 Claims



1. A power control assembly, comprising a solid state device including a heat generating portion, an electrically insulating thermally conductive substrate having a first side operatively connected in heat transfer relation to said heat generating solid state portion, a heat sink having an outer surface abutting a second substrate side spaced from said first side for dissipating heat from said solid state device, an electrically insulating housing having a first side including an outer wall surrounding an opening providing a recessed inner wall spaced from said outer wall with said substrate enclosing said opening and spaced from said inner wall to form a cavity about said solid state device, said inner wall including a terminal opening extending from said cavity to a second side of said housing, means for mechanically clamping said substrate to said heat

sink, and electrical conductor means including a first conductive portion attached for electrical connection to said solid state device, said first conductive portion includes a thin bendable terminal strip portion extending from a conductive strip adhered to said first substrate side, said terminal strip portion including first and second parts with said first part substantially normally connected to said conductive strip and said second part substantially normally connected to said first part, and a second conductive portion extending through said terminal opening and including a conductive lead wire having a bare end soldered to said second part, said second conductive portion disposed within said terminal opening and maintained substantially normal to said substrate and providing external electrical access to said solid state device.

4,394,531 TRANSMISSION LINE ASSEMBLY INCLUDING MEANS FOR REDUCING VIBRATIONS AND METHOD OF MAKING SAME

Jacques J. A. Delabie, Bonneuil sur Marne, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.", Paris, France

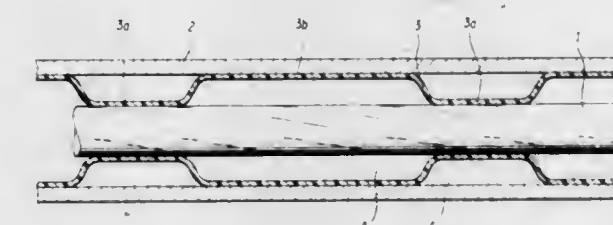
Filed Dec. 2, 1980, Ser. No. 212,127

Claims priority, application France, Dec. 3, 1979, 79 29922

Int. Cl.³ H01B 7/18; H02G 7/14; F16L 57/00

U.S. Cl. 174—24

12 Claims



1. A transmission line assembly including means for reducing transmission line vibration comprising:
an outer tubular sheath having an inner surface forming an inner diameter;
an inner tubular wall member firmly frictionally fixed to said inner surface of said outer tubular sheath;
a transmission line disposed within said inner tubular wall member for transmitting energy;
a plurality of radially contracted tubular sections having axial lengths at regularly spaced axial intervals formed in said inner tubular wall member and contiguously surrounding said transmission line for protecting, centering and supporting said transmission line within said outer tubular sheath; and
a plurality of radially enlarged sections formed in said inner tubular wall member having axial lengths greater than the axial lengths of said radially contracted tubular sections and having outer diameters radially compressed by said outer tubular sheath.
12. A method of manufacturing a transmission line assembly including means for reducing transmission line vibration, said assembly including a transmission line disposed within a thermoretractable plastic tube disposed within a tubular sheath, said transmission line having a smaller diameter than the inside diameter of said tube, wherein said method comprises:
inserting said transmission line into said tube;
heating said thermoretractable plastic tube at regular axial intervals so as to form a tubular wall member having tubular uncontracted sections and tubular contracted sections wherein said tubular contracted sections contiguously surround said transmission line; and
inserting said transmission line fitted with said tubular wall member into said sheath, said sheath having an inside diameter substantially the same as the outside diameter of said uncontracted sections of said tubular wall member for friction fitting engagement therewith.

4,394,532

MULTILAYER CURRENT DISTRIBUTION SYSTEMS AND METHODS OF FABRICATION THEREOF

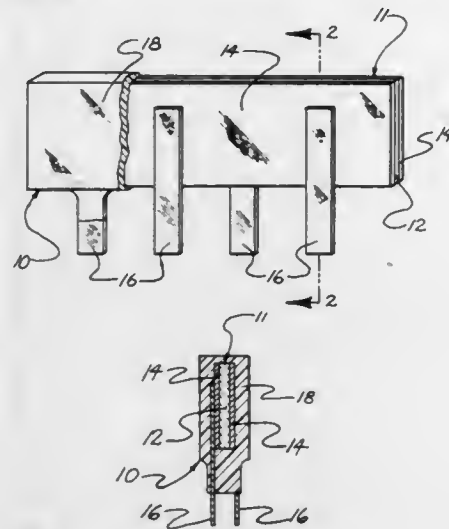
Arturo J. Aguayo, Tempe, Ariz., assignor to Rogers Corporation, Rogers, Conn.

Filed Mar. 31, 1981, Ser. No. 249,393

Int. Cl.³ H01B 7/00

U.S. Cl. 174-72 B

5 Claims



1. A multilayer bus bar assembly including: capacitor ribbon means, said ribbon means comprising a continuous elongated dielectric member of rectangular cross sections and electrically conductive coatings on a pair of oppositely disposed planar surfaces of the dielectric member; and a plurality of distribution prong means on each of said planar surfaces, said prong means being comprised of an electrically conductive material, said prong means being mechanically and electrically bonded to respective coatings of said ribbon means.
5. A method of forming a bus bar assembly including the following steps: forming an elongated flat dielectric ceramic wafer having a rectangular cross-section; applying a layer of conductive material to a pair of opposed surfaces of the flat ceramic wafer; and electrically and mechanically bonding a plurality of transversely extending conductive distribution prongs to each of the conductive layers on the said opposed surfaces of the flat dielectric ceramic wafer.

4,394,533

AIR-COOLED CABLES WITH TERMINALS AND METHOD OF PRODUCING SAME

Mitsuo Naito, 1406, Haguro-cho, Kofu-shi, Yamanashi, Japan

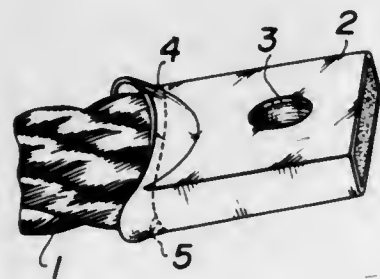
Filed Jun. 17, 1981, Ser. No. 274,424

Claims priority, application Japan, Jun. 25, 1980, 55-85161

Int. Cl.³ H01R 4/18, 13/56

U.S. Cl. 174-74 R

5 Claims



1. A terminal in combination with an air-cooled cable employed in spot welding, said cable consisting of a plurality of non-insulated wires, said terminal comprising an electrically conductive member having first and second portions receiving

an end of said cable, said first portion defining a concavity, said second portion being rectangular and extending from said first portion, said rectangular second portion having opposing first surfaces defining a height and opposing second surfaces defining a width, said width being greater than said height, said first portion forming a cone smoothly tapering into said second portion, the cable end being fixed within said rectangular portion, and a covering layer disposed between the cable and said electrically conductive member at the boundary between said first portion and said second portion, wherein the merger of said cone with said second surfaces forms a concave line facing said concavity, whereby said concavity is nearly circular.

4. A method of producing a terminal on an air-cooled cable used in spot welding, comprising the steps of: flaring one end of a cylindrical electrically conductive member into a conical configuration, a portion of the inner diameter of said conical configuration being larger than the diameter of the cable; forming a covering layer only on a selected end portion of said cable; inserting said cable end portion into said cylindrical electrically conductive member; and pressing, into a rectangular configuration, said cylindrical electrically conductive member at a portion thereof including a part of said end flared into the conical configuration, whereby said cable end portion is fixed in said electrically conductive member and wherein said cable end portion is inserted such that said selected end portion is at a boundary between said flared end and said rectangular configuration.

4,394,534

CRYOGENIC CABLE AND METHOD OF MAKING SAME

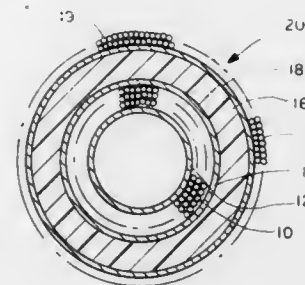
George Bahder, Edison, N.J., and Mario Rabinowitz, Menlo Park, Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Jan. 14, 1980, Ser. No. 111,808

Int. Cl.³ H01B 7/34

U.S. Cl. 174-15 S

7 Claims



1. A coaxial cryogenic electrical cable comprising an inner electrical conductor, means for cooling said inner conductor, a conductor shield surrounding said inner conductor, a solid polymeric electrical insulator surrounding said inner conductor and conductor shield, an outer conductor surrounding said insulator, and a collapsible spacer means positioned between said inner conductor and said conductor shield.

4,394,535

SPLIT PHASE STEREOPHONIC SOUND SYNTHESIZER

Joseph P. Bingham, Carmel, and John F. Benford, Indianapolis, both of Ind., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 9, 1981, Ser. No. 241,926

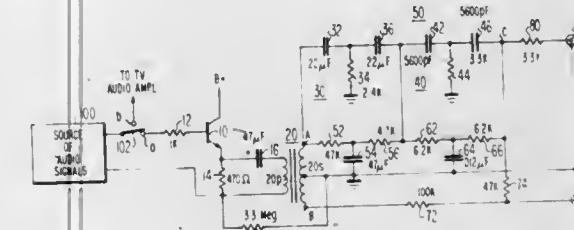
Int. Cl.³ H04R 5/00; H04S 5/00

U.S. Cl. 179-1 GP

10 Claims

1. A stereo synthesizer for producing synthesized stereo sound signals from monophonic input signals comprising: a source of monophonic sound signals; a phase splitter circuit having an input coupled to said source of monophonic sound signals and first and second outputs

- at which monophonic sound signals of opposite phase relationship are produced;
- a transfer function circuit having an input coupled to said first output of said phase splitter circuit and an output, and exhibiting an amplitude versus frequency response characteristic including two spaced frequencies of maximum attenuation and a frequency of minimum attenuation intermediate said spaced frequencies within an audio frequency range occupied by said monophonic sound signals, for producing an intensity modulated signal at said transfer function circuit output;
- a first output terminal responsive to said output of said transfer function circuit for producing a first synthesized stereo sound signal;



- a second output terminal;
- means for transferring monophonic sound signals from said second output of said phase splitter circuit to said second output terminal without introduction of variations in amplitude or phase with frequency over said audio frequency range; and
- means for transferring intensity modulated signals from said output of said transfer function circuit to said second output terminal without further introduction of variations in amplitude or phase with frequency over said audio frequency range to develop a second synthesized stereo sound signal.

4,394,536

SOUND REPRODUCTION DEVICE

Kenji Shima, and Masahiro Hibino, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

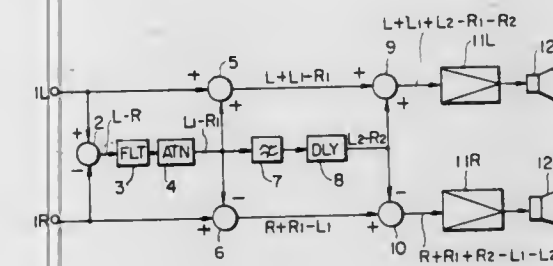
Filed Jun. 11, 1981, Ser. No. 272,548

Claims priority, application Japan, Jun. 12, 1980, 55-80367

Int. Cl.³ H04R 5/00

U.S. Cl. 179-1 G

8 Claims



1. A sound reproducing device operatively connectable to first and second loudspeakers and to receive a stereo signal including left and right signals, comprising: first main signal path circuit means for transmitting a first one of the left and right signals of the stereo signal to the first loudspeaker; second main signal path circuit means for transmitting a second one of the right and left signals of the stereo signal to the second loudspeaker; means for producing a difference signal equal to the difference between the right and left signals; means for varying said difference signal to produce a varied difference signal; first addition means for adding the varied difference signal to said first one of the left and right signals in said first main signal path circuit means; second addition means for adding a signal whose phase is opposite to the phase of said varied difference signal to said second one of the left and right signals in said second main signal path circuit means; means for phase shifting said varied difference signal to produce a phase shifted varied difference signal; third addition means for adding said phase shifted varied difference signal to said first one of the left and right signals in said first main signal path circuit means; fourth addition means for adding to the second one of the left and right signals in said second main signal path circuit means a signal whose phase is opposite to the phase of said phase shifted varied difference signal; and means for converting one of the left and right signals from one of said first and second main signal path circuit means and applying the converted signal to the other of said first and second main signal path circuit means so as to substantially compensate the one of said left and right signals in

- said first one of the left and right signals in said first main signal path circuit means;
- second addition means for adding a signal whose phase is opposite to the phase of said varied by difference signal to said second one of the left and right signals in said second main signal path circuit means;
- means for phase shifting said varied difference signal to produce a phase shifted varied difference signal;
- third addition means for adding said phase shifted varied difference signal to said first one of the left and right signals in said first main signal path circuit means; and
- fourth addition means for adding to said second one of the left and right signals in said second main signal path circuit means a signal whose phase is opposite to the phase of said phase shifted varied difference signal.

4,394,537

SOUND REPRODUCTION DEVICE

Kenji Shima, and Masahiro Hibino, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

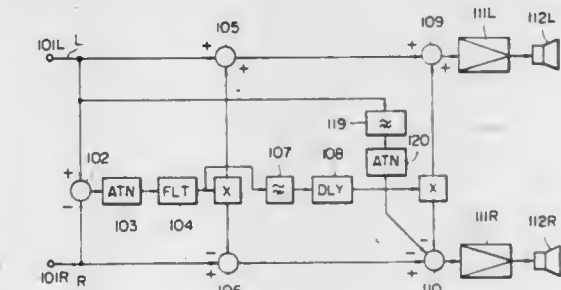
Filed Jun. 11, 1981, Ser. No. 272,549

Claims priority, application Japan, Jun. 12, 1980, 55-80368

Int. Cl.³ H04H 5/00

U.S. Cl. 179-1 G

7 Claims



1. A sound reproducing device operatively connected to first and second loudspeakers and operatively connected to receive a stereo signal including left and right signals, comprising: first main signal path circuit means for transmitting a first one of the left and right signals of the stereo signal to the first loudspeaker; second main signal path circuit means for transmitting a second one of the right and left signals of the stereo signal to the second loudspeaker; means for producing a difference signal equal to the difference between the right and left signals; means for varying said difference signal to produce a varied difference signal; first addition means for adding the varied difference signal to said first one of the left and right signals in said first main signal path circuit means; second addition means for adding a signal whose phase is opposite to the phase of said varied difference signal to said second one of the left and right signals in said second main signal path circuit means; means for phase shifting said varied difference signal to produce a phase shifted varied difference signal; third addition means for adding said phase shifted varied difference signal to said first one of the left and right signals in said first main signal path circuit means; fourth addition means for adding to the second one of the left and right signals in said second main signal path circuit means a signal whose phase is opposite to the phase of said phase shifted varied difference signal; and means for converting one of the left and right signals from one of said first and second main signal path circuit means and applying the converted signal to the other of said first and second main signal path circuit means so as to substantially compensate the one of said left and right signals in

the other of said first and second main signal path circuit means.

4,394,538

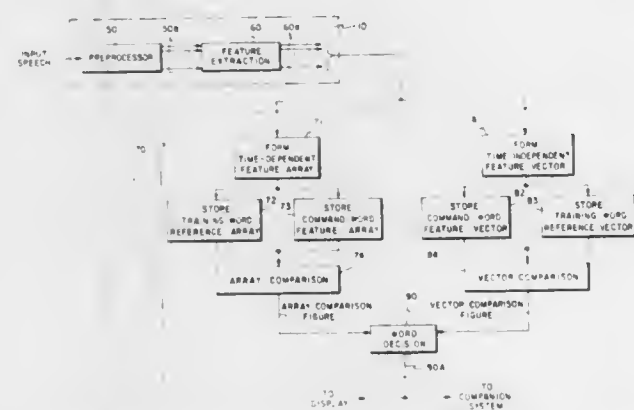
SPEECH RECOGNITION SYSTEM AND METHOD
Ben Warren, Saratoga; George M. White, Los Altos; Rick Parfitt, Los Gatos, and Peter Deng, San Jose, all of Calif., assignors to Threshold Technology, Inc., Delran, N.J.

Filed Mar. 4, 1981, Ser. No. 240,273

Int. Cl.³ G10L 1/00

U.S. Cl. 179—1 SD

24 Claims



1. Apparatus for receiving spoken input training words and for subsequently recognizing a spoken input command word, comprising:

feature extraction means for generating feature signals indicative of the presence or absence of features in a spoken input word;

means for storing, as a time-dependent reference array, the presence or absence status of feature signals during each training word;

means for storing, as a non-time-dependent reference vector, an indication of the cumulative presence of feature signals during each training word;

means for storing, as a time-dependent feature array, the status of feature signals during the command word;

means for storing, as a non-time-dependent feature vector, an indication of the cumulative presence of feature signals during the command word;

means for comparing member-by-member, the command word feature array with each training word reference array to obtain an array comparison figure for each training word;

means for comparing, feature-by-feature, the command word feature vector with each training word reference vector to obtain a vector comparison figure for each training word; and

means responsive to both the array comparison figure and the vector comparison figure for each training word for selecting the training word which most closely matches the command word.

4,394,539

TIMEPIECE WITH AUTOMATIC TIME SETTING SYSTEM THRU DIAL TELEPHONE LINE AND AUTOMATIC SPEED ADJUSTING SYSTEM

Tsan-chen Chu, 31-2, Alley 5, Lane 100, Tun Hua S. Rd., Taipei, Taiwan

Filed Mar. 24, 1981, Ser. No. 247,013

Int. Cl.³ H04M 11/00

U.S. Cl. 179—2 TC

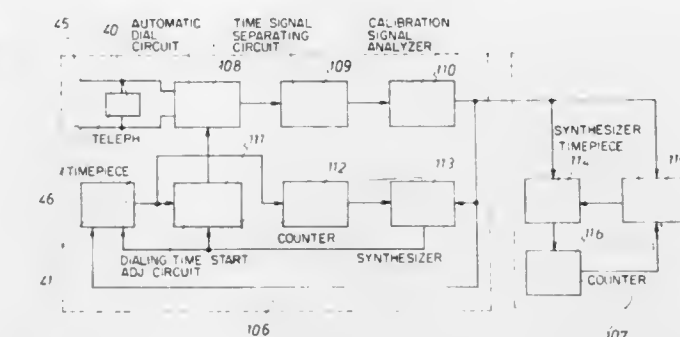
4 Claims

1. An automatic time-setting and adjusting system for a timepiece to be used in conjunction with a telephone standard time annunciation station which, when dialed, provides a voice signal announcing a approaching time and audible tone designating that time at the proper instant, said system comprising: first means for dialing said standard time annunciation system at a prescribed time;

second means connected to said telephone line for separating voice signals from said audible tone;

third means for analyzing the received voice signal from the standard time annunciation station to determine the announced time;

fourth means for counting time synchronously with said timepiece and providing a time signal representing the time registered at said timepiece;



fifth means for determining the time difference between the determined announced time and the time represented by said time signal and providing a time differential signal corresponding to the determined time difference;

sixth means for adjusting the time and operating speed of said timepiece in accordance with said time differential signal; and

seventh means responsive to said time differential signal for determining said prescribed time.

4,394,540

REMOTE METER READER AND METHOD FOR READING METERS OVER NON-DEDICATED TELEPHONE LINES

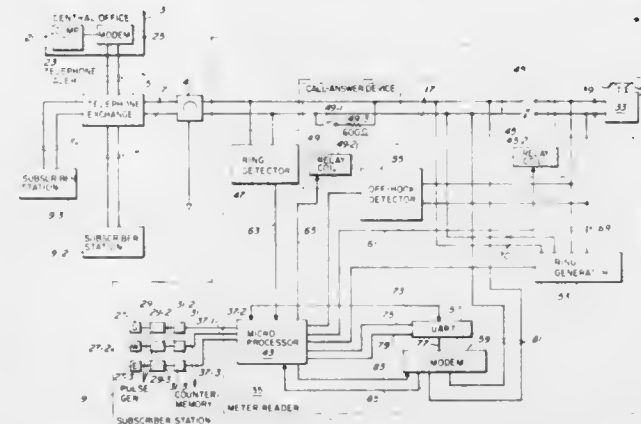
Alan E. Willis; John R. Lowdenslager, both of Stamford, and Neal Goldstein, Middletown, all of Conn., assignors to Timex Corporation, Waterbury, Conn.

Filed May 18, 1981, Ser. No. 264,723

Int. Cl.³ H04M 11/08

U.S. Cl. 179—2 AM

19 Claims



1. A method of transmitting meter data to a central office from meters at a telephone subscriber station over non-dedicated telephone lines in response to a call initiated by said central office and without actuating the ringing device in the subscriber telephone at the telephone subscriber station, the method comprising:

a. providing at said subscriber station a selectively operable meter reader, said meter reader being coupled in series between said telephone line and said subscriber telephone, being connected to said meter, being capable of answering telephone calls and having clock means keeping time of day;

b. isolating said subscriber telephone from said telephone lines for a predetermined data access time;

c. answering any call received with said meter reader when said subscriber telephone is isolated;

d. confirming that the call received is the call initiated by the central office, and
e. transmitting meter data to said central office if it is confirmed that said call is from said central office.

4,394,541

THREE STAGE MINIMUM CONFIGURATION CONDITIONALLY NON-BLOCKING MATRIX

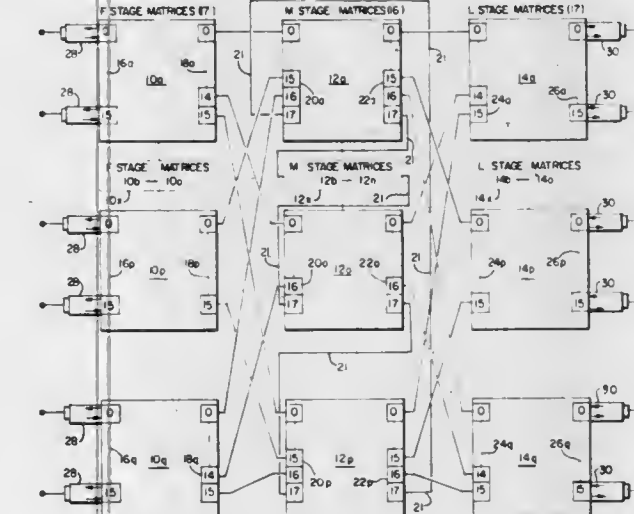
Lewis J. Seiden, 37 Liberty Rd., Tappan, N.Y. 10983

Filed Jan. 2, 1981, Ser. No. 222,063

Int. Cl.³ H04G 3/42

U.S. Cl. 179—18 GE

17 Claims



1. In a switching system having N inputs and M outputs, a three stage matrix array wherein each input may be connected to each output not busy, and every input may simultaneously reach an output, comprising

a first stage including n square substage matrices, each with x inputs and outputs, where $N=nx$

a second stage including x substage matrices, each with n inputs and m outputs, an output from each first substage matrix being connected to an input of each second substage matrix,

a third stage including m square matrices, each with x inputs and outputs where $M=mx$, an output from each second substage matrix being connected to an input of each third substage, and

switch means for interconnecting the combinations of inputs and outputs of each substage matrix.

4,394,542

TELEPHONE TRANSMISSION CIRCUIT

Michio Hara; Akinobu Tomimori, and Hiroshi Hara, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

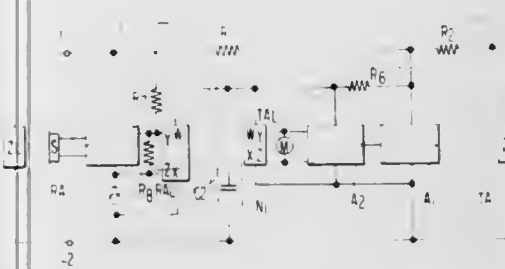
Filed Mar. 12, 1981, Ser. No. 243,111

Claims priority, application Japan, Mar. 26, 1980, 55-38423

Int. Cl.³ H04M 1/60

U.S. Cl. 179—81 B

3 Claims



1. A telephone transmission circuit for connection to a line having first and second line terminals, said telephone transmission circuit comprising: a microphone for providing voice frequency signals; a transmitter amplifier means for amplifying

the voice frequency signals from said microphone; a receiver amplifier means for amplifying voice frequency signals received from said line; a serially connected circuit means connected between said first and second line terminals, said circuit means comprising a first resistance, a second resistance and a balancing network for preventing the output from said transmitter amplifier from entering said receiver amplifier; a smoothing circuit means for smoothing a voltage supplied from said line, said smoothing circuit comprising a third resistor having one end connected to the connection point of said first and second resistors and a first capacitor connected between said second line terminal and the other end of said third resistor; a first line equalization circuit connected in parallel with said first capacitor of said smoothing circuit for varying the input impedance of said transmitter amplifier in accordance with the charge voltage of said first capacitor; a second line equalization circuit connected in parallel with said first capacitor for varying the input impedance of said receiver amplifier in accordance with the charge voltage of said first capacitor; a constant current circuit; said transmitter amplifier and said receiver amplifier each having power source terminals supplied with DC current from said first and second line terminals, said power source terminals of said transmitter amplifier being connected between the connecting point of said first and second resistances and said second line terminal, said power source terminals of said receiver amplifier being connected in parallel with said serially connected circuit means via said constant current circuit, and the input signals of said receiver amplifier being supplied from the connecting point of said second resistance and said balancing network to input terminals of said receiver amplifier, which input terminals of said receiver amplifier are connected in parallel with said second line equalization circuit.

4,394,543

TELEPHONE LINE HOLDING CIRCUIT

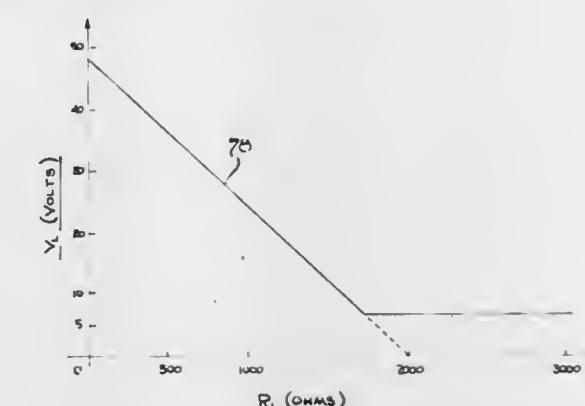
Francis P. Keiper, Jr., Sunnyvale, and John N. Kerns, Redwood City, both of Calif., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Jun. 4, 1981, Ser. No. 270,507

Int. Cl.³ H04M 1/24

U.S. Cl. 179—84 R

15 Claims



1. A holding circuit adapted for connection across a telephone line which has a voltage across the line and a current flowing through the line when held, said holding circuit being adapted to maintain the line on hold, said holding circuit comprising:

(a) current regulating means responsive to a current flow through a telephone line having a voltage across the line and a current flowing through the line for maintaining the line current at a predetermined current level when the voltage across the line is at least at a predetermined minimum voltage level;

and
(b) voltage regulating means responsive to the voltage appearing across the line for preventing an average of the line voltage from being reduced below said predetermined

minimum voltage level, said voltage regulating means controlling said current regulating means in response to current flow through the telephone line and the difference between voltage across the telephone line and a reference voltage.

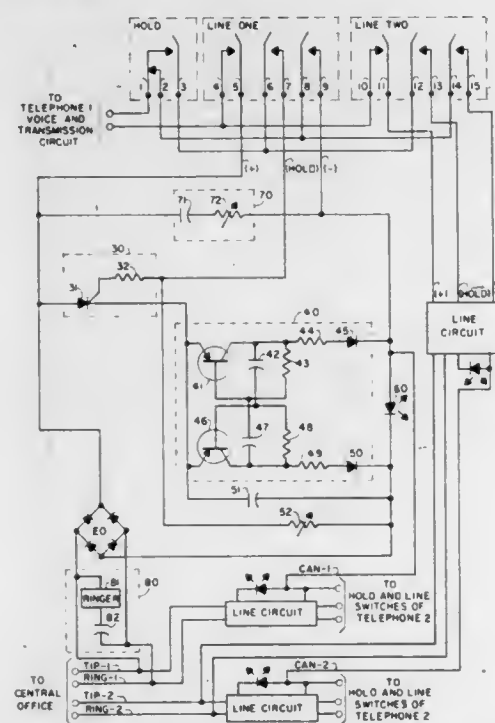
4,394,544

LINE CIRCUIT FOR MULTIPLE LINE TELEPHONE
Daniel De Leon, Santa Ana, Calif., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Nov. 9, 1981, Ser. No. 319,563
Int. Cl.³ H04M 1/72, 9/00

U.S. Cl. 179—99 H

9 Claims



1. A plurality of line circuits in a multiple line telephone having a line switch for each line, and a hold switch for all lines, each of said line circuits connected to a telephone switching system via an associated line, said telephone switching system operated to apply alternating current ringing signal and loop current to a selected one of said lines, each of said line circuits comprising:

- a loop holding circuit connected to an associated line and said hold switch;
- a switching circuit connected to said holding circuit; and
- visual indicating means connected to said switching circuit; one of said line switches for each line operated to connect said visual indicating means to said line;
- whereby said loop current flows through said line switch and said visual indicating means;
- said visual indicating means operated in response to said loop current to generate a steady visual signal;
- said hold switch operated to generate a holding circuit enable signal and further generated to release said operated line switch;
- said holding circuit operated in response to said enable signal to conduct said loop current to said switching circuit;
- said switching circuit operated in response to said loop current to periodically, alternately apply and shunt, said loop current to and from said visual indicating means;
- said visual indicating means operated in response to said periodically applied loop current to generate a periodic visual signal of a first characteristic.

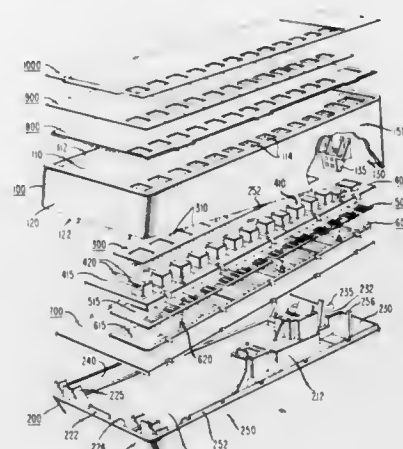
4,394,545

CONSTRUCTION OF A TELEPHONE INSTRUMENT
Francis S. Doyle, Oaklandon; Terry B. Prince, and Martin J. Stevenson, both of Indianapolis, all of Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 11, 1980, Ser. No. 129,243
Int. Cl.³ H04M 1/02

U.S. Cl. 179—179

13 Claims



1. A housing for a telephone instrument comprising first and second housing members that are joined together, the housing members having rims that are positioned adjacent to one another when the housing members are joined together, one portion of both the first and second housing members including cooperating elements for interlocking the first and second housing members together, and an opposing portion of both the first and second housing members including means for latching the first and second housing members together. The means for latching the housing members together comprises an inflexible securing element included as part of the first housing member, the securing element being adjacent to a wall of and extending beyond the rim of the first housing member, and a cooperating inflexible securing element integral to and extending interiorly from a wall of the second housing member that is adjacent to the wall of the first housing member when the housing members are joined together, the wall of the second housing member being flexed from its normal position during the assembly of the housing members and returning to its normal position once assembly is complete to latch the housing members together, wherein the interlocking elements and the latching means alone join the housing members together.

4,394,546

COMPOSITE SWITCH ASSEMBLY
Masatoshi Harumatsu, Tamayama, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

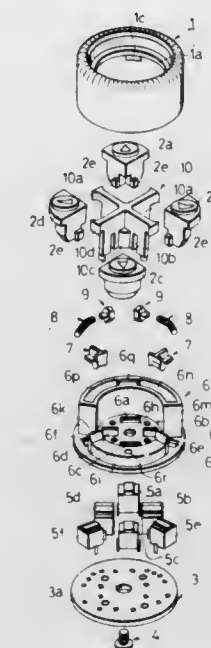
Filed Oct. 9, 1981, Ser. No. 310,291
Claims priority, application Japan, Oct. 9, 1980, 55/144442[U]; Nov. 5, 1980, 55/158019[U]
Int. Cl.³ H01H 9/00

U.S. Cl. 200—5 R

13 Claims

1. A composite switch assembly comprising:
- (a) a cylindrical rotary knob;
 - (b) four push buttons each being substantially quadrantal when viewed from above and arrayed circularly within said rotary knob in a manner to be movable upwards and downwards a predetermined amount;
 - (c) a switch base plate disposed underneath said rotary knob;
 - (d) partition means for partitioning said four push buttons, a lower part of said partition means being fixed to said switch base plate;
 - (e) co-acting means provided respectively on said push buttons and said partition means for holding said push buttons in place within said rotary knob; and

- (f) means provided on said push buttons and said partition means for holding said rotary knob in place; and
- (g) contact means including six contact mechanisms disposed on said switch base plate, four of said contact mechanisms each being located under a respective one of said push buttons and adapted to be actuated by depression of the respective one of said push buttons, and the remaining two of said contact mechanisms each being respectively actuated by turning said rotary knob.



1. A membrane switch assembly including a membrane, a substrate, a spacer member having spaced openings therein positioned between said membrane and substrate, and a thin layer of a polyethylene material interposed between said membrane and spacer and between said substrate and spacer, electrical conductors formed on each thin layer and facing the spacer, said membrane, substrate and spacer being formed of a material which is heat bondable to the interposed polyethylene material, the application of heat and pressure to said assembly utilizing said polyethylene material to bond said membrane, substrate and spacer into a switch assembly.

4,394,547

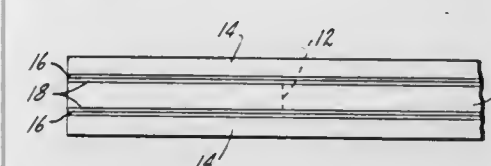
LAMINATED MEMBRANE SWITCH
Willis A. Larson, Crystal Lake, Ill., assignor to Oak Industries, Inc., Rancho Bernardo, Calif.

Continuation of Ser. No. 118,410, Feb. 4, 1980, Pat. No. 4,314,114. This application Jan. 27, 1982, Ser. No. 343,310
The portion of the term of this patent subsequent to Feb. 2, 1999, has been disclaimed.

Int. Cl.³ H01H 13/02

U.S. Cl. 200—5 A

4 Claims



1. A membrane switch assembly including a membrane, a substrate, a spacer member having spaced openings therein positioned between said membrane and substrate, and a thin layer of a polyethylene material interposed between said membrane and spacer and between said substrate and spacer, electrical conductors formed on each thin layer and facing the spacer, said membrane, substrate and spacer being formed of a material which is heat bondable to the interposed polyethylene material, the application of heat and pressure to said assembly utilizing said polyethylene material to bond said membrane, substrate and spacer into a switch assembly.

4,394,548

JOYSTICK SWITCH
Frank P. Dola, Port Richey, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 8, 1982, Ser. No. 355,818
Int. Cl.³ H01H 25/00, 3/02

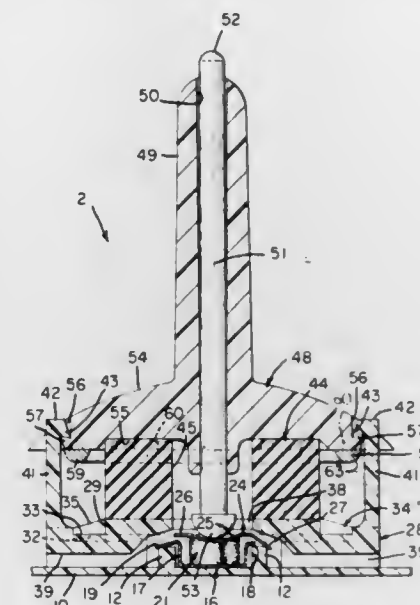
U.S. Cl. 200—6 A

15 Claims

1. A joystick switch assembly which comprises:
- an elongate handle;
 - a base member lying in a plane extending transversely of the

axis of said handle, said base member having first contact means thereon;

a support member integral with said handle which supports said handle for arcuate movement, said support member moving relative to said base member, said support member having second contact means thereon arranged to contact said first contact means upon moving said handle in a predetermined direction;



a plurality of elongate latch arms integral with one of said members and extending between said base and said support member, said latch arms having distal ends with latches thereon which limit the relative movement of said support member away from said base member; said distal ends serving as pivot points for said arcuate movement of said support member; and

first resilient means between said support member and said base member, said first resilient means urging said support member away from said base member.

4,394,549

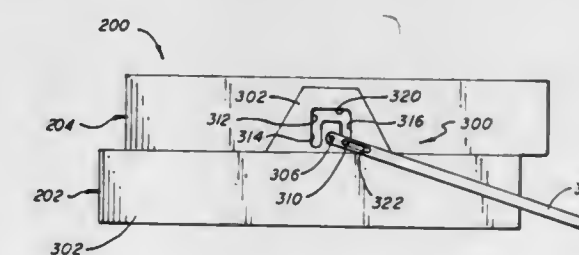
ELECTRICAL CONNECTOR

Richard D. Dennis, Bridgeport, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Sep. 30, 1981, Ser. No. 307,122
Int. Cl.³ H01H 15/10

U.S. Cl. 200—16 E

9 Claims



1. An electrical connector comprising:

- a first connector member defining a longitudinal axis;
- a second connector member movable between a first position forming a first electrically conductive circuit with the first connector member, and a second position longitudinally spaced from the first position and forming a second electrically conductive circuit with the first connector member;

wherein a selected one of the first and second connector members includes a plurality of outwardly extending blades defining parallel blade axes, and the other one of the first and second connector members defines a plurality of receptacles receiving the blades and defining receptacle axes parallel to the blade axes;

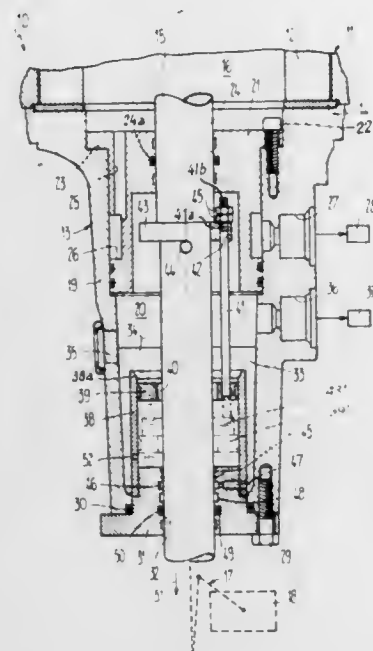
switching means including a plate secured to the first connector member, a handle, means connecting the handle to the plate for movement between first and second handle positions, and means connecting the second connector member along the blade axes away from the first position, then along the longitudinal axis of the first connector member, and then along the blade axes toward and into the second position and means for guiding movement of the second connector member between the first and second positions thereof.

4,394,550

GAS-BLAST SWITCH ACTUATABLE BY A MECHANICAL DRIVE BY MEANS OF A DRIVE ELEMENT

Hubert Wallimann, Oberentfelden, Switzerland, assignor to Sprecher & Schuh AG, Aarau, Switzerland
Filed Jun. 5, 1981, Ser. No. 270,782
Claims priority, application Switzerland, Jul. 4, 1980, 5152/80
Int. Cl.³ H01H 7/03, 33/42
U.S. Cl. 200—34

7 Claims



1. A gas-blast switch containing an operating mechanism including a damping device comprising a mechanical drive; a drive element connected to said mechanical drive; said gas-blast switch being actuable by means of said mechanical drive and said drive element; a switch housing; a through-passage housing connected to said switch housing and containing a liquid bath; said drive element being guided out of said switch housing through said through-passage housing and said liquid bath, with said liquid bath serving as a gas-tight seal for said drive element; and a hydraulic damping device immersed in said liquid bath within said through-passage housing and cooperating with the drive element.

4,394,551

SWITCH LOCK

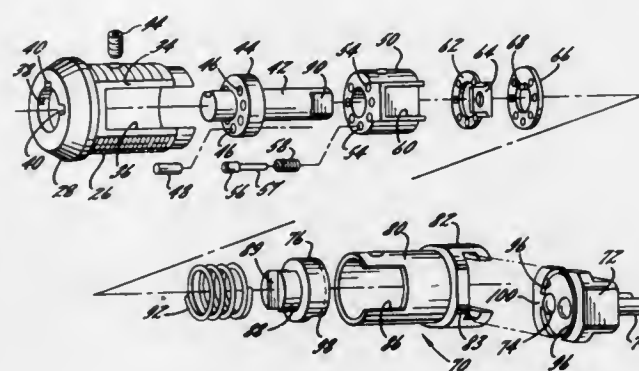
Frank J. S. ... River Grove, Ill., assignor to Fort Lock Corporation, River Grove, Ill.
Filed Apr. 24, 1981, Ser. No. 257,491
Int. Cl.³ H01H 9/28

U.S. Cl. 200—44

8 Claims

1. In a lock having a cylinder and key actuated spindle means disposed in said cylinder, a switch operating subassembly adapted to be operated by rotation of the spindle means through use of a proper key, comprising, a first contact effecting member having means for removably coupling said first member stationarily to said cylinder, a second contact effect-

ing member adapted to be coupled to said spindle means for rotation therewith, said first and second contact effecting members being interfitting and having mutually engaging stop means to limit rotation of said spindle means and said second contact effecting member by a predetermined arcuate amount, at least said first contact effecting member having electric switch contact elements associated therewith, said second contact effecting member having means for opening and closing a circuit with said electric switch contacting elements, spring means interposed between the lock spindle means and



second contact effecting member urging and holding the latter in interfitting engagement with the first contact effecting member, said first contact effecting member including opening means at the rear so that a rod like tool inserted therein depresses the second contact effecting member releasing the interfitting engagement and said means for removably coupling the first contact effecting member to the cylinder including means for enabling sliding removal of the first contact effecting member upon release of the interfitting engagement with said second contact effecting member.

4,394,552

FLIP-ACTION GUARD AND POSITION INDICATOR FOR PUSH-TO-ACTUATE AND PUSH-TO-RELEASE SWITCH

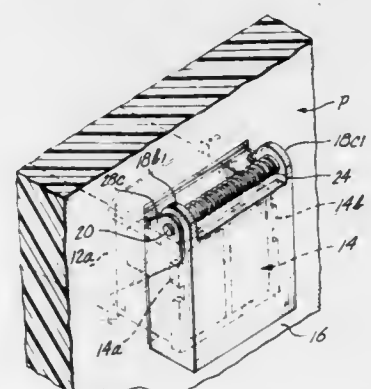
Mark S. Schlosser, Seattle, Wash., assignor to Korry Manufacturing Co., Seattle, Wash.

Filed Nov. 27, 1981, Ser. No. 325,139

Int. Cl.³ H01H 13/04

U.S. Cl. 200—61.62

8 Claims



1. A switch assembly including push-to-latch and push-to-release switch means adapted to be mounted in a mounting panel, said switch means including a push-button head manually accessible from the front of the mounting panel and guided for lineal reciprocation transversely to the panel through a range including an intermediate latched position and extending between an outer, released position of said assembly and an inner, latch-releasing position thereof, a flip cover, means for hingedly mounting said flip cover adjacent to said push-button head in fixed relation to the panel so as to swing about an axis transverse to such lineal reciprocation between an inner, limiting guard position overlying said head in its released position,

and a fully outwardly extending position clearing the push-button head for manual access to said head, mutually interengageable abutment elements respectively carried by said flip cover and said push-button head disengaged in the released position of the push-button head and relatively positioned, firstly, to pass one another without engaging one another accompanying swinging of said flip cover to said fully outwardly extending position with said head in its released position, secondly, to engage one another with the flip cover maintained thereby partially outwardly extended with the head in its latched position, and thirdly, to engage one another in sliding contact terminated by one such abutment element passing out of engagement with the other accompanying movement of the flip cover inwardly and conjoint movement of the push-button head inwardly beyond latched position of the head, thereby to permit return of the flip cover to its guard position as the push-button head approaches latch-releasing position.

4,394,553

SNAP ACTION SWITCH

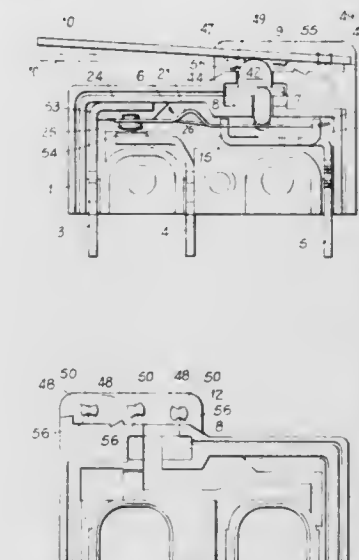
Paul G. Feil, Evansville, Ind., assignor to AMF Incorporated, White Plains, N.Y.

Filed Apr. 23, 1981, Ser. No. 256,280

Int. Cl.³ H01H 5/22

U.S. Cl. 200—67 DA

7 Claims



2. A switch comprising:

- a casing;
- a first contact mounted within the interior space of the casing;
- a unitary support means comprising a terminal portion without said casing, a base portion disposed longitudinally within the interior space of said switch, a first portion disposed normal to and at one end of said base portion and having a slot therein a second and a third portion spaced apart and normal to said base portion at the other end thereof with each said second and third portions having a slot therein;
- a blade means mounted with spring tension to said support means and comprising a contact carrying end free to move within the interior space of said casing, two spaced apart formed spring tension arm portions interconnected at their respective ends by a first and a second transverse portion, a rigid tongue portion integral with said first transverse portion and disposed between said arm portions and terminating in a bearing edge, and a shank portion integral with said second transverse portion with two laterally extending trunnion portions at its other end;
- said blade means being mountable to said support means with said bearing edge of said tongue being held in said slot of said first portion while said laterally extending portions of said shank portions are pivotally disposed within a respective slot of the second and third portions of

said support means to thereby retain the blade means mounted with the spring tension of said arm portions; and actuating means operatively associated with said blade means to actuate the free end thereof toward and away from said first contact to make and break contact therewith.

4,394,554

VACUUM CIRCUIT INTERRUPTER

Junichi Warabi, Shizuoka; Shinzo Sakuma, Yokohama; Hidemi Kawaguchi, and Yukio Kobari, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Meidensha, Japan

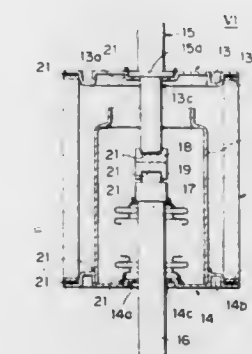
Filed Apr. 27, 1981, Ser. No. 257,853

Claims priority, application Japan, May 6, 1980, 55-59675

Int. Cl.³ H01H 33/66

U.S. Cl. 200—144 B

33 Claims



1. A vacuum interrupter for electric power having a vacuum vessel, the vacuum vessel comprising:

- (a) a cylindrical insulating envelope made of a ceramic materials or crystallized glass having a metallized layer at each end thereof;
- (b) a first metallic end plate made of copper located on one end of said cylindrical insulating envelope;
- (c) a second metallic end plate made of copper located on the other end of said cylindrical insulating envelope;
- (d) a stationary electrode holder fixedly extending through said first metallic end plate, at the inner end of which a stationary electrode contact is provided;
- (e) a movable electrode holder extending through said second metallic end plate so as to be able to move in a given direction at the inner end of which a movable electrode contact is provided;
- (f) an arc shielding member located within said cylindrical insulating envelope so as to surround said stationary and movable electrode contacts;
- (g) a bellows located within said arc shielding member for movably sealing said movable electrode holder with said second metallic end plate; and
- (h) means for connecting said first metallic end plate with one metallized layer of said cylindrical insulating envelope, connecting said second metallic end plate with the other metallized layer of said cylindrical insulating envelope, connecting said first metallic end plate with said stationary electrode holder, and connecting one end each of said arc shielding member and bellows with said second metallic end plate.

4,394,555

SWITCH ASSEMBLY WITH PIVOTED ACTUATOR

Donald A. Long, and Thomas R. Sowash, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 8, 1981, Ser. No. 271,690

Int. Cl.³ H01H 13/52

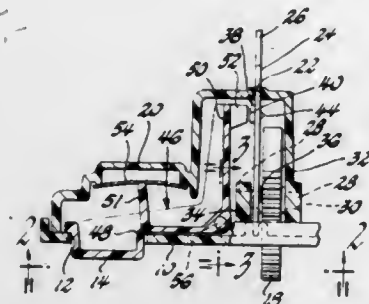
U.S. Cl. 200—159 R

4 Claims

1. A switch assembly comprising a support having a face, an aperture defined in the face, a circuit board mounted on the support, the board surface extending transverse to the said face,

a switch including a movable contact and a stationary contact mounted on the circuit board and arranged for operation between open and closed state by movement of the movable contact generally perpendicular to the circuit board, and

a switch actuator having pivot means mounted on the support adjacent the aperture for rocking movement about an axis substantially parallel to the circuit board and the face,



the actuator having a push button portion extending away from the circuit board in one direction from the pivot means and protruding through the aperture to allow manual movement of the actuator and having an operator portion extending in another direction from the pivot means to the switch for switch operation upon actuator movement, whereby a force applied to the push button portion in a direction generally perpendicular to the face is effective to operate the switch.

4,394,556

CAM OPERATED SWITCH ASSEMBLY

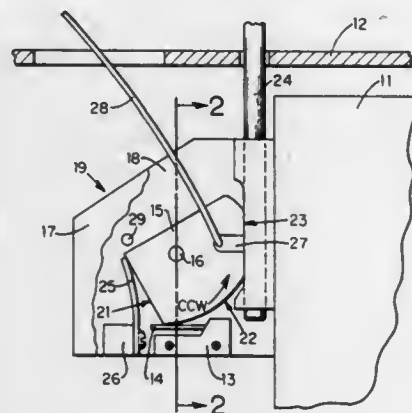
Gilbert Gould, Thousand Oaks, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 26, 1982, Ser. No. 352,822

Int. Cl.³ H01H 17/16

U.S. Cl. 200—161

9 Claims



1. A switching system for connecting battery power to an electronic unit comprising,
a normally-closed switch having an operable lever arm,
a rotatable cam having a curved surface for depressing said lever arm to open said switch,
a lanyard,
means in said cam for releasably attaching one end of said lanyard thereto, and
means engageable with said cam for preventing rotation of said cam.

4,394,557
ELECTRONIC CONTROLLED HEAT COOKING APPARATUS

Jin Tachihara, Oumihachiman, and Hideaki Koyama, Otsu, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

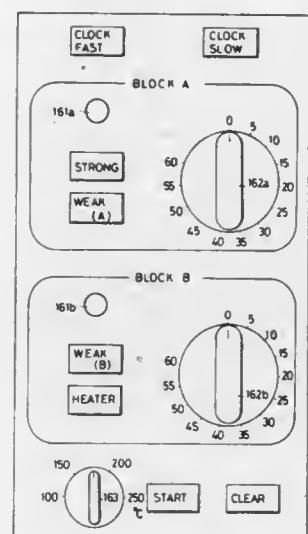
Filed May 20, 1980, Ser. No. 151,609

Claims priority, application Japan, Jun. 13, 1979, 54-75024; Jun. 13, 1979, 54-75026

Int. Cl.³ H05B 1/02

U.S. Cl. 219—10.55 B

13 Claims



1. An electronically controlled heat cooking apparatus, comprising:
heating energy generating means for providing heating energy to a material being cooked,
entry means for setting heating conditions corresponding to a desired plurality of heating modes successively set in an arbitrary sequence for cooking said material being cooked by means of said heating energy generating means;
said entry means comprising a plurality of groups of heating condition setting means for independently establishing signals corresponding to said heating conditions of a desired heating mode;
each said group of heating condition setting means comprising heat designating means for setting the heat to be applied during a single heating mode, and timer time period entry means for setting a timer time period corresponding to the desired duration of said single heating mode;
storing means for storing signals corresponding to said heating conditions set by said plurality of groups of heating condition setting means and to the sequence in which said groups were successively set,
said storing means comprising heat storing means for storing the heat settings entered by said heat designating means, timer time period storing means for storing said timer time periods entered by said timer time period entry means, and sequence storing means, responsive to the sequence in which an operator sets said groups, for identifying the sequence in which said groups have been set regardless of which group said operator chooses to set first;
heat start commanding means,
control means responsive to the output of said heating start commanding means and to said signals stored in said storing means for controlling said heating energy generating means to perform said desired sequential heating modes in accordance with the order stored in said order storing means and the heating conditions stored in said heat storing means and said timer time period storing means, and
said cooking apparatus further comprising an operation portion having a plurality of discrete sections, each of said sections having a respective group of heating condition setting means disposed therein.

4,394,558
EDM METHOD OF MACHINING WORKPIECES WITH A CONTROLLED CRATER CONFIGURATION

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

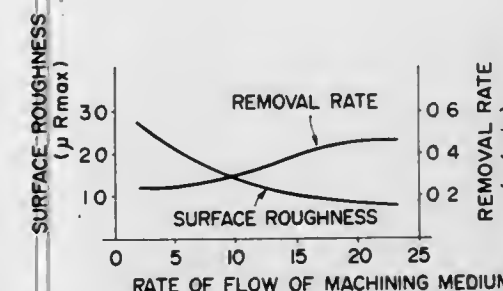
Filed Apr. 13, 1981, Ser. No. 253,287

Claims priority, application Japan, Apr. 15, 1980, 55-49662; Apr. 15, 1980, 55-49663

Int. Cl.³ B23P 1/12

U.S. Cl. 219—69 W

8 Claims



1. A method of machining an electrically conductive workpiece with a tool electrode juxtaposed therewith across a machining gap flooded with a liquid machining medium, wherein a succession of time-spaced electrical pulses are passed through said gap to produce between the opposed surfaces of the tool electrode and the workpiece discrete electroerosive discharges each of which results in the formation of a discharge crater on a localized spot on the workpiece surface and the consequential localized stock removal therefrom and which, with such discharge craters formed successively and randomly throughout the workpiece surface opposed to the tool electrode surface, cumulatively remove stock from the workpiece while the tool electrode is moved relative to the workpiece along a predetermined path to advance stock removal in the workpiece;
wherein the liquid machining medium may be forced to flow through said machining gap; and
wherein the tool electrode may be displaced relative to the workpiece, independently of but simultaneously with the aforesaid relative displacement therebetween,
said method comprising: reducing the surface roughness of said machined workpiece by increasing at least one of the rate of said flow of the liquid machining medium through said gap and the rate of the second-mentioned relative displacement between the tool electrode and the workpiece to such an extent that each of said discharge craters becomes elliptical in shape and has its major axis at least two times greater than its minor axis.

4,394,559

ARC WELDING METHOD

Hirokazu Nomura; Yuji Sugitani, both of Tsu, and Yasuo Suzuki, Hisai, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Toyko, Japan

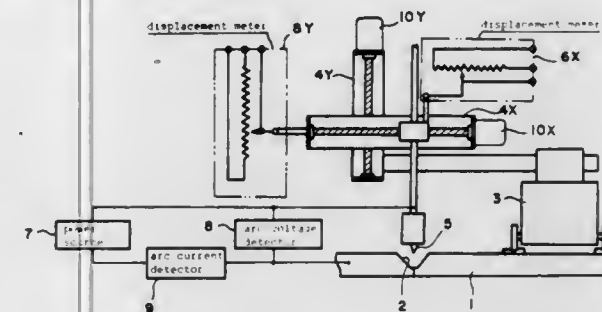
Filed Dec. 22, 1981, Ser. No. 333,403

Claims priority, application Japan, Dec. 27, 1980, 55-188685

Int. Cl.³ B23K 9/12

U.S. Cl. 219—125.12

5 Claims



1. In an arc welding method of the type in which while

oscillating a welding electrode in a width direction within a groove of a pair of metals to be welded, the vertical movement of said electrode is controlled so as to always maintain an arc length constant, the improvement comprising the steps of: arc welding said groove of a predetermined shape by using a predetermined welding speed and wire feed speed; upon completion of a half cycle of oscillation of said electrode, integrating a vertical displacement of said electrode over a period of time to obtain a cross-sectional area S_0 described by said electrode and also obtaining an oscillation stroke x_0 of said electrode; storing said cross-sectional area S and said oscillation stroke in memory means; similarly obtaining a cross-sectional area S and an oscillation stroke x for the next half cycle of oscillation of said electrode; and varying a cross-sectional area of metal deposition by an amount ΔS given by

$$\Delta S = S - \frac{x}{x_0} S_0$$

whereby providing a weld bead having a uniform level.

4,394,560

COVERED ELECTRODE CONTAINING ZIRCONIUM FOR SHIELDED METAL ARC WELDING

Katsuhiro Kishida; Yutaka Mekuchi, both of Yokohama; Sumio Hirao, Kaminagaya, and Hirohiko Date, Yokosuka, all of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

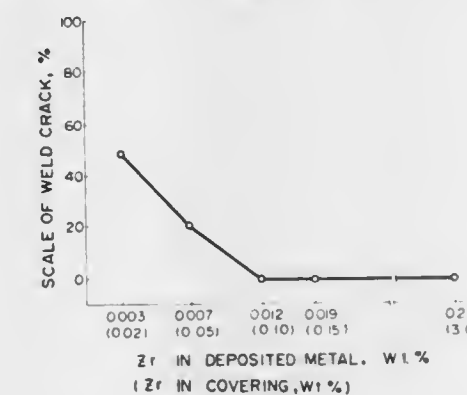
Filed Oct. 9, 1981, Ser. No. 310,283

Claims priority, application Japan, Oct. 9, 1980, 55-140555

Int. Cl.³ B23K 35/30

U.S. Cl. 219—137 WM

9 Claims



1. A covered electrode for shielded metal arc welding, the electrode consisting of a core wire and a covering and comprising such amounts of Ni, Si, B, Nb, C and Zr as essential alloying elements that deposited metal given by the covered electrode contains at least 40% by weight of Ni, 3 to 8% by weight of Si, 0.1 to 0.5% by weight of B, 0.3 to 2.0% by weight of Nb, 0.2 to 1.5% by weight of C and 0.01 to 0.20% by weight of Zr.

4,394,561

TANK STRUCTURE FOR AN AIR HUMIDIFYING ELECTRODE STEAM GENERATOR

Allen J. Zerbel, Madison, Wis., assignor to Wehr Corporation, Milwaukee, Wis.

Filed Apr. 6, 1981, Ser. No. 251,360

Int. Cl.³ H05B 3/60; F22B 1/30; B65D 6/00

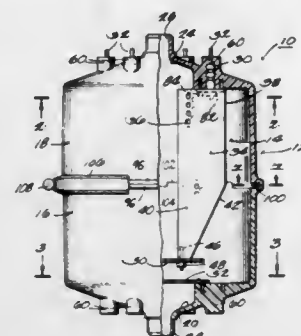
U.S. Cl. 219—285

4 Claims

1. A generally cylindrical water tank for an electrical steam generator of an air humidifier including a plurality of electrodes mounted inside the tank in circumferentially-spaced relationship with each connected to a separate electrical terminal, said tank comprising:

mating top and bottom cylinder halves molded from an electrically insulative plastic material as substantially

mirror images of each other, each of said halves having an open mating end and a substantially closed, opposite end including an opening and a plurality of circumferentially-spaced, externally and internally projecting bosses at locations corresponding to desired locations of the electrical terminals; the terminal bosses on said top and bottom halves being substantially identical except at least some of said top half includes an electrical terminal integrally molded therein, each of said halves further including a radially extending row of at least two internally project-



ing mounting bosses radially aligned with and radially spaced from each of said terminal bosses, each of said mounting bosses adapted to receive means for anchoring the upper end of an electrode on said top half with one mounting boss in each row being circumferentially aligned with a corresponding boss in another row; and means for removably holding said mating ends of said top and bottom halves in assembly to define a chamber with the opening in said bottom half serving as a water inlet and the opening in said top half serving as a steam outlet.

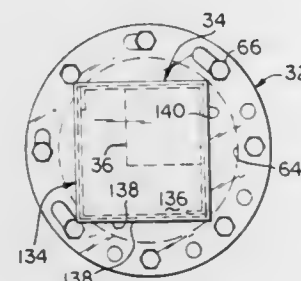
4,394,562

ELECTRIC IMMERSION HEATER MOUNTING FLANGE
Fred Epstein, Clayton, and Tom Holden, Mehlville, both of Mo., assignors to Industrial Engineering and Equipment Incorporated, St. Louis, Mo.

Filed Jun. 11, 1981, Ser. No. 272,565
Int. Cl.³ H05B 3/82; F24H 1/10

U.S. Cl. 219—306

6 Claims



1. An immersion heater and tank assembly comprising:

- a tank including an open end having an annular flange, said flange having a plurality of circular mounting apertures disposed on a common pitch circle diameter at angular intervals equal to three hundred and sixty degrees (360°) divided by the number of apertures in the tank flange,
- an immersion heater receivable within the tank and having an annular mounting flange, said flange having mounting apertures disposed on a pitch circle diameter corre-

sponding to the tank pitch circle diameter at center points including:

- a reference center point,
 - a plurality of center points disposed at angular intervals from the reference center point equal to three hundred and sixty degrees (360°) divided by the number of apertures in the tank flange to define a first set of center points,
 - a plurality of center points disposed at angular intervals from the reference center point equal to three hundred and sixty degrees (360°) divided by the number of apertures in the tank flange plus one, to define a second set of center points, and
 - at least the first center point of the first set of center points on each side of the reference center point and the first center point of the second set of center points on each side of the reference center point cooperate to define elongate apertures, and
- (c) fastener means receivable by the mounting apertures of the tank flange and the heater flange to connect the heater to the tank.

4,394,563

FOOT CONSTRUCTION FOR PORTABLE ELECTRIC SPACE HEATERS

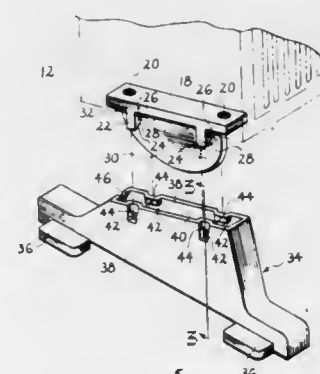
John W. Schnell, Boone County, Mo., assignor to Toastmaster, Inc., Columbia, Mo.

Filed Jun. 8, 1981, Ser. No. 271,513

Int. Cl.³ F16M 11/20; F24H 9/06; H05B 1/00

U.S. Cl. 219—342

2 Claims



2. In a portable electric space heater having a heater body, the combination of:

- a pair of foot members adapted to support the heater body on a support surface, said foot members being initially detached from the heater body;
- means for attaching said foot members to the heater body at spaced apart locations thereon to permit the foot members to support the heater body on a support surface;
- a pair of rib members projecting generally downwardly from the heater body at spaced apart locations thereon, each rib member having a curved edge operable to upset the heater body when placed on a support surface while detached from said foot members;
- means for deactivating the heater when the heater body is upset; and
- means presenting a socket in each foot member at a location to receive the corresponding rib when the foot member is attached to the heater body.

4,394,564

SOLID PLATE HEATING UNIT

Raymond L. Dills, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 21, 1981, Ser. No. 332,587

Int. Cl.³ H05B 3/68

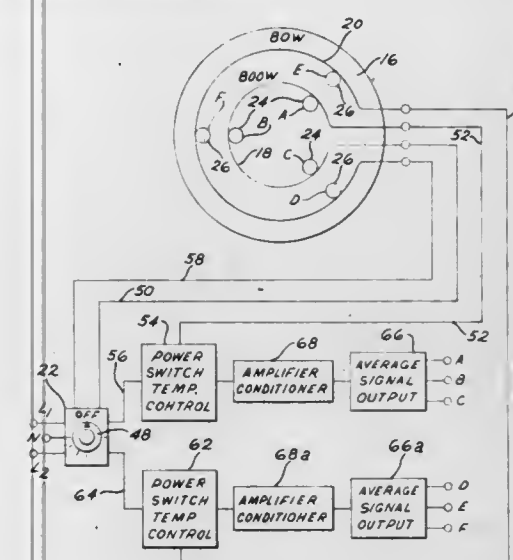
U.S. Cl. 219—449

8 Claims

1. A plate surface heating unit having a top plate defining a heating area, said top plate having a softening temperature,

temperature setting means for determining the operating temperature of said top plate including a control system for maintaining said heating area substantially at the selected cooking temperature while maintaining the temperature of said heating area below the softening temperature of said top plate comprising:

- a metal sheathed electrical resistance heating element in intimate contact with the underside of said top plate, said element having a heating capacity capable of elevating the temperature of said top plate above its softening temperature;
- a temperature-sensing means arranged for sensing the temperature of said top plate at a plurality of selected locations in said heating area;



cycling means in said temperature setting means operable to control energization of said heating element to maintain the temperature of said top plate at said operating temperature;

a control means in circuit connection between said temperature sensing means and said temperature setting means for deenergizing said heating element independent of said cycling means when the temperature sensed by said temperature sensing means of said top plate and said heating element at said selected locations of said heating area reaches a selected temperature below the softening temperature of said top plate.

4,394,565

POWER DISCONNECT ASSEMBLY FOR ELECTRIC HEATING ELEMENTS

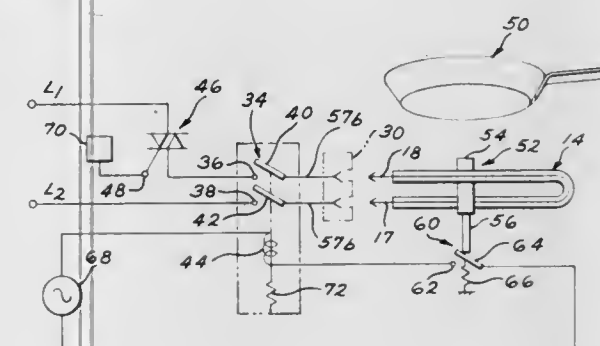
Raymond L. Dills, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Nov. 23, 1981, Ser. No. 324,306

Int. Cl.³ H05B 3/68

U.S. Cl. 219—452

9 Claims



1. A power disconnect assembly comprising; a plug-in electric heating element adapted to support and heat a cooking vessel and its contents,

a terminal block with terminals for receiving the plug-in heating element and supplying electric power thereto, a double pole switch with contacts connected to line voltage and to the terminal block, a solenoid to open and close the switch, means to detect the presence and absence of a cooking vessel on the heating element, and means cooperating with the cooking vessel detection means to de-energize the solenoid in the event of cooking vessel absence and open the double pole switch and energize the solenoid in the event the cooking vessel is present and close the double pole switch.

4,394,566

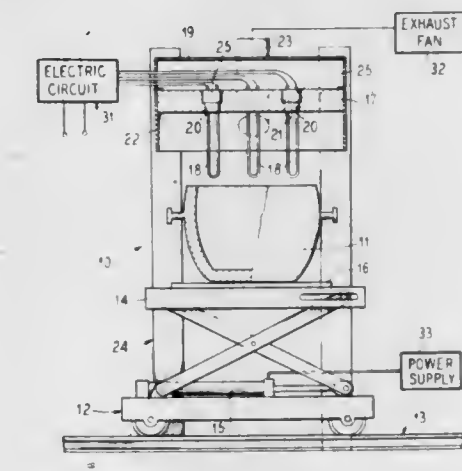
LADLE PREHEATER

Klas B. O. Magnusson, Hallstahammar, Sweden, assignor to Bulten-Kanthal Aktiebolag, Hallstahammar, Sweden
Continuation-in-part of Ser. No. 97,673, Nov. 27, 1979. This application Oct. 29, 1981, Ser. No. 316,128

Int. Cl.³ H05B 3/06; F27B 14/00

U.S. Cl. 219—523

3 Claims



1. A preheater for a casting ladle, comprising
 - a lifting table having an upper surface adapted to support the ladle; and an actuator for adjusting the vertical position of said upper surface;
 - a fixed frame disposed adjacent to said table;
 - a horizontal refractory deck fixedly secured to said fixed frame in overhanging relation to said upper surface of said lifting table;
 - a set of U-shaped electrical heating elements composed essentially of molybdenum disilicide, each of said heating elements being supported on said deck individually, and each having a vertical heating portion extending downwardly from said deck, and a pair of terminal portions extending upwardly from said deck;
 - a set of refractory plugs for said set of heating elements, each said plug supporting one of said elements with said portions thereof projecting therefrom, each of said plugs being disposed in a vertical aperture in said deck, and being insertable and removable from above said deck;
 - at least one of said plugs having a downwardly facing peripheral shoulder supported on an upwardly facing shoulder within the corresponding deck aperture;
 - an electrical circuit connected to said terminal portions; and
 - a power supply connected to said actuator; whereby the ladle, supported on said upper surface beneath said deck may be raised to receive the vertical heating portions of said set of heating elements and be internally heated thereby.

4,394,567

DATA RECORDING SYSTEM

Max J. Schönhuber, Seefeldquai 1, CH 8008 Zürich, Switzerland

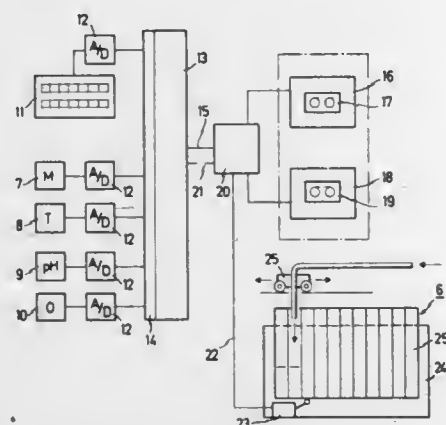
Filed Mar. 4, 1980, Ser. No. 127,117

Claims priority, application Switzerland, Mar. 6, 1979, 2150/79

Int. Cl.³ G01F 1/00; G06K 5/00

U.S. Cl. 235—375

13 Claims



1. Apparatus for recording data commensurate with a plurality of serially collected samples of material comprising: means providing a plurality of input signals commensurate with sensed parameters of each sample of material; means providing input signals commensurate with the identity of each sample of material; data recording means, said recording means including: a first storage device, said storage device comprising a removable data storage medium and means for recording data on said medium; and a second data storage device, said second storage device including a removable data storage medium and means for recording data on said medium; and control means interconnecting said input signal providing means and said recording means, said control means selectively delivering data bearing signals to said first and second storage devices for recording on said mediums whereby information commensurate with sensed material parameters and the identity of the sample corresponding to those sensed parameters will be selectively stored on the first or second or both said first and second storage mediums.

4,394,568

CARD READING APPARATUS

Yoshinobu Nakatsu, Hadano, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

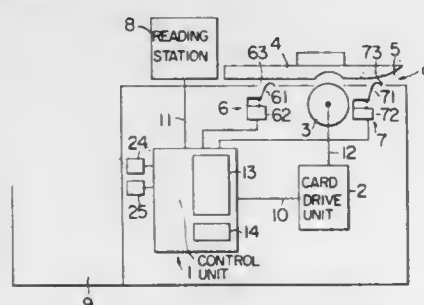
Filed Aug. 18, 1981, Ser. No. 294,054

Claims priority, application Japan, Sep. 5, 1980, 55/122406

Int. Cl.³ G06K 13/00; B65H 1/10

U.S. Cl. 235—475

4 Claims



1. A card reading apparatus for reading information recorded on a card, comprising: (a) a hopper in which cards are accommodated or inserted, (b) a card weight disposed on said hopper or the cards stacked in said hopper, (c) a feed roller for feeding the cards stacked or inserted in said hopper,

(d) roller drive means for driving said feed roller, (e) read means for reading information on the cards fed from said hopper, (f) card detection means for detecting the presence or absence of the card in said hopper, (g) weight detection means for detecting the presence or absence of the card weight in said hopper, (h) mode selection means for selecting a sequential read mode or a single card read mode for a card read mode of said read means, (i) memory means for storing detection signals of said card detection means and said weight detection means as status signals, and (j) processing means for determining a mode setting signal from said mode selection means and determining transition of mode and an immediately previous status when the status transits based on information from said card detection means, said weight detection means and said memory means and further determining if a transition time from a first status to a second status is within a predetermined time period and if a status immediately previous to the second status is the first status in order to discriminate a one card out of stack read mode and a single inserted card read mode and provide a control signal to said roller drive means in accordance with the discriminated mode.

4,394,569

FOCUS DETECTING METHOD AND APPARATUS

Kazuo Nakamura, Shiki, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

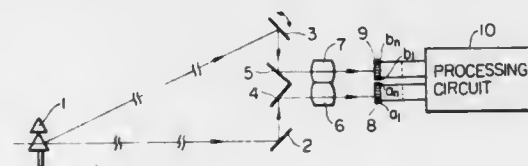
Filed Dec. 19, 1980, Ser. No. 218,132

Claims priority, application Japan, Dec. 29, 1979, 54-172963

Int. Cl.³ G01J 1/36

U.S. Cl. 250—204

6 Claims



1. An automatic focusing device for a camera comprising: first and second sensor groups; means for projecting images of an object transmitted through a focusing lens onto said first and second sensor groups; means for shifting at least one of said images on said sensor groups; means for converting outputs of said first and second sensor groups to digital numbers; means for storing said digital numbers; calculating means for determining in succession: (1) a first set of successive values of:

$$F = \sum_{k=1}^{n-1} |i_{k+1} - j_k| \times \beta_0 - \sum_{k=1}^{n-1-p} |i_{k-1-p} - j_k| \times \beta_{p+2}$$

for successive values of p for positive values of F, and a second set of successive values of:

$$F = \sum_{k=1}^{n-1} |i_k - j_{k+1}| \times \beta_0 - \sum_{k=1}^{n-1-p} |j_{k-1-p} - i_k| \times \beta_{p+2}$$

for successive values of p for negative values of F where i_k are ones of said digital numbers corresponding to sensors of said first sensor group, j_k are ones of said digital numbers corresponding to sensors of said second sensor group with k indicating sensor positions within

4,394,571

OPTICALLY ENHANCED SCHOTTKY BARRIER IR DETECTOR

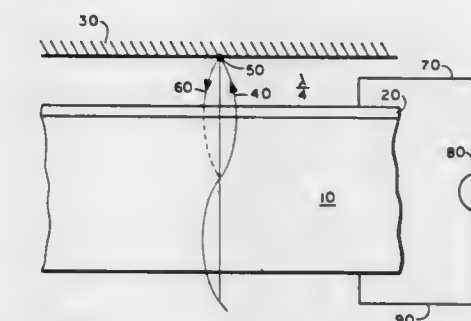
Jaen Jurisson, Fridley, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 18, 1981, Ser. No. 263,966

Int. Cl.³ H01J 40/14

U.S. Cl. 250—216

4 Claims



1. In a Schottky barrier radiation detector the improvement comprising: a mirror positioned a distance from the barrier substantially equal to one quarter of the wavelength of the radiation being detected.

4,394,570

PHOTOELECTRIC CONVERSION CIRCUIT

Kazunori Mizokami, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

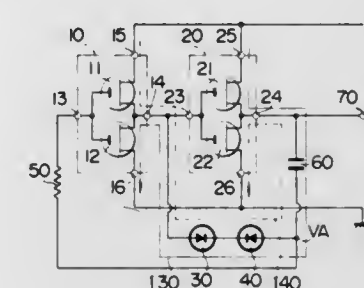
Filed Dec. 5, 1980, Ser. No. 213,612

Claims priority, application Japan, Dec. 25, 1979, 54/168718

Int. Cl.³ H01J 40/14

U.S. Cl. 250—209

5 Claims



1. A photoelectric conversion circuit comprising: a pair of series connected photodiodes having first and second connection points; a capacitor having one side thereof connected to said first connection point of said photodiodes and arranged to be charged and discharged in response to a photocurrent from said photodiodes; first and second semiconductor switching circuits, wherein the output of said first switching circuit is connected to the input of said second switching circuit to form a junction, and wherein said second connection point of said photodiodes is connected to said junction; and the combination of said photodiodes and said capacitor forming a feedback circuit connected across said first and second switching circuits, whereby the switching operation of said switching circuits is effected in response to charging and discharging of said capacitor by photocurrent from said photodiodes.

4,394,572

PHOTODETECTOR HAVING AN ELECTRICALLY CONDUCTIVE, SELECTIVELY TRANSMISSIVE WINDOW

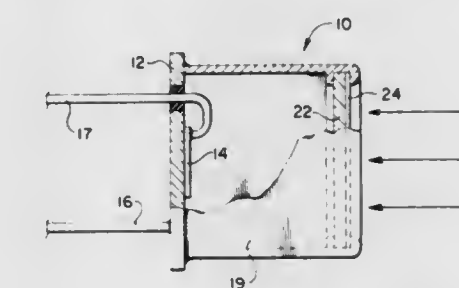
Scott A. Wilber, Boulder, Colo., assignor to Biox Technology, Inc., Boulder, Colo.

Filed Apr. 1, 1981, Ser. No. 250,955

Int. Cl.³ H01J 5/02

U.S. Cl. 250—239

12 Claims



1. A photodetector device having substantially decreased sensitivity to various electromagnetic interferences, the device comprising: an electrically conductive case having a hollow interior portion; a photosensitive material positioned within the case; an opening defined in a portion of the case; and an electrically conductive window structure transparent to selected wavelengths of energy positioned within the opening to enclose the interior of the case, the electrically conductive window being in electrical contact with the electrically conductive case; whereby the window may pass radiation of selected wavelengths while isolating the photosensitive material from interference energy of non-selected wavelengths.

4,394,573

METHOD AND APPARATUS FOR UNDERWATER DETECTION OF HYDROCARBONS

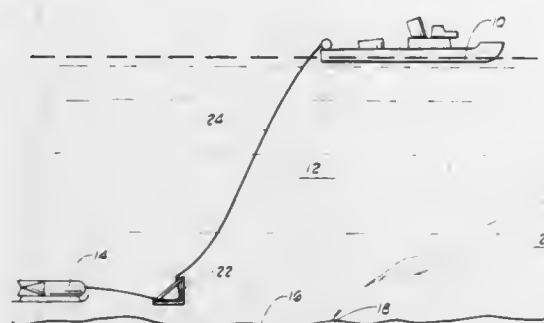
Aderbal C. Correa; John S. Gergely, both of Ponca City, Okla., and Andrew J. Blanchard, College Station, Tex., assignors to Conoco Inc., Ponca City, Okla.

Filed Dec. 15, 1980, Ser. No. 216,137

Int. Cl.³ G01V 5/00; G01T 1/167

U.S. Cl. 250—253

23 Claims



1. A method for detecting presence of hydrocarbons within a body of water proximate the water bottom comprising: moving an instrument platform through said body of water at a pre-selected distance above the water bottom; generating light energy and directing said light energy from said instrument platform toward a selected area within the body of water as a repetitive scanning beam on said water bottom transverse to the line of movement of said instrument platform; detecting selected fluorescence excitation resulting from said light energy; and providing a data readout of said fluorescence excitations as an indication of hydrocarbon presence.

4,394,574

METHODS AND APPARATUS FOR CONSTITUENT ANALYSIS OF EARTH FORMATIONS

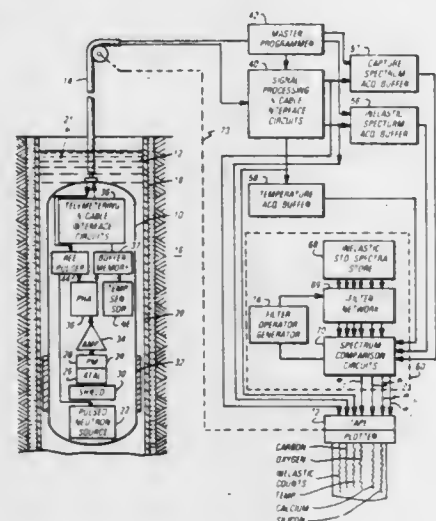
James A. Grau, Ridgefield, Conn., and Russel C. Hertzog, Missouri City, Tex., assignors to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 65,244, Aug. 9, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 187,123

Int. Cl.³ G01V 5/00

U.S. Cl. 250—262

22 Claims



1. A method for investigating a geological system, which includes a geological formation traversed by a well bore, through comparison of a measured spectrum, generated by means including a radiation detector, with standard spectra having a given resolution, said method comprising the steps of: (a) modifying said standard spectra to reduce the effect of the difference between the detector resolution extant during the detection of said measured spectrum and the

- given resolution of said standard spectra, to generate modified standard spectra; and (b) comparing said modified standard spectra and said measured spectrum to derive information relative to the earth formation.

4,394,575

APPARATUS FOR MEASURING VAPOR DENSITY, GAS TEMPERATURE, AND SATURATION RATIO

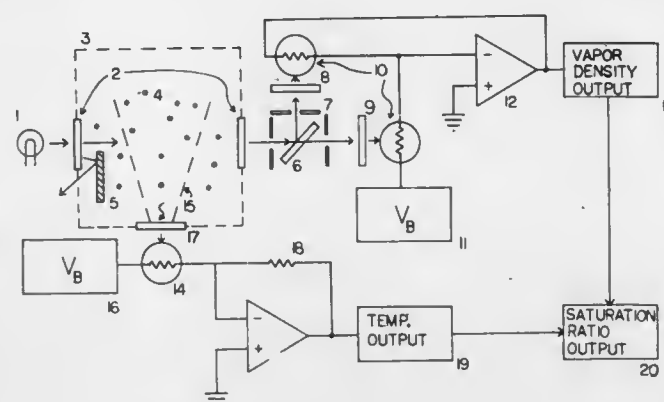
Loren D. Nelson, Morrison, Colo., assignor to Ophir Corporation, Denver, Colo.

Filed Jun. 30, 1980, Ser. No. 164,059

Int. Cl.³ G01J 1/00

U.S. Cl. 250—343

6 Claims



1. A new and improved passive radiometric device for measuring true air temperature without physical contact wherein the improvement comprises: an extremely narrow system wavelength received radiance bandpass on the order of 0.5 microns or less, said received radiance bandpass being selected to be in the strong carbon dioxide absorption band whose center is at substantially 4.255 microns.

4,394,576

APPARATUS FOR DETECTING THE LOCATION OF INCIDENT RADIATION

Eiichi Tanaka, Mitaka; Norimasa Nohara; Hideo Murayama, both of Chiba; Kenji Ishimatsu, Abiko; Akira Ogushi, Mito, and Katsumi Takami, Tokyo, all of Japan, assignors to National Institute of Radiological Sciences, Chiba and Hitachi Medical Corporation, Tokyo, both of Japan

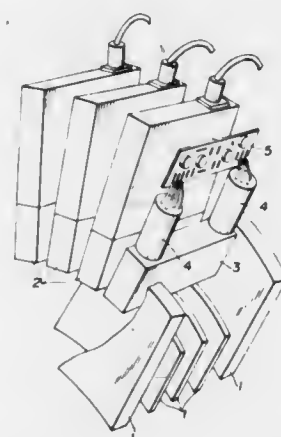
Filed Sep. 29, 1980, Ser. No. 191,870

Claims priority, application Japan, Sep. 29, 1979, 54-124742

Int. Cl.³ G01T 1/20

U.S. Cl. 250—366

21 Claims



1. An apparatus for detecting a location of incident radiation, comprising: a scintillation crystal; a pair of photo-multiplier tubes having their photo-cathodes optically coupled to said scintillation crystal,

4,394,578

HIGH PRESSURE, HIGH RESOLUTION XENON X-RAY DETECTOR ARRAY

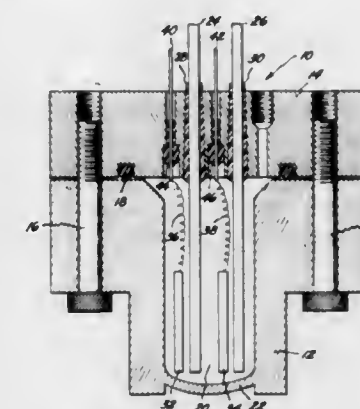
John M. Houston, Schenectady, and Nathan R. Whetten, Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 24, 1981, Ser. No. 257,026

Int. Cl.³ G01T 1/18

U.S. Cl. 250—374

9 Claims



1. A high resolution detector array for computerized tomography comprising: a sealed housing forming a detection chamber having an x-ray permeable window therein; a collector plate extending through one wall of said housing into said chamber; a voltage plate disposed in said chamber parallel to said collector plate; and a volume of xenon gas disposed in said chamber at a density of approximately 0.5 to 2.5 grams per cubic centimeter.

4,394,577

DISPLACEMENT MEASUREMENT DEVICE AND METHOD

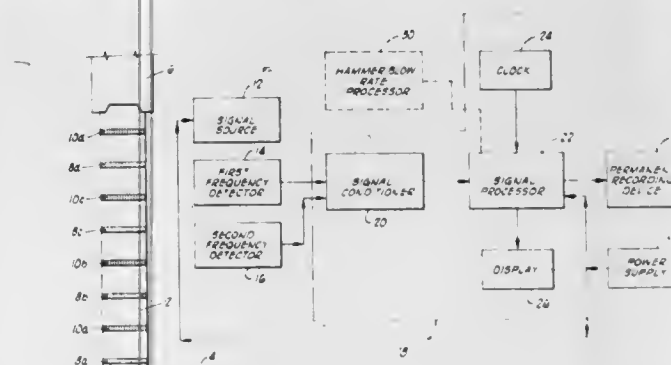
Marvin L. Peterson; Norman W. Hein, Jr., and Donald H. Oertle, all of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Jun. 25, 1981, Ser. No. 277,441

Int. Cl.³ G01J 1/42

U.S. Cl. 250—372

16 Claims



15. A method of monitoring the displacement of an object, comprising: marking the object with a first reflective material responsive to ultraviolet energy; marking the object, in predetermined spaced relation with the first reflective material, with a second reflective material responsive to ultraviolet energy; detecting when the first reflective material initially responds to ultraviolet energy; detecting when the second reflective material initially responds to ultraviolet energy; preventing the redetection of a response to the ultraviolet energy by the first reflective material after the initial response thereby to ultraviolet energy until after the step of detecting when the second reflective material initially responds to ultraviolet energy; and calculating, in response to said steps of detecting when the first reflective material initially responds and of detecting when the second reflective material initially responds, the distance the object has moved.

4,394,579

LASER INDUCED PLASMA PRODUCTION FOR ISOTOPE SEPARATION

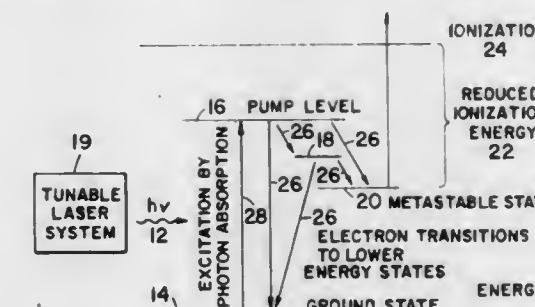
Fred R. Schwirzke, 1591 Josselyn Canyon Rd., Monterey, Calif. 93940

Filed Oct. 22, 1979, Ser. No. 86,982

Int. Cl.³ B01D 59/00

U.S. Cl. 250—423 P

17 Claims



1. The method of separating selected atoms which absorb radiation of one frequency from other atoms which absorb radiation of different frequencies comprising: (a) heating a mass of material containing both types of said atoms until a vapor of said material is formed; (b) irradiating said vapor with a laser source operating at said one frequency whereby said selected atoms are pumped into excited metastable states above the ground state of said selected atoms; (c) supplying a continuous source of thermal energy to said selected atoms in said excited metastable states forming an ionized plasma of said selected atoms; and (d) separating said ionized plasma from all said other atoms.

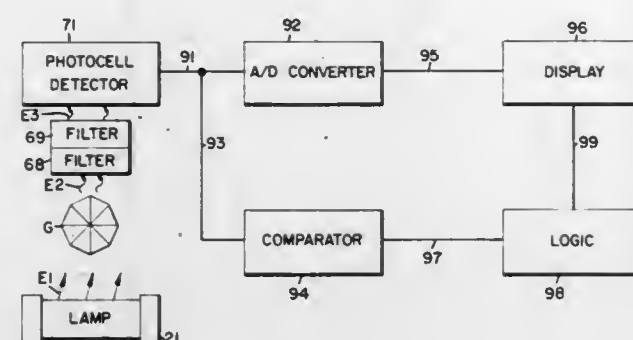
4,394,580

METHOD AND APPARATUS FOR ANALYZING GEMS
 Peter J. Giellisse, Brewster, Minn., assignor to L.C.E. Ltd.,
 Worthington, Minn.

Filed Jul. 27, 1981, Ser. No. 287,165
 Int. Cl.³ G01N 21/64

U.S. Cl. 250—461.1

46 Claims



1. Apparatus for analyzing gem specimens, comprising:
 housing means;
 a source of radiated energy carried by the housing means capable of emitting electromagnetic radiation over a wide spectrum of wavelengths of varying intensity;
 holder means for supporting a gem specimen in a predetermined position relative to the source of radiated energy, the holder means being opaque to said radiated energy and having an aperture formed therethrough in which the gem specimen is disposed, and through which at least part of the gem specimen is exposed to said radiated energy;
 the holder means and the source of radiated energy being constructed and arranged so that the radiated energy interacts with said gem specimen, causing it as a result to emit radiated energy over a wide spectrum of wavelengths of varying intensity;
 detector means carried by the housing means in a position in which it is exposed to the energy emitted by said gem specimen and constructed to detect the intensity of energy emitted by said gem specimen over a spectrum of wavelengths that is narrow relative to the spectrum of wavelengths emitted by said gem specimen, said narrow spectrum being chosen as a function of known response of a particular species of gem to radiated energy;
 signal means associated with the detector means for generating an electric signal representative of the intensity of energy emitted by the gem specimen and detected by the detector means;
 and readout means associated with the signal means for providing a readout in response to said electric signal that is representative of the nature of the gem specimen.

4,394,581

RADIATION IMAGE STORAGE PANEL

Kenji Takahashi; Hisashi Yamazaki; Junji Miyahara, all of
 Minamishigara; Noboru Kotera; Shusaku Eguchi, both of
 Odawara, and Norio Miura, Isehara, all of Japan, assignors to
 Fuji Photo Film Co., Ltd., Kanagawa, Japan

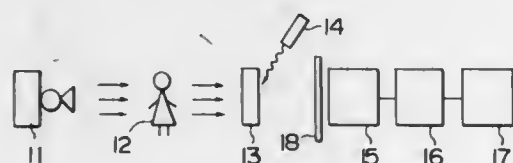
Filed Jun. 5, 1980, Ser. No. 156,520

Claims priority, application Japan, Jun. 7, 1979, 54/71604

Int. Cl.³ H05B 33/00

U.S. Cl. 250—484.1

13 Claims



1. A radiation image storage panel having a fluorescent layer comprising a binder and a stimulant phosphor dispersed

therein characterized in that said panel is colored with a colorant so that the mean reflectance of said panel in the wavelength region of the stimulating rays for said stimulant phosphor is lower than the mean reflectance of said panel in the wavelength region of the light emitted by said stimulant phosphor upon stimulation thereof.

4,394,582

METHOD AND APPARATUS FOR UTILIZING THE WASTE HEAT ENERGY OF AN INTERNAL COMBUSTION ENGINE

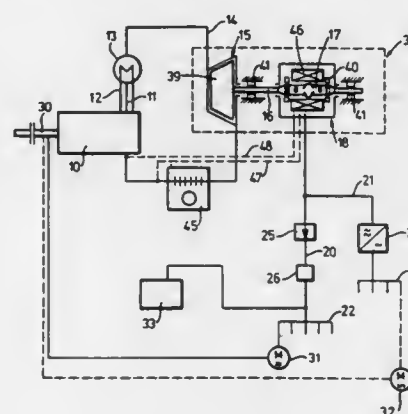
Ottmar Kreissl, Karlsruhe; Josef Schurrer, Deisenhofen; Karl Mötzt, Munich; Wilhelm Leitgeb, Bad Neustadt, all of Fed. Rep. of Germany, and Heinz Rosenberg, Vienna, Austria, assignors to M.A.N.-Dachauer, Munich and Siemens, Erlangen, both of, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 256,818, Apr. 23, 1981, abandoned. This application Nov. 9, 1981, Ser. No. 319,666
 Claims priority, application Fed. Rep. of Germany, Apr. 28, 1980, 3016330; Aug. 9, 1980, 3030232

Int. Cl.³ F01K 23/10

U.S. Cl. 290—4 C

23 Claims



1. A method for utilizing the waste heat energy of an internal combustion engine, said method comprising driving a thermodynamic expansion machine by waste heat from an internal combustion engine, directly driving from said thermodynamic expansion machine, a synchronous machine having a non-wound rotor as an electrical power generator, connecting at least one electrical converter to the output of said generator, the rotational speed of the generator being the same as the expansion machine, driving an electric motor from said generator and delivering output from said motor to said engine to relieve the load thereon.

4,394,583

ELECTRIC FENCE ENERGIZERS

Colin A. Standing, Hamilton, New Zealand

Continuation of Ser. No. 942,870, Sep. 15, 1978, abandoned. This application Oct. 10, 1979, Ser. No. 83,366

Claims priority, application New Zealand, Sep. 13, 1977, 185174

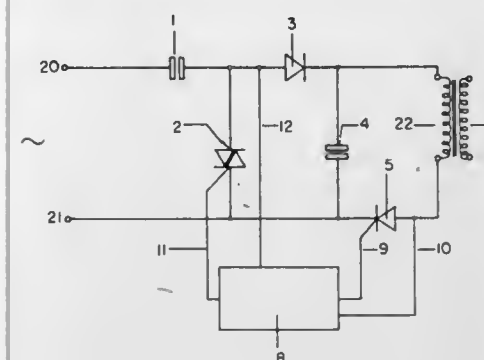
Int. Cl.³ B23P 1/02; G05F 1/08

U.S. Cl. 307—108

5 Claims

1. An electric fence energizer of the capacitor discharge type, comprising:
 an output transformer having a primary winding;
 a capacitor connected across said power supply and the primary winding of said transformer;
 an SCR means, connected between said capacitor and said transformer primary winding, for controllably discharging said capacitor through said transformer primary winding;
 controllable switch means, connected between said power supply and said capacitor, for charging said capacitor by means of said power supply;
 control circuit means for cyclically charging and discharging

ing said capacitor by controlling said switch means and said SCR means, said control circuit means including means for charging said capacitor to substantially the same level in each cycle, said level being independent of minor fluctuations in said power supply; and



a sense line connected to said control circuit means to sense the capacitor voltage, said control circuit means including means for inhibiting charging of said capacitor when said sense line detects that said SCR means has discharged abnormally.

4,394,584

SWITCHING DEVICE FOR CHECKING THE CLOSED POSITION OF A FOLDING DOOR

Kurt Spahn, Bachs, and Walter Bucher, Reichenburg, both of Switzerland, assignors to Bauer Kassenfabrik AG., Rümlang, Switzerland

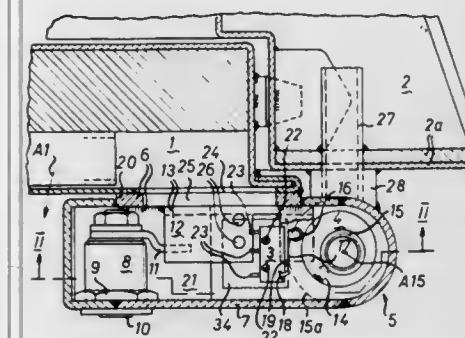
PCT No. PCT/CH79/00065, § 371 Date Jan. 3, 1980, § 102(e)
 Date Dec. 14, 1979, PCT Pub. No. WO79/01028, PCT Pub. Date Nov. 29, 1979

PCT Filed May 3, 1979, Ser. No. 192,523

Claims priority, application Switzerland, May 3, 1978, 4861/78

Int. Cl.³ G08B 13/08; H01H 3/16; H03K 17/00; E05G 1/10
 U.S. Cl. 307—117

7 Claims



7. A switching device for checking the closed position of a swinging door mounted in a frame, the device being of the type in which a signal is produced by the closing movement of the door relative to the frame comprising
 an infrared transmitting device in one of the door and frame;
 an infrared receiving device in the other of the door and frame for producing a distinguishable signal when infrared energy is received;
 circuit means including a switching transistor coupled to said transmitting device for selectively activating said receiving device to produce an alarm-activating signal in the presence of infrared energy;
 means defining a plurality of ports in each of said door and frame to permit passage to infrared energy therethrough, said ports being aligned in pairs when the door is closed, said transmitting device being arranged to project energy and said receiving device being arranged to receive energy through at least one but less than all of said pairs of ports;
 a pane of bullet proof glass transparent to infrared energy

covering each of said ports, each said pane being undetachably fastened to its associated port;
 conductor means for interconnecting said transmitting and receiving devices; and
 means undetachably fastened to said door for providing a conduit for said conductor means when said door is closed and open and to inhibit tampering with said conductor means.

4,394,585

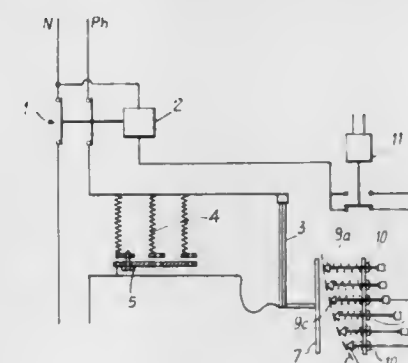
POWER CIRCUIT-BREAKER WITH REMOTE-CONTROLLABLE OPERATION THRESHOLD
 Rosette Alberti, 7 rue Marie Bonaparte, 92 210 Saint-Cloud, France

Filed May 12, 1981, Ser. No. 263,020

Claims priority, application France, May 14, 1980, 80 10861
 Int. Cl.³ H01H 3/26; H02J 1/00

U.S. Cl. 307—140

4 Claims



1. A power circuit-breaker with remote-control of the operation threshold, comprising at least a detection cap of a predetermined position of the control element of the release sensitive to the intensity consumed and a release of the circuit-breaker made of an electro-magnetic element, the control element of the release being a bimetallic strip and the cap a contact element coming in contact with said bimetallic strip, when said position is reached, and sending under the control of a centralized remote-control receiver, a control current to the circuit-breaker release.

4,394,586

DYNAMIC DIVIDER CIRCUIT

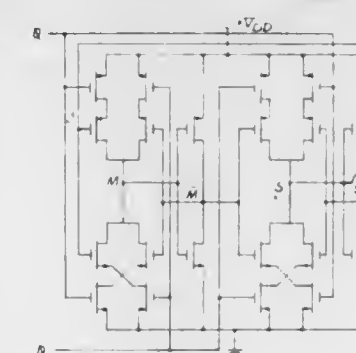
Shinji Morozumi, Shimosuwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Oct. 19, 1973, Ser. No. 408,148

Claims priority, application Japan, Oct. 19, 1972, 47/104830
 Int. Cl.³ H03K 23/22, 19/096

U.S. Cl. 377—105

17 Claims



1. A dynamic binary divider circuit comprised of an intermediate inverter, a first multiple inverter and a second multiple inverter, said intermediate inverter being formed by the complementary connection of a P-channel transistor and an N-channel transistor, each said first and second multiple inverters

being formed from the serial connection of two-series-connected P-channel transistors to two series connected N-channel transistors respectively, the drain terminals of one of the P-channel and N-channel transistors of each multiple inverter being connected together to define an output terminal of the respective multiple inverter, the gate terminals of said one of the P-channel and N-channel transistors of each multiple inverter being connected together to define an input terminal of the respective inverter, said output terminal of said first multiple inverter being coupled through said intermediate inverter to the input of said second multiple inverter, the output terminal of said second multiple inverter being coupled to the input terminal of said first multiple inverter, the other P-channel transistor of said first multiple inverter and the other N-channel transistor of said second multiple inverter being connected for receipt at the respective gate terminals thereof with a first clock pulse and the other N-channel transistor of said first multiple inverter and the other P-channel transistor of said second multiple inverter being connected for receipt at the respective gate terminals thereof with a second clock pulse which is the complement of said first clock pulse whereby the parasitic capacitance at respective outputs of said first and second multiple inverters is utilized as a memory means, so that a division of said clock pulse applied is effected.

4,394,587

CMOS DIFFERENTIAL COMPARATOR WITH HYSTERESIS

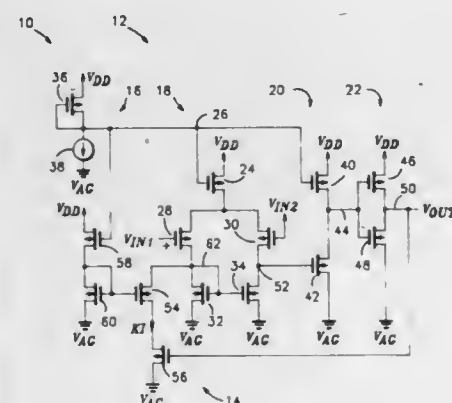
James A. McKenzie, and Joe W. Peterson, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 27, 1981, Ser. No. 267,975

Int. Cl.³ H03K 5/24

U.S. Cl. 307—355

4 Claims



1. In a comparator for providing an output voltage which is proportional to the difference between a first input voltage on a gate of a first MOS transistor and a second input voltage on a gate of a second MOS transistor coupled to form a differential stage with the first transistor, a hysteresis circuit comprising:

bias current means comprising:

- a third MOS transistor having a first current electrode coupled to a selected one of the first and second transistors, a gate electrode, and a second current electrode for shunting a predetermined portion of current sourced by the one transistor in an enabled condition;
- a fourth MOS transistor having both a first current electrode and a gate electrode coupled to the gate electrode of said third MOS transistor, wherein said fourth MOS transistor is coupled as a master current mirror device and said third MOS transistor is coupled as a slave current mirror device; and
- a current source coupled to the first current electrode of said fourth MOS transistor; and
- switching means coupled to the second current electrode of said third MOS transistor and to an output of the comparator, for enabling the bias current means when the output voltage of the comparator exceeds a predetermined threshold.

4,394,588

CONTROLLABLE DI/DT PUSH/PULL DRIVER

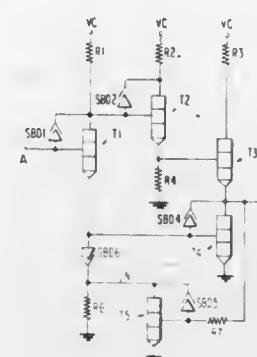
Gene J. Gaudenzi, Purdys, N.Y., assignor to International Business Machines Corporation

Filed Dec. 30, 1980, Ser. No. 221,687

Int. Cl.³ H03K 5/08, 17/08, 19/082, 19/20

U.S. Cl. 307—443

6 Claims



1. A circuit for limiting the time-rate of change of downgoing transitions of a signal present at the output terminal of an active collector driver, comprising a first transistor having a base coupled to a signal input terminal and a collector coupled to a means for providing a supply voltage and an emitter coupled to ground, a second transistor having a collector coupled to said output terminal and an emitter coupled to ground for pulling-down said signal present at said output terminal to a low state, impedance means coupled to said first transistor and the base of said second transistor for limiting the base current of said second transistor, pull-up means coupled to said output terminal for pulling-up said signal present at said output terminal to a high state, a feedback path coupled to said output terminal and said impedance means for limiting said time-rate of change of said downgoing transition of said output signal, and switch means for clamping said feedback path to ground.

4,394,589

LOGIC CIRCUIT INCLUDING AT LEAST ONE RESISTOR OR ONE TRANSISTOR HAVING A SATURABLE RESISTOR FIELD EFFECT TRANSISTOR STRUCTURE

Ngu T. Pham, and Gerard Nuzillat, both of Paris, France, assignors to Thomson-CSF, Paris, France

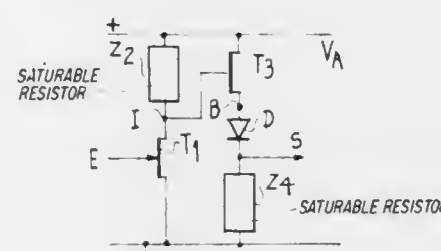
Division of Ser. No. 121,179, Feb. 13, 1980. This application

Nov. 20, 1981, Ser. No. 323,535

Int. Cl.³ H03K 19/094

U.S. Cl. 307—450

5 Claims



1. A logic circuit comprising an input stage, wherein a first field-effect transistor is in series with a first saturable resistor interposed on the drain side in the supply of the first transistor, an output stage including a second transistor which is identical with the first and has a supply on the drain side which is common with the input stage supply, the gate of the second transistor being connected to the drain of the first transistor, the supply circuit of the second transistor being closed across a forward-biased diode, and a second saturable resistor on the ground of the common supply is connected to the source of the first transistor, an input terminal connected to the gate of the

first transistor and an output terminal tapped between the diode and the second saturable resistor;

wherein at least a selected one of the field effect transistors or the saturable resistors has a saturable resistor structure comprising a layer of semiconductor material on a semi-insulating substrate, the character and type of doping of said material being such as to set up a dipolar domain in respect of an electric field which is higher than a so-called critical value, and further comprising two ohmic contacts on said layer, wherein a groove is cut in the semiconductor layer between the ohmic contacts so as to define a residual channel in the material, the dimensions of said groove being such that the critical value of the electric field is overstepped in respect of a value of the order of one volt of the voltage between said ohmic contacts.

4,394,590

FIELD EFFECT TRANSISTOR CIRCUIT ARRANGEMENT

Akira Honda, Odawara, Japan, assignor to International Rectifier Corp., Japan Ltd., Kanagawa, Japan

PCT No. PCT/JP79/00330, § 371 Date Aug. 28, 1981, § 102(e)

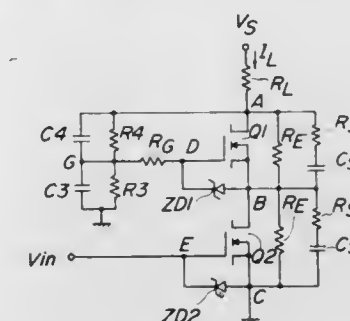
Date Jul. 7, 1980, PCT Pub. No. WO81/01924, PCT Pub. Date Jul. 9, 1981

PCT Filed Dec. 28, 1979, Ser. No. 197,099

Int. Cl.³ H03K 17/10, 17/687

U.S. Cl. 307—584

7 Claims



1. A field effect transistor circuit arrangement including a plurality of field effect transistors having first and second electrodes and a control electrode, and a load (RL), which are connected in a series arrangement between a power source voltage point (Vs) and a common potential point (C), comprising:

- means for applying a control pulse (Vin) to the control electrode of one of said field effect transistors which is connected in said series arrangement on the side of the common potential point;
- at least one first parallel connection circuit having a first resistor and a first capacitor, each first parallel connection circuit being coupled between the control electrode of a respective one of the remaining field effect transistors and the common potential point;
- at least one second parallel connection circuit having a second resistor and a second capacitor, each second parallel connection circuit being coupled between a respective first parallel connection circuit and the first electrode of one of said remaining field effect transistors which is connected in said series arrangement on the side of the power source voltage point, a capacitance of said first capacitor in said first parallel connection circuit being larger than that of said second capacitor in said second parallel connection circuit;
- a Zener diode connected between the second electrode and the control electrode of each of said field effect transistors for preventing a voltage applied therebetween from exceeding a predetermined breakdown voltage between the control electrode and second electrode of each of said field effect transistors; and
- said remaining field effect transistors being changed to a conductive state at the time that said control pulse is applied to said one field effect transistor.

4,394,591

LINEAR A-C GENERATOR

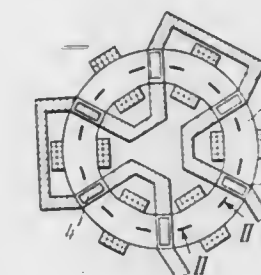
Sergei A. Aronov, Slavyansky bulvar, 1, kv. 396; Vladimir A. Bashilov, Prospekt Mira, 112, kv. 331, both of Moscow; Nikolai M. Volkov, Ljuberetsky raion, poselok Dzerzhinsky, ulitsa Shkolnaya, 5, kv. 187, Moskovskaya oblast, and Sergei D. Dukhovlinov, Orlikov pereulok, 8, kv. 10, Moscow, all of U.S.S.R.

Filed Mar. 17, 1978, Ser. No. 887,534

Claims priority, application U.S.S.R., Aug. 18, 1977, 2509409 Int. Cl.³ H02K 45/00

U.S. Cl. 310—11

4 Claims



1. A linear a-c generator comprising: a stationary magnetic system having a magnetic circuit; n channels filled with liquid metal, each of said n channels being partially located in a gap of said stationary magnetic system and all of said channels being connected hydraulically in series to form a closed hermetically sealed loop; armatures located in said channels and being reciprocal therein; and electrodes for taking off the energy generated in said armatures.

4,394,592

LONG STROKE LINEAR ACTUATOR

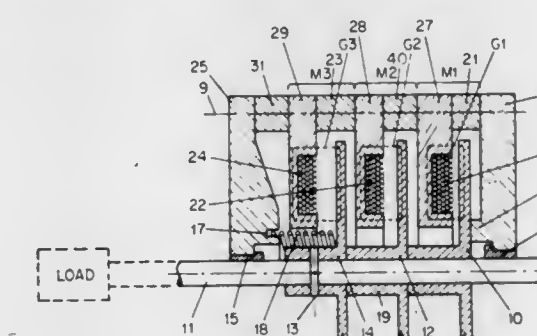
Andrew B. Pataki, Lansdale, Pa., assignor to Sperry Corporation, New York, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,788

Int. Cl.³ H02K 41/00

U.S. Cl. 310—12

1 Claim



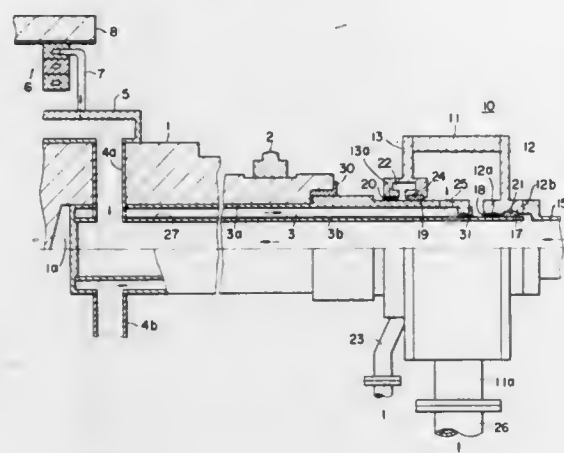
1. A linear actuator for moving a shaft comprising: a plurality of successive modules mounted on said shaft, each module including an armature, a spacer and a flange; a first one of said modules being adjacent an endplate; only said first module having an armature fixedly connected to said shaft; means for urging each armature into engagement with an adjacent armature, said means including a resilient member only in said first module between said endplate and said fixed armature; said first module flange and armature having a gap therebetween; each module armature and flange having a gap therebetween; and said first module gap being greater than any successive module gap.

4,394,593

LIQUID COOLED DYNAMOELECTRIC MACHINES
Yoshitsugu Gocho, Fujisawa, Japan, assignor to Tokyo Shibaura
Denki Kabushiki Kaisha, Kanagawa, Japan
Filed Jul. 29, 1981, Ser. No. 287,909
Claims priority, application Japan, Aug. 14, 1980, 55-111023
Int. Cl.³ H02K 9/00

U.S. Cl. 310—54

3 Claims



1. An apparatus for assisting in the liquid cooling of a dynamoelectric machine comprising a hollow rotor shaft; a double wall tube assembly defining an annular space, said tube assembly secured in said hollow rotor shaft in such a manner that an outer tube of said assembly extends outwardly beyond a distal end of the rotor shaft, and an inner tube of said assembly extends outwardly beyond a distal end of said outer tube; a stationary frame surrounding a portion of said tube assembly extending out of the rotor shaft, said stationary frame defining therein an exhaust chamber communicating with said annular space between said outer tube and said inner tube; means for supplying cooling water into said inner tube; means for exhausting cooling water from said chamber; means for sealing gaps between said stationary frame and said tube assembly; a first bushing between said distal end of the rotor shaft and said outer tube so that the outer tube is axially slidable relative to said first bushing; a second bushing between said distal end of the outer tube and said inner tube such that the inner tube is axially slidable relative to said second bushing, each of the first and second bushings being made of a rigid material; and a layer of a low heat conductivity material covering the outer surface of said inner tube.

4,394,594

MOTOR WITH A DISK ROTOR

Fritz Schmider, Hornberg, and Rolf Müller, St. Georgen, both of
Fed. Rep. of Germany, assignors to Papst-MOTOREN KG,
St. Georgen, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 52,831, Jun. 28, 1979,
abandoned, which is a division of Ser. No. 708,092, Jul. 23, 1976,
Pat. No. 4,174,484. This application Jul. 24, 1980, Ser. No.
171,810

Claims priority, application Fed. Rep. of Germany, Aug. 23,
1979, 2934183

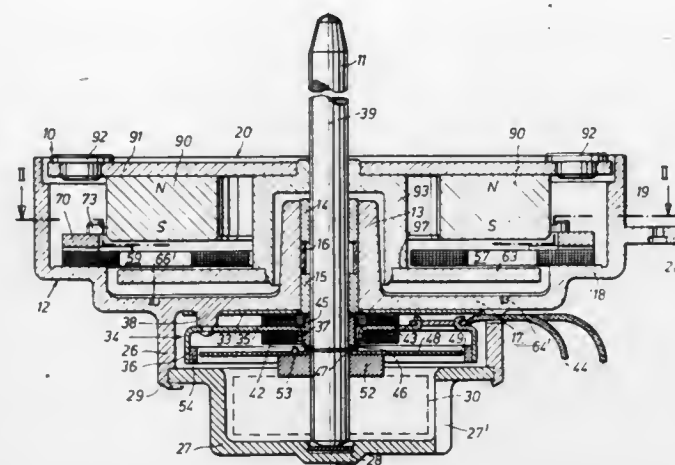
Int. Cl.³ H02K 11/00

U.S. Cl. 310—68 R

31 Claims

1. Brushless d.c. motor comprising a multipolar permanent magnet rotor having at least 6 poles, stator means comprising a plurality of ironless coils arranged in a one layer winding arrangement, said coils being connected to form a plurality of phase windings (122, S1-S4), rotor position sensing means (76,77; 254,255; 254',255'; 296,297) for controlling the currents in said phase windings so as to obtain four current pulses per rotor rotation angle of 360 electrical degrees and to create in operation a rotary magnetic field driving said permanent magnet rotor, said winding arrangement comprising two sets of coils, each set comprising at least one pair of coils electrically

connected with each other and oppositely poled with respect to each other and spaced from each other by $(2n+1) \cdot 180$ elec-



trical degrees between centers, where n is a low positive integer.

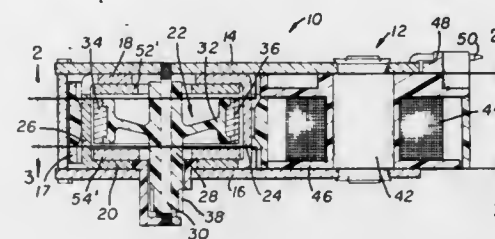
4,394,595

STATOR ARRANGEMENT FOR A SYNCHRONOUS MOTOR

Robert F. Weaver, Jamestown, Ind., assignor to Emhart Industries, Inc., Indianapolis, Ind.
Continuation of Ser. No. 965,996, Dec. 4, 1978, abandoned. This
application Sep. 8, 1980, Ser. No. 185,330
Int. Cl.³ H02K 21/00

U.S. Cl. 310—162

7 Claims



1. A method of providing good starting characteristics in a synchronous motor which includes inter-meshed stator poles and a permanent magnet rotor with rotor poles rotating with said inter-meshed stator poles and wherein a field coil which generates flux to cause said rotation of said rotor is disposed adjacent said inter-meshed stator poles in a side-by-side relationship, the method comprising:

- providing shading means for a predetermined number of said stator poles to provide a group of shaded poles and a group of unshaded poles,
- selecting a reference pole from each of said groups,
- determining the flux phase difference between said reference pole and individual poles of a group,
- converting said phase difference to a mechanical angle and locating said individual poles with respect to each other according to said mechanical angle.

4,394,596

THREE-PHASE INDUCTION MOTOR

Tadatomo Kimura, Yotsukaichi, and Takeshi Noguchi, Mie,
both of Japan, assignors to Tokyo Shibaura Denki Kabushiki
Kaisha, Kawasaki, Japan
Filed Sep. 9, 1981, Ser. No. 300,553
Claims priority, application Japan, Sep. 16, 1980, 55-128309
Int. Cl.³ H02K 3/00

U.S. Cl. 310—184

6 Claims

1. A three-phase induction motor comprising:
first to sixth phase terminals, said fourth to sixth phase terminals being connected to said first to third phase terminals, respectively, during full drive of the motor;
a cylindrical stator core;

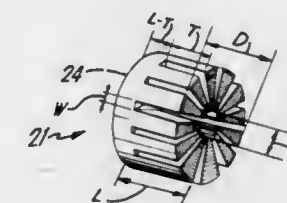
4,394,597

MULTIPLE POLE AXIAL FIELD ELECTROMAGNETIC DEVICES

Joseph A. Mas, Morristown, N.J., assignor to Allied Corporation,
Morris Township, Morris County, N.J.
Filed Sep. 15, 1980, Ser. No. 187,244
Int. Cl.³ H02K 1/22

U.S. Cl. 310—268

46 Claims



six coil group arranged on the hollow cylindrical core at equal intervals in the circumferential direction of the stator;
the coils of a first group being wound about a first one-sixth of the core and divided into first and second sub-groups each having N turns;
the coils of a second group adjacent the first group being wound about a second one-sixth of the core and divided into third and fourth sub-groups each having N turns;
the coils of a third group adjacent the second group being wound about a third one-sixth of the core and divided into fifth and sixth sub-groups each having N turns;
the coils of a fourth group adjacent the third group being wound about a fourth one-sixth of the core and divided into seventh and eighth sub-groups each having N turns;
the coils of a fifth group adjacent the fourth group being wound about a fifth one-sixth of the core and divided into ninth and tenth sub-groups each having N turns;
the coils of the sixth group adjacent the fifth group being wound about the last one-sixth of the core and divided into eleventh and twelfth sub-groups each having N turns, said sixth sub-group having M turns ($M \leq N$) arranged adjacent M turns of the seventh sub-group, said first sub-group having M turns arranged adjacent M turns of said twelfth sub-group, said first and eighth sub-groups being connected in series between said first and second phase terminals to constitute a first subassembly of coils, said fifth and twelfth sub-groups being connected in series between said

1. In an axial field electromagnetic device including a rotor and a stator formed of core elements that delimit a selected number of poles, the improvement comprising:

a core element in the form of a cylinder having an annular cross section and two opposed annular core faces at either end thereof, said cylinder having an axial thickness (L) separating said faces and a plurality of radial slots disposed in one of said faces, each of said slots having a width (W), a depth (T) and a slot area (slot width times slot length), said slotted face having a face area (A_f) equal to the difference between the annular cross-sectional area of said core and the total of said slot areas,
said radial slots being sized such that the sum of said slot widths per hole is between approximately 30% to approximately 90% of said axial thickness, said slot depth is between approximately 45% to approximately 75% of said axial thickness and the total of said slot areas is between approximately 27% to approximately 180% of said remaining face area (A_f).

4,394,598

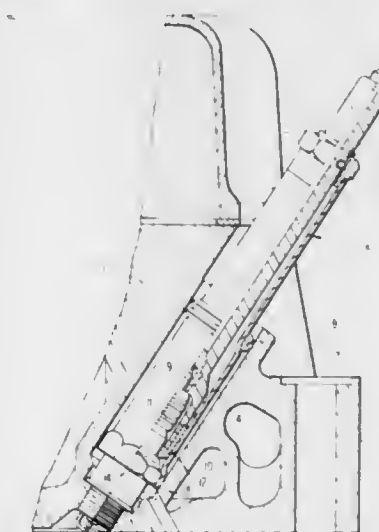
SPARK PLUG FOR INTERNAL COMBUSTION ENGINES

Horst Bergmann, Esslingen, Fed. Rep. of Germany, assignor to
Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of
Germany
Filed Dec. 1, 1980, Ser. No. 211,901
Claims priority, application Fed. Rep. of Germany, Nov. 29,
1979, 2948043

Int. Cl.³ H01J 5/48; H01T 13/04

U.S. Cl. 313—51

11 Claims



1. An assembly for a spark plug deeply arranged in a spark plug recess provided in an internal combustion engine, the spark plug comprising a mounting portion, a center electrode means, and an insulating body, comprising

second and third phase terminals to constitute a second sub-assembly of coils, said tenth and third sub-groups being connected in series between said third and first phase terminals to constitute a third sub-assembly of coils, said second and seventh sub-groups being connected in series between the fourth and fifth phase terminals to constitute a fourth sub-assembly of coils, said sixth and eleventh sub-groups being connected in series between said fifth and sixth phase terminals to constitute a fifth sub-assembly of coils, and said ninth and fourth sub-groups being connected in series between said sixth and fourth phase terminals to constitute a sixth sub-assembly of coils,

wherein at the start of the motor a first-phase voltage is applied to the first phase terminal, a second-phase voltage is applied to the second phase terminal and the third-phase voltage is applied to the third phase terminal, and during the full drive of the motor the first-phase voltage is applied to the first and fourth phase terminals, the second-phase voltage is applied to the second and fifth phase terminals and the third-phase voltage is applied to the third and sixth phase terminals, thus causing the first and fourth sub-assemblies to form a first assembly of coils, the second and fifth sub-assemblies to form a second assembly of coils and the third and sixth sub-assemblies to form a third assembly of coils, whereby three-phase voltage is applied to the coils of said first, third, fifth, eighth, tenth and twelfth sub-groups at the start of the motor and to all the sub-groups during the full drive of the motor.

extension means adapted to be attached to the spark plug for facilitating access thereto, the extension means includes a center electrode, an insulating means, and a tubular jacket with at a first end an inner cross-sectional configuration corresponding to a cross section of the mounting portion of the spark plug, and at a second end a mounting means, means for enabling an attachment of the insulating body and center electrode of the extension means to the spark plug, means for retaining the tubular jacket at the insulating means of the extension means, means for sealing the first end of the tubular jacket with respect to an insulating body of the spark plug, means for sealing the second end of the tubular jacket with respect to the insulating body of the extension means, and means for sealing the tubular body with respect to the spark plug recess.

4,394,599

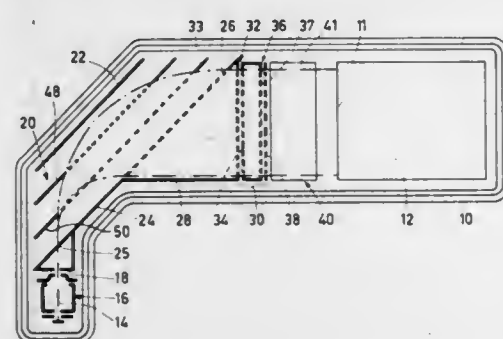
FLAT CATHODE RAY TUBE

James Smith, Reigate, and Daphne L. Lamport, Caterham, both of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 6, 1981, Ser. No. 241,269
Int. Cl.³ H01J 29/46

U.S. Cl. 313-422

8 Claims



1. A flat cathode ray tube including an electron gun for producing an electron beam, first means for deflecting the beam in a first direction, means for accelerating the deflected beam, second means for deflecting the accelerated beam in a second direction, and a pair of spaced-apart electrodes defining a trajectory control space into which the beam is directed by the second means, said electrodes including a screen and a repeller electrode for repelling the beam toward the screen, characterized in that the accelerating means comprises successively-arranged first and second lenses, each of said lenses accelerating and converging the beam, said first lens converging the beam to form an object for the second lens.

4,394,600

LIGHT EMITTING DIODE MATRIX

Alfred Flannagan, Weston, Canada, assignor to Litton Systems, Inc., Beverly Hills, Calif.

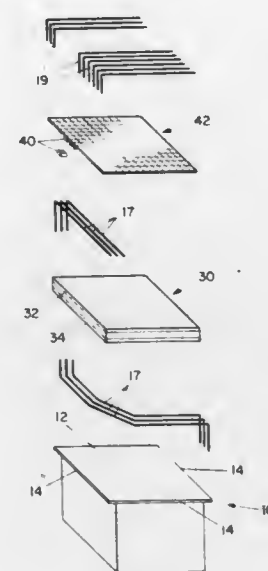
Filed Jan. 29, 1981, Ser. No. 229,489
Int. Cl.³ H01L 25/04

U.S. Cl. 313-500

4 Claims

1. In a light emitting diode matrix, a substrate having, in order, first, second, third, and fourth adjacent edges; a first plurality of light emitting diodes, each having an anode electrode centered on its anode end face and a plurality of cathode electrodes positioned around the periphery of its cathode end face, arranged in rows and columns of a rectangular coordinate system; a second plurality of row conductors, equal in number to the number of rows of said diodes, each electrically contacting the anode electrodes of said diodes of its respective row; a third plurality of column conductors, equal in number to the number of said columns of diodes, each electrically contacting the cathode electrodes of its respective column and thence extending over said first edge of said substrate; said anodes and

said row conductors being positioned upon a first surface of said substrate, with said anodes directed toward said substrate, with said column conductors contacting said cathode electrodes on the outer surface of said matrix and each having a fourth, equal to said second plurality of row conductors, plurality of openings formed therein and positioned over the non-electrode portions of the cathode surfaces of said diodes; the improvement comprising:



said row conductors extending in rows along said first surface of said substrate, thence over said second edge of said substrate, thence extending in rows from said second edge on the second surface of said substrate, the positions of said row conductors on said second surface being contoured to turn through a right angle, and thence to said third edge of said substrate.

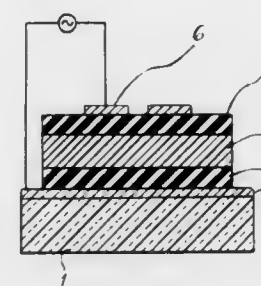
4,394,601

ZnS:Mn THIN-FILM ELECTROLUMINESCENT ELEMENT WITH MEMORY FUNCTION

Mikio Takeda, Tenri; Yoshinobu Kakiyama, Nara; Masaru Yoshida, and Yukihiko Nakata, both of Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 486,096, Jul. 5, 1974, abandoned. This application May 18, 1977, Ser. No. 798,008
Int. Cl.³ H05B 33/14, 33/18, 33/22

U.S. Cl. 313-509

3 Claims



1. A ZnS:Mn thin-film electroluminescent element containing a hysteresis memory function which comprises a ZnS:Mn thin-film electroluminescent layer containing ZnS polycrystalline grains having a diameter of 0.05 to 0.2 μ m and containing Mn in a concentration of 0.05 to 5.0 weight percent, said Mn serving as a luminescent center, said electroluminescent layer being sandwiched between a pair of dielectric layers, at least one of the dielectric layers being made of Y_2O_3 , and first and second electrodes provided on the respective dielectric layers, said ZnS:Mn electroluminescent layer having a thickness of 0.4-2.0 μ m and a dielectric constant at 1 KHz of about 10 to 22, a loss tangent at 1 KHz of about 1 to 4 $\times 10^{-3}$, and a breakdown strength of about 3 to 4 $\times 10^6$ V/cm.

4,394,602

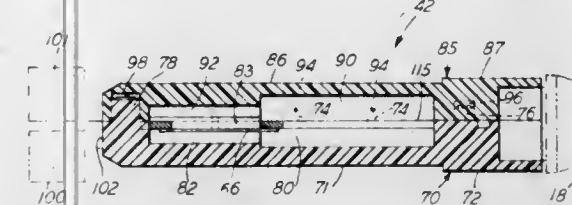
ENCLOSED ELECTRICAL DEVICES

Waldo D. Appar, Reading; Charles L. Davis, Mohnton; Loring D. Emery, Jr., Hamburg; Werner F. Esseluhn, Wyomissing, and Walter R. Holbrook, Reading, all of Pa., assignors to Western Electric Co., Inc. and Bell Telephone Laboratories, Inc., both of New York, N.Y.

Filed Nov. 25, 1981, Ser. No. 324,757
Int. Cl.³ H01J 7/44

U.S. Cl. 315-71

20 Claims



1. An enclosed electrical device, comprising:
an arrangement of circuit elements including conductive elements lying substantially in and along a plane;
a first enclosure member applied to a first side and a second, separate enclosure member applied to a second side of the circuit elements for at least partially enclosing said circuit elements; means in one or more conductive elements for permitting penetration of such elements;
means for penetrating conductive elements in the circuit for fixedly restraining such elements; and
means associated with said enclosure members for fixedly engaging the penetrating means such that the enclosure members and the circuit elements are fixed relative to one another in a secure assembly.

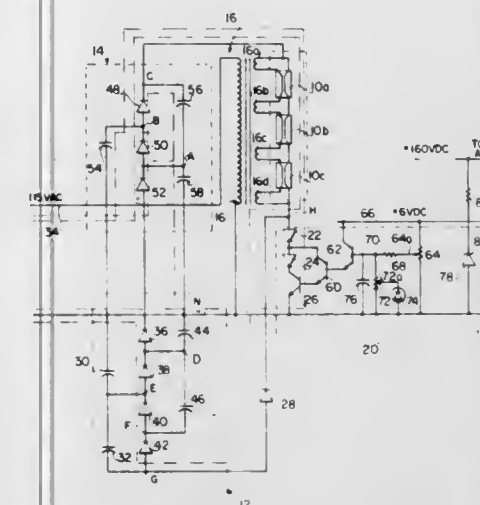
4,394,603

ENERGY CONSERVING AUTOMATIC LIGHT OUTPUT SYSTEM

Don F. Widmayer, Bethesda, Md., assignor to Controlled Environment Systems Inc., Rockville, Md.
Continuation of Ser. No. 945,842, Sep. 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 849,427, Nov. 7, 1977, abandoned. This application Apr. 2, 1981, Ser. No. 250,410
Int. Cl.³ H05B 41/16, 41/36

U.S. Cl. 315-311

42 Claims



25. An energy conserving light output control system for firing and maintaining arc current flow through a plurality of fluorescent lamps, said system comprising:
arc current supply means comprising a first voltage multiplying means, including a plurality of capacitors and diodes in accordance with the number of lamps, for supplying arc current to said fluorescent lamps after said fluorescent lamps have been fired;
ionizing power supply means comprising a second voltage multiplying means, including a plurality of capacitors and

diodes in accordance with the number of lamps, for providing, in cooperation with said arc current supply means, an ionizing voltage for firing the lamps and for providing a low voltage after said lamps are fired;
said arc current supply means constituting means for providing a non-dissipative decline in the voltage supplied to the lamps with an increase in the lamp load current;
light sensing means for sensing the total ambient light including the light output of the lamps as well as the ambient light produced by other light sources; and
feedback means, including a solid state current control device connected in the arc current path of said lamps, for controlling the amplitude of the current in said arc current path in accordance with the output of said light sensing means so as to maintain the total ambient light at a substantially constant level.

4,394,604

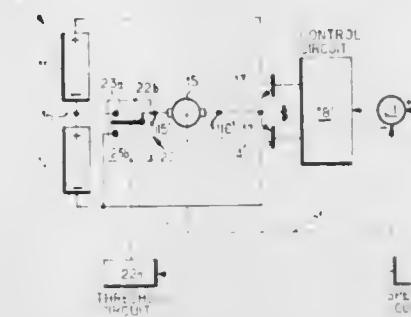
CONTROL APPARATUS FOR AN ELECTRO-MECHANICAL DEVICE THAT GENERATES A BACK EMF

Andre Brecy, Frahier, and Francois Grudler, Bellort, both of France, assignors to Cii Honeywell Bull, Paris, France
Continuation of Ser. No. 17,918, Mar. 6, 1979, abandoned. This application May 14, 1981, Ser. No. 263,740

Claims priority, application France, Mar. 24, 1978, 78 08618
Int. Cl.³ H02P 1/22

U.S. Cl. 318-257

4 Claims



1. Apparatus for controlling the speed and running direction of a d.c. motor comprising first and second transistors having emitter collector paths, electrodes of said paths having a first common connection, a d.c. power supply having first and second output electrodes and an intermediate tap, the voltages at the first and second output electrodes being respectively at potentials greater than and less than the voltage at the tap, means for connecting the motor in circuit with the power supply, the first common connection and the paths so current flows through the motor in a first direction between the first output electrode and the tap through the path of the first transistor and in a second direction through the motor between the second output electrode and the tap through the path of the second transistor, said means for connecting including means for altering the motor connections to the power supply so current flows in the first direction through the motor between the first and second output electrodes through the path of the first transistor and the total voltage between the first and second output electrodes is connected across the first transistor and motor.

4,394,605

LOAD DRIVE CONTROL SYSTEM

Hidehito Terazawa, Oobu, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

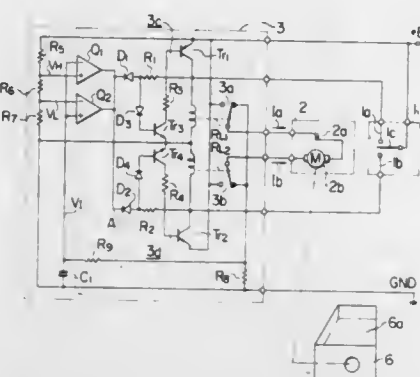
Filed Feb. 24, 1981, Ser. No. 237,778

Claims priority, application Japan, Feb. 29, 1980, 55-25511

Int. Cl.³ H02P 1/22

U.S. Cl. 318—280

13 Claims



1. A load drive control system comprising: instruction means for selectively producing forward and reverse drive instruction signals for starting the driving of a controlled load in forward and reverse directions respectively; signal holding switching means for holding a forward or reverse signal corresponding to the forward or reverse drive instruction signal from said instruction means; said instructions means comprising an automatically-restoring switch which switches by receiving an actuation force to generate one of said instruction signals and restores when the actuation force is released to stop the generation of the one instruction signal; reversible motor means for driving said load in either forward or reverse direction; means responsive to said signal holding switching means for controlling electric current supplied from a power supply to said motor means; current detecting means for detecting the magnitude of the current supplied to said motor means; and upper and lower limit detecting means responsive to said current detecting means for releasing the holding action of said holding switching means when the motor supplied current becomes higher or lower than an upper or lower limit respectively.

4,394,606

SPEED CONTROL CIRCUIT FOR ELECTRIC MOTOR

Peter Woerwag, Stuttgart, Fed. Rep. of Germany, assignor to Dupro A.G., Romanshorn, Fed. Rep. of Germany

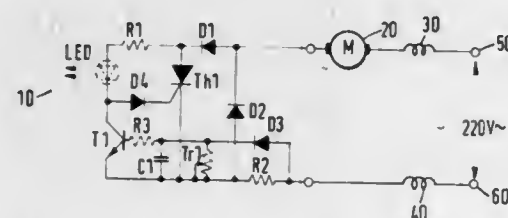
Filed Nov. 21, 1980, Ser. No. 209,154

Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 2946930

Int. Cl.³ H02P 5/06

U.S. Cl. 318—434

10 Claims



1. An apparatus for cleaning textile floor coverings, said apparatus including a roller shaped brush, an electric motor for rotating said roller shaped brush, and a suction device for evacuating dirt and dust particles from said floor covering, said motor connected to an alternating current supply and having a load current passing therethrough and an adjustable rotational speed, a circuit arranged in the load circuit of the motor to

control the rpm of the motor as a function of its load current, comprising:

- (a) a measuring resistance connected in said load circuit for producing a measuring signal proportional to said load current;
- (b) a thyristor having an anode and a cathode and being connected in at least one branch of said load circuit;
- (c) a control circuit connected to actuate said thyristor, said control circuit comprising a series circuit arranged in parallel to the anode and cathode of said thyristor, said series circuit including a coupling resistor and a switching transistor having an emitter and a collector, said coupling resistor being connected to the collector of said switching transistor;
- (d) said thyristor having a control electrode connected through a diode to the collector of said switching transistor, said switching transistor having a base electrode connected through a resistance to a parallel circuit comprising a capacitor and a variable resistor, and a diode connecting said measuring signal from said measuring resistance to said resistance in series with said switching transistor base electrode.

4,394,607

CONTROL SYSTEMS FOR GATES AND THE LIKE INCLUDING A MOTOR OVERLOAD MONITORING CIRCUIT

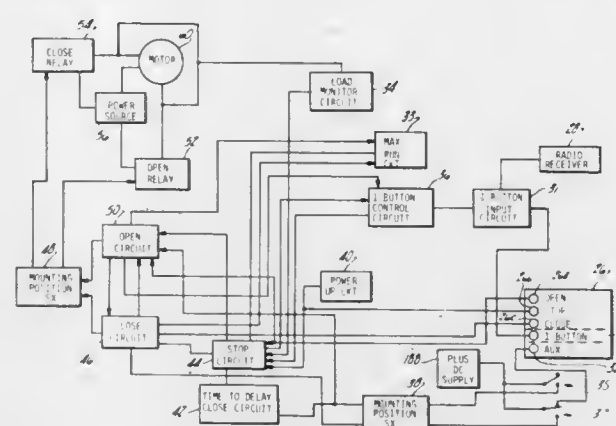
Rodger P. Lemirande, Riverview, Mich., assignor to Stanley Automatic Openers, Detroit, Mich.

Filed May 8, 1981, Ser. No. 261,846

Int. Cl.³ H02P 1/16

U.S. Cl. 318—453

28 Claims



1. Apparatus for controlling the current delivered through an electrical motor, comprising: means for producing a measured level of voltage proportionate to the magnitude of current flowing through said motor; means for generating a first reference level of voltage; means coupled with said producing means and said generating means for comparing the magnitude of said first reference level of voltage with said measured level of voltage and for producing a first output signal when said measured level exceeds said first reference level; means for generating a second reference level of voltage; means for comparing the magnitude of said second reference level of voltage with said measured level of voltage and for producing a second output signal when said measured level exceeds said second reference level; and, means responsive to either of said first and second output signals for interrupting delivery of electrical current to said motor.

4,394,608

MACHINE TOOL TRACING SYSTEM

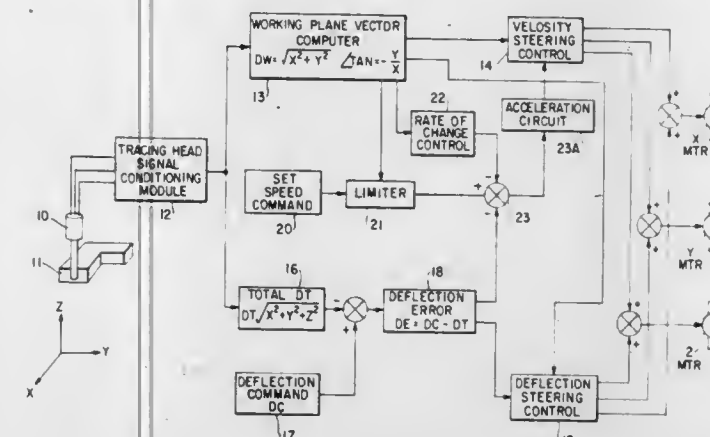
Robert E. Tryber, and George A. Hoffman, both of Racine, Wis., assignors to Gettys Manufacturing Co., Inc., Racine, Wis.

Filed Nov. 20, 1980, Ser. No. 208,698

Int. Cl.³ G05B 19/36

U.S. Cl. 318—578

8 Claims



1. A control system wherein a stylus traces a contour around a template, and wherein the template moves relative to the stylus in response to deflection of the stylus by moving contact with the template, comprising means for detecting a rate of change of the deflection angle of the stylus from said template, and means for producing a signal for controlling the magnitude of the velocity of said template relative to said stylus in response to the rate of change of deflection angle.

4,394,609

CONTROL PROVISION OPERATION FOR PRINTING MACHINES

Max Janicki; Hans-Georg Liefke; Reinhart Keil, and Gerd Geyer, all of Leipzig, German Democratic Rep., assignors to Veb Kombinat Polygraph "Werner Lamberz", Leipzig, German Democratic Rep.

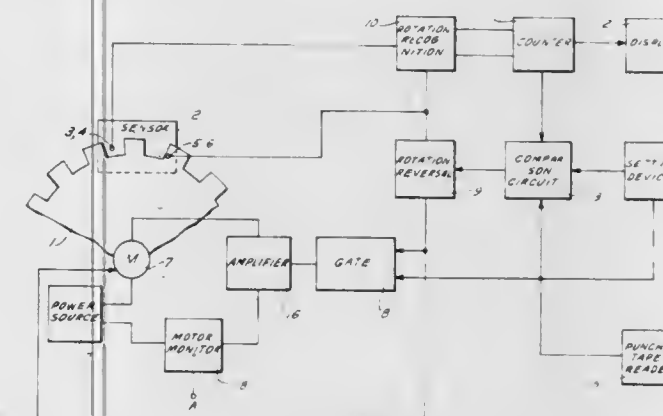
Filed Apr. 3, 1981, Ser. No. 250,703

Claims priority, application German Democratic Rep., Apr. 10, 1980, 220348

Int. Cl.³ G05B 19/28

U.S. Cl. 318—603

13 Claims



1. Control provision for final control elements of a printing machine wherein a rotatable final control element is driven by a motor, comprising a pulse generating disk attached to the final control element of the printing machine and axially centered therewith, said disk having recesses regularly spaced from the axis; sensing means having two sensing points disposed at a radial distance from the axis suitable for engaging the recesses of the disk, said sensing means sensing the position of the recesses at said two sensing points; a recognition circuit connected to said sensing means and processing signals coming from said sensing means for recognizing the rotary direction of the final control element; an electronic counter connected to said recognition circuit and counting signals provided by said sensing means; a comparison circuit connected to the elec-

4,394,610

ADAPTIVE REFERENCE VOLTAGE GENERATOR FOR FIRING ANGLE CONTROL OF LINE-COMMUTATED INVERTERS

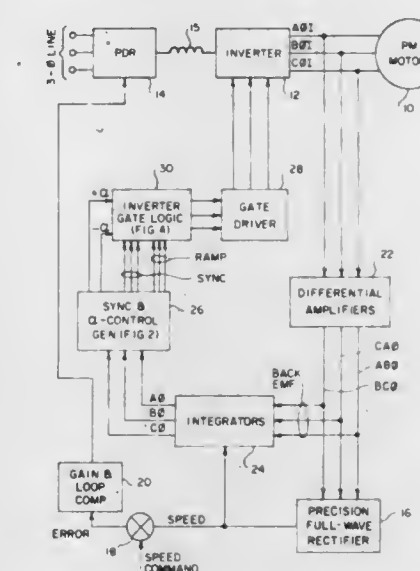
Carlisle R. Dolland, Torrance, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 7, 1981, Ser. No. 291,131

Int. Cl.³ H02P 5/34

U.S. Cl. 318—803

6 Claims



1. Apparatus for generating an adaptive reference voltage for use as a firing angle control signal in a system for control of a line-commutated inverter using information from integrated back EMF signals from a high speed multiphase permanent magnet motor comprising means of combining 120° segments of said integrated back EMF signals symmetrical about their maxima of one polarity into a composite waveform, and means for sampling said maxima of said composite waveform and holding each maximum until the next sampling, thereby generating a voltage to be used as a reference for comparison with said integrated back EMF signals for control of the firing angle of said inverter that is proportional to the amplitude of said integrated back EMF signals, whereby any change in amplitude of said integrated back EMF signals will not effect a change in the operating power factor of said motor and inverter.

4,394,611

METHOD FOR CHARGING A STORAGE BATTERY

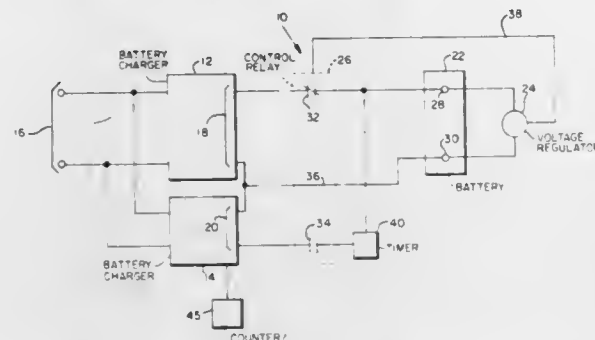
William H. Fallon, Cleveland; William R. Schober, Avon Lake, both of Ohio; Edward O. Neukirch, and Donald W. Kirby, both of Reading, Pa., assignors to General Battery Corporation, Reading, Pa.

Filed Oct. 20, 1980, Ser. No. 198,341

Int. Cl.³ H02J 7/00

U.S. Cl. 320—21

21 Claims



1. A method for charging a storage battery, the method comprising:

- charging the battery at a first rate during a first portion of a charging cycle;
- charging the battery at a second rate, lower than the first rate, during a second portion of the charging cycle; and
- periodically interrupting the charging, at fixed, timed intervals, during the second portion of the charging cycle; wherein the interruption of the charging cycle defines a duty cycle wherein approximately one sixth of the charging cycle is interrupted during the second portion of the charging cycle.

4,394,612

BATTERY CHARGING CIRCUIT

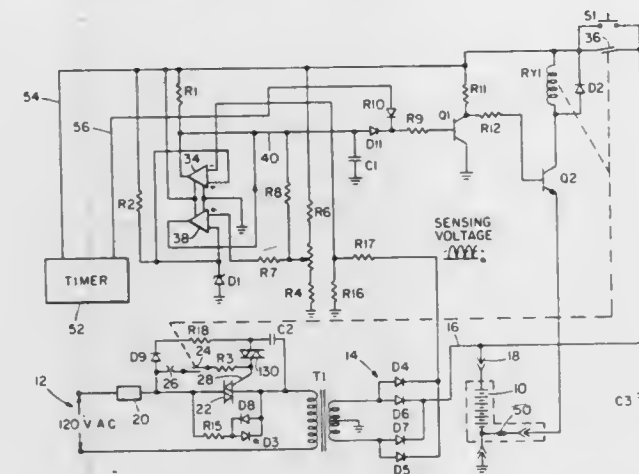
Emil Emerle, Mount Prospect, and Alex F. Gawron, Park Ridge, both of Ill., assignors to Skil Corporation, Chicago, Ill.

Filed Jan. 4, 1982, Ser. No. 336,891

Int. Cl.³ H02J 7/04

U.S. Cl. 320—31

8 Claims



1. A circuit for controlling fast charging of battery cells to prevent damage to said cells comprising:

- charging means for producing a rectified charging voltage and applying said charging voltage to said cells,
- first comparison means for detecting when the charging voltage is at or below a selected value corresponding to a minimum trough voltage value and producing an output indicative thereof,
- second comparison means for detecting when the trough voltage of said cells exceeds a reference voltage corresponding to the full charge value of said cells and producing an output indicative thereof,
- means responsive only to the combined outputs of said

first and second comparison means for terminating charging of said cells by disabling said charging means, whereby fast charging is terminated only if the trough voltage exceeds said reference voltage during a time period when the charging voltage is below said selected value.

3. The circuit according to claim 1 or claim 2 further including thermostatic contacts in thermal relation with said cells, said contacts opening if the temperature of the cells exceeds a selected value thereby to terminate fast charging.

4,394,613

FULL-CHARGE INDICATOR FOR BATTERY CHARGERS

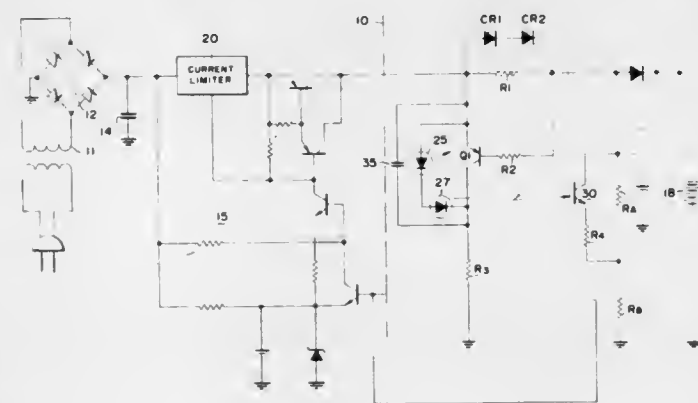
Steven W. Cole, Covina, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed Jan. 19, 1981, Ser. No. 225,961

Int. Cl.³ H02J 7/10; G01R 19/165

U.S. Cl. 320—48

8 Claims



5. In a battery charger, a circuit for protecting the battery from being overcharged, comprising

control means in the charging current path for providing less than a preselected voltage drop thereacross when the charging current level is less than a known level which is related to full-charge battery state, a resistive network connected between a conductor along which current is conducted into said battery and a source of reference potential for said battery,

a transistor switch having its base-emitter junction connected across said control means to switch from one conduction state to a second state when the voltage drop across said control means is less than said preselected voltage drop, and

switching means for reducing the resistance provided by said network when the voltage across said control means is less than said preselected voltage drop, said switching means comprising a photocoupler responsive to said transistor switch to emit light when said transistor switch is switched to said second state and a photocoupler transistor connected in parallel with a portion of said resistive network,

whereby light from said photocoupler activates said photocoupler transistor to reduce the resistance provided by said network.

4,394,614

STATIC VAR GENERATORS

Michael B. Brennen, Wilkins Township, Allegheny County; Laszlo Gyugyi, and Eric J. Stacey, both of Penn Hills Township, Allegheny County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 15, 1981, Ser. No. 302,349

Int. Cl.³ H02J 3/18

U.S. Cl. 323—210

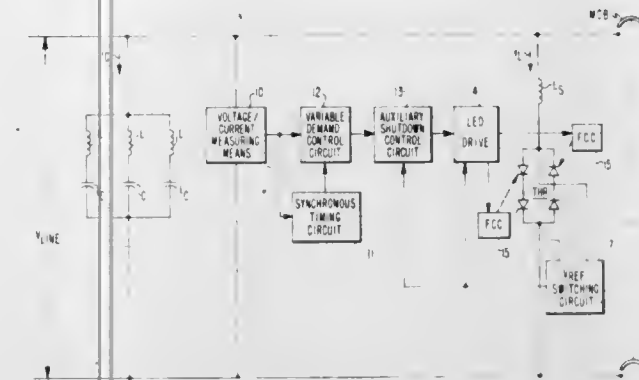
2 Claims

1. A static VAR generator, comprising:

- a capacitive current means disposed for connection into an AC network;
- a monitoring means connected to said AC network for

monitoring the capacitive current requirement of the AC network;

- a control means connected to said capacitive current means and said monitoring means for causing connection of said capacitive current means into said AC network in response to the reactive requirements of said AC network;



(d) switching means for connecting said capacitive current means into said AC network; and

- an auxiliary shutdown means for allowing said switching means to disconnect said capacitive current means from the AC network without causing restriking transients in the event of failure of said monitoring means or said control means.

4,394,615

APPARATUS FOR TESTING THE QUALITY OF THE GROUND CONNECTION AND THE INSULATION QUALITY IN AN ELECTRICAL HAND TOOL OR THE LIKE

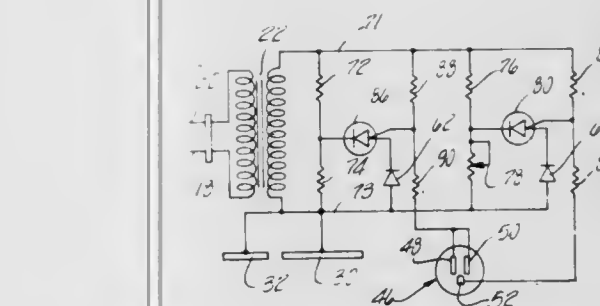
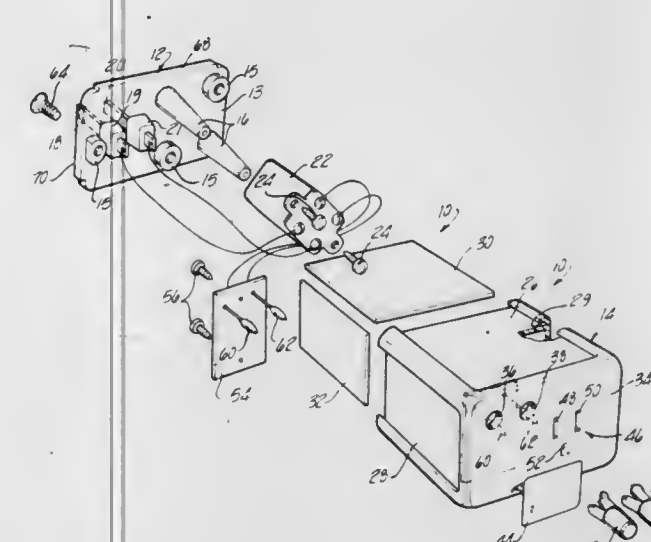
Joseph A. Rocci, Jr., 12243 S. 71st Ave., Palos Heights, Ill. 60463

Filed Mar. 10, 1980, Ser. No. 128,499

Int. Cl.³ G01R 31/02, 31/12

U.S. Cl. 324—51

4 Claims



- Apparatus for testing the quality of a ground connection between the plug of an electrical hand tool or the like and the tool housing, said apparatus comprising a rectangular enclosure of molded plastic non-conductive construction and having a flat plate of conductive metallic

construction secured to said enclosure as a first flat external wall of said rectangular enclosure, an electrical plug including at least first and second prongs rigidly carried by and projecting outwardly from a second wall of said enclosure other than said first wall and adapted to be received into first and second power receptacles of a utility power outlet,

a three-receptacle electrical outlet carried by a third wall of said enclosure other than said first and second walls and adapted to receive a said tool plug having three prongs, with one of said three prongs being a tool ground prong and one of said three receptacles being a ground receptacle for receiving said tool ground prong,

first electrical circuit means disposed within said enclosure and connected to said first and second prongs for receiving electrical power and to said ground receptacle and said plate, said first circuit means being responsive to electrical resistance between a tool housing in physical contact with said plate and the ground prong of a tool plug received in said three-receptacle outlet,

said first circuit means, said enclosure including said plate and said three-receptacle outlet being electrically isolated from utility ground at said utility power outlet,

second circuit means disposed within said enclosure and connected to said first and second prongs for receiving electrical power, to said plate and to both receptacles in said three-receptacle outlet other than said ground receptacle, said second circuit means being responsive to electrical resistance between a tool housing in physical contact with said plate and prongs of a tool plug other than the ground prong,

first indicating means visibly disposed on said enclosure and responsive to said first circuit means for indicating the quality of a ground connection within a said tool between the tool plug and the tool housing, and

second indicating means separate from said first indicating means visibly disposed on said enclosure and responsive to said second circuit means for indicating the quality of insulation within the tool between the said other prongs and the tool housing,

said first and second circuit means being connected to said prongs, said plate and said receptacles in said three-receptacle outlet to operate independently of each other for indicating the quality of said ground connection and the quality of said insulation independently of each other.

4,394,616

CABLE BREAK LOCATOR

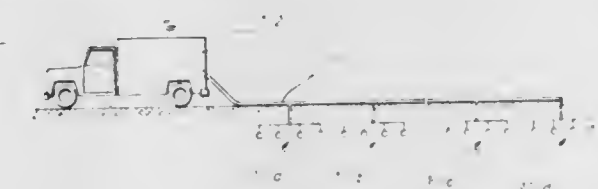
Edward M. Browne, and Miles A. Smither, both of Houston, Tex., assignors to Geosource Inc.

Filed Nov. 17, 1980, Ser. No. 207,636

Int. Cl.³ G01R 31/08, 11/52

U.S. Cl. 324—52

8 Claims



1. A method of determining the location of a break in a given pair of wires in a multi-pair cable, comprising the steps of:

- shorting one wire of the given pair and all other wires in the cable to ground;
- applying a variable frequency AC current source across the given pair to develop an AC voltage across the given pair;
- multiplying the AC voltage developed across the given pair by a second AC signal, which has a quadrature phase relationship to the AC current source to form a product

signal having a DC component proportional to the quadrature component of the AC voltage across the given pair; and

- (d) comparing the DC component of said product signal to a reference signal, said reference signal having a value which is inversely proportional to the capacitance of an unbroken pair.

4,394,617

SWEPT-DIP PROBE

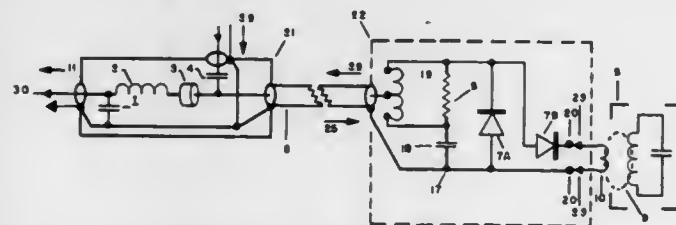
E. Lawrence Wampler, 6708 Bostwick Dr., Springfield, Fairfax County, Va. 22151

Filed Nov. 18, 1981, Ser. No. 298,657

Int. Cl.³ G01R 27/00

U.S. Cl. 324—57 Q

6 Claims



1. A probe comprising a detachable coupling link acting as a primary winding of a transformer, a secondary is formed by the network-under-test coupling inductance; one terminal of the primary is series connected to a diode, the second terminal of the primary winding is connected to the outer conductor of a coaxial transmission line; the second terminal of the diode is connected to the center conductor of the coaxial transmission line; the purpose of the diode is to couple rectified r.f. energy to the primary winding of the transformer and to rectify the r.f. energy for measurement of the circuit resonance parameter; the coaxial transmission line center conductor and the first diode junction are connected to a second diode; the second diode, rectifies the r.f. energy in phase opposition to the first diode, the opposite terminal of the second diode is connected to the outer conductor of the coaxial transmission line; an analog signal that is a net result of the rectification by the two diodes is carried by the transmission line to the r.f. energy-analog signal combiner/separators; the input to the combiner/separators is the r.f. energy source and the output is the analog signal representation of the resonance response curve that is a frequency function of the network-under-test; the analog signal is displayed by a suitable display device with radio frequency on one axis, driven by the frequency sweep analog waveform and on the other axis is the network response function driven by the probe analog waveform, a result of probe coupling to the network-under-test; and,

including a r.f. frequency-analog signal combiner/separators for processing the signals and comprised of an r.f. input connection, a r.f. signal output, coupled to the probe coaxial cable center conductor through a d.c. blocking capacitor; the coaxial cable center conductor is also connected to an r.f. choke first end, and the r.f. choke second end is connected to the display device, the display device end of the r.f. choke, the second end, is connected to a r.f. bypass capacitor; the opposite end of the r.f. bypass capacitor is connected to the common circuit point of the system, thus forming a lowpass filter.

4,394,618

DIGITAL TRACKING PHASE METER

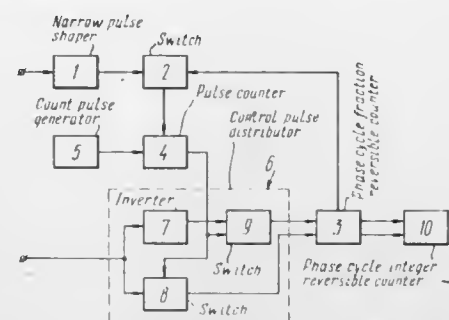
Viktor P. Maiko, Gelendzhik, U.S.S.R., assignor to Juzhnoe Proizvodstvennoe Obiedinenie Po Morskim Geologorazvedochnym Rabotam "JUZHMORGEOLGIA", Gelendzhik, U.S.S.R.

Filed Feb. 19, 1981, Ser. No. 236,110

Int. Cl.³ G01R 25/00

U.S. Cl. 324—83 D

1 Claim



1. A digital tracking phase meter, comprising:
 - a narrow pulse shaper, the input of which serves as a first input of said digital tracking phase meter to which square signals are applied, and the output of which shapes pulses corresponding to the leading edge of said input signal;
 - a first switch, the first input of which is connected to said output of said narrow pulse shaper, with said first switch incorporating a second input and an output;
 - a pulse counter comprising an input, a countdown input, an output, with said input connected to said output of said first switch;
 - a count pulse generator, the output of which is connected to said countdown input of said pulse counter;
 - a control pulse distributor incorporating a first input serving as a second input of said digital tracking phase meter to which said input square pulses are applied, a second input connected to said output of said pulse counter, and first and second outputs;
 - a phase cycle fraction reversible counter incorporating countup and countdown inputs connected respectively to said first and second outputs of said control pulse distributor, a first data output connected to said second input of said first switch, and second and third outputs;
 - a second switch included in said control pulse distributor and furnished with a first input which is said first input of said distributor, a second input which serves as said second input of said distributor, and said output serves as a first output of said distributor;
 - an inverter included in said control pulse distributor and furnished with an input connected to said first input of said second switch and an output;
 - a third switch included in said control pulse distributor and furnished with a first input connected to said output of said inverter, with a second input connected to said second input of said second switch, and with an output serving as said second output of said distributor; and
 - a phase cycle integer reversible counter incorporating countup and countdown inputs connected to said second and third outputs of said phase cycle fraction reversible counter, respectively.

4,394,619

HALL PROBE WITH AUTOMATIC CONNECTING MEANS

Martin Gschwandner, Hof bei Salzburg, Austria, assignor to Vereinigte Metallwerke Ranshofen-Berndorf Aktiengesellschaft, Braunau am Inn, Austria

Filed Oct. 3, 1980, Ser. No. 193,667

Claims priority, application Austria, Oct. 5, 1979, 6513/79

Int. Cl.³ G01R 19/00

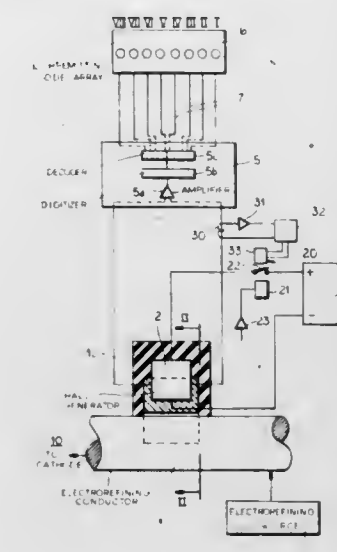
U.S. Cl. 324—117 H

6 Claims

1. In an electrolysis system in which a current carrier is

connected between a current source and an electrode, a device for monitoring the amplitude of the current in said carrier, said device comprising:

- a Hall generator;
- means for mounting said Hall generator on said carrier;
- a direct current source connected to said Hall generator for energizing same;



- an amplifier and discriminator circuit connected to said Hall generator and responsive to an output thereof representing a magnetic field around said carrier;
- a display connected to said amplifier and discriminator circuit for displaying the current in said carrier; and
- means for automatically connecting said source upon the mounting of said Hall generator on said carrier.

4,394,620

ELECTRICAL ACCESS TOOL FOR ENGAGING RECESSED TEST POINTS

Anthony R. Montalto, Edison; Louis J. Scerbo, Succasunna, and Jeremiah P. Starace, Randolph Township, Morris County, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

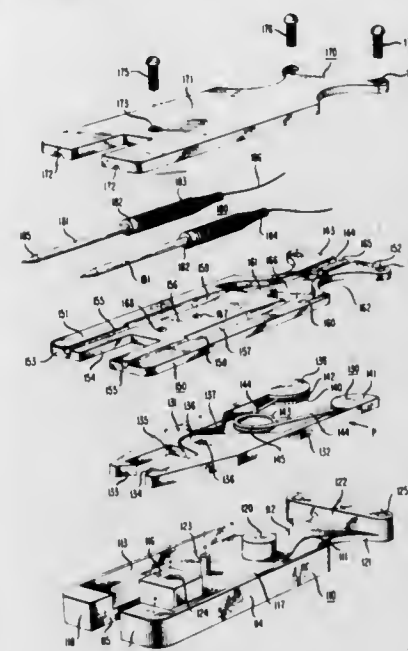
Division of Ser. No. 78,960, Sep. 26, 1979, Pat. No. 4,298,239.

This application May 7, 1981, Ser. No. 261,662

Int. Cl.³ G01R 1/067; H01R 13/00, 13/516

U.S. Cl. 324—149

4 Claims



1. A test tool for accessing test points in a field having a protuberance serving to interlock said tool with said field, said tool characterized by
 - a layered body comprising a bottom plate, an alignment plate and a cover plate, each said plate formed with corre-

spondingly aligned recesses in their front edges to define a notch in said body, said alignment plate having laterally disposed lower channels formed in its top surface and straddling said notch, said cover plate having upper channels formed in its bottom surface in mirror-image relation to said lower channels,

electrically conductive spring-loaded pins interposed between said alignment plate and said cover plate and located in cooperatively mating ones of said upper and lower channels, each of said pins having a movable end projecting beyond said body and a spring end fixed in said body, and

means for holding said body and said test field in juxtaposed relation to enable each said movable end to contact one of said test points, said means for holding interposed between said bottom plate and said alignment plate and including: rotatable first and second fingers, each having a hooked end disposed within said notch and arranged to cooperatively grasp said protuberance; and a spring adapted to exert rotational force proximate the back ends of said fingers to cause each said hooked end to engage said protuberance.

4,394,621

ELECTRONIC VELOCITY MEASUREMENT

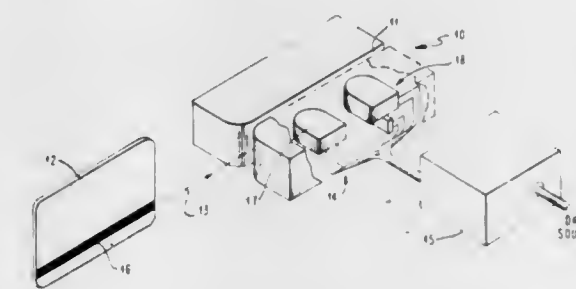
ESPECIALLY FOR SELF-CLOCKING WRITE HEAD
James E. Rohen, Mint Hill, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 8, 1980, Ser. No. 214,319

Int. Cl.³ G01P 3/46, 3/52

U.S. Cl. 324—163

2 Claims



1. Velocity measuring apparatus for producing an electrical measurement of the velocity of an object having at least one magnetically sensible mark thereon, wherein the improvement comprises:

an induced current magnetic field sensing device, a variable resistance magnetic field sensing device, means supporting said devices closely adjacent, one to another, for encountering said mark during substantially the same state of relative motion with respect to said object, and means responsive to a signal output from each of said devices for producing said electrical measurement.

4,394,622

HIGH VOLTAGE COAXIAL SWITCH

John P. Rink, Los Alamos, N. Mex. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Jun. 3, 1981, Ser. No. 269,457

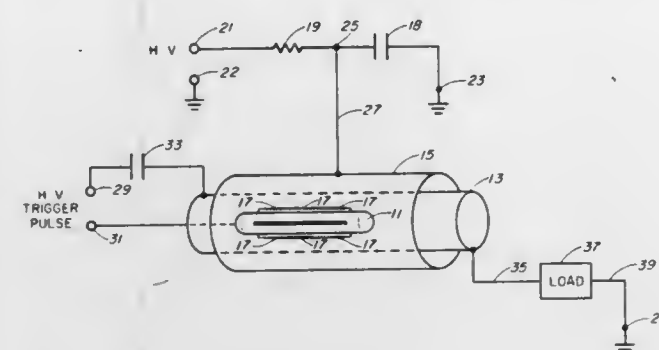
Int. Cl.³ H01J 17/00, 25/34

U.S. Cl. 377—115

12 Claims

1. A high voltage coaxial switch comprising:
 - a circular cross-sectioned cylindrical cathode;
 - a thin walled hollow circular cross-sectional cylindrical inner electrode coaxially surrounding said cathode;
 - a hollow circular cross-sectional cylindrical outer electrode coaxially surrounding said inner electrode;
 - means for facilitating evacuation of the region between said cathode and said inner electrode;

means for facilitating provision of a gas to the region between said inner electrode and said outer electrode;
means for providing a high voltage charge to said outer electrode;
means for connecting a load to said inner electrode;
and
means for providing a high voltage pulse between said cath-



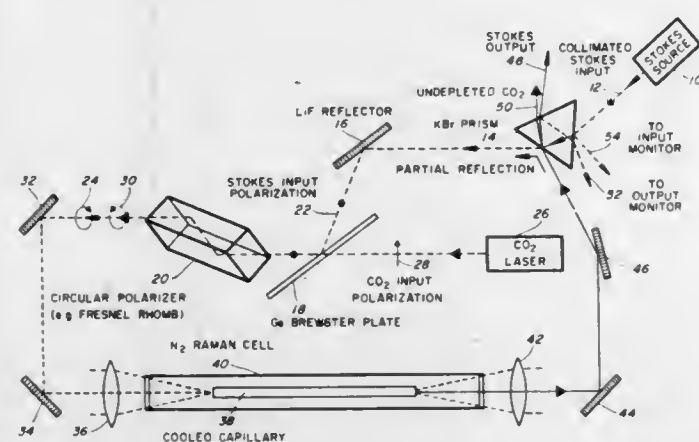
4,394,623

RING CAVITY FOR A RAMAN CAPILLARY WAVEGUIDE AMPLIFIER

Norman A. Kurnit, Santa Fe, N. Mex. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)
Filed Jan. 27, 1981, Ser. No. 229,023
Int. Cl.³ H01S 3/30

U.S. Cl. 330-4.3

12 Claims



1. A ring cavity for a Stokes injected Raman capillary waveguide amplifier system comprising:

Raman capillary waveguide amplifier means for Raman scattering CO₂ laser radiation by rotational states of a diatomic molecular gas;

external Stokes radiation source means aligned for injecting an external Stokes signal into said Raman capillary waveguide amplifier means such that said external Stokes signal copropagates with said CO₂ laser radiation and whereby said external Stokes signal reduces the gain required in said Raman capillary waveguide amplifier to generate an amplified Stokes signal;

means for injecting a portion of said amplified Stokes signal back into said Raman capillary waveguide amplifier means in the same direction as said external Stokes signal to extend the effective duration of said external Stokes signal and to extract additional energy from said CO₂ laser radiation.

4,394,624

CHANNELIZED FEED-FORWARD SYSTEM

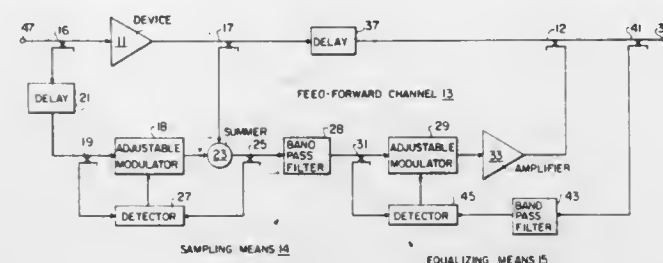
Ronald M. Bauman, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 7, 1981, Ser. No. 290,760

Int. Cl.³ H03F 1/26

U.S. Cl. 330-151

23 Claims



1. A feed-forward system for reducing the distortion generated by a device such as an amplifier, the feed-forward system comprising:

a feed-forward channel including,

sampling means adapted to be connected to the device for extracting a sample of the distortion products from the output of the device in a frequency band whose bandwidth is less than that of the device; and
equalizing means connected to the sampling means for equalizing the sample and the products remaining in the output of the device in the frequency band after extracting the sample; and

combining means connected to the equalizing means and adapted to be connected to the device for subtractively combining the equalized sample and the remaining products to produce a system output in which distortion in the frequency band is reduced.

4,394,625

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

Koichi Sakai, Tokyo, Japan, assignor to Toko, Inc., Tokyo, Japan

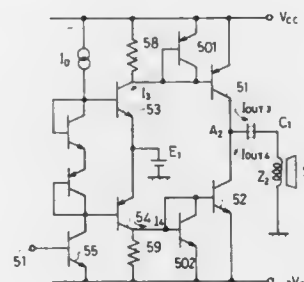
Continuation of Ser. No. 96,429, Nov. 21, 1979. This application
Dec. 21, 1981, Ser. No. 332,854

Claims priority, application Japan, Dec. 6, 1978, 53/151231;
Mar. 28, 1979, 54/40157

Int. Cl.³ H03F 3/30

U.S. Cl. 330-267

16 Claims



1. A semiconductor integrated circuit device comprising a power amplifier circuit including a vertical type PNP transistor and a first NPN transistor which are formed in a common semiconductor substrate, the output stage of said power amplifier circuit comprising a complementary symmetrical circuit wherein an output terminal is led out of the connection point between the collector of said vertical type PNP transistor and the collector of said first NPN transistor, a d.c. power source is connected between said emitter of said vertical type PNP transistor and the emitter of said first NPN transistor, and wherein at least one of the transistors constituting said complementary symmetrical circuit forms a current mirror circuit together with an additional transistor.

4,394,626

PHASE SYNCHRONIZING CIRCUIT

Hiroshi Kurihara, Tokyo; Sadao Takenaka, Yokohama, and Eiji Itaya, Kamakura, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

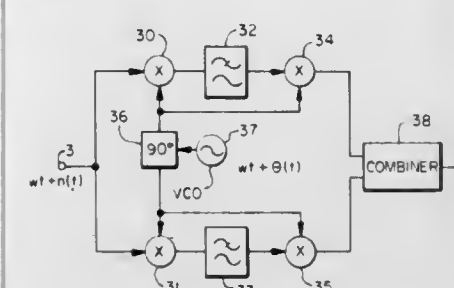
Filed Dec. 1, 1980, Ser. No. 211,847

Claims priority, application Japan, Nov. 29, 1979, 54-154554

Int. Cl.³ H03L 7/08

U.S. Cl. 331-12

14 Claims



1. A phase synchronizing circuit comprising:

an input terminal;
a voltage-controlled oscillator (VCO) having an output and an input;

first and second phase detectors, each operatively connected to said input terminal and to said output of said VCO;

first and second low-pass filters, each of said filters having an input connected to a corresponding one of said first and second phase detectors, and an output, said first low-pass filter operatively connected to said input of said VCO, whereby the output of said first low-pass filter is applied to control the frequency of said VCO;

first and second multipliers, respectively, operatively connected to said first and second low-pass filters, each of said multipliers also being operatively connected to said output of said VCO;

adder means, operatively connected to said first and second multipliers, for providing an output signal of a linear combination of the outputs of said respective multipliers; an output terminal, connected to receive said output signal of said adder means; and

at least one three-terminal phase shifting means, operatively connected between said first and second phase detectors and said VCO, and between said first and second multipliers and said VCO, in such relation that said first and second phase detectors operate in an orthogonal relation with respect to the input signal received at said input terminal, and in such relation that said output signal of said adder means is synchronous with the signal received at said input terminal.

4,394,627

AUDIOMETER WITH PHOTO SENSITIVE, DIGITALLY TUNABLE LOW DISTORTION OSCILLATOR

Gerd-Wolfgang Götze, and Manfred Müller, both of Berlin, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 23, 1981, Ser. No. 237,107

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011651

Int. Cl.³ H03B 5/20

U.S. Cl. 331-66

8 Claims

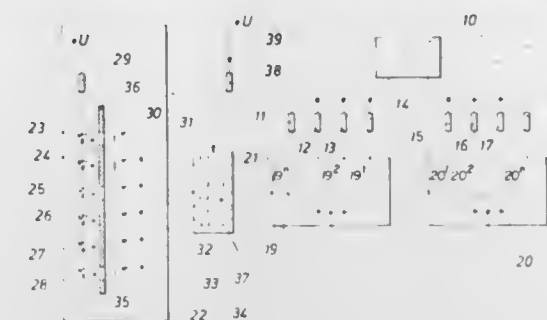
1. Audiometer having a low distortion, reproducible tunable oscillator including an oscillator circuit (10);

a plurality of resistors (11-14; 15-18) in the oscillator circuit; a like plurality of electronic switches (19¹, 19² . . . 19ⁿ; 20¹, 20² . . . 20ⁿ), one, each, connected in series with the respective resistor,

the connection pattern of the switches determining the operating frequency of the oscillator circuit;

and an opto-electronic switch control means providing binary digital output signals to said switches to control

selective closing thereof and hence placing selected resistors in the oscillator circuit, wherein the opto-electronic control means comprises a source of light (23-28); a plurality of light responsive elements (30-35); and a movable selective light transmission-blocking masking means having selective openings permitting light transmis-



sion between said light source and the light responsive elements, selectively, in accordance with the positioning of said openings and the blocking means with respect to the light responsive elements, to determine the tuning frequency of the oscillator in accordance with the position of the masking means, and for shifting the tuning frequency upon shifting of the masking means, free from switching clicks.

4,394,628

MODULATION SYSTEMS

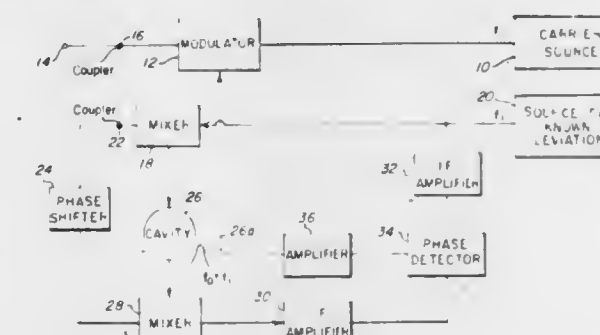
Donald S. Banks, Wellesley Hill, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 2, 1962, Ser. No. 172,054

Int. Cl.³ H03C 7/00

U.S. Cl. 332-19

5 Claims



signal with said frequency deviating intermediate frequency signal to provide said modulating signal.

4,394,629

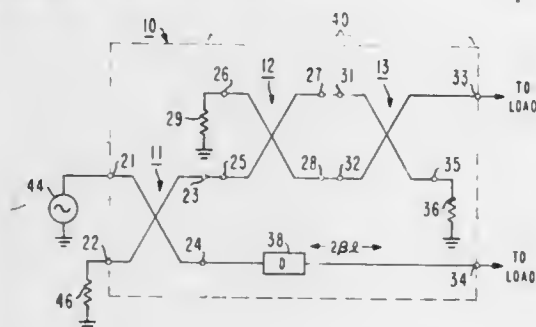
HYBRID POWER DIVIDER/COMBINER CIRCUIT
Mahesh Kumar, South Brunswick; Raymond J. Menna, Plainsboro, and Ho-Chung Huang, West Windsor, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 31, 1981, Ser. No. 249,609

Int. Cl.³ H01P 5/18

U.S. Cl. 333—109

6 Claims



1. A power divider comprising in combination: first, second and third quadrature hybrids, each having a pair of input ports and a pair of output ports, one of said output ports of said first hybrid being connected to one of said input ports of said second hybrid, said output ports of said second hybrid being directly connected to the input ports of said third hybrid for causing a signal passing through the combination of said second and third hybrids to exhibit a propagation delay L and a fixed relative to frequency 90° phase shift; and a transmission line exhibiting a propagation delay L having no fixed relative to frequency phase shift coupled to the other output port of said first hybrid.

4,394,630

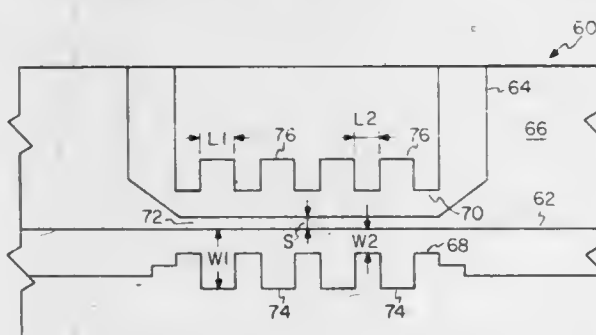
COMPENSATED DIRECTIONAL COUPLER
Kenyon, S. Wayne, Manlius; Bernard H. Geyer, Jr., Liverpool, and Conrad E. Nelson, Camillus, all of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Sep. 28, 1981, Ser. No. 306,519

Int. Cl.³ H01P 5/18

U.S. Cl. 333—116

21 Claims



1. A directional coupler comprising: a dielectric substrate having two major parallel opposing faces; a pair of spaced elongate electrodes disposed on one major face of said substrate and defining a coupling region therebetween extending along at least a part of their respective lengths; each of said electrodes comprising a comb electrode comprising an elongate bus bar extending in a generally longitudinal direction and a plurality of spaced teeth attached to said bus bar in the area of said coupling region and extending generally transverse to said bus bar in the direction away from the other of said electrodes; and a conductor supporting said substrate.

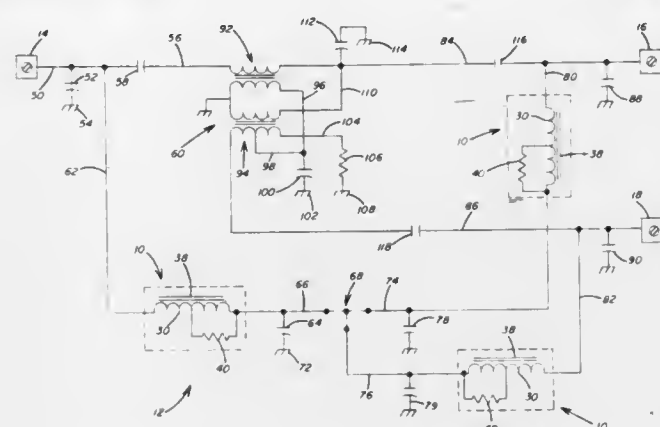
RADIO FREQUENCY CHOKE AND METHOD OF USE
John C. Pavlic, Pleasant Gap, Pa., assignor to C-Cor Electronics, Inc., State College, Pa.

Filed May 29, 1981, Ser. No. 268,361

Int. Cl.³ H03H 7/46, 7/09

U.S. Cl. 333—132

14 Claims



11. A signal distribution passive unit comprising, an input terminal for receiving an input signal including a radio frequency input signal and an AC power input signal, a first output terminal and a second output terminal for transmitting a first output signal and a second output signal, said first and second output signals being matched to said input signal, transformer means for receiving said radio frequency input signal to direct said radio frequency input signal to said first and second output terminals, said transformer means being connected to said input terminal and said first and second output terminals, choke means for separating said radio frequency input signal from said AC power input signal to prevent said AC power input signal from being transmitted to said transformer means, said choke means being connected to said input terminal and to said first and second output terminals to by-pass said transformer means, and said choke means including an inductor coil having a resistor connected in series with said coil to present a high impedance to the inductance of said coil and reduce the series resonance in the coil and thereby prevent reductions in the magnitude of said AC power input signal for a broad-band of radio frequencies.

4,394,632

MILLIMETER-WAVE ODD HARMONIC FREQUENCY MULTIPLIER

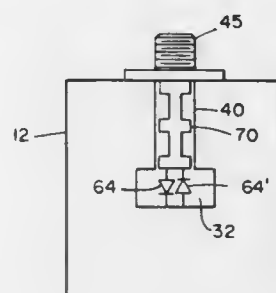
Chi P. Hu, Santa Barbara, Calif., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jun. 29, 1981, Ser. No. 278,815

Int. Cl.³ H01P 1/20

U.S. Cl. 333—218

12 Claims



1. A millimeter-wave odd-harmonic frequency multiplier comprising:

- (a) a block member of metallic material, said member having a main surface and a top surface at an angle to said main surface;
- (b) a wave-guide RF output port extending from said main surface part way through said member, said port having a rectangular cross-section of constant width and with a first portion of said port adjacent to said main surfaces having a height selected in accordance with the desired frequency output of said multiplier and the remainder of said port having a height substantially reduced from that of said first portion;
- (c) an RF input port extending from said top surface through said block member to connect with said remainder of said wave-guide port;
- (d) low pass filter means insulatively positioned in said input port; and
- (e) a pair of anti-parallel diodes positioned at the junction of said remainder of said wave-guide output port and said RF input port,

whereby said multiplier functions, upon a millimeter-wave signal of a base frequency being applied to said RF input port, to produce an output signal at said RF output port of an odd-harmonic of said base frequency.

4,394,633

MICROSTRIP CIRCUIT WITH SUSPENDED SUBSTRATE STRIPLINE REGIONS EMBEDDED THEREIN

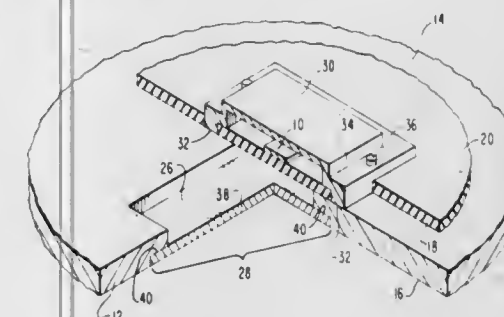
Gerald I. Klein, Baltimore, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 28, 1981, Ser. No. 258,349

Int. Cl.³ H01P 3/08

U.S. Cl. 333—238

11 Claims



1. A microstrip microwave circuit having embedded therein at least one suspended substrate stripline region for high Q circuit elements, said microwave circuit comprising: a ground plane having top and bottom surfaces; a dielectric layer disposed on said top surface of said ground plane; a continuous microstrip circuit pattern disposed on the exposed surface of said dielectric layer and having at least one region for high Q circuit elements with at least one interconnecting circuit path to the remaining microstrip circuitry, said dielectric layer having channels through to the top surface of said ground plane substantially encircling said microstrip circuitry of each corresponding high Q region except for portions of the dielectric layer which support said interconnecting microstrip circuit paths thereof; said ground plane having the section substantially underneath each high Q region removed to form openings in the bottom surface thereof; a metallic housing for each high Q region to form an upper ground plane covering the corresponding microstrip circuitry and separated therefrom by an air pocket, each housing having sidewalls adapted for seating into the dielectric channels of its high Q region to make physical contact with the top surface of said ground plane, said sidewalls of each housing including an opening for each interconnecting microstrip circuit path for passage there-through; and a metallic cover for said openings in the bottom surface of

said ground plane to form a lower ground plane for each high Q region, said cover being separated from the microstrip circuitry of each high Q region by said dielectric layer and an air pocket.

4,394,634

VAPOR COOLED CURRENT LEAD FOR CRYOGENIC ELECTRICAL EQUIPMENT

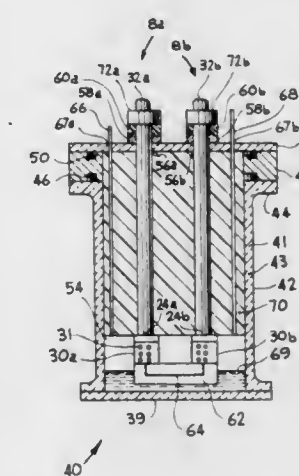
James H. Vansant, Tracy, Calif. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Oct. 26, 1981, Ser. No. 314,918

Int. Cl.³ H01F 7/22

U.S. Cl. 335—216

17 Claims



1. Apparatus for conducting electric current to and from cryogenic electrical equipment, which comprises: (a) a plurality of inner tubes, each having an inside end and outside end, provided with internal conduits substantially traversing the length of said tubes and penetrating said inside and outside ends, said inner tubes being arranged generally parallel to one another in substantially adjacent relation and capable of conducting and transferring electric current and heat; (b) a plurality of outer tubes substantially encasing said inner tubes, said outer tubes having inside ends and outside ends defining openings in themselves, said outer tubes being capable of conducting and transferring electric current and heat, and being in heat conducting and electricity conducting communication with said inner tubes, said inner tubes and other tubes together forming a plurality of composite tubes; (c) a sheath provided with an inside and outside end, defining a channel through itself which penetrates said inside and outside ends, said sheath being mounted to encase said plurality of composite tubes in a bundled arrangement forming apparatus capable of conducting and transferring electric current and heat; (d) top and bottom block mounting means fitted to hold said composite tubes, said mounting means being fixedly held on said ends of said sheath in such relation that the combination of the sheath and mounting means define a chamber capable of sealably holding said composite tubes, said mounting means adapted to receive, conduct and transfer electricity and heat, said sheath, mounting means and composite tubes being combined for creating an electric current lead; (e) vent means, located toward said outside end of said sheath, penetrating said sheath; (f) cryogenic electrical equipment device, capable of being operated by electric current; (g) cryogenic cooling means, housed within and cooling said device; and, (h) means for connecting the inside end of said current lead to said device, so said internal conduits of said composite tubes are in fluid communication with said cooling means so said cooling means is free to move from the inside of

said device through said internal conduits of said composite tubes toward said outside end, emerging through said vent means and said outside ends of said composite tubes, cooling said composite tubes and said current lead as the cooling means travels from said inside end toward said outside end and vent means.

4,394,635

METHOD FOR DETERMINING DISSOLVED GAS CONCENTRATIONS IN DIELECTRIC COOLANTS

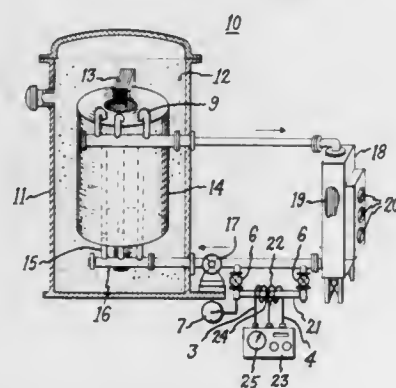
Stephen D. Foss, Pittsfield, Mass., assignor to General Electric Company, New York, N.Y.

Filed Apr. 16, 1981, Ser. No. 254,902

Int. Cl.³ H01F 27/08

U.S. Cl. 336—55

12 Claims



2. A gas-insulated transformer comprising: a transformer tank containing a noncondensable gas for use as a dielectric insulating medium; a plurality of transformer windings arranged around a transformer core within said tank; a plurality of tubes extending through said windings and containing a liquid coolant for cooling said winding during transformer operation; piping means connecting with said coolant tubes and with a heat exchanger for carrying said coolant to said heat exchanger and removing heat from said coolant; a sight glass connected with said piping means for observing a sample of said coolant within said piping means; a pressure indicating means connected with said piping means for determining said coolant pressure; heater means in thermal contact with said sight glass for heating said coolant to cavitation within said sight glass; and temperature indicating means thermally proximate said sight glass for indicating the temperature of coolant within said sight glass.

4,394,636

STRUCTURE OF A TRANSFORMER

Imaizumi Hiraku, Shisui, and Mitsui Tadashi, Tokyo, both of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed May 1, 1981, Ser. No. 259,704

Claims priority, application Japan, May 8, 1980, 55-63047[U]

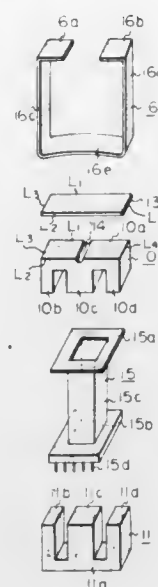
Int. Cl.³ H01F 27/26, 27/30

U.S. Cl. 336—172

4 Claims

1. A transformer comprising two E-shaped core parts, each having a back from one side of which projects at right angles thereto three spaced-apart legs, positioned with the extremities of the legs abutting such as to define a center leg and a leg at either side thereof between the backs of the E-shaped core parts, a spool on which is wound a coil positioned on the center leg and an I-shaped core part of a length and breadth corresponding to the length and breadth of the backs of the E-shaped core parts positioned in engagement with the back of one of the E-shaped core parts, means defining an open groove at the interfaces exclusively in one of said interfaces, a coil wound on the I-shaped core part, the windings of which are received in said groove and a C-shaped, elastically-engageable

clamp means encompassing the core parts and clamping the E-shaped core parts in engagement with each other and the



I-shaped core part in engagement with the back of said one of the E-shaped core parts.

4,394,637

WOUND BOBBIN COIL APPARATUS

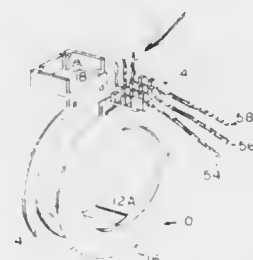
Jose O. G. Petroons, Beersel, Belgium, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 10, 1981, Ser. No. 282,194

Int. Cl.³ H01F 15/10

U.S. Cl. 336—192

5 Claims



1. A wound bobbin coil apparatus which comprises: a coil form having a generally cylindrical surface having disposed at respective axial extremities thereof first and second generally circular side flanges; said coil form including first and second generally L-shaped cooperating locking members extending respectively from said first and second generally circular side flanges, said locking members including means for locking engagement therebetween and including means for engaging a plurality of associated wires, said L-shaped locking members having at least one face thereof having a plurality of upstanding bosses disposed thereon in spaced relationship to allow entrance of termination wires therebetween.

4,394,638

MINIATURE PLUG-IN FUSE ASSEMBLY AND METHOD OF MAKING A FUSE ELEMENT THEREFOR

Sucha S. Sian, Southfield, Mich., assignor to Essex Group, Inc., Fort Wayne, Ind.

Filed Jul. 21, 1982, Ser. No. 400,569

Int. Cl.³ H01H 85/22

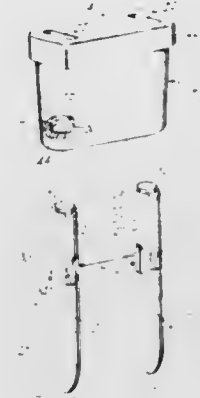
U.S. Cl. 337—264

8 Claims

1. A plug-in fuse assembly of the type comprising a housing formed of insulation material and a one-piece composite fuse element formed of fuse sheet metal and secured to said housing, said fuse element having two laterally spaced generally

parallel conductive terminal prong portions and a fuse link portion of substantially smaller cross sectional area than said terminal prong portions extending transversely between said terminal prong portions, said fuse assembly being characterized in that:

each of said terminal prong portions comprises a tubular body having an annular wall with contiguous edges thereof defining a longitudinally extending seam, each of



said tubular bodies having a forward contacting section adapted for insertion into a conductive receptacle contact and an integral retention section rearward of said contacting section, said terminal prong portions being formed with said seams in a generally coplanar relation and facing each other, said fuse link portion extending laterally from said retention sections proximate respective seams thereof; said retention sections and said fuse link portion being secured within said housing.

4,394,639

PRINTED CIRCUIT FUSE ASSEMBLY

James D. McGalliard, 11171 Fenwick Pl., Santa Ana, Calif. 92705

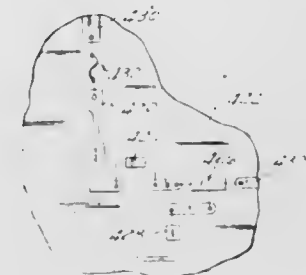
Division of Ser. No. 970,632, Dec. 18, 1978, Pat. No. 4,296,398.

This application May 28, 1981, Ser. No. 267,704

Int. Cl.³ H01H 85/04

U.S. Cl. 337—292

4 Claims



1. In an electrical device having a printed circuit board including a plurality of electrical components, such as a resistor, capacitor, integrated circuit, or the like, which are combined to form a printed circuit, an improved fuse assembly comprising:

a conventional fuse having a predetermined current rating electrically connected to said printed circuit;
a thin printed fuse element having a predetermined fuse rating higher than said rating of said conventional fuse formed integral with said printed circuit and connected in series with said conventional fuse; and
said thin fuse element, upon burn-out, providing a permanent record on said circuit board of consumer mis-use of said electrical device caused by the bypass or improper replacement of said conventional fuse.

4,394,640

SAFE MERGING SYSTEM USING SHORT PULSE SIGNAL REFLECTOMETRY

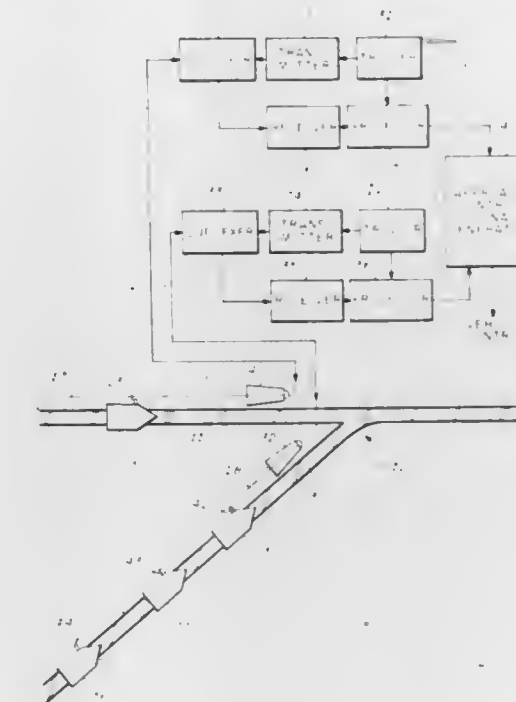
Gerald F. Ross, Lexington, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Feb. 20, 1981, Ser. No. 236,504

Int. Cl.³ G08G 1/12

U.S. Cl. 340—23

8 Claims



1. A system for determining distance to and speed of vehicles travelling in each of a multiplicity of merging guideways comprising: means paralleling each of said merging guideways for the propagation of short electromagnetic pulses; means coupled to said propagation means at a fixed preselected location for generating first electromagnetic pulses of short duration; means on board each of said vehicles responsive to said first electromagnetic pulses for coupling second electromagnetic pulses of short duration to said propagation means for transmission towards said fixed location; means coupled to said propagation means substantially at said preselected location for receiving said second electromagnetic pulses and for providing signals representative thereof; and means coupled to receive said representative signals for determining distances from said fixed location to and speed of a preselected number of said vehicles.

4,394,641

METHOD AND DEVICE FOR CODING BINARY DATA AND A DEVICE DECODING CODED DATA

Max Artigalas, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Oct. 1, 1980, Ser. No. 192,940

Claims priority, application France, Oct. 1, 1979, 79 24419

Int. Cl.³ H03K 13/24

U.S. Cl. 340—347 DD

5 Claims

1. A device for preparing an input signal for transmission, said input signal having a sequence of groups selected from a set of all possible groups, each of said groups having n binary digits having a repetition frequency of F, comprising: a parallel-read series-write memory register having one input for receiving the input signal and n outputs for delivering simultaneously the n bits of each group; first memory means having n address inputs coupled respectively to the n outputs of said memory register and 2n outputs for delivering respectively, one word of an associated pair of a plurality of pairs of words, each of said pairs being uniquely associated with one possible output of said

4,394,647

VOLTAGE MONITORING ARRANGEMENT FOR ORED POWER DIODES

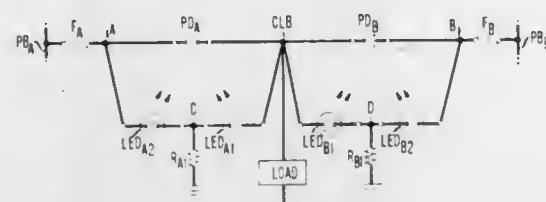
Gilbert A. Van Dine, Winfield Township, Du Page County, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 14, 1981, Ser. No. 301,960

Int. Cl.³ G08B 21/00

U.S. Cl. 340—645

20 Claims



1. A voltage monitoring arrangement for a direct-current power distribution system wherein a plurality of separate power sources supply power in parallel to a common load through separate two-terminal power diodes similarly poled for unidirectional current conduction therethrough between the source terminals of the power diodes and the common load terminals of the power diodes and wherein the sources and the load have a common power supply return characterized in that at least one power diode is provided with voltage monitoring circuitry comprising:

- (A) a first two-terminal current conducting circuit adapted to be fully conducting only in response to a prescribed first minimum amount of direct-current voltage across its terminals and to be negligibly conducting for lesser or reversed-polarity voltages;
- (B) a second two-terminal current conducting circuit adapted to be fully conducting only in response to a prescribed second minimum amount of direct-current voltage across its terminals and negligibly conducting for lesser or reversed-polarity voltages; and
- (C) a two-terminal, direct-current impedance;
- (D) one terminal of each of the first circuit being connected to a common circuit node, the corresponding terminal of said second circuit being connected to the same common node; and one of said terminals of said impedance being connected to said common circuit node;
- (E) the other terminals of the respective first circuit, second circuit, and impedance being connected respectively to the load terminal of the power diode, to the source terminal of the power diode, and to the common return; and,
- (F) the impedance being of such value as to limit to prescribed maxima the fully conducting amounts of current through the first and second circuits.

4,394,648

BRUSH WEAR DETECTOR SYSTEM WITH LATCHING RELAY

Richard W. Mattson, Rossford, Ohio, assignor to Allied Corporation, Toledo, Ohio

Filed Jul. 13, 1981, Ser. No. 282,849

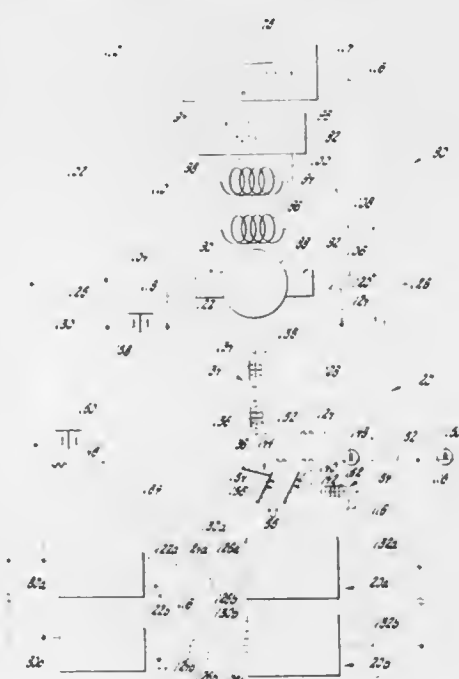
Int. Cl.³ G08B 21/00

U.S. Cl. 340—679

5 Claims

1. A brush wear detection system, comprising: a dynamoelectric machine having a plurality of brushes; at least one sensing wire means for providing a brush wear signal indicative of critical brush wear; a latching relay operatively connected to said sensing wire means; said latching relay including a set relay and a reset relay; said set relay having a first frame, a first coil assembly responsive to said brush wear signal including a first core and at least one first winding, and a first movable armature, said first coil assembly having a first longitudinal axis and a first

armature having a second longitudinal axis, said first axis being substantially perpendicular to said second axis; said reset relay having a second frame, a second coil assembly including a second core and a second winding, and a second movable armature; said second coil assembly having a third longitudinal axis and said second armature having a fourth longitudinal axis, said third axis being substantially perpendicular to said fourth axis; said set relay being disposed perpendicularly to said reset relay, said first axis being perpendicular to said third axis and said second axis being substantially perpendicular to said fourth axis; said first axis intersecting said second axis, and said third axis intersecting said fourth axis, said second axis being substantially parallel to said third axis and said first axis being substantially parallel to said fourth axis, and said third axis being substantially spaced from said second axis;



said first armature having an energized position and a de-energized position responsive to said first coil assembly; said second armature having an energized position and a de-energized position responsive to said second coil assembly; said first armature substantially perpendicularly overlapping a portion of said second armature and latching said second armature in said energized position when said first armature is in said de-energized position; said second armature substantially perpendicularly overlapping a portion of said first armature and latching said first armature in said energized position when said first armature has moved to said energized position responsive to said first coil assembly; said set relay including a pair of alarm contacts operatively connected to a source of power and to an alarm means for providing an indication of brush wear responsive to said sensing wire.

4,394,649

COMMUNICATION TERMINAL PROVIDING USER COMMUNICATION OF HIGH COMPREHENSION

Michael A. Suchoff, Brookline; Holly T. Doyle, and Robert O. Doyle, both of Cambridge, all of Mass., assignors to I/O Corporation, Santa Monica, Calif.

Filed Jul. 28, 1980, Ser. No. 173,263

Int. Cl.³ G09G 3/04

U.S. Cl. 340—711

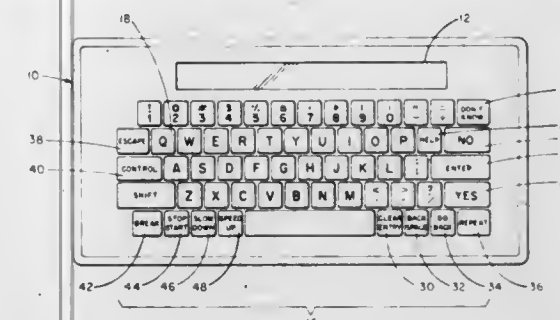
28 Claims

1. A keyboard and display terminal for communication with a data processing host and having character-entering keys and a character-displaying element and further having the improvement comprising

A. means for selectively controlling character display on a

single line of said display element to start the display of characters in either of first and second spaced-apart locations of said single display line,

- B. means for restricting keyboard control of displayed characters to only those characters for which the display starts at said second display location,
- C. means for extending, along said single display line, the display of characters for which the display started at said second location in the direction toward the display loca-



tions of characters for which the display started at said first location, and

- D. means responsive to the extension of characters for which the display started at said second location onto locations displaying characters for which the display started at said first location, for maintaining the display of the latter characters stationary in the absence of such an extension, and for moving the display of the latter characters in the direction of said extension in the presence of such an extension.

4,394,650

GRAPHIC AND DATA CHARACTER VIDEO DISPLAY SYSTEM

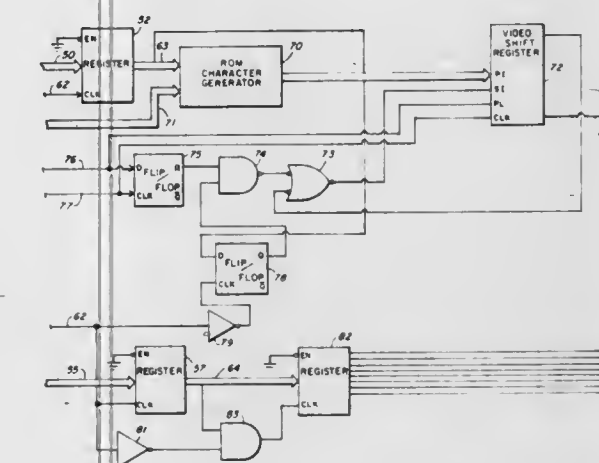
Nicholas R. Long, Hudson, N.H.; William E. Peisel, Marlboro, Mass.; Joseph L. Ryan, Tuscon, Ariz., and Richard R. Watkins, Chelmsford, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Feb. 19, 1981, Ser. No. 235,807

Int. Cl.³ G09G 1/14

U.S. Cl. 340—728

3 Claims



1. A video control system for supplying both data characters and graphic characters to video drive logic controlling the operation of a CRT video screen in a video terminal system having a timing control system, said video control system comprising:

- (a) logic memory means responsive to binary address codes for providing binary character codes including, alternatively, both binary data character codes and binary graphic character codes, the binary character codes comprising bits sufficient in number to match that required in a horizontal scan of a data character but not sufficient in

number to match that required in a horizontal scan of at least certain graphic characters;

- (b) video information stream logic means receiving said binary character codes from said logic memory means and responsive to clock control signals generated by said timing control system for converting said binary character codes to a serial video bit stream to be applied to said video drive logic, and repeating a most significant bit position logic level in said serial video bit stream upon occurrence of a graphic character flag bit in said binary address code.

4,394,651

EASTERN ARABIC NUMBER DISPLAY

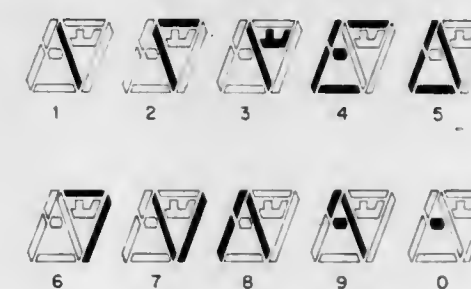
Michael Frankston, 375 Harvard St., Apt. 23, Cambridge, Mass. 02139, and Krikor A. Bezjian, 24 Frederick St., Belmont, Mass. 02178

Filed Jun. 9, 1980, Ser. No. 157,895

Int. Cl.³ G09G 3/04

U.S. Cl. 340—756

16 Claims



1. A multiple segment number display for selectively displaying each Eastern Arabic number, said display comprising eight segments, six of said segments being substantially elongated, said segments being oriented with respect to one another such that when viewing said display in its proper orientation,

- (a) five of said elongated segments are arranged to form an apparent quadrilateral, the first and second of said five elongated segments forming the respective top and bottom of said quadrilateral, a third of said five elongated segments forming the right hand side of said quadrilateral, and the remaining fourth and fifth segments of said five elongated segments extending substantially colinearly with respect to one another, the fourth segment disposed above said fifth segment, so as to form the left hand side of said quadrilateral,
- (b) the sixth elongated segment extends from the approximate top left corner of said quadrilateral to the approximate bottom right corner of said quadrilateral so as to form a diagonal of said quadrilateral dividing said quadrilateral into left and right triangular portions, and,
- (c) the seventh and eighth segments are disposed respectively in the left and right triangular portions; wherein said eight segments are selectively energizable so as to display each of said Eastern Arabic numbers.

4,394,652

DATA DISPLAY SYSTEM

Jean Rabette, Bondues, France, assignor to Societe Vandeputte Fils & Cie, S.A., Tourcoing, France

Filed Jun. 3, 1981, Ser. No. 270,007

Claims priority, application France, Jul. 18, 1980, 80 16076

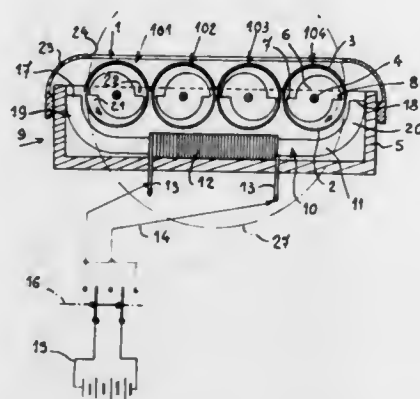
Int. Cl.³ G09G 3/34

U.S. Cl. 340—764

2 Claims

1. Data display system having a group of at least two parallel rotors (101 to 104) each formed by a single body (2), having in two diametrically opposite areas ranges of different colors, which rotates freely in a mounting (5) to which it is associated by a shaft (4), which is in contrast interlocking in rotation with a permanent magnet (6) the position of which is such that the

line passing through its poles (7, 8) is essentially radial to the axis of the shaft (4), in which system end rotors (101, 104) of the group of at least two parallel rotors, to control their rotation, each cooperate with one pole of an electromagnet (10) connected to a source (15) of direct current by an inverter-interruptor (16) and which is attached to the mounting (5) in such a way that each pole is located in the plane perpendicular to the axis of the rotors in which the poles of the permanent magnets may turn, and in said system the datum to be displayed, such as a sign, a letter, a figure or a design, consist of at least one point the entire apparent surface of which is always



of one color, for example light, or of another, for example dark, this point is itself formed of several colored ranges which are juxtaposed and borne by distinct ones of the group of rotors (101, 102, 103, 104) grouped to be controlled synchronously and, so that all the rotors of the same group may be activated at the same time, the system includes a single electromagnet (10) having poles (17, 18) located in the plane of the axes of the rotors, on either side of the entire group of rotors so as to directly exert their effect only on the permanent magnets (6) of the rotors (101, 104) located at the ends of the group and only on their pole oriented towards the outside of the group.

4,394,653

BI-DIRECTIONAL DRIVE MULTIPLEXED DISPLAY SYSTEM

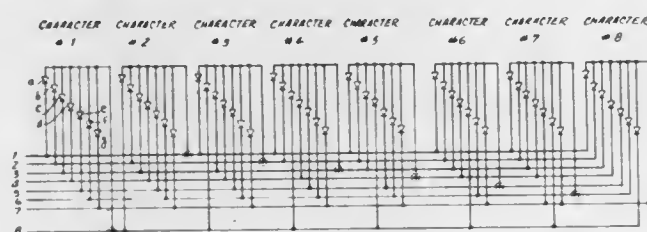
Eric G. Breeze, Los Altos, Calif., assignor to General Instrument Corporation, New York, N.Y.

Filed Nov. 24, 1980, Ser. No. 210,133

Int. Cl.³ G09G 3/14

U.S. Cl. 340—802

15 Claims



1. An apparatus comprising: a display having a plurality of characters, each of said characters having N segments, each of said segments being electrically unidirectional and having two terminals of different polarities said apparatus further consisting of: N+1 directly interconnected with said characters; each character having N of said N+1 busses connected to like polarity terminals of the N segments of that character, and the N+1th bus for that character being connected to all of the other polarity terminals of the segments of that character; and said N+1th bus being a different bus for each character.

4,394,654

IDENTIFICATION DEVICE

Hellmut W. Hofmann-Cerfontaine, Nuremberg, Fed. Rep. of Germany, assignor to Hannsheinz Porst, Nuremberg, Fed. Rep. of Germany

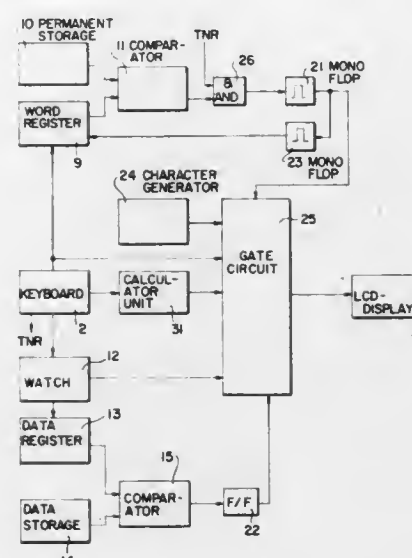
Filed Apr. 17, 1981, Ser. No. 255,192

Claims priority, application Fed. Rep. of Germany, Apr. 17, 1980, 3014882

Int. Cl.³ G06K 5/00; G08B 13/06; H04Q 1/00

U.S. Cl. 340—825.34

12 Claims



1. An identification device characterized in that permanent storage means in which an alphanumeric character string forming a code is stored, and a word register into which an alphanumeric character string can be entered by means of input means, are connected to a comparator which supplies to a display device a control signal indicating that conformity between the two character strings is either present or missing; and further characterized by a time function element with interlocking means which, at the end of a pre-determined expiration period of time, supplies an interlocking signal which prevents an existing conformity from being displayed, the expiration period defining the validation during which the device permits indication of the presence or absence of conformity.

4,394,655

BIDIRECTIONAL, INTERACTIVE FIRE DETECTION SYSTEM

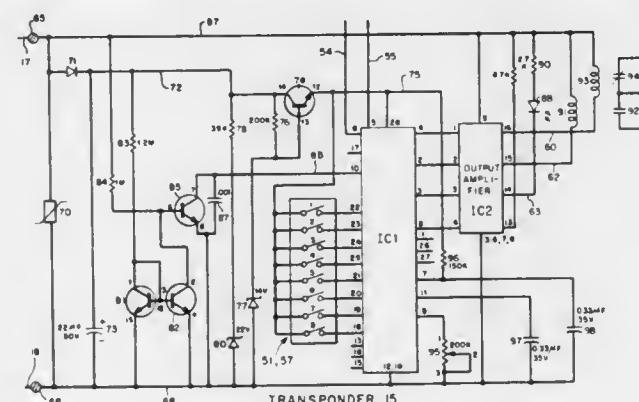
John M. Wynne, Oak Ridge, and William R. Vogt, Rockaway, both of N.J., assignors to Baker Industries, Inc., Parsippany, N.J.

Filed Mar. 13, 1981, Ser. No. 243,401

Int. Cl.³ H04Q 9/00; G08B 23/00

U.S. Cl. 340—825.36

19 Claims



1. A bidirectional, interactive signalling system comprising a pair of electrical conductors, a controller coupled to said conductors, for transmitting a series of signal groups sequentially over said conductors,

each signal group comprising a plurality of pulse signals, each pulse signal having first and second portions of different amplitude; and a plurality of transponders, each coupled to said conductors, each transponder having its own unique address, with each of said transponders being connected to recognize as its address a particular signal group in the series of signal groups transmitted from the controller, and to respond upon recognition of its unique address by transmitting data back to the controller over the same conductor pair, which data may include information regarding a predetermined condition such as alarm and/or trouble, in which said controller transmits one or more commands to a selected one of the transponders by modulating a first portion of at least one signal in the signal group directed to the selected transponder, and the selected transponder replies by modulating the second portion of at least one pulse signal in the same signal group to encode data selected for return to the controller.

4,394,656

SOUND DISPLAY APPARATUS HAVING SEPARATION CONTROL

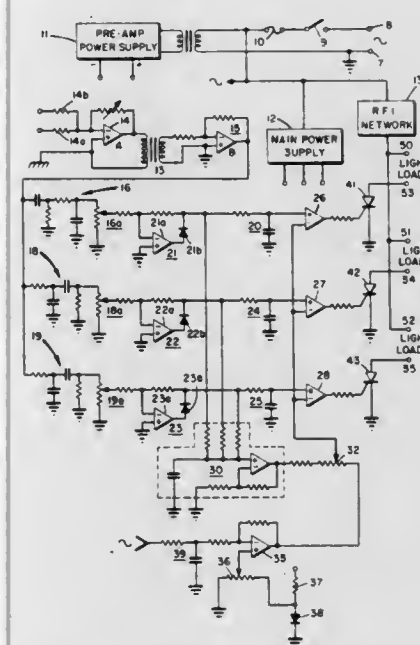
Mark T. Goettsche, 2310 McMillan, Eugene, Oreg. 97405

Filed Sep. 24, 1981, Ser. No. 305,293

Int. Cl.³ A63J 17/00; H04Q 19/02

U.S. Cl. 340—825.73

12 Claims



1. A light modulated sound display for producing lighting effects from first and second stereophonically related audio signals comprising:

- (a) summation amplifier for combining said stereophonically related signals;
- (b) first, second, and third filters for receiving an output signal from said summation amplifier, said filters dividing said signal into first, second and third signals, each containing a portion of the signal frequencies contained in said output signal;
- (c) first, second and third comparators, each having an input connected to one of said first, second and third filters, and each having a reference input;
- (d) means for combining a portion of the signal provided by said filters, said means providing a reference signal for each of said comparator's reference input; and
- (e) first, second and third switching gates connected to drive individual lighting elements, said gates having a control input connected to one of said comparator output terminals, whereby said switching elements are individually controlled to illuminate a lighting element according to the signal energy provided by one of said filters.

4,394,657

DECODER CIRCUIT

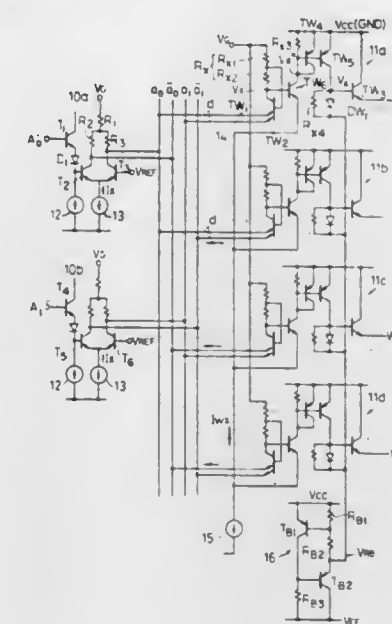
Hideaki Isogai, Higashikurume, and Yukio Takahashi, Shiga, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 18, 1980, Ser. No. 217,757

Int. Cl.³ H04Q 9/00; H03K 19/086, 19/01; G11C 11/40

U.S. Cl. 340—825.93

11 Claims



1. A decoder circuit, operatively connectable to receive a plurality input signals "a₀, a₁, a₂, . . . , a_i" and to a word line, comprising:

- input gates, operatively connectable to receive the plurality of input signals "a₀, a₁, a₂, . . . , a_i", for generating inverse signals "a₀, a₁, a₂, . . . , a_i" in dependence upon the plurality of input signals "a₀, a₁, a₂, . . . , a_i";
- a logic circuit, operatively connected to said input gates, for generating an output in dependence upon combined input signals that are the combination signals of said signals a₀ through a_i and a₀ through a_i;
- an output gate, operatively connected to said logic circuit and operatively connectable to the word line, for selectively driving the word line by the output supplied from said logic circuit; and
- current control means, electrically connected between a voltage source and said output gate, for switching a current from said voltage source and activating said output gate.

4,394,658

ADAPTIVE MTI CLUTTER TRACKER-CANCELLER METHOD AND APPARATUS

Robert D. Short, III, Littleton, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Mar. 27, 1981, Ser. No. 248,617

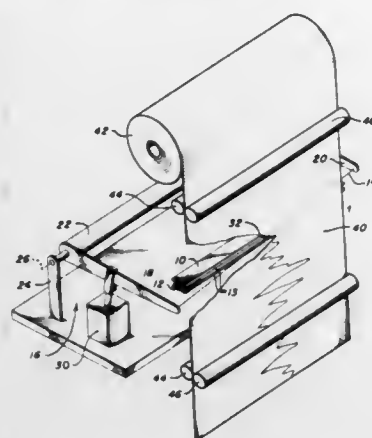
Int. Cl.³ G01S 13/52

U.S. Cl. 343—7.7

11 Claims

1. An adaptive MTI clutter canceller comprising: mixer means having input means for receiving signals at first and second frequencies, said second frequency differing from said first frequency by a difference frequency, and output means for providing signals, at said output means, having frequencies representative of said difference frequency; delay means having input means coupled to said output means of said mixer means for time delaying said signals at said difference frequencies and for providing said time delayed signals at an output means thereof; phase comparator means having first input means coupled to said output means of said delay means and second input means coupled to said output means of said mixer means for providing signals at an output means that are representative of phase differences between signals coupled from

ment of the bridging portion of the wire along the front edges of said elements;
means coupled to the support means for causing movement of the wire along the second axis in response to an input;
means for providing a voltage across said elements;
a thermally responsive sheet disposed in contact with the front edges of the elements;



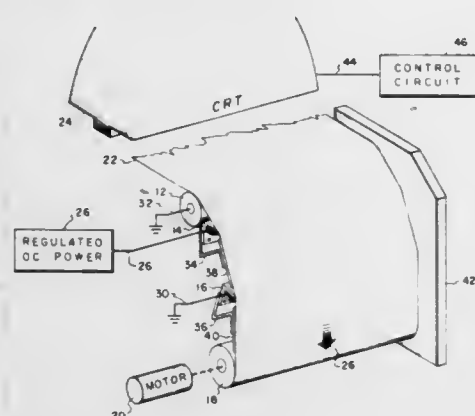
the bridging portion of the wire being heated by electrical current flowing therethrough to a temperature sufficient to produce a visible image on the sheet;
the movement of the bridging portion of the wire along said elements being magnified in relation to movement of the wire along the second axis.

4,394,665
ELECTRICAL CONTACT FOR CONDUCTIVE-BACKED PAPER
Gerald F. Kopp, Pine, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 26, 1982, Ser. No. 382,039
Int. Cl.³ G01D 15/16

U.S. Cl. 346—76 R

7 Claims

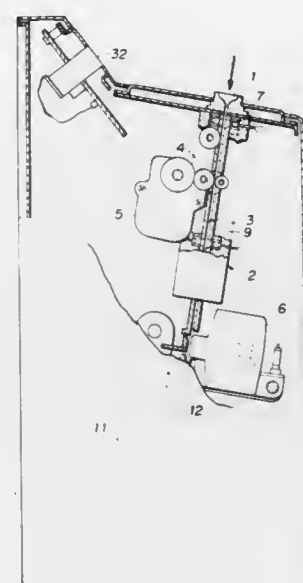


1. Apparatus for use in a recorder having a moving conductive-backed paper to supply electrical energy to the conductive backing comprising:
a wire brush for applying a uniform heating current to the paper, the brush including a sufficient number of wire bristles to contact the conductive backing in a substantially continuous fashion across the paper so that all portions of the paper proximate the brush are contacted, the wire bristles being fine enough to bend and make a flexible contact with the conductive backing; and
means connecting the wire brush to a source of electrical energy.

4,394,666
TIME RECORDER
Hiroshi Kato, Atsugi; Hisataka Ato, Yokohama; Osamu Inagaki, Kawasaki, and Hiroshi Matsuo, Yokohama, all of Japan, assignors to Amano Corporation, Yokohama, Japan
Filed May 15, 1981, Ser. No. 264,207
Claims priority, application Japan, May 20, 1980, 55-66611
Int. Cl.³ G07C 1/06

U.S. Cl. 346—82

9 Claims

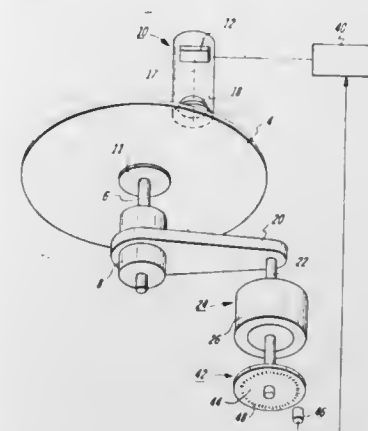


1. A time recorder capable of accepting a time card having a personal code of each individual time card user, of printing predetermined time data, for example, the time of day of acceptance of said time card on a predetermined line of said time card, and of ejecting said time card after said time is printed thereon, said time recorder comprising:
means defining a predetermined path of time card conveyance having an inlet opening into which said time card is at least partially manually inserted;
reading means for reading said personal code when said time card is inserted into said predetermined path;
storage means for electronically storing at least print line number data corresponding to said personal code read by said reading means;
printing means for printing said predetermined time data upon said time card;
motor means rotatable in a first direction for conveying said time card along said predetermined path after said time card is at least partially manually inserted into said inlet opening, and rotatable in a second direction opposite to said first direction for ejecting said time card from said time recorder after said predetermined time data is printed upon said time card; and
position determining means for determining the position of said time card relative said printing means so that said predetermined time data is printed upon a predetermined print line number of said time card, said position determining means including movable means for contacting and being displaceable with the bottom edge of said time card as said time card is conveyed through a portion of said predetermined path by said motor means, position signal generating means for generating a position signal responsive to said movable means, and comparator means for comparing said position signal and said stored print line number data and for stopping said motor means when said position signal is equal to said stored print line number data.

4,394,667
RADIAL ACCESS DRIVE FOR AN OPTICAL DISK RECORDER
David Cheng, San Jose, and Stephen T. Chai, Rancho Palos Verdes, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 26, 1982, Ser. No. 362,361
Int. Cl.³ G06K 15/02; G01D 15/32
U.S. Cl. 346—137

4 Claims

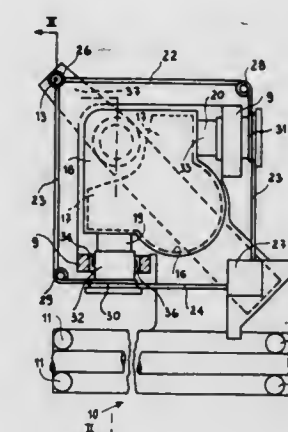


1. In a data recorder system including optical means for providing an information modulated light beam, a member including a data recording surface sensitive to said light beam, and first means for causing rotation of said data recording surface, characterized in that
said optical means are held in a stationary position, and
second means for moving said data recording surface along an arcuate path relative to said optical means.

4,394,668
ELECTRONIC PRINTER
Riccardo Brescia, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Italy

Filed Sep. 2, 1981, Ser. No. 298,790
Claims priority, application Italy, Sep. 22, 1980, 68467 A/80
Int. Cl.³ G01D 15/16; H01H 1/00
U.S. Cl. 346—139 R

10 Claims



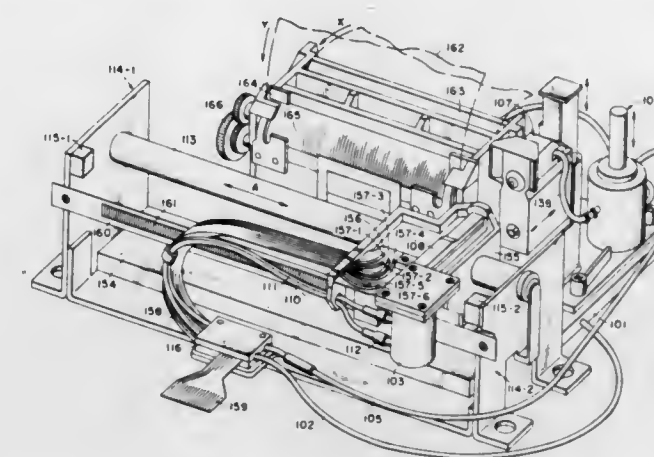
1. An electronic printer comprising a tracing element carried at one vertex of an articulated parallelogram, and actuating means responsive to electrical signals to distort the parallelogram so as to move the tracing element in two coordinate directions parallel to the printing plane, at least two of the arms of the parallelogram being constituted by thin fibres of elastic material, the articulated joints of the parallelogram being constituted by the end portions of the arms.

4,394,669
LIQUID JET RECORDING APPARATUS
Masakazu Ozawa, Yokohama; Kunio Watanabe; Shigeyuki Matsumoto, both of Kawasaki; Yukuo Nishimura, Sagami, and Takashi Miyazaki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 6, 1981, Ser. No. 280,348
Claims priority, application Japan, Jul. 22, 1980, 55-100085;
Jul. 22, 1980, 55-100086

Int. Cl.³ G01D 15/18
U.S. Cl. 346—140 R

5 Claims



1. A liquid jet recording apparatus comprising:
a first ink tank for storing an amount of ink;
a second ink tank position at a level higher than said first ink tank, and connected to a feed tube in communication with said first ink tank, said second ink tank receives the ink from said first tank through the feed tube, said first ink tank and said second ink tank being closed containers;
a recording head associated with said second ink tank for jetting the ink fed from said second ink tank; and
a carriage connected to said second ink tank and said recording head for reciprocally moving said second ink tank and said recording head together, wherein at least a portion of the feed tube is moved along the reciprocal movement path of said second ink tank thereby producing pressure in said second ink tank to feed the ink to said second ink tank from said first ink tank.

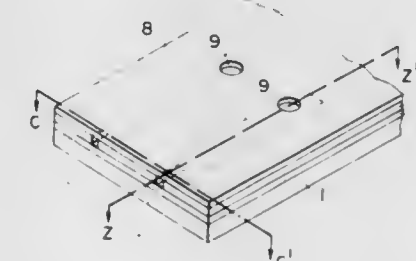
4,394,670
INK JET HEAD AND METHOD FOR FABRICATION THEREOF

Hiroshi Sugitani, Machida; Hiroto Matsuda, Yokohama; Koichi Kimura, Yamanashi, and Masami Ikeda, Chiba, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 29, 1981, Ser. No. 335,466

Claims priority, application Japan, Jan. 9, 1981, 56-1856; Jan. 19, 1981, 56-94651; Jun. 19, 1981, 56-94654
Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

19 Claims



1. An ink-jet head comprising an ink flow path formed by laminating cured films of photosensitive compositions and an ink discharging orifice, at least the ink discharging orifice region being composed of the cured films.

4,394,671

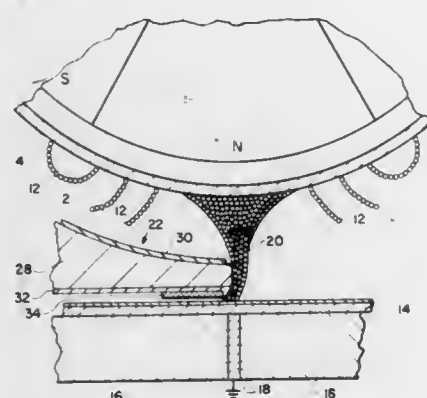
ELECTROGRAPHIC RECORDING

Roger D. Erickson, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 30, 1980, Ser. No. 202,376
Int. Cl.³ G01D 15/06

U.S. Cl. 346—155

7 Claims



1. An electrographic recording system for recording information on an electrographic recording medium, comprising: a non-magnetic platen over which said recording medium passes; a multipolar magnetic structure; a non-magnetic shell; means mounting said shell for motion about said magnetic structure with the peripheral surface of said shell spaced a small predetermined distance above said platen; means for supplying magnetic toner particles to the outer surface of said shell; means for defining a recording station substantially at the position of nearest approach of said shell to the upper surface of said platen; an array of recording styli positioned at said recording station and spaced between the peripheral surface of said shell and said platen; said means for defining a recording station including a magnetically permeable strip secured to but insulated from the under surface of said array of recording styli, said magnetically permeable strip concentrating the magnetic field produced by said magnetic structure to form a dynamic bridge of toner particles between said shell and said recording medium at said recording station.

4,394,672

TITANIUM DIOXIDE RECTIFIER

Allen H. Meitzler, Ann Arbor; William T. Donlon, Jr., Detroit, and Samuel S. Schinozaki, Livonia, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

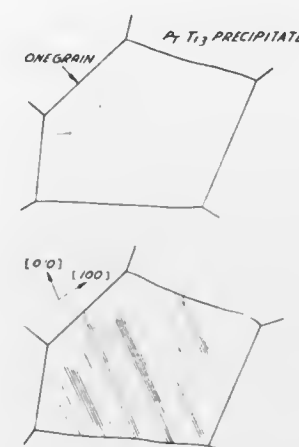
Filed Apr. 22, 1981, Ser. No. 256,441
Int. Cl.³ H01L 27/24, 49/02, 29/12, 29/161

U.S. Cl. 357—10

5 Claims

5. A rectifier comprising: a ceramic oxide main body having a pair of opposing major surfaces, said ceramic oxide being an oxide of a tetravalent metal atom; a pair of spaced metal electrodes disposed on said opposing major surfaces of said ceramic oxide main body, the material of said metal electrodes being selected from the group of platinum and palladium; and groupings of a combination of the electrode material and the tetravalent metal material interspersed throughout the ceramic oxide main body thereby forming a rectifier with

electrodes of one material and having different forward and reverse electrical characteristics so that rectification is



derived from a microstructure, including said groupings, of said main body.

4,394,673

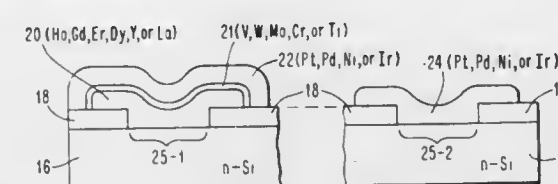
RARE EARTH SILICIDE SCHOTTKY BARRIERS

Richard D. Thompson, Millwood, N.Y.; Boryeu Tsaur, Arlington, Mass., and King-Ning Tu, Chappaqua, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,565
Int. Cl.³ H01L 29/48

U.S. Cl. 357—15

10 Claims



1. A disilicide Schottky barrier contact having a barrier potential of about 0.4 eV, comprising: an n-type silicon substrate; and a rare earth metal deposited on said n-type silicon substrate, wherein said disilicide Schottky barrier contact is formed by heating said silicon substrate and said rare earth metal.
6. A disilicide Schottky barrier contact having a barrier potential of about 0.7 eV, comprising: an p-type silicon substrate; and a rare earth metal deposited on said p-type silicon substrate, wherein said disilicide Schottky barrier contact is formed by heating said silicon substrate and said rare earth metal.

4,394,674

INSULATED GATE FIELD EFFECT TRANSISTOR

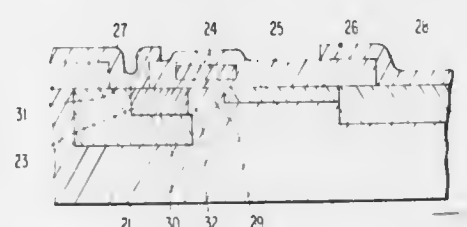
Hiraku Sakuma, and Toshiyuki Suzuki, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Oct. 9, 1980, Ser. No. 195,683
Claims priority, application Japan, Oct. 9, 1979, 54-130143; Nov. 13, 1979, 54-146668

U.S. Cl. 357—23

Int. Cl.³ H01L 29/78

9 Claims



1. An insulated gate field effect transistor comprising a

4,394,676

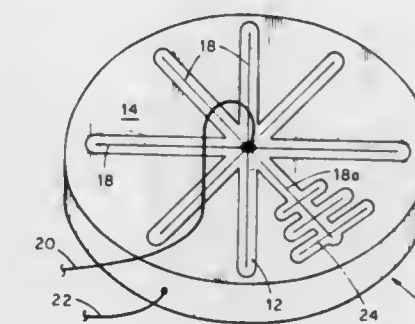
PHOTOVOLTAIC RADIATION DETECTOR ELEMENT

Dimitrios C. Agouridis, Oak Ridge, Tenn. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Dec. 17, 1980, Ser. No. 217,358
Int. Cl.³ H01L 27/14, 31/00, 29/161

U.S. Cl. 357—29

4 Claims



semiconductor substrate of one conductivity type, a source region and a drain region of the opposite conductivity type provided along one principal surface of said semiconductor substrate, a channel region between said source region and said drain region, a gate electrode provided on said channel region via a gate insulating film, and an impurity region of said one conductivity type having a higher impurity concentration than said semiconductor substrate, said impurity region being provided in contact with substantially the entire bottom of said source region, excluding the side wall of said source region facing said channel region, said impurity region being led out to said one principal surface through a portion of said substrate other than said channel region and being ohmically connected to a source electrode jointly with said source region, said impurity region having an impurity concentration of $1 \times 10^{18} \text{ cm}^{-3}$ or higher, said semiconductor substrate having a bottom surface opposite to said one principal surface, said semiconductor substrate between said drain region and said bottom surface having an impurity concentration less than $1 \times 10^{18} \text{ cm}^{-3}$.

1. A photovoltaic radiation detector element comprising: a body of semiconductor material; an electrically conductive current collector attached to said body and formed with a plurality of thin branch segments connected at a common point; and a photovoltaic junction forming coating on said body which closely approaches but is spaced from said current collector branch segments.

4,394,675

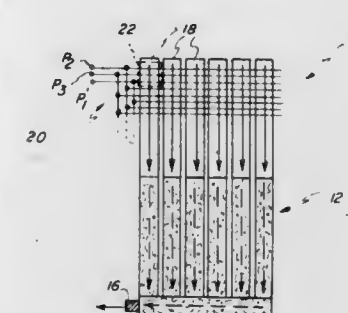
TRANSPARENT ASYMMETRIC ELECTRODE STRUCTURE FOR CHARGE COUPLED DEVICE IMAGE SENSOR

Constantine N. Anagnostopoulos, Mendon, and Teh-Hsung Lee, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 16, 1981, Ser. No. 244,366
Int. Cl.³ H01L 29/78, 29/04

U.S. Cl. 357—24

5 Claims



1. A frame transfer type charge coupled image sensing device wherein photocharges are accumulated under a transfer electrode in the transfer channel of a CCD shift register, comprising:

- (a) a semiconductor substrate;
- (b) a transparent insulating layer formed on a light receiving surface of said substrate;
- (c) a first set of transfer electrodes comprising a plurality of electrodes disposed in groups of one or more electrodes, said groups being disposed in spaced-apart relation on said insulating layer;
- (d) a second set of transfer electrodes, disposed on said insulating layer between said groups of first transfer electrodes, said transfer electrodes of said second set being substantially wider than the transfer electrodes of said first set, and substantially transparent in the visible region of the spectrum; and
- (e) means for blocking light from passing through said first set of transfer electrodes.

4,394,677

THYRISTOR FOR LOW-LOSS TRIGGERING OF SHORT IMPULSES WITH SCHOTTKY CONTACT TO CONTROL GATE ELECTRODE

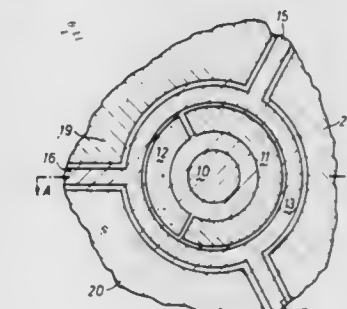
Andre Jaeklin, Ennetbaden, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Aug. 29, 1980, Ser. No. 182,655
Claims priority, application Switzerland, Jan. 16, 1980, 342/80

U.S. Cl. 357—38

Int. Cl.³ H01L 29/74

12 Claims



1. A disc-shaped thyristor device comprising: a main thyristor formed of four alternating zones of opposite conductivity type including an n⁺-doped cathode emitter, a p-doped cathode base, a n-doped anode base and a p-doped anode, wherein a portion of the cathode base emerges to a cathode-side surface and serves as a gate; an integrated auxiliary thyristor provided for improving current rise time upon main thyristor ignition, said auxiliary thyristor comprising an n⁺-doped region and p⁺-doped secondary control region formed between the gate and the cathode emitter of the main thyristor; and an integrated diode provided for shortening the turn-off time of the main thyristor during turn-off of current conduc-

tion therethrough, said integrated diode comprising a Schottky contact formed between the gate and the cathode emitter on said cathode base of said main thyristor, said Schottky contact electrically connected to said gate by means of a metallization.

4,394,678

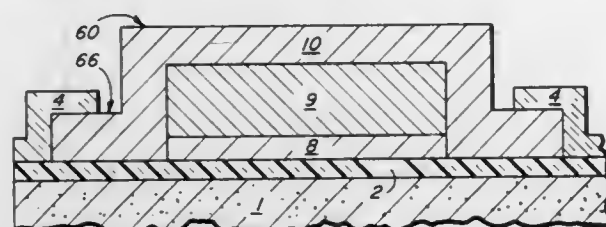
ELEVATED EDGE-PROTECTED BONDING PEDESTALS FOR SEMICONDUCTOR DEVICES

Vern H. Winchell, II, Phoenix; Thomas A. Scharr, Tempe, and Lowell E. Clark, Phoenix, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 19, 1979, Ser. No. 76,879
Int. Cl.³ H01L 23/48, 29/44, 29/52

U.S. Cl. 357-68

9 Claims



1. A bonding pedestal for a semiconductor circuit containing intra-circuit metallization comprising:
a semiconductor substrate;

a bonding pad having an outer aluminum layer and lying over a portion of said substrate, said outer aluminum layer comprising a peripheral portion and a central portion, said central portion having a substantially planar aluminum bonding surface, and wherein said bonding surface is higher than said peripheral portion;
a hard core under said central portion of said bonding pad, lying over said substrate and conformally covered on sides and top by said outer aluminum layer which forms said peripheral portion and said bonding surface; and
insulating means covering said peripheral portion but lying at a lower level than said bonding surface in a region surrounding said bonding pad.

4,394,679

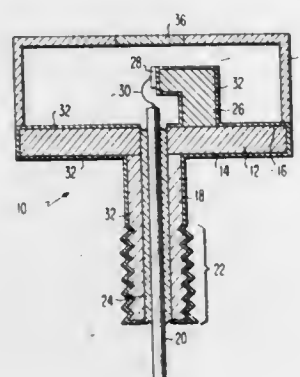
LIGHT EMITTING DEVICE WITH A CONTINUOUS LAYER OF COPPER COVERING THE ENTIRE HEADER

Frank Z. Hawrylo, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,160
Int. Cl.³ H01L 23/12, 23/36

U.S. Cl. 357-81

6 Claims



1. In a light emitting device which comprises:
a base plate having two major surfaces;
a stud axially mounted on a first major surface;
a copper block mounted on the second major surface of the base plate; and
a light emitting element mounted on the copper block;
the improvement which comprises:
a continuous layer of copper between about 5 and about 125

micrometers thick covering the base, the copper block and the stud.

4,394,680

COLOR TELEVISION SIGNAL PROCESSING APPARATUS

Toshiro Watanabe, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

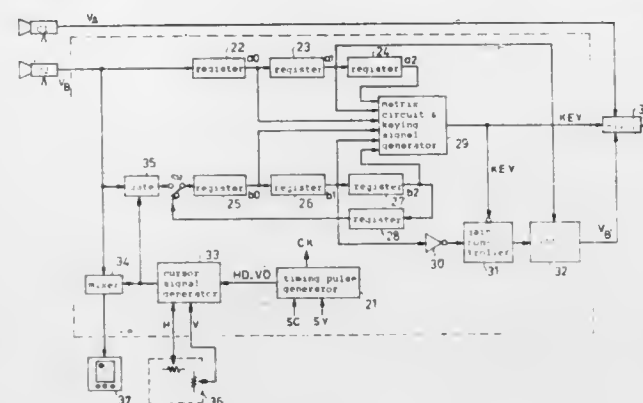
Filed Mar. 31, 1981, Ser. No. 249,699

Claims priority, application Japan, Apr. 1, 1980, 55-42991; Apr. 1, 1980, 55-42992

Int. Cl.³ H04N 9/535

U.S. Cl. 358-22

25 Claims



1. A color television signal processing apparatus comprising:
a first and a second register means for selectively dividing a first and a second color television signals into sample signals indicative of picture element levels during periods of one n-th (n: integer) of one period of a color chrominance subcarrier signal and temporarily storing indicia of said sample signals for a predetermined number of sequential periods,
a calculation means for calculating correlations, by use of said sample signals indicative of said picture element levels, between at least one color signal component contained in said first and said second color television signals, and for issuing a predetermined correlation signal,
a generating means for taking out at least one signal component among a chroma difference component and a luminance difference component from said correlation signal, and for generating a chromakey signal for controlling a signal level of said first color television signal, and
a mixing means for mixing the level-controlled first color television signal with a third color television signal.

4,394,681

OPTICAL SYSTEM FOR PROJECTION TELEVISION

William A. Rowe, Palatine, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Apr. 27, 1981, Ser. No. 258,206
Int. Cl.³ H04N 9/31

U.S. Cl. 358-60

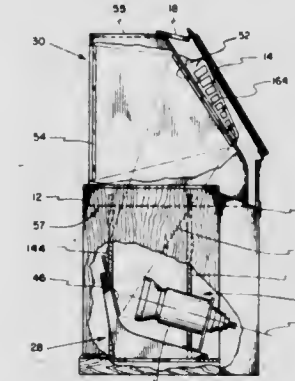
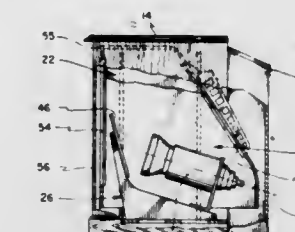
9 Claims

1. For use in an ultra-compact, rear-projection television receiver, a projection optical system protractible and retractible within a narrow spatial column for emerging from and nesting within a cabinet of said receiver, said optical system comprising in combination:

a stationary optical assembly permanently enclosed in a lower portion of said cabinet, said assembly having:
image projection means including at least one cathode ray tube means for forming a television image, and having associated projection lens means on a common axis therewith for projecting an aerial image of said television image a predetermined image projection distance along an optical path folded by optical path folding means, said common axis being oriented at a predetermined, steeply upward projection angle; and
first mirror means mounted closely adjacent to said image

projection means for receiving said aerial image, said first mirror being oriented at a fixed predetermined first mirror reflection angle effective to reflect said aerial image steeply upwardly along said folded optical path; a protractible optical assembly elevatable as a unit from said cabinet including:

second mirror means located over said image projection means for receiving said aerial image reflected from said first mirror means when said protractible optical assembly is protracted, said second mirror means being oriented at a fixed predetermined second mirror reflection angle effective to reflect said aerial image forwardly, and when said protractible optical assembly is retracted, said predetermined second mirror reflection angle provides for angular conformance with said projection angle of said image projection means effectively permitting nesting of said second mirror with said image projection means;



rear projection screen means located appreciably forwardly of said second mirror means and vertically arranged for receiving, when said protractible optical assembly is protracted, said aerial image reflected from said second mirror means, and when said protractible optical assembly is retracted, said screen means is vertically arranged for nesting between a front panel of said cabinet and said first mirror means;

said projection angle of said image projection means, and said predetermined first and second mirror reflection angles being such that said protractible optical assembly, when retracted and nested, is overall depth-wise-shallow, and said receiver is as compact as a conventional, large-screen console television receiver, and when said protractible optical assembly is protracted within said narrow spatial column, said receiver remains depth-wise-shallow, yet is capable of displaying an image with an area greater than three times the image area of said conventional television receiver.

4,394,682

DC SWITCHING CIRCUIT

Eugene K. Severson, Colorado Springs, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 968,244, Dec. 11, 1978, Pat. No. 4,346,308. This application Oct. 14, 1981, Ser. No. 311,130

Int. Cl.³ H04N 9/27

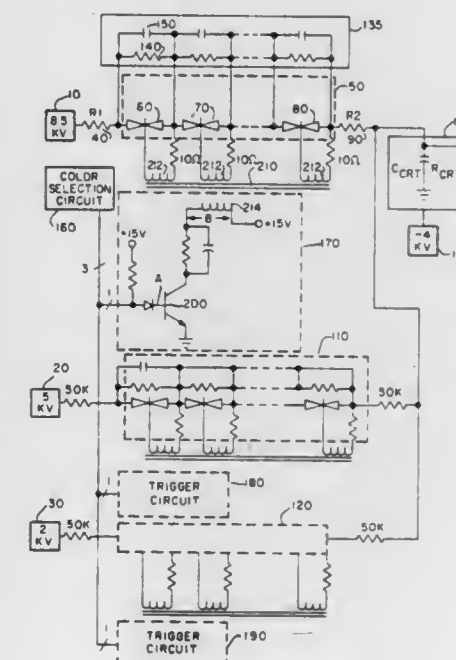
U.S. Cl. 358-73

4 Claims

1. A bidirectionally conductive switching circuit for selectively coupling a plurality of dc high voltages to a beam penetration CRT, the switching circuit comprising:
a beam penetration CRT possessing a high voltage terminal having a capacitance that can be charged and discharged

and also having a resistance high enough to limit the current due to the resistance to a value less than either of the first and second holding currents for the first and second serial strings of triacs recited below:

a first dc voltage supply;
a first serial string of triacs, each triac thereof having first and second conduction terminals and a gate terminal, the conduction terminals coupled serially between the first dc voltage supply and the high voltage terminal of the beam penetration CRT, the first serial string having a first holding current beneath whose value the string will no longer conduct in the absence of a signal applied to the gate terminals;
a first trigger means having a plurality of outputs each individually coupled to an associated gate terminal in the first serial string of triacs, for synchronously applying to the gate terminals a periodic signal switching the triacs conductive to charge the capacitance of the beam penetration CRT toward the voltage of the first dc voltage supply until the charging current falls below the value of the first



holding current and for thereafter maintaining the voltage at that level;

a second dc voltage supply of voltage different in value than the voltage of the first dc voltage supply;
a second serial string of triacs, each triac thereof having first and second conduction terminals and a gate terminal, the conduction terminals coupled serially between the second dc voltage supply and the high voltage terminal of the beam penetration CRT, the second serial string having a second holding current beneath whose value the string will no longer conduct in the absence of a signal applied to the gate terminals; and
a second trigger means having a plurality of outputs each individually coupled to an associated gate terminal in the second serial string of triacs, for synchronously applying to the gate terminals a periodic signal switching the triacs conductive to discharge the capacitance of the beam penetration CRT toward the voltage of the second dc voltage supply until the discharging current falls below the value of the second holding current and for thereafter maintaining the voltage at that level.

means for detecting in the digital information signals a tabulation control code indicative of the presence of digital information relating to two rows of the display in an information line and including row and column addressing codes and wherein said means for detecting includes row address and column address detecting means for respectively detecting the row and column addressing codes, means for retaining an immediately previous row address for a subsequently received data information line when said detecting means detects said control code, and wherein the column address detecting means controls the retaining means to change the row address to that received from said subsequently received data information line at a time determined by the detected column address received from said subsequently received data information line; and

means for controlling the storage addressing of said digital information signals in said means for storing in accordance with said control code to ensure proper read out for display of the information.

4,394,688

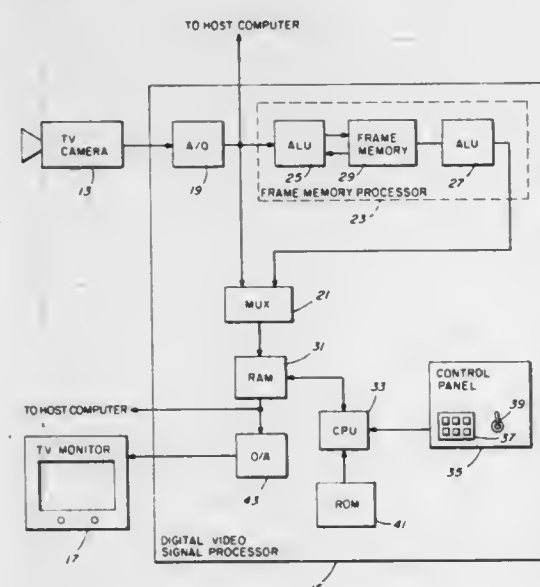
VIDEO SYSTEM HAVING AN ADJUSTABLE DIGITAL GAMMA CORRECTION FOR CONTRAST ENHANCEMENT

Hitoshi Iida, Bedford, and Pay-Shin King, Newton, both of Mass., assignors to Hamamatsu Systems, Inc., Waltham, Mass.

Filed Aug. 25, 1981, Ser. No. 296,068
Int. Cl.³ H04N 5/14, 5/20

U.S. Cl. 358—160

9 Claims



1. A video system comprising a television camera for converting visual information into analog video signals, a digital video signal processor for digitally processing said analog video signals and a television monitor for displaying an image of the processed analog video signals, said digital video signal processor including:

- an analog to digital converter for converting the analog video signals into video data,
- a first memory device for modifying the video data according to the particular contents contained therein,
- a second memory device, said second memory device having stored therein a plurality of table-look-ups, each table-look-up corresponding to a different gamma correction,
- a central processing unit for controlling the operations of the digital video signal processor, said operations including reading out one of said table-look-ups in said second memory device and writing said read data into said first memory device,
- a manually operated control device for controlling the operations of the central processing unit, said control

device including means for selecting the particular table-look-ups to be read by said central processing unit, and

f. a digital to analog converter for converting the modified video data from said first memory device into analog video signals.

5. A method of manipulating video picture data for the purpose of enhancing contrast over certain areas of interest comprising:

- passing said video picture data through a first memory device which is arranged to modify the video picture data according to the contents of a table-look-up contained therein,
- providing a second memory device having therein a plurality of different table-look-ups, each table-look-up corresponding to a different gamma correction, and
- selectively reading out one of said table-look-ups from said second memory device and writing said table-look-up so read into said first memory device.

4,394,689

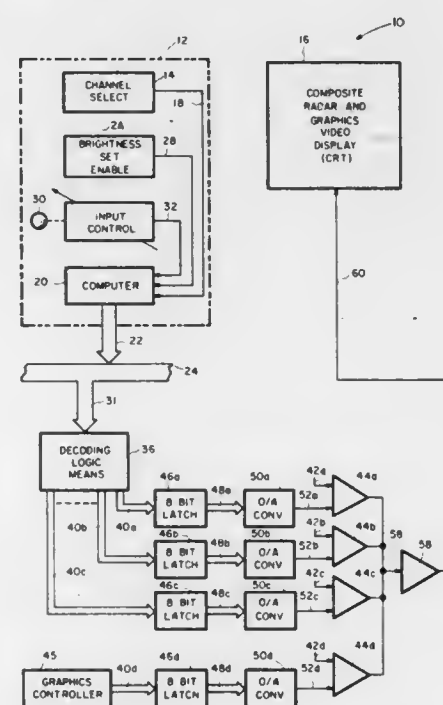
PROGRAMMABLE CRT BRIGHTNESS CONTROL

Edward L. Wallace, Ellicott City, and Theodore Wright, Crownsville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 13, 1981, Ser. No. 282,357
Int. Cl.³ H04N 5/14

U.S. Cl. 358—168

4 Claims



1. A system including means for selectively displaying any one of a plurality of video channels on a cathode ray tube display means, said system being characterized by the improvement comprising:

- a manually actuable brightness set enable means for providing an enable signal while actuated;
- a manually operable control means for providing a selectively variable brightness input signal;
- computer means, responsive to coincidence of said enable signal and said brightness input signal for providing a digital word output representative of the currently displayed channel and a display brightness level corresponding to said input signal;
- decoding means, responsive to said digital word output to provide a plurality of separate digital words each representative of a selected brightness level for one of said channels;
- a plurality of digital storage and readout means each corresponding to one of said channels and operative to store the digital words for that channel upon deactivation of said

enable signal, and to read out said digital word whenever the corresponding channel is being displayed;

means for converting each digital word to a brightness level control signal when the corresponding channel is displayed;

said display means being responsive to said brightness level control signal whereby a predetermined brightness level of the display means is effected for each channel upon its display.

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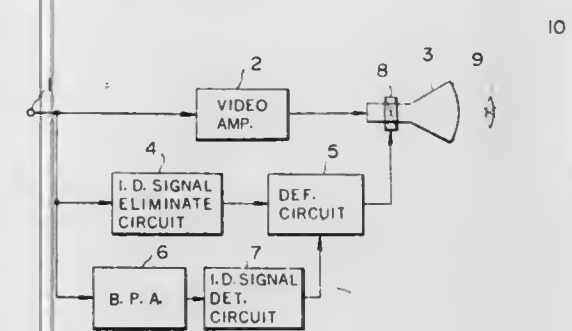
VARIABLE ASPECT RATIO TELEVISION RECEIVER

Katsumi Kobayashi, Machida, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 24, 1981, Ser. No. 257,389
Claims priority, application Japan, Apr. 25, 1980, 55-55871[U]

U.S. Cl. 358—180

10 Claims



1. In a variable aspect ratio television receiver comprising:

a video signal input terminal supplied with a video signal which can be either a standard composite video signal intended to be displayed at with standard aspect ratio or a non-standard composite video signal having an identification signal and intended to be displayed with a non-standard aspect ratio;

a video amplifier having an input connected to said video input terminal and an output providing an image output signal;

an image reproducing apparatus supplied with the image output signal from said amplifier and displaying a video picture;

deflecting means associated with said image reproducing apparatus and developing said video picture according to a predetermined format with a deflection height and a deflection width, such that a portion of said video signal occurs in an overscan portion beyond the deflection height of said format;

an identification signal detecting circuit supplied with said input video signal for detecting the presence of said identification signal carried in said non-standard composite video signal; and

a deflection width changing circuit means connected between said identification signal detecting circuit and said deflecting means for changing said deflection width developed at said deflecting means in response to said identification signal, thereby varying the aspect ratio of said video picture; the improvement in which said identification signal is carried in said non-standard composite video signal during said overscan portion of said video picture of said non-standard video signal, and said identification signal detecting circuit includes means adapted for detecting of said identification signal during said overscan period.

4,394,691

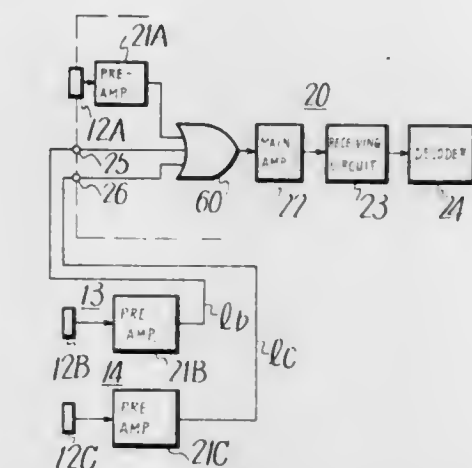
REMOTE CONTROL SYSTEM

Toshio Amano, Tokyo; Kunio Nagai, and Juri Honma, both of Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 30, 1981, Ser. No. 288,517
Claims priority, application Japan, Aug. 8, 1980, 55-113240[U]

U.S. Cl. 358—194.1

12 Claims



1. A remote control system for selectively controlling a desired one of plural devices by the remote transmission of control signals from a transmitter, said system comprising: central control means including decoding means for decoding a remotely transmitted control signal to produce a corresponding device control signal, said central control means being coupled to said plural devices for controlling said desired device with said device control signal;

plural receiving means spatially separated from each other, each receiving means receiving said remotely transmitted control signal;

at least one input terminal provided on said central control means, said at least one input terminal being coupled to one of said receiving means for receiving a remotely transmitted control signal therefrom; and

means for supplying the remotely transmitted control signal received at said at least one input terminal to said decoding means, whereby a desired device is controlled in response to a remotely transmitted control signal received by said receiving means coupled to said at least one input terminal.

4,394,692

HOUSING ASSEMBLY FOR AN ELECTRICAL APPARATUS

Rein S. Randmae, Fort Salonga, and Todd H. Whitaker, Smithtown, both of N.Y., assignors to Vicon Industries, Inc., Plainview, N.Y.

Filed Nov. 27, 1981, Ser. No. 325,582
Int. Cl.³ H04N 5/30

U.S. Cl. 358—229

7 Claims

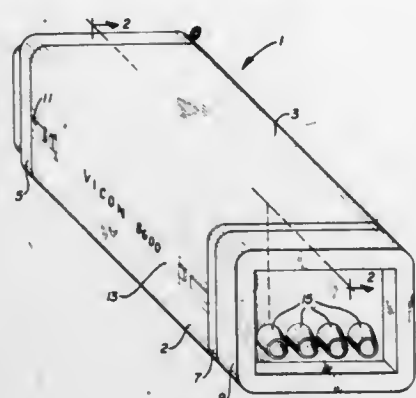
1. A housing assembly for an electronic surveillance camera comprising:

a lower housing for providing support to said camera having a frame portion at the rearward end thereof, said rear frame portion defining an open space through which connections may be made from the exterior of said housing assembly to its interior;

an upper housing matingly engaging said lower housing to create an enclosed region within said housing assembly; an end cap detachably connected to said frame portion of said lower housing and covering said open space in said frame portion to seal said enclosed region from contaminants external to said housing assembly,

said end cap being constructed of a single piece of resilient material and comprising:

means for relieving strain on a cable entering said housing assembly through said end cap, said end cap having a slit communicating with said strain relief means for facilitating entry of cables therethrough, and



resilient notched protrusions extending from said end cap and spaced so as to engage the inner rim of said frame portion to provide detachable connection between said end cap and said frame portion.

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SYSTEM AND METHOD FOR GENERATING ENLARGED OR REDUCED IMAGES

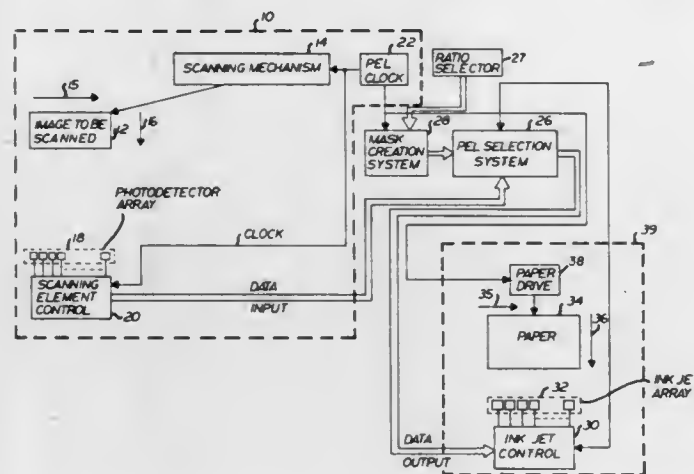
Robert E. Shirley, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 23,404, Mar. 23, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,555

Int. Cl.³ H04N 1/22

U.S. Cl. 358—298

20 Claims



1. A system for reproducing an original image of given size in a selectable reproduced size that is variable within a substantial range, comprising:

- scanning means for generating a pel array pulse train representative of intensity variations of individual pels in a pel array of rows and columns on the original image;
- scanning recorder means for generating dot patterns in rows and columns on a reproduced image medium; and
- processor means responsive to the pel array pulse train generated by the scanning means for altering the pel array pulse train to modify the number of rows and columns in the pel array of rows and columns on the original image, the processor means including means for selecting one of a plurality of different scale factors, means responsive to a selected scale factor for generating a coded pulse train having pulse positions synchronized with the pel array pulse train, the coded pulse train being comprised of pulses of first and second values, the arrangement of which is determined by the selected scale factor and varies for different scale factors, means for sequentially storing the individual pulses of the coded pulse train, means for sequentially applying the stored individual pulses of the coded pulse train to alter the pel array pulse train, and

means for providing the altered pel array pulse train to the scanning recorder means to modulate the dot patterns generated thereby.

4,394,694

TAPE SYNCHRONIZING APPARATUS

Ichiro Ninomiya, Kanagawa, and Jun Takayama, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

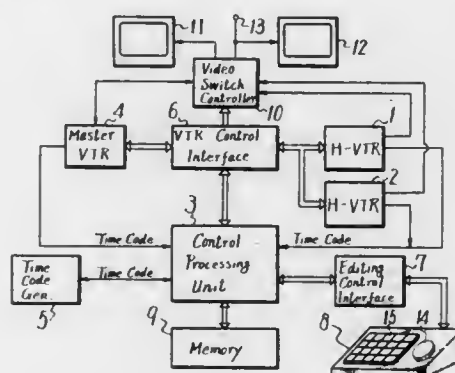
Filed Sep. 23, 1980, Ser. No. 189,576

Claims priority, application Japan, Sep. 27, 1979, 54-124368; Nov. 19, 1979, 54-149859

Int. Cl.³ G11B 27/00; H04N 5/78

U.S. Cl. 360—14.3

7 Claims



1. A video tape synchronizing system for a helical scan video tape recorder which uses a video tape having information signals and time code signals recorded thereon and which is adapted to reproduce said information signals from said video tape when the latter is moved at any one of a plurality of different speeds, comprising:

- time code reader means for reading out said time code signals recorded on said video tape which is used in said helical scan video tape recorder;
- selecting means for setting a direction and any one of said plurality of different speeds of movement of the video tape at an in-point, wherein said in-point indicates a starting point for playing back information signals recorded in said video tape; and
- control processing means for determining a pre-roll point at which said video tape is to be stopped by determining the distance between said in-point and said pre-roll point in response to said time code signals read out by said time code reader means which correspond to said in-point of said video tape and said set direction and said set one of said plurality of different speeds of movement of said video tape at said in-point, and for controlling said helical scan video tape recorder to stop said video tape at said pre-roll point.

4,394,695

METHOD AND APPARATUS FOR EVALUATING RECORDING SYSTEMS

Douglas K. Mahon, Boulder Creek, Calif., assignor to Sharp Corporation, Osaka, Japan

Filed Feb. 2, 1981, Ser. No. 230,699

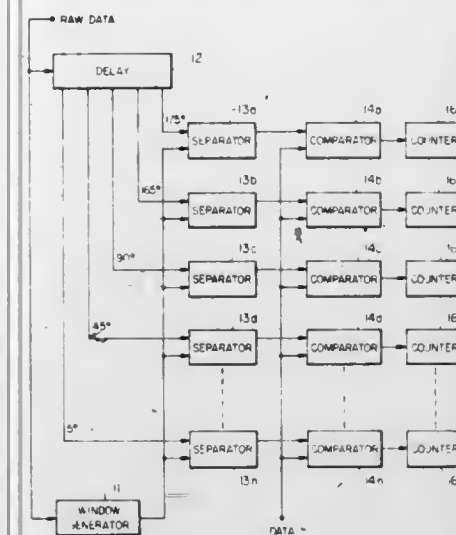
Int. Cl.³ G11B 5/09

U.S. Cl. 360—53

7 Claims

1. Apparatus for evaluating recording systems including means responsive to the raw data for generating a plurality of data windows having leading and trailing edges, a plurality of data separators connected to receive said data windows and the reproduced data and serving to separate out data which falls outside the windows, means for providing at each of said

separators different relative positions between at least one edge of said window and said data to thereby provide different



effective sized windows at each of said separators for separating out the data.

4,394,696

APPARATUS FOR POSITIONING MAGNETIC HEAD TO POSITION CORRESPONDING TO REFERENCE TRACK ON MAGNETIC TAPE

Tomohisa Yoshimaru, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

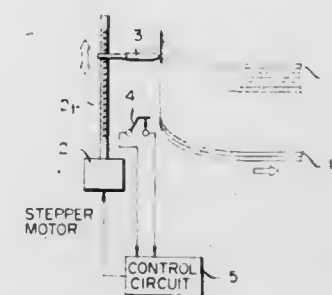
Filed Mar. 27, 1981, Ser. No. 248,288

Claims priority, application Japan, Apr. 1, 1980, 55-42437

Int. Cl.³ G11B 21/08, 5/55, 17/00

U.S. Cl. 360—78

2 Claims



1. In a magnetic tape apparatus provided with a magnetic head movable in a direction perpendicular to the direction of running of a magnetic tape having a plurality of data tracks extending in the running direction thereof and a stepper motor for moving the magnetic head in the direction perpendicular to the running direction of the tape with respect to a reference position corresponding to a reference track of the tape, said stepper motor including a rotor and a plurality of phase windings successively excited by a drive pulse signal, apparatus for positioning said magnetic head to said reference position comprising:

- detecting means for detecting the arrival of said magnetic head at the neighborhood of said reference position when said head is moved toward said reference position;
- a plurality of selectable switches for specifying the phase and the corresponding phase winding which will be excited when said head is at said reference position; and
- control circuit means connected to said detecting means, said switches and said stepper motor for causing said stepper motor to stop said magnetic head at said reference position when the previously specified phase winding of said stepper motor is excited after the detection of arrival of said magnetic head at the neighborhood of said reference position by said detecting means to thereby obtain the reference position of said magnetic head.

4,394,697

MAGNETIC RECORDING/REPRODUCING APPARATUS

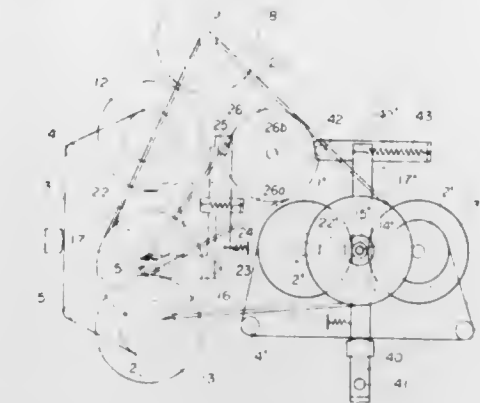
Tsutomu Kurosawa, Ohmiya, Japan, assignor to Sahi Electronics Co., Ltd., Ohmiya, Japan

Filed Aug. 13, 1980, Ser. No. 177,736

Int. Cl.³ G11B 15/32; B65H 51/28; H04M 1/65

U.S. Cl. 360—91

9 Claims



1. Recording-reproducing apparatus for the automatic answering of telephones comprising:

- first and second independently movable, elongated, flexible recording media, one for storing a pre-recorded message to be transmitted and the other for recording an incoming message;
- first supply and take-up means for the first of said media for effecting forward and rewind movements thereof;
- second supply and take-up means for the second of said media for effecting forward and rewind movements thereof;
- motive means;
- cam means driven by said motive means;
- first pivotable lever means formed with first follower means for following said cam means and with first pulley means driven by said motive means;
- second pivotable lever means formed with second follower means for following said cam means and with second pulley means driven by said motive means;
- said first lever means being pivoted in response to the movements of said first follower means in such a manner as selectively to bring said first pulley means into driving relation with at least said first take-up means and thereby control at least the forward movement of the first of said recording media; and
- said second lever means being pivoted in response to the movements of said second follower means in such a manner as selectively to bring said second pulley means into driving relation with at least said second take-up means and thereby control at least the forward movement of the second of said recording media.

4,394,698

APPARATUS FOR AUTOMATIC INVERTING OF CASSETTES

Etienne A. M. Schatteman, Wommel, Belgium, assignor to Staar S. A., Belgium

Filed Mar. 19, 1981, Ser. No. 245,381

Int. Cl.³ G11B 5/00, 15/68

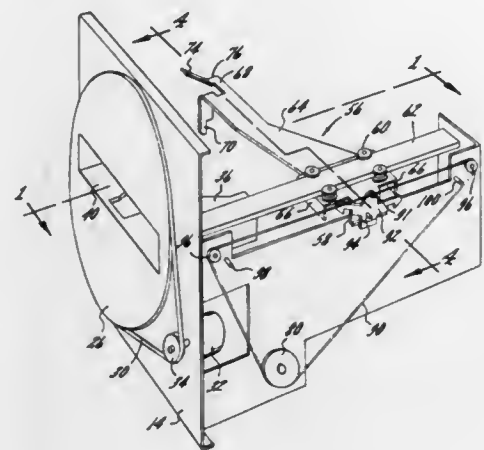
U.S. Cl. 360—96.5

10 Claims

1. Apparatus for inverting a cassette for use in connection with a recorder/playback device, the inverting apparatus comprising:

- (a) a rotatable magazine for receiving the cassette and inverting the cassette during rotation of the magazine;
- (b) movable stop means for stopping and retaining the cassette at a holding position within the magazine; and
- (c) transfer means separate from said rotatable magazine for removing the cassette from said holding position in the

rotatable magazine and conveying the cassette to an operating position in the recorder/playback device, said trans-



fer means engaging and moving said stop means to release the cassette.

4,394,699

THIN-FILM MAGNETIC HEAD

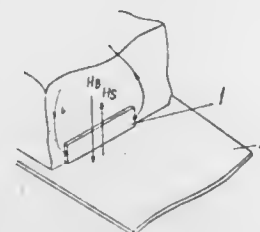
Nobuyuki Kaminaka, Moriguchi; Kenji Kanai, Neyagawa; Norimoto Nouchi, Katano, and Noboru Nomura, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Feb. 20, 1981, Ser. No. 236,307

Claims priority, application Japan, Feb. 21, 1980, 55-21099
Int. Cl.³ G11B 5/12, 5/30, 5/22

U.S. Cl. 360-113

9 Claims



1. A thin-film magnetic head comprising a substrate, a layer of magnetoresistive element deposited on said substrate at a temperature other than at room temperature and a conductor layer for supplying said magnetoresistive element with an electric current in the longitudinal direction thereof, wherein: said substrate comprises a single crystal material; at least two crystal axes of said substrate material are in parallel with the surface on which said layer of magnetoresistive element is deposited, the coefficient of thermal expansion of the substrate being different in the directions of said crystal axes; the orientations of said crystal axes and the coefficients of thermal expansion in said directions are in the relationship such that an internal stress is set up within said magnetoresistive element in parallel or perpendicular to said longitudinal direction of said element due to the difference between the temperature during the deposition of said element and room temperature; and the magnetostriction coefficient of said element is selected so that said set up stress has the effect of orienting the spins within said element in said longitudinal direction.

4,394,700 RESTRAINING AND SEALING MECHANISM FOR DISC CARTRIDGE

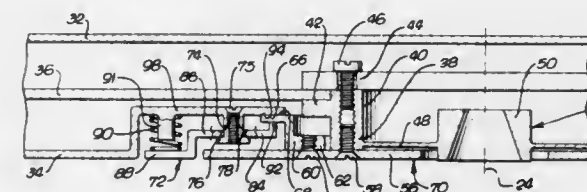
Roy J. Edwards, San Jose, Calif., assignor to Disctron, Inc., Milpitas, Calif.

Filed Apr. 1, 1981, Ser. No. 249,899

Int. Cl.³ G11B 23/04

U.S. Cl. 360-133

17 Claims



1. In a cartridge containing a rotatable disc oriented generally parallel to the top and bottom of the cartridge and attached to a hub assembly, said hub assembly rotatable about an axis by a disc-drive assembly through an opening in the bottom of said cartridge and displaceable axially with respect to said cartridge, said cartridge for insertion into a disc-drive assembly, a mechanism for restraining the movement of said magnetic disc and hub assembly relative to said cartridge and for sealing said cartridge when said cartridge is not inserted into said disc-drive assembly comprising:

an annular surface on said cartridge near said opening, said annular surface fixed with respect to the top and bottom of said cartridge;

an annular flange carried by said hub assembly having an annular sealing surface generally opposite to said annular surface on said cartridge and configured to sealingly engage said annular surface on said cartridge; and means for axially pressing said annular sealing surface on said flange against said annular surface on said cartridge by pressing on an annular surface of said hub assembly, said means acting when said cartridge is not inserted into said disc-drive assembly to restrain said disc and hub assembly from rotating and to seal said cartridge about said opening, said means being located peripherally about said hub assembly near the bottom of said cartridge and outside that portion of the cartridge containing the disc.

4,394,701

RECORDING TIME MODE DETECTOR

Kouichi Igata, Hirakata, and Masaaki Kobayashi, Kawanishi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

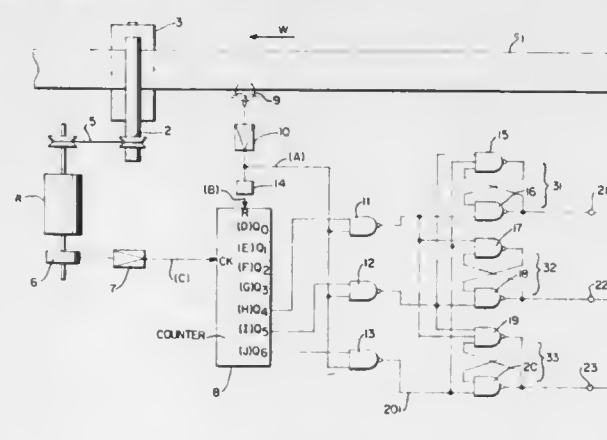
Filed Nov. 19, 1980, Ser. No. 208,476

Claims priority, application Japan, Nov. 24, 1979, 54-152324; Mar. 21, 1980, 55-36676; Jul. 3, 1980, 55-91486

Int. Cl.³ G11B 15/52

U.S. Cl. 360-137

3 Claims



1. In a multi-speed video tape recorder/reproducer utilizing a magnetic tape having video information and control signals recorded thereon, and having a magnetic tape driving means comprising a capstan, and further having one of said control

signals recorded on said magnetic tape indicative of a video frame, a recording time mode detector for detecting the recording time mode of the video information recorded on said magnetic tape, said recording time mode detector comprising: a reproducing head means for reproducing said control signals recorded on said magnetic tapes; a frequency generator means operatively mechanically connected to said capstan for providing a signal indicative of the number of rotations of said capstan; a counter means for counting the number of pulses output by said frequency generator means during a video frame, a clock input of said counter means being connected to said frequency generator means and a reset input of said counter means being connected to said reproducing head means; a decoder and storage means operatively connected to said reproducing head means and said counter means for detecting and storing the recording time mode of said magnetic tape by determining the count stored in said counter means during one video frame; and indicator means operatively connected to said decoder and storage means for indicating the detected recording time mode.

4,394,702

POWER FAILURE DETECTION AND CONTROL CIRCUIT

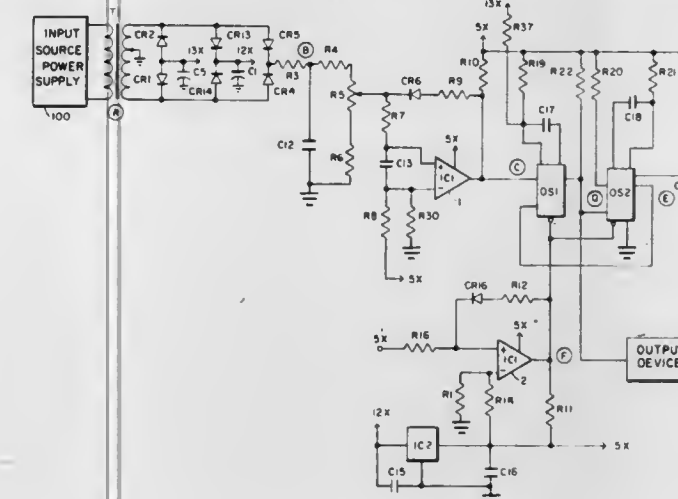
Guy Boothe, Laguna Beach, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,887

Int. Cl.³ H02H 3/24

U.S. Cl. 361-92

10 Claims



1. A circuit for detecting the condition of a power source comprising: a first pulse circuit (1, OS1) for selectively generating pulses (D) of a first time period and frequency as a function of the signal (C) supplied thereto from said power source, a second pulse circuit (OS2) for selectively generating pulses (E) of a second time period and frequency as a function of the pulses (D) supplied thereto by said first pulse circuit, said second pulse circuit selectively supplying pulses to said first pulse circuit to effectively disable said first pulse circuit, and reset circuit means (2, etc) connected between said power source and each of said first and second pulse circuits to reset said first and second pulse circuits to a prescribed condition when said power source has returned to a prescribed level.

4,394,703 LOAD PROTECTING ARRANGEMENT

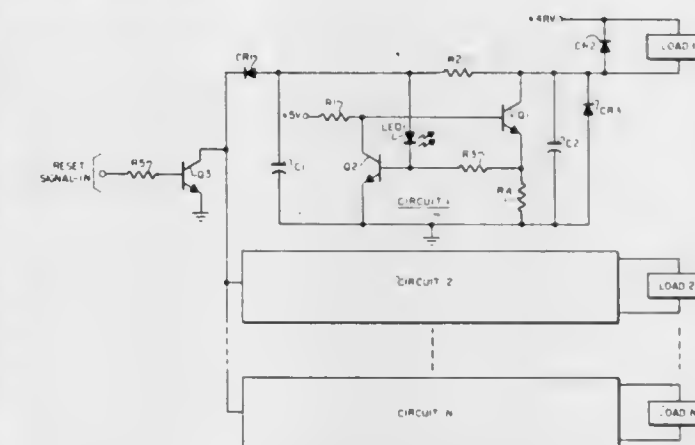
James S. Butcher, Glendale Heights, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 24, 1981, Ser. No. 334,188

Int. Cl.³ H02H 3/08

U.S. Cl. 361-101

17 Claims



1. A protection circuit for use between a first source of DC power and a load, comprising: current pass means connected between said load and said DC source; DC bias means connected to said current pass means, conditioning said current pass means to conduct therethrough, current from said first DC power source to said load; sensing means connected to said current pass means; control means connected to said sensing means and to said current pass means, initially operated in response to detection of a flow of current in excess of a predetermined value, from said first source to said load by said sensing means, to operate said current pass means to limit the flow of current therethrough; feedback means connected between said current pass means and said control means, developing a signal in response to said limiting of current flow through said current pass means, to render said control means fully operated, and render said current pass means inoperative; and reset means operated in response to said rendering of said current pass means inoperative, to disable said feedback means developed signal to thereby render said current pass means reoperated.

4,394,704

SURGE ARRESTER ASSEMBLY

Raymond D. Jones, Cheam, England, assignor to TII Corporation, Lindenhurst, N.Y.

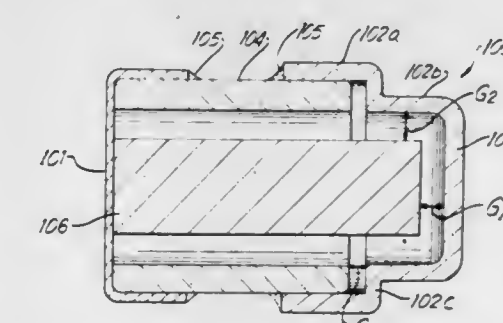
Division of Ser. No. 18,360, Mar. 6, 1979, Pat. No. 4,320,435.

This application Oct. 30, 1981, Ser. No. 316,897

Int. Cl.³ H02H 1/04

U.S. Cl. 361-119

4 Claims



1. A two electrode gas tube arrester comprising: (a) an insulating tubular member having a central bore; (b) first conductive end cap means carried on one end of said tubular member and in abutting relationship thereof, said end cap means including a central conductor extending

axially thereon through said tubular member to present the free end thereof beyond the other end of said tubular member;

- (c) second conductive end cap means carried on said other end of said tubular member, said second end cap means having a portion extending over said free end of said conductor such that an ionization gap is defined therebetween;
- (d) said second end cap means including a first cylindrical portion bonded to the external surface of said tubular member and a second cylindrical portion of reduced diameter joined thereto by a shoulder portion, and further including a circular portion in juxtaposition to said free end of said conductor, said ionization gap being defined (i) by the space between said conductor free end and said circular portion or (ii) by the space between said conductor and said second reduced diameter portion;
- (e) said shoulder and said other end of said tubular member defining a clearance therebetween for controlling the size of said first mentioned ionization gap space;
- (f) said first and second end cap means being joined to said tubular member in gas tight relationship to form a control volume; and
- (g) ionizable gas in said control volume.

4,394,705

ANTI-STATIC HOSE ASSEMBLIES

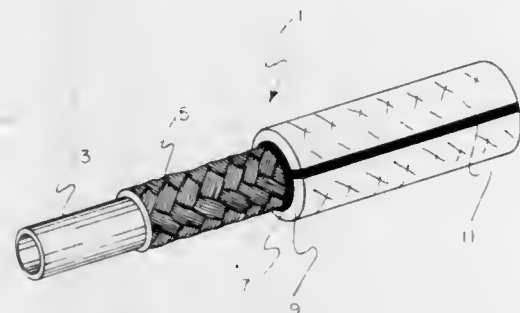
Lawrence P. Blachman, Reading, Pa., assignor to The Polymer Corporation, Reading, Pa.

Filed Jan. 4, 1982, Ser. No. 336,711

Int. Cl.³ H05F 3/00

U.S. Cl. 361-215

6 Claims



1. An anti-static hose comprising:
a tube which is a tubular component of the hose;
a reinforcement which is high tenacity yarns applied in tensioned relationship over the tube;
a static drain which is a conductive layer over the reinforcement; and
a cover which is a continuous protective layer of polymeric material enveloping the static drain and the reinforcement, the improvement comprising:
a stripe of a conductive polymer extending through the cover and along the length of the hose, which stripe forms a portion of the outer surface of the cover and is in contact with the static drain.

4,394,706

POWER CONVERTER FOR RECREATIONAL VEHICLES

Daniel J. Crafts, Battle Creek, Mich., assignor to Progressive Dynamics, Inc., Marshall, Mich.

Filed Jul. 11, 1979, Ser. No. 56,605

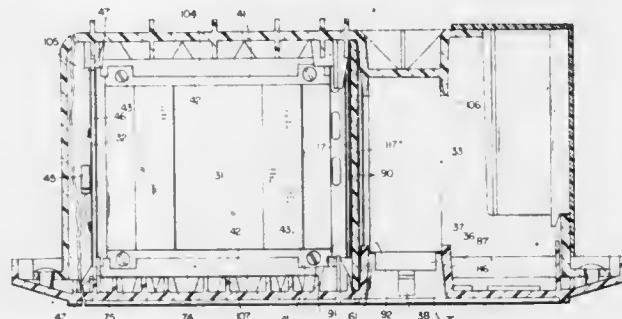
Int. Cl.³ H05K 5/02

U.S. Cl. 361-331

24 Claims

1. A power converter for recreational vehicles, comprising:
(a) at least two electrical components being electrically interconnected for altering the characteristics of a source of electrical power;
(b) a housing adapted for mounting in said recreational vehicle, and including first and second portions; each of said housing portions having an interior surface with

sockets positioned thereon for said electrical components; each of said sockets being shaped to telescopically receive therein one end of an associated electrical component and surround said component end on each side thereof to retain the same in place; said sockets being arranged in pairs with one member of each pair disposed in said first and second housing portions, respectively, and the members of each socket pair being aligned for receiving the associated electrical component therebetween; each of



said sockets having a central axis which is disposed in a mutually parallel relationship; and

- (c) said first and second housing portions being interconnected with alignment of said socket pairs, and convergence of the same along an axis parallel with the axes of said sockets, with opposing ends of said electrical components positioned between and aligned with the associated socket pair, whereby each of said electrical components is captured therebetween to securely mount said electrical components in said housing without separate fasteners.

4,394,707

ELECTRICAL CIRCUIT PACKAGE

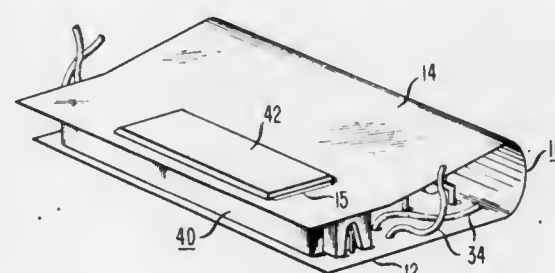
John J. Consoli, Indianapolis, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 26, 1981, Ser. No. 238,470

Int. Cl.³ H05K 1/02

U.S. Cl. 361-398

3 Claims



1. An electrical circuit package comprising:
a flexible dielectric substrate;
a single first portion of the dielectric substrate having located thereon all electrically conductive paths and all electrical components associated with the circuit package, the components being electrically connected to the conductive paths on the first portion;
at least one electrical component supported on the first portion of the substrate including an integral catch remote to the electrical connection of the component to the conductive paths on the first portion; and
a single second portion of the dielectric substrate extending lengthwise from the first portion, the second portion being free of any electrically conductive paths and electrical components, the second portion having integral means for cooperating with the catch on the component to secure the two portions together, the second portion being at least equal in length to the first portion and being folded over and secured to the first portion to provide an electrically insulating protective cover for the components.

4,394,708

ELECTRONIC THERMOSTAT WITH PROTECTED CIRCUITRY

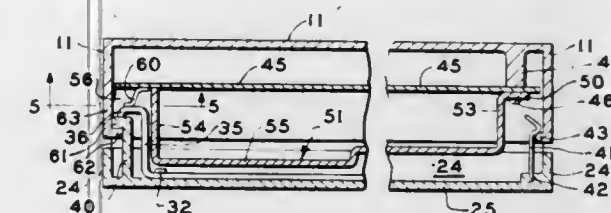
Donald J. Kasprzyk, Maple Grove, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 6, 1981, Ser. No. 261,067

Int. Cl.³ H05K 5/02

U.S. Cl. 361-399

8 Claims



1. An electronic thermostat having circuit components that are subject to electrical and mechanical damage, including: mounting base means and cover means forming said electronic thermostat when said base means and said cover means are mounted together; circuit board means including electronic circuit components that are susceptible of electrical and mechanical damage; said circuit board means further having contact means in the form of a plurality of separate individual contact members mounted upon said board means and connected to said electronic circuit components; said circuit board means mounted within said cover means; insulating enclosure means mounted within said cover means to partially enclose said circuit board means to protect said circuit board means from damage by accidental contact with said circuit board means; said insulating enclosure means including barrier means which form separate individual plural contact openings of limited size to provide access to said individual contact members through said contact openings; said base means adapted to be mounted upon a surface with said base means including connection means; and said base connection means including separate plural electric base contact members that project from said base means through said openings to engage said circuit board contact members to complete electric connections from said base means to said circuit board means to complete the mounting of said electronic thermostat.

4,394,709

DIE-STAMPED CIRCUIT BOARD ASSEMBLY HAVING RELIEF MEANS TO PREVENT TOTAL SWITCH DEFORMATION

Boyd G. Brower, and John W. Shaffer, both of Williamsport, Pa., assignors to GTE Products Corporation, Stamford, Conn.

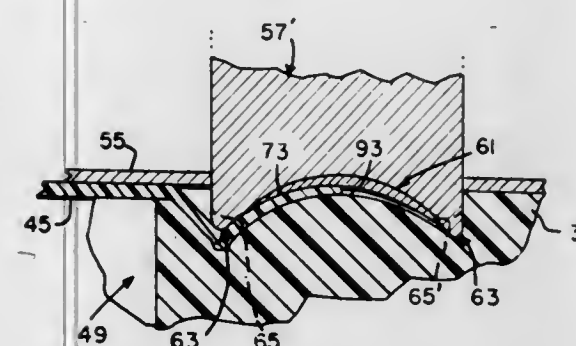
Division of Ser. No. 131,614, Mar. 19, 1980, Pat. No. 4,320,572.

This application Jan. 4, 1982, Ser. No. 336,531

Int. Cl.³ H05K 3/20

U.S. Cl. 361-401

11 Claims



1. A circuit board assembly for use within a photoflash device, said circuit board assembly comprising:
a dielectric substrate;
a thin, electrically conductive switching element positioned on said dielectric substrate and having a portion thereof

die-stamped an established distance within a surface of said dielectric substrate;
an electrically conductive member die-stamped within said surface of said dielectric substrate simultaneously with said switching element and having a part thereof located on said portion of said switching element die-stamped within said substrate, said die-stamping electrically connecting said conductive member to said portion of said switching element; and
relief means located within said dielectric substrate for preventing total severing of said switching element during said die-stamping thereof within said dielectric substrate, at least one segment of said portion of said switching element die-stamped within said substrate being aligned with said relief means during said die-stamping and thereafter being positioned within said relief means such that said segment is not severed, at least one part of said die-stamped portion of said switching element adjacent said die-stamped segment of said portion being deformed or severed by said die-stamping.

4,394,710

DIE-STAMPED CIRCUIT BOARD ASSEMBLY FOR PHOTOFLASH DEVICES

Boyd G. Brower, Williamsport; David R. Broadt, Lewisburg, and John W. Shaffer, Williamsport, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

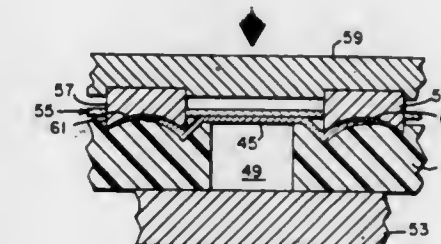
Division of Ser. No. 131,711, Mar. 19, 1980, Pat. No. 4,325,771.

This application Jan. 4, 1982, Ser. No. 336,532

Int. Cl.³ H05K 3/20

U.S. Cl. 361-401

15 Claims



1. A circuit board assembly for use within a photoflash device, said circuit board assembly comprising:
a dielectric substrate;
at least one thin, electrically conductive switching element having a portion thereof die-stamped an established distance within a surface of said substrate; and
at least one thin, electrically conductive metallic member die-stamped within said surface of said substrate simultaneously with said switching element and having a part thereof located on said die-stamped portion of said switching element, said die-stamping electrically connecting said conductive member to said portion of said switching element and securely positioning both said conductive member and said switching element on said dielectric substrate without severing said switching element.

4,394,711

CIRCUIT BOARD WITH WELDABLE TERMINALS

Larry R. Conley, Fountain Valley, Calif., assignor to Interconnection Technology, Inc., Costa Mesa, Calif.

Division of Ser. No. 44,404, Jun. 1, 1979, Pat. No. 4,242,719.

This application May 27, 1980, Ser. No. 153,565

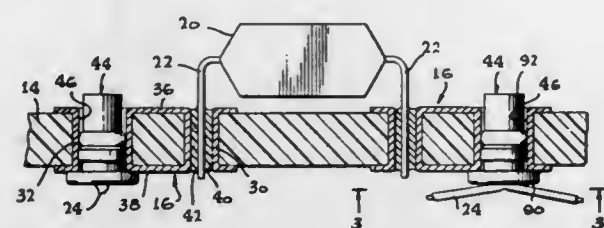
Int. Cl.³ H05K 1/18

U.S. Cl. 361-408

9 Claims

1. A solderable and weldable circuit board apparatus comprising:
a base board having a multiplicity of holes therein;
a layer of solderable material disposed on said base board and forming a plurality of separate connection regions, the

layer in each of said regions plating a plurality of holes and an area on said base board which connects the holes; and a plurality of pins of weldable material, each lying in a selected one of said holes and having an electrode-engagable end to enable the welding of a wire thereto, each pin being in press-fit contact with the layer of solderable material on the walls of the hole but being free of bonding



to the solderable material that plates the hole so the pin can be removed by forcing out without substantial damage to the walls of the hole; each of said connection regions having at least one hole which holds one of said pins and at least one other hole which is devoid of a pin to enable a lead to be soldered therein.

4,394,712

ALIGNMENT-ENHANCING FEED-THROUGH CONDUCTORS FOR STACKABLE SILICON-ON-SAPPHIRE WAFERS

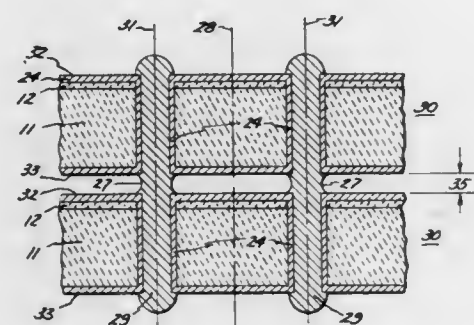
Thomas R. Anthony, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 18, 1981, Ser. No. 244,854

Int. Cl.³ H05K 1/14

U.S. Cl. 361—411

8 Claims



1. An article of manufacture comprising in combination:
 - (a) a plurality of bodies, said bodies being disposed in an array, each said body being adjacent to a next body with a relatively uniform gap therebetween, each said body having top and bottom major opposed surfaces substantially parallel to each other and an outer peripheral edge area interconnecting said major surfaces, said array having an array axis, said array axis being substantially perpendicular to the major surfaces of each body of said array; and
 - (b) means for electrically interconnecting said bodies, said means
 - (i) having a substantially circular cross section,
 - (ii) having a plurality of materials of construction, said materials being arranged about said cross section in the region between said top and bottom surfaces as a first core material, a second material circularly encompassing said core material and a third outermost material circularly encompassing said first and second materials, the material of said cross section in said gap being substantially said first core material;
 - (iii) extending through and between each said body in said array,
 - (iv) having a means axis, said means axis being substantially parallel to said array axis, and
 - (v) being arranged in a substantially periodic means array, said means array having a means axis-to-means axis

spacing substantially equal to twice the diameter of said cross section.

4,394,713

SELF-SUPPORTING CAPACITOR CASING HAVING A PAIR OF TERMINAL PLATES SANDWICHING AN INSULATIVE BODY FOR ALIGNING TERMINAL POSITIONS

Kazunori Yoshida, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

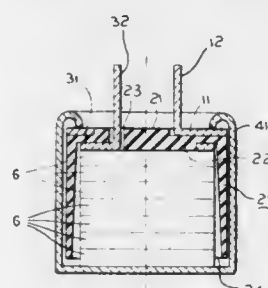
Filed Dec. 5, 1980, Ser. No. 213,585

Claims priority, application Japan, Dec. 7, 1979, 54-169518[U]

Int. Cl.³ B01J 17/00; H01G 9/00

U.S. Cl. 361—433

10 Claims



1. A self-supporting double-layer electrical capacitor comprising a conductive case having a bottom portion, an open end portion, and a side wall portion extending therebetween; a laminated capacitor body having a plurality of double-layer electrical capacitor cells disposed within said conductive case and having opposed first and second electrodes substantially parallel to each other, said first electrode facing the inner bottom portion of said conductive case and being electrically connected thereto; a first terminal plate disposed on said second electrode and being electrically connected thereto, said first terminal plate having a first elongated terminal portion which is substantially perpendicular to a principal surface of said first terminal plate and supported away from said side wall of said conductive case, said first elongated terminal portion extending toward said open end portion and set away from a center axis of said conductive case; insulating means for electrically isolating said first terminal plate and said laminated capacitor body from the side wall portion of said conductive case; an insulative body disposed on said first terminal plate and having an opening for said first elongated terminal portion to pass through; and a second terminal plate disposed on said insulative body and having an opening for said first elongated terminal portion to pass through, said second terminal plate having a second elongated terminal portion substantially perpendicular to a principal surface thereof and supported away from said side wall of said conductive case, said second elongated terminal portion extending toward said open end portion and set away from the center axis of said conductive case, said second terminal plate and said insulative body having complementary contours for positioning said second terminal plate so that said first elongated terminal portion passing through the opening of said insulative body is electrically isolated from said second terminal plate, said open end portion of said conductive case being caulked onto a periphery of said second terminal plate for making an electrical connection thereto, said caulking pressing said second terminal plate toward the bottom of said conductive case, whereby electrical connections are achieved entirely by a mechanical pressure.

4,394,714

STEP LIGHTING SYSTEM

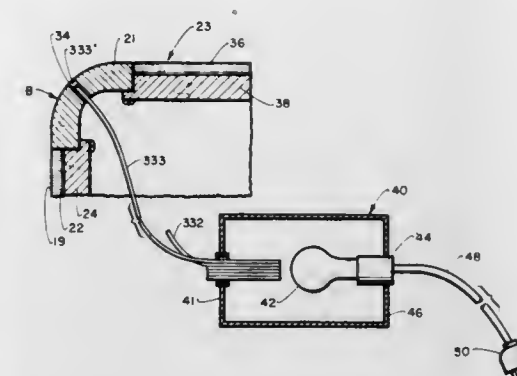
James Rote, 9523 Bullion Way, Orangevale, Calif. 95662

Filed Mar. 6, 1981, Ser. No. 241,046

Int. Cl.³ F21V 7/04; F21S 1/14

U.S. Cl. 362—32

12 Claims



1. A lighting system for stairs comprising:
 - (a) A light panel adapted for disposition in or proximate one or more steps, said panel comprising an elongated section having a plurality of fibre optic rod receiving apertures therein along the length of said panel,
 - (b) a plurality of fibre optic cables, corresponding to the number of apertures with each of said apertures having an end of a cable therein,
 - (c) a light source, comprising a source of light disposal within a housing connected to a power source,
 - (d) a light grid, comprising areas adapted to receive all of said cables other ends and to dispose same toward said light source said light panel being disposed in the nose of the step to light the nose thereof, or within the balustrade to light the balustrade.

4,394,715

PROTECTIVE DEVICE FOR A GROUND-DEPOSITED LIGHT

Anders Dahlberg, Täby, Sweden, assignor to Tatis Plastatnigar AB, Täby, Sweden

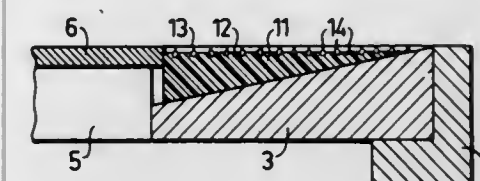
PCT No. PCT/SE79/00070, § 371 Date Nov. 30, 1979, § 102(e) Date Nov. 28, 1979, PCT Pub. No. WO79/00849, PCT Pub. Date Nov. 1, 1979

PCT Filed Mar. 28, 1979, Ser. No. 177,535

Claims priority, application Sweden, Mar. 30, 1978, 7803611 Int. Cl.³ F21S 1/02

U.S. Cl. 362—153

20 Claims



1. A protective device for a ground-deposited light comprising:
 - a housing;
 - a light source located in said housing, said housing having at least one opening therein for letting light out of said housing;
 - transparent sealing materials for sealing said opening; and,
 - granular particles that are harder than said transparent sealing material, said granular particles being partly embedded in said transparent sealing material and partly protruding above the surface thereof for protecting said transparent sealing material against abrasion.

4,394,716

SELF-CONTAINED UNDERWATER LIGHT ASSEMBLY

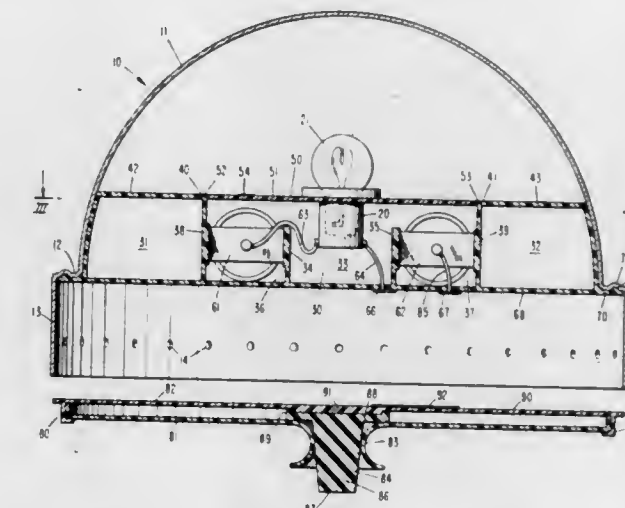
Thomas G. Campagna; Alfred A. D'Andrea, Sr., both of Selden, and Frank Campagna, East Northport, all of N.Y., assignors to Aqualume, Incorporated, Selden, N.Y.

Filed Jan. 13, 1981, Ser. No. 224,676

Int. Cl.³ F21L 11/00

U.S. Cl. 362—158

14 Claims



1. A self-contained underwater light assembly comprising,
 - (a) transparent shell means;
 - (b) lamp socket means;
 - (c) compartment means detachably secured within and against the transparent shell means for housing a power assembly means, weights and the lamp socket means;
 - (d) means for detachably securing the compartment means within and against the transparent shell means;
 - (e) power assembly means secured within the compartment means for securing a source of current within the compartment means and for supplying current to the lamp socket means;
 - (f) detachable seal means for sealing the compartment means within an area of the transparent shell means; and
 - (g) means for switching on and off the current supplied to the lamp socket means by the power assembly means when a source of current is installed in the power assembly means.

4,394,717

ILLUMINATION SYSTEM FOR COPYING APPARATUS

Malcolm G. Brockwell, Ilford, England, assignor to Ciba-Geigy AG, Basel, Switzerland

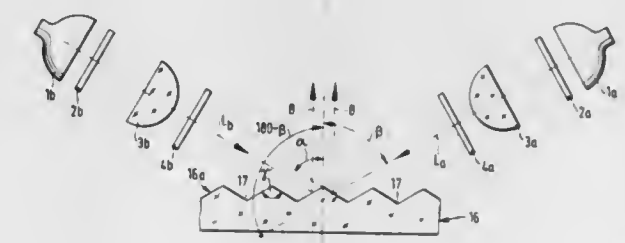
Filed Jan. 25, 1982, Ser. No. 342,616

Claims priority, application United Kingdom, Feb. 2, 1981, 8103075; Apr. 15, 1981, 8111884

Int. Cl.³ F21V 7/00

U.S. Cl. 362—247

7 Claims



1. An illumination system for a photographic copying apparatus for mixing light from two sources (1a, 1b), which illumination system comprises disposed along a longitudinal optical

axis (5) a light-mixing mirror (16) which has as the light-mixing face (16a) a generally sulcated face having grooves (17) therein of triangular cross-section and raised portions of triangular cross-section separating the grooves such that alternate facets (17a, 17b) are parallel, said two light sources (1a, 1b) being diametrically opposed relative to the longitudinal axis (5) and located below the sulcated face (16a) and each being adapted to direct light onto said light-mixing mirror (16) from an angle (β) relative to said longitudinal axis (5) which is twice the complement of the angle (α) made by one of the sets of said parallel facets (17a, 17b) relative to the longitudinal axis (5), the general plane of the sulcated face (16a) of the light-mixing mirror (16) being disposed normal to the said longitudinal axis and the grooves (17) therein having smooth polished reflecting surfaces (17a, 17b) and extending normal to a plane containing both light sources and the longitudinal axis (5), light from the two light sources striking the light-mixing mirror (16) and being reflected therefrom substantially along the longitudinal axis.

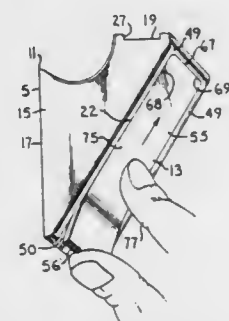
4,394,718

MOUNTING BRACKETS FOR HANDRAIL SYSTEM
Claude P. Balzer, Wichita, Kans., assignor to Balco, Inc., Wichita, Kans.

Continuation of Ser. No. 181,231, Aug. 24, 1980, Pat. No. 4,367,517. This application Mar. 22, 1982, Ser. No. 360,762
Int. Cl.³ F21V 19/04

U.S. Cl. 362—278

10 Claims



1. A light emitting mounting bracket comprising:
 - (a) a body portion having a cavity projecting inwardly from one side thereof; said one side having a surface associated therewith;
 - (b) a slot defined at the juncture of said cavity and said surface;
 - (c) a light emitting source securely and removably retained in said cavity;
 - (d) electrical current means communicating with said light emitting source; and
 - (e) a resilient transparent lens wedgedly resiliently and removably received in said slot; said lens having an outer surface associated therewith; said lens surface mating with said body portion surface so as to be substantially flush therewith, thereby presenting a substantially clean profile.

4,394,719

CURRENT CONTROL APPARATUS FOR A FLYBACK CAPACITOR CHARGER

Gregory O. Moberg, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 11, 1981, Ser. No. 329,855
Int. Cl.³ H02M 3/335

U.S. Cl. 363—18

6 Claims

1. In a DC to DC converter adapted to be energized by a power supply, the converter comprising a transformer including a primary winding and secondary winding, and switching means including a power transistor having a base electrode, the power transistor being coupled between the power supply and the primary winding for periodically interrupting the power supply current to cause current to flow in the secondary winding; the improvement comprising:
 - (a) a high gain, signal transistor having a base electrode, the

signal transistor being coupled in emitter follower configuration to the base of the power transistor; and



- (b) a diode and a feedback current limiting resistor connected in series between the secondary winding and the base of the signal transistor.

4,394,720

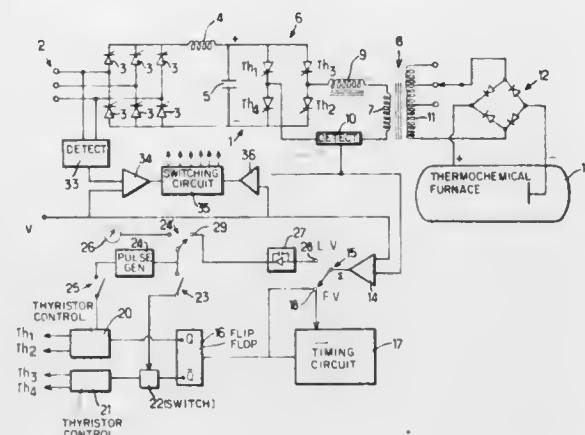
AUTO-STABILIZED HIGH POWER ELECTRIC GENERATOR ESPECIALLY ADAPTED FOR POWERING PROCESSES INVOLVING DISCHARGE IN A RAREFIED GASEOUS ATMOSPHERE

Gabriel Gabor, Petit-Beaugard, France, assignor to Jean Frager, Paris, France

Filed Dec. 10, 1980, Ser. No. 215,144
Int. Cl.³ H02M 5/438

U.S. Cl. 363—37

7 Claims



1. Auto-stabilized high power electric generator, especially adapted for powering a process involving a discharge into a rarified gaseous atmosphere, which comprises a controllable frequency oscillator connected to a rectifier circuit by a connection comprising, in series, an induction coil, a measuring device which furnishes a detected signal representing the current flowing between said oscillator and said rectifier, and a comparator comparing said signal with a reference signal, and which controls the frequency of said oscillator so as to cause an increase in frequency when said detected signal becomes greater than the reference signal, said oscillator being regulated by a switching device controlled, in the event the detected signal is less than the reference signal, by a timing device, and in the event the detected signal is higher than the reference signal, by the pulses delivered by said comparator.

4,394,721

THYRISTOR POWER CONVERTER WITH SWITCHED IMPEDANCE

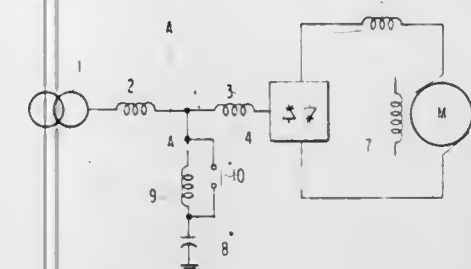
Toshiaki Ishii, Inazawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 12, 1981, Ser. No. 272,849

Claims priority, application Japan, Nov. 4, 1980, 55/154985
Int. Cl.³ H02M 1/12

U.S. Cl. 363—44

6 Claims



1. A thyristor power conversion apparatus for converting ac power to dc power by thyristor commutation, comprising:
 - (a) an ac power supply (1) having an internal reactance (2),
 - (b) thyristor means (4) for converting ac power to dc power, and having a reactance component (3) on an input side thereof,
 - (c) capacitor means (8) connected to said input side of said thyristor means,
 - (d) impedance element means (9) connected in series with said capacitor means,
 - (e) switching means (10) connected in parallel with said impedance element means, and
 - (f) firing circuit means (11) for generating:
 - (1) firing signals to commutate said thyristor means, and
 - (2) switching signals to close said switching means only during the commutation of said thyristor means.

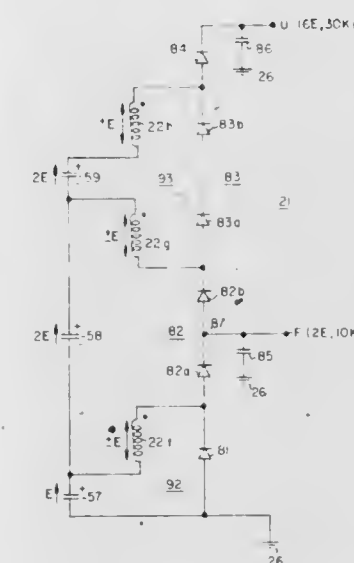
4,394,722

TELEVISION RECEIVER HIGH VOLTAGE GENERATOR
Leroy W. Nero, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 31, 1981, Ser. No. 297,791
Int. Cl.³ H02M 7/10; H04N 3/18

U.S. Cl. 363—68

17 Claims



1. In a television display system having a picture tube that requires an ultor accelerating potential and an intermediate direct voltage, a high voltage generator for developing the two voltages, comprising:
 - a source of alternating voltage;
 - a transformer including a primary winding and first and second high voltage secondary windings, said primary winding being coupled to said source for developing an

alternating polarity voltage across each of the two high voltage secondary windings;
an ultor terminal, an intermediate voltage terminal and a reference terminal;
a first voltage doubler coupled to said first high voltage winding for rectifying the alternating polarity voltage developed across said first high voltage winding during both polarity intervals thereof to produce a first direct voltage, said first direct voltage being applied to said intermediate voltage terminal to generate said picture tube intermediate direct voltage between said intermediate voltage terminal and said reference terminal; and
a second voltage doubler coupled to said second high voltage winding for rectifying the alternating polarity voltage developed across said second high voltage winding during both polarity intervals thereof to produce a second direct voltage, said first and second direct voltages being combined and applied to said ultor terminal to generate said picture tube ultor accelerating potential between said ultor terminal and said reference terminal.

4,394,723

POWER SUPPLY CIRCUIT

John P. Hoffman, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

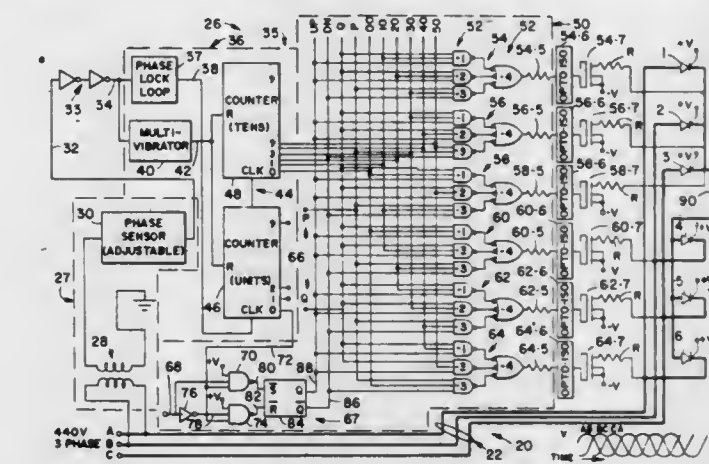
PCT No. PCT/US81/00578, § 371 Date Apr. 30, 1981, § 102(e)
Date Apr. 30, 1981, PCT Pub. No. WO82/03954, PCT Pub. Date Nov. 11, 1982

PCT Filed Apr. 30, 1981, Ser. No. 275,075

Int. Cl.³ H02P 13/24

U.S. Cl. 363—87

12 Claims



1. In a power supply circuit (20) having a load (12), means (22) for conducting current of a 3-phase AC source, and triggerable means (24) for coupling the current of the 3-phase AC source between said conducting means (22) and said load (12), the improvement comprising:
 - (a) means (27) for generating a reference signal in response to one reference phase voltage (AB) of the 3-phase AC source; and
 - (b) means (35) for triggering said triggerable means (24) at predetermined phase angles of the 3-phase AC source relative to the reference phase voltage (AB) and in response to the reference signal to control the current through said load (12), wherein said means (35) includes:
 - (i) means (36) for dividing a cycle of the one reference phase voltage (AB) into a plurality of phase angles and generating signals representing the plurality of phase angles;
 - (ii) a decoder logic network (52) being adapted to decode the signals representing the plurality of phase angles; and
 - (iii) means (67) for selectively activating said decoder logic network to decode the signals representing the phase angles to control the build-up or decay of the current through said load (12).

4,394,724

PROPULSION MOTOR CONTROL APPARATUS AND METHOD

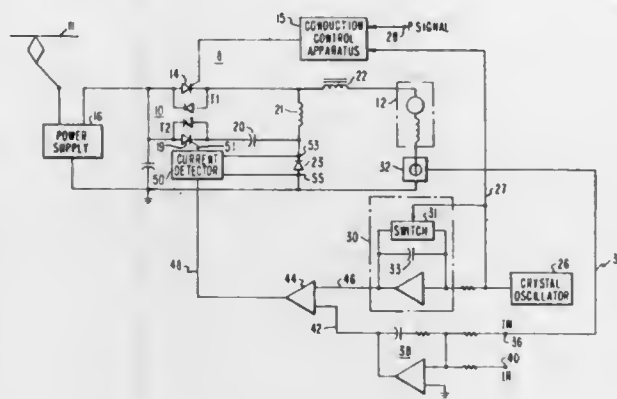
Warren C. Fry, West Mifflin; James H. Franz, Murrysville, and Paul J. Merlino, West Newton, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 30, 1981, Ser. No. 316,698

Int. Cl.³ H02M 3/315; H02P 5/16

U.S. Cl. 363—124

8 Claims



1. In control apparatus for a load circuit operative with a power supply and including a member through which current passes, with said load circuit being responsive to a control pulse to determine the operation of said load circuit, the combination of

first switch means for coupling the control pulse to said load circuit when the first switch means is conductive, second switch means responsive to current passing through said member and being made conductive in accordance with the passage of current through said member, first signal means for applying said control pulse through the second switch means when the second switch means is conductive, and second signal means coupled with the second switch means and controlling the conductivity of the first switch means when the second switch means is conductive.

4,394,725

APPARATUS AND METHOD FOR TRANSFERRING INFORMATION UNITS BETWEEN PROCESSES IN A MULTIPROCESSING SYSTEM

Jacques Bienvenu; Patrick Dufond, both of Paris; Claude Carre, la Varenne-St-Hilaire; Duc L. Tuong, Paris; Henri Verdier, Paris; Philippe-Hubert deRivet, Paris; John J. Bradley, Garches, all of France, and Benjamin S. Franklin, Cambridge, Mass., assignors to Compagnie Honeywell Bull, France

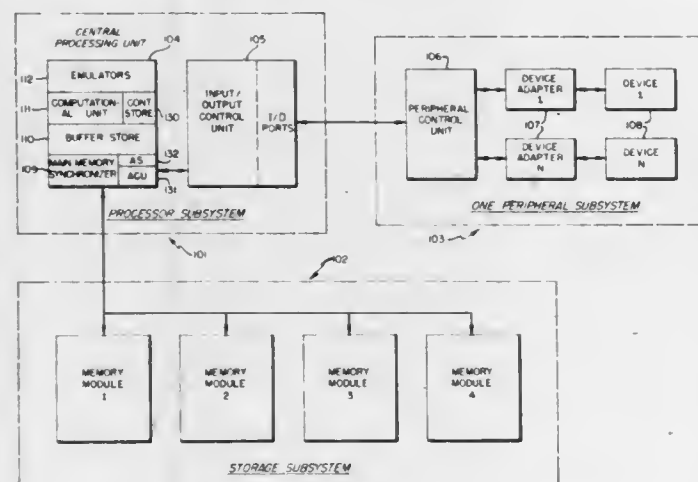
Continuation of Ser. No. 529,015, Dec. 2, 1974, abandoned. This application Dec. 4, 1978, Ser. No. 966,371

Claims priority, application France, Nov. 30, 1973, 73 42711

Int. Cl.³ G06F 9/00

U.S. Cl. 364—200

14 Claims



1. In a data processing system wherein a data element is held

in a memory member of said system, wherein said memory member holds one of a first queue of representations of processes awaiting information units not available when required by said processes and a second queue of representations of information units available to processes and not required by other processes, wherein said data element operatively associates related ones of said first and second queues with each other, said data element including a field representing the one of said queues present in said memory member, and wherein said system during the execution of a first process executes an instruction of a particular class for transferring an information unit between said first process and a second process, an apparatus for controlling transfer of information units between said first and second processes, comprising: retrieving means controlled by said instruction for retrieving said data element from said memory member; testing means for testing said field of said data element retrieved from said memory member and for generating a first signal when said field represents the presence of said first queue and a second signal when said field represents the presence of said second queue; and control means controlled by said instruction and selectively responsive to said first and second signals for processing the one of said queues present in said memory member to enable the transfer of an information unit between said first and second processes.

4,394,726

DISTRIBUTED MULTI-PORT MEMORY ARCHITECTURE

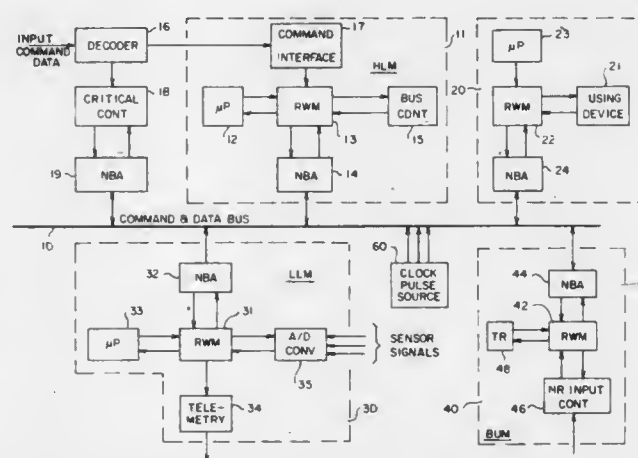
Wayne H. Kohl, LaCrescenta, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 29, 1981, Ser. No. 258,623

Int. Cl.³ G06F 9/22, 13/00

U.S. Cl. 364—200

9 Claims



1. In a distributed data processing system having a plurality of independent centers connected to a bus for performing tasks, and having a source of system clock pulses applied to all centers, each task center being comprised of a memory and a plurality of devices using said memory, one of said devices in each center being a bus adapter coupling said bus to said memory, and one of said devices in one of said centers being a bus controller for control of the transfer of data between task centers, a separate multiport memory architecture for said memory of each task center comprising logic means responsive to said clock pulses for synchronous timing and control of direct access to said memory by devices of the task center, including said bus adapter, a separate device being given access during each of NX clock pulse periods in a predetermined sequence, with selected devices being given access more than once in a sequence, where N is the fixed number of bits in a word to be serially transferred on said bus between centers and X is an integer selected for each task center to satisfy particular

needs of the task center, whereby all devices of a task center are given memory access at least once during NX clock pulse intervals.

4,394,727

MULTI-PROCESSOR TASK DISPATCHING APPARATUS

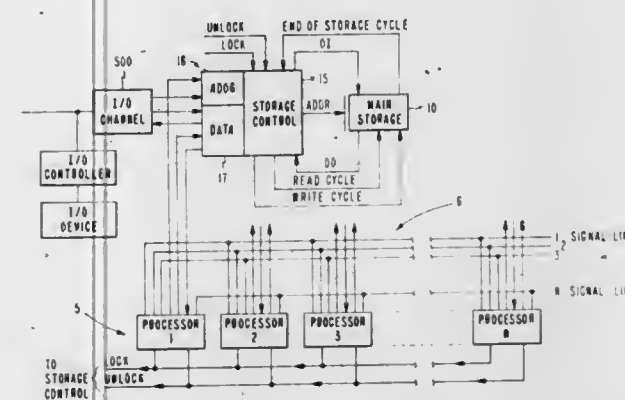
Roy L. Hoffman, Pine Island; Merle E. Houdek, Rochester; Larry W. Loen, Rochester, and Frank G. Soltis, Rochester, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 4, 1981, Ser. No. 260,543

Int. Cl.³ G06F 9/46

U.S. Cl. 364—200

6 Claims



1. Tasking apparatus for a multiprocessor computer system including at least two processors sharing a common main storage containing a task dispatching queue adapted to have task dispatching elements enqueued in priority sequence, each processor having a task dispatcher for dispatching task dispatching elements from said task dispatching queue and for performing task switches when its associated processor is processing a task dispatching element having a priority lower than the priority of a waiting dispatchable task dispatching element on said task dispatching queue, said processors each having an enqueueing mechanism for returning waiting non-dispatchable task dispatching elements to said task dispatching queue, the improvement comprising:

a signal dispatcher for each processor for scanning the priorities of task dispatching elements on said task dispatching queue and signaling another processor to operate its task dispatcher upon finding a task dispatching element on said task dispatching queue having a priority higher than the priority of the task dispatching element being processed by the processor to be signaled, said signal dispatcher being rendered operable in response to said enqueueing mechanism of the associated processor enqueueing a task dispatching element on said task dispatching queue.

4,394,728

ALLOCATION CONTROLLER PROVIDING FOR ACCESS OF MULTIPLE COMMON RESOURCES BY A DUPLEX PLURALITY OF CENTRAL PROCESSING UNITS

Joseph A. Comfort; Thomas J. Perry, and Michel Loos, all of Phoenix, Ariz., assignors to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Jun. 26, 1980, Ser. No. 163,047

Int. Cl.³ G06F 13/00, 13/06

U.S. Cl. 364—200

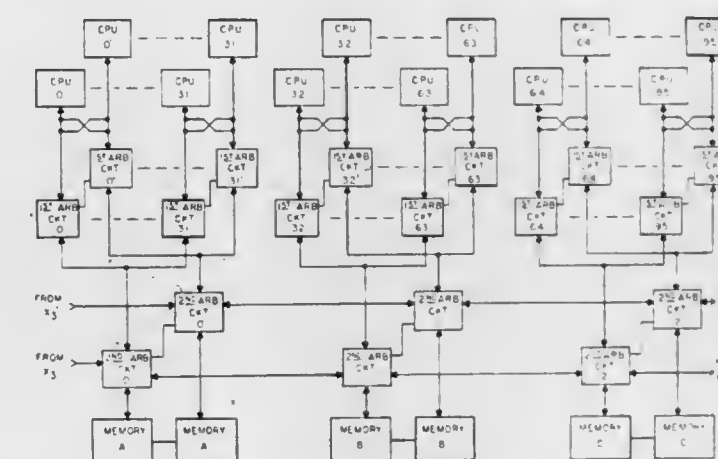
19 Claims

1. An allocation controller providing for equal priority sharing of multiple duplicate copy resources by active ones of duplicated pairs of a plurality of, CPUs said allocation controller comprising:

said plurality of CPUs including first, second and third groups each group including first and second portions; at least three resources each having two duplicate copies, each to be selectively connected to any CPU of said plurality;

first arbitration means including first, second and third dupli-

cated groups, each duplicated group of first arbitration means connected to a corresponding group of CPUs; said first arbitration means operated in response to resource request signals from said plurality of CPUs to provide for selection of one CPU per CPU group; a plurality of CPU buses including first, second and third groups corresponding to said CPU groups, each bus connected between a particular CPU and said first arbitration means, each CPU bus including a control portion and an address/data portion; at least three pair of group buses, each bus pair corresponding to one said CPU group and said corresponding CPU buses, and each group bus connected between a particular CPU through said corresponding CPU bus via said first arbitration means and connected to one copy of said duplicate copy resources via one said group bus, each group bus further connected to said other group buses of said corresponding groups; one group bus of each said pair further connected to a first copy of said duplicate copy resources and another group



bus of each said pair further connected to a second copy of said duplicate copy resources;

second arbitration means connected between each of said duplicate copy resources and each group of first arbitration means and said second arbitration means operated in response to said operation of said first arbitration means to select one of said requesting CPUs of said different CPU groups for connection to said first and said second copies of one selected duplicate copy resource via one said pair of group buses and said corresponding CPU buses; said group bus pair connected to said requesting CPU via said corresponding CPU bus through said first arbitration means and said second arbitration means and connected to said duplicate copy resources to establish bus connection between said one selected CPU and said selected duplicate copy resources for the transmission of data to and from said resources; and

each of said second arbitration circuits operated on a rotational basis to allocate access of said selected duplicate copy resources to said requesting CPU.

4,394,729

JUMP RETURN STACK

Rolfe D. Armstrong, Escondido, Calif., assignor to NCR Corporation, Dayton, Ohio

Filed Oct. 16, 1980, Ser. No. 197,417

Int. Cl.³ G06F 9/42

U.S. Cl. 364—200

9 Claims

1. In a data processor comprising control store means to store instructions at specific addresses, fetch control register means connected thereto to control the operation thereof, execution means to process information fetched from the addresses in controllable sequence, jump return stack means comprising:

storage means for storing a plurality of jump return addresses in order;

miss signal if a copy of the data from the disk space specified by said command is not resident in said cache store; means responsive to said miss signal for transferring from said disk space to said cache store the data from the specified disk space which is not resident in said cache store; and

means in said storage control unit for controlling the transfer of the data at said specified disk space to said host processor;

whereby said host processor may read from said disk any variable number of words of data as specified by said address.

4,394,734

PROGRAMMABLE PERIPHERAL PROCESSING CONTROLLER

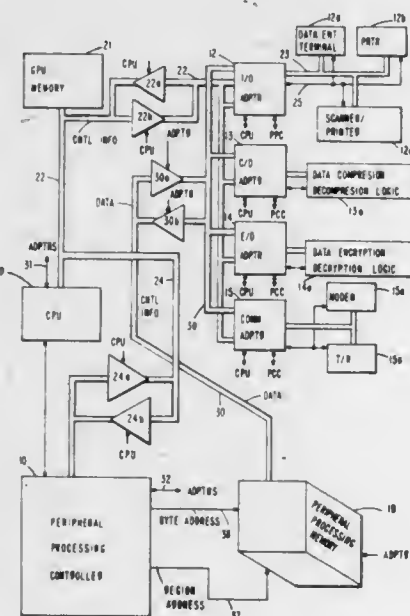
Kent S. Norgren, Longmont, and Robert E. Vogelsberg, Boulder, both of Colo., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,636

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200

11 Claims



1. In a peripheral processing system having a central processor for supervising the system, a plurality of peripheral devices, a peripheral memory, said devices for processing data with the peripheral memory independent of the central processor, control apparatus for controlling access of the peripheral devices to the peripheral memory comprising:

a plurality of memory address registers, each register selected by one of the peripheral devices, a plurality of mode registers, each mode register selected by one of the peripheral devices, said memory address registers being initialized to a starting address by said central processor;

said mode registers being initialized to one of a plurality of end-of-block modes by said central processor, each mode defining an end-of-block condition for a block of memory space;

means for accessing the peripheral memory with an access address corresponding to the starting address from the memory address register selected by a peripheral device, said accessing means advancing said access address to access memory space as said selecting peripheral device processes data;

end-of-block detection means, responsive to the mode in said selected mode register, for detecting when said access address has reached the end-of-block condition defined by the mode in said selected mode register;

means, responsive to the end-of-block condition detected by said detecting means, for inhibiting said accessing means whereby the mode in said selected mode register controls when the selecting peripheral device has completed access to a block of memory space.

4,394,735

DATA PROCESSOR CONTROLLED BY MICROPROGRAMS

Kiyosumi Satoh, and Nobuyuki Watanabe, both of Kawasaki, Japan, assignors to A. Aoki & Associates, Tokyo, Japan

PCT No. PCT/JP80/00167, § 371 Date Mar. 25, 1981, § 102(e) Date Mar. 20, 1981, PCT Pub. No. WO81/00315, PCT Pub. Date Feb. 5, 1981

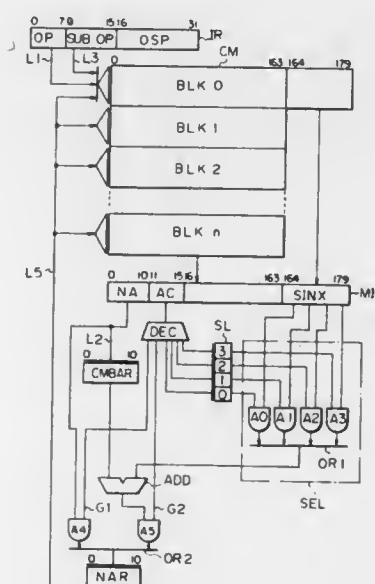
PCT Filed Jul. 23, 1980, Ser. No. 245,645

Claims priority, application Japan, Jul. 25, 1979, 54-94504

Int. Cl.³ G06F 1/00

U.S. Cl. 364—200

19 Claims



1. A data processor controlled by microprograms, comprising:

an instruction register for storing a machine instruction having a suboperation code and an operation code;

a control memory, operatively connected to said instruction register, for storing a first micro-instruction having next address data and address control data and a second micro-instruction having suboperation index data units;

a micro-instruction register, operatively connected to said control memory, for temporarily storing the first micro-instruction read out in a first access of said control memory by using the operation code of the machine instruction stored in the instruction register, and the suboperation index data units contained in the second micro-instruction read out in a second access of the control memory by using the suboperation code of said machine instruction; a selector operatively connected to said micro-instruction register; and

means, operatively connected to said micro-instruction register, said selector and said control memory, for logical operation;

each of said first micro-instructions are stored in the control memory and read out by using said operation code, said selector selecting one of said suboperation index data units according to said address control data, a third access to said control memory being performed by using combined next address data obtained by the logical operation between said next address data and the selected suboperation index data unit using said means for logical operation.

4,394,736

DATA PROCESSING SYSTEM UTILIZING A UNIQUE TWO-LEVEL MICROCODING TECHNIQUE FOR FORMING MICROINSTRUCTIONS

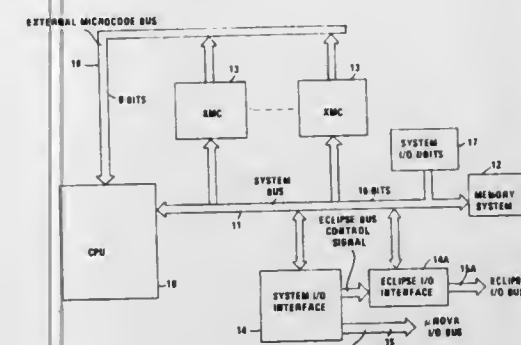
David H. Bernstein, Ashland, Mass.; Richard A. Carberry, Cupertino, Calif.; Michael B. Druke, Chelmsford, and Ronald I. Gusowski, Westboro, both of Mass., assignors to Data General Corporation, Westboro, Mass.

Filed Feb. 11, 1980, Ser. No. 120,272

Int. Cl.³ G06F 9/22

U.S. Cl. 364—200

10 Claims



1. In a data processing system requiring the generation of microinstructions for performing data processing operations and including a

a central processor unit having means responsive to macroinstructions for providing decoded macroinstructions for use in generating one or more microinstructions, said central processor unit further including

first control store means for providing one or more microinstructions in response to identification signals, one or more selected fields of each of said microinstructions being capable of modification;

second control store means for providing a plurality of microinstruction portions, one or more of said second plurality of microinstruction portions providing modifier fields containing information usable for modifying said one or more selected fields of said one or more microinstructions, said second control store means being responsive to a said decoded macroinstruction for producing said plurality of microinstruction portions; and

modification means responsive to said one or more microinstructions provided by said first control store means and to the modifier fields of said one or more microinstruction portions provided by said second control store means for providing modified microinstructions for performing said data processing operation.

4,394,737

METHOD OF PROCESSING RADIOGRAPHIC IMAGE

Takao Komaki, and Seiji Matsumoto, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

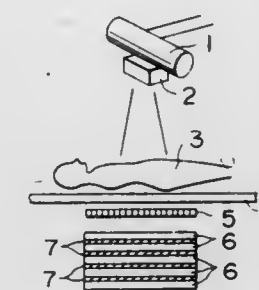
Filed Jul. 11, 1980, Ser. No. 168,802

Claims priority, application Japan, Jul. 11, 1979, 54-87793; Jul. 11, 1979, 54-87796; Jul. 11, 1979, 54-87797

Int. Cl.³ G06F 15/42

U.S. Cl. 364—414

13 Claims



1. In radiographic image recording system, a method of

processing a radiographic image comprising steps of recording radiographic images of an object viewed from the same direction on a plurality of radiographic films, superposing and averaging the images on the plurality of radiographic films to obtain an averaged image having averaged density, and enhancing the gradient of gradation of the averaged image.

4,394,738

METHOD OF AND DEVICE FOR DETERMINING THE DISTRIBUTION OF RADIATION ABSORPTION IN A SLICE OF A BODY

Wolfgang Wagner, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

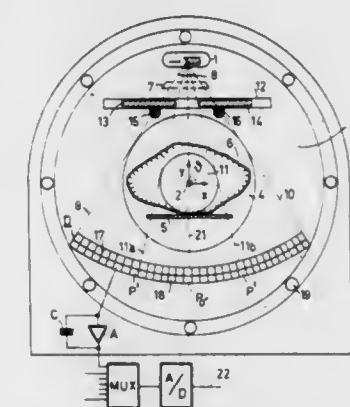
Filed Dec. 15, 1980, Ser. No. 216,478

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1979, 2924423

Int. Cl.³ A61B 6/00; G01N 23/00

U.S. Cl. 364—414

7 Claims



1. A method for determining the distribution of radiation absorption properties in a body by computed tomography which includes the steps of:

radiating a planar examination zone in the body, from a plurality of directions, with radiation having a first intensity so that the radiation passes through the examination zone along a large number of measurement paths in the plane of the examination zone, collimating said radiation so that the radiation having a first intensity does not pass through the body along paths which do not pass through the examination zone, and measuring the intensity of the radiation which has passed through the examination zone along the paths to obtain as a first set of measurement values;

radiating a positioning zone, which lies in the plane of and completely encloses the examination zone, from a plurality of directions with radiation having a second intensity which is smaller than the first intensity, so that the radiation passes through the positioning zone along a large number of measurement paths in the plane of the zones, and measuring the intensity of the radiation which has passed through the positioning zone to obtain a second set of measurement values;

calculating first absorption values from the first set of measurement values;

calculating second absorption values from the second set of measurement values; and

reconstructing the distribution of radiation absorption properties in the examination zone from using the first absorption values and the second absorption values.

4,394,739

AUTOMATIC SPEED CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE

Kouichi Suzuki, and Kazuyuki Mori, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

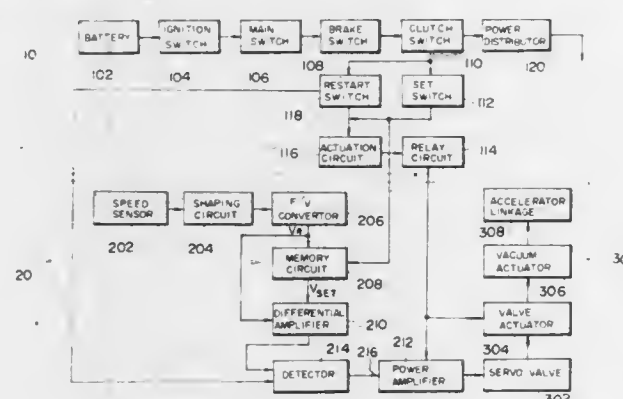
Filed Jan. 12, 1981, Ser. No. 224,196

Claims priority, application Japan, Jan. 14, 1980, 55-2140

Int. Cl.³ B60K 31/00

U.S. Cl. 364-426

22 Claims



1. An automatic speed control system for an automotive vehicle which adjusts the vehicle speed to a pre-set constant speed, comprising:

- a first means for setting the vehicle speed at a desired value and comparing said set speed with the actual vehicle speed to obtain the difference therebetween, said first means generating a control signal corresponding to the determined difference;
- a second means for controlling an accelerator of the vehicle in response to said control signal in a control mode of the control system to reduce the difference between the set speed and the actual speed to zero;
- a third means connected to disable application of said control signal to said second means for interrupting the operation of the control system;
- a fourth means comprising a resume means, said fourth means connected for enabling application of said control signal to said second means, activated for returning the control system to operation after interruption of the operation thereof and for returning the vehicle speed to said set speed; and
- a fifth means connected to said fourth means for inhibiting the control system from entering into the control mode when said fourth means is activated until said fourth means is deactivated thereafter, thereby delaying the response of said second means to the operation of said fourth means to return the vehicle speed to said set speed until said fourth means is again deactivated, whereby erroneous operation of said second means due to a faulty resume means is prevented.

4,394,740

COMPUTER ADAPTED APPARATUS AND METHOD FOR PRICING LENGTHS OF MATERIAL

Tadmor Sharon, St. Louis, Mo., assignor to The Measuregraph Company, St. Louis, Mo.

Filed Mar. 16, 1981, Ser. No. 244,268

Int. Cl.³ G06F 15/20; G01B 3/12

U.S. Cl. 364-464

14 Claims

- 1. A processor controlled apparatus for measuring and pricing lengths of material such as fabric, or the like, comprising:
 - (a) a base structure having a horizontal throat for passage therethrough of a margin of the material to be measured and below said throat a measuring roller adapted for rotation;
 - (b) a pressure roller adapted for rotation around an axis above and parallel to the axis about which said measuring roller rotates;
 - (c) a resiliently loaded pressure roller support structure

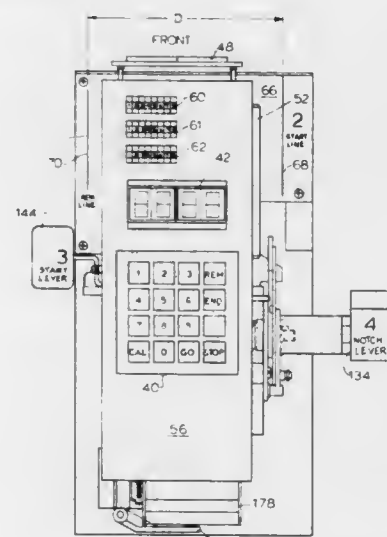
mounted on said base structure and being movable between an elevated position for insertion and removal of said material and a lowered position in which said pressure roller resiliently engages said measuring roller enabling said material to be pulled through said throat and thereby rotate both said rollers;

(d) releasable latching means carried by said base structure and adapted for releasably latching said pressure roller support structure when raised to said elevated position;

(e) means for notching said material after a desired number of uniform units of length have been drawn through said rollers to indicate the length so drawn, comprising:

- (i) a fixed blade positioned below the plane of the material being measured and proximate said throat;
 - (ii) a movable shear blade adapted for movement in a vertical plane and cooperable for notching said material on the margin thereof;
 - (iii) manual notch operator means for moving said movable blade downwardly to notch said fabric; and
 - (iv) means biasing said movable blade and manual latch operator means to a raised position wherein said movable blade is out of engagement with said fixed blade;
- (f) a mechanical lock-out mechanism operable in response to operation of said notch operator means during notching of said fabric and including:

(i) disable means for blocking notching motion of said notch operator means and movable between disable and enable positions;



(ii) rotative means driven by said measuring roller and adapted for being locked in a single rotative home position corresponding to said measuring roller being in a position corresponding to some predetermined uniform unit of measure whereby to lock said measuring roller in such home position; and

(iii) cooperatively associated positionable members mounted on said base structure and being adapted in response to movement of said notch operator means for mechanically sensing said home position and dependent upon said rotative means being in said home position for locking said rotative means and thereby locking said measuring roller in said home position, moving said disable means to its said enable position enabling said notch operator means to move through the notching motion and raising said pressure roller to its said elevated position for latching by said latching means;

(g) manual latch operator release means adapted to unlatch said pressure roller support structure latching means to allow said pressure roller to return to said lowered position;

(h) manual operator reset means including means operative on said measuring roller rotative means for restoring said rotative means and thereby restoring said measuring roller to said home position when rotatively offset therefrom; and

(i) processor means mounted on said base structure including:

- (i) optical encoder and electronic signal processing means operable in response to rotation of said measuring roller for each predetermined unit of measure for developing and storing a signal count corresponding to the total of such units measured and from such count developing and displaying with electronic digital light display means controlled by said count the length so measured;
- (ii) a keyboard and storage means for entering and storing unit price, operator and product code information and displaying with electronic digital alpha-numeric light display means associated therewith the entry of such information;
- (iii) computation means for utilizing said count and unit price and developing therefrom, storing and displaying a total price; and
- (iv) a ticket printer having character forming and ticket advancing means under program control included in said processor means for printing said unit price, length, total price, operator and product code on a ticket in alpha-numeric form; and

(j) a switch adapted to disable said optional encoder means in response to raising of said pressure roller to said elevated position.

4,394,741

BATTERY MONITORING SYSTEM

Michael W. Lowndes, Birmingham, England, assignor to Lucas Industries Limited, Birmingham, England

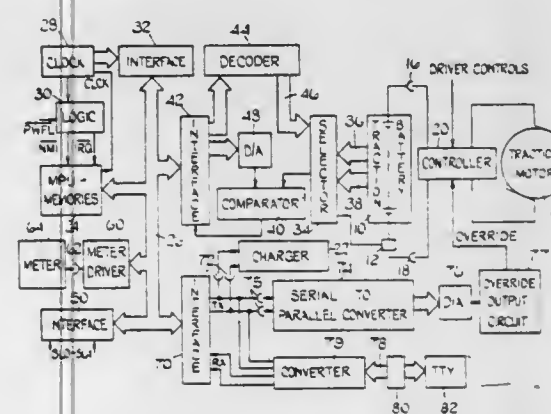
Filed Nov. 18, 1980, Ser. No. 208,109

Claims priority, application United Kingdom, Jun. 28, 1980, 8021285

Int. Cl.³ H02J 7/00; G06F 15/56

U.S. Cl. 364-483

9 Claims



- 1. A battery state of charge evaluator comprising:
 - means responsive to battery voltage for producing a voltage value,
 - means responsive to battery current for producing a current value,
 - means for computing the polarization voltage as a complex function of time and of the current value, the complex function being determined in accordance with characteristics of the battery being evaluated,
 - means for correcting the voltage value to compensate for the polarization voltage, and
 - means for computing the state of charge of the battery as a function of the corrected voltage value, said function being determined in accordance with the characteristics of the battery being evaluated.

4,394,742

ENGINE GENERATED WAVEFORM ANALYZER

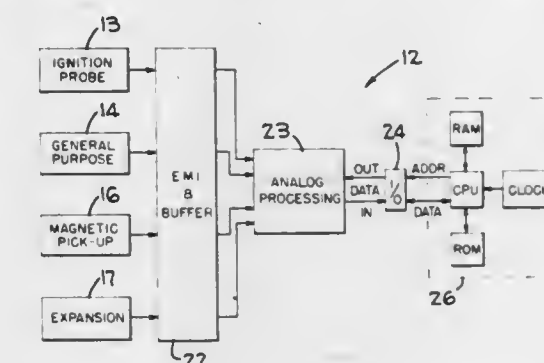
Marvin R. Crummer, Tustin; Kenneth S. Gold, Canoga Park; David G. Johnson, Newhall; Tom R. Vandermeiden, Norwalk, and Edmond R. Pelta, Los Altos Hills, all of Calif., assignors to FMC Corporation, Chicago, Ill.

Filed Oct. 31, 1980, Ser. No. 202,516

Int. Cl.³ G01M 15/00

U.S. Cl. 364-487

29 Claims



- 1. An internal combustion engine wave characteristic analyzer for a two dimensional wave signal representative of an operating characteristic of the engine wherein predetermined wave characteristic data are held in storage, comprising means for receiving the wave signal and for providing a plurality of sampled output signals corresponding to wave characteristics at a plurality of positions along the length of the wave, means for receiving and storing data indicative of said plurality of output signals, means for continuously performing analysis of ones of said plurality of output signal data utilizing others of said plurality of output signal data and ones of said predetermined wave characteristic data, thereby providing a discrete analysis signal, means for continuously receiving and diagnosing the engine operating characteristic in view of said discrete analysis signal and for providing a diagnostic signal for the engine operating characteristic responsive thereto, means coupled to said diagnostic signal for providing an instruction output relating to operations required to retain and reestablish the predetermined wave characteristic, and means for alphanumerically displaying said instruction output.

4,394,743

tone GENERATION METHOD AND APPARATUS USING STORED REFERENCE CALIBRATION COEFFICIENTS

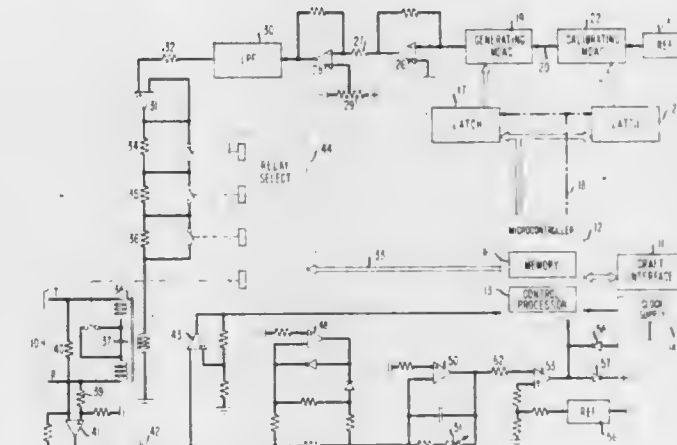
Paul A. Mercer, Parsippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 18, 1980, Ser. No. 217,678

Int. Cl.³ G10H 5/10; H04M 1/50

U.S. Cl. 364-514

18 Claims



- 1. A tone signal generator including a source (16) of selectable sets of digital coefficient signals defining a predetermined

voltage divider means coupled between said first and second supplies and to a control electrode of said primary column select transistor, for selectively developing an enabling voltage on the control electrode of said primary column select transistor which is at least equal to, but not substantially greater than, the threshold voltage of said primary column select transistor above the voltage developed on the second current electrode of said primary column select transistor when said secondary column select and program transistors are enabled.

8. A read only memory column select circuit and sense amplifier comprising:

column load means coupled between a first supply and a ROM output;

a primary column select MOS transistor having the drain thereof coupled to the ROM output;

a secondary column select MOS transistor having the drain thereof coupled to the source of said primary column select transistor;

a program MOS transistor having the drain thereof coupled to the source of said secondary column select transistor, and the source thereof coupled to a second supply;

row select means coupled to the gate of said program transistor for selectively enabling said program transistor; and secondary column select means coupled to the gate of said secondary column select MOS transistor for selectively enabling said secondary column select MOS transistor;

a sense amplifier having an input coupled to said ROM output for sensing the level of voltage at the ROM output and translating said level, comprising:

a source follower transistor having the drain thereof coupled to said first supply, the gate thereof coupled to said ROM output, and the source thereof coupled to an intermediate output of said sense amplifier; and

biasing means coupled to the second current electrode of said source follower transistor for providing a load to said source follower transistor.

4,394,749

PHOTOELECTRIC DEVICE AND METHOD OF PRODUCING THE SAME

Toshihisa Tsukada, Tokyo; Yukio Takasaki, Hachioji; Tadaaki Hirai, Koganei; Toru Baji, Kokubunji; Hideaki Yamamoto, Hachioji; Yasuo Tanaka, Kokubunji; Eiichi Maruyama, Kodaira, and Sachio Ishioka, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

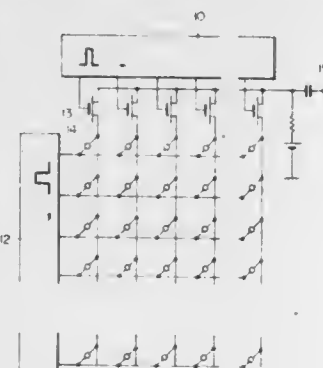
Filed May 30, 1980, Ser. No. 154,999

Claims priority, application Japan, Jun. 8, 1979, 54-71272; Nov. 9, 1979, 54-144415

Int. Cl.³ G11C 13/00

U.S. Cl. 365-106

8 Claims



1. A photoelectric device comprising:

a solid state imaging device having a semiconductor substrate including a plurality of photoelectric conversion portions; and

scanning means coupled to said substrate for selecting photoelectric conversion portions from said plurality of photoelectric conversion portions, wherein the photoelectric conversion portions include a

photoconductive layer which covers said semiconductor substrate and which lies electrically in contact with at least said scanning means, and a light transmissive electrode which is formed on said photoconductive layer, characterized in that said photoconductive layer is made of an amorphous chalcogenide material whose principal constituent is Se.

4,394,750

PROM ERASE DETECTOR

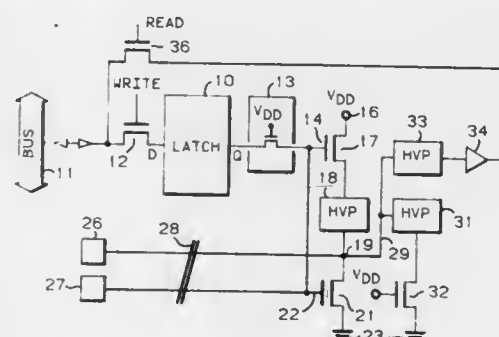
Anil Gercekci, Geneva, Switzerland, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 10, 1981, Ser. No. 282,196

Int. Cl.³ G11C 11/40

U.S. Cl. 365-218

8 Claims



1. A programmable read only memory having an erase detector to detect when the memory has been erased and having a data bus, the erase detector comprising: latch means having an input and an output, the input being coupled to the data bus; a first transistor being controllable by the output of the latch means; a memory cell coupled in series with the first transistor and having a control input coupled to the output of the latch means, the memory cell and first transistor forming an output node therebetween; and means for coupling the output node to the data bus.

4,394,751

LOW POWER STORAGE CELL

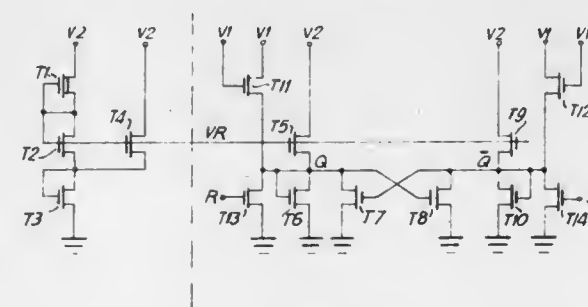
Steve Burstein, Bayshore, and Jay Popper, Kew Gardens, both of N.Y., assignors to Standard Microsystems Corporation, Hauppauge, N.Y.

Filed Oct. 23, 1980, Ser. No. 200,085

Int. Cl.³ G11C 7/00

U.S. Cl. 365-227

5 Claims



1. A dual low power storage cell operable in an access mode and a storage mode and comprising,

a flip-flop circuit having first and second transistors, a first terminal of each of said transistors being connected to cell ground potential, a second terminal of each of said transistors being connected to cell supply voltage, a third terminal of said first transistor being connected to the second terminal of said second transistor and a third terminal of said second transistor being connected to the second terminal of said first transistor,

first and second voltage sources, first switch means operatively connected to said first voltage

source and to said second terminal of said first and second transistors and effective when in an "on" state to place the storage cell in the access mode by applying a supply voltage of a first voltage level to said flip-flop circuit, second switch means operatively connected to said second voltage source and to said second terminal of said first and second transistors for placing the storage cell in a storage cell in the storage mode by applying a supply voltage of a second voltage level to said flip-flop circuit, said second voltage level being substantially less than said first voltage level, and

means for placing said first switching means in an "off" state, thereby removing said first voltage level from said flip-flop circuit, when the storage cell is in its said storage mode.

4,394,752

DECODING AND SELECTION CIRCUIT FOR A MONOLITHIC MEMORY

Gerard Boudon; Bernard Denis, both of Mennecey; Virginie de Grivel, Neuilly, and Pierre Mollier, Saint Fargeau Ponthierry, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.

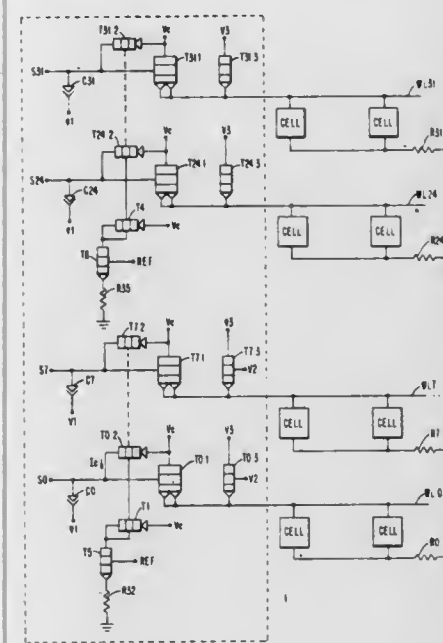
Filed Jun. 22, 1981, Ser. No. 276,136

Claims priority, application European Pat. Off., Sep. 26, 1980, 80430019

Int. Cl.³ G11C 7/00

U.S. Cl. 365-227

8 Claims



1. A selection circuit for a memory array having a matrix of cells arranged in n rows and m columns wherein the cells of different rows are connected to n word lines each having selected and non-selected states, the selection of a word line during a selected state being controlled by an address decoding circuit receiving at its input a line addressing signal and having n outputs, each output controlling the state of a line driver transistor, the n driver transistors being of a first conductivity type, each of which includes first and second electrodes and a control electrode, said first electrode being connected to a voltage supply terminal, said second electrode being connected to a word line and said control electrode being connected to an output of said decoding circuit, comprising:

n control transistors having a conductivity opposite to that of said driver transistors, each of said control transistors being associated with one of said driver transistors and having a first conductive electrode connected to said voltage supply terminal and a second conductive electrode connected to the control electrode of its associated driver transistor, and

means including a regulating transistor for supplying a current to the control electrode of each of said control tran-

sistors during the selected and non-selected states of an associated word line.

4,394,753

INTEGRATED MEMORY MODULE HAVING SELECTABLE OPERATING FUNCTIONS

Hans-Joerg Penzel, Wolfratshausen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

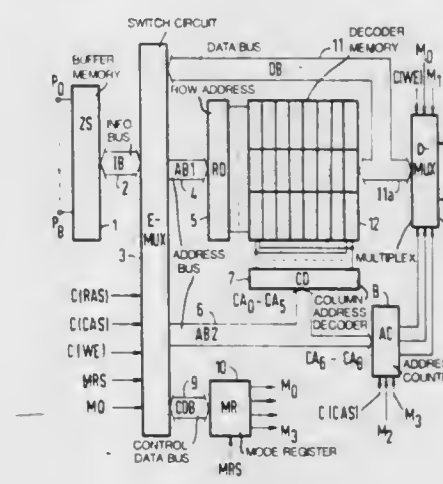
Filed Nov. 12, 1980, Ser. No. 206,133

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1979, 2948159

Int. Cl.³ G11C 7/00

U.S. Cl. 365-236

3 Claims



1. In an integrated memory module of the type in which a plurality of memory cells are arranged in a matrix of columns and rows and are addressable by row and column addresses received via a plurality of address terminals in response to strobe signals to provide data on a plurality of write/read lines, in which a bidirectional address buffer is connected to the address terminals for receiving an address, and in which a row address decoder and a column address decoder are connected between the address buffer and the rows and columns of memory cells, respectively, for producing row and column selection signals, the improvement therein comprising:

a data bus connected to said memory and having a plurality of lines equal to the number n of write/read lines to be selected by a higher value portion of a column address; a mode register operable to receive and store mode signals from and to provide mode signals for the address terminals, the mode signals defining the operating functions of the memory module, in response to predetermined control signals;

a bidirectional data input and data output device connected to said data bus;

said memory matrix divided into small n areas each including an identical plurality of columns of memory cells and all said areas being simultaneously accessible; and

a switch circuit, including a bidirectional operating portion, and selectively operable to connect the address buffer to the address decoders, to connect the address buffer to the mode register and to connect the address register to the data bus in response to receipt of other control signals including the strobe signals.

4,394,754

APPARATUS FOR LOW FREQUENCY TORSIONAL SHEAR WAVE LOGGING

Kenneth H. Waters, Cape Town, South Africa, assignor to Conoco Inc., Ponca City, Okla.

Filed Oct. 9, 1980, Ser. No. 195,368

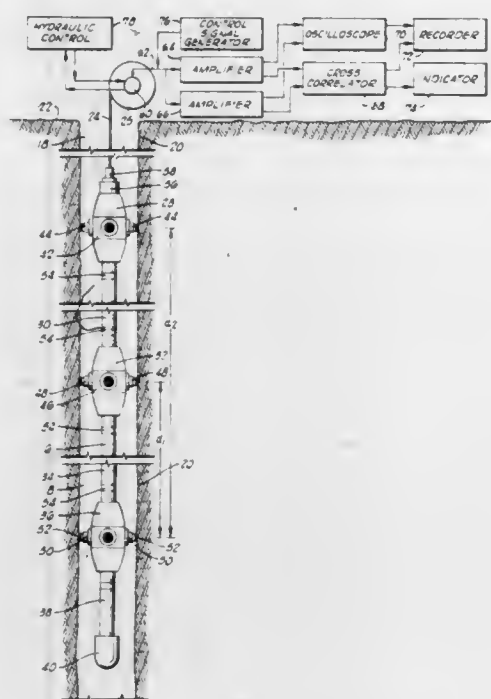
Int. Cl.³ G01V 1/16

U.S. Cl. 367-75

6 Claims

5. A seismic wave detector for detecting shear waves in a formation adjacent a borehole, comprising:

housing means for secure disposition within said borehole; means carried by said housing means for actuation to position said housing means in said borehole, armature means of ring shape having plural permanent magnet sections of equal arcuate length intersticed in equal spacing by plural segments of high permeability metal; rotor means of circular shape disposed for close positioning within said armature means, and having a non-magnetic central portion secured to a concentric high permeability



outer portion that is formed to provide plural cores, and having plural coils equi-spaced therearound as formed on said respective cores for disposition in flux associative positioning to said plural permanent magnets; means for rigidly securing said armature means to said housing means; torsion bar means for axially securing said rotor means to said housing means; and means connecting opposite ends of each of said plural coils to provide a detector output.

4,394,755

BEARING ARRANGEMENT FOR AN OBJECTIVE OF AN OPTICAL APPARATUS FOR WRITING AND/OR READING RECORDING TRACKS BY MEANS OF A RADIATION BEAM

Wilhelmus A. H. Gijzen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 17, 1980, Ser. No. 207,510

Claims priority, application Netherlands, Jul. 31, 1980, 8004380

Int. Cl.³ G11B 7/08, 7/12, 21/12

U.S. Cl. 369—45

11 Claims

1. An optical apparatus for, during operation, writing and/or reading recording tracks in a recording surface of a record carrier (3) by means of a radiation beam (2) which is produced by a radiation source and, more specifically, for scanning video and/or audio recording tracks in a reflecting recording surface of a rotary video or audio disc by means of a light beam, which apparatus comprises:

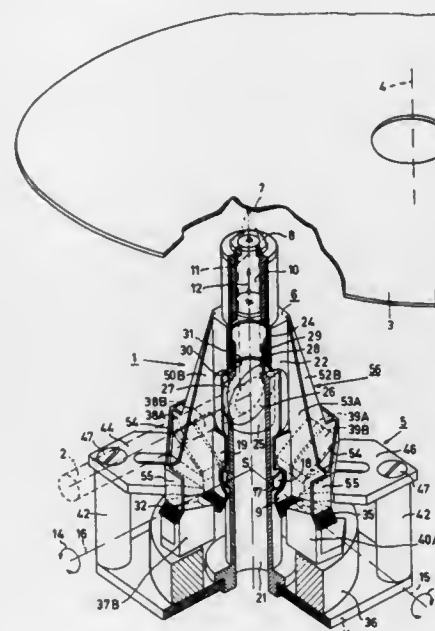
a frame (5),

an objective (6) for concentrating the radiation beam (2) to a radiation spot (7) in a focussing plane, which objective has an upper end (8), which during operation faces the recording surface of a record carrier (3), and a lower end (9), which is remote from the recording surface, and comprises a lens system (10) with an optical axis (11),

a combined bearing arrangement for the objective, which arrangement is a combination of, firstly, a focussing bearing arrangement which is adapted to realize focussing movements (12) of the objective between a rest position

and an operating position and relative to the frame in a direction which at least substantially coincides with the optical axis so as to enable any deviations from an average position of the recording surface of the record carrier in a direction perpendicular to the recording surface to be followed with the focussing plane, and, secondly, a pivotal bearing arrangement which is adapted to realize pivotal movements of the objective relative to the frame in pivoting directions (13, 14) about an axis (15, 16) substantially perpendicular to the optical axis (11) of the lens system (10), so as to enable any deviations from an average position of the recording track in directions situated in the recording surface to be followed with the radiation spot (7);

electrically controllable focussing means (32-46) for electrically realizing and controlling the focussing movements



4,394,756

GENERATION OF BUSY SIGNALS IN A DIGITAL CONCENTRATOR

Ronald J. Canniff, Naperville, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 12, 1980, Ser. No. 186,618

Int. Cl.³ H04Q 11/04; H04J 3/16

U.S. Cl. 370—56

6 Claims

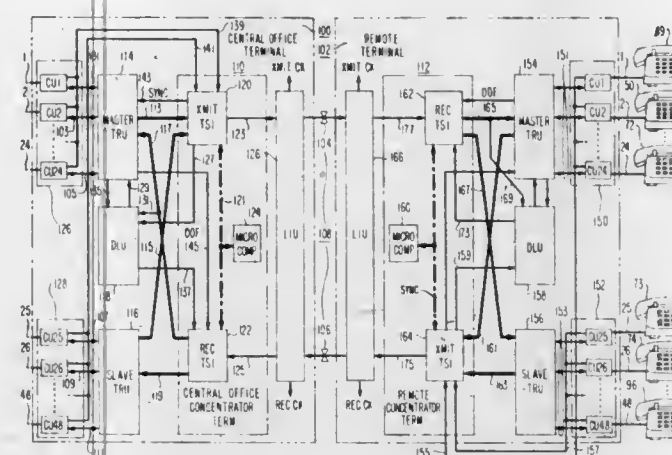
1. A method of transmitting a busy signal to a calling party when all paths are busy through a digital switching system utilizing successive frames of selectively assigned time slots, said method

characterized by the steps of

transferring a busy code word from a table to a line-to-trunk assignment device (810)

storing a busy status signal in said assignment device to each

newly active line when all paths through said switching system are in use, and



using said busy status signals to transfer said busy code word to each said newly active line.

4,394,757

FRAME FORMAT FOR PCM SPEECH DATA IN A TELEPHONE TRANSMISSION SYSTEM AND DIGITAL TELEPHONE APPARATUS FOR USE WITH THIS FRAME FORMAT

Deepak Muzumdar, Somerset, N.J.; George A. Mierzwa, Boca Raton, Fla.; Richard Sanders, Boca Raton, Fla., and Orrie J. Van der Meiden, Boca Raton, Fla., assignors to Siemens Corporation, Iselin, N.J.

Filed Mar. 31, 1981, Ser. No. 249,395

Int. Cl.³ H04J 3/06, 3/12

U.S. Cl. 370—100

5 Claims

1. Digital telephone apparatus for transmitting and receiving PCM speech data as well as signalling information via a telephone transmission line, said apparatus comprising, in combination:

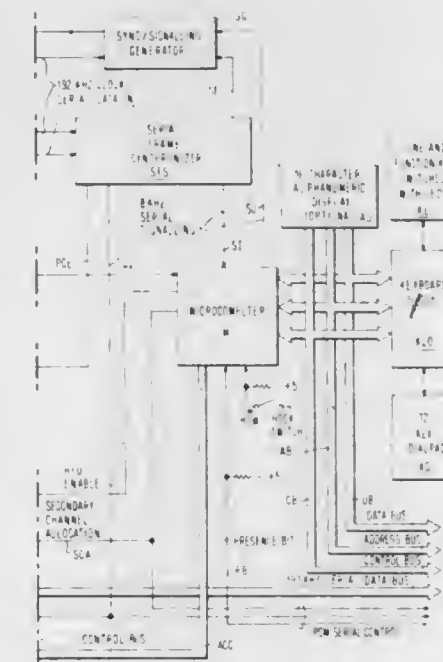
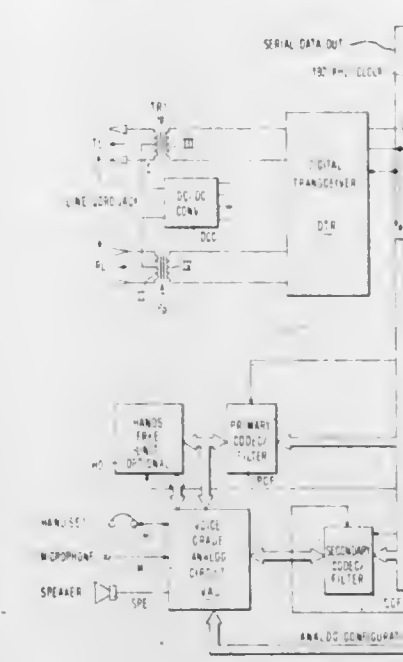
(a) a serial frame synchronizer, adapted to receive serial digital information that was transmitted over said transmission line, said serial frame synchronizer decoding a synchronizing code in said serial digital information and thereby identifying the timing of successive, 125 microsecond frames of data;

(b) a sync/signalling generator connected to said serial frame synchronizer and adapted to transmit serial digital information over said transmission line, said sync/signalling generator being responsive to a first enable signal received from said serial frame synchronizer for shifting out to said transmission line a first outgoing 8 bit data word comprising a synchronization code and a signalling code;

(c) a first codec/PCM filter connected to said serial frame synchronizer and adapted to transmit serial digital information over said transmission line, said first codec/PCM filter being responsive to a second enable signal from said serial frame synchronizer for shifting out to said transmission line a second outgoing 8 bit data word comprising a PCM speech sample, said second outgoing 8 bit word immediately following said first outgoing 8 bit data word; and,

(d) means for generating a third outgoing 8 bit data word connected to said serial frame synchronizer and adapted to transmit serial digital information over said transmission line, said means for generating said third outgoing 8 bit data word being responsive to a third enable signal

from said serial frame synchronizer for shifting out to said transmission line said third outgoing 8 bit data word, said



third outgoing 8 bit data word immediately following said second outgoing 8 bit data word.

4,394,758

SYNCHRONIZING UNIT FOR RECEIVING SECTION OF PCM STATION

Roberto D. Donne, Milan, Italy, assignor to Italtel Societa Italiana Telecomunicazioni, S.p.A., Milan, Italy

Filed Jun. 29, 1981, Ser. No. 278,065

Claims priority, application Italy, Jun. 30, 1980, 23104 A/80

Int. Cl.³ H04J 3/08

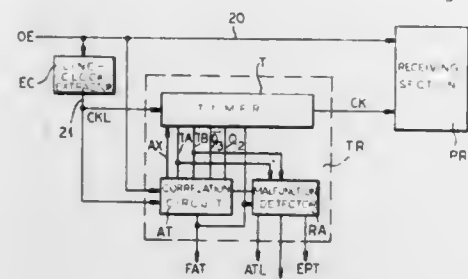
U.S. Cl. 370—105

13 Claims

1. A synchronizing unit controlling the operation of a receiving station of a PCM station of a telecommunication system, comprising:

timing means stepped by line-clock pulses extracted from an incoming bit stream organized into alternating first and second frames each containing a multiplicity of channels accommodating respective data words, an initial channel No. 0 of each first and second frame normally containing a respective alignment word A and B characterized by at least one invariable bit in a predetermined time position, and timing means generating clock signals fed to said receiving section and further emitting first and second

marking pulses TA and TB in a time slot assigned to the No. 0 channel of said first and second frames, respectively; correlation means including a decoder receiving said incoming bit stream and emitting respective identification pulses AX and BX upon recognizing said alignment words A and B, said correlation means further including logic circuitry generating an error signal FAT upon noncoincidence of said marking pulses TA and TB with the respective identification pulses AX and BX, said logic circuitry feeding



corrective signals into said timing means for readjusting same to re-establish coincidence between said marking pulses and the corresponding identification pulses; and a malfunction detector connected to said correlation means and to said timing means for receiving therefrom at least one of said identification pulses and the corresponding marking pulse, said detector including gating means for producing an alarm indication AW in the absence of coincidence therebetween.

4,394,759

TRANSMITTING SECTION OF PCM STATION

Roberto Delle Donne, Milan, Italy, assignor to Italtel Societa Italiana Telecomunicazioni S.p.A., Milan, Italy

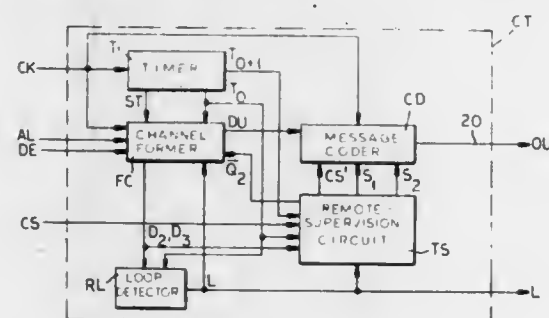
Filed Jun. 29, 1981, Ser. No. 278,064

Claims priority, application Italy, Jun. 30, 1980, 23105 A/80

Int. Cl.³ H04J 3/12, 3/14

U.S. Cl. 370—110.1

12 Claims



1. A transmitting section of a PCM station of a telecommunication system, comprising:

channel-forming means for organizing n-bit data words into alternating first and second outgoing frames each containing a multiplicity of channels accommodating respective data words, said channel-forming means including an input register with n stages accommodating respective bits of an arriving data word loaded into same, an output register with n stages, and a multiplexer with n outputs connected to respective stage inputs of said output register and with a plurality of inputs connected to respective stage outputs of said input register, said multiplexer having additional inputs connected to points of fixed potential representing predetermined logical values;

timing means stepped by a local clock for identifying an initial channel No. 0 of each frame and controlling said multiplexer to replace certain bits of a data word in the No. 0 channel of each frame by predetermined bits yielding partly invariable alignment words A and B loaded into said output register in said first and second frames, respectively, said timing means emitting a frame-designating signal switching part of the outputs of said multiplexer to

certain of said additional inputs thereof during the No. 0 channel of said second frames while leaving other multiplexer outputs connected to the associated stage outputs; decoding means emitting supervisory instructions upon detecting certain bit groupings in a data word loaded into said input register in the No. 0 channel of a frame; and switching means connected to said decoding means for generating internal signals in response to said supervisory instructions, said multiplexer being further controlled by said switching means for modifying a bit in one of said alignment words in the presence of said supervisory instructions.

4,394,760

PROCESS FOR MONITORING ANALOG AND DIGITAL MOBILE RADIO CONNECTIONS

Karl Kammerlander, Wolftratshausen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

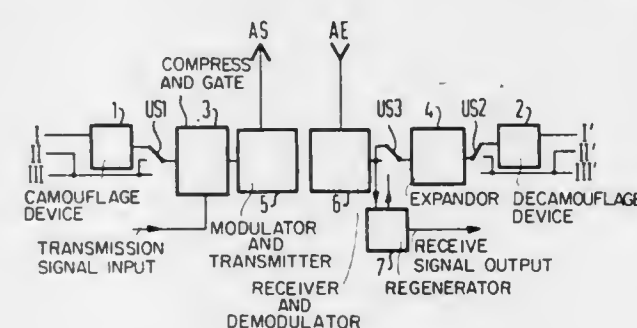
Filed Mar. 2, 1981, Ser. No. 238,071

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1980, 3012513

Int. Cl.³ H04J 3/00

U.S. Cl. 370—111

4 Claims



1. In a process for monitoring analog and digital mobile radio connections in a mobile radio network comprising a plurality of mobile radio subscriber stations and a plurality of base stations which are mutually spaced in a cellular arrangement having rigidly prescribed overlapping radio ranges in which the total number of available frequency channels is repeated, in which the frequency distribution plan for the base stations is designed such that common channel disturbances in a radio range, including an extended boundary zone of the overlapping, are substantially eliminated, in which at least the signaling in digital form between the base stations and the mobile subscriber stations is carried out over duplex time-division multiplex organization channels, in which radio range related information blocks are time compressed for transmission, and in which the time-compressed information blocks are expanded to obtain useful information, the improvement therein comprising the steps of:

time compressing analog radio range related information blocks which are to be transmitted as useful signals in specific time slots to produce gaps between the information blocks including delaying the compressed information blocks;

inserting data block sequences into the gaps, containing monitoring signals including subscriber identification, the signal-to-noise ratio of the connection and subscriber and network internal signals;

transmitting the composite signals so formed to a receiver and receiving the same;

extracting the data block sequences from the received composite signals; and

then expanding the time-compressed information blocks to their original lengths to obtain the useful information.

4,394,761

CURRENT SWITCHING TECHNIQUE

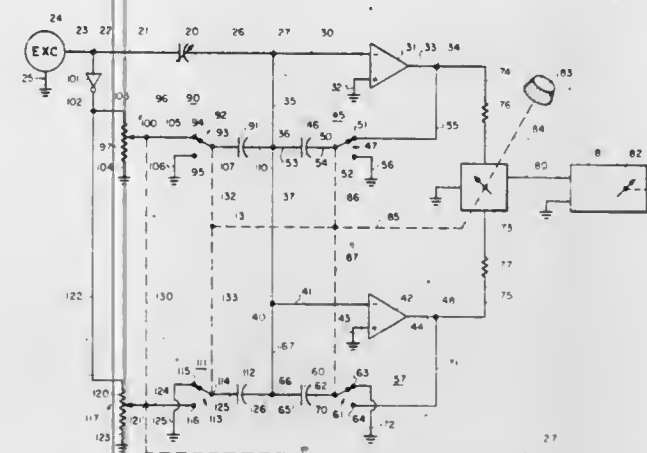
John L. Clark, Columbia Heights, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 16, 1981, Ser. No. 254,820

Int. Cl.³ H02H 7/20

U.S. Cl. 371—8

6 Claims



1. A redundancy circuit comprising, in combination: a measuring impedance; first and second operational amplifiers having inverting input terminals, non-inverting input terminals, and output terminals; a source of excitation voltage with respect to ground; means connecting said source through said measuring impedance producing a signal current into said inverting input terminals to provide a signal to said amplifiers; means grounding said non-inverting input terminals; first and second feedback impedances; and switch means having a first condition in which said first feedback impedance is connected between the output terminal and the inverting input terminal of said first amplifier, and said second feedback impedance is connected between said inverting terminal of said second amplifier and ground, so that the output of said first operational amplifier is representative of the signal current from said measuring impedance, said switch means having a second condition in which said second feedback impedance is connected between the output terminal and the inverting input terminal of said second amplifier, and said first feedback impedance is connected between said inverting terminal of said first amplifier and ground, so that the output of said second operational amplifier is representative of the signal from said measuring impedance.

4,394,762

PULSE-CODE MODULATION SIGNAL PROCESSING CIRCUIT

Daiki Nabeshima, Kamakura, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 6, 1981, Ser. No. 222,769

Int. Cl.³ G06F 11/10

U.S. Cl. 371—38

10 Claims

1. A signal processing circuit for recording PCM signals, comprising:

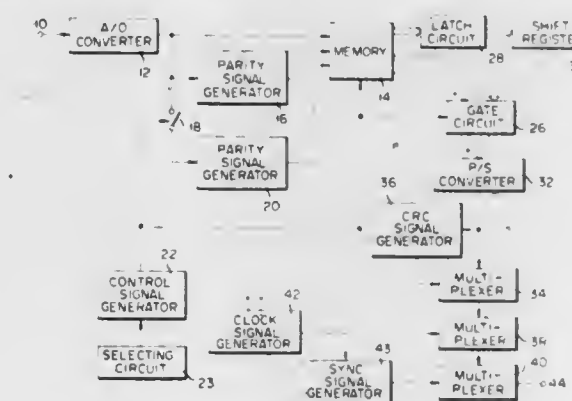
A/D converting means for sampling at a predetermined frequency analog signals to be recorded and converting sampled signals into digital signals forming sample words; mode determining means for generating a first mode signal when a sample word from the A/D converting means consists of N bits, where N is a positive integer, and a second mode signal when a sample word from the A/D converting means consists of N+M bits, where M is a positive integer;

error correction word generating means connected to said A/D converting means and mode determining means for generating, in response to a first mode signal, K+L error

correction words, each consisting of N bits, and where K and L are positive integers, for a predetermined number of N-bit sample words and for generating, in response to a second mode signal, K error correction words each consisting of M+N bits for the same number of (M+N)-bit words as that of the N-bit sample words;

first memory means connected to said A/D converting means and said error correction word generating means for interleaving error correction words among the sample words corresponding thereto;

arranging means to desired PCM signals connected to said first memory means and mode determining means for allotting, in response to a first mode signal, first by said predetermined number of N-bit sample words and then secondly the K+L error correction words to one horizontal scanning segment of a television signal and for



dividing, in response to a second mode signal, each of the sample words and error correction words into an M-bit component and an N-bit component and then allotting to the horizontal scanning segment the M-bit components of said predetermined number of sample words, the M-bit components of K error correction words, the N-bit components of said predetermined number of sample words, and the N-bit components of K error correction words in that order, thereby allotting N-bit components of said predetermined number of said sample words and the N-bit components of K error correction words to a slot to which L error correction words are allotted in response to a first mode signal; and means for recording on a video tape the PCM output signals from said arranging means and mode determining means in a form which is adapted to a data format for the television signal.

4,394,763

ERROR-CORRECTING SYSTEM

Genzo Nagano, and Masao Takahashi, both of Yokohama, Japan, assignors to Fujitsu Limited, Tokyo, Japan

PCT No. PCT/JP80/00199, § 371 Date May 1, 1981, § 102(e)

Date Apr. 24, 1981, PCT Pub. No. WO81/00641, PCT Pub.

Date Mar. 5, 1981

PCT Filed Aug. 29, 1980, Ser. No. 261,181

Claims priority, application Japan, Aug. 31, 1979, 54-111152

Int. Cl.³ G06F 11/10; G11C 29/00

U.S. Cl. 371—38

11 Claims

1. An error-correcting system, operatively connected between a main memory and a central processing unit, comprising:

an error correction code logic circuit, which can correct n-bit errors, where n is a positive integer, and detect n+1-bit errors;

first means, operatively connected to said central processing unit and said error correction code logic circuit, for discriminating whether an error, occurring in said main memory, is a soft error or a hard error;

second means for storing data for a defective memory cell of said main memory, which defective memory cell produces the hard error;

for every i exceeding said limits, a third circuit connected to said second circuit for forming a vector

$$\Lambda^{(k)} = [\lambda_0^{(k)}, \lambda_1^{(k)}, \lambda_2^{(k)}, \dots, \lambda_{N-1}^{(k)}]^T R,$$

whose components are the eigenvalues of a circulant matrix having the transpose of the said vector $U^{(k)}$ as a first row, with the aid of the relation:

$$\Lambda^{(k)} = \sqrt{N} \cdot P \cdot U^{(k)}$$

where P is the unitary matrix of the order N defined by:

$$P = |P_{fg}|$$

$$(f, g = 0, 1, 2, \dots, N-2, N-1)$$

and

$$P_{fg} = \frac{1}{\sqrt{N}} \exp[j 2\pi fg/N],$$

a fourth circuit connected to the data transmission channel output and the multiplying circuit output for forming a vector $Q^{(k)}$ with the aid of the relation:

$$Q^{(k)} = a_k e_k P^{cc} X_k$$

where P^{cc} is the complex conjugate of said unitary matrix P , a fifth circuit connected to said fourth and third circuits for dividing said vector $Q^{(k)}$ by said vector $\Lambda^{(k)}$ on a term-by-term basis so that the resulting vector

$$F^{(k)} = [f_0^{(k)}, f_1^{(k)}, f_2^{(k)}, \dots, f_{N-1}^{(k)}]^T R = Q^{(k)} / \Lambda^{(k)}$$

has components $f_i^{(k)} = q_i^{(k)} / \lambda_i^{(k)}$ for every i not exceeding $N-1$, a sixth circuit connected to said fifth circuit for multiplying said vector $F^{(k)}$ by said unitary matrix for producing a vector $H^{(k)} = P \cdot F^{(k)}$,

a seventh circuit connected to said sixth circuit and said transversal filter for up-dating the vector C_k of the N weighting coefficients of said transversal filter at the instant $t_0 + kT$ so as to produce a coefficient vector C_{k+1} at the instant $t_0 + (k+1)T$ in accordance with the relation:

$$C_{k+1} = C_k - H^{(k)}$$

4,394,769

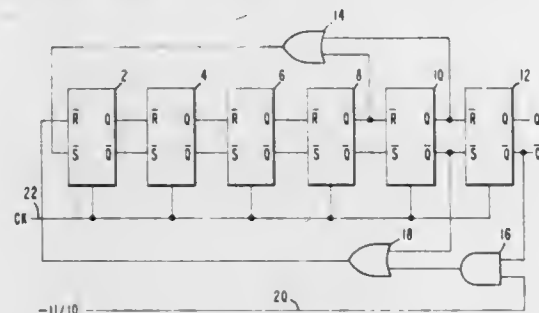
DUAL MODULUS COUNTER HAVING NON-INVERTING FEEDBACK

John M. Lull, Fullerton, Calif., assignor to Hughes Aircraft Company, El Segundo, Calif.

Filed Jun. 15, 1981, Ser. No. 274,005
Int. Cl.³ H03K 21/36, 21/10, 23/08

U.S. Cl. 377-116

11 Claims



1. A self-initializing ring counter, comprising:
 - (A) means for receiving a clock signal;
 - (B) a plurality of n flip-flops, each of said flip-flops, comprising:
 - (1) a master and a slave each having its own clock input,

the clock inputs of both being connected to receive the same clock signal, said master and slave being enabled by said clock signal at different times, and

- (2) an \bar{R} input, an \bar{S} input, a Q output and a \bar{Q} output;
- (C) said plurality of said n flip-flops being connected in serial succession, whereby the Q and \bar{Q} outputs of each flip-flop are connected to the \bar{R} and \bar{S} inputs respectively, of the next successive flip-flop; and
- (D) said counter having a non-inverting feedback, comprising:
 - (1) first means coupling the \bar{Q} outputs of the $(n-1)^{th}$ flip-flop and $(n-2)^{th}$ flip-flop to the \bar{S} input of the $(1)^{st}$ flip-flop, and
 - (2) second means coupling the \bar{Q} outputs of the $(n-1)^{th}$ flip-flop and the $(n)^{th}$ flip-flop to the \bar{R} input of the $(1)^{st}$ flip-flop.

4,394,770

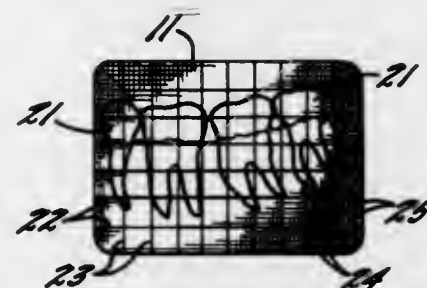
X-RAY FILM PACKAGE AND METHOD AND APPARATUS FOR MAKING THE SAME

Peter J. La Franca, 719 Cunningham St., Rockford, Ill. 61102

Filed Jun. 29, 1981, Ser. No. 278,739
Int. Cl.³ G03B 41/16; G03C 5/16

U.S. Cl. 378-169

11 Claims



1. An X-ray film package for applying dimensional indicia on the developed X-ray film, said package comprising, a sheet of X-ray film having pre-exposed but undeveloped dimensional indicia thereon, and a cover completely enclosing said film, said cover being formed of material which protects said film from normal light but which is penetrated by X-radiation whereby, when the package is placed adjacent an object and subjected to X-radiation and the film thereafter is developed, both the object and said dimensional indicia appear on said film with the dimensional indicia being black on the developed film.

4,394,771

APPARATUS FOR MOVING FILM CASSETTES

Pierre Charrier, 5520 Grande-Prairie, St. Léonard, Quebec, Canada

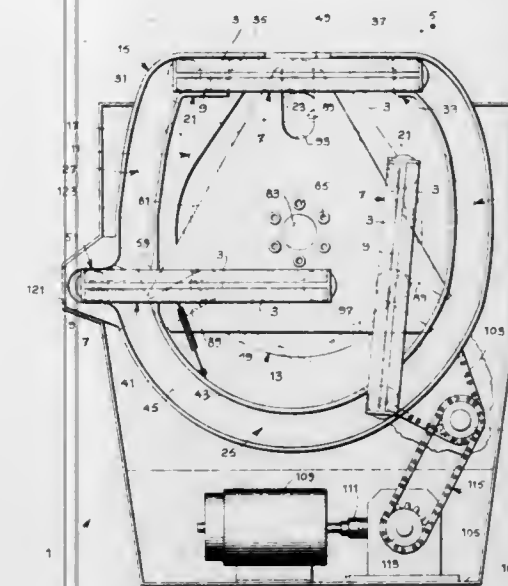
Filed Apr. 1, 1981, Ser. No. 250,034
Int. Cl.³ G03B 41/16

U.S. Cl. 378-172

5 Claims

1. An apparatus for use in taking X-ray pictures, comprising: a plurality of X-ray film holders, each holder being adapted to hold two X-ray films in back-to-back relation; means for intermittently rotating the holders in a closed loop past a picture-taking station on the loop, each holder stopping at the station during the time a picture is taken and presenting one of its two films for a first picture as it first passes said station, and means for rotating each holder through 180° as it is moved

through the closed loop after its first passage at the station, to present the other film it carries for a second picture at



the picture-taking station during a second passage at said station.

4,394,772

RADIOGRAPHIC CASSETTE

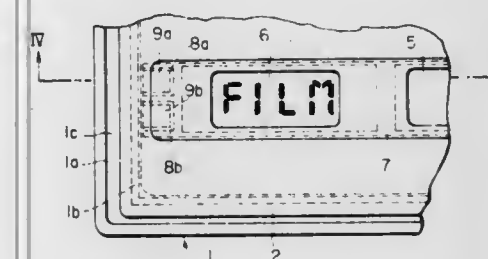
Tadaomi Okamoto, Fujisawa; Masayuki Ohta, Sakado, and Makoto Watanabe, Tokyo, all of Japan, assignors to Okamoto Manufacturing Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1981, Ser. No. 326,839

Claims priority, application Japan, Oct. 6, 1981, 56-148420[U]

Int. Cl.³ G03B 41/16

U.S. Cl. 378-182



4,394,775

FREQUENCY DIVISION COMMUNICATION SYSTEM WHEREIN CONVENTIONAL TRANSMITTER-TRANSCIEVER CAN BE USED AS A REPEATER OR LOCAL BASE STATION

John Bruinsma, Clayton, Australia, assignor to U.S. Philips Corporation, New York, N.Y.

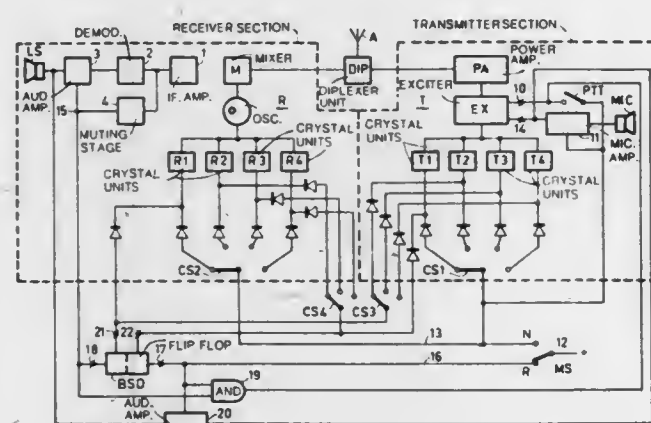
Filed May 22, 1981, Ser. No. 266,575

Claims priority, application Australia, May 29, 1980, PE03784

Int. Cl.³ H04B 7/14, 1/44

U.S. Cl. 455—17

5 Claims



1. A transceiver for use in a frequency division, two-frequency multi-channel communication system having a multi-channel transmitter with transmission channel selection means for selecting a channel transmitter frequency and a multi-channel receiver with receive channel selection means for selecting a channel receiving frequency band, characterized in that said receiver further comprises an automatic control system coupled to said transmission channel selection means and said receive channel selection means, said automatic control system comprising:

a multi-stable periodic switching device for switching the receive channel selection means so as to sequentially select a first channel receiving frequency band and a second channel receiving frequency band, and for switching the transmission channel selection means so as to select a first channel transmitter frequency and a second channel transmitter frequency, said multi-stable periodic switching device having a control input which, in response to a keying signal, arrests the periodic switching thereof;

detection means fed by signals received within the frequency band of a selected receive channel which, in response to detection thereby of a received signal having predetermined characteristics, applies said keying signal to the control input of said multi-stable periodic switching device and causes said transmitter to transmit information carried by the received signal; and

a steering circuit, coupled between said multi-stable periodic switching device and said transmission channel selection means, having steering modes for determining which channel transmitter frequency is to be selected, in which a first steering mode causes said transmission channel selection means to select said second channel transmitter frequency in response to a received signal within said first channel receiving frequency band and, alternately, to select said first channel transmitter frequency in response to a received signal within said second channel receiving frequency band.

4,394,776

PRIORITY CHANNEL SYSTEM FOR A SYNTHESIZED TRANSCIEVER

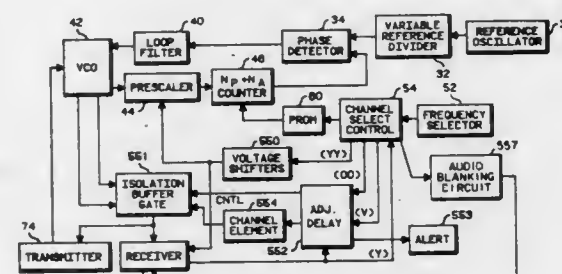
Jaime A. Borrás, Hialeah; Ruben J. Gonzalez, Miami, both of Fla.; Daniel M. Smith, Schaumburg, Ill., and Alfred B. Wiczorek, Plantation, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 6, 1981, Ser. No. 251,565

Int. Cl.³ H04B 1/38; H03J 7/00

U.S. Cl. 455—76

7 Claims



1. A portable transceiver including a digital frequency synthesizer capable of tuning a plurality of communications channels, said transceiver including a priority channel monitoring system comprising:

a crystal channel element capable of providing injection signals to the transceiver for tuning to a predesignated priority channel;

sampling means coupled to the digital frequency synthesizer and the crystal channel element, alternately supplying injection signals from said synthesizer and said channel element to the receiver portion of the transceiver;

carrier detection means detecting the presence of carrier signal in the receiver section of the transceiver;

priority means coupled to said carrier detection means and said sampling means, disrupting the operation of the sampling means and establishing tuning of the transceiver for transmission or reception at the communication channel corresponding to said crystal controlled channel element when a carrier signal is detected on that frequency corresponding to said crystal controlled channel element; and

delay means coupled to said sampling means to maintain the tuning of the transceiver at said priority channel for a predetermined interval to enable a responding transmission on said priority channel from a transceiver operator.

4,394,777

METHOD OF AND SYSTEM FOR CLASSIFYING EMERGENCY LOCATING TRANSMITTERS AND EMERGENCY POSITIONS INDICATING RADIO BEACONS

Paul E. Wren, Severna Park, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 12, 1979, Ser. No. 102,592

Int. Cl.³ H04B 7/26

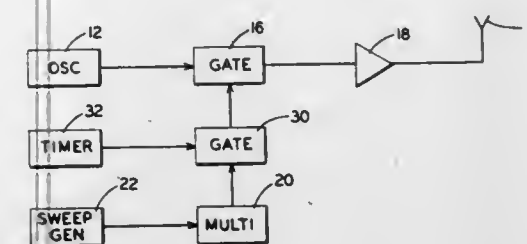
U.S. Cl. 455—95

10 Claims

1. A distress location transmitter, comprising:

oscillator means for generating a carrier signal to be supplied to an antenna during a distress call;

means for modulating said carrier signal with a distress characteristic waveform; and
means for periodically disabling said modulating means at a



predetermined rate corresponding to one of a plurality of classes of user for said distress location transmitter in providing a period of unmodulated carrier to identify said user class associated with said distress call.

4,394,778

TUNING CONTROL APPARATUS OF RECEIVER

Shigehiko Ikeguchi, and Kouzi Tanaka, both of Oora, Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi and Tokyo Sanyo Electric Co. Ltd., Gunma, both of Japan

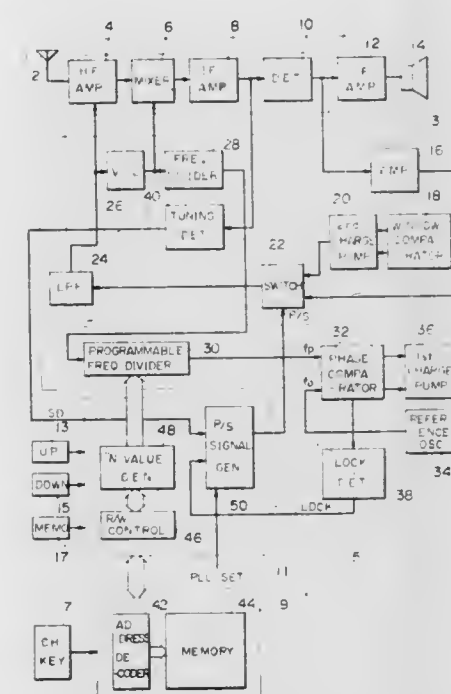
Filed Oct. 14, 1980, Ser. No. 196,272

Claims priority, application Japan, Oct. 16, 1979, 54-133986

Int. Cl.³ H04B 1/26

U.S. Cl. 455—182

9 Claims



1. A tuning control apparatus of a receiver for tuning said receiver to a desired broadcasting wave, comprising:

a tuner including a voltage controlled oscillator as a local oscillator for generating an intermediate frequency output when the receiver is tuned to the desired broadcasting wave,

an intermediate frequency circuit for receiving the output of said tuner,

a frequency discriminator for receiving the output of said intermediate frequency circuit,

a phase locked loop for providing a control voltage to said voltage controlled oscillator on the occasion of a desired broadcasting wave selecting operation by said receiver such that said intermediate output frequency is obtained from said tuner, said phase lock loop including a programmable frequency dividing means for dividing the voltage controlled oscillator output by a selectable ratio such that the oscillator has a preset frequency related to the desired broadcasting wave,

an automatic frequency control loop responsive to the out-

put of said frequency discriminator for providing a control voltage to said voltage controlled oscillator on the occasion of the reception of the desired broadcasting wave by said tuner,

broadcasting wave sensing means responsive to the levels of both the output from said intermediate frequency circuit and an S curve signal obtained from said frequency discriminator for sensing the reception of said broadcasting wave and providing a reception signal relating thereto, and

switching means responsive to said reception signal from said broadcasting wave sensing means for switchably selecting either said phase locked loop or said automatic frequency control loop for supply of said control voltage to said voltage controlled oscillator.

4,394,779

METHOD AND SYSTEM FOR RECEIVING DISTORTION-FREE FM SIGNALS BY VEHICULAR RADIOS

Jens Hansen, Diekhofen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

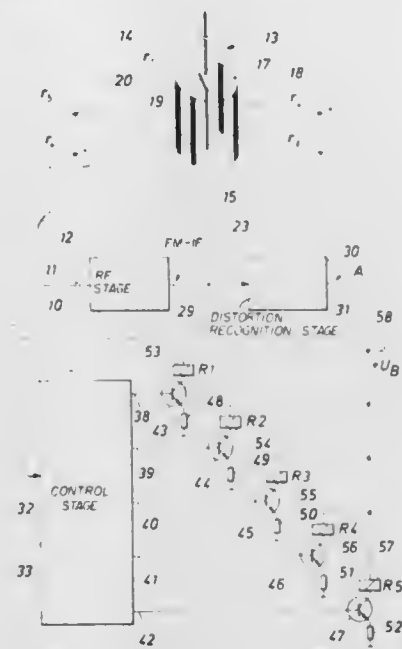
Filed Feb. 6, 1981, Ser. No. 231,953

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006627

Int. Cl.³ H04B 1/10

U.S. Cl. 455—277

14 Claims



1. Method of reducing distortion in the reception of signals by vehicular FM radio receivers, in which the receiver has an antenna system (13), the system including a main antenna element (14) matched to the frequency band of the receiver, and an auxiliary rod antenna element (15, 17, 18, 19, 20) having different directional characteristics which is short with respect to the main antenna element;

as RF stage (10);
a distortion recognition stage (30) connected to the RF stage and providing an output signal when distorted reception is recognized, comprising the steps of

connecting said main antenna element to the receiver; recognizing non-distortion - distortion characteristics of the signal from the RF stage in the recognition stage;

(a) upon recognition of non-distortion, leaving said main antenna element connected;

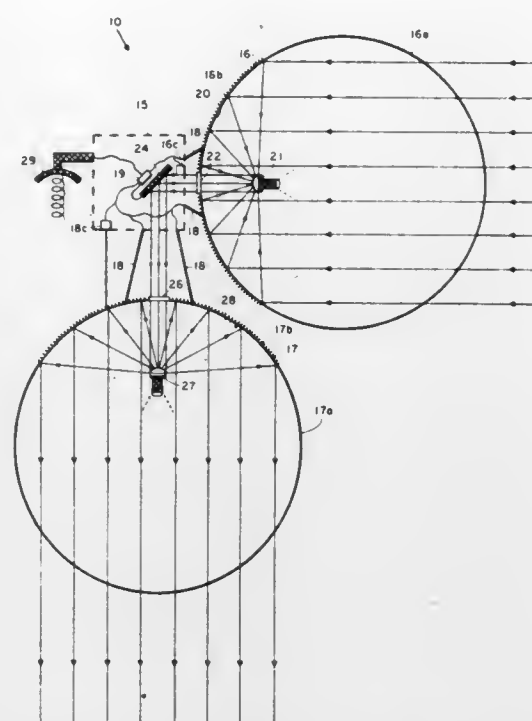
(b) upon recognition of a distorted signal, connecting the auxiliary antenna element of a first directional characteristic which has a different directional characteristic than said main antenna element to the RF stage of the receiver;

(c) continuing to recognize the characteristic of the signal for a predetermined time interval (τ);

(d-1) upon sensing non-distortion characteristic of the signal

during said predetermined time interval, connecting the main antenna element to the RF stage of the receiver; or (d-2) upon sensing continued distortion characteristic of the signal, connecting said auxiliary antenna element of a second directional characteristic different from said first directional characteristic to the RF stage of the receiver; (e) and continuing steps (c) and (d); and wherein the step of connecting the auxiliary rod antenna element of different directional characteristics comprises selectively connecting specifically oriented shielding elements (17-20) surrounding said rod antenna element (15) to ground or chassis, while leaving other selectively oriented shielding elements unconnected to provide for selectively specific directional characteristic of the auxiliary antenna element.

modulating the reflected and collected sunlight with the data; and



inflatably distending a modulated sunlight directing surface in a second distensible means in order to transmit the data modulated sunlight.

4,394,780

BALLOON COLLECTOR/DIRECTOR SUNSUBSATCOM CONCEPT

Gregory C. Mooradian, Del Mar, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 2, 1981, Ser. No. 239,254
Int. Cl. H04B 9/00

U.S. Cl. 455-618

12 Claims

8. A method for optically transmitting data from an orbiting satellite comprising:

inflatably distending a sunlight reflecting and collecting surface in a first distensible means to reflect and collect sunlight;

DESIGNS

JULY 19, 1983

269,729

MOLDED MEAT PRODUCT OR SIMILAR ARTICLE

Martin B. P. Zonnenberg, Old Oakwood Rd., Oakwood, Ga. 30566

Filed Oct. 29, 1980, Ser. No. 202,535
Term of patent 14 years
Int. Cl. D01-04

U.S. Cl. D1-26



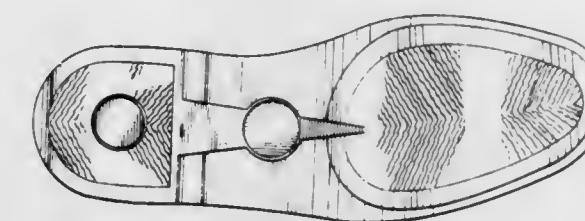
269,732

SHOE BOTTOM

Joseph P. Famolare, Jr., Putney, Vt., assignor to Famolare, Inc., New York, N.Y.

Filed Mar. 24, 1981, Ser. No. 247,513
Term of patent 14 years
Int. Cl. D2-04

U.S. Cl. D2-319



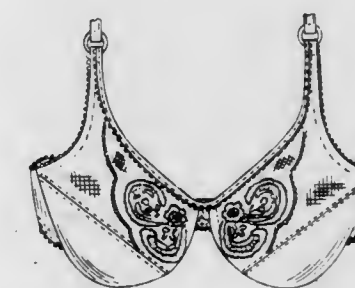
269,730

BRASSIERE

Flavia DiTullio, New York, N.Y., assignor to Consolidated Foods Corporation, Winston-Salem, N.C.

Filed May 4, 1981, Ser. No. 260,052
Term of patent 14 years
Int. Cl. D2-01

U.S. Cl. D2-24



269,731

AFTER SKI BOOT

Mario Mattiuzzo, Treviso, Italy, assignor to Nordica S.P.A., Montebelluna, Italy

Filed May 26, 1981, Ser. No. 267,115
Claims priority, application Italy, Dec. 18, 1980, 23678/80[U]
Term of patent 14 years
Int. Cl. D2-04

U.S. Cl. D2-275



269,733

CANE

Margaret E. Ayres, 33 Leroy St., Binghamton, N.Y. 14892
Filed Nov. 24, 1980, Ser. No. 209,384

Term of patent 14 years
Int. Cl. D3-03

U.S. Cl. D3-7



269,734

KNITTING NEEDLE

Hidekazu Okada, Ashiya, Japan, assignor to Clover Mfg. Co., Ltd., Osaka, Japan

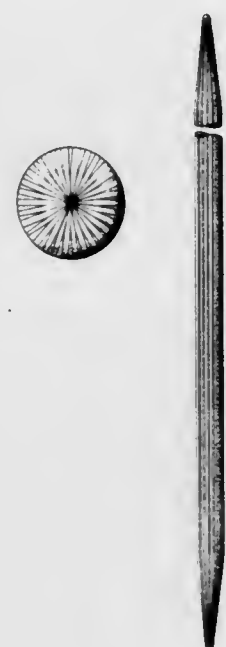
Filed Dec. 19, 1979, Ser. No. 105,088

Claims priority, application Japan, Nov. 12, 1979, 54-47495

Term of patent 14 years

Int. Cl. D02-07

U.S. Cl. D3-28



269,736

LUGGAGE

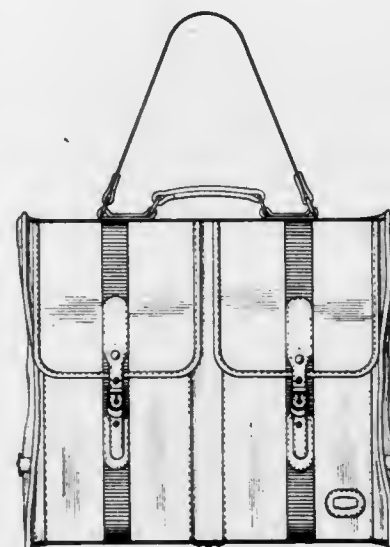
Ted Stark, Jersey City, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,285

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-71



269,737

LUGGAGE

Ted Stark, Montclair, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,298

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-71



269,735

COMPARTMENTED TRAVEL CASE

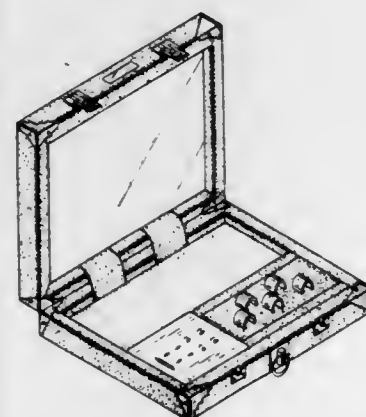
Brian T. Bunetta, 19981 Carrie, Detroit, Mich. 48234

Filed Feb. 12, 1981, Ser. No. 233,737

Term of patent 14 years

Int. Cl. D3-02

U.S. Cl. D3-39



269,738

LUGGAGE

Ted Stark, Montclair, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,401

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-77



269,740

LUGGAGE

Ted Stark, Montclair, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,405

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-71



269,739

LUGGAGE

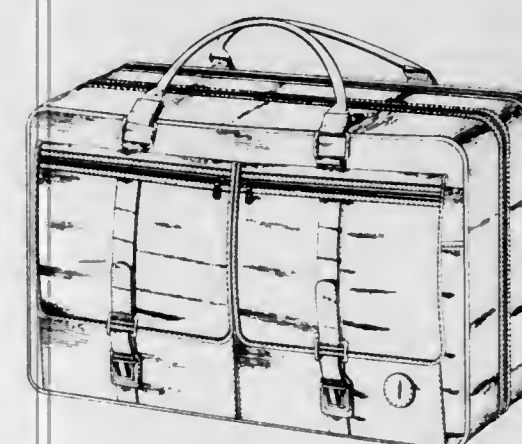
Ted Stark, Montclair, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,403

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-71



269,741

LUGGAGE

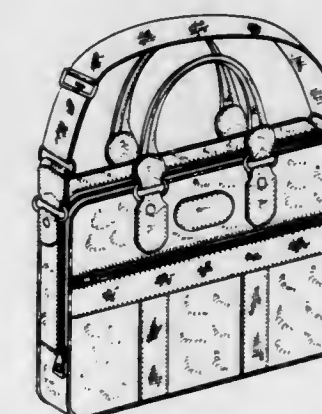
Ted Stark, Montclair, N.J., assignor to M/M Verdi International, Inc., Jersey City, N.J.

Filed Apr. 7, 1982, Ser. No. 366,406

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-71



269,742
CRIB

Merlin A. Brunner, New London; Harvey J. Draheim, Frederick J. Wallace, Salisbury, N.C., assignor to Lyon-Shaw, Weyauwega, and Michael J. Schaffer, New London, all of Wis., assignors to Simmons Universal Corporation, New York, N.Y.

Filed Feb. 25, 1981, Ser. No. 238,245
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—16

269,744
CHAIR

Frederick J. Wallace, Salisbury, N.C., assignor to Lyon-Shaw, Inc., Salisbury, N.C.

Filed Jul. 10, 1981, Ser. No. 281,991
Term of patent 14 years
Int. Cl. D6—01

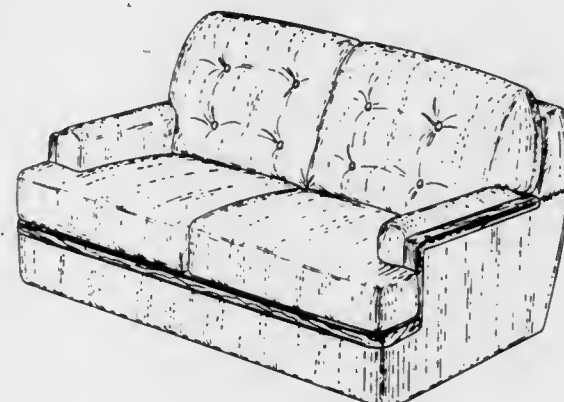
U.S. Cl. D6—56

269,745
SETTEE

Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, Morristown, Tenn.

Filed Jan. 7, 1982, Ser. No. 337,607
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—63

269,746
SETTEE

Richard Brooks, North Hollywood, Calif., assignor to The Berkline Corporation, Morristown, Tenn.

Filed Feb. 8, 1982, Ser. No. 346,579
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—63

269,743
CHAIR

Wolfgang Müller-Deisig, Borgenteich, Fed. Rep. of Germany, assignor to Fehlbaum & Co., Dornach, Switzerland

Filed Dec. 3, 1980, Ser. No. 212,467
Term of patent 14 years
Int. Cl. D6—01

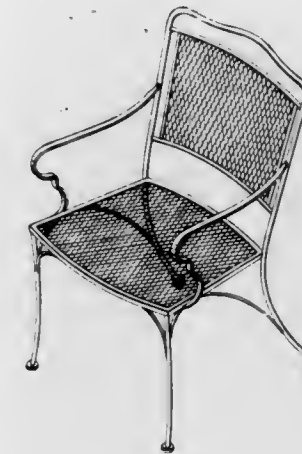
U.S. Cl. D6—31

269,747
SEAT

Frederick J. Wallace, Salisbury, N.C., assignor to Lyon-Shaw Incorporated, Salisbury, N.C.

Filed Jul. 10, 1981, Ser. No. 281,990
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—70



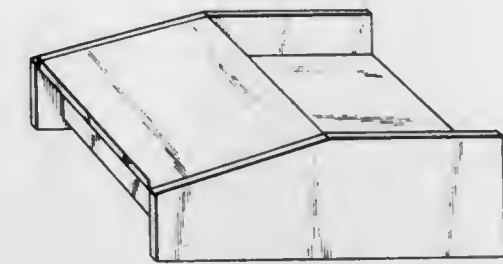
269,749

CRT TERMINAL STAND

Daniel F. Foster, 7160 S. Vine Cir. East, Littleton, Colo. 80122

Filed Jan. 28, 1981, Ser. No. 229,288
Term of patent 14 years
Int. Cl. D6—04; D14—02

U.S. Cl. D6—85



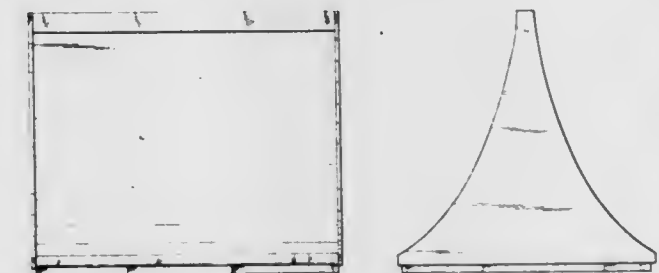
269,750

DISPLAY STAND FOR FLOOR TILES, CARPETS OR SIMILAR ARTICLE

Anthony E. Bolyn, Verona, N.J., assignor to Congoleum Corporation, Kearny, N.J.

Filed Dec. 17, 1980, Ser. No. 217,487
Term of patent 14 years
Int. Cl. D06—06

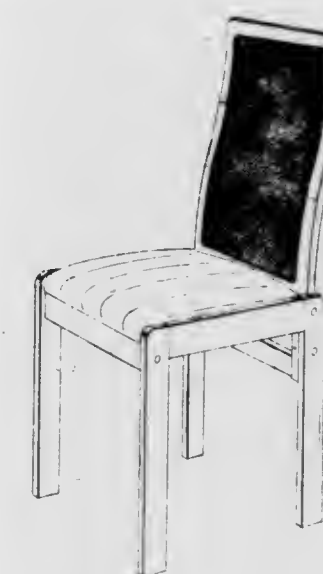
U.S. Cl. D6—85

269,748
CHAIR

France Berlic, Rozna dolina c. III/5, 61000 Ljubljana, Yugoslavia

Filed Dec. 29, 1980, Ser. No. 221,042
Claims priority, application Yugoslavia, Nov. 5, 1980, 416/80
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—76



269,751

CADDY FOR ASSEMBLED RODS AND REELS

Paul F. Rieman, 4390 E. Broadway, Des Moines, Iowa 50317

Filed May 7, 1981, Ser. No. 261,635
Term of patent 14 years
Int. Cl. D6—06

U.S. Cl. D6—125



269,752

DISPLAY CABINET FOR FLOOR TILES, CARPETS OR SIMILAR ARTICLE

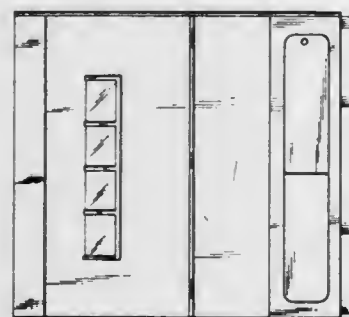
Anthony E. Bolyn, Verona, N.J., assignor to Congoleum Corporation, Kearny, N.J.

Filed Dec. 17, 1980, Ser. No. 217,372

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-168



269,754

DISPLAY UNIT

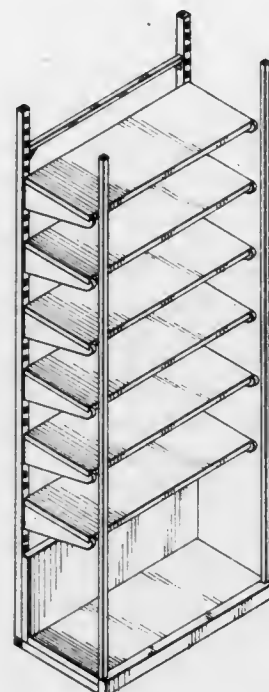
Fred W. Kates, New York, N.Y., assignor to Revlon, Inc., New York, N.Y.

Filed Jan. 7, 1981, Ser. No. 223,180

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-186



269,755

FRONT AND SIDE PANELS OF A DESK

Amerigo Terenzoni, 400 S. Western, Oklahoma City, Okla. 73109

Filed Sep. 12, 1980, Ser. No. 186,553

Term of patent 14 years

Int. Cl. D06-06

U.S. Cl. D6-192



269,753

COLLAPSIBLE TABLE

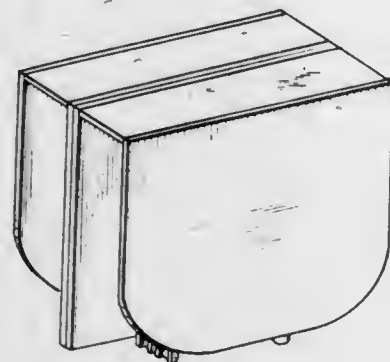
Giovanni Offredi, Via L. Murator 29, Milano, Italy

Filed Apr. 13, 1981, Ser. No. 253,246

Term of patent 14 years

Int. Cl. D6-03

U.S. Cl. D6-178



269,756

SUPPORT BRACKET FOR A TABLE LEG

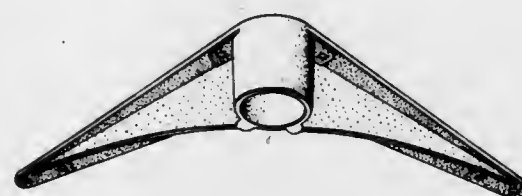
Edwin C. Sandham, Thiensville, Wis., assignor to Nordson Corporation, Amherst, Ohio

Filed Mar. 16, 1981, Ser. No. 244,157

Term of patent 14 years

Int. Cl. D6-06

U.S. Cl. D6-194



269,757

CRIB FOOTBOARD

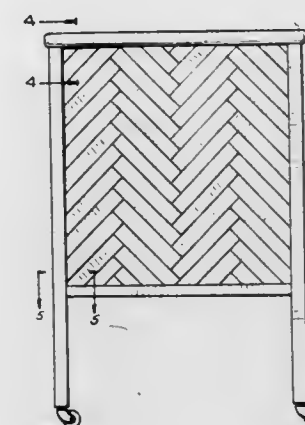
Merlin A. Brunner, New London; Harvey J. Draheim, Weyauwega, and Michael J. Schaffer, New London, all of Wis., assignors to Simmons Universal Corporation, New York, N.Y.

Filed Mar. 23, 1981, Ser. No. 246,339

Term of patent 14 years

Int. Cl. D6-D6

U.S. Cl. D6-198



269,758

BAR-B-QUE SHELL

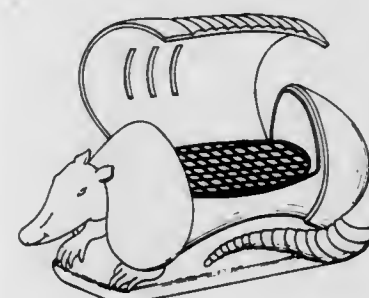
Charles A. Braswell, Burnet, Tex., assignor to Jaro, Inc., Burnet, Tex.

Filed Oct. 5, 1981, Ser. No. 308,930

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D7-337



269,759

DRIVE FASTENER SHANK

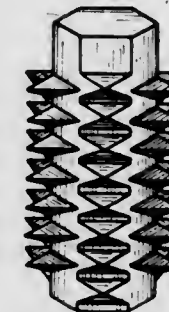
Burnell J. Wollar, Barrington, Ill., assignor to Phillips Plastics Corp., Phillips, Wis.

Filed Jul. 22, 1980, Ser. No. 171,025

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-388



269,760

SECURING DEVICE FOR A GENERATOR FIXED BY A SLIDEWAY ON SEAT-STAYS OF A BICYCLE

Gilbert Geney, Seloncourt, France, assignor to Cycles Peugeot, Valentigney, France

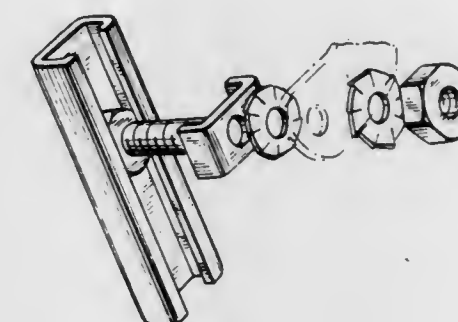
Filed Feb. 8, 1980, Ser. No. 120,122

Claims priority, application France, Feb. 8, 1980, 80 387

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-382



269,761

CAN OR THE LIKE

Thomas N. Gaunt, Leeds, England, assignor to Plastona (John Waddington) Limited, Leeds, England

Filed Dec. 3, 1980, Ser. No. 212,486

Claims priority, application United Kingdom, Aug. 12, 1980, 996105

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-370



269,762
BOTTLE

Andrew Grant, Markham, Canada, assignor to BP Oil Limited, Toronto, Canada

Filed Nov. 10, 1980, Ser. No. 205,474

Claims priority, application Canada, Jul. 14, 1980, 1407804

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—375



269,765
PACKAGING CONTAINER

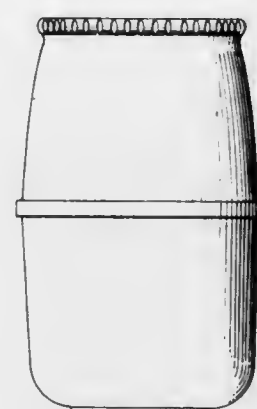
Vincent E. Fortuna, Garden Grove, Calif., assignor to Cosden Technology, Inc., Dallas, Tex.

Filed Mar. 23, 1981, Ser. No. 246,885

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—398



269,763
PACKAGING CONTAINER

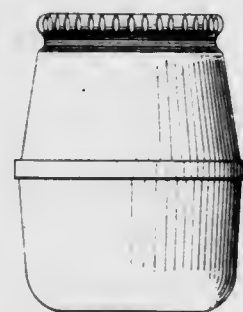
Vincent E. Fortuna, Garden Grove, Calif., assignor to Cosden Technology, Inc., Dallas, Tex.

Filed Apr. 13, 1981, Ser. No. 253,810

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—398



269,766
DISPLAY CARD FOR JEWELRY ARTICLES OR THE LIKE

Andrew G. Strasser, Woodcliff Lake, N.J.; Donna M. Tierney, and Daniel B. Thorsen, both of Bronxville, N.Y., assignors to General Mills Products Corp., Minneapolis, Minn.

Filed May 4, 1981, Ser. No. 260,137

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—457



269,764
PACKAGING CONTAINER

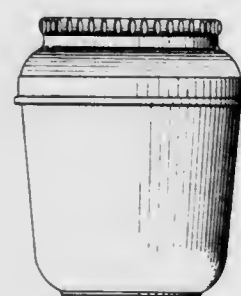
Vincent E. Fortuna, Garden Grove, Calif., assignor to Cosden Technology, Inc., Dallas, Tex.

Filed Apr. 13, 1981, Ser. No. 253,812

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—398



269,767
DIGITAL WATCH

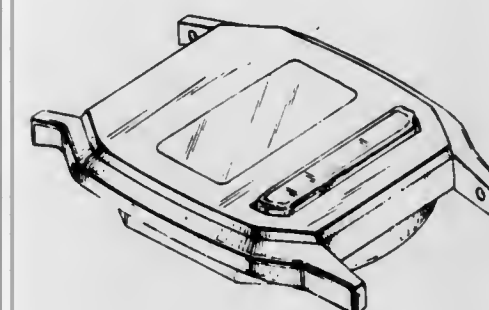
John T. Houlihan, Watertown, and John S. Maliskas, Newtown, both of Conn., assignors to Timex Corporation, Waterbury, Conn.

Filed Apr. 14, 1981, Ser. No. 254,033

Term of patent 14 years

Int. Cl. D10—02

U.S. Cl. D10—38



269,769
SEGMENTED TURTLE-SHAPED PENDANT OR SIMILAR ARTICLE

Muriel Meyer, Long Beach, N.Y., assignor to General Mills Products Corp., Minneapolis, Minn.

Filed Apr. 22, 1981, Ser. No. 256,444

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—82



269,768
SYMBOLIC PIN

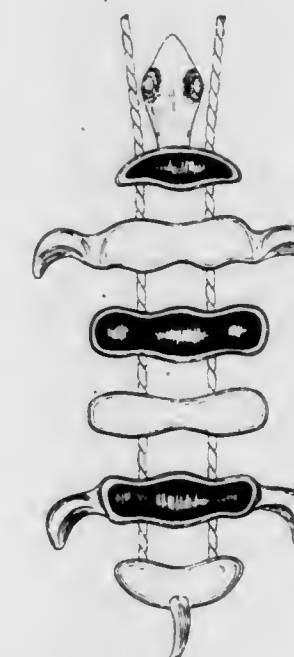
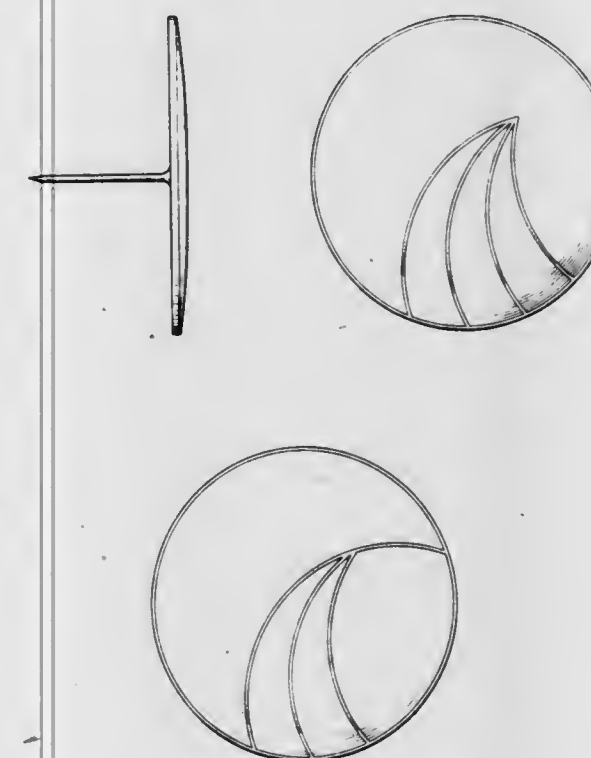
Peter A. Terry, 6315 Colony Way, Edina, Minn. 55435

Filed Mar. 9, 1981, Ser. No. 241,841

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—47



269,770

JEWELRY CHAIN CLASP

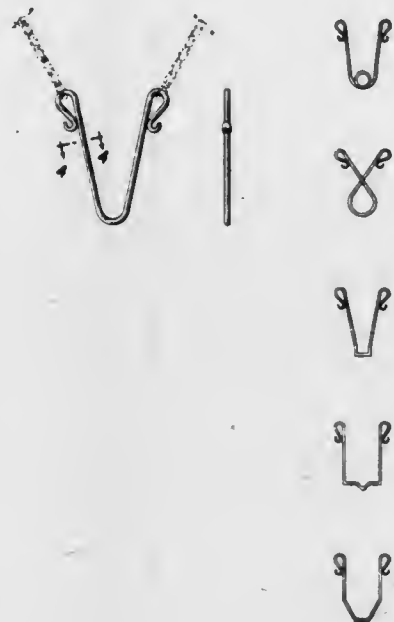
James E. Pittenger, 2427 S. Allison Way, Lakewood, Colo. 80227, and William S. Worth, 2855 E. Maplewood, Littleton, Colo. 80120

Filed Sep. 30, 1980, Ser. No. 192,459

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—87



269,772

COMBINED FRONT AND REAR FENDERS, CHAIN GUARD, ENGINE COVER AND FUEL TANK FOR MOPED

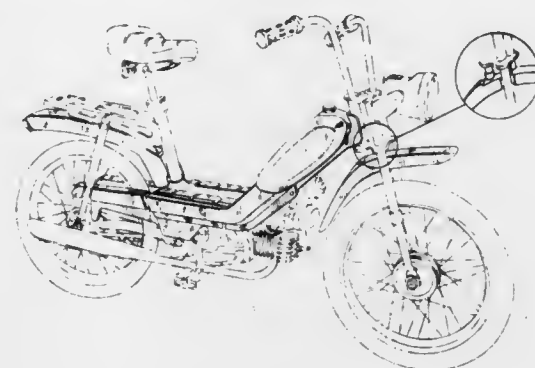
Daniel G. Hahn, Olney, Ill., assignor to AMF Incorporated, White Plains, N.Y.

Filed Sep. 8, 1980, Ser. No. 184,703

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D12—110



269,773

COMPRESSION TOOL FOR INSIDE TIRE REPAIR OR SIMILAR ARTICLE

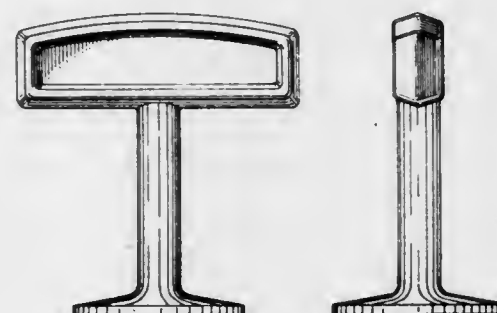
Alec W. Niconchuk, Peabody, Mass., assignor to North Shore Laboratories Corp., Peabody, Mass.

Filed Jul. 7, 1980, Ser. No. 166,563

Term of patent 14 years

Int. Cl. 12—99

U.S. Cl. D12—153



269,771

SIMULATED CHRISTMAS TREE

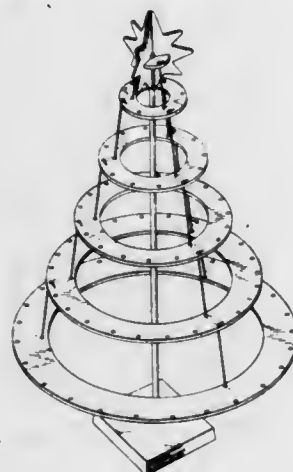
Cole Williams, 2408 Allanjay Pl., Glendale, Calif. 91208

Filed Jul. 27, 1981, Ser. No. 287,512

Term of patent 14 years

Int. Cl. D11—05

U.S. Cl. D11—118



269,774

SUPPORT BRACKET FOR AUTOMOTIVE ROOF RACK

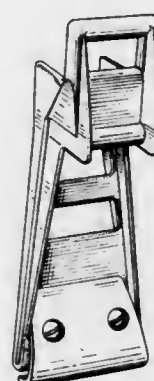
Joseph W. Schawarzli, 430 Comstock Rd., Scarborough, Ontario, Canada

Filed Feb. 5, 1981, Ser. No. 231,628

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—157



269,775

MOTORCYCLE RADIO COVER

Fred O. Hoese, 30706 Wildcat Dr., Bulverde, Tex. 78163

Filed Aug. 13, 1980, Ser. No. 177,865

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D12—192



269,778

POLARIZED TERMINAL BLADE

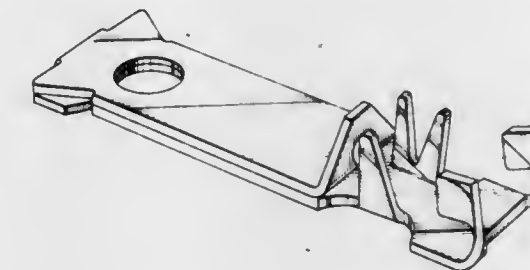
Donald G. McGregor, 98 Power Rd., Pawtucket, R.I. 02860

Filed Sep. 15, 1980, Ser. No. 187,219

Term of patent 14 years

Int. Cl. D13—03

U.S. Cl. D13—24



269,776

WHEEL CENTER

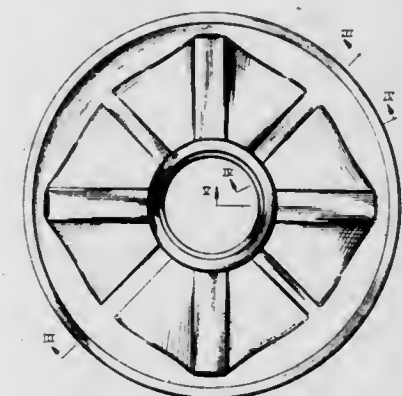
Donald F. Morgan, 133 E. Central, Zeeland, Mich. 49464

Filed Oct. 20, 1980, Ser. No. 198,917

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—204



269,779

TELEPHONE

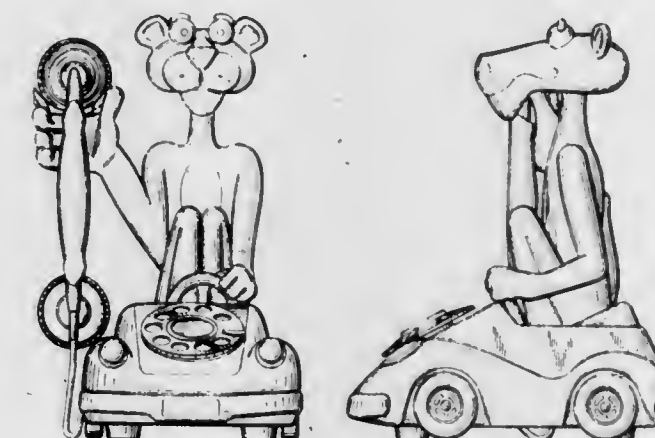
John E. Bevilacqua, Jr., and James E. Ross, both of Charlottesville, Va., assignors to United Artists Corporation, New York, N.Y.

Filed Jan. 7, 1981, Ser. No. 223,105

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—53



269,777

DIAPHRAGM PLATE FOR A SERVOMOTOR

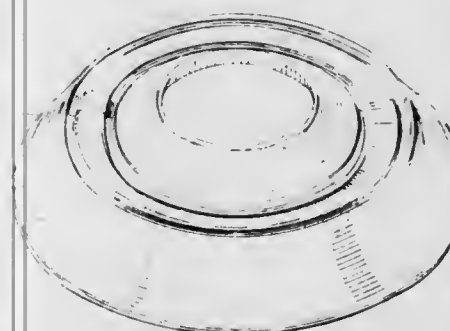
Robert L. Williams, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Dec. 19, 1980, Ser. No. 217,972

Term of patent 14 years

Int. Cl. D13—01

U.S. Cl. D13—1



269,780

INTERCOM SPEAKER AND RECEIVER

Peter J. Doodson, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

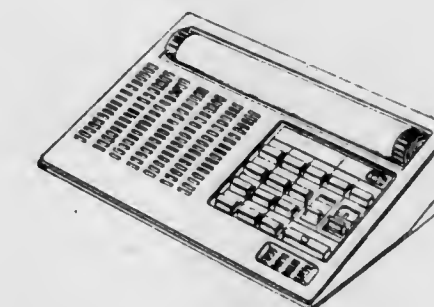
Filed Sep. 27, 1979, Ser. No. 79,629

Claims priority, application United Kingdom, Apr. 2, 1979, 989299

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—57



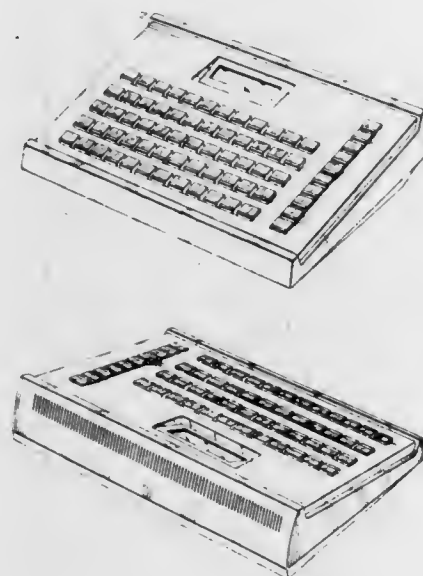
269,781

TELEPHONE BUSY LAMP FIELD CONSOLE WITH DISPLAY

Donald A. Foggia, Ocean, N.J.; Deepak R. Muzumdar, Boca Raton, Fla.; Gerhart F. Klaiber, Boca Raton, Fla., and Rolf E. Schneider, Boca Raton, Fla., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 23, 1980, Ser. No. 199,991
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-58



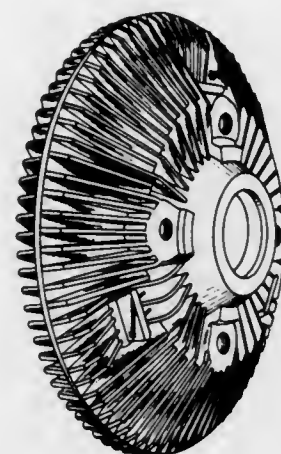
269,783

HOUSING OF A VISCOUS FAN DRIVE

Richard W. Heater, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jun. 27, 1980, Ser. No. 163,598
Term of patent 14 years
Int. Cl. D15-01

U.S. Cl. D15-5



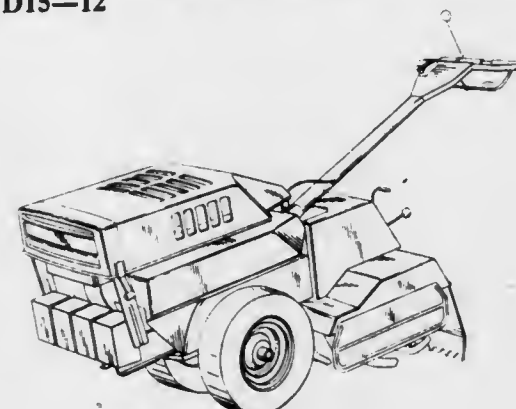
269,784

AGRICULTURAL TILLER

Philip D. Stark, Kankakee, Ill., assignor to Roper Corporation, Kankakee, Ill.

Filed Sep. 17, 1980, Ser. No. 188,138
Term of patent 14 years
Int. Cl. D15-03

U.S. Cl. D15-12



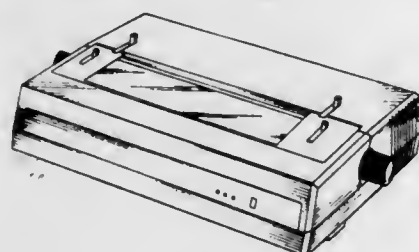
269,782

PRINTER

Daniel Canning, Dublin, and James B. Jordan, Berkeley, both of Calif., assignors to Qume Corporation, San Jose, Calif.

Filed Nov. 3, 1980, Ser. No. 203,522
Term of patent 14 years
Int. Cl. D14-02; D18-02

U.S. Cl. D14-111



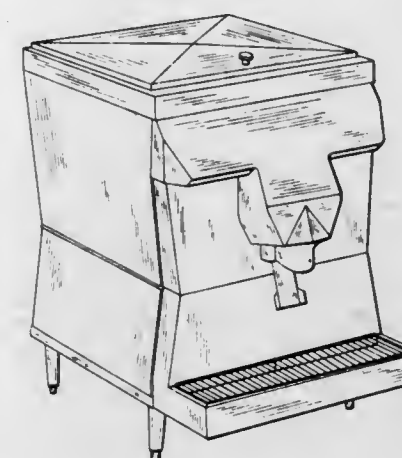
269,785

SANITARY COUNTERTOP MACHINE FOR STORING AND DISPENSING PARTICULATE ICE

Charles M. Lents, Leon Valley, Tex., assignor to Stainless Ice-Tainer Company, San Antonio, Tex.

Filed Mar. 23, 1981, Ser. No. 246,468
Term of patent 14 years
Int. Cl. D15-08, 07

U.S. Cl. D15-80



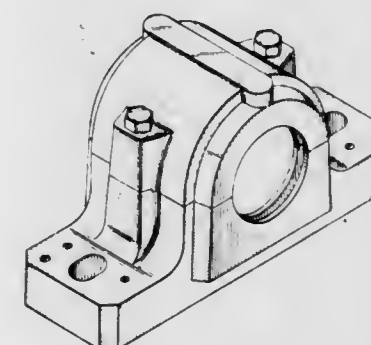
269,786

BEARING HOUSING

Sture Ostling, Katrineholm, Sweden, assignor to AB SKF, Gothenburg, Sweden

Filed Jan. 16, 1981, Ser. No. 225,852
Term of patent 14 years
Int. Cl. D15-99

U.S. Cl. D15-143



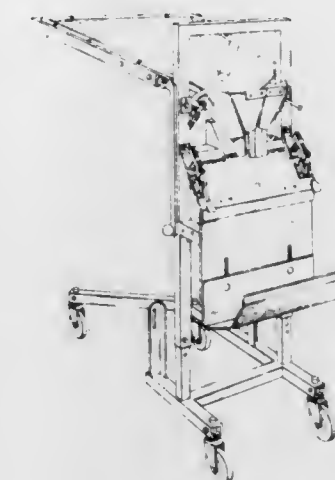
269,787

BAG FILLING DEVICE

Jerry W. Cramer, Upland, Calif., assignor to Sunkist Growers, Inc., Sherman Oaks, Calif.

Filed Feb. 2, 1981, Ser. No. 230,734
Term of patent 14 years
Int. Cl. D15-99

U.S. Cl. D15-145



269,788

GUITAR

Wallace J. LeBlue, 3455 Pine, Beaumont, Tex. 77703

Filed Jun. 1, 1981, Ser. No. 269,112
Term of patent 14 years
Int. Cl. D17-03

U.S. Cl. D17-14



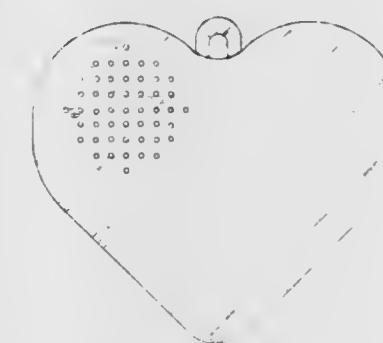
269,789

HOUSING FOR SIMULATING HEARTBEAT AND WOMB SOUNDS

Todd D. Monson, 2090 Cresthill Dr., Salt Lake City, Utah 84117

Filed Dec. 12, 1980, Ser. No. 216,007
Term of patent 14 years
Int. Cl. D19-07

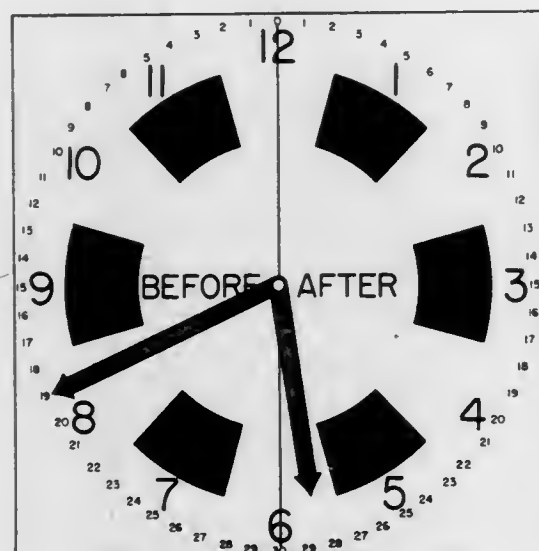
U.S. Cl. D19-59



269,790
TEACHING CLOCK

Frank Alessio, 1572-79th St., Brooklyn, N.Y. 11228
Filed Mar. 31, 1981, Ser. No. 249,706
Term of patent 14 years
Int. Cl. D19-07

U.S. Cl. D19-64



269,792
HOOP ROLLER

Benjamin T. Baser, 460 N. 48th St., Springfield, Ore. 97477
Filed Oct. 30, 1980, Ser. No. 202,064
Term of patent 14 years
Int. Cl. D21-01

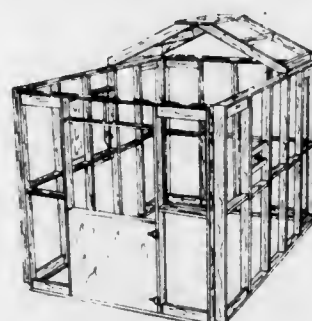
U.S. Cl. D21-101



269,793
PLAYHOUSE

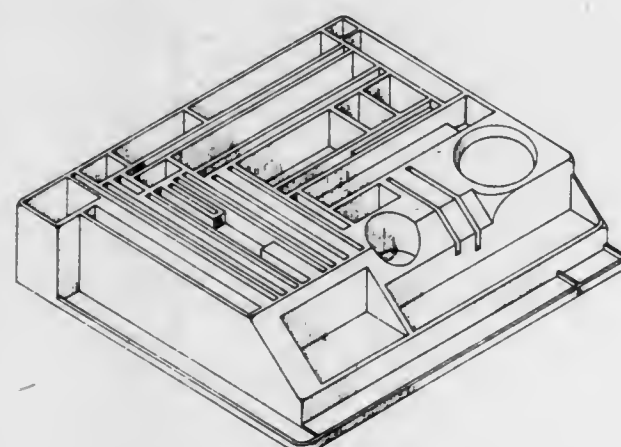
David L. Giveans, San Francisco, Calif., assignor to SB/JP Enterprises, Inc., San Francisco, Calif.
Filed Mar. 30, 1981, Ser. No. 249,163
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-114



269,791
COMPARTMENTED TRAY FOR DRAFTING SUPPLIES
Richard W. Chatham, P.O. Box 6361, Greensboro, N.C. 27405
Filed Jun. 26, 1981, Ser. No. 277,938
Term of patent 14 years
Int. Cl. D19-02

U.S. Cl. D19-77



269,794
BALL CATCHING AND THROWING DEVICE
Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.
Filed Jun. 10, 1980, Ser. No. 158,337
The portion of the term of this patent subsequent to Jun. 28, 1997, has been disclaimed.
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-210



269,795
BALL CATCHING AND THROWING DEVICE
Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.

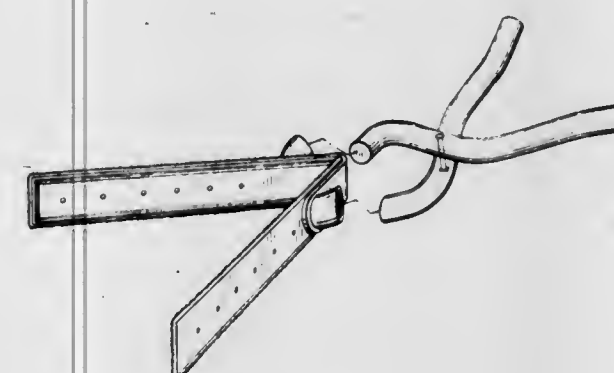
Filed Jun. 10, 1980, Ser. No. 158,334
The portion of the term of this patent subsequent to Jun. 28, 1997, has been disclaimed.
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D21-210



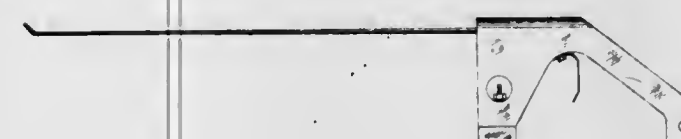
269,796
INSECT CATCHING DEVICE OR THE LIKE
Michael J. Stringfellow, Bend, Ore., assignor to Carl Dudley, St. Johns, Kans.
Filed Jan. 12, 1981, Ser. No. 224,213
Term of patent 14 years
Int. Cl. D22-06

U.S. Cl. D22-20



269,797
ICE FISHING ROD
Douglas D. Riis, Marion, Iowa
Filed Mar. 16, 1981, Ser. No. 244,008
Term of patent 14 years
Int. Cl. D22-05

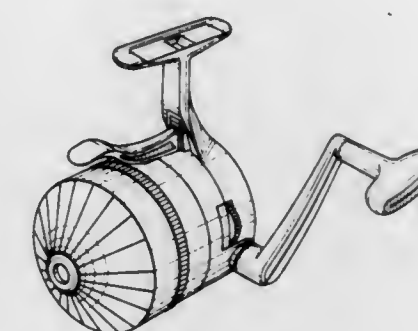
U.S. Cl. D22-23



269,798
FISHING REEL

Robert W. Fee, Wichita; Richard J. Robbins, Derby, both of Kans., and Henry L. Neufeld, Tulsa, Okla., assignors to Brunswick Corporation, Skokie, Ill.
Filed Jul. 28, 1981, Ser. No. 286,751
Term of patent 14 years
Int. Cl. D22-05

U.S. Cl. D22-25



269,799
FISHING LURE
Johnny J. Waller, P.O. Box 91, Checotah, Okla. 74426
Filed Apr. 3, 1981, Ser. No. 250,758
Term of patent 14 years
Int. Cl. D22-05

U.S. Cl. D22-27



269,800
FISHING LURE
Johnny J. Waller, P.O. Box 91, Checotah, Okla. 74426
Filed Apr. 3, 1981, Ser. No. 250,759
Term of patent 14 years
Int. Cl. D22-05

U.S. Cl. D22-27



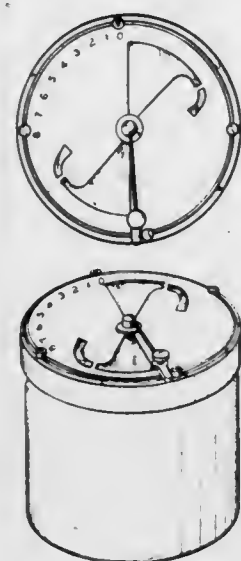
269,801

SWIMMING POOL CHEMICAL DISPENSER OR THE LIKE

Arlon G. Sangster, Sterling, Mass., and Joseph J. Tepas, Jr., Easton, Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 24, 1981, Ser. No. 257,051
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—03



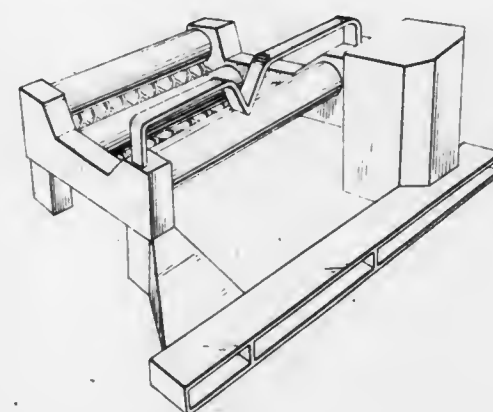
269,803

FIREPLACE GRATE

David Anderson, 1311 E. Main St., St. Charles, Ill. 60174
Filed Jan. 2, 1981, Ser. No. 221,985

Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—95



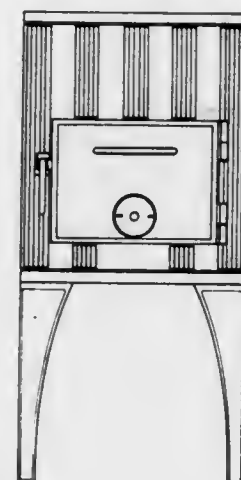
269,804

STOVE

Winston J. F. Sorensen, Rudkøbing, Denmark, assignor to Danish Stove Association, ApS, Odense, Denmark
Filed Nov. 19, 1980, Ser. No. 208,294

Claims priority, application Denmark, May 23, 1980, 408/80
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—97



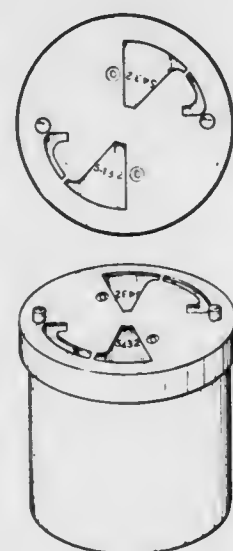
269,802

SWIMMING POOL CHEMICAL DISPENSER OR THE LIKE

Roy P. Alexander, Killingworth, Conn.; Arlon G. Sangster, Sterling, Mass., and Joseph C. Green, Milford, Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 24, 1981, Ser. No. 257,052
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—03



269,805

FUEL LOADER FOR LOADING FUEL SUCH AS WOOD LOGS INTO WOOD BURNING STOVES

Eugene V. Stair, Rte. 1, Caddo, Okla. 74729
Filed May 29, 1981, Ser. No. 268,137

Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—125



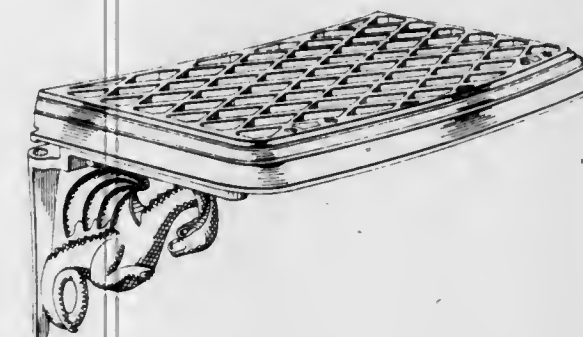
269,806

WARMING SHELF FOR A PARLOR STOVE

Duncan C. Syme, Chelsea, Vt., assignor to Vermont Castings, Inc., Randolph, Vt.

Filed Mar. 30, 1981, Ser. No. 248,811
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—127



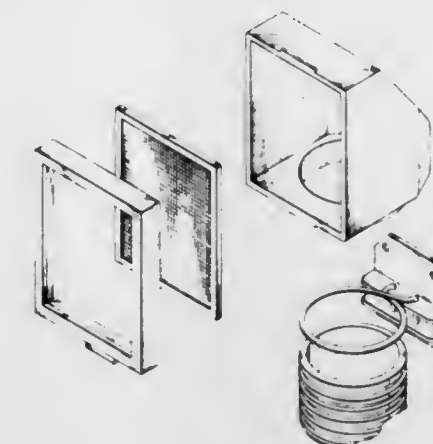
269,809

COMBINED PORTABLE VENT AND SUPPORT FOR A CLOTHES DRYER

Charles W. Chadd, 13119 Hermitage La., Houston, Tex. 77009
Filed Aug. 25, 1980, Ser. No. 181,195

Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—151



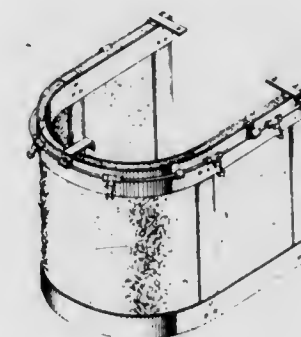
269,807

AIR PRE-COOLER UNIT FOR AIR CONDITIONERS OR THE LIKE

William E. Morrow, and Robert B. Morrow, both of Winston-Salem, N.C., assignors to Aqua-Mist, Inc., Winston-Salem, N.C.

Filed Jul. 16, 1981, Ser. No. 283,840
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—139



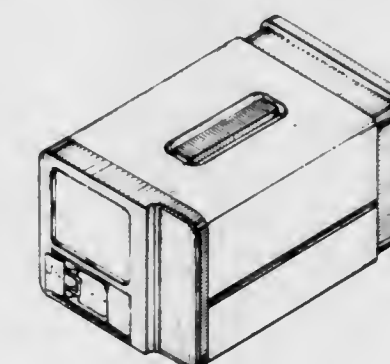
269,810

PHYSIOLOGICAL SIGNALS MONITOR/RECORDER OR THE LIKE

Leslie E. Mace, Bothell; Paul W. Jones, Issaquah, and Robert M. Boonstra, Kent, all of Wash., assignors to Physio-Control Corporation, Redmond, Wash.

Filed Mar. 18, 1981, Ser. No. 244,920
Term of patent 14 years
Int. Cl. D24—01, 02

U.S. Cl. D24—17



269,808

HUMIDIFIER DISPERSION TUBE

Bernard W. Morton, Minnetonka, Minn., assignor to Dri Steem Humidifier Company, Hopkins, Minn.

Filed Dec. 2, 1980, Ser. No. 212,212
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—146



269,811

SWABBING STICK

Jack W. Kaufman, 357 Frankel Blvd., Merrick, N.Y. 11566

Filed Feb. 27, 1980, Ser. No. 125,149

Term of patent 14 years

Int. Cl. D24-04

U.S. Cl. D24-34



269,812

CHIROPRACTIC ACTIVATOR

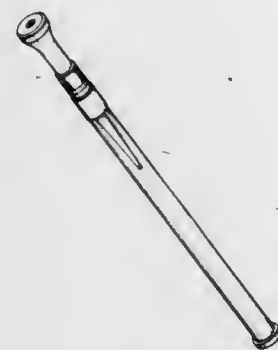
William E. Lancellotti, 371 Broadway, Providence, R.I. 02903

Filed Oct. 6, 1980, Ser. No. 193,917

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D24-36



269,813

COMBINED HYDROTHERAPY SPA AND SWIMMING POOL

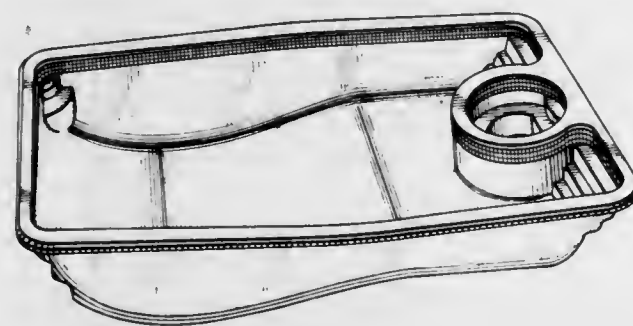
Lino Z. Topete, 1845 E. San Antonio St., San Jose, Calif. 95116

Filed Aug. 18, 1980, Ser. No. 179,115

Term of patent 14 years

Int. Cl. D24-01; D23-02; D25-99

U.S. Cl. D24-38



269,814

SPA

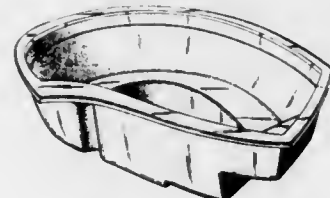
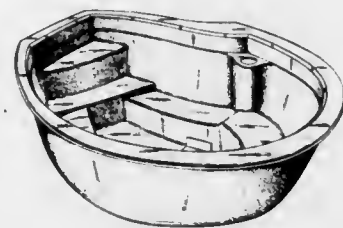
Gerald C. Fishel, Anaheim; Harold E. Cowley, Garden Grove, and Dean W. Myers, Santa Ana, all of Calif., assignors to Gerico Fiberglass Products, Inc., Huntington Beach, Calif.

Filed Oct. 20, 1980, Ser. No. 198,959

Term of patent 14 years

Int. Cl. D24-01; D23-02; D25-99

U.S. Cl. D24-38



269,815

PACIFIER

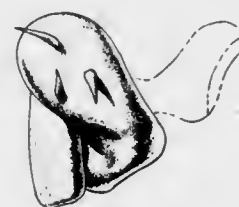
Robert L. Qually, 2238 Central St., Evanston, Ill. 60201

Filed Dec. 18, 1980, Ser. No. 217,959

Term of patent 14 years

Int. Cl. 24-04

U.S. Cl. D24-45



269,816

SHIN SPLINT

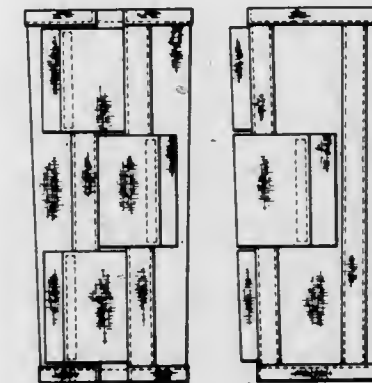
Robert H. Meier, and Evelyn Farr, both of Jackson, Mich., assignors to Camp International, Inc., Jackson, Mich.

Filed Feb. 2, 1981, Ser. No. 230,328

Term of patent 14 years

Int. Cl. 24-03

U.S. Cl. D24-64



269,817

AIRCRAFT TAIL POSITION LIGHT

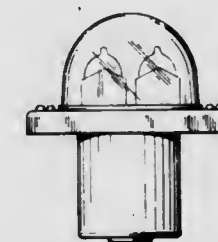
James F. Frazier, Westbrook, Conn., assignor to Whelen Engineering Company, Inc., Deep River, Conn.

Filed Nov. 6, 1980, Ser. No. 204,572

Term of patent 14 years

Int. Cl. D26-06

U.S. Cl. D26-35



269,818

LIGHT FIXTURE

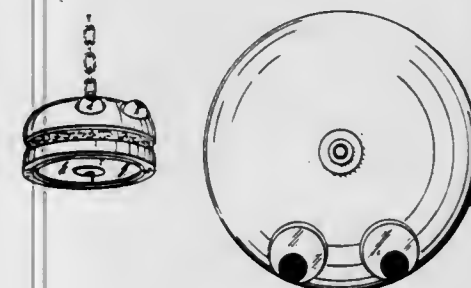
Donald S. Ament, Encino, Calif., assignor to Miracle Recreation Equipment Company, Grinnell, Iowa

Filed Jul. 17, 1980, Ser. No. 169,803

Term of patent 14 years

Int. Cl. D26-05

U.S. Cl. D26-73



269,819

WALL MOUNTED HAIR DRYING DEVICE

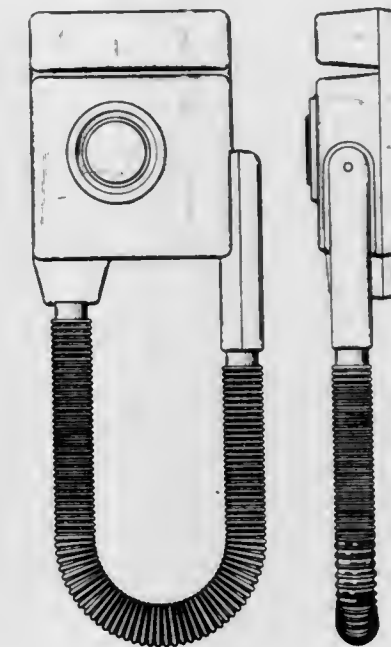
Jean-Marie Froidevaux, Carouge, Switzerland, assignor to Aliseo Diffusion S.A., Switzerland

Filed Apr. 17, 1981, Ser. No. 255,315

Term of patent 14 years

Int. Cl. D28-03

U.S. Cl. D28-12



269,820

HAIRDRESSER COMB

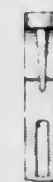
Nicole Bisson, Laval, Canada, assignor to Salon Nicole Bisson Inc., Montreal, Canada

Filed Jul. 20, 1981, Ser. No. 285,369

Term of patent 14 years

Int. Cl. D28-03

U.S. Cl. D28-25



269,821

COMBINED CAT PLAYGROUND AND EXERCISER

Merle Hurley, 1362 E. Main, #4, El Cajon, Calif. 92021

Filed Jul. 13, 1981, Ser. No. 283,052

Term of patent 14 years

Int. Cl. D30—99

U.S. Cl. D30—42



269,822

AUTOMATIC TELLER MACHINE KIOSK

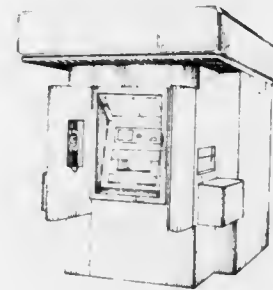
John E. Barthel, Dallas, Tex., assignor to Dahl-Braden, Chapman Architects, Inc., Dallas, Tex.

Filed May 26, 1981, Ser. No. 266,894

Term of patent 14 years

Int. Cl. D99—00

U.S. Cl. D99—28



269,823

AUTOMATIC TELLER MACHINE BOOTH FOR MOUNTING ON A WALL

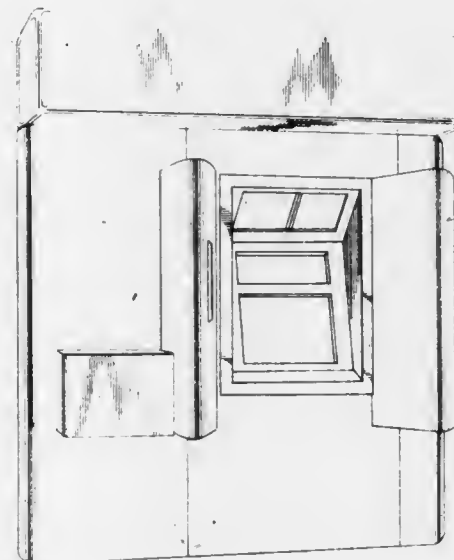
John E. Barthel, Dallas, Tex., assignor to First International Services Corporation, Dallas, Tex.

Filed Jul. 13, 1981, Ser. No. 283,029

Term of patent 14 years

Int. Cl. D99—00

U.S. Cl. D99—28

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A. Aoki & Associates: *See*—
Sato, Kiyosumi; and Watanabe, Nobuyuki, 4,394,735, Cl. 364-200.000.
- A.P.V. Company Limited, The: *See*—
Cattell, Graham S.; and Brittain, John E., 4,393,755, Cl. 99-348.000.
- A/S Raufoss Ammunisjonsfabrikker: *See*—
Hartvig, Tor; and Fjellheim, Petter, 4,394,168, Cl. 75-126.00A.
- AAA Sales & Engineering, Inc.: *See*—
Mazur, Michael B.; and Punko, Emil M., 4,393,960, Cl. 188-62.000.
- Aarding Weerstandlas B.V.: *See*—
Loggers, Hendrik, 4,394,176, Cl. 106-120.000.
- Abbott, Robert P. Register-pin-locating device, 4,393,593, Cl. 33-184.500.
- Abe, Koreyoshi: *See*—
Yamamoto, Toshiharu; Sato, Manabu; Akiba, Katsuya; and Abe, Koreyoshi, 4,393,540, Cl. 16-114.00R.
- Accettura, Albert; and Accettura, Wanda J. Aluminum can compactor, 4,393,765, Cl. 100-98.00R.
- Accettura, Wanda J.: *See*—
Accettura, Albert; and Accettura, Wanda J., 4,393,765, Cl. 100-98.00R.
- Acda, Petrus M.; and Karreman, Jacob, to Polva Nederland B.V. Process for the forming of coupling pieces from a thermoplastic, 4,394,343, Cl. 264-296.000.
- Ace Fishing & Rental Tools, Inc.: *See*—
Cooper, Larry V.; and Sloane, Michael W., Sr., 4,393,940, Cl. 166-325.000.
- Ace Orthopedic Manufacturing Inc.: *See*—
Teague, H. Derek, 4,393,868, Cl. 128-92.00A.
- ACF Industries, Incorporated: *See*—
Binegar, Scott W.; and Saka, Hamid J., 4,393,889, Cl. 137-72.000.
- Polley, Richard B., 4,394,002, Cl. 251-144.000.
- Ried, Harold T.; and Weaver, Edgar C., 4,394,195, Cl. 148-149.000.
- Aciers et Outillage Peugeot: *See*—
Schmidt, Yves, 4,393,557, Cl. 24-230.00A.
- Acker, Alvin W., to Allis-Chalmers Corporation. Hydraulic stabilizer for axle on mast lift vehicle, 4,393,959, Cl. 187-9.00E.
- Ackland, John: *See*—
Gugger, Hans; and Ackland, John, 4,393,944, Cl. 173-28.000.
- Ackley, Charles E., Jr.: *See*—
Ackley, Charles E., Sr.; and Ackley, Charles E., Jr., 4,393,973, Cl. 198-384.000.
- Ackley, Charles E., Sr.; and Ackley, Charles E., Jr., to R. W. Hartnett Company. Method and apparatus for removing non-rectified capsules from a capsule rectification and transport device, 4,393,973, Cl. 198-384.000.
- Acraloc Corporation: *See*—
Ailey, Harrison A., Jr., 4,393,627, Cl. 51-246.000.
- Adams, Edgar L.; and Ludington, William D. Carpet take-up device and method for using the same, 4,394,052, Cl. 299-18.000.
- Adams, Richard G., to Pennwalt Corporation. Determination of grain refiners in phosphate conversion coating baths, 4,394,184, Cl. 148-6.15R.
- Adermann, Peter: *See*—
Jenkner, Herbert; Strang, Robert; and Adermann, Peter, 4,394,484, Cl. 525-72.000.
- Adkins, James: *See*—
McAfee, Richard C.; Adkins, James; and Miskowski, Richard L., 4,394,317, Cl. 260-429.00R.
- Adnovum AG: *See*—
Clark, John F., 4,394,242, Cl. 204-243.00R.
- Adrian, David L., to Lens-Card Systems, Inc. Card carrying microfilm and associated reading lens and process of forming same, 4,393,610, Cl. 40-625.000.
- Adrian, Renate: *See*—
Maurer, Alexander; Adrian, Renate; Panter, Herbert; Heymer, Gero; and Nolker, Dieter, 4,394,358, Cl. 423-305.000.
- Wasel-Nielsen, Horst-Dieter; Maurer, Alexander; and Adrian, Renate, 4,394,359, Cl. 423-305.000.
- Adur, Ashok M., to Chemplex Company. Four component adhesive blends and composite structures, 4,394,485, Cl. 525-74.000.
- Aerosol Inventions and Development AS AID SA: *See*—
Debard, Andre, 4,393,984, Cl. 222-402.180.
- Agency of Industrial Science & Technology: *See*—
Ogasa, Tatsuo, 4,394,457, Cl. 521-54.000.
- Agfa-Gevaert, N.V.: *See*—
Peeters, Hugo K., 4,394,661, Cl. 346-1.100.
- Plessers, Hendrik S.; and Hellemans, Julianus J., 4,393,642, Cl. 53-266.00R.
- Aggarwal, Raj K.: *See*—
Mehra, Ravinder C.; and Aggarwal, Raj K., 4,394,266, Cl. 210-244.000.
- Agnus Chemical Company: *See*—
Barnhard, Philip, IV; and Bahr, Lyman G., 4,394,199, Cl. 149-21.000.
- Agouridis, Dimitrios C. Photovoltaic radiation detector element, 4,394,676, Cl. 357-29.000.
- Aguiro, Arturo J., to Rogers Corporation. Multilayer current distribution systems and methods of fabrication thereof, 4,394,532, Cl. 174-72.00B.
- Ahrens, Claude W., to Miracle Recreation Equipment Company. Swing farrowing hut and method of farrowing pigs and maintaining a disease-free farrowing hut, 4,393,812, Cl. 119-16.000.
- Aida Engineering, Ltd.: *See*—
Imanishi, Shozo, 4,393,682, Cl. 72-405.000.
- Ailey, Harrison A., Jr., to Acraloc Corporation. Reversing screw/high-low speed level wind screw, 4,393,627, Cl. 51-246.000.
- Air-Mo Hydraulics, Inc.: *See*—
Rasmussen, Robert, 4,393,674, Cl. 72-61.000.
- Air-O-Scoop Corporation: *See*—
Chatlos, Richard, 4,393,753, Cl. 98-2.120.
- Air Products and Chemicals, Inc.: *See*—
Ford, Michael E.; and Johnson, Thomas A., 4,394,524, Cl. 564-479.000.
- Fukushima, Hatahiko; Handa, Tadahiko; and Kodama, Kenji, 4,394,333, Cl. 264-37.000.
- Aisin Seiki Kabushiki Kaisha: *See*—
Komorizono, Junichi, 4,393,655, Cl. 60-585.000.
- Sakurai, Kenji; and Yoshimura, Noboru, 4,394,048, Cl. 297-367.000.
- Akashi, Tamotsu: *See*—
Sawaoka, Akira; Araki, Masatada; Saito, Shinroku; and Akashi, Tamotsu, 4,394,170, Cl. 75-233.000.
- Akashi, Toshihiro: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,394,382, Cl. 424-283.000.
- Akiba, Katsuya: *See*—
Yamamoto, Toshiharu; Sato, Manabu; Akiba, Katsuya; and Abe, Koreyoshi, 4,393,540, Cl. 16-114.00R.
- Akimov, Boris I.: *See*—
Azarevich, Gennady M.; Gusyatsky, Iosif A.; Savelieva, Lidia B.; and Akimov, Boris I., 4,393,675, Cl. 72-71.000.
- Akkerman, Johannes: *See*—
Kuipers-Kiewik, Walfrida G. E.; Akkerman, Johannes; and Gons, Johan, 4,394,501, Cl. 528-485.000.
- Akkerman, Neil H., to AVA International. Well packers and slip assemblies for use therewith, 4,393,929, Cl. 166-134.000.
- Aktiebolaget Bofors: *See*—
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- Akzo N.V.: *See*—
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Bertus, Brent J.: See—
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Betensky, Ellis I., to Vivitar Corporation. Zoom lens. 4,394,072, Cl. 350-427.000.

Bezjian, Krikor A.: See—
Frankston, Michael; and Bezjian, Krikor A., 4,394,651, Cl. 340-756.000.

Bickel, Hansjorg: See—
Bloch, Peter; and Bickel, Hansjorg, 4,393,625, Cl. 51-165.870.

Bickle, Wolfgang; Funke, Rolf; and Pfoh, Rolf, to Karl Schmidt GMBH. Composite material for sliding surface bearings. 4,394,275, Cl. 252-12.000.

Bienvu, Jacques; Dufond, Patrick; Carre, Claude; Tuong, Duc L.; Verdier, Henri; deRivet, Philippe-Hubert; Bradley, John J.; and Franklin, Benjamin S., to Compagnie Honeywell Bull. Apparatus and method for transferring information units between processes in a multiprocessing system. 4,394,725, Cl. 364-200.000.

Binegar, Scott W.; and Saka, Hamid J., to ACF Industries, Incorporated. Fire-safe valve structure. 4,393,889, Cl. 137-72.000.

Bingham, Joseph P.; and Benford, John F., to RCA Corporation. Split phase stereophonic sound synthesizer. 4,394,535, Cl. 179-1.0GP.

BioMagnetech Corp.: See—
Blakemore, Richard P.; and Wolfe, Ralph S., 4,394,451, Cl. 435-253.000.

Biox Technology, Inc.: See—
Wilber, Scott A., 4,394,572, Cl. 250-239.000.

Bixler, Kenneth D.; Lord, Henry A.; and Reifers, Richard F., to Diamond International Corporation. Construction of universal egg cell cushion and method. 4,394,214, Cl. 162-228.000.

Blachman, Lawrence P., to Polymer Corporation, The. Anti-static hose assemblies. 4,394,705, Cl. 361-215.000.

Blakemore, Richard P.; and Wolfe, Ralph S., to BioMagnetech Corp. Culture medium and conditions for growth of magnetic bacteria. 4,394,451, Cl. 435-253.000.

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Correa, Aderbal C.; Gergely, John S.; and Blanchard, Andrew J., 4,394,573, Cl. 250-253.000.

Blazso, Eva, to LGZ Landis & Gyr Zug AG. Method for the manufacture of a layer from a thermochrome lacquer, and its use. 4,394,407, Cl. 427-150.000.

Blenner, Donald R., to Lord Corporation. Method for vulcanization bonding of fluorine-containing elastomers to vulcanized natural and synthetic elastomers. 4,394,205, Cl. 156-307.300.

Bloch, Peter; and Bickel, Hansjorg, to Maag Gear-Wheel & Machine Company Limited. Apparatus for grinding gears. 4,393,625, Cl. 51-165.870.

Blohm & Voss AG: See—
Bohnenkamp, Wulf; and Hempel, Gerd, 4,393,658, Cl. 60-657.000.

Board, Robert D., to Ecoaire Incorporated. Direct contact condenser and separating method. 4,394,139, Cl. 55-20.000.

Bocchini, William R.: See—
Briner, Clifton F.; Bocchini, William R.; and Wilcockson, Brian, 4,393,524, Cl. 4-317.000.

Bock, Paul A. Thermodynamic method for steam-water separation. 4,393,816, Cl. 122-412.000.

Boden, Richard M., to International Flavors & Fragrances Inc. Prins reaction products of diisooxylene, derivatives thereof, organoleptic

uses thereof and processes for preparing same. 4,394,285, Cl. 252-174.110.

Bodenseeverk Perkin-Elmer & Co. GmbH: See—
Tamm, Rolf; and Tomoff, Toma, 4,393,726, Cl. 73-864.840.

Bodine, Albert G. Acoustic detonation suppression in a catalytic environment in internal combustion engine. 4,393,830, Cl. 123-272.000.

Bodine, Albert G. Method and apparatus for uniformly packing gravel around a well casing or liner. 4,393,932, Cl. 166-249.000.

Bodmin, Syd E., to Moore, Mae Lois. Weighted teat cup shell and assembly. 4,393,811, Cl. 119-14.470.

Boehringer Mannheim GmbH: See—
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Muller, Werner; and Bunemann, Hans, 4,394,487, Cl. 525-281.000.

Boeing Company, The: See—
Anderson, Charles N.; Elrod, Samuel D.; and Miller, Gerald O., 4,393,987, Cl. 228-157.000.

Boeri, Hubert, to diga-die gasheizung GmbH. Pipeline pig for lining pipe lines. 4,393,805, Cl. 118-105.000.

Bohnenkamp, Wulf; and Hempel, Gerd, to Blohm & Voss AG. Extraction condensing turbine. 4,393,658, Cl. 60-657.000.

Bohner, Beat: See—
Rohr, Otto; Pissiotas, Georg; Bohner, Beat; and Burdeska, Kurt, 4,394,327, Cl. 260-455.00R.

Bombardier-Rotax Gesellschaft mbH.: See—
Schreiner, Joachim, 4,393,952, Cl. 180-6.440.

Bompard, Bruno; and Bruyere, Alain, to Commissariat a l'Energie Atomique; and Societe Brochier et Fils. Process for manufacture of three-dimensional rotational parts and machine for the implementation of such process. 4,394,203, Cl. 156-175.000.

Boon, Bart, to RSV-Gusto Engineering B.V. Device for coupling parts of a self-raising platform structure. 4,393,961, Cl. 188-67.000.

Boon, Raymond: See—
Galkin, Benjamin M.; Boon, Raymond; Gilliam, Rudolph V.; and Park, Chan H., 4,393,864, Cl. 128-1.100.

Boothe, Guy, to Sperry Corporation. Power failure detection and control circuit. 4,394,702, Cl. 361-92.000.

Boots Company PLC, The: See—
Copping, Leonard G.; Kerry, John C.; Watkins, Thomas I.; Willis, Robert J.; and Palmer, Bryan H., 4,394,387, Cl. 424-300.000.

Borchardt, John K.: See—
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Borras, Jaime A.; Gonzalez, Ruben J.; Smith, Daniel M.; and Wiczorek, Alfred B., to Motorola, Inc. Priority channel system for a synthesized transceiver. 4,394,776, Cl. 455-76.000.

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Boudon, Gerard; Denis, Bernard; de Grivel, Virginie; and Mollier, Pierre, to International Business Machines Corporation. Decoding and selection circuit for a monolithic memory. 4,394,752, Cl. 365-227.000.

Boulianne, Roland. Snowmobile. 4,393,953, Cl. 180-190.000.

Bourbeau, Richard A.: See—
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Bouvet, Claude: See—
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Boyarsky, Abraham; Friedman, Jack; Christodouloupoulos, Athanasios; and Lee, Rock, to Canadian Patents & Development Limited. Electronically controlled respirator. 4,393,869, Cl. 128-204.180.

Braden, Denver, to Palomar Systems & Machines, Inc. Means for processing miniature electronic components. 4,393,808, Cl. 118-503.000.

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Brand, Glen. Fluid flow meter. 4,393,723, Cl. 73-861.720.

Brandenburger, Allen M.: See—
Maclin, Greg P.; and Brandenburger, Allen M., 4,393,989, Cl. 229-71.000.

Brandt, John G.; Dickerson, Joyce H.; and Schmitt, William R., to RJ Archer Inc. Heat-sealable polypropylene blends and methods for their preparation. 4,394,235, Cl. 204-165.000.

Brautigam, Reinhard: See—
von Alpen, Ulrich; Brautigam, Reinhard; and Oliapuram, Antony, 4,394,280, Cl. 252-62.200.

Brecy, Andre; and Grudler, Francois, to Cii Honeywell Bull. Control apparatus for an electro-mechanical device that generates a back EMF. 4,394,604, Cl. 318-257.000.

Brede, Uwe; and Penner, Horst, to Dynamit Nobel Aktiengesellschaft. Electric detonator element. 4,393,779, Cl. 102-202.500.

Breck, Philip L.; Shultz, David E.; and Rosselli, Andrew C., to Cummins Engine Company, Inc. System for controlling fuel flow within an internal combustion engine. 4,393,825, Cl. 123-198.00F.

Breeze, Eric G., to General Instrument Corporation. Bi-directional drive multiplexed display system. 4,394,653, Cl. 340-802.000.

Brennen, Michael B.; Gyugyi, Laszlo; and Stacey, Eric J., to Westinghouse Electric Corp. Static VAR generators. 4,394,614, Cl. 323-210.000.

Brennsteiner, Ernst: See—
Lutze, Uwe; Scholz, Dieter; and Brennsteiner, Ernst, 4,393,947, Cl. 175-323.000.

Brent, Albert: See—
Marion, Charles P.; Crouch, William B.; Brent, Albert; Richter, George N.; Child, Edward T.; and Reynolds, Blake, 4,394,137, Cl. 48-197.00R.

Brescia, Riccardo, to Ing. C. Olivetti & C., S.p.A. Electronic printer. 4,394,668, Cl. 346-139.00R.

Bresser, Robert E.; White, Sidney S., Jr.; and Koeniger, Arthur F., to Carstab Corporation. Elemental sulfur-stabilized organic antimony compound composition. 4,394,325, Cl. 260-446.000.

Briner, Clifton F.; Bocchini, William R.; and Wilcockson, Brian, to American Standard, Inc. Self-contained sewage waste disposal system. 4,393,524, Cl. 4-317.000.

Brink, Andries: See—
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Bristol-Myers Company: See—
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Kamachi, Hajime; Okumura, Jun; Naito, Takayuki; and Oka, Masahisa, 4,394,503, Cl. 544-25.000.

British Aerospace Public Limited Company: See—
Mahoon, Alauddin; and Kohler, Richard P. J., 4,394,224, Cl. 204-57.000.

Brittain, John E.: See—
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Britz, Elizabeth. Invalid chair. 4,393,529, Cl. 5-81.00R.

Broadt, David R.: See—
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Brock, David A.; and Gupta, Surendra K., to Miles Laboratories, Inc. Method for purification of uricase. 4,394,450, Cl. 435-191.000.

Brock, Josef, to Maschinenfabrik Carl Zangs Aktiengesellschaft. Transmission for the shed-forming mechanism of a loom. 4,393,902, Cl. 139-76.000.

Brockwell, Malcolm G., to Ciba-Geigy AG. Illumination system for copying apparatus. 4,394,717, Cl. 362-247.000.

Brooklyn Union Gas Company: See—
Thomas, William R.; and Sykora, George S., 4,394,202, Cl. 156-94.000.

Brooks, Ralf M.: See—
Osmera, Miroslav S.; and Brooks, Ralf M., 4,394,092, Cl. 400-120.000.

Brother Kogyo Kabushiki Kaisha: See—
Asano, Kiyomitsu; Jozuka, Masao; and Kondo, Toshikatsu, 4,394,093, Cl. 400-124.000.

Brower, Boyd G.; and Shaffer, John W., to GTE Products Corporation. Die-stamped circuit board assembly having relief means to prevent total switch deformation. 4,394,709, Cl. 361-401.000.

Brower, Boyd G.; Broadt, David R.; and Shaffer, John W., to GTE Products Corporation. Die-stamped circuit board assembly for photoflash devices. 4,394,710, Cl. 361-401.000.

Brown, Boniard I.: See—
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Brown, Boveri & Cie AG: See—
Rohr, Franz-Josef, 4,394,222, Cl. 204-1.00T.

Brown, Daniel G.; and Motsinger, Donald L., to PPG Industries, Inc. Aqueous sizing composition for glass fibers for use on chopped glass fibers. 4,394,414, Cl. 428-288.000.

Brown, Garrett; and Di Giulio, Arnold O. Support apparatus. 4,394,075, Cl. 352-243.000.

Brown, Harvey A.; and Huffman, William A., to Minnesota Mining and Manufacturing Company. Helichromic compounds and displays. 4,394,070, Cl. 350-349.000.

Brown, Lamar W.; and Bartenfield, James E. Continuous foam generating system. 4,394,289, Cl. 252-359.00E.

Brown & Williamson Tobacco Corporation: See—
Silverstein, Donald A., 4,393,885, Cl. 131-339.000.

Browne, Edward M.; and Smither, Miles A., to Geosource Inc. Cable break locator. 4,394,616, Cl. 324-52.000.

Bruinsma, John, to U.S. Philips Corporation. Frequency division communication system wherein conventional transmitter-transceiver can be used as a repeater or local base station. 4,394,775, Cl. 455-17.000.

Brunelle, Rene J., to UOP Inc. Seat back mounting system. 4,394,047, Cl. 297-361.000.

Bruyere, Alain: See—
Bompard, Bruno; and Bruyere, Alain, 4,394,203, Cl. 156-175.000.

Bucher, Franz. Reinforcing element and process for its manufacture. 4,393,639, Cl. 52-730.000.

Bucher, Walter: See—
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Buck, Wolfgang; Sehning, Richard; Linden, Gerbert; and Lust, Sigmond, to Celamerck GmbH & Co. KG. 2-Chloro-3-(phenoxy or phenylthio)-6-nitro-anilines. 4,394,159, Cl. 71-98.000.

Budelman, Gerald A., to CBS, Inc. Electronic organ circuit. 4,393,741, Cl. 84-1.010.

Bueno, Alejandro G.; and Stover, K. Lawrence, to Libbey-Owens-Ford Company. Furnace regenerator with improved flow distribution. 4,394,122, Cl. 432-30.000.

Buher, Robert W.: See—
Benny, John R.; Buher, Robert W.; and Smith, Paul K., 4,394,259, Cl. 209-250.000.

Bukowski, Ronald G.; and Johnson, Timothy L., to Zurn Industries, Inc. System for minimizing backwash water usage on self-cleaning strainers. 4,394,262, Cl. 210-103.000.

Bullis, Robert H.: See—
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Bulten-Kanthal Aktiebolag: See—
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Bunemann, Hans: See—
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Burdeska, Kurt: See—
Rohr, Otto; Pissiotas, Georg; Bohner, Beat; and Burdeska, Kurt, 4,394,327, Cl. 260-455.00R.

Burger, Rainer, to M.A.N.-ROLAND Druckmaschinen Aktiengesellschaft. Rotary printing machine, particularly newspaper-type offset printing machine. 4,393,772, Cl. 101-217.000.

Burke, Mary. Spoon lid. 4,393,988, Cl. 229-43.000.

Burlington Industries, Inc.: See—
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Burquier, Jean-Luc, to S.A. Des Etablissements Staubi. Multiple unions for simultaneously joining a plurality of pneumatic or hydraulic pipes. 4,394,039, Cl. 285-85.000.

Burroughs Wellcome Co.: See—
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Burstein, Steve; and Popper, Jay, to Standard Microsystems Corporation. Low power storage cell. 4,394,751, Cl. 365-227.000.

Butcher, James S., to GTE Automatic Electric Labs Inc. Load protecting arrangement. 4,394,703, Cl. 361-101.000.

Butler, L. Dennis; and Askov, Alan R., to Sperry Corporation. Hydraulic system for a round bale wagon. 4,394,103, Cl. 414-24.500.

Byrd, Carlisle O., Jr., to J. T. Thorpe Company. Method of installing defractory ceramic fiber module. 4,393,569, Cl. 29-460.000.

Byrne, LeRoy H.: See—
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C. C. Kelley & Sons: See—
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C-Cor Electronics, Inc.: See—
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C. Levesque Co., Inc.: See—
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C. R. Bard, Inc.: See—
Bare, Rex O.; and Robinson, Earl F., 4,393,584, Cl. 29-877.000.

Cabot Beryleo, Inc.: See—
McClelland, Henry T.; and Kuhn, Joseph B., 4,394,185, Cl. 148-11.50C.

Cadars, Patrick; and Hellouin de Cenival, Bruno, to VALEO. Expansion tank and water box device for heat exchanger, such as a radiator of a motor vehicle. 4,394,141, Cl. 55-195.000.

Caddy, John A.; and Putman, William A., to Allis-Chalmers Corporation. Internally supported filter. 4,394,147, Cl. 55-357.000.

Cadmus, Martin C.; and Knutson, Clarence A., Jr., to United States of America, Agriculture. Production of high-pyruvate xanthan gum on synthetic medium. 4,394,447, Cl. 435-104.000.

Cady, William R.; Yu, SePuan; and Eshbach, John R., to General Electric Company. Method of making silicon-on-sapphire FET. 4,393,578, Cl. 29-576.00B.

Cahuzac, Georges J. J., to Societe Nationale Industrielle Aerospatiale. Automatic lacing method and apparatus for making pieces with multidirectional woven reinforcement. 4,393,669, Cl. 66-13.000.

Calabrese, Diane M. Ankle garter with foot stirrup. 4,393,522, Cl. 2-336.000.

Calas, Patrick: See—
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Calgon Carbon Corporation: See—
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California Institute of Technology: See—
Cole, Steven W., 4,394,613, Cl. 320-48.000.

Callihan, Rudy B.: See—
Muse, John F.; Callihan, Rudy B.; Goad, Bobby F.; and Wainwright, Clyde S., Jr., 4,393,931, Cl. 166-208.000.

Camerini, Mario; and Pizzi, Giacomo. Container storage installation. 4,394,104, Cl. 414-276.000.

Cameron, Erma C.; Gunter, Claude R.; and White-Stevens, Rodric H., to Miles Laboratories, Inc. Cofactor indicator compositions. 4,394,444, Cl. 435-11.000.

Campagna, Frank: See—
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Campbell, Bernard F.; and Vallance, Leslie. Retractable protective-screens and equipment including them. 4,393,788, Cl. 109-2.000.

Campbell, Jules D., Jr., to Motorola, Inc. ROM Column select circuit and sense amplifier. 4,394,748, Cl. 365-104.000.

Canadian Patents & Development Limited: See—
Boyarsky, Abraham; Friedman, Jack; Christodouloupoulos, Athanasios; and Lee, Rock, 4,393,869, Cl. 128-204.180.

Canadian Superior Oil Ltd.: See—
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Canniff, Ronald J., to Bell Telephone Laboratories, Incorporated. Generation of busy signals in a digital concentrator. 4,394,756, Cl. 370-56.000.

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Kimura, Hirovuki; and Yamada, Tateo, 4,394,080, Cl. 354-173.000.
Ozawa, Masakazu; Watanabe, Kunio; Matsumoto, Shigeyuki; Nishimura, Yukuo; and Miyazaki, Takashi, 4,394,669, Cl. 346-140.00R.
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Cappel, Bert; Schniggenfittig, Gunther; and Schuhmann, Siegfried, to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Arrangement for metering the ink quantity in inking units on printing presses, 4,393,775, Cl. 101-365.000.
Cappel, Carl R., to Eastman Kodak Company, Yellow-dye-forming photographic developing composition, 4,394,440, Cl. 430-379.000.
Carberry, Richard A.: See—
Bernstein, David H.; Carberry, Richard A.; Druke, Michael B.; and Gusowski, Ronald L., 4,394,736, Cl. 364-200.000.
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Raman, Ramaswamy V.; and Carbonara, Robert S., 4,394,332, Cl. 264-8.000.
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Carpino, Louis A.; and Cohen, Beri, to Research Corporation, Amino acid blocking agents, 4,394,519, Cl. 560-32.000.
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Carroll, Raymond J., Jr.: See—
Lapeyre, James M.; Svendsen, Noel A.; Carroll, Raymond J., Jr.; Long, Henry H.; and Lindberg, Richard S., 4,393,544, Cl. 17-73.000.
Carstab Corporation: See—
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Catell, Graham S.; and Brittain, John E., to A.P.V. Company Limited, The. Heat treatment of particulate solid materials, 4,393,755, Cl. 99-348.000.
Cavanagh, Eric J.: See—
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CBS, Inc.: See—
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Celamerck GmbH & Co. KG: See—
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Celanese Corporation: See—
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Kastelic, John R., 4,394,498, Cl. 528-193.000.
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Central Mine Equipment Company: See—
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Centronics Data Computer Corporation: See—
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Chandler Evans Inc.: See—
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Chao, Chien C.; and Sherman, John D., to Union Carbide Corporation, Bulk lactulose/lactose separation by selective adsorption on zeolitic molecular sieves, 4,394,178, Cl. 127-46.300.
Chao, Yen-Yau H., to Rohm and Haas Company, Copper modified mancozeb, 4,394,316, Cl. 260-429.00K.
Charniga, Joseph, Wall construction, 4,393,633, Cl. 52-303.000.
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- Ferm, Richard L., to Chevron Research Company. Hydroxy-aluminum/lignin sulfonate compositions. 4,394,213, Cl. 162-163.000.
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- Garrison, Barney D., Jr., and Marjanovich, Barry S., to Canadian Superior Oil Ltd. Sulphur-clay pills. 4,394,150, Cl. 71-62.000.
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- Gatzke, Kenneth G., to Minnesota Mining and Manufacturing Company. Diazonium imaging system. 4,394,433, Cl. 430-151.000.
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- Vakil, Himanshu B., 4,393,661, Cl. 62-113.000.
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- George F. and Irene Sherrill 1978 Trust No. 1: See—
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- Gordon, Bruce W.: See—
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- Gregor, Karl: See—
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- GTE Automatic Electric Labs Inc.: See—
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- Comfort, Joseph A.; Perry, Thomas J.; and Loos, Michel, 4,394,728, Cl. 364-200.000.
- De Leon, Daniel, 4,394,544, Cl. 179-99.00H.
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Stage, Hermann; Hammer, Hartmut; and Kuhns, Walter, 4,394,221, Cl. 203-89.000.
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- Hardy, Thomas A.; and Liu, Sophia Y., to Stauffer Chemical Company. Phosphonate derivatives of polyalkylene polyamines as flame retardants, 4,394,330, Cl. 260-932.000.
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- Hasegawa, Shumpei: See—
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Wisniewski, Joseph M., 4,394,001, Cl. 248-542.000.
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- Hawthorne, V. T. Method of eliminating truck hunting in railway trucks, 4,393,957, Cl. 184-3.00R.
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- Hays, Dan A., to Xerox Corporation. Development process and apparatus, 4,394,429, Cl. 430-102.000.
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- Hepburn, Derek R.: See—
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- Hodel, Eugenio D. Liner for a water bed, 4,393,531, Cl. 5-451.000.
- Hodge, John R. Land forming and earth moving equipment, 4,393,608, Cl. 37-124.000.
- Hodshire, Vincent B. Fishing apparatus, 4,393,615, Cl. 43-15.000.
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- Fabian, Klaus, 4,393,700, Cl. 73-150.00A.
- Fuchs, Hermann; and Filzinger, Klaus, 4,394,310, Cl. 260-162.000.
- Maurer, Alexander; Adrian, Renate; Panter, Herbert; Heymer, Gero; and Nolker, Dieter, 4,394,358, Cl. 423-305.000.
- Schrodter, Klaus; and Lehr, Klaus, 4,394,360, Cl. 423-317.000.
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- Hoff, Michael H., to NL Industries, Inc. Defoamers for aqueous liquids containing soluble zinc salts, 4,394,273, Cl. 252-8.55R.
- Hoffman, Dwight K., to Dow Chemical Company, The. Addition polymerizable adduct of a polymeric monoahl and an unsaturated isocyanate, 4,394,491, Cl. 525-452.000.
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- Hoffman, James M., Jr.; and Lux, Richard A., to Xerox Corporation. Particle containment apparatus, 4,394,086, Cl. 355-3.00R.
- Hoffman, John P., to Caterpillar Tractor Co. Power supply circuit, 4,394,723, Cl. 363-87.000.
- Hoffman, Myron A.: See—
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- Hokushin Industries Corporation: See—
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- Holbrook, Walter R.: See—
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- Hosel, Fritz, to Trutzschler GmbH & Co. KG. Method and apparatus for the output control in a carding machine. 4,393,547, Cl. 19-105.000.
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Pusineri, Christian; and Goletto, Jean, 4,394,462, Cl. 521-137.000.
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- Huber, Peter; August, Peter; Lampelzammer, Helga; and Primas, Willi, to Wacker-Chemie GmbH. Organic fibers having improved slip properties. 4,394,518, Cl. 556-424.000.
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- Hutcheson, James L., to Reynolds Metals Company. Method for heat sealing. 4,394,204, Cl. 156-275.100.
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Orbanes, Philip; and Cooper, Julius, 4,394,018, Cl. 273-237.000.
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- Imanishi, Shozo, to Aida Engineering, Ltd. Feed bar driving apparatus for a transfer press. 4,393,682, Cl. 72-405.000.
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Ravey, Manny, 4,394,306, Cl. 252-609.000.
- Imperial Chemical Industries PLC: See—
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- de Fraine, Paul; Clough, John M.; and Worthington, Paul A., 4,394,151, Cl. 71-76.000.
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- Inagaki, Osamu: See—
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Kawaguchi, Hideo; Inayama, Takayuki; Takimoto, Masaaki; and Ono, Yoshihiro, 4,394,441, Cl. 430-524.000.
- Inco Limited: See—
Ettel, Victor A.; Devuyt, Eric A.; and Illis, Alexander, 4,394,366, Cl. 423-493.000.
- Industrial Engineering and Equipment Incorporated: See—
Epstein, Fred; and Holden, Tom, 4,394,562, Cl. 219-306.000.
- Ing. C. Olivetti & C., S.p.A.: See—
Brescia, Riccardo, 4,394,668, Cl. 346-139.00R.
- Conta, Renato, 4,393,591, Cl. 33-1.00L.
- Inland Steel Company: See—
Rastogi, Prabhat K., 4,394,192, Cl. 148-120.000.
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Inoue, Kiyoshi, 4,394,558, Cl. 219-69.00W.
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Renon, Henri; and Richon, Dominique, 4,393,689, Cl. 73-64.200.
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Vutov, Stancho H.; and Slavov, Rashko R., 4,393,916, Cl. 164-119.000.
- Interconnection Technology, Inc.: See—
Conley, Larry R., 4,394,711, Cl. 361-408.000.
- International Business Machines Corporation: See—
Bergendahl, Albert S.; Hakey, Mark C.; and Wilson, John P., 4,394,437, Cl. 430-312.000.
- Boudon, Gerard; Denis, Bernard; de Grivel, Virginie; and Mollier, Pierre, 4,394,752, Cl. 365-227.000.
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- Flusche, Frederick O.; Gustafson, Richard N.; and McGilvray, Bruce L., 4,394,731, Cl. 364-200.000.
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- Grandguillot, Michel J.; Mollier, Pierre B.; and Nuez, Jean-Paul J., 4,394,747, Cl. 365-104.000.
- Hirko, Richard G.; Ju, Kochan; and Sanders, Ian L., 4,394,746, Cl. 365-36.000.
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- Ottman, John C.; and Shen, John C. S., 4,393,628, Cl. 51-281.05F.
- Rohen, James E., 4,394,621, Cl. 324-163.000.
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Boden, Richard M., 4,394,285, Cl. 252-174.110.
- International Playtex, Inc.: See—
O'Boyle, Dolores; and Shonk, Phyllis, 4,393,875, Cl. 128-425.000.
- International Power Technology, Inc.: See—
Cheng, Dah Yu, 4,393,649, Cl. 60-39.050.
- International Rectifier Corp. Japan Ltd.: See—
Honda, Akira, 4,394,590, Cl. 307-584.000.
- Interox Chemicals Ltd.: See—
Hardy, Francis R. F.; and Griffiths, Martin G., 4,394,348, Cl. 420-528.000.
- Mounsey, Diana M.; and Mobbs, David B., 4,394,357, Cl. 423-140.000.
- Ipanema Company: See—
Kemper, Yves J., 4,393,964, Cl. 192-044.
- Ipcor Corporation: See—
Weissman, Bernard, 4,393,539, Cl. 16-114.00R.
- Irie, Yutaka; Nagata, Kenzo; and Ito, Hideo, to Minolta Camera Kabushiki Kaisha. Mechanical arrangement for controlling electrophotographic apparatus. 4,394,087, Cl. 355-14.00E.
- Irwin, Greg W.: See—
Irwin, Warren W.; and Irwin, Greg W., 4,394,046, Cl. 297-132.000.
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Sando, Yoshikazu; and Ishidoshiro, Hiroshi, 4,393,532, Cl. 8-149.100.
- Ishii, Fumio; and Kishi, Kenichi, to Konishiroku Photo Industry Co., Ltd. Method for manufacturing p- and o-benzoquinone derivatives. 4,394,315, Cl. 260-396.00R.
- Ishii, Toshiaki, to Mitsubishi Denki Kabushiki Kaisha. Thyristor power converter with switched impedance. 4,394,721, Cl. 363-44.000.
- Ishikawa, Ken, to Tokyo Shibaura Denki Kabushiki Kaisha. Laser processing apparatus. 4,394,764, Cl. 372-38.000.
- Ishikawa, Tadashi: See—
Kamimae, Hiroshi; and Ishikawa, Tadashi, 4,394,376, Cl. 424-150.000.
- Ishimatsu, Kenji: See—
Tanaka, Eiichi; Nohara, Norimasa; Murayama, Hideo; Ishimatsu, Kenji; Ogushi, Akira; and Takami, Katsumi, 4,394,576, Cl. 250-366.000.
- Ishioka, Sachio: See—
Tsukada, Toshihisa; Takasaki, Yukio; Hirai, Tadaaki; Baji, Toru; Yamamoto, Hideaki; Tanaka, Yasuo; Maruyama, Eiichi; and Ishioka, Sachio, 4,394,749, Cl. 365-106.000.
- Ishizuka, Yutaka, to Diesel Kiki Co., Ltd. Swash-plate type compressor. 4,394,110, Cl. 417-269.000.
- Isogai, Hideaki; and Takahashi, Yukio, to Fujitsu Limited. Decoder circuit. 4,394,657, Cl. 340-825.930.
- Italtel Società Italiana Telecomunicazioni S.p.A.: See—
Delle Donne, Roberto, 4,394,759, Cl. 370-110.100.
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- Itaya, Eiji: See—
Kurihara, Hiroshi; Takenaka, Sadao; and Itaya, Eiji, 4,394,626, Cl. 331-12.000.
- Ito, Hajime; Apparatus for dyeing fiber by utilizing microwaves. 4,393,671, Cl. 68-5.00C.
- Ito, Hideo: See—
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- Ito, Tadahiko; Arao, Toshio; Satoh, Nobuo; and Harada, Hiroshi, to Japan Synthetic Rubber Co., Ltd. Stabilized polyisoprene composition. 4,394,472, Cl. 524-100.000.
- ITT Industries, Inc.: See—
Wagner, Wilfried, 4,393,750, Cl. 91-376.00R.
- Iwai, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of etching, refilling and etching dielectric grooves for isolating micron size device regions. 4,394,196, Cl. 148-187.000.
- Iwata, Hiroshi: See—
Yoshino, Tsunemi; Kashiwara, Toshitsugu; Iwata, Hiroshi; and Morioka, Akitoshi, 4,394,077, Cl. 354-25.000.
- Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, to Nissan Motor Co., Ltd.; and Tokyo Sokuhan Co., Ltd. Fluid outlet structure. 4,393,897, Cl. 137-831.000.
- Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, to Nissan Motor Co., Ltd. Fluid outlet device and a method of controlling fluid flow through a nozzle. 4,393,898, Cl. 137-831.000.
- J T Thorpe Company: See—
Byrd, Carlisle O., Jr., 4,393,569, Cl. 29-460.000.
- J. Wagner GmbH: See—
Kille, Ewald; and Zimmermann, Guido, 4,393,993, Cl. 239-332.000.
- Jackson, Kenneth A.; and Kimerling, Lionel C., to Bell Telephone Laboratories, Incorporated. Solidification of molten materials. 4,394,183, Cl. 148-1.500.
- Jackson, Robert K.: See—
McDermott, Thomas R.; and Jackson, Robert K., 4,393,634, Cl. 52-309.100.
- Jacobi, Nathan: See—
Barmatz, Martin B.; Trinh, Eugene H.; Wang, Taylor G.; Elleman, Daniel D.; and Jacobi, Nathan, 4,393,708, Cl. 73-505.000.
- Jacobs, Allen W. Demand inhaler for oral administration of tobacco, tobacco-like, or other substances. 4,393,884, Cl. 131-273.000.
- Jacobs, Wilson E. Sunflower seed dehulling machine. 4,393,762, Cl. 99-609.000.
- Jacobsen, Kenneth J.; and Moshofsky, Jerome F. Stove pipe heat extractor. 4,393,925, Cl. 165-122.000.
- Jacquard, Paul: See—
Picard, Jean-Francois; and Jacquard, Paul, 4,393,597, Cl. 33-275.00G.
- Jadwin, Thomas A.; and Storey, Robert C., to Eastman Kodak Company. Electrophotographic dry toner and developer compositions. 4,394,430, Cl. 430-110.000.
- Jaeklin, Andre, to BBC Brown, Boveri & Company, Limited. Thyristor for low-loss triggering of short impulses with Schottky contact to control gate electrode. 4,394,677, Cl. 357-38.000.
- Jager, Berend; Brink, Andries; and Kleynjan, Cornelis, to Sasol One (Proprietary) Limited. Apparatus for converting coal into liquid products. 4,394,215, Cl. 196-14.520.
- Jager, Horst; Plattner, Eric; Bersier, Jacques; and Cominelli, Christos, to Ciba-Geigy AG. Electrochemical process for the preparation of benzantrones and planar, polycyclic aromatic oxygen-containing compounds. 4,394,227, Cl. 204-73.00R.
- James, David E.: See—
Puskas, Imre; and James, David E., 4,394,299, Cl. 252-447.000.
- Janicki, Max; Liefke, Hans-Georg; Keil, Reinhart; and Geyer, Gerd, to Veb Kombinat Polygraph "Werner Lamberz". Control provision operation for printing machines. 4,394,609, Cl. 318-603.000.
- Janke, Elden W., to Teradyne, Inc. Drawer locking mechanism. 4,394,056, Cl. 312-216.000.
- Janome Sewing Machine Co. Ltd.: See—
Eguchi, Yasukata; Takenoya, Hideaki; and Sano, Yasuro, 4,393,794, Cl. 112-158.00E.
- Makabe, Hachiro; Watanabe, Kazuo; Takenoya, Hideaki; Kume, Toshiaki; and Kakinuma, Toshihide, 4,393,795, Cl. 112-158.00E.
- Japan Synthetic Rubber Co., Ltd.: See—
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- Yasuta, Naoshi; Matsumura, Yoshio; and Kotani, Teizo, 4,394,402, Cl. 427-40.000.
- Jefferies, Steven R. Bone graft material for osseous defects and method of making same. 4,394,370, Cl. 424-15.000.
- Jeffras, Nathaniel B.; and Torgersen, Robert H., to Automation Industries, Inc. Sonic water jet nozzle. 4,393,991, Cl. 239-102.000.
- Jenkner, Herbert; Strang, Robert; and Adermann, Peter, to Chemische Fabrik Kalk GmbH. Polypentabromostyrene, process for the production and use. 4,394,484, Cl. 525-72.000.
- Jensen, Bernard: See—
McMahon, William; and Jensen, Bernard, 4,394,074, Cl. 351-206.000.
- John Wyeth and Brother Limited: See—
Crossley, Roger, 4,394,509, Cl. 546-339.000.
- Johnson, David G.: See—
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Weinberg, Kurt; and Johnson, Gordon C., 4,394,295, Cl. 252-431.00C.
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- Nowack, Gerhard P.; Johnson, Marvin M.; and Tabler, Donald C., 4,394,298, Cl. 252-438.000.
- Johnson Matthey Public Limited Company: See—
Hydes, Paul C.; and Hepburn, Derek R., 4,394,319, Cl. 260-429.00R.
- Johnson, Thomas A.: See—
Ford, Michael E.; and Johnson, Thomas A., 4,394,524, Cl. 564-479.000.
- Johnson, Timothy L.: See—
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- Johnston, Daniel U.; and Shinkle, George A., to General Motors Corporation. Piezoelectric knock sensor. 4,393,688, Cl. 73-35.000.
- Jolly, Frank H. Rotary engine. 4,393,828, Cl. 123-203.000.
- Jones, Carolyn R. Disposable garment shield and method of manufacture. 4,393,521, Cl. 2-56.000.
- Jones, Raymond D., to TII Corporation. Surge arrester assembly. 4,394,704, Cl. 361-119.000.
- Josendal, Virgil A., to Union Oil Company of California. Method for the enhanced recovery of oil and natural gas. 4,393,936, Cl. 166-263.000.
- Joyce, Ronald S., to Calgon Carbon Corporation. Silver removal with halogen impregnated activated carbon. 4,394,354, Cl. 423-25.000.
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- Jurissin, Jaan, to Honeywell Inc. Optically enhanced Schottky barrier IR detector. 4,394,571, Cl. 250-216.000.
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Maiko, Viktor P., 4,394,618, Cl. 324-83.00D.
- Kabel-und Metallwerke Gutehoffnungshutte AG: See—
Uhlmann, Otto; and Uhlmann, Klaus-Peter, 4,393,566, Cl. 29-417.000.
- Kabik, Irving; and Ringbloom, Vernon D., to United States of America, Navy. Cook-off resistant booster explosive. 4,394,197, Cl. 149-19.300.
- Kabushiki Kaisha Daini Seikosha: See—
Shimbo, Masafumi, 4,393,574, Cl. 29-571.000.
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Asami, Takayoshi; and Sonoi, Hidekazu, 4,393,924, Cl. 165-104.120.
- Kaneko, Koji; Fuchino, Yoshihide; and Inoue, Tsuyoshi, 4,394,169, Cl. 75-128.00A.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Furukawa, Hideo; Chikugo, Kazuo; and Otsuki, Yoichi, 4,393,823, Cl. 123-196.00M.
- Hirosawa, Katsu, 4,393,607, Cl. 37-103.000.
- Kabushiki Kaisha Meidensha: See—
Warabi, Junichi; Sakuma, Shinzo; Kawaguchi, Hidemi; and Kobari, Yukio, 4,394,554, Cl. 200-144.00B.
- Kabushiki Kaisha Riken: See—
Wada, Masahiko; and Ueki, Masato, 4,393,981, Cl. 221-289.000.
- Kabushiki Kaisha Suwa Seikosha: See—
Morozumi, Shinji, 4,394,586, Cl. 377-105.000.
- Kabushiki Kaisha Togo Seisakusho: See—
Kato, Yoshinori, 4,393,560, Cl. 24-295.000.
- Kaeding, Warren W.: See—
Chu, Chin C.; and Kaeding, Warren W., 4,394,300, Cl. 252-455.00Z.
- Kaenniemä, Kaarina M. E.: See—
Mäkinen, Juho K.; and Kaenniemä, Kaarina M. E., 4,394,164, Cl. 75-21.000.

Kahn, Alan R., to Meadox Instruments, Inc. Pressure monitoring method and apparatus. 4,393,878, Cl. 128-748.000.

Kaiser, Kenneth L.; and Shirley, William C. Panel edge gasket with compressible sealing portion. 4,394,026, Cl. 277-231.000.

Kaizuka, Takanoli: See—
Suzuki, Yoshihisa; Kaizuka, Takanoli; Hanyu, Yoshiaki; Otake, Mituyoshi; and Hidano, Yoichi, 4,394,404, Cl. 427-48.000.

Kaken Chemical Co., Ltd.: See—
Aoki, Yoshio, 4,394,144, Cl. 55-281.000.

Kakihara, Yoshinobu: See—
Takeda, Mikio; Kakihara, Yoshinobu; Yoshida, Masaru; and Nakata, Yukihiko, 4,394,601, Cl. 313-509.000.

Kakinuma, Toshihide: See—
Makabe, Hachiro; Watanabe, Kazuo; Takenoya, Hideaki; Kume, Toshiaki; and Kakinuma, Toshihide, 4,393,795, Cl. 112-158.00E.

Kalopissis, Gregoire, to Societe Anonyme dite: L'Oreal. 5-Ureido-3-thia hexanedioic acid. 4,394,520, Cl. 562-557.000.

Kamachi, Hajime; Okumura, Jun; Naito, Takayuki; and Oka, Masahisa, to Bristol-Myers Company. Cephalosporin derivatives. 4,394,503, Cl. 544-25.000.

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Kamemura, Yoshiki: See—
Tamura, Manabu; Kamemura, Yoshiki; and Handa, Masao, 4,393,677, Cl. 72-97.000.

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Kaminaka, Nobuyuki; Kanai, Kenji; Nouchi, Norimoto; and Nomura, Noboru, to Matsushita Electric Industrial Co., Ltd. Thin-film magnetic head. 4,394,699, Cl. 360-113.000.

Kaminski, Joan M.: See—
Horodysky, Andrew G.; and Kaminski, Joan M., 4,394,278, Cl. 252-46.300.

Kammerlander, Karl, to Siemens Aktiengesellschaft. Process for monitoring analog and digital mobile radio connections. 4,394,760, Cl. 370-111.000.

Kamyr, Inc.: See—
Richter, Johan C. F. C.; and Richter, Ole J., 4,394,267, Cl. 210-331.000.

Kanai, Kenji: See—
Kaminaka, Nobuyuki; Kanai, Kenji; Nouchi, Norimoto; and Nomura, Noboru, 4,394,699, Cl. 360-113.000.

Kaneko, Koji; Fuchino, Yoshihide; and Inoue, Tsuyoshi, to Kabushiki Kaisha Kobe Seiko Sho. High strength austenite steel having excellent cold work hardenability. 4,394,169, Cl. 75-128.00A.

Kaneko, Toshihisa, to Dai Nippon Insatsu Kabushiki Kaisha. Device for washing blanket cylinder of rotary offset press. 4,393,778, Cl. 101-425.000.

Kanno, Yoshimitsu: See—
Yoshida, Kunio; Kotera, Hiroaki; Tsuda, Yukifumi; Kanno, Yoshimitsu; and Naka, Motohiko, 4,394,662, Cl. 346-33.00R.

Kansai Electric Power Co., Inc.: See—
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Bickle, Wolfgang; Funke, Rolf; and Pfoh, Rolf, 4,394,275, Cl. 252-12.000.

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Kawai, Hisasi: See—
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Satoh, Shingo; Inoue, Takashi; Naki, Minoru; and Kawauchi, Yuji, 4,394,165, Cl. 75-60.000.

Kaye, Wilbur L., to Beckman Instruments, Inc. Liquid crystal tuned birefringent filter. 4,394,069, Cl. 350-347.00E.

Keil, Reinhart: See—
Janicki, Max; Liefke, Hans-Georg; Keil, Reinhart; and Geyer, Gerd, 4,394,609, Cl. 318-603.000.

Keiper, Francis P., Jr.; and Kerns, John N., to Lear Siegler, Inc. Telephone line holding circuit. 4,394,543, Cl. 179-84.00R.

Kellar, David E.: See—
Barter, James A.; and Kellar, David E., 4,394,328, Cl. 260-463.000.

Kelley, Clarence R., to C. C. Kelley & Sons. Two hole hydraulic cushion valve. 4,393,751, Cl. 91-408.000.

Kemper, Yves J., to Ipanema Company. Hybrid power system and method for operating same. 4,393,964, Cl. 192-044.

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Verber, Carl M.; Kenan, Richard P.; and Ridgway, Richard, 4,394,060, Cl. 350-96.130.

Kendall Company, The: See—
Taylor, Glenn N., 4,393,880, Cl. 128-760.000.

Kennedy, James A., to William L. Bonnell Company, The. Scrap metal recovery process. 4,394,166, Cl. 75-65.00R.

Kenyon, S. Wayne; Geyer, Bernard H., Jr.; and Nelson, Conrad E., to General Electric Company. Compensated directional coupler. 4,394,630, Cl. 333-116.000.

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Kernforschungsanlage Julich Gesellschaft mit beschränkter Haftung: See—
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Golimowski, Jerzy; Sipos, Laszlo; and Valenta, Paul, 4,394,238, Cl. 204-400.000.

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Copping, Leonard G.; Kerry, John C.; Watkins, Thomas I.; Willis, Robert J.; and Palmer, Bryan H., 4,394,387, Cl. 424-300.000.

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Keyes, Richard M.; and Schwitters, Stephen W., to Taylor Freezer Company. Method and apparatus for producing sterile slush ice. 4,393,659, Cl. 62-66.000.

Keyser, William L.; and Kinney, Diane S., to Quaker Oats Company. The Low calorie table syrup product. 4,394,399, Cl. 426-658.000.

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Kim, Chan J.; and Koski, Ahti A., to Polysar Limited. Zinc peroxide process. 4,394,488, Cl. 524-432.000.

Kimerling, Lionel C.: See—
Jackson, Kenneth A.; and Kimerling, Lionel C., 4,394,183, Cl. 148-1.500.

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Kimura, Tadamoto; and Noguchi, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Three-phase induction motor. 4,394,596, Cl. 310-184.000.

King, John M.: See—
deVries, Louis; and King, John M., 4,394,279, Cl. 252-46.400.

King, Pay-Shin: See—
Iida, Hitoshi; and King, Pay-Shin, 4,394,688, Cl. 358-160.000.

Kinney, Diane S.: See—
Keyser, William L.; and Kinney, Diane S., 4,394,399, Cl. 426-658.000.

Kirby, Donald W.: See—
Fallon, William H.; Schober, William R.; Neukirch, Edward O.; and Kirby, Donald W., 4,394,611, Cl. 320-21.000.

Kirino, Osamu; Hirano, Masachika; Takeda, Hisami; and Kato, Toshiro, to Sumitomo Chemical Company, Limited. Amide phosphorothiolate derivatives and their use as pesticides. 4,394,379, Cl. 424-211.000.

Kirsch, Alois: See—
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Kishi, Kenichi: See—
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Kishida, Katsuhiko; Mekuchi, Yutaka; Hirao, Sumio; and Date, Hirohiko, to Nissan Motor Company, Ltd. Covered electrode containing zirconium for shielded metal arc welding. 4,394,560, Cl. 219-137.0WM.

Kishie, Hidehiko: See—
Yamamoto, Hideomi; Watanabe, Haruzo; Kishie, Hidehiko; and Nishihara, Toshio, 4,394,412, Cl. 428-174.000.

Kiss, Gunter H., to Lignotock Verfahrenstechnik GmbH. Process and apparatus for deburring moulded parts produced by pressing. 4,394,334, Cl. 264-80.000.

Kistner, Herbert: See—
Sell, Rudolf; and Kistner, Herbert, 4,393,638, Cl. 52-704.000.

Kitamura, Yohji. Snail wire arrangement for yarn breakage detection in ring frames. 4,393,647, Cl. 57-81.000.

Kitoh, Shinya: See—
Miyake, Mikio; Kitoh, Shinya; and Hayashi, Satoshi, 4,394,494, Cl. 526-301.000.

Kitzelmann, Dieter; and Deprez, Jacques, to Bayer Aktiengesellschaft. Electro-chemical sensor for the detection of reducing gases, in particular carbon monoxide, hydrazine and hydrogen in air. 4,394,239, Cl. 204-414.000.

Kiwi, John: See—
Gratzel, Michael; and Kiwi, John, 4,394,293, Cl. 252-430.000.

Klein, Gerald I., to Westinghouse Electric Corp. Microstrip circuit with suspended substrate stripline regions embedded therein. 4,394,633, Cl. 333-238.000.

Klein, Max, to Crane & Co., Inc., a part interest. Filter apparatus. 4,394,146, Cl. 55-354.000.

Klein, Paul E. Adhesive-backed booklet for credit card transaction. 4,394,038, Cl. 282-1.00R.

Klein, Stewart E. 3-(Trimethoxysilyl) propyldidecylmethyl ammonium salts and method of inhibiting growth of microorganisms therewith. 4,394,378, Cl. 424-184.000.

Kleiner, Fredric; and Zemelman, Valery B., to General Foods Corporation. Quiescent formation of gasified ice product and process. 4,393,660, Cl. 62-69.000.

Kleynjan, Cornelis: See—
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Heintges, Siegfried; Strauss, Werner; and Weiffen, Karl-Heinz, 4,394,260, Cl. 209-500.000.

Klomp, Edward D., to General Motors Corporation. Air bearing and antifriction bearing assembly. 4,394,091, Cl. 384-101.000.

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Knell, Franz-Georg: See—
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Knigge, Robert A.: See—
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Knox, Arnold W., deceased (by Knox, Ester, executrix), to Crane Carrier Corporation. Actuation means for the racking platform of a mast. 4,393,630, Cl. 52-121.000.

Knox, Ester, executrix: See—
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Kobari, Yukio: See—
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Kobayashi, Hisao: See—
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Kobayashi, Katsumi, to Sony Corporation. Variable aspect ratio television receiver. 4,394,690, Cl. 358-180.000.

Kobayashi, Masaaki: See—
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Kobelt, Jacob. Self-centering device for caliper brake assembly. 4,393,962, Cl. 188-72.600.

Koch, Coral A. Elbow pillow. 4,393,520, Cl. 2-16.000.

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Koehne, Hermann D. Rail vehicle for track investigation. 4,393,691, Cl. 73-84.000.

Koeniger, Arthur F.: See—
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Kohl, Wayne H., to United States of America, National Aeronautics and Space Administration. Distributed multipoint memory architecture. 4,394,726, Cl. 364-200.000.

Kohler, Richard P. J.: See—
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Kokiso, Masakazu: See—
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Kolenik, Steve: See—
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Kolts, John H., to Phillips Petroleum Company. Zinc titanate catalyst. 4,394,297, Cl. 252-437.000.

Komaki, Takao; and Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Method of processing radiographic image. 4,394,737, Cl. 364-414.000.

Komatsu, Shigeru; and Nakamura, Michio, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for fabricating semiconductor device by heat treatment of insulating film to improve adhesion to a resist film. 4,394,436, Cl. 430-311.000.

Komet Stahlhalter- und Werkzeugfabrik Robert Breuning GmbH: See—
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Komori Printing Machinery Co., Ltd.: See—
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Komorzono, Junichi, to Aisin Seiki Kabushiki Kaisha. Reservoir for a master cylinder. 4,393,655, Cl. 60-585.000.

Kondo, Kenshi, to Nihon Den-Nitsu Keiki Co.; Ltd. Heat-controlled sanitary bathing device. 4,393,525, Cl. 4-420.200.

Kondo, Toshikatsu: See—
Asano, Kiyomitsu; Jozuka, Masao; and Kondo, Toshikatsu, 4,394,093, Cl. 400-124.000.

Konicek, Jiri K., to Oak Industries Inc. Printed circuit material. 4,394,419, Cl. 428-416.000.

Konishiroku Photo Industry Co., Ltd.: See—
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Kono, Hiroya; Hasegawa, Jun; Inagaki, Mitsukane; and Kobayashi, Hisao, to Toyoda Jidosha Kogyo Kabushiki Kaisha; and Nippon Denso Company Limited. Operation control apparatus of a compressor. 4,393,966, Cl. 192-56.00R.

Kopp, Gerald F., to Honeywell Inc. Electrical contact for conductive-backed paper. 4,394,665, Cl. 346-76.00R.

Koppers Company, Inc.: See—
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Korea Advanced Institute of Science and Technology: See—
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Korry Manufacturing Co.: See—
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Koski, Ahti A.: See—
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Kost, Erwin: See—
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Kotera, Hiroaki: See—
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Kotera, Noboru: See—
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- Kovacs, Daniel C., to SMS Schloemann-Siemag, Inc. Method for rolling rails. 4,393,680, Cl. 72-234.000.
- Kowa Company, Ltd.: See—
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- Kowalski, Eugene, to Elpo Industries, Inc. Food mincer. 4,393,588, Cl. 30-196.000.
- Koyama, Hideaki: See—
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- Koyama, Kazuo: See—
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- Krahe, Mark R.: See—
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- Kreissl, Ottmar; Schurrer, Josef; Motz, Karl; Leitgeb, Wilhelm; and Rosenberg, Heinz, to M.A.N.-Dachauer; and Siemens. Method and apparatus for utilizing the waste heat energy of an internal combustion engine. 4,394,582, Cl. 290-4.00C.
- Krent, Edward D. Three-dimensional acoustic ceiling tile system for dispersing long wave sound. 4,393,631, Cl. 52-144.000.
- Kroder, Claus: See—
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- Kronos Titan-G.m.b.H.: See—
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- Kronstadt, Victor, to Mack Trucks, Inc. Clutch assist apparatus. 4,393,907, Cl. 192-99.00S.
- Krueger, Hans: See—
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- Krull, Manfred; Lobert, Udo; Stamm, Dieter; and Veesser, Klaus, to Carl Freudenberg, Firma. Structural panel of gypsum with textile casing and method for producing same. 4,394,411, Cl. 428-70.000.
- Kruse, Lawrence I., to SmithKline Beckman Corporation. Processes for preparing 4-substituted indoles. 4,394,514, Cl. 548-508.000.
- Kubis, Charles S.: See—
Walter, John; Roth, Donald J.; and Kubis, Charles S., 4,394,408, Cl. 427-231.000.
- Kuckens, Alexander, to Dagma Deutsche Automaten und Getranke-maschinen GmbH & Co. KG. Metered dispensing of liquids. 4,393,982, Cl. 222-209.000.
- Kuehnle, Manfred R., to Coulter Systems Corporation. Low-profile electrophoretic copying machine. 4,394,084, Cl. 355-3.0BE.
- Kuenzig, Ernest O.; and Pennino, Frank L. Mandrel adjustment system in a plastic resin blow molding machine. 4,394,116, Cl. 425-192.00R.
- Kuhn, Joseph B.: See—
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- Kuhns, Walter: See—
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- Kuibers-Kiewik, Walfrida G. E.; Akkerman, Johannes; and Gons, Johan, to Wavin B.V. Composition for preventing plate out in extrusion equipment. 4,394,501, Cl. 528-485.000.
- Kukes, Semyon; Nowack, Gerhard P.; and Johnson, Marvin M., to Phillips Petroleum Company. Isomerization process. 4,394,255, Cl. 585-667.000.
- Kukolja, Stjepan; and Pfeil, Janice L., to Eli Lilly and Company. Symmetrical azetidinone aldehyde disulfides and process. 4,394,313, Cl. 260-245.400.
- Kumano, Fumihiro: See—
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- Kumar, Mahesh; Menna, Raymond J.; and Huang, Ho-Chung, to RCA Corporation. Hybrid power divider/combiner circuit. 4,394,629, Cl. 333-109.000.
- Kume, Toshiaki: See—
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- Kummermehr, Hans, to Grunzweig & Hartmann und Glasfaser AG. Thermal insulating body and a process for making the same. 4,394,337, Cl. 264-122.000.
- Kunieda, Hisashi: See—
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- Kuntz, David H. Spark-generating roller skate assembly. 4,394,037, Cl. 280-816.000.
- Kunz, Paul. Adjustable brush. 4,393,535, Cl. 15-169.000.
- Kuper, Douglas D.: See—
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- Kurihara, Hiroshi; Takenaka, Sadao; and Itaya, Eiji, to Fujitsu Limited. Phase synchronizing circuit. 4,394,626, Cl. 331-12.000.
- Kurland, Marvin: See—
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- Kurnit, Norman A. Ring cavity for a raman capillary waveguide amplifier. 4,394,623, Cl. 330-4.300.
- Kurosawa, Tsutomu, to Sahi Electronics Co., Ltd. Magnetic recording/reproducing apparatus. 4,394,697, Cl. 360-91.000.
- Kurtz, Thomas D. Metal mirror mounting clip. 4,394,000, Cl. 248-466.000.
- Kusaba, Yoshiaki, to Sumitomo Metal Industries, Ltd. Method for producing blank for wide flange beam. 4,393,679, Cl. 72-221.000.
- Kushigian, Anthony. Thread grinder. 4,393,624, Cl. 51-5.00D.
- Kusuzawa, Masaki: See—
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- Kuwahara, Kenshi, to Mitsui Aluminum Co., Ltd. Method of carbo-thermally producing aluminum. 4,394,167, Cl. 75-68.00A.
- Kwakernaak, Adriaan: See—
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- Kyotani, Yoshinori: See—
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- Kyushu Electric Power Co., Inc.: See—
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- L.C.E. Ltd.: See—
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- Laboratory Equipment Corp.: See—
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- Lapeyre, James M., 4,394,664, Cl. 346-76.00R.
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- Lamport, Daphne L.: See—
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- Landon, Alfred J.: See—
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- Larson, Willis A., to Oak Industries, Inc. Laminated membrane switch. 4,394,547, Cl. 200-5.00A.
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- Lawson, Jimmie B.; and Richardson, Edwin A., to Shell Oil Company. Treating wells with ion-exchange-precipitated scale inhibitor. 4,393,938, Cl. 166-279.000.
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- Lee, Richard J. Press for reloading rifle and pistol cartridges. 4,393,744, Cl. 86-25.000.
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- Lefnaer, Otto. Coal dust combustion motor. 4,393,818, Cl. 123-23.000.
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- Lemirande, Rodger P., to Stanley Automatic Openers. Control systems for gates and the like including a motor overload monitoring circuit. 4,394,607, Cl. 318-453.000.
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- Leupold & Stevens, Inc.: See—
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- Levitt, George, to Du Pont de Nemours, E. I., and Company. Agricultural sulfonamides. 4,394,506, Cl. 544-321.000.
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- LGZ Landis & Gyr Zug AG: See—
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- Licenta Patent-Verwaltungs-GmbH: See—
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- List, Hans: See—
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- Litton Systems, Inc.: See—
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- Long, Robert T. Insulated wall construction apparatus. 4,393,635, Cl. 52-309.110.
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- Loser, Wolfgang: See—
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- Lowndes, Michael W., to Lucas Industries Limited. Battery monitoring system. 4,394,741, Cl. 364-483.000.
- Lu, Shau-Zou, to Celanese Corporation. Fiber reinforced polyoxymethylene molding compositions. 4,394,468, Cl. 523-205.000.
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- Tumber, Brian W., 4,393,826, Cl. 123-198.00B.
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- Theilacker, Klaus, 4,393,773, Cl. 101-232.000.
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- Mack, Gerhard: See—
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- Mack Trucks, Inc.: See—
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- Maguire, Daniel J. Reusable childproof closure. 4,393,976, Cl. 215-211.000.
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- Mahon, Douglas K., to Sharp Corporation. Method and apparatus for evaluating recording systems. 4,394,695, Cl. 360-53.000.
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- Maloy, Rick D. Earthquake game. 4,394,017, Cl. 273-237.000.
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- Martin, Henry: See—
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- Martin, Johannes J. Method and arrangement for reducing NO_x emissions from furnaces. 4,394,118, Cl. 431-4.000.
- Martin, John E. Method and apparatus for repairing heat exchangers. 4,393,564, Cl. 29-157.30C.
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- Martin, Roger C. Shrimp processing and handling apparatus. 4,393,543, Cl. 17-72.000.
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- Material Sciences Corporation: See—
Van Thynne, Ray J.; and Rausch, John J., 4,394,422, Cl. 428-592.000.
- Mathbirk Limited: See—
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- Matsuda, Hiroto: See—
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- Matsumoto, Rempei: See—
Tanaka, Takayuki; and Matsumoto, Rempei, 4,393,819, Cl. 123-41.080.
- Matsumoto, Seiji: See—
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- Matsumoto, Shigeyuki: See—
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- Matsumura, Yoshio: See—
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- Matsuo, Hiroshi: See—
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- Matsushita Electric Industrial Co., Ltd.: See—
Igata, Kouichi; and Kobayashi, Masaaki, 4,394,701, Cl. 360-137.000.
- Kaminaka, Nobuyuki; Kanai, Kenji; Nouchi, Norimoto; and Nomura, Noboru, 4,394,699, Cl. 360-113.000.
- Maruyama, Teruo; Onoda, Tadayuki; and Taguchi, Tatsuhisa, 4,394,114, Cl. 418-269.000.
- Mori, Keichi; Ueda, Yasukiyo; and Mori, Keiji, 4,393,858, Cl. 126-351.000.
- Watanabe, Toshiro, 4,394,680, Cl. 358-22.000.
- Matsushita Electric Works, Ltd.: See—
Hamashima, Tetsuo; and Kumano, Fumihiko, 4,393,586, Cl. 30-43.600.
- Yamamoto, Hideomi; Watanabe, Haruzo; Kishie, Hidehiko; and Nishihara, Toshio, 4,394,412, Cl. 428-174.000.
- Matsushita Research Institute Tokyo, Inc.: See—
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- Matthews, Denis, to Mathbirk Limited. Attachment of knitted fabric strip to a piece of fabric. 4,393,799, Cl. 112-262.100.
- Mattson, Richard W., to Allied Corporation. Brush wear detector system with latching relay. 4,394,648, Cl. 340-679.000.
- Maurer, Alexander; Adrian, Renate; Panter, Herbert; Heymer, Gero; and Nölker, Dieter, to Hoechst Aktiengesellschaft. Production of granular alkali metal diphosphates or triphosphates. 4,394,358, Cl. 423-305.000.
- Maurer, Alexander: See—
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- Maurer, Helmut: See—
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- Mausner, Wilfried: See—
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- May, Charles W., to Deere & Company. Low pressure sealing arrangement for a fuel injector. 4,393,847, Cl. 123-502.000.
- Mayo, Henry C.; and Millman, William V., to United States of America, Army. Releasable retainer for ejection tube. 4,393,745, Cl. 89-1.806.
- Mazur, Michael B.; and Punko, Emil M., to AAA Sales & Engineering, Inc. Low noise railroad retarder brake shoe structure. 4,393,960, Cl. 188-62.000.
- McAfee, Richard C.; Adkins, James; and Miskowski, Richard L., to SWS Silicones Corporation. Platinum-styrene complexes which promote hydrosilation reactions. 4,394,317, Cl. 260-429.00R.
- McAllister, Warren A.: See—
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- McClelland, Henry T.; and Kuhn, Joseph B., to Cabot Beryllco, Inc. Processing for copper beryllium alloys. 4,394,185, Cl. 148-11.50C.
- McCord, James W. Vapor condensate return means in a vapor generating and recovery apparatus. 4,394,216, Cl. 202-170.000.
- McCoy, John F., III: See—
Thimons, Edward D.; Heller, Kenneth S.; McCoy, John F., III; and Whillier, Austin, 4,394,142, Cl. 55-242.000.
- McDermott, Thomas R.; and Jackson, Robert K., to Clark-Cutler-McDermott Company. Roofing system and needle punched impregnated synthetic fiber fabric. 4,393,634, Cl. 52-309.100.
- McDonnell Douglas Corporation: See—
Randall, John R., 4,393,730, Cl. 74-538.000.
- Richman, David W.; and Walker, Charles D., 4,394,246, Cl. 204-301.000.
- McGalliard, James D. Printed circuit fuse assembly. 4,394,639, Cl. 337-292.000.
- McGilvray, Bruce L.: See—
Flusche, Frederick O.; Gustafson, Richard N.; and McGilvray, Bruce L., 4,394,731, Cl. 364-200.000.
- McIntosh, Walter L.; and Street, John N., to LogEtronics, Inc. Color photoprinting with a scanning memory mask. 4,394,089, Cl. 355-88.000.
- McKenzie, James A.; and Peterson, Joe W., to Motorola, Inc. CMOS Differential comparator with hysteresis. 4,394,587, Cl. 307-355.000.
- McKinney, Osborne K.; and Flores, David P., to Dow Chemical Company, The. Product and process for reducing block and increasing slip of linear low density ethylene copolymer films. 4,394,474, Cl. 524-232.000.
- McMahon, William; and Jensen, Bernard. Fiberoptic-lighted optical apparatus. 4,394,074, Cl. 351-206.000.
- McMurray, John H.; and Miller, Jule, to Avco Corporation. Brazing filler metal composition and process. 4,394,347, Cl. 420-453.000.
- Mead Johnson & Company: See—
Madding, Gary D., 4,394,507, Cl. 546-185.000.
- Meadox Instruments, Inc.: See—
Kahn, Alan R., 4,393,878, Cl. 128-748.000.
- Measuregraph Company, The: See—
Shalon, Tadmor, 4,394,740, Cl. 364-464.000.
- Mecilec: See—
Guillelot, Philippe, 4,393,713, Cl. 73-701.000.
- Medtronic, Inc.: See—
Smyth, Nicholas P. D.; Lesniak, Jeanne M.; and Stokes, Kenneth B., 4,393,883, Cl. 128-785.000.
- Mehra, Ravinder C.; and Aggarwal, Raj K., to Sybron Corporation. Pressure filter adapter and containment vessel. 4,394,266, Cl. 210-244.000.
- Meier, Hans, to Sulzer Brothers Limited. Piston compressor. 4,393,752, Cl. 92-86.000.
- Meindl, Hubert: See—
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- Meitzler, Allen H.; Donlon, William T., Jr.; and Schinozaki, Samuel S., to Ford Motor Company. Titanium dioxide rectifier. 4,394,672, Cl. 357-10.000.
- Mekuchi, Yutaka: See—
Kishida, Katsuhiko; Mekuchi, Yutaka; Hirao, Sumio; and Date, Hirohiko, 4,394,560, Cl. 219-137.00WM.
- Melrose, James C.: See—
Savins, Joseph G.; and Melrose, James C., 4,393,934, Cl. 166-261.000.
- Melville, James B., to Lever Brothers Company. Method of depositing perfume and compositions therefor. 4,394,127, Cl. 8-137.000.
- Menasha Corporation: See—
Stevens, Bruce W., 4,394,096, Cl. 403-408.000.
- Mendez, Luis E.: See—
Ross, Richard J.; and Mendez, Luis E., 4,393,930, Cl. 166-188.000.
- Menezes, William A.; and Kuper, Douglas D., to Sony Corporation. Video editing apparatus. 4,394,745, Cl. 364-900.000.
- Menna, Raymond J.: See—
Kumar, Mahesh; Menna, Raymond J.; and Huang, Ho-Chung, 4,394,629, Cl. 333-109.000.
- Mercer, Frank B., to P.L.G. Research Limited. Forming plastic articles having strands by stretching. 4,394,342, Cl. 264-292.000.
- Mercer, Paul A., to Bell Telephone Laboratories, Incorporated. Tone generation method and apparatus using stored reference calibration coefficients. 4,394,743, Cl. 364-514.000.
- Merck & Co., Inc.: See—
Cragoe, Edward J., Jr., 4,394,385, Cl. 424-285.000.
- Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., 4,394,515, Cl. 549-12.000.
- Mergel, Jurgen: See—
Divisek, Jiri; and Mergel, Jurgen, 4,394,244, Cl. 204-295.000.
- Merila, Jouni A., to Luossavaara-Kiurunavaara AB. Contact sealing. 4,394,021, Cl. 277-34.300.
- Merix Corporation: See—
Mix, Thomas W.; and Dweck, Jay S., 4,394,219, Cl. 203-1.000.
- Merlino, Paul J.: See—
Fry, Warren C.; Franz, James H.; and Merlino, Paul J., 4,394,724, Cl. 363-124.000.
- Merritt, Robert C.; and Terwilliger, Gerald L., to Eaton Corporation. Linkage mechanism for supercharger system. 4,393,852, Cl. 123-564.000.
- Metal Box Limited: See—
Ball, Martin F.; and Fidler, Fred, 4,393,979, Cl. 220-270.000.
- Micro-Plate, Inc.: See—
Eidschun, Charles D., 4,393,705, Cl. 73-439.000.
- Mid-Continent Aircraft Corporation: See—
Cook, Richard J.; and Reade, Richard, 4,394,108, Cl. 414-680.000.
- Middleton, William J., to Du Pont de Nemours, E. I., and Company. Fluorinated carbamate insecticides. 4,394,386, Cl. 424-298.000.
- Midland Steel Products: See—
Satava, George L.; and Deemer, Carroll L., 4,394,194, Cl. 148-131.000.
- Mierzwa, George A.: See—
Muzumdar, Deepak; Mierzwa, George A.; Sanders, Richard; and Van der Meiden, Orrie J., 4,394,757, Cl. 370-100.000.
- Mijot, Guy; Derycke, Leon; Dienne, Didier; and Martinot, Roger, to Atelages Lemoine - La Mecano - Soudure Remoise. Vehicle-supported three-point coupling and position responsive fluid blocking device therefor. 4,393,942, Cl. 172-2.000.
- Miles Laboratories, Inc.: See—
Brock, David A.; and Gupta, Surendra K., 4,394,450, Cl. 435-191.000.
- Cameron, Erma C.; Gunter, Claude R.; and White-Stevens, Rodric H., 4,394,444, Cl. 435-11.000.
- Milex Products, Inc.: See—
Milgrom, Hyman T., 4,393,879, Cl. 128-758.000.
- Milford, George N., Jr., to Du Pont de Nemours, E. I., and Company. Bead polymerization process for preparing polybenzimidazole. 4,394,500, Cl. 528-313.000.
- Milgrom, Hyman T., to Milex Products, Inc. Tissue-collecting apparatus. 4,393,879, Cl. 128-758.000.

Miller, Conrad E., to Du Pont de Nemours, E. I., and Company. Post-stretch water-dispersible subbing composition for polyester film base. 4,394,442, Cl. 430-532.000.

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Marshall, Richard A.; and Miller, Edward F., 4,393,695, Cl. 73-117.300.

Miller, Gerald O.: See—
Anderson, Charles N.; Elrod, Samuel D.; and Miller, Gerald O., 4,393,987, Cl. 228-157.000.

Miller, J. Wayne; and Simpson, Howard D., to Union Oil Company of California. Hydrodesulfurization catalyst on lithium-containing support and method for its preparation. 4,394,302, Cl. 252-465.000.

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McMurray, John H.; and Miller, Jule, 4,394,347, Cl. 420-453.000.

Miller, Paul B.; and Miller, Tony C. R. Pool cleaning apparatus. 4,393,526, Cl. 4-490.000.

Miller, Stephen J., to Chevron Research Company. Hydrocarbon conversion with crystalline silicate particle having an aluminum-containing outer shell. 4,394,251, Cl. 208-111.000.

Miller, Stephen J., to Chevron Research Company. Crystalline silicate particle having an aluminum-containing outer shell. 4,394,362, Cl. 423-328.000.

Miller, Tony C. R.: See—
Miller, Paul B.; and Miller, Tony C. R., 4,393,526, Cl. 4-490.000.

Miller, William A.: See—
Chung, Daniel C.; Miller, William A.; and Baumgaertner, Eugene R., 4,394,460, Cl. 521-92.000.

Millick, William H., III, to Hercofina. Partially hydrolyzed, DMT process residue, and useful propylene oxide derivative thereof. 4,394,286, Cl. 252-182.000.

Milliken Research Corporation: See—
Satterfield, Larry S., 4,393,725, Cl. 73-862.410.

Stokes, Jimmy L., 4,393,562, Cl. 26-200R.

Millman, William V.: See—
Mayo, Henry C.; and Millman, William V., 4,393,745, Cl. 89-1.806.

Milner, Peter H.: See—
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Beck, Warren R., 4,393,901, Cl. 138-145.000.

Brown, Harvey A.; and Huffman, William A., 4,394,070, Cl. 350-349.000.

Gatzke, Kenneth G., 4,394,433, Cl. 430-151.000.

Hogenson, Raymond A., 4,394,010, Cl. 271-22.000.

Nygard, James C.; Weiss, Melvin P.; and Larsen, Thomas E., 4,393,804, Cl. 118-60.000.

Rohloff, Robert R., 4,394,434, Cl. 430-270.000.

Smith, George H., 4,394,403, Cl. 427-42.000.

Minolta Camera Kabushiki Kaisha: See—
Hanamoto, Hiroyuki; and Horie, Yoshihiro, 4,394,088, Cl. 355-14.00R.

Irie, Yutaka; Nagata, Kenzo; and Ito, Hideo, 4,394,087, Cl. 355-14.00E.

Miracle Recreation Equipment Company: See—
Ahrens, Claude W., 4,393,812, Cl. 119-16.000.

Mirowski, Mieczyslaw: See—
Imran, Mir; and Kolenik, Steve, 4,393,877, Cl. 128-705.000.

Miskowski, Richard L.: See—
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Missouri Research Laboratories, Inc.: See—
Frees, Kenneth A.; and Quick, Thomas E., 4,394,106, Cl. 414-622.000.

Mitchell, Gordon B. Tipping trailer. 4,394,105, Cl. 414-436.000.

Mitsubishi Denki Kabushiki Kaisha: See—
Ishii, Toshiaki, 4,394,721, Cl. 363-44.000.

Kato, Masahisa; Kasugai, Syouji; and Gouda, Osamu, 4,393,801, Cl. 112-282.000.

Shima, Kenji; and Hibino, Masahiro, 4,394,536, Cl. 179-1.00G.

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Shima, Michitsune; Kihara, Shiso; Omichi, Takeo; Igarashi, Taenji; and Mangetsu, Kenji, 4,393,920, Cl. 165-11.00A.

Mitsubishi Petrochemical Company Limited: See—
Fuwa, Masaru, 4,394,338, Cl. 264-135.000.

Mitsui Aluminum Co., Ltd.: See—
Kuwahara, Kenshi, 4,394,167, Cl. 75-68.00A.

Miura, Norio: See—
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Mix, Thomas W.; and Dweck, Jay S., to Merix Corporation. Fractionating liquids. 4,394,219, Cl. 203-1.000.

Miya, Kazuhiko: See—
Sato, Kanemasa; Ueno, Sadayasu; and Miya, Kazuhiko, 4,393,697, Cl. 73-118.000.

Miyahara, Junji: See—
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Miyake, Tetsuya; Takeda, Kunihiko; Onitsuka, Hatsuki; Okuyama, Kazuo; and Shimamura, Yasuki, to Asahi Kasei Kogyo Kabushiki

Kaisha. Separation of rare earth metals using a cation exchanger. 4,394,353, Cl. 423-21.500.

Miyao, Masanobu: See—
Wada, Yasuo; Usui, Hiroo; Ohkura, Makoto; Miyao, Masanobu; Tamura, Masao; and Tokuyama, Takashi, 4,394,191, Cl. 148-33.100.

Miyazaki, Takashi: See—
Ozawa, Masakazu; Watanabe, Kunio; Matsumoto, Shigeyuki; Nishimura, Yukuo; and Miyazaki, Takashi, 4,394,669, Cl. 346-140.00R.

Miyazaki, Yoshihisa, to Nissin Kogyo Kabushiki Kaisha. Vacuum actuated type booster device. 4,393,749, Cl. 91-376.00R.

Mizokami, Kazunori, to Olympus Optical Company Ltd. Photoelectric conversion circuit. 4,394,570, Cl. 250-209.000.

Mizusawa, Akira: See—
Yuda, Takuo; and Mizusawa, Akira, 4,393,556, Cl. 24-230.00R.

Mobay Chemical Corporation: See—
Allen, Gary F., 4,394,522, Cl. 564-451.000.

Allen, Gary F., 4,394,523, Cl. 564-451.000.

Mobbs, David B.: See—
Mounsey, Diana M.; and Mobbs, David B., 4,394,357, Cl. 423-140.000.

Moberg, Gregory O., to Eastman Kodak Company. Current control apparatus for a flyback capacitor charger. 4,394,719, Cl. 363-18.000.

Mobil Oil Corporation: See—
Andress, Harry J., 4,394,135, Cl. 44-71.000.

Chu, Chin C.; and Kaeding, Warren W., 4,394,300, Cl. 252-455.00Z.

Horodysky, Andrew G.; and Kaminski, Joan M., 4,394,278, Cl. 252-46.300.

Rowe, Carleton N., 4,394,134, Cl. 44-62.000.

Savins, Joseph G.; and Melrose, James C., 4,393,934, Cl. 166-261.000.

Shen, Roderick C., 4,394,249, Cl. 208-89.000.

Modderkolk, Rutger: See—
Herwegh, Karl J.; and Modderkolk, Rutger, 4,393,558, Cl. 24-230.00R.

Modrovich, Ivan E. Stabilization of coenzymes in aqueous solution. 4,394,449, Cl. 435-188.000.

Mohr, Richard A.: See—
Berkowitz, Sidney; and Mohr, Richard A., 4,394,361, Cl. 423-321.00S.

Mohrle, Werner: See—
Dreus, Ulrich; Werner, Peter; and Mohrle, Werner, 4,393,841, Cl. 123-440.000.

Mol, Hans C.; and Byrne, LeRoy H., to Pitney Bowes Inc. Fluid supply and dispensing apparatus. 4,393,894, Cl. 137-454.000.

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Strasilla, Dieter; Moldovanyi, Laszlo; Fearnley, Charles; and Meindl, Hubert, 4,393,886, Cl. 132-7.000.

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Montalto, Anthony R.; Scerbo, Louis J.; and Starace, Jeremia P., to Bell Telephone Laboratories, Incorporated. Electrical access tool for engaging recessed test points. 4,394,620, Cl. 324-149.000.

Mooradian, Gregory C., to United States of America, Navy. Balloon collector/director sunsubscom concept. 4,394,780, Cl. 455-618.000.

Moore, Constance R. Refrigerated lip stick container. 4,393,975, Cl. 206-385.000.

Moore, James W., to Deere & Company. Rear bagger attachment for lawn mower. 4,393,645, Cl. 56-202.000.

Moore, Mae Lois: See—
Bodmin, Syd E., 4,393,811, Cl. 119-14.470.

Morand, Alfred: See—
Rostagno, Walter; and Morand, Alfred, 4,394,395, Cl. 426-285.000.

Mori, Kazuyuki: See—
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Mori, Keiichi: See—
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Morioka, Akitoshi: See—
Yoshino, Tsunemi; Kashiwara, Toshitsugu; Iwata, Hiroshi; and Morioka, Akitoshi, 4,394,077, Cl. 354-25.000.

Morisaki, Hiroshi: See—
Homma, Yoshio; Tsunekawa, Sukeyoshi; Morisaki, Hiroshi; and Harada, Seiki, 4,394,245, Cl. 204-298.000.

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Morozumi, Shinji, to Kabushiki Kaisha Suwa Seikosha. Dynamic divider circuit. 4,394,586, Cl. 377-105.000.

Morris, Hal C., to Rohm and Haas Company. Method of sizing polyester yarn. 4,394,128, Cl. 8-138.000.

Morrison, Dennis J.: See—
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Morrow, Stanley J.: See—
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Fischer, Friedrich B.; and Moser, Gottfried, 4,393,824, Cl. 123-196.0AB.

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Moser, Henry D., to Texaco Inc. System for controlling clarification of boiler feed water and the like. 4,394,261, Cl. 210-96.100.

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Jacobsen, Kenneth J.; and Moshofsky, Jerome F., 4,393,925, Cl. 165-122.000.

Mosier, Leo D. Wood roof truss construction. 4,393,637, Cl. 52-644.000.

Motorola, Inc.: See—
Borras, Jaime A.; Gonzalez, Ruben J.; Smith, Daniel M.; and Wiczorek, Alfred B., 4,394,776, Cl. 455-76.000.

Campbell, Jules D., Jr., 4,394,748, Cl. 365-104.000.

Gercekci, Anil, 4,394,750, Cl. 365-218.000.

Helda, Robert W.; deceased; Hazeltine, Cynthia, executor; and Liaw, H. Ming, 4,394,352, Cl. 422-232.000.

McKenzie, James A.; and Peterson, Joe W., 4,394,587, Cl. 307-355.000.

Winchell, Vern H., II; Scharr, Thomas A.; and Clark, Lowell E., 4,394,678, Cl. 357-68.000.

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Brown, Daniel G.; and Motsinger, Donald L., 4,394,414, Cl. 428-288.000.

Motz, Karl: See—
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Mounsey, Diana M.; and Mobbs, David B., to Interlox Chemicals Ltd. Separation of cobalt and nickel by oxidative precipitation with peroxymonosulfuric acid. 4,394,357, Cl. 423-140.000.

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Moyce, John J.: See—
Hutt, Peter R.; and Moyce, John J., 4,394,687, Cl. 358-147.000.

Mueller, Warren E.: See—
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Muller, Manfred: See—
Gotze, Gerd-Wolfgang; and Muller, Manfred, 4,394,627, Cl. 331-66.000.

Muller, Rolf: See—
Schmider, Fritz; and Muller, Rolf, 4,394,594, Cl. 310-68.00R.

Muller, Rudi; and Loser, Wolfgang, to Vesuvius International Corporation. Ladle shroud support assembly. 4,393,985, Cl. 222-591.000.

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Munchberg, Wolfgang: See—
Rosener, Karlheinz; Roeder, Alfred; Munchberg, Wolfgang; Riechardt, Herbert; and Chmiel, Max, 4,394,454, Cl. 501-112.000.

Munro, John H. Exhaust system for internal combustion engines. 4,393,652, Cl. 60-295.000.

Munsch, Paul: See—
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Munz, Johann, to Team Form AG. Arrangement for mounting a door. 4,393,623, Cl. 49-248.000.

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Sakabe, Yukio; and Nishioka, Goro, 4,394,456, Cl. 501-138.000.

Murata, Masayoshi: See—
Takaya, Takao; Takasugi, Hisashi; Murata, Masayoshi; and Yoshioka, Akiteru, 4,394,384, Cl. 424-246.000.

Murayama, Hideo: See—
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Murphy, Robert P. Floating knife assembly for a meat defatting machine. 4,393,761, Cl. 99-589.000.

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Golovanov, Alexandr V.; Eschenko, Vladislav Y.; Musae, Irsali K.; and Talibdzhanov, Zakhidzhan S., 4,394,120, Cl. 431-284.000.

Muscattell, Ralph P. Thermal and vacuum tracking carburetor jet with electronic control. 4,393,838, Cl. 123-435.000.

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Muzumdar, Deepak; Mierzwa, George A.; Sanders, Richard; and Van der Meiden, Orrie J., to Siemens Corporation. Frame format for PCM speech data in a telephone transmission system and digital telephone apparatus for use with this frame format. 4,394,757, Cl. 370-100.000.

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Nabisco Brands, Inc.: See—
Anderson, Richard J.; and Leippe, Michael M., 4,394,154, Cl. 71-92.000.

Naderhoff, Bryan A.: See—
Nelson, Donald L.; and Naderhoff, Bryan A., 4,394,497, Cl. 528-101.000.

Nagai, Kunio: See—
Amano, Toshio; Nagai, Kunio; and Honma, Juri, 4,394,691, Cl. 358-194.100.

Nagakura, Masahiko: See—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,394,382, Cl. 424-283.000.

Naganawa, Hiroshi: See—
Umezawa, Hamao; Shimada, Nobuyoshi; Naganawa, Hiroshi; Takita, Tomohisa; Hamada, Masa; and Takeuchi, Tomio, 4,394,446, Cl. 435-88.000.

Nagano, Genzo; and Takahashi, Masao, to Fujitsu Limited. Error-correcting system. 4,394,763, Cl. 371-38.000.

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Irie, Yutaka; Nagata, Kenzo; and Ito, Hideo, 4,394,087, Cl. 355-14.00E.

Nagata, Wataru: See—
Kamata, Susumu; and Nagata, Wataru, 4,394,505, Cl. 544-91.000.

Nagelkerke, Petrus J. J., to U.S. Philips Corporation. Dry-shaving apparatus with hair-trimming means. 4,393,585, Cl. 30-34.100.

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Naito, Mitsuo. Air-cooled cables with terminals and method of producing same. 4,394,533, Cl. 174-74.00R.

Naito, Tadashi, to Toyota Jidosha Kabushiki Kaisha. Apparatus and method for detecting crank shaft orientation and valve assembly in an internal combustion engine. 4,393,693, Cl. 73-116.000.

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Kamachi, Hajime; Okumura, Jun; Naito, Takayuki; and Oka, Masahisa, 4,394,503, Cl. 544-25.000.

Naka, Motohiko: See—
Yoshida, Kunio; Kotera, Hiroaki; Tsuda, Yukifumi; Kanno, Yoshimitsu; and Naka, Motohiko, 4,394,662, Cl. 346-33.00R.

Nakamura, Kazuo, to Asahi Kogyo Kogyo Kabushiki Kaisha. Focus detecting method and apparatus. 4,394,569, Cl. 250-204.000.

Nakamura, Michio: See—
Komatsu, Shigeru; and Nakamura, Michio, 4,394,436, Cl. 430-311.000.

Nakano, Junji: See—
Shimamura, Tadao; Nakano, Junji; and Seo, Yasufumi, 4,394,336, Cl. 264-109.000.

Nakata, Yukihiko: See—
Takeda, Mikio; Kakiwara, Yoshinobu; Yoshida, Masaru; and Nakata, Yukihiko, 4,394,601, Cl. 313-509.000.

Nakatsu, Yoshinobu, to Hitachi, Ltd. Card reading apparatus. 4,394,568, Cl. 235-475.000.

Nakayama, Shigeru: See—
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadashi; and Nakayama, Shigeru, 4,394,427, Cl. 430-68.000.

Nakayama, Tadashi: See—
Harase, Jiro; and Nakayama, Tadashi, 4,394,188, Cl. 148-12.0EA.

Naki, Minoru: See—
Satoh, Shingo; Inoue, Takashi; Naki, Minoru; and Kawauchi, Yuji, 4,394,165, Cl. 75-60.000.

Napco, Inc.: See—
Scanlon, George R., 4,394,241, Cl. 204-198.000.

Nappholz, Tibor A.; Hinch, Barry; and Shaw, David B., to Teletronics Pty. Ltd. Bradycardia event counting and reporting pacer. 4,393,874, Cl. 128-419.0PT.

Narasaka, Shin: See—
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,393,842, Cl. 123-440.000.

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Nation, Robert H.: See—
Anderson, Forest L.; and Nation, Robert H., 4,393,656, Cl. 60-618.000.

National Institute of Radiological Sciences: See—
Tanaka, Eiichi; Nohara, Norimasa; Murayama, Hideo; Ishimatsu, Kenji; Ogushi, Akira; and Takami, Katsumi, 4,394,576, Cl. 250-366.000.

National Research Development Corporation: See—
Green, Geoffrey W.; and Lettington, Alan H., 4,394,400, Cl. 427-38.000.

National Semiconductor Corporation: See—
Dunkley, James L.; and Dobkin, Robert C., 4,393,575, Cl. 29-571.000.

Nava, Louis J.; and Ewing, Neal L., to Foremost-McKesson, Inc. Process for producing dry discrete agglomerated garlic and onion and resulting products. 4,394,394, Cl. 426-285.000.

- Navarro, Ramon. Method for attaching wooden forms to a concrete surface. 4,393,568, Cl. 29-432.000.
- Nawash, Michael S.; Stillman, Suzanne; and Mason, Robert S. Gastrostomy and other percutaneous transport tubes. 4,393,873, Cl. 604-151.000.
- NCR Canada Ltd. - NCR Canada Ltee: See—
Osmers, Miroslav S.; and Brooks, Ralf M., 4,394,092, Cl. 400-120.000.
- NCR Corporation: See—
Armstrong, Rolfe D., 4,394,729, Cl. 364-200.000.
- Nederlandse Pillo-Pak Maatschappij B.V.: See—
Herwegh, Karl J.; and Modderkolk, Rutger, 4,393,558, Cl. 24-230.00R.
- Nelson, Conrad E.: See—
Kenyon, S. Wayne; Geyer, Bernard H., Jr.; and Nelson, Conrad E., 4,394,630, Cl. 333-116.000.
- Nelson, Donald L.; and Naderhoff, Bryan A., to Dow Chemical Company. The Solid materials prepared from epoxy resins and phenolic hydroxyl-containing materials. 4,394,497, Cl. 528-101.000.
- Nelson, Gerald V.: See—
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- Nelson, Loren D., to Ophir Corporation. Apparatus for measuring vapor density, gas temperature, and saturation ratio. 4,394,575, Cl. 250-343.000.
- Nero, Leroy W., to RCA Corporation. Television receiver high voltage generator. 4,394,722, Cl. 363-68.000.
- Neukirch, Edward O.: See—
Fallon, William H.; Schober, William R.; Neukirch, Edward O.; and Kirby, Donald W., 4,394,611, Cl. 320-21.000.
- Nicastro, Norman J. Combination visor and sweatband. 4,393,519, Cl. 2-12.000.
- Nicholas, Keith H., to U.S. Philips Corporation. Methods of manufacturing a semiconductor device having a channel region spaced inside channel stoppers. 4,394,181, Cl. 148-1.500.
- Nicolas, Edgar, to Solvay & Cie. Cathode for the electrolytic production of hydrogen. 4,394,231, Cl. 204-129.000.
- Nieboer, Gerrit, to U.S. Philips Corporation. Play-free hook-type connection. 4,394,054, Cl. 312-7.200.
- Niedecker, Herbert. Device for closing gathered ends of wrappers with U-shaped clips. 4,393,641, Cl. 53-138.00A.
- Nielsen, Eyvind S.: See—
Pedersen, Niels R.; and Nielsen, Eyvind S., 4,393,815, Cl. 122-31.00R.
- Niezgoda, Thomas A.; and Oppenheimer, Carl P., to Wurlitzer Company, The. Programmable tone generator. 4,393,740, Cl. 84-1.010.
- Nifco, Inc.: See—
Yuda, Takuo; and Mizusawa, Akira, 4,393,556, Cl. 24-230.00R.
- Nihon Den-Nitsu Keiki Co., Ltd.: See—
Kondo, Kenshi, 4,393,525, Cl. 4-420.200.
- Nihon Nosan Kogyo K.K.: See—
Kamimae, Hiroshi; and Ishikawa, Tadashi, 4,394,376, Cl. 424-150.000.
- Ninomiya, Ichiro; and Takayama, Jun, to Sony Corporation. Tape synchronizing apparatus. 4,394,694, Cl. 360-14.300.
- Nippon Denso Company Limited: See—
Kono, Hiroya; Hasegawa, Jun; Inagaki, Mitsukane; and Kobayashi, Hisao, 4,393,966, Cl. 192-56.00R.
- Nippon Electric Co., Ltd.: See—
Hara, Michio; Tomimori, Akinobu; and Hara, Hiroshi, 4,394,542, Cl. 179-81.00B.
- Sakuma, Hiraoku; and Suzuki, Toshiyuki, 4,394,674, Cl. 357-23.000.
- Yoshida, Kazunori, 4,394,713, Cl. 361-433.000.
- Nippon Gakki Seizo Kabushiki Kaisha: See—
Wachi, Masatada, 4,393,742, Cl. 84-1.230.
- Wachi, Masatada, 4,393,743, Cl. 84-1.230.
- Nippon Kogaku K.K.: See—
Wakamiya, Koichi, 4,394,073, Cl. 350-465.000.
- Nippon Kokan Kabushiki Kaisha: See—
Nomura, Hirokazu; Sugitani, Yuji; and Suzuki, Yasuo, 4,394,559, Cl. 219-125.120.
- Tamura, Manabu; Kamemura, Yoshiki; and Handa, Masao, 4,393,677, Cl. 72-97.000.
- Nippon Oil and Fats Company, Limited: See—
Sawaoka, Akira; Araki, Masatada; Saito, Shinroku; and Akashi, Tamotsu, 4,394,170, Cl. 75-233.000.
- Takeuchi, Fumio; and Takahashi, Masao, 4,394,198, Cl. 149-21.000.
- Ujikawa, Norihisa; and Fukushi, Kyosuke, 4,394,480, Cl. 525-43.000.
- Nippon Piston Ring Co., Ltd.: See—
Urano, Shigeru, 4,393,821, Cl. 123-195.00C.
- Nippon Seiko Kabushiki Kaisha: See—
Tukamoto, Masahiro, 4,393,995, Cl. 242-107.40A.
- Nippon Sheet Glass Co. Ltd.: See—
Fujioka, Akira; Sakiyama, Kazuo; Takigawa, Akio; and Yoshida, Motoaki, 4,394,177, Cl. 106-287.140.
- Nippon Soken, Inc.: See—
Kohama, Tokio; Obayashi, Hideki; Kawai, Hisasi; and Egami, Tsuneyuki, 4,393,702, Cl. 73-204.000.
- Nishida, Minoru; Hattori, Tadashi; and Tanaka, Akira, 4,393,850, Cl. 123-536.000.
- Nippon Steel Corporation: See—
Furukawa, Takashi; and Koyama, Kazuo, 4,394,186, Cl. 148-12.00F.
- Harase, Jirou; and Nakayama, Tadashi, 4,394,188, Cl. 148-12.0EA.
- Sato, Shingo; Inoue, Takashi; Naki, Minoru; and Kawauchi, Yuji, 4,394,165, Cl. 75-60.000.
- Nippon Telecommunication Engineering Company: See—
Asano, Kiyomitsu; Jozuka, Masao; and Kondo, Toshikatsu, 4,394,093, Cl. 400-124.000.
- Nippon Telegraph & Telephone Public Corp.: See—
Imai, Kazuo, 4,393,577, Cl. 29-576.00B.
- Kato, Kotaro; and Sakurai, Tetsuma, 4,393,573, Cl. 29-571.000.
- Nippondenso Co., Ltd.: See—
Terazawa, Hidehito, 4,394,605, Cl. 318-280.000.
- Nishida, Minoru; Hattori, Tadashi; and Tanaka, Akira, to Nippon Soken, Inc. Ignition system for internal combustion engines. 4,393,850, Cl. 123-536.000.
- Nishihara, Toshio: See—
Yamamoto, Hideomi; Watanabe, Haruzo; Kishie, Hidehiko; and Nishihara, Toshio, 4,394,412, Cl. 428-174.000.
- Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiyo; and Nakayama, Shigeru, to Olympus Optical Company Limited. Electrophotographic sensitizing screen with peripherally clogged apertures. 4,394,427, Cl. 430-68.000.
- Nishikawa, Masaji, to Olympus Optical Company Limited. Method for printing a plurality of duplicated copies from the same electrostatic charge latent image. 4,394,432, Cl. 430-120.000.
- Nishimura, Yukuo: See—
Ozawa, Masakazu; Watanabe, Kunio; Matsumoto, Shigeyuki; Nishimura, Yukuo; and Miyazaki, Takashi, 4,394,669, Cl. 346-140.00R.
- Nishioka, Goro: See—
Sakabe, Yukio; and Nishioka, Goro, 4,394,456, Cl. 501-138.000.
- Nissan Motor Co., Ltd.: See—
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,897, Cl. 137-831.000.
- Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,898, Cl. 137-831.000.
- Kataoka, Ryuji, 4,393,839, Cl. 123-440.000.
- Kishida, Katsuhiko; Mekuchi, Yutaka; Hirao, Sumio; and Date, Hirohiko, 4,394,560, Cl. 219-137.0WM.
- Sato, Yoshimi, 4,394,035, Cl. 280-804.000.
- Sugihara, Kunihiko; and Onoda, Michio, 4,393,837, Cl. 123-425.000.
- Suzuki, Kouichi; and Mori, Kazuyuki, 4,394,739, Cl. 364-426.000.
- Suzuki, Tadashi; and Kishi, Norimasa, 4,393,732, Cl. 74-866.000.
- Nissin Kogyo Kabushiki Kaisha: See—
Miyazaki, Yoshihisa, 4,393,749, Cl. 91-376.00R.
- Nivin, James E., to American Commercial Barge Line Co. Method of protecting contents of a barge while in transit. 4,393,888, Cl. 114-201.00R.
- Nix, Paul T.; Santoro, Janet M.; and Stephens, Joyce E. Enzymatic glyceride hydrolysis. 4,394,445, Cl. 435-19.000.
- NL Industries, Inc.: See—
Hoff, Michael H., 4,394,273, Cl. 252-8.55R.
- NL Sperry Sun, Inc.: See—
Powell, Steven W.; and Stockton, James G., 4,393,598, Cl. 33-302.000.
- Noguchi, Takeshi: See—
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- Nohara, Norimasa: See—
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- Nolden, Werner, to American Standard Inc. Tub filling and shower valve. 4,393,523, Cl. 4-192.000.
- Nolker, Dieter: See—
Maurer, Alexander; Adrian, Renate; Panter, Herbert; Heymer, Gero; and Nolker, Dieter, 4,394,358, Cl. 423-305.000.
- Nolte, Kenneth G.; and Smith, Michael B., to Standard Oil Company (Indiana). Determination of maximum fracture pressure. 4,393,933, Cl. 166-250.000.
- Nomura, Hirokazu; Sugitani, Yuji; and Suzuki, Yasuo, to Nippon Kokan Kabushiki Kaisha. Arc welding method. 4,394,559, Cl. 219-125.120.
- Nomura, Noboru: See—
Kaminaka, Nobuyuki; Kanai, Kenji; Nouchi, Norimoto; and Nomura, Noboru, 4,394,699, Cl. 360-113.000.
- Nordstjernan AB: See—
Samuel, Olof; and Hellemaa, Heikki, 4,393,832, Cl. 123-327.000.
- Norgren, Kent S.; and Vogelsberg, Robert E., to International Business Machines Corp. Programmable peripheral processing controller. 4,394,734, Cl. 364-200.000.
- Norprint International: See—
Figg, Anthony V. J., 4,393,774, Cl. 101-288.000.
- Norsk Hydro A.S.: See—
Rasmussen, Odd F., 4,393,910, Cl. 150-12.000.
- Northern Telecom, Inc.: See—
Higuera, Robert S.; and Ryan, John F., 4,394,123, Cl. 432-253.000.
- Nouchi, Norimoto: See—
Kaminaka, Nobuyuki; Kanai, Kenji; Nouchi, Norimoto; and Nomura, Noboru, 4,394,699, Cl. 360-113.000.
- Nowack, Gerhard P.; Johnson, Marvin M.; and Tabler, Donald C., to Phillips Petroleum Company. Hydrogenation catalyst. 4,394,298, Cl. 252-438.000.
- Nowack, Gerhard P.: See—
Kukes, Semyon; Nowack, Gerhard P.; and Johnson, Marvin M., 4,394,255, Cl. 585-667.000.

- Nuez, Jean-Paul J.: See—
Grandguillot, Michel J.; Mollier, Pierre B.; and Nuez, Jean-Paul J., 4,394,747, Cl. 365-104.000.
- Nuzillat, Gerard: See—
Pham, Ngu T.; and Nuzillat, Gerard, 4,394,589, Cl. 307-450.000.
- Nygard, James C.; Weiss, Melvin P.; and Larsen, Thomas E., to Minnesota Mining and Manufacturing Company. Apparatus for removing toner from and applying offset preventive liquid to a fixing roller. 4,393,804, Cl. 118-60.000.
- Oak Industries Inc.: See—
Konicek, Jiri K., 4,394,419, Cl. 428-416.000.
- Larson, Willis A., 4,394,547, Cl. 200-5.00A.
- Obayashi, Hideki: See—
Kohama, Tokio; Obayashi, Hideki; Kawai, Hisasi; and Egami, Tsuneyuki, 4,393,702, Cl. 73-204.000.
- Obermayer, Bertram; Skatsche, Othmar; and Greier, Josef, to List, Hans. Water-cooled, multi-cylinder internal combustion engine. 4,393,822, Cl. 123-195.00R.
- O'Boyle, Dolores; and Shonk, Phyllis, to International Playtex, Inc. Brassiere. 4,393,875, Cl. 128-425.000.
- Ocean B.V.: See—
Snoek, Govert J.; and Tuil, William J., 4,393,891, Cl. 137-238.000.
- O'Connell, Daniel J.: See—
Gibler, David L.; and O'Connell, Daniel J., 4,393,997, Cl. 244-135.00R.
- O'Dell, Leonard J., to Allis-Chalmers Corporation. Protective spark eliminating system for a filter baghouse. 4,394,143, Cl. 55-261.000.
- O'Donnell, Brian F. Processing of sea urchins. 4,393,545, Cl. 17-76.000.
- O'Dwyer, Michael: See—
Yeomans, David; Wilkinson, Christopher J.; McCartney, Damien; and O'Dwyer, Michael, 4,394,685, Cl. 358-264.000.
- Oelke, Erwin S., to Smith International, Inc. High-speed seal. 4,394,020, Cl. 277-1.000.
- Oertle, Donald H.: See—
Peterson, Marvin L.; Hein, Norman W., Jr.; and Oertle, Donald H., 4,394,577, Cl. 250-372.000.
- Office National d'Etudes et de Recherches Aeronautiques: See—
Bernard, Alain M., 4,393,710, Cl. 73-517.00B.
- Ogasa, Tatsuo, to Agency of Industrial Science & Technology. Porous composite material and process for preparing same. 4,394,457, Cl. 521-54.000.
- Ogushi, Akira: See—
Tanaka, Eiichi; Nohara, Norimasa; Murayama, Hideo; Ishimatsu, Kenji; Ogushi, Akira; and Takami, Katsumi, 4,394,576, Cl. 250-366.000.
- Ohkura, Makoto: See—
Wada, Yasuo; Usui, Hiroo; Ohkura, Makoto; Miyao, Masanobu; Tamura, Masao; and Tokuyama, Takashi, 4,394,191, Cl. 148-33.100.
- Ohta, Hiroaki: See—
Tarumi, Noriyoshi; Tsuchiya, Hiroshi; Kokiso, Masakazu; and Ohta, Hiroaki, 4,394,340, Cl. 264-219.000.
- Ohta, Masayuki: See—
Okamoto, Tadaomi; Ohta, Masayuki; and Watanabe, Makoto, 4,394,772, Cl. 378-182.000.
- Ohtani, Hiroo; and Watanabe, Seiichi, to Sumitomo Metal Industries, Ltd. Method of making steels which are useful in fabricating pressure vessels. 4,394,187, Cl. 148-12.00F.
- Oka, Masahisa: See—
Kamachi, Hajime; Okumura, Jun; Naito, Takayuki; and Oka, Masahisa, 4,394,503, Cl. 544-25.000.
- Okabe, Yousuke; and Shoji, Osamu, to Honda Giken Kogyo Kabushiki Kaisha. Carburetor. 4,394,331, Cl. 261-18.00B.
- Okamoto Manufacturing Co., Ltd.: See—
Okamoto, Tadaomi; Ohta, Masayuki; and Watanabe, Makoto, 4,394,772, Cl. 378-182.000.
- Okamoto, Tadaomi; Ohta, Masayuki; and Watanabe, Makoto, to Okamoto Manufacturing Co., Ltd. Radiographic cassette. 4,394,772, Cl. 378-182.000.
- Okumoto, Kiyohumi: See—
Hashimoto, Takeji; Okumoto, Kiyohumi; and Andoh, Masayasu, 4,393,670, Cl. 66-75.200.
- Okumura, Jun: See—
Kamachi, Hajime; Okumura, Jun; Naito, Takayuki; and Oka, Masahisa, 4,394,503, Cl. 544-25.000.
- Okuyama, Kazuo: See—
Miyake, Tetsuya; Takeda, Kunihiko; Onitsuka, Hatsuki; Okuyama, Kazuo; and Shimamura, Yasuki, 4,394,353, Cl. 423-21.500.
- Olah, George A. Liquefaction of coals using recyclable superacid catalyst. 4,394,247, Cl. 208-10.000.
- Oliapuram, Antony: See—
von Alpen, Ulrich; Brautigam, Reinhard; and Oliapuram, Antony, 4,394,280, Cl. 252-62.200.
- Olin Corporation: See—
Gray, Thomas J., 4,394,228, Cl. 204-98.000.
- Olmer, Jaroslav J., to Textron, Inc. Top sharpening chain. 4,393,739, Cl. 83-834.000.
- Olsen, Charles R. Revolving firearms and ammunition therefor. 4,393,782, Cl. 102-446.000.
- Olson, Carl G. Web securing device. 4,393,915, Cl. 160-395.000.
- Olson, Donald L., to Tennant Company. Scrubber with foam and spray suppressor. 4,393,538, Cl. 15-320.000.
- Oltmanns, Roger W., Jr.; and Portolese, Larry A., to Bendix Corporation. The Disc brake caliper support. 4,393,963, Cl. 188-73.450.
- Olympus Optical Company Ltd.: See—
Mizokami, Kazunori, 4,394,570, Cl. 250-209.000.
- Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiyo; and Nakayama, Shigeru, 4,394,427, Cl. 430-68.000.
- Nishikawa, Masaji, 4,394,432, Cl. 430-120.000.
- Omichi, Takeo: See—
Shima, Michitsune; Kihara, Shiso; Omichi, Takeo; Igarashi, Taenji; and Mangetsu, Kenji, 4,393,920, Cl. 165-11.00A.
- Onitsuka, Hatsuki: See—
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- Ono, Yoshihiro: See—
Kawaguchi, Hideo; Inayama, Takayuki; Takimoto, Masaaki; and Ono, Yoshihiro, 4,394,441, Cl. 430-524.000.
- Onoda, Michio: See—
Sugihara, Kunihiko; and Onoda, Michio, 4,393,837, Cl. 123-425.000.
- Onoda, Tadayuki: See—
Maruyama, Teruo; Onoda, Tadayuki; and Taguchi, Tatsuhiro, 4,394,114, Cl. 418-269.000.
- Ophir Corporation: See—
Nelson, Loren D., 4,394,575, Cl. 250-343.000.
- Oppenheimer, Carl P.: See—
Niezgoda, Thomas A.; and Oppenheimer, Carl P., 4,393,740, Cl. 84-1.010.
- Optimetrix Corporation: See—
Phillips, Edward H., 4,393,727, Cl. 74-209.000.
- Orbanes, Philip; and Cooper, Julius, to Ideal Toy Corporation. Electronic logic game. 4,394,018, Cl. 273-237.000.
- Orobin, Edwin H. Collapsible tent frame. 4,393,887, Cl. 135-109.000.
- Osmers, Miroslav S.; and Brooks, Ralf M., to NCR Canada Ltd. - NCR Canada Ltee. Method and apparatus for high speed thermal printing. 4,394,092, Cl. 400-120.000.
- Osrow, Harold; and Araujo, Armando A., to Osrow Products Company, Inc. Disposable foil broiling sheet. 4,394,410, Cl. 428-43.000.
- Osrow Products Company, Inc.: See—
Osrow, Harold; and Araujo, Armando A., 4,394,410, Cl. 428-43.000.
- Osterholm, Jewell L., to Thomas Jefferson University. Extravascular circulation of oxygenated synthetic nutrients to treat tissue hypoxic and ischemic disorders. 4,393,863, Cl. 128-1.00R.
- Otake, Mituyoshi: See—
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- Otsuka, Kazutoshi: See—
Tanaka, Hideki; and Otsuka, Kazutoshi, 4,393,840, Cl. 123-440.000.
- Otsuki, Yoichi: See—
Furukawa, Hideo; Chikugo, Kazuo; and Otsuki, Yoichi, 4,393,823, Cl. 123-196.00M.
- Ottman, John C.; and Shen, John C. S., to International Business Machines Corporation. Fixed abrasive polishing method and apparatus. 4,393,628, Cl. 51-281.05F.
- Oudenhoven, Martin S., to United States of America, Interior. Method of hydrosplalling. 4,394,051, Cl. 299-16.000.
- Outboard Marine Corporation: See—
Poehlman, Arthur G., 4,393,848, Cl. 123-525.000.
- Outokumpu Oy: See—
Makinen, Juho K.; and Kaenninen, Kaarina M. E., 4,394,164, Cl. 75-21.000.
- Overlach, Knud: See—
Pietzsch, Ludwig; Overlach, Knud; and Wamser, Manfred, 4,393,698, Cl. 73-118.000.
- Owen, Wickersham & Erickson: See—
Lindberg, John E., 4,393,817, Cl. 123-3.000.
- Owens-Corning Fiberglass Corporation: See—
Grossi, Anthony V.; Hagelee, Leon A.; Hahn, Louis T.; and Marzocchi, Alfred, 4,394,481, Cl. 525-54.500.
- Uffner, William E., 4,394,482, Cl. 525-54.500.
- Owens-Illinois, Inc.: See—
Ryan, William H., 4,394,148, Cl. 65-159.000.
- Willingham, Wendell D., 4,393,977, Cl. 215-211.000.
- Owens, Kenneth B.: See—
Dilgren, Richard E.; and Owens, Kenneth B., 4,393,937, Cl. 166-272.000.
- Oy Warstila AB: See—
Samuel, Olof; and Hellemaa, Heikki, 4,393,832, Cl. 123-327.000.
- Ozawa, Masakazu; Watanabe, Kunio; Matsumoto, Shigeyuki; Nishimura, Yukuo; and Miyazaki, Takashi, to Canon Kabushiki Kaisha. Liquid jet recording apparatus. 4,394,669, Cl. 346-140.00R.
- P.L.G. Research Limited: See—
Mercer, Frank B., 4,394,342, Cl. 264-292.000.
- Pako Corporation: See—
Simning, Robert A.; and Schultz, Michael E., 4,394,094, Cl. 400-124.000.
- Palmer, Bryan H.: See—
Copping, Leonard G.; Kerry, John C.; Watkins, Thomas I.; Willis, Robert J.; and Palmer, Bryan H., 4,394,387, Cl. 424-300.000.
- Palomar Systems & Machines, Inc.: See—
Braden, Denver, 4,393,808, Cl. 118-503.000.

Panter, Herbert: *See—*
Maurer, Alexander; Adrian, Renate; Panter, Herbert; Heymer, Gero; and Nolker, Dieter, 4,394,358, Cl. 423-305.000.

Pantzar, Glenn G. E., to Santrade Ltd. Saw guide bar, 4,393,590, Cl. 30-387.000.

Papahadjopoulos, Demetrios P.: *See—*
Szoka, Francis C., Jr.; and Papahadjopoulos, Demetrios P., 4,394,149, Cl. 71-28.000.

Szoka, Francis C., Jr.; and Papahadjopoulos, Demetrios P., 4,394,448, Cl. 435-172.000.

Pape, Heinz; Quella, Ferdinand; and Krueger, Hans, to Siemens Aktiengesellschaft. Fluorescently activated display device with improved sensitivity, 4,394,068, Cl. 350-345.000.

Papst-MOTOREN KG: *See—*
Schmider, Fritz; and Muller, Rolf, 4,394,594, Cl. 310-68.00R.

Parfitt, Rick: *See—*
Warren, Ben; White, George M.; Parfitt, Rick; and Deng, Peter, 4,394,538, Cl. 179-1.0SD.

Park, Chan H.: *See—*
Galkin, Benjamin M.; Boon, Raymond; Gilliam, Rudolph V.; and Park, Chan H., 4,393,864, Cl. 128-1.100.

Park, Sang-Woo, to Korea Advanced Institute of Science and Technology. The Process for preparing ethyl α -chloroethyl carbonate, 4,394,233, Cl. 204-158.0HA.

Parker Hannifin Corporation: *See—*
Sharp, Bernard C., 4,394,066, Cl. 350-307.000.

Pataki, Andrew B., to Sperry Corporation. Long stroke linear actuator, 4,394,592, Cl. 310-12.000.

Patry, Jean. Melting latent-heat heat or cold exchanger-storage device, 4,393,918, Cl. 165-10.000.

Pavlic, John C., to C-Cor Electronics, Inc. Radio frequency choke and method of use, 4,394,631, Cl. 333-132.000.

Payer, Wolfgang: *See—*
Hobes, Victor J.; and Payer, Wolfgang, 4,394,483, Cl. 525-60.000.

Pearson, Stephen, to Baxter Travenol Laboratories, Inc. Universal administration port, 4,393,909, Cl. 150-8.000.

Peblar, Alfred R., to Westinghouse Electric Corp. Combined sulfur oxide/oxygen measuring apparatus, 4,394,240, Cl. 204-412.000.

Peck, Robert E.; and Zagranski, Raymond D., to Chandler Evans Inc. Fuel control method and apparatus, 4,393,651, Cl. 60-39.281.

Pecor Corporation: *See—*
Damerou, Herbert R., 4,394,272, Cl. 210-779.000.

Pedersen, Niels R.; and Nielsen, Eyvind S. Heating plant, 4,393,815, Cl. 122-31.00R.

Peemoller, Horst: *See—*
Weiss, Hermann; Klotz, Erhard; Peemoller, Horst; Linde, Rolf; and Mauser, Wilfried, 4,394,063, Cl. 350-162.130.

Peeters, Hugo K., to Agfa-Gevaert, N.V. Recording material for storage of digital information and a recording method for storage of digital information, 4,394,661, Cl. 346-1.100.

Peisel, William E.: *See—*
Long, Nicholas R.; Peisel, William E.; Ryan, Joseph L.; and Watkins, Richard R., 4,394,650, Cl. 340-728.000.

Pelly, L. Ronald. Shape memory element engine, 4,393,654, Cl. 60-527.000.

Pelta, Edmond R.: *See—*
Crummer, Marvin R.; Gold, Kenneth S.; Johnson, David G.; Vandermeiden, Tom R.; and Pelta, Edmond R., 4,394,742, Cl. 364-487.000.

Penn Engineering & Manufacturing Corp.: *See—*
Hansen, David M.; and Ernest, Richard B., 4,393,684, Cl. 72-451.000.

Pennebaker, William B.: *See—*
Landon, Alfred J.; Pennebaker, William B.; and Wang, Han C., 4,393,769, Cl. 101-93.300.

Penner, Horst: *See—*
Brede, Uwe; and Penner, Horst, 4,393,779, Cl. 102-202.500.

Pennino, Frank L.: *See—*
Kuenzig, Ernest O.; and Pennino, Frank L., 4,394,116, Cl. 425-192.00R.

Pennwalt Corporation: *See—*
Adams, Richard G., 4,394,184, Cl. 148-6.15R.

Penzel, Hans-Joerg, to Siemens Aktiengesellschaft. Integrated memory module having selectable operating functions, 4,394,753, Cl. 365-236.000.

Pereira, Dennis: *See—*
Weissman, Sherman M.; Pereira, Dennis; and Sood, Ashwani, 4,394,443, Cl. 435-6.000.

Pereyre, Michel; and Pommier, Jean-Claude, to Societe Nationale Elf Aquitaine. Synthesis of stannic tetra mercaptides, 4,394,320, Cl. 260-429.700.

Perlstein, Jerome H.: *See—*
Van Allan, James A.; Perlstein, Jerome H.; Reynolds, George A.; and Goliber, Thomas E., 4,394,428, Cl. 430-83.000.

Perrien, Frank A. Wire splicing tool, 4,393,905, Cl. 140-118.000.

Perrone, Francesco: *See—*
De Angelis, Giancarlo; Catastini, Alberto; Bassi, Aldo; Rogora, Edoardo; Radaelli, Dario; Bertoloni, Luciano; and Perrone, Francesco, 4,393,836, Cl. 123-417.000.

Perry, Thomas J.: *See—*
Comfort, Joseph A.; Perry, Thomas J.; and Loos, Michel, 4,394,728, Cl. 364-200.000.

Persson, Arne. Feeding device, 4,393,609, Cl. 37-238.000.

Pertsch, Heinrich: *See—*
Ertl, Wilhelm; Lachmann, Ulrich; and Pertsch, Heinrich, 4,394,190, Cl. 148-31.550.

Petersen, Wallace C., to Du Pont de Nemours, E. I., and Company. Process of preparing aromatic aldehydes by reacting selected aromatic compounds with formamidine acetate and an organic acid anhydride, 4,394,314, Cl. 260-391.000.

Peterson Associates, Ltd.: *See—*
Peterson, Carl R., 4,393,949, Cl. 175-377.000.

Peterson, Carl R., to Peterson Associates, Ltd. Rock boring apparatus, 4,393,949, Cl. 175-377.000.

Peterson, Jerald G. Measuring device, 4,393,601, Cl. 33-494.000.

Peterson, Joe W.: *See—*
McKenzie, James A.; and Peterson, Joe W., 4,394,587, Cl. 307-355.000.

Peterson, Marvin L.; Hein, Norman W., Jr.; and Oertle, Donald H., to Conoco Inc. Displacement measurement device and method, 4,394,577, Cl. 250-372.000.

Petroons, Jose O. G., to U.S. Philips Corporation. Wound bobbin coil apparatus, 4,394,637, Cl. 336-192.000.

Peuser, Michael F.; and Bartolo, Jose B. Recuperation of cyanides from rinsing solutions of cyanidic processes for electrodeposition of metals, 4,394,356, Cl. 423-43.000.

Pezzei, Friedbert: *See—*
Aste, Christian, 4,394,173, Cl. 104-69.000.

Pfeiffer, Ronald E.; and DeMaria, Francesco, to American Cyanamid Company. Process for preparing open structure fibers, 4,394,339, Cl. 264-177.00F.

Pfeil, Janice L.: *See—*
Kukulja, Stjepan; and Pfeil, Janice L., 4,394,313, Cl. 260-245.400.

Pfloh, Rolf: *See—*
Bickle, Wolfgang; Funke, Rolf; and Pfloh, Rolf, 4,394,275, Cl. 252-12.000.

Pham, Ngu T.; and Nuzillat, Gerard, to Thomson-CSF. Logic circuit including at least one resistor or one transistor having a saturable resistor field effect transistor structure, 4,394,589, Cl. 307-450.000.

Phelps Dodge Industries, Inc.: *See—*
Hilker, George D., 4,393,809, Cl. 118-620.000.

Hilker, George D., 4,394,417, Cl. 428-383.000.

Phillips, Edward H., to Optimetrix Corporation. Friction drive, 4,393,727, Cl. 74-209.000.

Phillips Petroleum Company: *See—*
Casperson, John R., 4,393,603, Cl. 34-39.000.

Cheng, Paul J., 4,394,350, Cl. 422-150.000.

Gardner, Lloyd E., 4,394,301, Cl. 252-455.00Z.

Hawley, Gil R., 4,394,291, Cl. 252-429.00B.

Kolts, John H., 4,394,297, Cl. 252-437.000.

Kukes, Semyon; Nowack, Gerhard P.; and Johnson, Marvin M., 4,394,255, Cl. 585-667.000.

Lowery, Richard E.; Gordon, Bruce W.; and Steger, Barry N., 4,394,323, Cl. 260-446.000.

Mark, Harold W.; Bertus, Brent J.; and Roberts, John S., 4,394,324, Cl. 260-446.000.

Nowack, Gerhard P.; Johnson, Marvin M.; and Tabler, Donald C., 4,394,298, Cl. 252-438.000.

Phillips Plastics Corp.: *See—*
Wollar, Burnell J.; and Schwind, Richard J., 4,393,551, Cl. 24-213.00R.

Phillips Temro, Inc.: *See—*
Gorans, Marc S., 4,393,851, Cl. 123-557.000.

Picard, Jean-Francois; and Jacquard, Paul, to Societe D'Applications Generales. Stabilized sighting devices for vehicles, 4,393,597, Cl. 33-275.00G.

Pickett, Fred E. Gun rest, 4,393,614, Cl. 42-94.000.

Pierre Guerin S.A.: *See—*
Quillou, Guy, 4,393,759, Cl. 99-459.000.

Pietzsch, Ludwig; Overlach, Knud; and Wamser, Manfred, to Pietzsch, Ludwig. Device for measuring hollow cylinder surfaces, 4,393,698, Cl. 73-118.000.

Pissiotas, Georg; and Rempfler, Hermann, to Ciba-Geigy Corporation. Pyridyl-2-oxyphenyloxime derivatives and their use as herbicides, 4,394,157, Cl. 71-94.000.

Pissiotas, Georg; and Rempfler, Hermann, to Ciba-Geigy Corporation. Pyridyl-2-oxyphenyloxime derivatives, and their use as herbicides, 4,394,158, Cl. 71-94.000.

Pissiotas, Georg: *See—*
Rohr, Otto; Pissiotas, Georg; Bohner, Beat; and Burdeska, Kurt, 4,394,327, Cl. 260-455.00R.

Pisters, Michael G. H.: *See—*
Werner, Marcel A.; Venema, Arnold; and Pisters, Michael G. H., 4,394,470, Cl. 524-56.000.

Pitney Bowes Inc.: *See—*
Mol, Hans C.; and Byrne, LeRoy H., 4,393,894, Cl. 137-454.000.

Pizzi, Giacomo: *See—*
Camerini, Mario; and Pizzi, Giacomo, 4,394,104, Cl. 414-276.000.

Plant, Howard L.; Cantor, Steven E.; Doweyko, Arthur M.; Dekeyser, Mark A.; and Bell, Allyn R., to Uniroyal, Inc.; and Uniroyal Ltd. Substituted pyridine 1-oxide herbicides, 4,394,155, Cl. 71-94.000.

Plasma Holdings N.V.: *See—*
Tylko, Jozef K., 4,394,162, Cl. 75-10.00R.

Plattner, Eric: *See—*
Jager, Horst; Plattner, Eric; Bersier, Jacques; and Comminellis, Christos, 4,394,227, Cl. 204-73.00R.

Plessers, Hendrik S.; and Hellemans, Julianus J., to Agfa-Gevaert N.V. Sheet receiving and storage apparatus, 4,393,642, Cl. 53-266.00R.

Poculuyko, Alex, to Scott Paper Company. Bleed-fast cationic dye-stuffs, 4,394,212, Cl. 162-162.000.

Podszun, Wolfgang; Walkowiak, Michael; and Schulz, Hans-Hermann, to Bayer Aktiengesellschaft. Dental materials based on organic plastics in paste form, 4,394,465, Cl. 523-116.000.

Poehlman, Arthur G., to Outboard Marine Corporation. Control mechanism for selectively operating an internal combustion engine on two fuels, 4,393,848, Cl. 123-525.000.

Pohoreski, Anton P.: *See—*
Strunk, Norman E.; and Pohoreski, Anton P., 4,393,992, Cl. 239-200.000.

Policaastro, Steven G.; and Woo, Dae-Shik, to RCA Corporation. Method of making low leakage N-channel MOS transistors utilizing positive photoresist masking techniques, 4,393,572, Cl. 29-571.000.

Polley, Richard B., to ACF Industries, Incorporated. Mounting flange for wafer sphere bottom outlet valve, 4,394,002, Cl. 251-144.000.

Polony, Rudolf: *See—*
Holzle, Gerd; Reinert, Gerhard; and Polony, Rudolf, 4,394,125, Cl. 8-103.000.

Polva Nederland B.V.: *See—*
Acda, Petrus M.; and Karreman, Jacob, 4,394,343, Cl. 264-296.000.

Polymer Corporation, The: *See—*
Blachman, Lawrence P., 4,394,705, Cl. 361-215.000.

Polymer Technology Corporation: *See—*
Ellis, Edward J.; and Salamone, Joseph C., 4,394,179, Cl. 134-7.000.

Polysar Limited: *See—*
Kim, Chan J.; and Koski, Ahti A., 4,394,488, Cl. 524-432.000.

Polyvend Inc.: *See—*
Strack, Martin P., Jr., 4,393,970, Cl. 194-17.000.

Pommier, Jean-Claude: *See—*
Pereyre, Michel; and Pommier, Jean-Claude, 4,394,320, Cl. 260-429.700.

Pool, Francis C., to Rolls-Royce Limited. Gas turbine engine having an automatic ice shedding spinner, 4,393,650, Cl. 60-39.093.

Popper, Jay: *See—*
Burstein, Steve; and Popper, Jay, 4,394,751, Cl. 365-227.000.

Porst, Hannsheinz: *See—*
Hofmann-Cerfontaine, Hellmut W., 4,394,654, Cl. 340-825.340.

Portolese, Larry A.: *See—*
Oltmanns, Roger W., Jr.; and Portolese, Larry A., 4,393,963, Cl. 188-73.450.

Potoski, John R.: *See—*
Commons, Thomas J.; and Potoski, John R., 4,394,504, Cl. 544-28.000.

Pottier, Alain; Chesnel, Pierre; and Chaintreau, Bernard, to Schlumberger Technology Corporation. Well perforating apparatus, 4,393,946, Cl. 175-4.560.

Powell, Steven W.; and Stockton, James G., to NL Sperry Sun, Inc. Borehole tool, 4,393,598, Cl. 33-302.000.

PPG Industries, Inc.: *See—*
Barter, James A.; and Kellar, David E., 4,394,328, Cl. 260-463.000.

Brown, Daniel G.; and Motsinger, Donald L., 4,394,414, Cl. 428-288.000.

Dauson, Samuel, 4,394,064, Cl. 350-259.000.

Korach, Malcolm, 4,394,229, Cl. 204-98.000.

Temple, Chester S., 4,394,418, Cl. 428-391.000.

Temple, Chester S.; and Hsu, Ed C., 4,394,475, Cl. 524-262.000.

Pracht, Hans: *See—*
Bergmann, Horst; and Pracht, Hans, 4,393,831, Cl. 123-323.000.

Press, Jack J. Contour-adaptive atmospheric heat exchange apparatus, 4,393,923, Cl. 165-46.000.

Primas, Willi: *See—*
Huber, Peter; August, Peter; Lampelzammer, Helga; and Primas, Willi, 4,394,518, Cl. 556-424.000.

Prince, Terry B.: *See—*
Doyle, Francis S.; Prince, Terry B.; and Stevenson, Martin J., 4,394,545, Cl. 179-179.000.

Pritula, Nina A.: *See—*
Gryaznov, Vladimir M.; Smirnov, Viktor S.; Vdovin, Valentin M.; Ermilova, Margarita M.; Gogua, Liya D.; Pritula, Nina A.; and Fedorova, Galina K., 4,394,294, Cl. 252-430.000.

Procter & Gamble Company, The: *See—*
Fryar, Durward; and Schmitz, Jerome J., 4,393,643, Cl. 53-471.000.

Gosselink, Eugene P., 4,394,305, Cl. 252-528.000.

Taylor, James L., 4,394,372, Cl. 424-85.000.

Produits Chimiques Ugine Kuhlmann: *See—*
Commeyras, Auguste; and Calas, Patrick, 4,394,225, Cl. 204-59.00R.

Progressive Dynamics, Inc.: *See—*
Crafts, Daniel J., 4,394,706, Cl. 361-331.000.

Prosdodimo, Luciano. Process for producing connecting member shanks, such as hinges for window and door frames, formed of cylindrical sections of different diameter, with continuous even screw thread, that is with constant pitch, 4,393,676, Cl. 72-92.000.

Pryor, Alvetta, to Dow Chemical Company, The. Stabilized methylchloroform composition, 4,394,284, Cl. 252-153.000.

Pryor, Timothy R.: *See—*
Liptay-Wagner, Nicholas; Renaud, Roland; Pryor, Timothy R.; and Clarke, Donald A., 4,394,683, Cl. 358-107.000.

Puharich, Henry K. Method and apparatus for splitting water molecules, 4,394,230, Cl. 204-129.000.

Punko, Emil M.: *See—*
Mazur, Michael B.; and Punko, Emil M., 4,393,960, Cl. 188-62.000.

Pusineri, Christian; and Goletto, Jean, to Hospal-Sodip, S.A. Mixtures of polymers for medical use, 4,394,462, Cl. 521-137.000.

Puskas, Imre; and James, David E., to Standard Oil Company (Indiana). Palladium-rhodium catalyst for purification of crude terephthalic acid, 4,394,299, Cl. 252-447.000.

Putman, William A.: *See—*
Caddy, John A.; and Putman, William A., 4,394,147, Cl. 55-357.000.

PVBA Van Mullem: *See—*
Van Mullem, Albert, 4,393,955, Cl. 180-291.000.

Quaker Oats Company, The: *See—*
Keyser, William L.; and Kinney, Diane S., 4,394,399, Cl. 426-658.000.

Quella, Ferdinand: *See—*
Pape, Heinz; Quella, Ferdinand; and Krueger, Hans, 4,394,068, Cl. 350-345.000.

Quick, Thomas E.: *See—*
Frees, Kenneth A.; and Quick, Thomas E., 4,394,106, Cl. 414-622.000.

Quigley, Herbert J., Jr.: *See—*
Malette, William G.; and Quigley, Herbert J., Jr., 4,394,373, Cl. 424-95.000.

Quillou, Guy, to Pierre Guerin S.A. Cheese making apparatus, 4,393,759, Cl. 99-459.000.

R. Stahl GmbH & Co., Firma: *See—*
Hortnagel, Franz, 4,393,785, Cl. 104-110.000.

R. W. Hartnett Company: *See—*
Ackley, Charles E., Sr.; and Ackley, Charles E., Jr., 4,393,973, Cl. 198-384.000.

Rabette, Jean, to Societe Vandeputte Fils & Cie, S.A. Data display system, 4,394,652, Cl. 340-764.000.

Rabinowitz, Mario: *See—*
Bahder, George; and Rabinowitz, Mario, 4,394,534, Cl. 174-15.00S.

Radaelli, Dario: *See—*
De Angelis, Giancarlo; Catastini, Alberto; Bassi, Aldo; Rogora, Edoardo; Radaelli, Dario; Bertoloni, Luciano; and Perrone, Francesco, 4,393,836, Cl. 123-417.000.

Radtke, Richard R.: *See—*
Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; and Fozo, Steven R., 4,393,696, Cl. 73-117.300.

Raj Technology Partnership: *See—*
Sandhu, Jaswinder S., 4,393,712, Cl. 73-603.000.

Raman, Ramaswamy V.; and Carbonara, Robert S., to Battelle Memorial Institute. Crucibleless preparation of rapidly solidified fine particulates, 4,394,332, Cl. 264-8.000.

Rambousek, Miroslav; and Svarc, Stanislav, to Elitex, concern textilniho strojirenstvi. Fiber-guiding element for open end spinning machines, 4,393,648, Cl. 57-413.000.

Ramey, Robert M., to Teledyne Industries, Inc. Method of controlling non-solar swimming pool heater, 4,393,527, Cl. 4-493.000.

Ranbom, Wayne, to FMC Corporation. Hydrogen peroxide process, 4,394,369, Cl. 423-588.000.

Randall Industries, Inc.: *See—*
Larsen, James E.; and Rogers, Charles E., 4,394,013, Cl. 273-1.50R.

Randall, John R., to McDonnell Douglas Corporation. Unidirectional detent gate, 4,393,730, Cl. 74-538.000.

Randmae, Rein S.; and Whitaker, Todd H., to Vicon Industries, Inc. Housing assembly for an electrical apparatus, 4,394,692, Cl. 358-229.000.

Rank Xerox Limited: *See—*
Sugiyama, Mitsuhiro, 4,394,008, Cl. 271-9.000.

Rasmussen, Odd F., to Norsk Hydro A.S. Flexible container having four lifting loops, 4,393,910, Cl. 150-12.000.

Rasmussen, Robert, to Air-Mo Hydraulics, Inc. Hydraulic chuck device for engagement with the inside of a tube, 4,393,674, Cl. 72-61.000.

Rassieur, Charles L., to Central Mine Equipment Company. Rotary drill with a Kelly bar and hydraulic chuck, 4,393,945, Cl. 173-163.000.

Rastogi, Prabhat K., to Inland Steel Company. Method for producing low silicon steel electrical lamination strip, 4,394,192, Cl. 148-120.000.

Ratigalas, Max, to Thomson-CSF. Method and device for coding binary data and a device decoding coded data, 4,394,641, Cl. 340-347.00DD.

Rattlingourd, Glen D.: *See—*
Currie, Robert J.; Rattlingourd, Glen D.; Spencer, Billie M.; and Zscheile, John W., Jr., 4,394,642, Cl. 340-347.00DD.

Rausch, John J.: *See—*
Van Thine, Ray J.; and Rausch, John J., 4,394,422, Cl. 428-592.000.

Ravey, Manny, to IMI (Tami) Institute for Research & Development Ltd. Bromine containing fire retardant compositions of matter, 4,394,306, Cl. 252-609.000.

Ray, Otis E. Novelty written message device suitable for mailing, 4,393,618, Cl. 46-35.000.

Raytheon Company: *See—*
Banks, Donald S., 4,394,628, Cl. 332-19.000.

RCA Corporation: *See—*
Bingham, Joseph P.; and Benford, John F., 4,394,535, Cl. 179-1.0GP.

Gounder, Raj N., 4,394,529, Cl. 136-245.000.

Hawrylo, Frank Z., 4,394,679, Cl. 357-81.000.

Kumar, Mahesh; Menna, Raymond J.; and Huang, Ho-Chung, 4,394,629, Cl. 333-109.000.

Nero, Leroy W., 4,394,722, Cl. 363-68.000.

Policaastro, Steven G.; and Woo, Dae-Shik, 4,393,572, Cl. 29-571.000.

Wierschke, Donald J., 4,394,341, Cl. 264-225.000.

Reade, Richard: *See—*
Cook, Richard J.; and Reade, Richard, 4,394,108, Cl. 414-680.000.

Reap, James J., to Du Pont de Nemours, E. I., and Company. Herbicidal aryl esters of N-[(heterocyclic)-aminocarbonyl]sulfamic acid, 4,394,153, Cl. 71-92.000.

Rees, James D., to Xerox Corporation. Imaging system for a multi-magnification copier utilizing gradient index lens array. 4,394,083, Cl. 355-1.000.

Reftch Limited: See—
Dutfield, James H., 4,393,767, Cl. 100-229.00A.

Regie Nationale Des Usines Renault: See—
Lombard, Claude, 4,393,715, Cl. 73-728.000.

Reid, John H. Conversion of plug flow and complete mix aeration basins to barrier oxidation ditches. 4,394,268, Cl. 210-628.000.

Reid, Kenneth H.: See—
Murphy, James E.; and Reid, Kenneth H., 4,394,034, Cl. 280-801.000.

Reifers, Richard F.: See—
Bixler, Kenneth D.; Lord, Henry A.; and Reifers, Richard F., 4,394,214, Cl. 162-228.000.

Reiff, Harro: See—
Frick, George; Reiff, Harro; and Kirsch, Alois, 4,393,570, Cl. 29-560.000.

Reimpell, Uwe; Grof, Helmut; Knell, Franz-Georg; and Wamser, Anton, to Leybold-Heraeus GmbH. Electro-slag remelting furnace for consumable electrodes and having an electrode drive. 4,394,765, Cl. 373-52.000.

Reinert, Gerhard: See—
Holzle, Gerd; Reinert, Gerhard; and Polony, Rudolf, 4,394,125, Cl. 8-103.000.

Reinstein, Martine; and Wurcel, Jacques. Jewelry articles. 4,393,667, Cl. 63-29.00R.

Rempfler, Hermann: See—
Pissiotas, George; and Rempfler, Hermann, 4,394,157, Cl. 71-94.000.

Pissiotas, George; and Rempfler, Hermann, 4,394,158, Cl. 71-94.000.

Renaud, Roland: See—
Liptay-Wagner, Nicholas; Renaud, Roland; Pryor, Timothy R.; and Clarke, Donald A., 4,394,683, Cl. 358-107.000.

Renon, Henri; and Richon, Dominique, to Institut Francais du Pétrole; and Association pour la Recherche et le Développement. Device for determining physical characteristics of a fluid, such as its liquid-vapor equilibrium pressure. 4,393,689, Cl. 73-64.200.

Repa Feinstanzwerk GmbH: See—
Fohl, 4,393,555, Cl. 24-230.00A.

Wier, Franz, 4,393,553, Cl. 24-230.0AL.

Wier, Franz, 4,393,554, Cl. 24-230.0AL.

Reprogle, Layton J.; and Repogle, Truman B., to All Temp Engineering Inc. Power broom with auger and vacuum debris conveyor. 4,393,537, Cl. 15-348.000.

Reprogle, Truman B.: See—
Reprogle, Layton J.; and Repogle, Truman B., 4,393,537, Cl. 15-348.000.

Research Corporation: See—
Carpino, Louis A.; and Cohen, Beri, 4,394,519, Cl. 560-32.000.

Groves, William N., 4,393,853, Cl. 123-568.000.

Research Foundation of the City University of New York: See—
Lowen, Gerard G.; and Tricamo, Stephen J., 4,393,690, Cl. 73-66.000.

Revis, Doyle A. Balanced heat exchange assembly. 4,393,666, Cl. 62-506.000.

Revitz, Martin: See—
Gardiner, James R.; Makarewicz, Stanley R.; Revitz, Martin; and Shepard, Joseph F., 4,394,406, Cl. 427-86.000.

Reynolds, Blake: See—
Marion, Charles P.; Crouch, William B.; Brent, Albert; Richter, George N.; Child, Edward T.; and Reynolds, Blake, 4,394,137, Cl. 48-197.00R.

Reynolds, Charles E., to AMP Incorporated. Connector of a type used with dry cell batteries and manufacturing method. 4,394,059, Cl. 339-125.00R.

Reynolds, George A.: See—
Van Allan, James A.; Perlstein, Jerome H.; Reynolds, George A.; and Goliber, Thomas E., 4,394,428, Cl. 430-83.000.

Reynolds Metals Company: See—
Hutcheson, James L., 4,394,204, Cl. 156-275.100.

Reznik, Benjamin; Welber, Stanley; and Streifeneder, Ludwig, to Eder Instrument Co., Inc. Aspiring surgical forceps. 4,393,872, Cl. 604-151.000.

Rheinmetall GmbH: See—
Graf, Manfred, 4,393,781, Cl. 102-440.000.

Rhone-Poulenc-Textile: See—
Grosjean, Pierre, 4,394,200, Cl. 156-72.000.

Richard, Raymond L., Jr.: See—
Maki, Emil R.; Freudenstein, Ferdinand; Richard, Raymond L., Jr.; and Chew, Meng-Sang, 4,393,820, Cl. 123-90.410.

Richardson, David L.: See—
De Briere, John G.; Lemanowicz, Mary M.; Richardson, David L.; and Vanderputten, Willem, 4,394,345, Cl. 376-245.000.

Richardson, Edwin A.: See—
Lawson, Jimmie B.; and Richardson, Edwin A., 4,393,938, Cl. 166-279.000.

Richer, John E., to United States of America, Navy. Height adjustable cargo container locking mechanism. 4,394,101, Cl. 410-83.000.

Richert, Manfred: See—
Storandt, Ralf; Richert, Manfred; and Scheck, Georg, 4,394,032, Cl. 280-618.000.

Richman, David W.; and Walker, Charles D., to McDonnell Douglas Corporation. Electrophoresis apparatus with flow control. 4,394,246, Cl. 204-301.000.

Richon, Dominique: See—
Renon, Henri; and Richon, Dominique, 4,393,689, Cl. 73-64.200.

Richrath, Herbert: See—
Rosener, Karlheinz; Roeder, Alfred; Munchberg, Wolfgang; Richrath, Herbert; and Chmiel, Max, 4,394,454, Cl. 501-112.000.

Richter, George N.: See—
Marion, Charles P.; Crouch, William B.; Brent, Albert; Richter, George N.; Child, Edward T.; and Reynolds, Blake, 4,394,137, Cl. 48-197.00R.

Richter, Johan C. F. C.; and Richter, Ole J., to Kamy, Inc. Diffuser assembly. 4,394,267, Cl. 210-331.000.

Richter, Ole J.: See—
Richter, Johan C. F. C.; and Richter, Ole J., 4,394,267, Cl. 210-331.000.

Ricoh Company, Ltd.: See—
Ameyama, Minoru, 4,394,663, Cl. 346-75.000.

Ridgway, Richard: See—
Verber, Carl M.; Kenan, Richard P.; and Ridgway, Richard, 4,394,060, Cl. 350-96.130.

Rieck, Gerald C., to General Motors Corporation. Electromagnetic fuel injector with flexible disc valve. 4,393,994, Cl. 239-585.000.

Ried, Harold T.; and Weaver, Edgar C., to ACF Industries, Incorporated. Cooling of center plate to avoid softening. 4,394,195, Cl. 148-149.000.

Ringbloom, Vernon D.: See—
Kabik, Irving; and Ringbloom, Vernon D., 4,394,197, Cl. 149-19.300.

Rink, John P. High voltage coaxial switch. 4,394,622, Cl. 377-115.000.

Ritchie, Donald, to Dornier GmbH. Arrangement and equipment for the displacement of blades, particularly propeller blades. 4,394,109, Cl. 416-142.000.

Rizzo, Salvatore A. Boat hull with underside channel. 4,393,802, Cl. 114-67.00A.

RJ Archer Inc.: See—
Brandt, John G.; Dickerson, Joyce H.; and Schmitt, William R., 4,394,235, Cl. 204-165.000.

Robert Bosch GmbH: See—
Drews, Ulrich; Werner, Peter; and Mohrle, Werner, 4,393,841, Cl. 123-440.000.

Eheim, Franz; and Hofer, Gerald, 4,393,835, Cl. 123-357.000.

Gotze, Gerd-Wolfgang; and Muller, Manfred, 4,394,627, Cl. 331-66.000.

Hansen, Jens, 4,394,779, Cl. 455-277.000.

Horstmann, Winfried, 4,394,686, Cl. 358-134.000.

Leisner, Ernst, 4,394,007, Cl. 266-249.000.

Muller, Klaus; Linder, Ernst; and Maurer, Helmut, 4,393,687, Cl. 73-35.000.

Roberts, John S.: See—
Mark, Harold W.; Bertus, Brent J.; and Roberts, John S., 4,394,324, Cl. 260-446.000.

Robeson, Lloyd M.: See—
Stratta, Julius J.; Robeson, Lloyd M.; and Girardi, Richard V., 4,394,469, Cl. 523-212.000.

Robillard, Jean J. Non-silver X-ray recording process. 4,394,439, Cl. 430-336.000.

Robinson, Earl F.: See—
Bare, Rex O.; and Robinson, Earl F., 4,393,584, Cl. 29-877.000.

Robinson, Joseph G.; and Barnes, David L., to Coal Industry (Patents) Limited. Polyimide resins. 4,394,499, Cl. 528-229.000.

Robinson, Merrill G., to Shatterproof Glass Corporation. Magnetron cathode sputtering apparatus. 4,394,236, Cl. 204-192.00R.

Robotgruppen HB: See—
Larson, Ove; and Davidson, Charles, 4,393,728, Cl. 74-469.000.

Rocci, Joseph A., Jr. Apparatus for testing the quality of the ground connection and the insulation quality in an electrical hand tool or the like. 4,394,615, Cl. 324-51.000.

Rocha, John G., to United States of America, Army. Ammunition magazine with built-in compartment covers. 4,393,746, Cl. 89-34.000.

Rockstead, Christopher A.: See—
Rockstead, Raymond H.; and Rockstead, Christopher A., 4,393,636, Cl. 52-381.000.

Rockstead, Raymond H.; and Rockstead, Christopher A. Box beam reinforced concrete structure. 4,393,636, Cl. 52-381.000.

Rockwell International Corporation: See—
Maddox, Roy L., III, 4,394,182, Cl. 148-1.500.

Wilson, Thomas E., 4,393,729, Cl. 74-475.000.

Rodell, Clifford H. Tree holder. 4,393,621, Cl. 47-40.500.

Roeder, Alfred: See—
Rosener, Karlheinz; Roeder, Alfred; Munchberg, Wolfgang; Richrath, Herbert; and Chmiel, Max, 4,394,454, Cl. 501-112.000.

Rogers, Charles E.: See—
Larsen, James E.; and Rogers, Charles E., 4,394,013, Cl. 273-1.50R.

Rogers Corporation: See—
Aguayo, Arturo J., 4,394,532, Cl. 174-72.00B.

Rogora, Edoardo: See—
De Angelis, Giancarlo; Catastini, Alberto; Bassi, Aldo; Rogora, Edoardo; Radaelli, Dario; Bertoloni, Luciano; and Perrone, Francesco, 4,393,836, Cl. 123-417.000.

Rohen, James E., to International Business Machines Corporation. Electronic velocity measurement especially for self-clocking write head. 4,394,621, Cl. 324-163.000.

Rohloff, Robert R., to Minnesota Mining and Manufacturing Company. Plating resist with improved resistance to extraneous plating. 4,394,434, Cl. 430-270.000.

Rohm GmbH: See—
Hartl, Roland; and Helm, Dieter, 4,394,452, Cl. 436-66.000.

Rohm and Haas Company: See—
Chao, Yen-Yau H., 4,394,316, Cl. 260-429.00K.

Morris, Hal C., 4,394,128, Cl. 8-138.000.

Rohr, Franz-Josef, to Brown, Boveri & Cie AG. Method for determining the oxygen content in gases, uninfluenced by temperature variations. 4,394,222, Cl. 204-1.00T.

Rohr, Otto; Pissiotas, George; Bohner, Beat; and Burdeska, Kurt, to Ciba-Geigy Corporation. Herbicidally active phenoxy- α -phenoxy-alkanecarboxylic acid derivatives. 4,394,327, Cl. 260-455.00R.

Rohr, Wolfgang: See—
Eicken, Karl; Rohr, Wolfgang; and Wuerzer, Bruno, 4,394,513, Cl. 548-374.000.

Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., to Merck & Co., Inc. 10,11-Dihydro-11-oxodibenzo[b,f]thiepin compounds. 4,394,515, Cl. 549-12.000.

Rolls-Royce Limited: See—
Pool, Francis C., 4,393,650, Cl. 60-39.093.

Rooney, Clarence S.: See—
Rokach, Joshua; Rooney, Clarence S.; and Cragoe, Edward J., Jr., 4,394,515, Cl. 549-12.000.

Rosenberg, Heinz: See—
Kreissl, Ottmar; Schurrer, Josef; Motz, Karl; Leitgeb, Wilhelm; and Rosenberg, Heinz, 4,394,582, Cl. 290-4.00C.

Rosener, Karlheinz; Roeder, Alfred; Munchberg, Wolfgang; Richrath, Herbert; and Chmiel, Max, to Dolomitwerke GmbH. Method for making sintered dolomite with a low porosity and a good hydration stability. 4,394,454, Cl. 501-112.000.

Rosensweig, Ronald E., to Exxon Research and Engineering Co. Composition for use in a magnetically fluidized bed. 4,394,281, Cl. 252-62.550.

Ross, Gerald F., to Sperry Corporation. Safe merging system using short pulse signal reflectometry. 4,394,640, Cl. 340-23.000.

Ross, Richard J.; and Mendez, Luis E., to Baker International Corporation. Subterranean well pressure surging tool. 4,393,930, Cl. 166-188.000.

Rosselli, Andrew C.: See—
Breeck, Philip L.; Shultz, David E.; and Rosselli, Andrew C., 4,393,825, Cl. 123-198.00F.

Rostagno, Walter; and Morand, Alfred, to Societe d'Assistance Technique pour Produits Nestle S.A. Process for the production of a molded food product by sintering. 4,394,395, Cl. 426-285.000.

Rote, James; Step lighting system. 4,394,714, Cl. 362-32.000.

Roth, Donald J.: See—
Walter, John; Roth, Donald J.; and Kubis, Charles S., 4,394,408, Cl. 427-231.000.

Roth, Elwood A.: See—
Clark, Thomas R.; Lillmars, Alvin E.; Roth, Elwood A.; Schmick, Alvin L.; and Todd, Maurice C., 4,393,736, Cl. 83-100.000.

Roth, Michael; and Frey, Volker, to Wacker-Chemie GmbH. Process for preparing structural components. 4,394,335, Cl. 264-82.000.

Rowe, Carleton N., to Mobil Oil Corporation. Reducing fuel consumption with a fluorinated compound. 4,394,134, Cl. 44-62.000.

Rowe, William A., to Zenith Radio Corporation. Optical system for projection television. 4,394,681, Cl. 358-60.000.

RSV-Gusto Engineering B.V.: See—
Boon, Bart, 4,393,961, Cl. 188-67.000.

Rubber-en Kunststoffabrik ENBI B.V.: See—
Delhaes, Johannes C., 4,394,024, Cl. 277-207.00A.

Rubey, Robert J., to Sterling Drug Inc. Check valve for use with high pressure pump. 4,393,895, Cl. 137-539.500.

Ruell, Hartwig, to Siemens Corporation. Fingerprint sensor. 4,394,773, Cl. 382-4.000.

Ruhechemie Aktiengesellschaft: See—
Hobes, Victor J.; and Payer, Wolfgang, 4,394,483, Cl. 525-60.000.

Ruhrkohle Aktiengesellschaft: See—
Holz, Wilhelm; Lukaszewicz, Helmut; and Gregor, Karl, 4,394,217, Cl. 202-227.000.

Ruiz, Jorge M. Oyster splitter. 4,393,546, Cl. 17-76.000.

Rush, David M.: See—
Anthony, James R.; and Rush, David M., 4,394,019, Cl. 273-256.000.

Russell, Burdall & Ward Corporation: See—
Hess, George M.; and Zils, James A., 4,393,787, Cl. 105-199.0CB.

Ryan, John F.: See—
Higuera, Robert S.; and Ryan, John F., 4,394,123, Cl. 432-253.000.

Ryan, Joseph L.: See—
Long, Nicholas R.; Peisel, William E.; Ryan, Joseph L.; and Watkins, Richard R., 4,394,650, Cl. 340-728.000.

Ryan, William H., to Owens-Illinois, Inc. Short circuit proof driver and alarm circuit for a solenoid in a glassware forming machine. 4,394,148, Cl. 65-159.000.

Rys-Sikora, John, to Du Pont de Nemours, E. I., and Company. Fast-curing foamable composition based on ethylene terpolymers. 4,394,459, Cl. 521-84.000.

Sae, Kim J. Variable ignition distributor. 4,393,849, Cl. 123-536.000.

Saeki, Tokuchi: See—
Sawa, Natsuo; and Saeki, Tokuchi, 4,394,511, Cl. 548-343.000.

Sage, Paul F. Method for peeling citrus fruit. 4,394,393, Cl. 426-231.000.

Sahi Electronics Co., Ltd.: See—
Kurosawa, Tsutomu, 4,394,697, Cl. 360-91.000.

St. Clair, Albert R., to Simmons U.S.A. Corporation. Apparatus for mattress manufacture. 4,393,792, Cl. 112-3.00R.

Saito, Shinroku: See—
Sawaoka, Akira; Araki, Masatada; Saito, Shinroku; and Akashi, Tamotsu, 4,394,170, Cl. 75-233.000.

Saito, Syuichiro: See—
Hashimoto, Teiji; and Saito, Syuichiro, 4,394,081, Cl. 354-234.000.

Saito, Takashi; Sakurayama, Junichi; and Watanabe, Tsuyoshi, to Canon Kabushiki Kaisha. Method for developing an electrostatic latent image with a liquid developer. 4,394,431, Cl. 430-119.000.

Saka, Hamid J.: See—
Binegar, Scott W.; and Saka, Hamid J., 4,393,889, Cl. 137-72.000.

Sakabe, Yukio; and Nishioka, Goro, to Murata Manufacturing Co., Ltd. Temperature-compensating ceramic dielectrics. 4,394,456, Cl. 501-138.000.

Sakai, Koichi, to Toko, Inc. Semiconductor integrated circuit device. 4,394,625, Cl. 330-267.000.

Sakai, Masao, to Hitachi, Ltd. Method of manufacturing hermetic sealing member. 4,393,681, Cl. 72-329.000.

Sakamura, Yoshikazu. Tool attaching device for presses. 4,393,685, Cl. 72-481.000.

Sakiyama, Kazuo: See—
Fujioka, Akira; Sakiyama, Kazuo; Takigawa, Akio; and Yoshida, Motoaki, 4,394,177, Cl. 106-287.140.

Sakuma, Hiraku; and Suzuki, Toshiyuki, to Nippon Electric Co., Ltd. Insulated gate field effect transistor. 4,394,674, Cl. 357-23.000.

Sakuma, Shinzo: See—
Warabi, Junichi; Sakuma, Shinzo; Kawaguchi, Hidemi; and Kobari, Yukio, 4,394,554, Cl. 200-144.00B.

Sakurai, Kenji; and Yoshimura, Noboru, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Interlocking mechanism of both side lock recliner for automotive seat. 4,394,048, Cl. 297-367.000.

Sakurai, Teisuma: See—
Kato, Kotaro; and Sakurai, Teisuma, 4,393,573, Cl. 29-571.000.

Sakurayama, Junichi: See—
Saito, Takashi; Sakurayama, Junichi; and Watanabe, Tsuyoshi, 4,394,431, Cl. 430-119.000.

Salamone, Joseph C.: See—
Ellis, Edward J.; and Salamone, Joseph C., 4,394,179, Cl. 134-7.000.

Sampathkumar, Prathivadibhayanakaram S.; and Dwivedi, Basant K., to Chemicasa GmbH. Method of producing α -L-aspartyl-L-phenylalanine methyl esters. 4,394,308, Cl. 260-112.50R.

Samuel, Olof; and Hellemaa, Heikki, to Nordstjernan AB; and Oy Warstila AB. Braking diesel engines. 4,393,832, Cl. 123-327.000.

Sanders, Ian L.: See—
Hirko, Richard G.; Ju, Kochan; and Sanders, Ian L., 4,394,746, Cl. 365-36.000.

Sanders, Richard: See—
Muzumdar, Deepak; Mierzwa, George A.; Sanders, Richard; and Van der Meiden, Orrie J., 4,394,757, Cl. 370-100.000.

Sandhu, Jaswinder S., to Raj Technology Partnership. Portable liquid crystal testing device. 4,393,712, Cl. 73-603.000.

Sando Iron Works Co., Ltd.: See—
Sando, Yoshikazu; and Ishidoshiro, Hiroshi, 4,393,532, Cl. 8-149.100.

Sando, Yoshikazu; and Ishidoshiro, Hiroshi, to Sando Iron Works Co., Ltd. Method for continuous delustering high temperature treatment of a textile product and an apparatus therefor. 4,393,532, Cl. 8-149.100.

Sandoz Ltd.: See—
Haki, Josef, 4,394,364, Cl. 423-483.000.

Moser, Helmut, 4,394,130, Cl. 8-661.000.

Sanford, Richard. Collapsible grill. 4,393,857, Cl. 126-9.00R.

Sano, Yasuro: See—
Eguchi, Yasukata; Takenoya, Hideaki; and Sano, Yasuro, 4,393,794, Cl. 112-158.00E.

Santini, Emil, to Lemay Corporation. Plastic lens contour cutting machine. 4,394,099, Cl. 409-104.000.

Santoro, Janet M.: See—
Nix, Paul T.; Santoro, Janet M.; and Stephens, Joyce E., 4,394,445, Cl. 435-19.000.

Santrade Ltd.: See—
Pantzar, Glenn G. E., 4,393,590, Cl. 30-387.000.

Santti, Arne J.: See—
Goetz, George W.; Santti, Arne J.; and LaLonde, Gary R., 4,394,033, Cl. 280-736.000.

Sanyo Electric Co., Ltd.: See—
Ikeguchi, Shigehiko; and Tanaka, Kouzi, 4,394,778, Cl. 455-182.000.

Tachihara, Jin; and Koyama, Hideaki, 4,394,557, Cl. 219-10.55B.

Sappelt, Reinhard, to Lonza-Werke G.m.b.H. Process for the production of the Schiff's bases of 2,6-dichloro-5-hydroxy-aniline. 4,394,521, Cl. 564-271.000.

Saretzky, Horst, to De Limon Fluhme GmbH & Co. Progressive-central lubrication system. 4,393,958, Cl. 184-7.00D.

Sari, Hikmet, to U.S. Philips Corporation. Adaptive system in a digital data receiver providing compensation for amplitude and phase distortions introduced by a data transmission channel. 4,394,768, Cl. 375-14.000.

Sasol One (Proprietary) Limited: See—
Jager, Berend; Brink, Andries; and Kleynjan, Cornelis, 4,394,215, Cl. 196-14.520.

Satava, George L.; and Deemer, Carroll L., to Midland Steel Products. Method for heat treating structural members. 4,394,194, Cl. 148-131.000.

Sato, Kanemasa; Ueno, Sadayasu; and Miya, Kazuhiko, to Hitachi, Ltd. Air flow rate measuring apparatus. 4,393,697, Cl. 73-118.000.

Sato, Manabu: See—
Yamamoto, Toshiharu; Sato, Manabu; Akiba, Katsuya; and Abe, Koreyoshi, 4,393,540, Cl. 16-114.00R.

- Sato, Seiichi: See—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,394,382, Cl. 424-283.000.
- Sato, Yoshimi, to Nissan Motor Co., Ltd. Automotive vehicle seat belt device. 4,394,035, Cl. 280-804.000.
- Satoh, Kiyosumi; and Watanabe, Nobuyuki, to A. Aoki & Associates. Data processor controlled by microprograms. 4,394,735, Cl. 364-200.000.
- Satoh, Nobuo: See—
Ito, Tadahiko; Arai, Toshio; Satoh, Nobuo; and Harada, Hiroshi, 4,394,472, Cl. 524-100.000.
- Satoh, Shingo; Inoue, Takashi; Naki, Minoru; and Kawauchi, Yuji, to Nippon Steel Corporation. Method of preliminary desilicization of molten iron by injecting gaseous oxygen. 4,394,165, Cl. 75-60.000.
- Satterfield, Larry S., to Milliken Research Corporation. Apparatus to measure yarn tension. 4,393,725, Cl. 73-862.410.
- Sauer, L. Peter; and Gurak, Ronald W., to Signode Corporation. Method and apparatus for pre-draping an object receiving station with flexible binding. 4,393,763, Cl. 100-2.000.
- Sauersschell, Wolfgang: See—
Werkmann, Karl-Heinz; and Sauersschell, Wolfgang, 4,393,724, Cl. 73-861.910.
- Saunders, Ian J.: See—
Dearnaley, Geoffrey; Steeples, Kenneth; and Saunders, Ian J., 4,394,180, Cl. 148-1.500.
- Savelieva, Lidia B.: See—
Azarevich, Gennady M.; Gusyatsky, Iosif A.; Savelieva, Lidia B.; and Akimov, Boris I., 4,393,675, Cl. 72-71.000.
- Savins, Joseph G.; and Melrose, James C., to Mobil Oil Corporation. Conditioning a coal seam prior to in-situ gasification. 4,393,934, Cl. 166-261.000.
- Sawa, Natsuo; and Saeki, Tokuchi, to Shikoku Chemicals Corporation. Imidazole 4(5)-dithiocarboxylic acids or salts. 4,394,511, Cl. 548-343.000.
- Sawada, Naotoshi: See—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,394,382, Cl. 424-283.000.
- Sawaoka, Akira; Araki, Masataka; Saito, Shinroku; and Akashi, Tamotsu, to Nippon Oil and Fats Company, Limited. Composite sintered compact containing high density boron nitride and a method of producing the same. 4,394,170, Cl. 75-233.000.
- Scanlon, George R., to Napco, Inc. High speed plating of flat planar workpieces. 4,394,241, Cl. 204-198.000.
- Scanlon, Michael J.: See—
Wang, Samuel S.; and Scanlon, Michael J., 4,394,257, Cl. 209-166.000.
- Scapa Dryers, Inc.: See—
Westhead, William T., 4,394,413, Cl. 428-257.000.
- Scarpelli, Joseph A., to Eurand America, Inc. Incorporation of finely divided additives at the surface of microcapsule walls. 4,394,287, Cl. 64-4.320.
- Scerbo, Louis J.: See—
Montalto, Anthony R.; Scerbo, Louis J.; and Starace, Jeremia P., 4,394,620, Cl. 324-149.000.
- Scharr, Thomas A.: See—
Winchell, Vern H., II; Scharr, Thomas A.; and Clark, Lowell E., 4,394,678, Cl. 357-68.000.
- Schatteman, Etienne A. M., to Staar S. A. Apparatus for automatic inverting of cassettes. 4,394,698, Cl. 360-96.500.
- Scheck, Georg: See—
Storandt, Ralf; Richert, Manfred; and Scheck, Georg, 4,394,032, Cl. 280-618.000.
- Schempp, Heinrich: See—
Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, 4,394,152, Cl. 71-77.000.
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- Schlumberger Technology Corporation: See—
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- Screeton, James B. Coating composition. 4,394,477, Cl. 524-319.000.
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 Societe Nationale Industrielle Aerospatiale: See—
 Cahuzac, Georges J. J., 4,393,669, Cl. 66-13.000.
 Societe Vandeputte Fils & Cie, S.A.: See—
 Rabette, Jean, 4,394,652, Cl. 340-764.000.
 Soltis, Frank G.: See—
 Hoffman, Roy L.; Houdek, Merle E.; Loen, Larry W.; and Soltis, Frank G., 4,394,727, Cl. 364-200.000.
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 Nicolas, Edgard, 4,394,231, Cl. 204-129.000.
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 Asami, Takayoshi; and Sonoi, Hidekazu, 4,393,924, Cl. 165-104.120.
 Sony Corporation: See—
 Amano, Toshio; Nagai, Kunio; and Honma, Juri, 4,394,691, Cl. 358-194.100.
 Kobayashi, Katsumi, 4,394,690, Cl. 358-180.000.
 Menezes, William A.; and Kuper, Douglas D., 4,394,745, Cl. 364-900.000.
 Ninomiya, Ichiro; and Takayama, Jun, 4,394,694, Cl. 360-14.300.
 Sood, Ashwani: See—
 Weissman, Sherman M.; Pereira, Dennis; and Sood, Ashwani, 4,394,443, Cl. 435-6.000.
 Sou, Teho. Watering device for pet animals, 4,393,813, Cl. 119-72.500.
 Soucy, John J.: See—
 Soucy, Paul B.; and Soucy, John J., 4,393,954, Cl. 180-205.000.
 Soucy, Paul B.; and Soucy, John J. Motorized bicycle, 4,393,954, Cl. 180-205.000.
 Sowash, Thomas R.: See—
 Long, Donald A.; and Sowash, Thomas R., 4,394,555, Cl. 200-159.00R.
 Spahni, Kurt; and Bucher, Walter, to Bauer Kassenfabrik AG. Switching device for checking the closed position of a folding door, 4,394,584, Cl. 307-117.000.
 Spencer, Billie M.: See—
 Currie, Robert J.; Rattlingourd, Glen D.; Spencer, Billie M.; and Zscheile, John W., Jr., 4,394,642, Cl. 340-347.0DD.
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 Cuscurida, Michael; Grice, Neal J.; and Speranza, George P., 4,394,463, Cl. 521-167.000.
 Sperlich, Harold K., to Chrysler Corporation. Pickup truck cargo box cover assembly, 4,394,100, Cl. 410-2.000.
 Sperry Corporation: See—
 Boothe, Guy, 4,394,702, Cl. 361-92.000.
 Butler, L. Dennis; and Askov, Alan R., 4,394,103, Cl. 414-24.500.
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 Martenas, Wayne B., 4,393,644, Cl. 56-12.800.
 Pataki, Andrew B., 4,394,592, Cl. 310-12.000.
 Ross, Gerald F., 4,394,640, Cl. 340-23.000.
 Short, Robert D., III, 4,394,658, Cl. 343-7.700.
 Swenson, Robert E., 4,394,732, Cl. 364-200.000.
 Swenson, Robert E., 4,394,733, Cl. 364-200.000.
 Zbinden, Terry B., 4,393,921, Cl. 165-40.000.
 Spires, Howard R., to Syntex (U.S.A.) Inc. Ruminant animal performance by co-administering choline and propionate enhancers, 4,394,377, Cl. 424-177.000.

- Spooner, Colin R., to Delorean Research Limited Partnership. Apparatus for securing an article to a plastic frame-like structure, 4,394,050, Cl. 297-468.000.
 Sportelli, Frank A. Printing screen and method of making same, 4,394,424, Cl. 430-6.000.
 Spratt, Lorenzo. Stable ice release agent, 4,394,283, Cl. 252-70.000.
 Sprecher & Schuh AG: See—
 Wallimann, Hubert, 4,394,550, Cl. 200-34.000.
 Spreng, Georg. Sports shoe, 4,393,605, Cl. 36-114.000.
 Springer, Hartmut, to Hoechst Aktiengesellschaft. Process for the finishing of fibrous materials: sulfonyl- or carbonyl-cyanamides of dyestuffs, 4,394,129, Cl. 8-543.000.
 Spruijt, Aloysius M. J. M.; Wijburg, Matheus A. T.; Benschop, Gerardus C. M.; and Vos, Hendrikus J. M., to U.S. Philips Corporation. Display device, 4,394,067, Cl. 350-334.000.
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 Golovanov, Alexandr V.; Eschenko, Vladislav Y.; Musaev, Irsali K.; and Talibdzhanov, Zakhidzhan S., 4,394,120, Cl. 431-284.000.
 Staar S. A.: See—
 Schatteman, Etienne A. M., 4,394,698, Cl. 360-96.500.
 Stacey, Eric J.: See—
 Brennen, Michael B.; Gyugyi, Laszlo; and Stacey, Eric J., 4,394,614, Cl. 323-210.000.
 Stage, Hermann; Hammer, Hartmut; and Kuhns, Walter, to Wilhelm Schmidding GmbH & Co., Firma. Method of deodorizing and/or deacidifying high-boiling organic compounds, particularly edible oils, 4,394,221, Cl. 203-89.000.
 Stamm, Dieter: See—
 Krull, Manfred; Lobert, Udo; Stamm, Dieter; and Veesser, Klaus, 4,394,411, Cl. 428-70.000.
 Standard Duplicating Machines Corporation: See—
 Bergman, Carl A.; Thomas, Roy L.; and Bourbeau, Richard A., 4,394,009, Cl. 271-10.000.
 Standard Microsystems Corporation: See—
 Burstein, Steve; and Popper, Jay, 4,394,751, Cl. 365-227.000.
 Standard Oil Company (Indiana): See—
 Cartmell, Robert R., 4,394,349, Cl. 422-147.000.
 Nolte, Kenneth G.; and Smith, Michael B., 4,393,933, Cl. 166-250.000.
 Puskas, Imre; and James, David E., 4,394,299, Cl. 252-447.000.
 Standing, Colin A. Electric fence energizers, 4,394,583, Cl. 307-108.000.
 Stanley Automatic Openers: See—
 Lemirande, Rodger P., 4,394,607, Cl. 318-453.000.
 Starace, Jeremia P.: See—
 Montalto, Anthony R.; Scerbo, Louis J.; and Starace, Jeremia P., 4,394,620, Cl. 324-149.000.
 Stark, Lucille; Pillow, 4,393,530, Cl. 5-437.000.
 Stauffer Chemical Company: See—
 Hardy, Thomas A.; and Liu, Sophia Y., 4,394,330, Cl. 260-932.000.
 Steeples, Kenneth: See—
 Dearnaley, Geoffrey; Steeples, Kenneth; and Saunders, Ian J., 4,394,180, Cl. 148-1.500.
 Steger, Barry N.: See—
 Lowery, Richard E.; Gordon, Bruce W.; and Steger, Barry N., 4,394,323, Cl. 260-446.000.
 Steinhauer, John E.: See—
 Shimp, Lawrence A.; and Steinhauer, John E., 4,394,396, Cl. 426-332.000.
 Stephens, Joyce E.: See—
 Nix, Paul T.; Santoro, Janet M.; and Stephens, Joyce E., 4,394,445, Cl. 435-19.000.
 Sterling Drug Inc.: See—
 Rubey, Robert J., 4,393,895, Cl. 137-539.500.
 Sterrenberg, John W., to Sterrenberg, John W. Leveling mechanisms for hand-held power drill, 4,393,599, Cl. 33-336.000.
 Stevens, Barry A. Chimney fire snuffer, 4,393,941, Cl. 169-70.000.
 Stevens, Bruce W., to Menasha Corporation. Attachment system for plastic liners, 4,394,096, Cl. 403-408.000.
 Stevenson, Martin J.: See—
 Doyle, Francis S.; Prince, Terry B.; and Stevenson, Martin J., 4,394,545, Cl. 179-179.000.
 Stewart, James B. Collapsible traffic barricade, 4,394,005, Cl. 256-64.000.
 Stiftelsen Industriellt Utvecklingscentrum: See—
 Andersson, Albert, 4,393,943, Cl. 172-260.500.
 Stillman, Suzanne: See—
 Nawash, Michael S.; Stillman, Suzanne; and Mason, Robert S., 4,393,873, Cl. 604-151.000.
 Stocker, Hans M.: See—
 Hujsak, Edward J.; and Stocker, Hans M., 4,393,541, Cl. 16-297.000.
 Stockton, James G.: See—
 Powell, Steven W.; and Stockton, James G., 4,393,598, Cl. 33-302.000.
 Stokes, Jimmy L., to Milliken Research Corporation. Apparatus for imparting visual surface effects to relatively moving materials, 4,393,562, Cl. 26-2.00R.
 Stokes, Kenneth B.: See—
 Smyth, Nicholas P. D.; Lesniak, Jeanne M.; and Stokes, Kenneth B., 4,393,883, Cl. 128-785.000.
 Stolzer, Claus, to Bayer Aktiengesellschaft. Process for the preparation of N,N-dimethyl-N-(2-bromo-4-methylphenyl)-triazene, 4,394,309, Cl. 260-140.000.
 Storandt, Ralf; Richert, Manfred; and Scheck, Georg, to Geze GmbH. Ski safety binding, 4,394,032, Cl. 280-618.000.
 Storey, Robert C.: See—
 Jadwin, Thomas A.; and Storey, Robert C., 4,394,430, Cl. 430-110.000.
 Stott, Paul E., to Uniroyal, Inc. Azocarboxylate blowing agent, 4,394,461, Cl. 521-113.000.
 Stover, K. Lawrence: See—
 Bueno, Alejandro G.; and Stover, K. Lawrence, 4,394,122, Cl. 432-30.000.
 Strack, Martin P., Jr., to Polyvend Inc. Honor system vending machine, 4,393,970, Cl. 194-17.000.
 Strang, Robert: See—
 Jenkner, Herbert; Strang, Robert; and Adermann, Peter, 4,394,484, Cl. 525-72.000.
 Strassilla, Dieter; Moldovanyi, Laszlo; Fearnley, Charles; and Meindl, Hubert, to Ciba-Geigy Corporation. Mixtures of quaternary, polymeric, high molecular weight ammonium salts, which are based on acrylic compounds, and surfactants, their preparation, and their use in cosmetics, 4,393,886, Cl. 132-7.000.
 Stratta, Julius J.; Robeson, Lloyd M.; and Girardi, Richard V., to Union Carbide Corporation. Polysiloxane treated antimony compounds, 4,394,469, Cl. 523-212.000.
 Strauss, Werner: See—
 Heintges, Siegfried; Strauss, Werner; and Weiffen, Karl-Heinz, 4,394,260, Cl. 209-500.000.
 Street, John N.: See—
 McIntosh, Walter L.; and Street, John N., 4,394,089, Cl. 355-88.000.
 Streifeneder, Ludwig: See—
 Reznik, Benjamin; Welber, Stanley; and Streifeneder, Ludwig, 4,393,872, Cl. 604-151.000.
 Strunk, Norman E.; and Pohoreski, Anton P. Sprinkler head assembly, 4,393,992, Cl. 239-200.000.
 Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, to Ciba-Geigy Corporation. Sulfur-containing oxime compounds for protecting cultivated plants, 4,394,152, Cl. 71-77.000.
 Sturm, Werner. Apparatus for producing an arc welded sleeve, 4,393,571, Cl. 29-564.600.
 Suchodolski, Victor V.: See—
 Freitag, Walter O.; and Suchodolski, Victor V., 4,394,160, Cl. 75-0.5AA.
 Suchoff, Michael A.; Doyle, Holly T.; and Doyle, Robert O., to I/O Corporation. Communication terminal providing user communication of high comprehension, 4,394,649, Cl. 340-711.000.
 Suderman, Donald A., to Kansas State University Research Foundation. Undercutter seed planter, 4,393,791, Cl. 111-34.000.
 Sugihara, Kunihiko; and Onoda, Michio, to Nissan Motor Company, Limited. Spark timing control system for an internal combustion engine, 4,393,837, Cl. 123-425.000.
 Sugitani, Hiroshi; Matsuda, Hiroto; Kimura, Koichi; and Ikeda, Masami, to Canon Kabushiki Kaisha. Ink jet head and method for fabrication thereof, 4,394,670, Cl. 346-140.00R.
 Sugitani, Yuji: See—
 Nomura, Hirokazu; Sugitani, Yuji; and Suzuki, Yasuo, 4,394,559, Cl. 219-125.120.
 Sugiyama, Mitsuhiro, to Rank Xerox Limited. Automatic and manual sheet feeding mechanism, 4,394,008, Cl. 271-9.000.
 Sulzer Brothers Limited: See—
 Meier, Hans, 4,393,752, Cl. 92-86.000.
 Sumitomo Chemical Company, Limited: See—
 Fujioka, Akira; Sakiyama, Kazuo; Takigawa, Akio; and Yoshida, Motoaki, 4,394,177, Cl. 106-287.140.
 Kirino, Osamu; Hirano, Masachika; Takeda, Hisami; and Kato, Toshiro, 4,394,379, Cl. 424-211.000.
 Yamada, Yasuharu; and Kawai, Kiyoshi, 4,394,292, Cl. 252-429.00B.
 Sumitomo Metal Industries, Ltd.: See—
 Kusaba, Yoshiaki, 4,393,679, Cl. 72-221.000.
 Ohtani, Hiroo; and Watanabe, Seiichi, 4,394,187, Cl. 148-12.00F.
 Sun Electric Corporation: See—
 Marten, John A.; Legler, Donald; and Wagoner, Jesse W., 4,393,694, Cl. 73-117.000.
 Sundmar, Goran: See—
 Gustavsson, Olle; and Sundmar, Goran, 4,393,747, Cl. 89-45.000.
 Sundseth, Jarl. Air cleaners, 4,394,145, Cl. 55-347.000.
 Sundstrand Data Control, Inc.: See—
 Atherton, Kim W., 4,394,405, Cl. 427-58.000.
 Sutton, Trevor G.: See—
 Clark, Walter L.; and Sutton, Trevor G., 4,393,692, Cl. 73-115.000.
 Suzuki, Kouichi; and Mori, Kazuyuki, to Nissan Motor Company, Limited. Automatic speed control system for an automotive vehicle, 4,394,739, Cl. 364-426.000.
 Suzuki, Seigo; and Eguchi, Seiji, to Tokyo Shibaura Denki Kabushiki Kaisha. Multi-processor system employing job-swapping between different priority processors, 4,394,730, Cl. 364-200.000.
 Suzuki, Tadashi; and Kishi, Norimasa, to Nissan Motor Co., Ltd. Abnormality treatment device for automatic transmission control device, 4,393,732, Cl. 74-866.000.
 Suzuki, Toshiyuki: See—
 Sakuma, Hiraku; and Suzuki, Toshiyuki, 4,394,674, Cl. 357-23.000.
 Suzuki, Yasuo: See—
 Nomura, Hirokazu; Sugitani, Yuji; and Suzuki, Yasuo, 4,394,559, Cl. 219-125.120.
 Suzuki, Yoshihisa; Kaizuka, Takanoli; Hanyu, Yoshiaki; Otake, Mituyoshi; and Hidano, Yoichi, to Hitachi, Ltd. Method for producing magnetic recording medium, 4,394,404, Cl. 427-48.000.

Svarc, Stanislav: See—
Rambousek, Miroslav; and Svarc, Stanislav, 4,393,648, Cl. 57-413.000.

Svendsen, Noel A.: See—
Lapeyre, James M.; Svendsen, Noel A.; Carroll, Raymond J., Jr.; Long, Henry H.; and Lindberg, Richard S., 4,393,544, Cl. 17-73.000.

Swanson, Arthur P. Windshield visor mirror, 4,394,065, Cl. 350-304.000.

Swenson, Robert E., to Sperry Corporation. Cache/disk subsystem trickle, 4,394,732, Cl. 364-200.000.

Swenson, Robert E., to Sperry Corporation. Cache/disk subsystem, 4,394,733, Cl. 364-200.000.

Swift, Harold E.: See—
Madgavkar, Ajay M.; and Swift, Harold E., 4,394,296, Cl. 252-433.000.

Vogel, Roger F.; Marcelin, George; and Swift, Harold E., 4,394,525, Cl. 568-462.000.

SWS Silicones Corporation: See—
Martin, Eugene R.; and Tripp, Jeffrey A., 4,394,517, Cl. 556-419.000.

McAfee, Richard C.; Adkins, James; and Miskowski, Richard L., 4,394,317, Cl. 260-429.000.

Sybron Corporation: See—
Mehra, Ravinder C.; and Aggarwal, Raj K., 4,394,266, Cl. 210-244.000.

Sykora, George S.: See—
Thomas, William R.; and Sykora, George S., 4,394,202, Cl. 156-94.000.

Syn-Trac Systems Inc.: See—
Forshee, David J., 4,393,999, Cl. 248-346.000.

Syntex (U.S.A.) Inc.: See—
Spires, Howard R., 4,394,377, Cl. 424-177.000.

Szoka, Francis C., Jr.; and Papahadjopoulos, Demetrios P. Plant nutrient compositions and method of their application, 4,394,149, Cl. 71-28.000.

Szoka, Francis C., Jr.; and Papahadjopoulos, Demetrios P. Method of inserting DNA into living cells, 4,394,448, Cl. 435-172.000.

Tabler, Donald C.: See—
Nowack, Gerhard P.; Johnson, Marvin M.; and Tabler, Donald C., 4,394,298, Cl. 252-438.000.

Tachihara, Jin; and Koyama, Hideaki, to Sanyo Electric Co., Ltd. Electronic controlled heat cooking apparatus, 4,394,557, Cl. 219-10.55B.

Tacquet, Maurice. Mixing unit, 4,393,854, Cl. 123-576.000.

Tadashi, Mitsui: See—
Hiraku, Imaizumi; and Tadashi, Mitsui, 4,394,636, Cl. 336-172.000.

Taguchi, Tatsuhisa: See—
Maruyama, Teruo; Onoda, Tadayuki; and Taguchi, Tatsuhisa, 4,394,114, Cl. 418-269.000.

Takagi, Mikio: See—
Shioya, Yoshimi; Maeda, Mamoru; Takasaki, Kanetake; and Takagi, Mikio, 4,394,401, Cl. 427-39.000.

Takagi, Toshinori: See—
Morimoto, Kiyoshi; and Takagi, Toshinori, 4,394,210, Cl. 156-608.000.

Takahashi, Hiroshi, to Canon Kabushiki Kaisha; and Canon Denshi Kabushiki Kaisha. Printer with printing drum, 4,393,770, Cl. 101-93.220.

Takahashi, Kenji; Yamazaki, Hisashi; Miyahara, Junji; Kotera, Noboru; Eguchi, Shusaku; and Miura, Norio, to Fuji Photo Film Co., Ltd. Radiation image storage panel, 4,394,581, Cl. 250-484.100.

Takahashi, Masao: See—
Nagano, Genzo; and Takahashi, Masao, 4,394,763, Cl. 371-38.000.

Takeuchi, Fumio; and Takahashi, Masao, 4,394,198, Cl. 149-21.000.

Takahashi, Toru; and Ueno, Sadayasu, to Hitachi, Ltd. Ball-circulation type liquid flow rate sensor, 4,393,720, Cl. 73-861.050.

Takahashi, Yukio: See—
Isogai, Hideaki; and Takahashi, Yukio, 4,394,657, Cl. 340-825.930.

Takami, Katsumi: See—
Tanaka, Eiichi; Nohara, Norimasa; Murayama, Hideo; Ishimatsu, Kenji; Ogushi, Akira; and Takami, Katsumi, 4,394,576, Cl. 250-366.000.

Takara Co., Ltd.: See—
Murakami, Kazuya, 4,393,620, Cl. 46-201.000.

Takasaki, Kanetake: See—
Shioya, Yoshimi; Maeda, Mamoru; Takasaki, Kanetake; and Takagi, Mikio, 4,394,401, Cl. 427-39.000.

Takasaki, Yukio: See—
Tsukada, Toshihisa; Takasaki, Yukio; Hirai, Tadaaki; Baji, Toru; Yamamoto, Hideaki; Tanaka, Yasuo; Maruyama, Eiichi; and Ishioka, Sachio, 4,394,749, Cl. 365-106.000.

Takasugi, Hisashi: See—
Takaya, Takao; Takasugi, Hisashi; Murata, Masayoshi; and Yoshioka, Akiteru, 4,394,384, Cl. 424-246.000.

Takatama, Isao. Method for recovering waste heat as motive power, 4,393,657, Cl. 60-653.000.

Takaya, Takao; Takasugi, Hisashi; Murata, Masayoshi; and Yoshioka, Akiteru, to Fujisawa Pharmaceutical Co., Ltd. Amino-thiazole cycloalkenylxymino acetamido cephem derivatives, 4,394,384, Cl. 424-246.000.

Takayama, Jun: See—
Ninomiya, Ichiro; and Takayama, Jun, 4,394,694, Cl. 360-14.300.

Takeda, Hisami: See—
Kirino, Osamu; Hirano, Masachika; Takeda, Hisami; and Kato, Toshiro, 4,394,379, Cl. 424-211.000.

Takeda, Kunihiko: See—
Miyake, Tetsuya; Takeda, Kunihiko; Onitsuka, Hatsuki; Okuyama, Kazuo; and Shimamura, Yasuki, 4,394,353, Cl. 423-21.500.

Takeda, Mikio; Kakihara, Yoshinobu; Yoshida, Masaru; and Nakata, Yukihiko, to Sharp Kabushiki Kaisha. ZnS:Mn Thin-film electroluminescent element with memory function, 4,394,601, Cl. 313-509.000.

Takematsu, Yoshiyuki, to Fuji Koei Kabushiki Kaisha, a part interest. Photographic flash device operatively responsive to the luminance of an object to be photographed to prevent overexposure, 4,394,079, Cl. 354-33.000.

Takenaka, Sadao: See—
Kurihara, Hiroshi; Takenaka, Sadao; and Itaya, Eiji, 4,394,626, Cl. 331-12.000.

Takenoya, Hideaki: See—
Eguchi, Yasukata; Takenoya, Hideaki; and Sano, Yasuro, 4,393,794, Cl. 112-158.00E.

Makabe, Hachiro; Watanabe, Kazuo; Takenoya, Hideaki; Kume, Toshiaki; and Kakinuma, Toshihide, 4,393,795, Cl. 112-158.00E.

Takeuchi, Fumio; and Takahashi, Masao, to Nippon Oil and Fats Company, Limited. Water-in-oil emulsion explosive composition, 4,394,198, Cl. 149-21.000.

Takeuchi, Tomio: See—
Umezawa, Hamao; Shimada, Nobuyoshi; Naganawa, Hiroshi; Takita, Tomohisa; Hamada, Masa; and Takeuchi, Tomio, 4,394,446, Cl. 435-88.000.

Takigawa, Akio: See—
Fujioka, Akira; Sakiyama, Kazuo; Takigawa, Akio; and Yoshida, Motoaki, 4,394,177, Cl. 106-287.140.

Takimoto, Masaaki: See—
Kawaguchi, Hideo; Inayama, Takayuki; Takimoto, Masaaki; and Ono, Yoshihiro, 4,394,441, Cl. 430-524.000.

Takita, Tomohisa: See—
Umezawa, Hamao; Shimada, Nobuyoshi; Naganawa, Hiroshi; Takita, Tomohisa; Hamada, Masa; and Takeuchi, Tomio, 4,394,446, Cl. 435-88.000.

Talibdzhanov, Zakhidzhan S.: See—
Golovanov, Alexandr V.; Eschenko, Vladislav Y.; Musaev, Irsali K.; and Talibdzhanov, Zakhidzhan S., 4,394,120, Cl. 431-284.000.

Tallent, Othar K.; Dodson, Karen E.; and Mailen, James C., to United States of America, Energy. Method for cleaning solution used in nuclear fuel reprocessing, 4,394,269, Cl. 210-690.000.

Tamai, Kiminori; and Hayama, Masashi, to TDK Electronics Co., Ltd. Magnetic recording medium, 4,394,420, Cl. 428-447.000.

Tamm, Rolf; and Tomoff, Toma, to Bodenseewerk Perkin-Elmer & Co. GmbH. Sampling valve useful in liquid chromatography, 4,393,726, Cl. 73-864.840.

Tamura, Manabu; Kamemura, Yoshiki; and Handa, Masao, to Nippon Kokan Kabushiki Kaisha. Plugs for use in piercing and elongating mills, 4,393,677, Cl. 72-97.000.

Tamura, Masao: See—
Wada, Yasuo; Usui, Hiroo; Ohkura, Makoto; Miyao, Masanobu; Tamura, Masao; and Tokuyama, Takashi, 4,394,191, Cl. 148-33.100.

Tanaka, Akira: See—
Nishida, Minoru; Hattori, Tadashi; and Tanaka, Akira, 4,393,850, Cl. 123-536.000.

Tanaka, Eiichi; Nohara, Norimasa; Murayama, Hideo; Ishimatsu, Kenji; Ogushi, Akira; and Takami, Katsumi, to National Institute of Radiological Sciences; and Hitachi Medical Corporation. Apparatus for detecting the location of incident radiation, 4,394,576, Cl. 250-366.000.

Tanaka, Hideki; and Otsuka, Kazutoshi, to Tokyo Kogyo Co., Ltd. Fuel control system for automobile engine, 4,393,840, Cl. 123-440.000.

Tanaka, Kouzi: See—
Ikeguchi, Shigehiko; and Tanaka, Kouzi, 4,394,778, Cl. 455-182.000.

Tanaka, Takayuki; and Matsumoto, Rempei, to Fuji Jukogyo Kabushiki Kaisha. System for controlling cooling water temperature for water-cooled engine, 4,393,819, Cl. 123-41.080.

Tanaka, Yasuo: See—
Tsukada, Toshihisa; Takasaki, Yukio; Hirai, Tadaaki; Baji, Toru; Yamamoto, Hideaki; Tanaka, Yasuo; Maruyama, Eiichi; and Ishioka, Sachio, 4,394,749, Cl. 365-106.000.

Tao, Eddie V. P., to Eli Lilly and Company. Process for preparing an isoxazolyurea, 4,394,510, Cl. 548-240.000.

Tapp, Ruel W. Dual mode vacuum cleaner, 4,393,536, Cl. 15-327.00C.

Tarle, Gregory. Track recording plastic compositions, 4,394,307, Cl. 524-776.000.

Tarumi, Noriyoshi; Tsuchiya, Hiroshi; Kokiso, Masakazu; and Ohta, Hiroaki, to Konishiroku Photo Industry Co., Ltd.; and Hokushin Industries Corporation. Method of producing thin-walled endless belt, 4,394,340, Cl. 264-219.000.

Tatis Plastatnigar AB: See—
Dahlberg, Anders, 4,394,715, Cl. 362-153.000.

Tatsumi, Juichi, to Ye Data Inc. Printing head for a printer, 4,393,771, Cl. 101-93.480.

Taybos Sociedad Anonima: See—
Bosnia, Omar J., 4,394,015, Cl. 273-73.00C.

Taylor, Arnold E., to Discovision Associates. Hot sprue sleeve valve assembly for an injection molding machine, 4,394,117, Cl. 425-549.000.

Taylor, David W., to Ergon, Inc. Particulate coal-in-liquid mixture and process for the production thereof, 4,394,132, Cl. 44-51.000.

Taylor Freezer Company: See—
Keyes, Richard M.; and Schwitters, Stephen W., 4,393,659, Cl. 62-66.000.

Taylor, Glenn N., to Kendall Company. The Device for collecting body liquids, 4,393,880, Cl. 128-760.000.

Taylor, James L., to Procter & Gamble Company. The Process for making lipid membrane structures, 4,394,372, Cl. 424-85.000.

TDK Electronics Co., Ltd.: See—
Hiraku, Imaizumi; and Tadashi, Mitsui, 4,394,636, Cl. 336-172.000.

Tamai, Kiminori; and Hayama, Masashi, 4,394,420, Cl. 428-447.000.

Teague, H. Derek, to Ace Orthopedic Manufacturing Inc. Colles fracture fixture device, 4,393,868, Cl. 128-92.00A.

Team Form AG: See—
Munz, Johann, 4,393,623, Cl. 49-248.000.

Tekno-Detaljer Sture Carlsson AB: See—
Favot, Guido; and Berg, Alf A., 4,393,678, Cl. 72-131.000.

Teletronics Pty. Ltd.: See—
Nappholz, Tibor A.; Hinch, Barry; and Shaw, David B., 4,393,874, Cl. 128-419.0PT.

Teledyne Industries, Inc.: See—
Ramey, Robert M., 4,393,527, Cl. 4-493.000.

TEMCO, Inc.: See—
Benny, John R.; Buher, Robert W.; and Smith, Paul K., 4,394,259, Cl. 209-250.000.

Temple, Chester S., to PPG Industries, Inc. Aqueous sizing composition and glass fibers made therewith for reinforcing thermosetting polymers, 4,394,418, Cl. 428-391.000.

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Olson, Donald L., 4,393,538, Cl. 15-320.000.

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Janke, Elden W., 4,394,056, Cl. 312-216.000.

Terakado, Katsuyoshi: See—
Asahi, Naotatsu; Yamaguchi, Sizuka; and Terakado, Katsuyoshi, 4,394,234, Cl. 204-164.000.

Terashita, Takaaki, to Fuji Photo Film Co., Ltd. Method of controlling exposure, 4,394,078, Cl. 354-31.000.

Terazawa, Hidehito, to Nippondenso Co., Ltd. Load drive control system, 4,394,605, Cl. 318-280.000.

Terrien, Michel E.; and Bouvet, Claude, to Etat Francais. Device for lap-joint engagement of two bridge elements on intrados or extrados and bridge element comprising it, 4,393,533, Cl. 14-2.600.

Terwilliger, Gerald L.: See—
Merriitt, Robert C.; and Terwilliger, Gerald L., 4,393,852, Cl. 123-564.000.

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Widergren, Robert D.; Chen, Wen-Hsiung; Fralick, Stanley C.; and Tescher, Andrew G., 4,394,774, Cl. 382-56.000.

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Cuscuridi, Michael; Grice, Neal J.; and Speranza, George P., 4,394,463, Cl. 521-167.000.

Lewis, Paul H.; and Nelson, Gerald V., 4,394,254, Cl. 208-310.00Z.

Marion, Charles P.; Crouch, William B.; Brent, Albert; Richter, George N.; Child, Edward T.; and Reynolds, Blake, 4,394,137, Cl. 48-197.00R.

Moser, Henry D., 4,394,261, Cl. 210-96.100.

Texas Alkyls, Inc.: See—
Malpass, Dennis B.; and Yeargin, G. Scott, 4,394,326, Cl. 260-448.0AD.

Texas Instruments Incorporated: See—
Doherty, John, Jr., 4,393,834, Cl. 123-339.000.

Textron Inc.: See—
Chmura, William J.; and Slusarski, Ronald S., 4,394,421, Cl. 428-547.000.

Olm, Jaroslav J., 4,393,739, Cl. 83-834.000.

Theilacker, Klaus, to M.A.N.-Roland Druckmaschinen Aktiengesellschaft. Rotary sheet printing machine with transport chain, 4,393,773, Cl. 101-232.000.

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Chattha, Mohinder S.; and Theodore, Ares N., 4,394,486, Cl. 525-162.000.

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Fischer, Victor H., 4,393,653, Cl. 60-511.000.

Theurer, Josef, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Apparatus for replacing rail fastening elements and, optionally, rails, 4,393,784, Cl. 104-2.000.

Thies, Peter, to Wagener Schwelm GmbH & Co. Belt press with hose-type actuator, 4,393,766, Cl. 100-99.000.

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Thiokol Corporation: See—
Barnes, Michael W., 4,394,329, Cl. 260-467.000.

Wade, Robert C.; and Guilbault, Lawrence J., 4,394,226, Cl. 204-72.000.

Wade, Robert C., 4,394,458, Cl. 521-82.000.

Thomas & Betts Corporation: See—
Herb, Philip J., 4,393,548, Cl. 24-16.0PB.

Thomas, Charles E.: See—
Batchelder, Clarence F.; Thomas, Charles E.; and Casady, Kent B., 4,394,102, Cl. 414-5.000.

Thomas J. Lipton, Inc.: See—
Tresser, David, 4,394,392, Cl. 426-101.000.

Thomas Jefferson University: See—
Galkin, Benjamin M.; Boon, Raymond; Gilliam, Rudolph V.; and Park, Chan H., 4,393,864, Cl. 128-1.100.

Osterholm, Jewell L., 4,393,863, Cl. 128-1.00R.

Thomas, Roy L.: See—
Bergman, Carl A.; Thomas, Roy L.; and Bourbeau, Richard A., 4,394,009, Cl. 271-10.000.

Thomas, William R.; and Sykora, George S., to UMAC, Inc.; and Brooklyn Union Gas Company, a part interest. Method for relining an underground gas line or the like without excavation, 4,394,202, Cl. 156-94.000.

Thompson, Richard D.; Tsaor, Boryeu; and Tu, King-Ning, to International Business Machines Corporation. Rare earth silicide Schottky barriers, 4,394,673, Cl. 357-15.000.

Thomson-CSF: See—
Pham, Ngu T.; and Nuzillat, Gerard, 4,394,589, Cl. 307-450.000.

Ratigalas, Max, 4,394,641, Cl. 340-347.0DD.

Thorell, Jan I. Radioimmunoassay reagents, 4,394,391, Cl. 424-366.000.

Thorn, Brent: See—
Thorn, M. W.; Thorn, E. R.; and Thorn, Brent, 4,393,734, Cl. 81-468.000.

Thorn, E. R.: See—
Thorn, M. W.; Thorn, E. R.; and Thorn, Brent, 4,393,734, Cl. 81-468.000.

Thorn, M. W.; Thorn, E. R.; and Thorn, Brent, to Van F. Belknap Co., Inc. Combined torque limiting and marking wrench, 4,393,734, Cl. 81-468.000.

Threshold Technology, Inc.: See—
Warren, Ben; White, George M.; Parfitt, Rick; and Deng, Peter, 4,394,538, Cl. 179-1.0SD.

TII Corporation: See—
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Timex Corporation: See—
Willis, Alan E.; Lowdenslager, John R.; and Goldstein, Neal, 4,394,540, Cl. 179-2.0AM.

Toastmaster, Inc.: See—
Schnell, John W., 4,394,563, Cl. 219-342.000.

Tobler, Hans; Fory, Werner; and Schurter, Rolf, to Ciba-Geigy Corporation. Novel N-phenyl-substituted N-heterocyclic compounds, their preparation and use in agents for regulating plant growth, 4,394,156, Cl. 71-94.000.

Todd, Maurice C.: See—
Clark, Thomas R.; Lillmars, Alvin E.; Roth, Elwood A.; Schmick, Alvin L.; and Todd, Maurice C., 4,393,736, Cl. 83-100.000.

Todd, Mike J.: See—
Lee, Jeffrey A.; and Todd, Mike J., 4,393,534, Cl. 15-98.000.

Toko, Inc.: See—
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Tokuyama, Takashi: See—
Wada, Yasuo; Usui, Hiroo; Ohkura, Makoto; Miyao, Masanobu; Tamura, Masao; and Tokuyama, Takashi, 4,394,191, Cl. 148-33.100.

Tokyo Kogyo Co., Ltd.: See—
Tanaka, Hideki; and Otsuka, Kazutoshi, 4,393,840, Cl. 123-440.000.

Tokyo Sanyo Electric Co. Ltd.: See—
Ikeguchi, Shigehiko; and Tanaka, Kouzi, 4,394,778, Cl. 455-182.000.

Tokyo Shibaura Denki Kabushiki Kaisha: See—
Gocho, Yoshitsugu, 4,394,593, Cl. 310-54.000.

Ishikawa, Ken, 4,394,764, Cl. 372-38.000.

Iwai, Hiroshi, 4,394,196, Cl. 148-187.000.

Kimura, Tadamoto; and Noguchi, Takeshi, 4,394,596, Cl. 310-184.000.

Komatsu, Shigeru; and Nakamura, Michio, 4,394,436, Cl. 430-311.000.

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Suzuki, Seigo; and Eguchi, Seiji, 4,394,730, Cl. 364-200.000.

Tsuji, Tadashi; and Igarashi, Ryokichi, 4,393,899, Cl. 138-89.000.

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Tokyo Sokuhan Co., Ltd.: See—
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,897, Cl. 137-831.000.

Tomic, Ernst A., to Du Pont de Nemours, E. I., and Company. Phosphate cement and mortar, 4,394,174, Cl. 106-85.000.

Tomic, Mladimir: See—
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Tomimori, Akinobu: See—
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Tomoff, Toma: See—
Tamm, Rolf; and Tomoff, Toma, 4,393,726, Cl. 73-864.840.

Tomoyori, Makoto: See—
Harumatsu, Masatoshi; Tomoyori, Makoto; and Tsushima, Noboru, 4,393,709, Cl. 73-505.000.

Torgersen, Robert H.: See—
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Toyoda, Hideaki, to Komori Printing Machinery Co., Ltd. Ink fountain device for use in printing press, 4,393,776, Cl. 101-365.000.

Toyoda Jidosha Kogyo Kabushiki Kaisha: See—
Kono, Hiroya; Hasegawa, Jun; Inagaki, Mitsukane; and Kobayashi, Hisao, 4,393,966, Cl. 192-56.00R.

Toyota Jidosha Kabushiki Kaisha: See—
Naito, Tadashi, 4,393,693, Cl. 73-116.000.

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Transamerica DeLaval Inc.: See—
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- Tresser, David, to Thomas J. Lipton, Inc. Processes for producing composite ice confections, and products thereof. 4,394,392, Cl. 426-101.000.
- Trithewy, Derek C.: See—
Cole, Denis B.; and Trithewy, Derek C., 4,393,640, Cl. 53-69.000.
- Triangle Package Machinery Company: See—
Klopfenstein, King L.; and Connors, Robert H., 4,393,950, Cl. 177-108.000.
- Tricamo, Stephen J.: See—
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- Trinh, Eugene H.: See—
Barmatz, Martin B.; Trinh, Eugene H.; Wang, Taylor G.; Elleman, Daniel D.; and Jacobi, Nathan, 4,393,708, Cl. 73-505.000.
- Tripp, Jeffrey A.: See—
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- Trutzschler GmbH & Co. KG: See—
Hosel, Fritz, 4,393,547, Cl. 19-105.000.
- TRW Inc.: See—
Hyde, Robert L., 4,394,090, Cl. 368-121.000.
Martin, Jon W., 4,394,478, Cl. 524-424.000.
- Tryber, Robert E.; and Hoffman, George A., to Gettys Manufacturing Co., Inc. Machine tool tracing system. 4,394,608, Cl. 318-578.000.
- Trybulski, Eugene J., to Hoffmann-La Roche Inc. Production of 2-benzazepines. 4,394,311, Cl. 260-239.000.
- Tsaur, Boryeu: See—
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- Tsuchiya, Hiroshi: See—
Tsurumi, Noriyoshi; Tsuchiya, Hiroshi; Kokiso, Masakazu; and Ohta, Hiroaki, 4,394,340, Cl. 264-219.000.
- Tsuda, Shunji. Electromagnetic wave energy absorbing material. 4,394,415, Cl. 428-332.000.
- Tsuda, Yukifumi: See—
Yoshida, Kunio; Kotera, Hiroaki; Tsuda, Yukifumi; Kanno, Yoshimitsu; and Naka, Motohiko, 4,394,662, Cl. 346-33.000.
- Tsudakoma Kogyo Kabushiki Kaisha: See—
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- Tsuji, Tadashi; and Igarashi, Ryokichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Plugging apparatus. 4,393,899, Cl. 138-89.000.
- Tsukada, Saburo: See—
Uchiyama, Nobuhiro; Shingu, Masataka; and Tsukada, Saburo, 4,394,211, Cl. 156-628.000.
- Tsukada, Toshihisa; Takasaki, Yukio; Hirai, Tadaaki; Baji, Toru; Yamamoto, Hideaki; Tanaka, Yasuo; Maruyama, Eiichi; and Ishioka, Sachio, to Hitachi, Ltd. Photoelectric device and method of producing the same. 4,394,749, Cl. 365-106.000.
- Tsukui, Minoru; Sekiguchi, Hiroshi; and Machida, Takatoshi, to Fuji Kogyo Kabushiki Kaisha. Draining device used in a car-muffler. 4,393,956, Cl. 181-265.000.
- Tsunekawa, Sukeyoshi: See—
Homma, Yoshio; Tsunekawa, Sukeyoshi; Morisaki, Hiroshi; and Harada, Seiki, 4,394,245, Cl. 204-298.000.
- Tsushima, Noboru: See—
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- Tu, King-Ning: See—
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- Tuftco Corporation: See—
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- Tuil, William J.: See—
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- Tukamoto, Masahiro, to Nippon Seiko Kabushiki Kaisha. Emergency locking type retractor. 4,393,995, Cl. 242-107.40A.
- Tulloch, Joseph C.: See—
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- Tuman, Cazimir. Aircraft arrestment system. 4,393,996, Cl. 244-110.000.
- Tumber, Brian W., to Lucas Industries Limited. Liquid fuel injection pumping apparatus. 4,393,826, Cl. 123-198.000.
- Tung, William C. T., to Goodyear Tire & Rubber Company. The. Water dispersible polyester compositions. 4,394,490, Cl. 525-438.000.
- Tuong, Duc L.: See—
Bienvenu, Jacques; Dufond, Patrick; Carre, Claude; Tuong, Duc L.; Verdier, Henri; deRivet, Philippe-Hubert; Bradley, John J.; and Franklin, Benjamin S., 4,394,725, Cl. 364-200.000.
- Turner, John T.; Gulati, Harish C.; Hall, William B.; and Watson, Arnold, to Victoria University of Manchester, The. Apparatus for measuring fluid flow. 4,393,721, Cl. 73-861.210.
- Turnquist, Cecil E.: See—
Egley, Richard S.; and Turnquist, Cecil E., 4,394,220, Cl. 203-42.000.
- Tylko, Jozef K., to Plasma Holdings N.V. Treatment of matter in low temperature plasmas. 4,394,162, Cl. 75-10.000.
- Uchida, Yasumi: See—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,394,382, Cl. 424-283.000.
- Uchiyama, Nobuhiro; Shingu, Masataka; and Tsukada, Saburo, to Fujitsu Limited. Method of manufacturing a semiconductor device having a layer of polyimide resin. 4,394,211, Cl. 156-628.000.
- Ueda, Yasukiyo: See—
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- Ueki, Masato: See—
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- Ueno, Sadayasu: See—
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- Uhlmann, Klaus-Peter: See—
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- Uhlmann, Otto; and Uhlmann, Klaus-Peter, to Kabel-und Metallwerke Gutehoffnungshutte AG. Processing of copper tubing. 4,393,566, Cl. 29-417.000.
- Ujikawa, Norihisa; and Fukushima, Kyosuke, to Nippon Oil and Fats Co., Ltd. Low shrinkage unsaturated polyester resin composition. 4,394,480, Cl. 525-43.000.
- Ullman, Myron E., Jr.: See—
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- UMAC, Inc.: See—
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- Umetsu, Noriharu: See—
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- Umezawa, Hamao; Shimada, Nobuyoshi; Naganawa, Hiroshi; Takita, Tomohisa; Hamada, Masa; and Takeuchi, Tomio, to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai. Process for the preparation of the antibiotic oxanosine. 4,394,446, Cl. 435-88.000.
- Union Carbide Corporation: See—
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Hannum, Roy R., 4,394,161, Cl. 75-0.5BC.
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- Union Oil Company of California: See—
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- Uniroyal, Inc.: See—
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- Uniroyal Ltd.: See—
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- United International California Corporation: See—
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- United Kingdom Atomic Energy Authority: See—
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- United Kingdom of Great Britain and Northern Ireland, The Minister of Transport in Her Britannic Majesty's Government of the: See—
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- United States of America
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- Air Force: See—
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- Army: See—
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- Commerce: See—
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- Energy: See—
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- Interior: See—
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- National Aeronautics and Space Administration: See—
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- Dolland, Carlisle R., 4,394,610, Cl. 318-803.000.
- Harris, Raymond P., 4,393,777, Cl. 101-407.000.
- Kohl, Wayne H., 4,394,726, Cl. 364-200.000.
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- United Technologies Corporation: See—
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- University of California, Regents of the: See—
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- University of Kentucky Research Foundation: See—
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- UOP Inc.: See—
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- Upat GmbH & Co.: See—
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- Urano, Shigeru, to Nippon Piston Ring Co., Ltd. Cylinder or cylinder liner. 4,393,821, Cl. 123-195.000.
- Ushijima, Richard N. Thymus gland extracts. 4,394,374, Cl. 424-95.000.
- Usui, Hiroo: See—
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- Vakil, Himanshu B., to General Electric Company. Means and method for regulating flowrate in a vapor compression cycle device. 4,393,661, Cl. 62-113.000.
- Valenta, Paul: See—
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- Vallance, Leslie: See—
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- Vandenberg, Philippe: See—
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- Van der Meiden, Orrie J.: See—
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- Vandermeiden, Tom R.: See—
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- Van Mullem, Albert, to PVBA Van Mullem. Motorbus or similar vehicle. 4,393,955, Cl. 180-291.000.
- Van Nordstrand, Robert A., to Chevron Research Company. Hydrocarbons hydroprocessing with imogolite catalyst. 4,394,253, Cl. 208-251.00H.
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- Vansant, James H. Vapor cooled current lead for cryogenic electrical equipment. 4,394,634, Cl. 335-216.000.
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- VDO Adolf Schindling AG: See—
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- Verhoeven, Leonardus A. J., to U.S. Philips Corporation. Device for differential image determination. 4,394,684, Cl. 358-111.000.
- Vesuvius International Corporation: See—
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- Vibro-Meter S.A.: See—
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- Vicon Industries, Inc.: See—
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- Victor Company of Japan, Limited: See—
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- Victoria University of Manchester, The: See—
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- VLI Corporation: See—
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- Vogelsberg, Robert E.: See—
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- Vutov, Stancho H.; and Slavov, Rashko R., to Institute po Metaloznanie i Tehnologia na Metalite. Apparatus for pressure die casting, 4,393,916, Cl. 164-119.000.
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- Roth, Michael; and Frey, Volker, 4,394,335, Cl. 264-82.000.
- Wada, Masahiko; and Ueki, Masato, to Kabushiki Kaisha Riken. Apparatus for supplying a predetermined number of piston rings to a work station, 4,393,981, Cl. 221-289.000.
- Wada, Yasuo; Usui, Hiroo; Ohkura, Makoto; Miyao, Masanobu; Tamura, Masao; and Tokuyama, Takashi, to Hitachi, Ltd. Stacked polycrystalline silicon film of high and low conductivity layers, 4,394,191, Cl. 148-33.100.
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- Wade, Robert C., to Thiokol Corporation. Alkali metal borohydride concentrate, 4,394,458, Cl. 521-82.000.
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- Wagner, Heinz: See—
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- Wagner, Wilfried, to ITT Industries, Inc. Brake booster, 4,393,750, Cl. 91-376.00R.
- Wagner, Wolfgang. Suction injector, 4,393,870, Cl. 604-115.000.
- Wagner, Wolfgang, to U.S. Philips Corporation. Method of and device for determining the distribution of radiation absorption in a slice of a body, 4,394,738, Cl. 364-414.000.
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- Wainwright, Clyde S., Jr.: See—
Muse, John F.; Callihan, Rudy B.; Goad, Bobby F.; and Wainwright, Clyde S., Jr., 4,393,931, Cl. 166-208.000.
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- Wakamiya, Yoshinori; Hamasaki, Yoshiharu; Kutsuzawa, Masaki; and Mitsubishi Denki Kabushiki Kaisha. Method of controlling continuous reheating furnace, 4,394,121, Cl. 432-11.000.
- Walker, Charles D.: See—
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- Walkowiak, Michael: See—
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- Wallace, Edward L.; and Wright, Theodore, to United States of America, Navy. Programmable CRT brightness control, 4,394,689, Cl. 358-168.000.
- Wallace, George E., to Emhart Industries, Inc. Multiple damper assembly for reach-in cases of the air defrost type, 4,393,664, Cl. 62-256.000.
- Waller, Jan; and Loof, Philippus, to Shell Oil Company. Process for combusting ammonia-containing gases which also contain hydrogen sulfide, 4,394,119, Cl. 431-5.000.
- Wallmann, Hubert, to Sprecher & Schuh AG. Gas-blast switch actuable by a mechanical drive by means of a drive element, 4,394,550, Cl. 200-34.000.
- Walter, John; Roth, Donald J.; and Kubis, Charles S., to Continental Group, Inc. The Apparatus and method for applying adhesive to a container edge portion, 4,394,408, Cl. 427-231.000.
- Walton, William B., to BASF Wyandotte Corporation. Stimulation of gas wells with phosphate ester surfactants, 4,393,935, Cl. 166-263.000.
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Whitaker, Ritchie W., 4,394,003, Cl. 251-173.000.
- Wampler, E. Lawrence. Swept-dip probe, 4,394,617, Cl. 324-57.00Q.
- Wampler, Galen L.: See—
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- Wamser, Manfred: See—
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- Wang, Han C.: See—
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- Landon, Alfred J.; Pennebaker, William B.; and Wang, Han C., 4,393,769, Cl. 101-93.300.
- Wang, Kenneth Y.; and Hill, Berlie R., to Burlington Industries, Inc. Ultrasonic bonding, 4,394,208, Cl. 156-580.100.
- Wang, Samuel S.; and Scanlon, Michael J., to American Cyanamid Company. Froth flotation process, 4,394,257, Cl. 209-166.000.
- Wang, Taylor G.: See—
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- Warabi, Junichi; Sakuma, Shinzo; Kawaguchi, Hidemi; and Kobari, Yukio, to Kabushiki Kaisha Meidensha. Vacuum circuit interrupter, 4,394,554, Cl. 200-144.00B.
- Ward, Fred A. Kneeling aid device, 4,394,049, Cl. 297-439.000.
- Warman International Limited: See—
Gugger, Hans; and Ackland, John, 4,393,944, Cl. 173-28.000.
- Warnecke, Waldemar, to Friedrich Wilh. Schwing GmbH. Excavator with laser position indicator, 4,393,606, Cl. 37-103.000.
- Warnock, Charles E., Sr. Apparatus for use in rejuvenating oil wells, 4,393,928, Cl. 166-105.000.
- Warren, Ben; White, George M.; Parfitt, Rick; and Deng, Peter, to Threshold Technology, Inc. Speech recognition system and method, 4,394,538, Cl. 179-1.05D.
- Wasel-Nielsen, Horst-Dieter; Maurer, Alexander; and Adrian, Renate, to Hoechst Aktiengesellschaft. Process for making granulated condensed phosphates, 4,394,359, Cl. 423-305.000.
- Watanabe, Haruzo: See—
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- Watanabe, Kazuo: See—
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- Watanabe, Kunio: See—
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- Senuma, Michio; and Watanabe, Kunio, 4,394,082, Cl. 354-246.000.
- Watanabe, Makoto: See—
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- Watanabe, Toshiro, to Matsushita Electric Industrial Co., Ltd. Color television signal processing apparatus, 4,394,680, Cl. 358-22.000.
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- Watkins, Richard R.: See—
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- Watkins, Robert G., Jr. Tractor-trailer land vehicle, 4,394,027, Cl. 280-5.00C.
- Watkins, Thomas I.: See—
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- Watson, Arnold: See—
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- Watson, Peter M. F.: See—
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- Wavin B.V.: See—
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- Weaver, Edgar C.: See—
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- Weaver, Jon N.: See—
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- Weaver, Robert F., to Emhart Industries, Inc. Stator arrangement for a synchronous motor, 4,394,595, Cl. 310-162.000.
- Wehr Corporation: See—
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- Weiffen, Karl-Heinz: See—
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- Weinberg, Kurt; and Johnson, Gordon C., to Union Carbide Corporation. Coordination complexes as polyesterification catalysts, 4,394,295, Cl. 252-431.00C.
- Weiss, Hermann; Klotz, Erhard; Peemoller, Horst; Linde, Rolf; and Mauser, Wilfried, to U.S. Philips Corporation. Device for reconstructing layer images of a three-dimensional object by means of an adjustable imaging matrix, 4,394,063, Cl. 350-162.130.
- Weiss, Melvin P.: See—
Nygard, James C.; Weiss, Melvin P.; and Larsen, Thomas E., 4,393,804, Cl. 118-60.000.

- Weissman, Bernard, to Ipco Corporation. Overhandle for enclosing a dental tool handle or shank, 4,393,539, Cl. 16-114.00R.
- Weissman, Sherman M.; Pereira, Dennis; and Sood, Ashwani, to Yale University. Method for cloning genes, 4,394,443, Cl. 435-6.000.
- Weitz, Hans-Martin: See—
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- Welber, Stanley: See—
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- Welsh, Clifford W. Food pouch cooking holder, 4,393,757, Cl. 99-369.000.
- Werkmann, Karl-Heinz; and Sauerscheil, Wolfgang, to VDO Adolf Schindling AG. Flow meter having a rotary body, 4,393,724, Cl. 73-861.910.
- Werner, Marcel A.; Venema, Arnold; and Pisters, Michael G. H., to Akzo N.V. Colored polyethylene terephthalate moulding compound and moulded products made therefrom, 4,394,470, Cl. 524-56.000.
- Werner, Peter: See—
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- Werner, Richard W.; and Hoffman, Myron A. Heat pipes for use in a magnetic field, 4,394,344, Cl. 376-146.000.
- West Electric Co., Ltd.: See—
Yoshino, Tsunemi; Kashiwara, Toshitsugu; Iwata, Hiroshi; and Morioka, Akitoshi, 4,394,077, Cl. 354-25.000.
- West, Trent W. Adjustable trampoline type pool and hot tub cover, 4,393,528, Cl. 4-498.000.
- Western Electric Co., Inc.: See—
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- Arnold, William S., Jr.; and Tulloss, Joseph C., 4,393,582, Cl. 29-828.000.
- Fuchs, Francis J., Jr., 4,393,917, Cl. 164-476.000.
- Westhead, William T., to Scapa Dryers, Inc. Flame retardant dryer fabrics, 4,394,413, Cl. 428-257.000.
- Westinghouse Electric Corp.: See—
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- Fry, Warren C.; Franz, James H.; and Merlino, Paul J., 4,394,724, Cl. 363-124.000.
- Klein, Gerald I., 4,394,633, Cl. 333-238.000.
- Pebler, Alfred R., 4,394,240, Cl. 204-412.000.
- Weyerhaeuser Company: See—
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- Wheelwright, Joseph S. Skate, 4,394,028, Cl. 280-11.190.
- Whetten, Nathan R.: See—
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- Whillier, Austin: See—
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- Whippen, Warren G.: See—
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- Whirlpool Corporation: See—
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- Whitaker, Ritchie W., to Walworth Company. The Cryogenic butterfly valve with bi-directional sealing capability, 4,394,003, Cl. 251-173.000.
- Whitaker, Todd H.: See—
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- White, Fred K., to American Hospital Supply Corporation. Method and device for collecting, transporting, and delivering micro samples of blood, 4,393,882, Cl. 128-764.000.
- White, George M.: See—
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- White, Sidney S., Jr.: See—
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- White-Stevens, Rodric H.: See—
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- Whittle, Danny J.: See—
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- Widen, Bo G., to GKN Stenman AB. Cylinder lock, 4,393,673, Cl. 70-358.000.
- Widgren, Robert D.; Chen, Wen-Hsiung; Fralick, Stanley C.; and Tescher, Andrew G., to Compression Labs, Inc. Digital video compression system and methods utilizing scene adaptive coding with rate buffer feedback, 4,394,774, Cl. 382-56.000.
- Widmayer, Don F., to Controlled Environment Systems Inc. Energy conserving automatic light output system, 4,394,603, Cl. 315-311.000.
- Wieczorek, Alfred B.: See—
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- Wiegand, Walter J.; and Bullis, Robert H., to United Technologies Corporation. Ionization flowmeter, 4,393,719, Cl. 73-861.050.
- Wier, Franz, to Repa Feinstanzwerk GmbH. Locking device for a safety belt, 4,393,553, Cl. 24-230.0AL.
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- Wierschke, Donald J., to RCA Corporation. Method to center and separate electroformed replicas from a matrix, 4,394,341, Cl. 264-225.000.
- Wiese, John M.; and Hoeffken, Russell W., to Snyder General Corporation. Top cover, motor, fan and fan shroud assembly for an air conditioning unit, 4,394,111, Cl. 417-360.000.
- Wijburg, Matheus A. T.: See—
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- Wilber, Scott A., to Biox Technology, Inc. Photodetector having an electrically conductive, selectively transmissive window, 4,394,572, Cl. 250-239.000.
- Wilcockson, Brian: See—
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- Wilhelm Schmidding GmbH & Co., Firma: See—
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- Wilke, Douglas A., to United States of America, Agriculture. Solar air duct, 4,393,862, Cl. 126-448.000.
- Wilkinson, Christopher J.: See—
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- William L. Bonnell Company, The: See—
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- Williams, James; and Wills, Henry K., to Automation Industries, Inc. Double-molded electrical end fitting assembly, 4,394,057, Cl. 339-15.000.
- Williams, Robert R., to Whirlpool Corporation. Capacitive touch panel control, 4,394,643, Cl. 340-365.00C.
- Willingham, Wendell D., to Owens-Illinois, Inc. Child resistant package, 4,393,977, Cl. 215-211.000.
- Willis, Alan E.; Lowdenslager, John R.; and Goldstein, Neal, to Timex Corporation. Remote meter reader and method for reading meters over non-dedicated telephone lines, 4,394,540, Cl. 179-2.0AM.
- Willis, Frederick G.; Radtke, Richard R.; Ellison, Joseph; and Foze, Steven R., to Ford Motor Company. Method for generating energy output signal, 4,393,696, Cl. 73-117.300.
- Willis, Robert J.: See—
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- Willms, Rolf: See—
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Williams, James; and Wills, Henry K., 4,394,057, Cl. 339-15.000.
- Wilson, Donald C., to FMC Corporation. Method for removing rot from potatoes, 4,394,398, Cl. 426-481.000.
- Wilson, Douglas D.: See—
Allen, Walter E.; and Wilson, Douglas D., 4,393,998, Cl. 248-74.00R.
- Wilson, James G., II; and Hammers, P. Fred, to Wilson Welding Company, Inc. Method of making a water-cooled electrode holder, 4,393,565, Cl. 29-157.30R.
- Wilson, James H. Coin-controlled vending apparatus, 4,393,971, Cl. 194-93.000.
- Wilson, John P.: See—
Bergendahl, Albert S.; Hakey, Mark C.; and Wilson, John P., 4,394,437, Cl. 430-312.000.
- Wilson, Robert B. Diester composition and textile processing compositions therefrom, 4,394,126, Cl. 8-115.600.
- Wilson, Thomas E., to Rockwell International Corporation. Gear shift mechanism, 4,393,729, Cl. 74-475.000.
- Wilson Welding Company, Inc.: See—
Wilson, James G., II; and Hammers, P. Fred, 4,393,565, Cl. 29-157.30R.
- Winnell, Nils E.: See—
Gasparini, Aldo; and Winnell, Nils E., 4,393,629, Cl. 52-74.000.
- Winnell, Nils Erik: See—
Gasparini, Aldo; and Winnell, Nils E., 4,393,629, Cl. 52-74.000.
- Winchell, Vern H., II; Scharr, Thomas A.; and Clark, Lowell E., to Motorola, Inc. Elevated edge-protected bonding pedestals for semiconductor devices, 4,394,678, Cl. 357-68.000.
- Winfield, Mason C., to Astronics Corporation. Safety liner for tires, 4,393,911, Cl. 152-158.000.
- Winkler & Dunnebie Maschinenfabrik und Eisengiesserei GmbH & Co. KG: See—
Heyden, Gunter, 4,393,738, Cl. 83-663.000.
- Winter, John P.; and Tomic, Mladimir, to Coca-Cola Company, The. Rubber compounding bags and film made from syndiotactic 1,2-polybutadiene, 4,394,473, Cl. 524-226.000.
- Wirschal, Helmut H.; and Whippen, Warren G., to Allis-Chalmers Corporation. Radial gate having fine tuning of flow control, 4,394,098, Cl. 405-77.000.
- Wisniewski, Joseph M., to Haworth, Inc. Height-adjusting mechanism for chair seat, 4,394,001, Cl. 248-542.000.
- Wittes, James M.: See—
Lane, Ronald S.; and Wittes, James M., 4,393,611, Cl. 40-107.000.
- Wium, Eigil: See—
Gajajiva, Padej; and Wium, Eigil, 4,393,900, Cl. 138-89.000.
- Wnek, Gary E., to Massachusetts Institute of Technology. Electrically conducting polymer blends, 4,394,304, Cl. 252-520.000.
- Woell, William J. Roller table for use with a power saw, 4,393,969, Cl. 193-35.0TE.

- Woerwag, Peter, to Dupro A.G. Speed control circuit for electric motor. 4,394,606, Cl. 318-434.000.
- Wolcott, John M.: See—
Lometillo, Josephine E.; and Wolcott, John M., 4,394,397, Cl. 426-557.000.
- Wolfe, Ralph S.: See—
Blakemore, Richard P.; and Wolfe, Ralph S., 4,394,451, Cl. 435-253.000.
- Wollar, Burnell J.; and Schwind, Richard J., to Phillips Plastics Corp. Rotatably engaging head for fastener. 4,393,551, Cl. 24-213.00R.
- Woo, Dae-Shik: See—
Policastro, Steven G.; and Woo, Dae-Shik, 4,393,572, Cl. 29-571.000.
- Woodling, George V. Combination roller tooth set having roller teeth and concave surfaces disposed to engage each other. 4,394,112, Cl. 418-61.00B.
- Worns, John R.: See—
Farber, Milton; and Worns, John R., 4,394,435, Cl. 430-287.000.
- Worthington, Paul A.: See—
de Fraine, Paul; Clough, John M.; and Worthington, Paul A., 4,394,151, Cl. 71-76.000.
- Wren, Paul E., to United States of America, National Aeronautics and Space Administration. Method of and system for classifying emergency locating transmitters and emergency positions indicating radio beacons. 4,394,777, Cl. 455-95.000.
- Wrench, Edwin H., Jr., to United States of America, Navy. Real-time amplitude histogram shaper. 4,394,744, Cl. 364-553.000.
- Wright, Theodore: See—
Wallace, Edward L.; and Wright, Theodore, 4,394,689, Cl. 358-168.000.
- Wuerzer, Bruno: See—
Eicken, Karl; Rohr, Wolfgang; and Wuerzer, Bruno, 4,394,513, Cl. 548-374.000.
- Wulf, Helmut: See—
Bahrle, Friedrich; and Wulf, Helmut, 4,393,922, Cl. 165-41.000.
- Wurcel, Jacques: See—
Reinstein, Martine; and Wurcel, Jacques, 4,393,667, Cl. 63-29.00R.
- Wurlitzer Company, The: See—
Niezgoda, Thomas A.; and Oppenheimer, Carl P., 4,393,740, Cl. 84-1.010.
- Wynne, John M.; and Vogt, William R., to Baker Industries, Inc. Bidirectional, interactive fire detection system. 4,394,655, Cl. 340-825.360.
- Xerox Corporation: See—
Cheng, David; and Chai, Stephen T., 4,394,667, Cl. 346-137.000.
Hays, Dan A., 4,394,429, Cl. 430-102.000.
Hoffman, James M., Jr.; and Lux, Richard A., 4,394,086, Cl. 355-3.00R.
Rees, James D., 4,394,083, Cl. 355-1.000.
- Yale University: See—
Weissman, Sherman M.; Pereira, Dennis; and Sood, Ashwani, 4,394,443, Cl. 435-6.000.
- Yamada, Tateo: See—
Kimura, Hirovuki; and Yamada, Tateo, 4,394,080, Cl. 354-173.000.
- Yamada, Yasuharu; and Kawai, Kiyoshi, to Sumitomo Chemical Company, Limited. Catalysts for the polymerization of olefins. 4,394,292, Cl. 252-429.00B.
- Yamada, Yasuyuki, to Canon Kabushiki Kaisha. Lens system with fill-in lens. 4,394,071, Cl. 350-422.000.
- Yamaguchi, Kathuhiro: See—
Shimizu, Yoshikazu; and Yamaguchi, Kathuhiro, 4,394,416, Cl. 428-341.000.
- Yamaguchi, Sizuka: See—
Asahi, Naotatsu; Yamaguchi, Sizuka; and Terakado, Katsuyoshi, 4,394,234, Cl. 204-164.000.
- Yamamoto, Hideaki: See—
Tsukada, Toshihisa; Takasaki, Yukio; Hirai, Tadaaki; Baji, Toru; Yamamoto, Hideaki; Tanaka, Yasuo; Maruyama, Eiichi; and Ishioka, Sachio, 4,394,749, Cl. 365-106.000.
- Yamamoto, Hideomi; Watanabe, Haruzo; Kishie, Hidehiko; and Nishihara, Toshio, to Matsushita Electric Works, Ltd. Composite member comprising metallic sheet bent to be arcuate in section and rigid synthetic resin coating. 4,394,412, Cl. 428-174.000.
- Yamamoto, Toshiharu; Sato, Manabu; Akiba, Katsuya; and Abe, Koreyoshi, to Victor Company of Japan, Limited. Detachable handle having a pivotal part. 4,393,540, Cl. 16-114.00R.
- Yamazaki, Hisashi: See—
Takahashi, Kenji; Yamazaki, Hisashi; Miyahara, Junji; Kotera, Noboru; Eguchi, Shusaku; and Miura, Norio, 4,394,581, Cl. 250-484.100.
- Yang, James; and Chen, James M. F. Safety clasp for the string of footwear. 4,393,550, Cl. 24-117.000.
- Yasuda, Atsuyuki: See—
Fujimura, Shuzo; and Yasuda, Atsuyuki, 4,393,807, Cl. 118-501.000.
- Yasuda, Tadahi: See—
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahi; and Nakayama, Shigeru, 4,394,427, Cl. 430-68.000.
- Yasuta, Naoshi; Matsumura, Yoshio; and Kotani, Teizo, to Japan Synthetic Rubber Co., Ltd. Process for treating acetylene polymer or doped acetylene polymer. 4,394,402, Cl. 427-40.000.
- Ye Data Inc.: See—
Tatsumi, Juichi, 4,393,771, Cl. 101-93.480.
- Yeargin, G. Scott: See—
Malpass, Dennis B.; and Yeargin, G. Scott, 4,394,326, Cl. 260-448.0AD.
- Yeomans, David; Wilkinson, Christopher J.; McCartney, Damien; and O'Dwyer, Micheal, to Centronics Data Computer Corporation. Interface for operating a dot matrix printer for printing a video image. 4,394,685, Cl. 358-264.000.
- Yoshida, Hiroshi: See—
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,897, Cl. 137-831.000.
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,898, Cl. 137-831.000.
- Yoshida, Kazunori, to Nippon Electric Co., Ltd. Self-supporting capacitor casing having a pair of terminal plates sandwiching an insulative body for aligning terminal positions. 4,394,713, Cl. 361-433.000.
- Yoshida, Kunio; Kotera, Hiroaki; Tsuda, Yukifumi; Kanno, Yoshimitsu; and Naka, Motohiko, to Matsushita Research Institute Tokyo, Inc. Dot printer for reproduction of halftone images. 4,394,662, Cl. 346-33.00R.
- Yoshida, Masaru: See—
Takeda, Mikio; Kakiyama, Yoshinobu; Yoshida, Masaru; and Nakata, Yukihiko, 4,394,601, Cl. 313-509.000.
- Yoshida, Motoaki: See—
Fujioka, Akira; Sakiyama, Kazuo; Takigawa, Akio; and Yoshida, Motoaki, 4,394,177, Cl. 106-287.140.
- Yoshikawa, Yukio: See—
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,897, Cl. 137-831.000.
Izumi, Masao; Yoshida, Hiroshi; and Yoshikawa, Yukio, 4,393,898, Cl. 137-831.000.
- Yoshimaru, Tomohisa, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for positioning magnetic head to position corresponding to reference track on magnetic tape. 4,394,696, Cl. 360-78.000.
- Yoshimura, Noboru: See—
Sakurai, Kenji; and Yoshimura, Noboru, 4,394,048, Cl. 297-367.000.
- Yoshino, Tsunemi; Kashiara, Toshitsugu; Iwata, Hiroshi; and Morioka, Akitoshi, to West Electric Co., Ltd. Device for detecting sharp focusing. 4,394,077, Cl. 354-25.000.
- Yoshioka, Akiteru: See—
Takaya, Takao; Takasugi, Hisashi; Murata, Masayoshi; and Yoshioka, Akiteru, 4,394,384, Cl. 424-246.000.
- Yu, SePuan: See—
Cady, William R.; Yu, SePuan; and Eshbach, John R., 4,393,578, Cl. 29-576.00B.
- Yuda, Takuo; and Mizusawa, Akira, to Nifco, Inc. Plastic buckle. 4,393,556, Cl. 24-230.00R.
- Yuda, Takuo, to Nifco, Inc. Radiator grille fixing structure. 4,393,561, Cl. 24-297.000.
- Zacharin, Alexey T., to United States of America, Army. Omni directional fuze. 4,393,780, Cl. 102-255.000.
- Zagranski, Raymond D.: See—
Peck, Robert E.; and Zagranski, Raymond D., 4,393,651, Cl. 60-39.281.
- Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai: See—
Umezawa, Hamao; Shimada, Nobuyoshi; Naganawa, Hiroshi; Takita, Tomohisa; Hamada, Masa; and Takeuchi, Tomio, 4,394,446, Cl. 435-88.000.
- Zaromb, Solomon: See—
Di Leo, Angela M.; and Lucia, James, 4,394,644, Cl. 340-571.000.
- Zbinden, Terry B., to Sperry Corporation. Circuit controlling coolant flow to a non-linear heat exchanger through a non-linear electromechanical valve. 4,393,921, Cl. 165-40.000.
- Zemelman, Valery B.: See—
Kleiner, Fredric; and Zemelman, Valery B., 4,393,660, Cl. 62-69.000.
- Zenith Radio Corporation: See—
Rowe, William A., 4,394,681, Cl. 358-60.000.
- Zerbel, Allen J., to Wehr Corporation. Tank structure for an air humidifying electrode steam generator. 4,394,561, Cl. 219-285.000.
- Zils, James A.: See—
Hess, George M.; and Zils, James A., 4,393,787, Cl. 105-199.0CB.
- Zimmermann, Guido: See—
Kille, Ewald; and Zimmermann, Guido, 4,393,993, Cl. 239-332.000.
- Zipperian, Donald E., to Diester Concentrator Co., Inc. The Froth flotation apparatus with water recovery and method. 4,394,258, Cl. 209-170.000.
- Zouzoulas, John, to Andco Actuator Products, Inc. Rotary actuator. 4,393,965, Cl. 192-48.910.
- Zscheile, John W., Jr.: See—
Currie, Robert J.; Rattlingourd, Glen D.; Spencer, Billie M.; and Zscheile, John W., Jr., 4,394,642, Cl. 340-347.0DD.
- Zurn Industries, Inc.: See—
Bukowski, Ronald G.; and Johnson, Timothy L., 4,394,262, Cl. 210-103.000.
- Zwaid, Henry J., to Motorola Inc. Anti-torque connection apparatus and method for using. 4,393,583, Cl. 29-857.000.
- Zweig, Arnold: See—
Fischer, Robert G., Jr.; and Zweig, Arnold, 4,394,527, Cl. 570-143.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Bell Telephone Laboratories, Incorporated: See—
Fraser, Alexander G., Re. 31,319, Cl. 370-80.000.
- Blacksher, Roy: See—
Kaufman, Phillip A.; Gorman, Kenneth C.; Henry, George C.; and Blacksher, Roy, Re. 31,318, Cl. 364-200.000.
- Blaha, James G., to Towmotor Corporation. Brake drum seal with dual elastomeric legs. Re. 31,314, Cl. 277-84.000.
- Cannon, Raymond E.: See—
Jenkins, Jon A.; and Cannon, Raymond E., Re. 31,315, Cl. 417-63.000.
- Computer Automation, Inc.: See—
Kaufman, Phillip A.; Gorman, Kenneth C.; Henry, George C.; and Blacksher, Roy, Re. 31,318, Cl. 364-200.000.
- Eddens, Gerald R., to W. J. Industries, Inc. Tension monitor means. Re. 31,312, Cl. 73-862.480.
- Fraser, Alexander G., to Bell Telephone Laboratories, Incorporated. Digital data communication system. Re. 31,319, Cl. 370-80.000.
- Fredd, John V.; and Sizer, Phillip S., to Otis Engineering Corporation. Method and system for well testing. Re. 31,313, Cl. 166-250.000.
- Gorman, Kenneth C.: See—
Kaufman, Phillip A.; Gorman, Kenneth C.; Henry, George C.; and Blacksher, Roy, Re. 31,318, Cl. 364-200.000.
- Henry, George C.: See—
Kaufman, Phillip A.; Gorman, Kenneth C.; Henry, George C.; and Blacksher, Roy, Re. 31,318, Cl. 364-200.000.
- Imaizumi, Nobuo; and Wakana, Kazuo, to Namiki Precision Jewel Co., Ltd. Rare earth-cobalt system permanent magnetic alloys and method of preparing same. Re. 31,317, Cl. 148-103.000.
- Imed Corporation: See—
Jenkins, Jon A.; and Cannon, Raymond E., Re. 31,315, Cl. 417-63.000.
- Jenkins, Jon A.; and Cannon, Raymond E., to Imed Corporation. Apparatus for converting a pump to a controller. Re. 31,315, Cl. 417-63.000.
- Kaufman, Phillip A.; Gorman, Kenneth C.; Henry, George C.; and Blacksher, Roy, to Computer Automation, Inc. Automatic modular memory address allocation system. Re. 31,318, Cl. 364-200.000.
- Moore, Robert W. Elongated igniting device. Re. 31,316, Cl. 431-254.000.
- Namiki Precision Jewel Co., Ltd.: See—
Imaizumi, Nobuo; and Wakana, Kazuo, Re. 31,317, Cl. 148-103.000.
- Otis Engineering Corporation: See—
Fredd, John V.; and Sizer, Phillip S., Re. 31,313, Cl. 166-250.000.
- Sizer, Phillip S.: See—
Fredd, John V.; and Sizer, Phillip S., Re. 31,313, Cl. 166-250.000.
- Towmotor Corporation: See—
Blaha, James G., Re. 31,314, Cl. 277-84.000.
- W. J. Industries, Inc.: See—
Eddens, Gerald R., Re. 31,312, Cl. 73-862.480.
- Wakana, Kazuo: See—
Imaizumi, Nobuo; and Wakana, Kazuo, Re. 31,317, Cl. 148-103.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

- Nester, Francis M., to K. S. Industries, Inc. Hopper gate latching mechanism. B1 3,707,126, Cl. 105—282 P.
- K. S. Industries, Inc.: See—
Nester, Francis M. B1 3,707,126, Cl. 105—282 P.
- McCall, Francis J. Apparatus for acupuncture treatment. B1 4,073,296, Cl. 128—303 R.
- Mandelcorn, Lyon; Miller, Robert L.; Mercier, George E.; Pickett, John H.; and Dakin, Thomas W., to Westinghouse Electric Corporation. Capacitor. B1 4,054,937, Cl. 361—315.
- Westinghouse Electric Corporation: See—
Mandelcorn, Lyon; Miller, Robert L.; Mercier, George E.; Pickett, John H.; and Dakin, Thomas W. B1 4,054,937, Cl. 361—315.

LIST OF DESIGN PATENTEES

- AB SKF: See—
Ostling, Sture, 269,786, Cl. D15-143.000.
- Alessio, Frank. Teaching clock. 269,790, 7-19-83, Cl. D19-64.000.
- Alexander, Roy P.; Sangster, Arlon G.; and Green, Joseph C., to Olin Corporation. Swimming pool chemical dispenser or the like. 269,802, 7-19-83, Cl. D23-03.000.
- Aliseo Diffusion S.A.: See—
Froidevaux, Jean-Marie, 269,819, Cl. D28-12.000.
- Ament, Donald S., to Miracle Recreation Equipment Company. Light fixture. 269,818, 7-19-83, Cl. D26-73.000.
- AMF Incorporated: See—
Hahn, Daniel G., 269,772, Cl. D12-110.000.
- Amos, Homer C., to Brunswick Corporation. Ball catching and throwing device. 269,794, 7-19-83, Cl. D21-210.000.
- Amos, Homer C., to Brunswick Corporation. Ball catching and throwing device. 269,795, 7-19-83, Cl. D21-210.000.
- Anderson, David. Fireplace grate. 269,803, 7-19-83, Cl. D23-95.000.
- Aqua-Mist, Inc.: See—
Morrow, William E.; and Morrow, Robert B., 269,807, Cl. D23-139.000.
- Ayres, Margaret E. Cane. 269,733, 7-19-83, Cl. D3-7.000.
- Barthel, John E., to Dahl-Braden, Chapman Architects, Inc. Automatic teller machine kiosk. 269,822, 7-19-83, Cl. D99-28.000.
- Barthel, John E., to First International Services Corporation. Automatic teller machine booth for mounting on a wall. 269,823, 7-19-83, Cl. D99-28.000.
- Baser, Benjamin T. Hoop roller. 269,792, 7-19-83, Cl. D21-101.000.
- Bendix Corporation, The: See—
Williams, Robert L., 269,777, Cl. D13-1.000.
- Berkline Corporation, The: See—
Brooks, Richard, 269,746, Cl. D6-63.000.
Long, Stapleton, 269,745, Cl. D6-63.000.
- Berlic, France. Chair. 269,748, 7-19-83, Cl. D6-76.000.
- Bevilacqua, John E., Jr.; and Ross, James E., to United Artists Corporation. Telephone. 269,779, 7-19-83, Cl. D14-53.000.
- Bisson, Nicole, to Salon Nicole Bisson Inc. Hairdresser comb. 269,820, 7-19-83, Cl. D28-25.000.
- Bolyn, Anthony E., to Congoleum Corporation. Display stand for floor tiles, carpets or similar article. 269,750, 7-19-83, Cl. D6-85.000.

Bolyn, Anthony E., to Congoleum Corporation. Display cabinet for floor tiles, carpets or similar article. 269,752, 7-19-83, Cl. D6-168.000.

Boonstra, Robert M.: *See—*
Mace, Leslie E.; Jones, Paul W.; and Boonstra, Robert M., 269,810, Cl. D24-17.000.

BP Oil Limited: *See—*
Grant, Andrew, 269,762, Cl. D9-375.000.

Braswell, Charles A., to Jaro, Inc. Bar-b-que shell. 269,758, 7-19-83, Cl. D7-337.000.

Brooks, Richard, to Berklene Corporation, The. Settee. 269,746, 7-19-83, Cl. D6-63.000.

Brunner, Merlin A.; Draheim, Harvey J.; and Schaffer, Michael J., to Simmons Universal Corporation. Crib. 269,742, 7-19-83, Cl. D6-16.000.

Brunner, Merlin A.; Draheim, Harvey J.; and Schaffer, Michael J., to Simmons Universal Corporation. Crib footboard. 269,757, 7-19-83, Cl. D6-198.000.

Brunswick Corporation: *See—*
Amos, Homer C., 269,794, Cl. D21-210.000.
Amos, Homer C., 269,795, Cl. D21-210.000.
Fee, Robert W.; Robbins, Richard J.; and Neufeld, Henry L., 269,798, Cl. D22-25.000.

Bunetta, Brian T. Compartmented travel case. 269,735, 7-19-83, Cl. D3-39.000.

Camp International, Inc.: *See—*
Meier, Robert H.; and Farr, Evelyn, 269,816, Cl. D24-64.000.

Canning, Daniel; and Jordan, James B., to Qume Corporation. Printer. 269,782, 7-19-83, Cl. D14-111.000.

Chadd, Charles W. Combined portable vent and support for a clothes dryer. 269,809, 7-19-83, Cl. D23-151.000.

Chatham, Richard W. Compartmented tray for drafting supplies. 269,791, 7-19-83, Cl. D19-77.000.

Clover Mfg. Co., Ltd.: *See—*
Okada, Hidekazu, 269,734, Cl. D3-28.000.

Congoleum Corporation: *See—*
Bolyn, Anthony E., 269,750, Cl. D6-85.000.
Bolyn, Anthony E., 269,752, Cl. D6-168.000.

Consolidated Foods Corporation: *See—*
DiTullio, Flavia, 269,730, Cl. D2-24.000.

Cosden Technology, Inc.: *See—*
Fortuna, Vincent E., 269,763, Cl. D9-398.000.
Fortuna, Vincent E., 269,764, Cl. D9-398.000.
Fortuna, Vincent E., 269,765, Cl. D9-398.000.

Cowley, Harold E.: *See—*
Fishel, Gerald C.; Cowley, Harold E.; and Myers, Dean W., 269,814, Cl. D24-38.000.

Cramer, Jerry W., to Sunkist Growers, Inc. Bag filling device. 269,787, 7-19-83, Cl. D15-145.000.

Cycles Peugeot: *See—*
Geney, Gilbert, 269,760, Cl. D8-382.000.

Dahl-Braden, Chapman Architects, Inc.: *See—*
Barthel, John E., 269,822, Cl. D99-28.000.

Danish Stove Association, ApS: *See—*
Sorensen, Winston J. F., 269,804, Cl. D23-97.000.

DiTullio, Flavia, to Consolidated Foods Corporation. Brassiere. 269,730, 7-19-83, Cl. D2-24.000.

Doodson, Peter J., to U.S. Philips Corporation. Intercom speaker and receiver. 269,780, 7-19-83, Cl. D14-57.000.

Draheim, Harvey J.: *See—*
Brunner, Merlin A.; Draheim, Harvey J.; and Schaffer, Michael J., 269,742, Cl. D6-16.000.
Brunner, Merlin A.; Draheim, Harvey J.; and Schaffer, Michael J., 269,757, Cl. D6-198.000.

Dri Steem Humidifier Company: *See—*
Morton, Bernard W., 269,808, Cl. D23-146.000.

Dudrey, Carl: *See—*
Stringfellow, Michael J., 269,796, Cl. D22-20.000.

Eaton Corporation: *See—*
Heater, Richard W., 269,783, Cl. D15-5.000.

Famolare, Inc.: *See—*
Famolare, Joseph P., Jr., 269,732, Cl. D2-319.000.

Famolare, Joseph P., Jr., to Famolare, Inc. Shoe bottom. 269,732, 7-19-83, Cl. D2-319.000.

Farr, Evelyn: *See—*
Meier, Robert H.; and Farr, Evelyn, 269,816, Cl. D24-64.000.

Fee, Robert W.; Robbins, Richard J.; and Neufeld, Henry L., to Brunswick Corporation. Fishing reel. 269,798, 7-19-83, Cl. D22-25.000.

Fehlbaum & Co.: *See—*
Muller-Deisig, Wolfgang, 269,743, Cl. D6-31.000.

First International Services Corporation: *See—*
Barthel, John E., 269,823, Cl. D99-28.000.

Fishel, Gerald C.; Cowley, Harold E.; and Myers, Dean W., to Gerico Fiberglass Products, Inc. Spa. 269,814, 7-19-83, Cl. D24-38.000.

Foggia, Donald A.; Muzumdar, Deepak R.; Klaiber, Gerhart F.; and Schneider, Rolf E., to Siemens Corporation. Telephone busy lamp field console with display. 269,781, 7-19-83, Cl. D14-58.000.

Fortuna, Vincent E., to Cosden Technology, Inc. Packaging container. 269,763, 7-19-83, Cl. D9-398.000.

Fortuna, Vincent E., to Cosden Technology, Inc. Packaging container. 269,764, 7-19-83, Cl. D9-398.000.

Fortuna, Vincent E., to Cosden Technology, Inc. Packaging container. 269,765, 7-19-83, Cl. D9-398.000.

Foster, Daniel F. CRT Terminal stand. 269,749, 7-19-83, Cl. D6-85.000.

Frazier, James F., to Whelen Engineering Company, Inc. Aircraft tail position light. 269,817, 7-19-83, Cl. D26-35.000.

Froidevaux, Jean-Marie, to Aliseo Diffusion S.A. Wall mounted hair drying device. 269,819, 7-19-83, Cl. D28-12.000.

Gaunt, Thomas N., to Plastona (John Waddington) Limited. Can or the like. 269,761, 7-19-83, Cl. D9-370.000.

General Mills Products Corp.: *See—*
Meyer, Muriel, 269,769, Cl. D11-82.000.
Strasser, Andrew G.; Tierney, Donna M.; and Thorsen, Daniel B., 269,766, Cl. D9-457.000.

Geney, Gilbert, to Cycles Peugeot. Securing device for a generator fixed by a slideway on seat-stays of a bicycle. 269,760, 7-19-83, Cl. D8-382.000.

Gerico Fiberglass Products, Inc.: *See—*
Fishel, Gerald C.; Cowley, Harold E.; and Myers, Dean W., 269,814, Cl. D24-38.000.

Giveans, David L., to SB/JP Enterprises, Inc. Playhouse. 269,793, 7-19-83, Cl. D21-114.000.

Grant, Andrew, to BP Oil Limited. Bottle. 269,762, 7-19-83, Cl. D9-375.000.

Green, Joseph C.: *See—*
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Hahn, Daniel G., to AMF Incorporated. Combined front and rear fenders, chain guard, engine cover and fuel tank for moped. 269,772, 7-19-83, Cl. D12-110.000.

Heater, Richard W., to Eaton Corporation. Housing of a viscous fan drive. 269,783, 7-19-83, Cl. D15-5.000.

Hoesel, Fred O. Motorcycle radio cover. 269,775, 7-19-83, Cl. D12-192.000.

Houlihan, John T.; and Maliskas, John S., to Timex Corporation. Digital watch. 269,767, 7-19-83, Cl. D10-38.000.

Hurley, Merle. Combined cat playground and exerciser. 269,821, 7-19-83, Cl. D30-42.000.

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LeBlue, Wallace J. Guitar. 269,788, 7-19-83, Cl. D17-14.000.

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Long, Stapleton, to Berklene Corporation, The. Settee. 269,745, 7-19-83, Cl. D6-63.000.

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Stark, Ted, 269,739, Cl. D3-71.000.
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Meyer, Muriel, to General Mills Products Corp. Segmented turtle-shaped pendant or similar article. 269,769, 7-19-83, Cl. D11-82.000.

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Okada, Hidekazu, to Clover Mfg. Co., Ltd. Knitting needle. 269,734, 7-19-83, Cl. D3-28.000.

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Qually, Robert L. Pacifier. 269,815, 7-19-83, Cl. D24-45.000.

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Rieman, Paul F. Caddy for assembled rods and reels. 269,751, 7-19-83, Cl. D6-125.000.

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Tierney, Donna M.: *See—*
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ISSUED JULY 19, 1983

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	877	4,393,584	138 A	4,393,641	481	4,393,685	CLASS 91	501	4,393,807	
12	4,393,519	CLASS 30	266 R	4,393,642	CLASS 73	376 R	4,393,749	503	4,393,808	
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490	4,393,526	1 L	261	4,394,143	116	4,393,693	348	4,393,755	31 R	4,393,815
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115.6	4,394,126	474	81	4,393,647	505	4,393,702	88	4,393,764	196 M	4,393,823
137	4,394,127	494	413	4,393,648	CLASS 60	4,393,703	98 R	4,393,765	198 DB	4,393,826
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2.6	4,393,533	114	527	4,393,654	728	4,393,715	93.48	4,393,771	327	4,393,831
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98	4,393,534	124	618	4,393,656	821	4,393,717	232	4,393,773	339	4,393,833
169	4,393,535	238	653	4,393,657	859	4,393,718	288	4,393,774	357	4,393,834
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348	4,393,538	152	69	4,393,660	861.61	4,393,721	425	4,393,777	435	4,393,837
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114 R	4,393,539	90	115	4,393,662	862.41	4,393,723	202.5	4,393,779	446	4,393,839
297	4,393,540	94	119	4,393,663	862.48	4,393,724	255	4,393,780	529	4,393,840
369	4,393,541	CLASS 42	256	4,393,664	864.84	4,393,725	440	4,393,781	529	4,393,841
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72	4,393,543	CLASS 43	506	4,393,666	209	4,393,727	529	4,393,783	529	4,393,843
73	4,393,544	15	29 R	4,393,667	469	4,393,728	2	4,393,784	529	4,393,844
76	4,393,545	60	4.32	4,394,287	475	4,393,729	69	4,393,785	529	4,393,845
76	4,393,546	96	689	4,394,287	538	4,393,730	110	4,393,786	529	4,393,846
CLASS 19		CLASS 44	866	4,393,732	589	4,393,731	141	4,393,787	529	4,393,847
105	4,393,547	51	159	4,394,148	866	4,393,732	282	4,393,788	529	4,393,848
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117	4,393,550	35	13	4,393,669	10 R	4,394,163	85	4,394,173	529	4,393,852
213 C	4,393,551	165	75.2	4,393,670	11	4,394,164	90	4,394,174	529	4,393,853
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230 A	4,393,553	40.5	5 C	4,393,672	60	4,394,166	90	4,394,176	529	4,393,855
230 AL	4,393,554	48.5	CLASS 70	4,393,673	65 R	4,394,167	120	4,394,177	529	4,393,856
230 R	4,393,555	111	CLASS 71	4,394,149	126 A	4,394,168	287.14	4,394,177	529	4,393,857
277	4,393,556	197 R	277	4,393,674	128 A	4,394,169	2	4,393,788	529	4,393,858
295	4,393,557	248	358	4,393,675	233	4,394,170	19	4,393,789	529	4,393,859
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149.5 DP	4,393,563	165.87	92	4,394,153	CLASS 83	4,393,736	158 B	4,393,794	529	4,393,864
157.3 C	4,393,564	168	94	4,394,154	100	4,393,737	158 E	4,393,795	529	4,393,865
157.3 R	4,393,565	246	98	4,394,155	356.3	4,393,738	231	4,393,796	529	4,393,866
417	4,393,566	281 SF	CLASS 72	4,393,674	663	4,393,739	262.1	4,393,797	529	4,393,867
421 R	4,393,567	CLASS 52	61	4,393,675	834	4,393,740	265.1	4,393,798	529	4,393,868
432	4,393,568	74	71	4,393,676	CLASS 84	4,393,741	282	4,393,801	529	4,393,869
460	4,393,569	121	92	4,393,677	1.01	4,393,742	231	4,393,799	529	4,393,870
560	4,393,570	144	97	4,393,678	1.23	4,393,743	262.1	4,393,800	529	4,393,871
564.6	4,393,571	235	131	4,393,679	CLASS 86	4,393,744	265.1	4,393,801	529	4,393,872
571	4,393,572	303	221	4,393,680	25	4,393,745	67 A	4,393,802	529	4,393,873
572	4,393,573	309.1	234	4,393,681	CLASS 89	4,393,746	201 R	4,393,803	529	4,393,874
576 B	4,393,574	309.11	329	4,393,682	1.806	4,393,747	254	4,393,804	529	4,393,875
740	4,393,575	381	405	4,393,683	34	4,393,748	60	4,393,805	529	4,393,876
749	4,393,576	644	422	4,393,684	45	4,393,749	105	4,393,806	529	4,393,877
757	4,393,577	704	451	4,393,685	47	4,393,750	412	4,393,807	529	4,393,878
827	4,393,578	730	CLASS 53	4,393,640	CLASS 54	4,393,640	CLASS 118	4,393,808	529	4,393,879
828	4,393,579	69	CLASS 55	4,393,640	CLASS 55	4,393,640	CLASS 119	4,393,809	529	4,393,880
857	4,393,580	CLASS 56	CLASS 56	4,393,640	CLASS 56	4,393,640	CLASS 120	4,393,810	529	4,393,881

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7	4,393,886	40	4,393,921	CLASS 221	289	4,393,981	4,394,313	16	4,394,051
CLASS 134	46	4,393,923	CLASS 200	209	4,393,982	391	4,394,314	18	4,394,052
4,394,179	104.12	4,393,924	5 A	4,394,547	CLASS 222	429 K	4,394,315	81	4,394,053
CLASS 135	122	4,393,925	5 R	4,394,546	233	4,393,983	4,394,316		
109	4,393,887	165	4,393,926	6 A	402.18	4,393,984	4,394,317		
CLASS 136	105	4,393,927	16 E	4,394,549	591	4,393,985	4,394,318		
245	4,394,529	105	4,393,928	34	4,394,550	429.7	4,394,319		
CLASS 137	134	4,393,929	44	4,394,551	CLASS 224	439 R	4,394,320		
72	4,393,889	188	4,393,930	61.62	4,394,552	440	4,394,321		
78.2	4,393,890	208	4,393,931	67 DA	4,394,553	443	4,394,322		
238	4,393,891	249	4,393,932	144 B	4,394,554	450	4,394,323		
242	4,393,892	250	Re.31.313	159 R	4,394,555	454	4,394,324		
246.12	4,393,893	261	4,393,933	161	4,394,556	458	4,394,325		
454	4,393,894	263	4,393,934	CLASS 202	170	4,394,216	4,394,326		
539.5	4,393,895	263	4,393,935	227	4,394,217	CLASS 228	4,394,327		
601	4,393,896	272	4,393,936	263	4,394,218	157	4,393,987		
831	4,393,897	279	4,393,937	CLASS 203	375	4,394,567	448 AD		
CLASS 138	293	4,393,938	42	4,394,219	475	4,394,568	455 R		
89	4,393,899	325	4,393,940	48	4,394,220	CLASS 229	463		
145	4,393,900	70	4,393,941	89	4,394,221	43	4,393,988		
CLASS 139	76	4,393,902	CLASS 169	102	4,393,990	71	4,393,989		
370.2	4,393,903	260.5	4,393,942	102	4,393,991	CLASS 235	375		
CLASS 140	92.1	4,393,904	CLASS 172	15	4,393,992	475	4,394,568		
118	4,393,905	163	4,393,943	15	4,393,993	CLASS 239	1		
CLASS 141	387	4,393,906	CLASS 173	57	4,393,994	102	4,393,990		
CLASS 145	29 A	4,393,908	73 R	59 R	107.4 A	200	4,393,991		
CLASS 148	1.5	4,394,180	98	4,394,222	CLASS 242	332	4,393,992		
6.15 R	11.5 C	4,394,181	144	4,394,223	CLASS 244	585	4,393,993		
12 E	12 F	4,394,182	158 HA	4,394,224	110 C	135 R	4,393,997		
12 FA	12 R	4,394,183	164	4,394,225	CLASS 248	74 R	4,393,998		
12 R	31.55	4,394,184	165	4,394,226	74 R	4,393,999	239	4,394,006	
31.1	103	4,394,185	192 E	4,394,227	CLASS 250	249	4,394,007		
120	129	4,394,186	192 R	4,394,228	9	4,394,008	CLASS 271		
131	149	4,394,187	198	4,394,229	10	4,394,009	9	4,394,008	
187	CLASS 149	4,394,188	243 R	4,394,230	22	4,394,010	107	4,394,011	
19.3	21	4,394,189	284	4,394,231	119	4,394,012	CLASS 272		
CLASS 150	8	4,393,909	295	4,394,232	CLASS 273	1.5 R	4,394,013		
12	158	4,393,910	301	4,394,233	73 C	4,394,015	73 C	4,394,015	
CLASS 152	353 R	4,393,912	301	4,394,234	73 G	4,394,016	73 G	4,394,016	
364	364	4,393,913	301	4,394,235	109	4,394,017	109	4,394,017	
CLASS 156	72	4,394,200	301	4,394,236	237	4,394,018	237	4,394,018	
73.6	94	4,394,201	301	4,394,237	256	4,394,019	256	4,394,019	
94	175	4,394,202	301	4,394,238	CLASS 251	144	4,394,002		
175.1	307.3	4,394,203	301	4,394,239	CLASS 252	173	4,394,003		
322	578	4,394,204	301	4,394,240	8.55 R	4,394,273	8.55 R	4,394,273	
580.1	608	4,394,205	301	4,394,241	12	4,394,275	12	4,394,275	
628	628	4,394,210	301	4,394,242	32.7 E	4,394,276	32.7 E	4,394,276	
CLASS 157	1.2	4,393,914	301	4,394,243	46.3	4,394,278	46.3	4,394,278	
CLASS 160	395	4,393,915	301	4,394,244	46.4	4,394,279	46.4	4,394,279	
CLASS 162	162	4,394,212	301	4,394,245	62.2	4,394,280	62.2	4,394,280	
163	228	4,394,213	301	4,394,246	62.55	4,394,281	62.55	4,394,281	
CLASS 164	119	4,393,916	301	4,394,247	70	4,394,282	70	4,394,282	
476	476	4,393,917	301	4,394,248	174.11	4,394,283	174.11	4,394,283	
CLASS 165	10	4,393,918	301	4,394,249	182	4,394,284	182	4,394,284	
11 A	11 A	4,393,920	301	4,394,250	350	4,394,285	350	4,394,285	
			301	4,394,251	359 E	4,394,286	359 E	4,394,286	
			301	4,394,252	401	4,394,287	401	4,394,287	
			301	4,394,253	429 B	4,394,288	429 B	4,394,288	
			301	4,394,254	430	4,394,289	430	4,394,289	
			301	4,394,255	431 C	4,394,290	431 C	4,394,290	
			301	4,394,256	433	4,394,291	433	4,394,291	
			301	4,394,257	437	4,394,292	437	4,394,292	
			301	4,394,258	447	4,394,293	447	4,394,293	
			301	4,394,259	455 Z	4,394,294	455 Z	4,394,294	
			301	4,394,260	465	4,394,295	465	4,394,295	
			301	4,394,261	470	4,394,296	470	4,394,296	
			301	4,394,262	520	4,394,297	520	4,394,297	
			301	4,394,263	528	4,394,298	528	4,394,298	
			301	4,394,264	609	4,394,299	609	4,394,299	
			301	4,394,265	CLASS 254	204	4,394,004		
			301	4,394,266	CLASS 256	64	4,394,005		
			301	4,394,267	CLASS 259	112.5 R	4,394,308		
			301	4,394,268	CLASS 260	140	4,394,309		
			301	4,394,269	CLASS 261	162	4,394,310		
			301	4,394,270	CLASS 262	239 BB	4,394,311		
			301	4,394,271	CLASS 263				
			301	4,394,272	CLASS 264				
			301	4,394,273	CLASS 265				
			301	4,394,274	CLASS 266				
			301	4,394,275	CLASS 267				
			301	4,394,276	CLASS 268				
			301	4,394,277	CLASS 269				
			301	4,394,278	CLASS 270				
			301	4,394,279	CLASS 271				
			301	4,394,280	CLASS 272				
			301	4,394,281	CLASS 273				
			301	4,394,282	CLASS 274				
			301	4,394,283	CLASS 275				
			301	4,394,284	CLASS 276				
			301	4,394,285	CLASS 277				
			301	4,394,286	CLASS 278				
			301	4,394,287	CLASS 279				
			301	4,394,288	CLASS 280				
			301	4,394,289	CLASS 281				
			301	4,394,290	CLASS 282				
			301	4,394,291	CLASS 283				
			301	4,394,292	CLASS 284				
			301	4,394,293	CLASS 285				
			301	4,394,294	CLASS 286				
			301	4,394,295	CLASS 287				
			301	4,394,296	CLASS 288				
			301	4,394,297	CLASS 289				
			301	4,394,298	CLASS 290				
			301	4,394,299	CLASS 291				
			301	4,394,300	CLASS 292				
			301	4,394,301	CLASS 293				
			301	4,394,302	CLASS 294				
			301	4,394,303	CLASS 295				
			301	4,394,304	CLASS 296				
			301	4,394,305	CLASS 297				
			301	4,394,306	CLASS 298				
			301	4,394,307	CLASS 299				
			301	4,394,308	CLASS 300				
			301	4,394,309	CLASS 301				
			301	4,394,310	CLASS 302				
			301	4,394,311	CLASS 303				
			301	4,394,312	CLASS 304				
			301	4,394,313	CLASS 305				
			301	4,394,314	CLASS 306				
			301	4,394,315	CLASS 307				
			301	4,394,316	CLASS 308				
			301	4,394,317	CLASS 309				
			301	4,394,318	CLASS 310				
			301	4,394,319	CLASS 311				
			301	4,394,320	CLASS 312				
			301	4,394,321	CLASS 313				
			301	4,394,322	CLASS 314				
			301	4,394,323	CLASS 315				
			301	4,394,324	CLASS 316				
			301	4,394,325	CLASS 317				
			301	4,394,326	CLASS 318				
			301	4,394,327	CLASS 319				
			301	4,394,328	CLASS 320				
			301	4,394,329	CLASS 321				
			301	4,394,330	CLASS 322				
			301	4,394,331	CLASS 323				
			301	4,394,332	CLASS 324				
			301	4,394,333	CLASS 325				
			301	4,394,334	CLASS 326				
			301	4,394,335	CLASS 327				
			301	4,394,336	CLASS 328				
			301	4,394,337	CLASS 329				
			301	4,394,338	CLASS 330				
			301	4,394,339	CLASS 331				
			301	4,394,340	CLASS 332				
			301	4,394,341	CLASS 333				
			301	4,394,342	CLASS 334				

CLASSIFICATION OF DESIGNS

D1—	26	269,729	63	269,745	D9—	370	269,761	D13—	1	269,777	114	269,793	D24—	151	269,809
D2—	24	269,730		269,746		375	269,762		24	269,778	210	269,794		17	269,810
	275	269,731	70	269,747		398	269,763	D14—	53	269,779		269,795		34	269,811
	319	269,732	76	269,748			269,764		57	269,780	D22—	20		36	269,812
D3—	7	269,733	85	269,749			269,765		58	269,781		23		38	269,813
	28	269,734		269,750		457	269,766		111	269,782		25			269,814
	39	269,735	125	269,751	D10—	38	269,767	D15—	5	269,783		27		45	269,815
	71	269,736	168	269,752	D11—	47	269,768		12	269,784				64	269,816
		269,737	178	269,753		82	269,769		80	269,785	D23—	03		35	269,817
		269,739	186	269,754		87	269,770		143	269,786			D26—	64	269,818
		269,740	192	269,755		118	269,771		145	269,787				73	269,819
		269,741	194	269,756	D12—	110	269,772	D17—	14	269,788			D28—	12	269,820
D6—	77	269,738	198	269,757		153	269,773	D19—	59	269,789		125		25	269,821
	16	269,742	D7—	337	269,758		157	269,774		64	269,790		127		269,822
	31	269,743	D8—	382	269,760		192	269,775		77	269,791		139		269,823
	56	269,744		388	269,759		204	269,776	D21—	101	269,792		146		269,808

CLASSIFICATION OF PLANTS

P—	9	5,069	5,070	48	5,071	54	5,072
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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

04 :	4,393,519	4,393,926	4,394,464	4,394,257	4,393,909	4,394,595
	4,393,520	4,393,928	4,394,478	4,394,347	4,393,913	4,394,707
	4,393,583	4,393,932	4,394,496	4,394,421	4,393,915	4,394,722
	4,393,596	4,393,936	4,394,538	4,394,435	4,393,919	4,393,635
	4,393,599	4,393,948	4,394,543	4,394,443	4,393,950	4,393,812
	4,393,602	4,393,988	4,394,544	4,394,527	4,394,000	4,393,847
	4,393,692	4,393,991	4,394,556	4,394,540	4,394,025	4,394,052
	4,393,975	4,393,996	4,394,579	4,394,574	4,394,031	4,393,584
	4,394,258	4,393,997	4,394,610	4,394,767	4,394,065	4,393,791
	4,394,352	4,394,003	4,394,613	4,393,736	4,394,111	4,393,959
	4,394,532	4,394,014	4,394,632	4,394,153	4,394,248	4,394,718
	4,394,678	4,394,020	4,394,634	4,394,174	4,394,299	4,393,643
	4,394,728	4,394,037	4,394,639	4,394,314	4,394,372	4,393,885
05 :	4,393,905	4,394,042	4,394,653	4,394,489	4,394,399	4,393,888
	4,393,970	4,394,046	4,394,667	4,394,506	4,394,408	4,394,143
	Re 31,315	4,394,055	4,394,695	4,394,624	4,394,422	4,394,147
06 :	Re 31,318	4,394,056	4,394,700	4,393,529	4,394,447	4,394,216
	4,393,526	4,394,061	4,394,702	4,393,543	4,394,485	4,394,390
	4,393,527	4,394,069	4,394,711	4,393,618	4,394,547	4,394,564
	4,393,528	4,394,074	4,394,714	4,393,705	4,394,551	4,394,565
	4,393,531	4,394,101	4,394,726	4,393,790	4,394,612	4,393,544
	4,393,541	4,394,102	4,394,729	4,393,838	4,394,615	4,393,546
	4,393,568	4,394,103	4,394,742	4,393,866	4,394,647	4,393,614
	4,393,575	4,394,107	4,394,744	4,393,882	4,394,681	4,393,940
	4,393,593	4,394,117	4,394,745	4,393,986	4,394,703	4,394,282
	4,393,600	4,394,123	4,394,746	4,394,139	4,394,723	4,394,664
	4,393,612	4,394,136	4,394,749	4,394,339	4,394,756	4,393,582
	4,393,628	4,394,138	4,394,774	4,394,548	4,394,770	4,393,621
	4,393,636	4,394,154	4,394,780	4,394,645	4,393,524	4,393,699
	4,393,649	4,394,182	08 :	4,393,656	4,394,776	4,393,777
	4,393,654	4,394,213		4,393,989	4,393,688	4,393,883
	4,393,662	4,394,247		4,394,051	4,393,695	4,393,907
	4,393,663	4,394,250		4,394,572	4,393,751	4,394,197
	4,393,668	4,394,251		4,394,575	4,394,289	4,394,223
	4,393,706	4,394,253		4,394,665	4,394,413	4,393,789
	4,393,708	4,394,276		4,394,671	4,394,374	4,393,809
	4,393,711	4,394,277		4,394,682	4,393,535	4,393,825
	4,393,727	4,394,279		4,394,693	4,394,012	4,393,963
	4,393,730	4,394,296	09 :	4,394,734	4,394,261	4,394,633
	4,393,757	4,394,302		4,393,651	Re 31,316	4,394,689
	4,393,758	4,394,303		4,393,652	4,393,551	4,394,777
	4,393,765	4,394,307		4,393,707	4,393,563	4,393,604
	4,393,808	4,394,344		4,393,719	4,393,615	4,393,622
	4,393,816	4,394,345		4,393,814	4,393,659	4,393,631
	4,393,828	4,394,362		4,393,894	4,393,694	4,393,632
	4,393,830	4,394,377		4,393,900	4,393,712	4,393,634
	4,393,868	4,394,381		4,393,998	4,394,417	4,393,834
	4,393,871	4,394,383		4,394,011	4,394,444	4,393,860
	4,393,884	4,394,394		4,394,047	4,394,450	4,393,949
	4,393,896	4,394,397		4,394,097	4,394,507	4,393,954
	4,393,906	4,394,398		4,394,131	4,394,510	4,394,009
	4,393,923	4,394,438		4,394,155	4,393,879	4,394,018
		4,394,449		4,394,228	4,393,880	4,394,028
				4,394,241	4,393,908	4,394,084

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

4,394,149	4,394,732	4,394,679	4,394,414	4,393,863	4,393,930
4,394,179	4,394,733	4,394,743	4,394,442	4,393,877	4,393,931
4,394,219	4,394,761	4,394,757	4,394,621	4,393,957	4,393,934
4,394,226	Re.31,312	4,394,773	4,393,969	4,393,973	4,393,935
4,394,304	4,393,537	4,394,622	Re.31,314	4,393,976	4,393,937
4,394,439	4,393,761	4,394,623	4,393,587	4,394,027	4,393,938
4,394,448	4,393,881	4,393,539	4,393,594	4,394,040	4,393,946
4,394,458	4,393,945	4,393,552	4,393,626	4,394,045	4,393,971
4,394,479	4,394,002	4,393,578	4,393,633	4,394,059	4,394,023
4,394,519	4,394,049	4,393,660	4,393,787	4,394,064	4,394,140
4,394,628	4,394,106	4,393,661	4,393,792	4,394,075	4,394,189
4,394,635	4,394,108	4,393,769	4,393,859	4,394,098	4,394,194
4,394,640	4,394,195	4,393,802	4,393,977	4,394,128	4,394,254
4,394,649	4,394,246	4,393,810	4,393,978	4,394,132	4,394,273
4,394,651	4,394,562	4,393,852	4,394,005	4,394,134	4,394,283
4,394,658	4,394,563	4,393,857	4,394,017	4,394,142	4,394,284
4,394,688	4,394,740	4,393,862	4,394,060	4,394,160	4,394,321
4,394,736	4,393,723	4,393,867	4,394,112	4,394,184	4,394,326
4,393,616	4,394,004	4,393,911	4,394,122	4,394,185	4,394,355
4,393,617	4,394,013	4,393,965	4,394,148	4,394,202	4,394,367
4,393,619	4,394,373	4,393,967	4,394,161	4,394,205	4,394,455
4,393,696	4,393,861	4,394,058	4,394,271	4,394,212	4,394,461
4,393,729	4,393,927	4,394,066	4,394,287	4,394,229	4,394,463
4,393,731	4,394,368	4,394,072	4,394,305	4,394,240	4,394,474
4,393,734	4,394,451	4,394,076	4,394,325	4,394,242	4,394,497
4,393,754	4,394,650	4,394,083	4,394,328	4,394,262	4,394,587
4,393,820	Re.31,319	4,394,086	4,394,332	4,394,316	4,394,616
4,393,845	4,393,548	4,394,099	4,394,466	4,394,322	4,394,748
4,393,873	4,393,549	4,394,116	4,394,476	4,394,354	4,394,199
4,393,964	4,393,572	4,394,137	4,394,481	4,394,385	4,394,329
4,393,994	4,393,588	4,394,171	4,394,482	4,394,386	4,394,642
4,393,999	4,393,611	4,394,178	4,394,490	4,394,388	4,393,941
4,394,001	4,393,690	4,394,214	4,394,528	4,394,418	4,394,419
4,394,033	4,393,746	4,394,266	4,394,611	4,394,475	4,394,437
4,394,034	4,393,780	4,394,318	4,394,643	4,394,504	4,393,601
4,394,044	4,393,783	4,394,330	4,394,648	4,394,524	4,393,716
4,394,091	4,393,796	4,394,378	4,393,603	4,394,525	4,393,745
4,394,100	4,393,797	4,394,393	4,393,630	4,394,526	4,393,800
4,394,124	4,393,864	4,394,406	4,393,933	4,394,592	4,394,089
4,394,133	4,393,875	4,394,410	4,393,939	4,394,602	4,394,204
4,394,236	4,393,917	4,394,424	4,393,972	4,394,614	4,394,230
4,394,272	4,394,006	4,394,428	4,394,090	4,394,631	4,394,268
4,394,288	4,394,135	4,394,429	4,394,255	4,394,705	4,394,389
4,394,317	4,394,146	4,394,430	4,394,256	4,394,709	4,394,500
4,394,351	4,394,183	4,394,440	4,394,291	4,394,710	4,394,617
4,394,486	4,394,237	4,394,453	4,394,297	4,394,724	4,393,987
4,394,491	4,394,249	4,394,467	4,394,298	4,393,701	4,394,022
4,394,517	4,394,278	4,394,469	4,394,301	4,393,562	4,394,206
4,394,607	4,394,281	4,394,493	4,394,323	4,393,725	4,394,252
4,394,638	4,394,285	4,394,508	4,394,324	4,393,739	4,394,259
4,394,672	4,394,295	4,394,541	4,394,350	4,394,057	4,394,405
4,394,706	4,394,300	4,394,549	4,394,573	4,394,126	4,394,409
4,393,534	4,394,308	4,394,578	4,394,577	4,393,853	4,394,552
4,393,538	4,394,311	4,394,588	4,393,521	4,393,559	4,393,565
4,393,674	4,394,361	4,394,630	4,393,595	4,393,627	4,394,522
4,393,804	4,394,369	4,394,660	4,393,741	4,393,793	4,394,523
4,393,851	4,394,396	4,394,673	4,393,925	4,393,914	4,393,637
4,393,901	4,394,445	4,394,675	4,394,038	4,394,269	4,393,645
4,393,921	4,394,460	4,394,692	4,394,656	4,394,676	4,393,744
4,394,010	4,394,468	4,394,712	4,393,522	Re.31,313	4,393,848
4,394,029	4,394,471	4,394,716	4,393,564	4,393,536	4,393,878
4,394,070	4,394,498	4,394,719	4,393,580	4,393,569	4,393,895
4,394,094	4,394,514	4,394,731	4,393,581	4,393,598	4,393,960
4,394,403	4,394,529	4,394,751	4,393,613	4,393,610	4,394,026
4,394,433	4,394,534	4,394,766	4,393,644	4,393,666	4,394,473
4,394,434	4,394,597	4,393,624	4,393,664	4,393,722	4,394,530
4,394,571	4,394,620	4,393,717	4,393,680	4,393,829	4,394,561
4,394,580	4,394,629	4,394,208	4,393,684	4,393,889	4,394,608
4,394,708	4,394,644	4,394,235	4,393,753	4,393,893	
4,394,727	4,394,655	4,394,286	4,393,782	4,393,929	

DESIGN PATENTS

06 : 269,746	269,770	20 : 269,798	269,741	269,791	269,785
269,763	269,821	25 : 269,773	269,750	269,807	269,788
269,764	269,767	269,801	269,752	269,755	269,809
269,765	269,802	26 : 269,735	269,766	269,799	269,822
269,771	269,817	269,776	269,781	269,800	269,823
269,782	269,729	269,783	269,730	269,805	269,789
269,787	269,759	269,816	269,733	269,792	269,732
269,793	269,772	269,768	269,754	269,796	269,806
269,794	269,784	269,808	269,769	269,778	269,779
269,795	269,803	269,736	269,790	269,812	269,810
269,813	269,815	269,737	269,811	269,745	269,742
269,814	269,777	269,738	269,744	269,758	269,756
269,818	269,751	269,739	269,747	269,775	269,757
08 : 269,749	269,797	269,740	269,747		

PLANT PATENTS

06 : 5,069	5,070	5,071	12 : 5,072		
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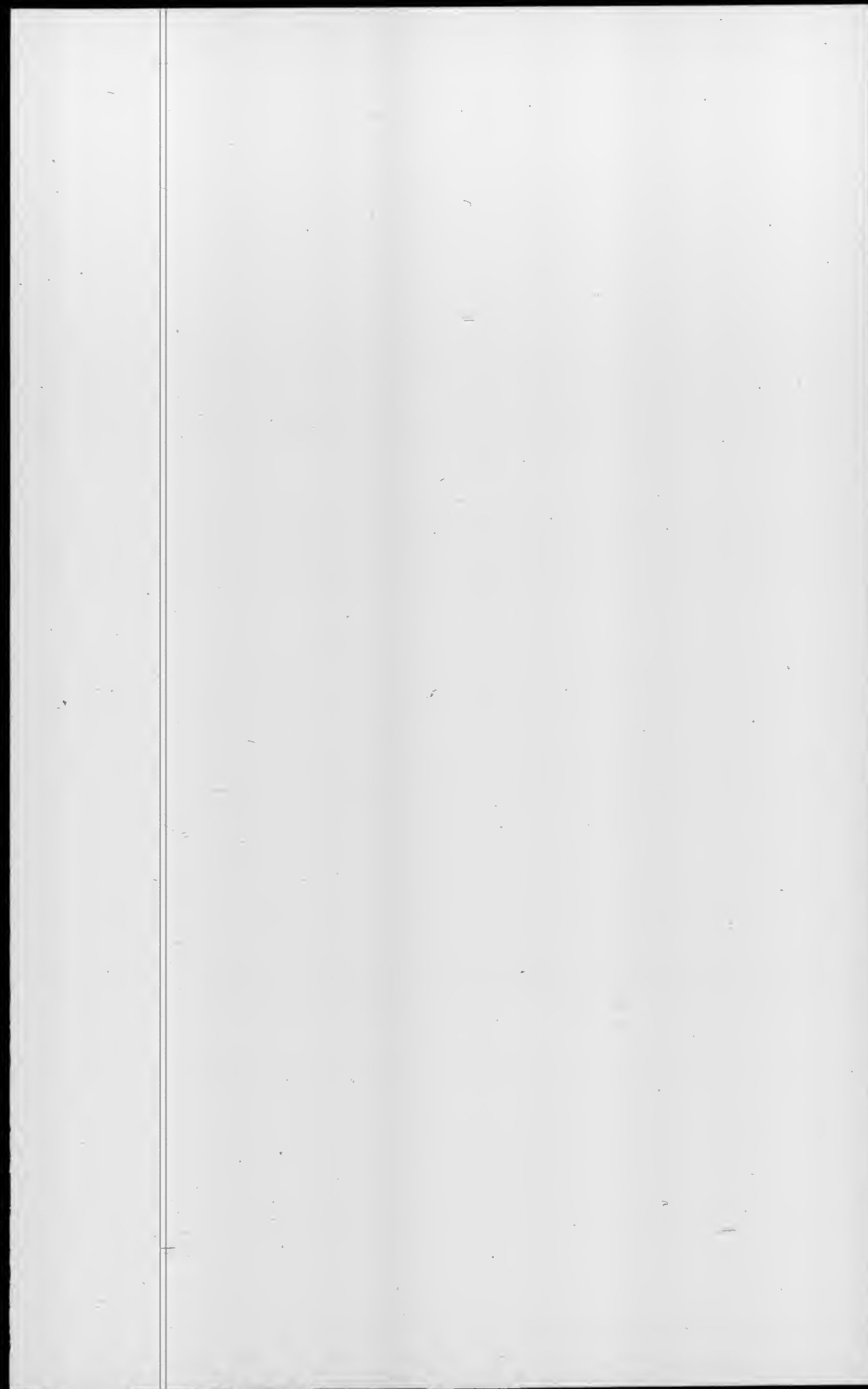
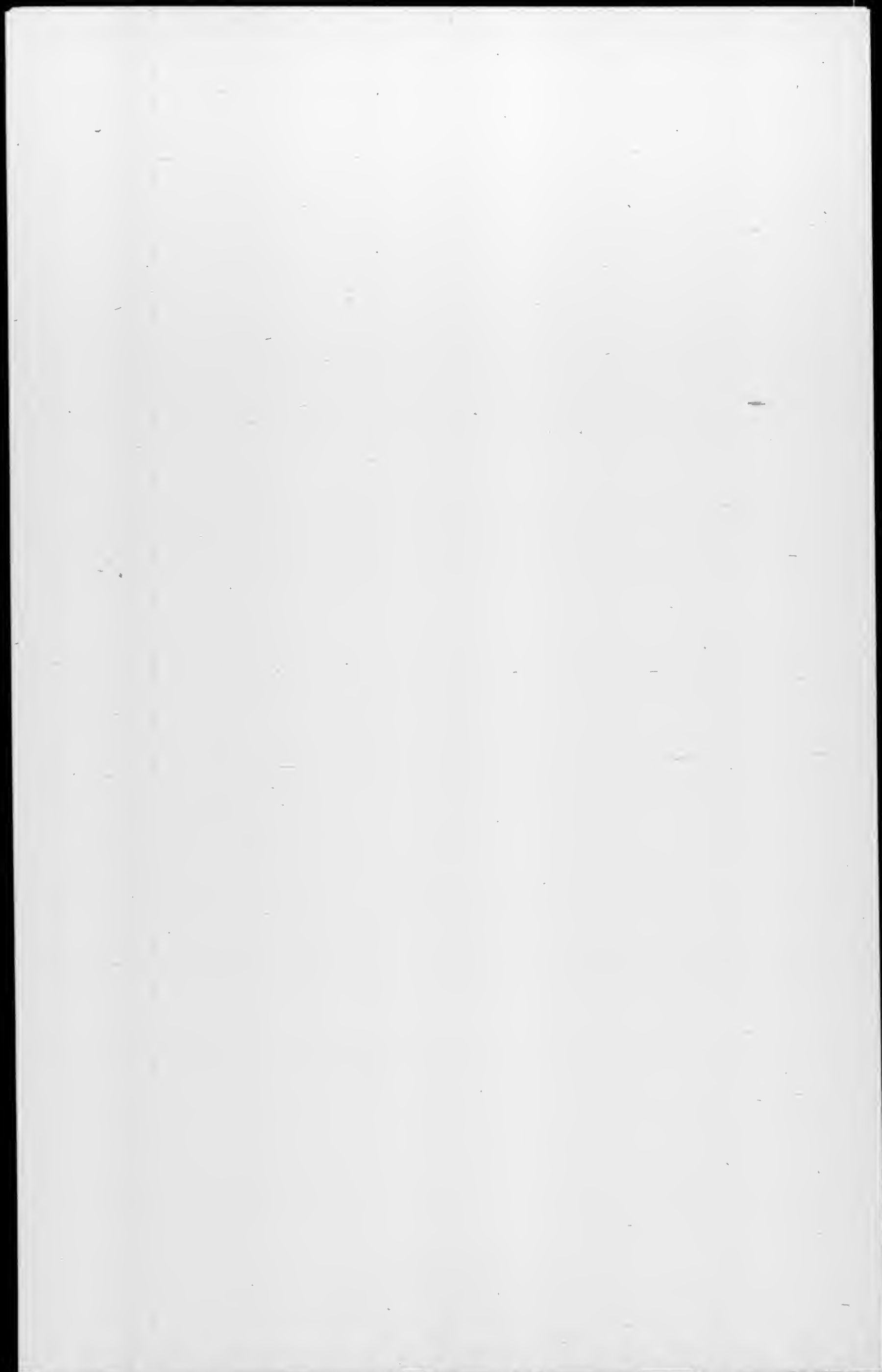
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26, 1958



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July 26, 1983

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Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

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Basic Supplemental Fee (for each page over 30)	5.00
Designation fee (for each national or regional office)	65.00
GERALD J. MOSSINGHOFF, Commissioner of Patents and Trademarks.	
Dec. 3, 1982.	

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,094,801, Re. S.N. 430,745, Filed Sept. 30, 1982, Cl. 252/33, MAGNESIUM-CONTAINING COMPLEXES, METHOD FOR THEIR PREPARATION, AND COMPOSITIONS CONTAINING THE SAME, John Wesley Forsberg, Owner of Record: *The Lubrizol Corp., Wickliffe, Ohio*, Attorney or Agent: J. W. Adams, et al., Ex. Gp.: 116

4,205,377, Re. S.N. 382,692, Filed May 27, 1982, Cl. 364/431, CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE, Yoshishige Oyama, et al., Owner of Record: *Hitachi, Ltd., Tokyo, Japan*, Attorney or Agent: Donald R. Antonelli, Ex. Gp.: 237

4,278,413, Re. S.N. 499,269, Filed May 31, 1983, Cl. 425/383, APPARATUS FOR INVERTING TIRES, Merlyn R. Holt, Owner of Record: *Hilt Tire Feedbunk, Inc., St. Francis, Kans.*, Attorney or Agent: Ancel W. Lewis, Jr., Ex. Gp.: 147

4,321,251, Re. S.N. 471,499, Filed Mar. 2, 1983, Cl. 424/003, DETECTION OF MALIGNANT LESIONS OF THE ORAL CAVITY UTILIZING TOLUIDINE BLUE RINSE, Arthur Mashberg, Owner of Record:

United States of America, as represented by the Secretary of the Department of Health, Education and Welfare, Washington, D.C., Attorney or Agent: John S. Roberts, Jr., Ex. Gp.: 125

4,324,072, Re. S.N. 498,055, Filed May 25, 1983, Cl. 49/129, INSULATED MULTIPLE COMPONENT SINGLE PLANE BUILDING STRUCTURE PORTAL CLOSURE, Maurice E. Sterner, Jr., Owner of Record: *Products Design & Development, Inc., York, Pa.*, Attorney or Agent: Paul T. O'Neil, et al., Ex. Gp.: 354

4,356,532, Re. S.N. 499,095, Filed May 27, 1983, Cl. 361/393, ELECTRONIC PACKAGE AND ACCESSORY COMPONENT ASSEMBLY, Charles J. Donaher, et al., Owner of Record: *Thomas and Betts Corp., Raritan, N.J.*, Attorney or Agent: Robert M. Rodrick, et al., Ex. Gp.: 215

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,416,637, Reexam. No. 90/000,401, Requested: June 15, 1983, Cl. 192/98, RADIALLY MOVABLE CLUTCH BEARING, Jean Maurice, Owner of Record: *Societe Anonyme Francaise du Ferodo, Paris, France*, Attorney or Agent: Young & Thompson, Ex. Gp.: 350, Requester: Barry E. Bretschneider, Washington, D.C.

3,665,554, Reexam. No. 90/000,400, Requested: June 16, 1983, Cl. 17/45, METHOD OF EVISCERATING SHELL FISH, Richard T. Wenstrom, et al., Owner of Record: *Slade Gorton & Co., Inc., Boston, Mass.*, Attorney or Agent: Thomas C. O'Konski, Ex. Gp.: 320, Requester: William R. Lambert, Merritt Island, Fla.

3,824,776, Reexam. No. 90/000,408, Requested: June 20, 1983, Cl. 57/208, FABRIC HAVING IMPROVED PICK RESISTANCE, Joe F. London, Jr., Owner of Record: *Requester*, Attorney or Agent: Cushman, Darby & Cushman, Ex. Gp.: 245, Requester: Burlington Industries, Inc., Greensboro, N.C.

3,972,174, Reexam. No. 90/000,406, Requested: June 20, 1983, Cl. 52/208, TEXTURED YARN AND FABRIC, Joe F. London, Jr., et al., Owner of Record: *Requester*, Attorney or Agent: Cushman, Darby & Cushman, Ex. Gp.: 354, Requester: Burlington Industries, Inc., Greensboro, N.C.

4,108,029, Reexam. No. 90/000,410, Requested: June 23, 1983, Cl. 83/54, CUT-OFF DIE SET, Alexander Borzym, Owner of Record: *Alpha Industries, Inc., Detroit, Mich.*, Attorney or Agent: Krass & Young, Ex. Gp.: 324, Requester: Vogel Tool & Die Corp., Stone Park, Ill.

4,301,258, Reexam. No. 90/000,403, Requested: June 13, 1983, Cl. 526/173, CYCLIC ORGANIC CARBONATE AND SULFITE COUPLING AGENTS FOR LIVING POLYMERS OF CONJUGATED DIENES, Joginder Lal, et al., Owner of Record: *Goodyear Tire and Rubber Co., Akron, Ohio*, Attorney or Agent: J. Y. Clowney, Ex. Gp.: 140, Requester: Michelin & Cie, Cedex, France

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U.S. PATENT AND TRADEMARK OFFICE

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4,317,327, Reexam. No. 90/000,405, Requested: June 20, 1983, Cl. 56/396, PUSHED DETHATCHING UNIT, Charles W. Doering, Owner of Record: *Brinly-Hardy Co., Inc., Louisville, Ky.*, Attorney or Agent: Frank C. Leach, Ex. Gp.: 330, Requester: Toro Co., Minneapolis, Minn.

4,349,070, Reexam. No. 90/000,397, Requested: June 6, 1983, Cl. 165/173, TUBE MAT HEAT EXCHANGER, Michael F. Zinn, et al., Owner of Record: *Bio-Energy Systems, Inc., Ellenville, N.Y.*, Attorney or Agent: Charles J. Brown, Ex. Gp.: 340, Requester: Environmental Resources, Inc., Las Vegas, Nev.

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DEPARTMENT OF AGRICULTURE

SN 6-238,401 (4,381,023). AUXILIARY TORQUE BACK-UP ROLL.
SN 6-290,542 (4,385,702). VIBRATING SEPARATOR.

DEPARTMENT OF THE AIR FORCE

SN 6-441,814. HELMET MOUNTED TELESCOPE.
SN 6-482,377. TWO-DIMENSIONAL BULK ACOUSTIC WAVE CORRELATOR-CONVOLVER.
SN 6-486,477. OPTICAL DISC TRANSPORT SYSTEM.
SN 6-486,598. FLEXIBLE LINE SUPPORT ASSEMBLY.
SN 6-487,340. CLOCK DISTRIBUTION CIRCUIT FOR ACTIVE APERTURE ANTENNA ARRAY.
SN 6-488,900. ROBOTIC KITTING.
SN 6-492,862. HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC) ANALYSIS OF SULFUR MUSTARDS AND THEIR DECOMPOSITION BY-PRODUCTS BY DERIVATIZATION.

DEPARTMENT OF THE ARMY

SN 6-328,766 (4,376,663). METHOD FOR GROWING AN EPITAXIAL LAYER OF CDTE ON AN EPITAXIAL LAYER OF HGCDTE GROWN ON A CDTE SUBSTRATE.
SN 6-478,385. CONTOURED CONFIGURATED DETONATING CORD AND DETONATOR.

DEPARTMENT OF COMMERCE

SN 6-192,129 (4,386,233). CRYPTOGRAPHIC KEY NOTARIZATION METHODS AND APPARATUS.
SN 6-465,942. METHOD AND APPARATUS UTILIZING CRYSTALLINE COMPOUND SUPER-

CONDUCTING ELEMENTS HAVING EXTENDED STRAIN OPERATING RANGE CAPABILITIES WITHOUT CRITICAL CURRENT DEGRADATION.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

SN 6-302,557 (4,386,093). (±) 3-DEAZARRISTER-OMYCIN AND USES.

DEPARTMENT OF THE INTERIOR

SN 6-293,027 (4,385,998). REMOVAL OF SUSPENDED SOLIDS FROM WATER.

DEPARTMENT OF THE NAVY

SN 5-895,828 (4,376,302). PIEZOELECTRIC POLYMER HYDROPHONE.
SN 6-101,362 (4,347,593). PIEZOCERAMIC TUBULAR ELEMENT WITH ZERO END DISPLACEMENT.
SN 6-214,601 (4,380,022). MONOLITHIC FULLY INTEGRATED CLASS B PUSH-PULL MICROWAVE GaAs MESFET WITH DIFFERENTIAL INPUTS AND OUTPUTS WITH REDUCED MILLER EFFECT.
SN 6-314,327 (4,374,665). MAGNETOSTRICTIVE DEVICES.

Patents Available for License or Sale

3,620,043. SPLINE-TYPE PIVOTS, UNIVERSAL JOINTS AND FLEXIBLE COUPLINGS. *James A. Oliff, Esq., Parkhurst & Oliff, 277 So. Washington St., Alexandria, Va. 22314, (703) 836-6400.*
3,374,022. COMBINATION CANE AND PICKUP STICK. *Howard L. Tagg, 17 Hawk Lane, Levittown, N.Y., 11756.*
3,798,374. SOUND REPRODUCING SYSTEM UTILIZING MOTIONAL FEEDBACK. *Stanley Thayer Meyers, 122 N. Riverside Ave. Red Bank, N.Y.*
3,832,965. SUBMERSIBLE TRANSPORT APPARATUS. *Paul J. Walker, P.O. Box 2769, Nipawin Saskatchewan Canada SOE IEO.*
3,961,865. CONVERSION BRACKET FOR WELL PUMP. *Vernon E. Spaulding, R #3 Box 149, Vine Grove, Ky. 40175.*
4,136,764. MOTHER ALICE'S BREAD VENDING MACHINE. *Alice Johnson, 8650 Belford Ave #1, Los Angeles, Calif. 90045.*
4,302,883. EXACTO-MAC. *Exacto-Mac Limited Partnership % Thompson, Weir & Barclay, P.O. Box 2044, New Haven, Conn. 06521.*
4,368,391. "HYDRAULIC PROCESS AND APPARATUS FOR THE RECOVERY OF ELECTRICAL ENERGY FOR USE IN MOTOR TEST STATIONS. *Olivier Hellouin deMenibus. Please contact: Neil F. Greenblum, Esq. Sandler & Greenblum 701 South 23rd St., Arlington, Va. 22202. (703) 521-7800.*
The following U.S. patents are available for license by the inventor: Harold J Weber, P.O. Box 315, Sherborn, Mass. 01770.
4,150,497. MANUAL GEARSHIFT AND CLUTCH TRAINING APPARATUS INCLUDING SENSORY INDICATION FOR MOST FAVORABLE OPERATOR CONTROL.
4,300,650. MULTILEVEL POWER ASSISTED STEERING.
4,346,766. DRILL CRADLE WITH ELONGATED SLIDE TRACK. *Salzgitter Maschinen Und Anlagen Aktiengesellschaft Salzgitter, Germany. Correspondence to: Michael J Striker, 360 Lexington Ave, New York, N.Y. 10017.*

4,321,844. KRILL BRAKE ADJUSTING TOOL. *Olga Krill*, correspondence to: Andrea M. Krill, 1750 Walton Rd., Whitpain Office Campus, Blue Bell, Pa. 19422.

4,357,137. SHAFT COUPLING. *James A. Oliff, Esq.*, Parkhurst & Oliff, 277 So. Washington St., Alexandria, Va. 22314. (703) 836-6400.

4,364,411. LIQUID LINE THERMAL BARRIER. *Payton et al.* Beach & Brown, 3107 Eastlake Ave. East, Seattle, Wash. 98102.

4,364,703. ROTARY PARKING STRUCTURE FOR PASSENGER CARS. *Yang-Kaung Pai*, Taipei, Taiwan. Contact Holman & Stern, 2401 Fifteenth St., N.W., Washington, D.C. 20009, (202) 483-2234.

4,374,425. A SINGLE ACTUATOR ELECTRONIC MINICOMPUTER. *Dr. Louis R. Fuka*, 2073 North Rd., Los Alamos, N. Mex. 87544.

The inventions listed below owned by applicant Allan Westerlund and Licensee Harald Soderlund, are available for licensing.

4,227,727. "DOORCATCH".

4,357,038. "DOORCATCH".

Please contact James M. Slattery of Birch, Stewart, Kolasch & Birch at (203) 241-1300.

The General Electric Co. is prepared to grant non-exclusive licenses under the following patents upon reasonable terms to domestic manufacturers.

Applications for license may be addressed to Patent Counsel, Gas Turbine Division, General Electric Co., 1 River Rd., Bldg. 500, Room 218, Schenectady, N.Y. 12345.

4,350,473. LIQUID COOLED COUNTER FLOW TURBINE BUCKET.

4,326,373. INTEGRATED GAS TURBINE POWER GENERATION SYSTEM AND PROCESS.

Application for license may be addressed to the General Electric Co., Division Patent Counsel Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602.

4,370,070. DIGITAL THERMOMETER HAVING FAHRENHEIT AND CELSIUS READ-OUT MODES.

4,375,701. BATTERY OR AC DRIVEN RADIO RECEIVER POWER SUPPLY.

Applications for license may be addressed to: Patent Counsel, Mobile Radio Products Department General Electric Co., Mountain View Rd., Lynchburg, Va. 24502.

4,350,972. MULTIPLE CONSOLE CONTROL SYSTEM.

4,284,907. CHARGE TRANSFER FILTER.

4,284,908. CHARGE DOMAIN FILTER WITH SINGLE TRANSMISSION ZERO.

4,284,909. CHARGE DOMAIN FILTER WITH A PLURALITY OF TRANSMISSION ZEROS.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602.

4,347,464. FET MOTOR DRIVE SYSTEM.

4,355,692. THICK FILM RESISTOR FORCE TRANSDUCERS AND WEIGHING SCALES.

Application for license may be addressed to: General Electric Co., Component Motor Division 1635. Broadway, P.O. Box 2204, Fort Wayne, Ind. 46801-2204, Attention: Patent Counsel.

4,323,217. MOTOR MOUNTING ASSEMBLY INCLUDING EXTENDABLE BAND.

4,327,481. METHOD OF ASSEMBLING AN ELECTRICAL DEVICE.

4,341,987. TWO-SPEED SINGLE PHASE MOTOR WITH CENTRIFUGAL SWITCH.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio Business Division, 1285 Boston Ave., Bridgeport, Conn. 06602.

4,370,070. DIGITAL THERMOMETER HAVING FAHRENHEIT AND CELSIUS READ-OUT MODES.

4,375,701. BATTERY OR AC DRIVEN RADIO RECEIVER POWER SUPPLY.

Applications for license may be addressed to: General Electric Co., Component Products Group, 1635 Broadway, P.O. Box 2204, Fort Wayne, Ind. 46801-2204, Attention: Patent Counsel.

4,110,632. DEVICE, METHOD AND SYSTEM FOR CONTROLLING THE SUPPLY OF POWER TO AN ELECTRICAL LOAD.

4,227,103. APPARATUS FOR INSULATING AN INTERNAL MOTOR CONNECTION.

4,237,508. ELECTRICAL CONTROL.

4,247,978. METHODS OF MAKING SLOT LINERS AND STATOR ASSEMBLIES INCLUDING SAME.

4,355,250. SELF-ALIGNING BEARING ASSEMBLY.

4,360,847. DIODE ASSISTED RELAY CONTACTOR.

Otis Engineering Corporation is prepared to grant nonexclusive licenses under the following patents upon reasonable terms. These patents relate generally to Through Flow Line (TFL) or Pumpdown completion and equipment used in oil and gas wells. Address inquiries to Patent Attorney, Otis Engineering Corp., P.O. Box 34380, Dallas, Tex. 75234, Telephone (214) 323-3882.

3,543,852. WELL TOOLS.

3,568,770. LATCH DEVICE FOR SUPPORTING WELL TOOLS IN A FLOW CONDUCTOR.

3,603,110. WELL TOOLS.

3,608,631. APPARATUS FOR PUMPING TOOLS INTO AND OUT OF A WELL.

3,610,336. LANDING NIPPLE WITH LOCATOR AND ORIENTING MEANS.

3,637,012. WELL FLOW CIRCULATING METHODS.

3,642,069. JAR STROKE ACCELERATOR FOR PUMPDOWN WELL TOOL.

3,654,995. FLUID CIRCULATING METHOD AND SYSTEM FOR WELLS.

3,664,427. WELL FLOW CONTROLLING SYSTEMS, METHODS AND APPARATUS.

3,666,012. WELL CROSS-OVER APPARATUS FOR SELECTIVE COMMUNICATION OF FLOW PASSAGES IN A WELL INSTALLATION.

3,680,637. WELL TOOLS AND METHODS OF OPERATING A WELL.

3,739,850. CROSS OVER ASSEMBLY.

Deposit Account Authorizations

The rules of practice were amended effective Oct. 1, 1982, at 37 CFR 1.25(b) to state that: "A general authorization to charge all fees, or only certain fees, set forth in §§1.16 to 1.18 to a deposit account may be filed in an individual application, either for the entire pendency of the application or with respect to a particular paper

filed." A general authorization would not apply to document supply fees under §1.19, such as those required for certified copies; to post-issuance fees under §1.20, such as those required for maintenance fees; or to miscellaneous fees and charges under §1.21, such as assignment recording fees.

Many applications filed prior to Oct. 1, 1982, contain broad language authorizing any additional fees which might have been due to be charged to a deposit account. The Patent and Trademark Office does not interpret such broad authorizations, filed prior to Oct. 1, 1982, to include authorization to charge to a deposit account the issue fee or other fees in sections 1.16, 1.17 and 1.18 except those associated with the paper containing the broad authorization. However, such a broad authorization filed in an application on or after Oct. 1, 1982, will be interpreted as authorization to charge the issue fee; as well as any other fee set forth in §§1.16, 1.17 or 1.18. Fees under sections 1.19, 1.20 and 1.21 will not be charged as a result of a general authorization under section 1.25.

It is recommended that authorizations to charge fees to deposit accounts include reference to the particular fees or fee sections of the rules which applicant intends to authorize. For example, if filing and processing fees under §§1.16 and 1.17 only are intended to be included in the authorization, and not the issue fee under §1.18,

the authorization could read: "The Commissioner is hereby authorized to charge any fees under 37 CFR 1.16 and 1.17 which may be required during the entire pendency of the application to Deposit Account No. _____." Such an authorization would clearly exclude issue fees under 37 CFR 1.18 while including all the filing and processing fees listed in 37 CFR 1.16 and 1.17. Similarly, if it were intended to authorize the charging of fees relating only to a specific paper, the authorization could read "The Commissioner is hereby authorized to charge any fees under 37 CFR 1.16 and 1.17 which may be required by this paper to Deposit Account No. _____." Such authorizations would cover situations in which a check to cover a filing and processing fee under 37 CFR 1.16 and 1.17 was omitted or was for an amount less than the amount required.

It is extremely important that the authorization be clear and unambiguous. If applicants file authorizations which are ambiguous and which deviate from the usual forms of authorizations, the Office may not interpret the authorizations in the manner applicants intend. In such cases applicants could be subject to further expenses, petitions, etc. in order to correct fees which were not charged as intended due to an ambiguous authorization.

July 1, 1983.

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Status of PTO Services

The following is an update of the status of PTO services as of June 30, 1983:

Service Item	FY 1983 Performance Goal	Actual	Comment
Filing Receipts:			
Patents	22	22	
Trademarks	30	75	* Reduced by 13 days in June.
Patent Copies:			
Window Coupons	5	99% within 5 days	
Mail Coupons	29	100% within 22 days	
Letter Orders	34	100% within 15 days	
Certified Copies:			
Trademark Registrations	30	13	
Applications-As-Filed	20	91% within 10 days	
File-Wrapper/Contents	N/A	95% within 20 days	
Walk-up Certification	1	99% within 1 day	
Trademark Search Library:			
Filing Drawings	21	49	
Filing Reg. Certificates	3	15	
Assignments:			
Patents	25	25	
Trademarks	25	17	Reduced by 5 days in June
Avg. Days from Issue Fee Payment to Issue Date	90-100	100	
Patent Official Gazette:			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	Avg. 1 day late	
Patent Grants Mailed	Issue Date	Avg. 1 day late	
Patent Copies Available	Issue Date	99%	
Trademark Official Gazette:			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	On Schedule	
Trademark Regs. Mailed	Issue Date	On Schedule	

IMPROVEMENTS TO SERVICES

- Pre-Examination Processing**—A major milestone in reaching 18 month pendency has been met. The pre-examination backlog inventory goal of 9,100 cases was met on schedule in June. This represents mailing receipts to applicants within an average of 22 days and making cases available to the Patent Examining Corps within 30 calendar days. The pre-examination backlog was over 30,000 cases in Feb. 1982, when it was taking 100 days to mail filing receipts and 124 days to get the applications to the Examining Corps. The inventory now is the lowest level it has been since 1978.
- New Microfilm Reader/Printers**—Two new Minolta 505 reader/printers were installed to replace old equipment with U.S. Patent microfilm. This equipment produces high quality bond paper output. The response from the public has been very positive. We

plan to replace 14 more of the current reader/printers with Minolta's.

Reconstruction of Files—In the past, when patent application files need to be reconstructed due to loss of the original file, applicants have been requested to resubmit a copy of the entire file. A new procedure has been implemented, whereby only papers submitted after the original application need to be resubmitted. A copy of the application-as-filed will be obtained from the PTO's microfilm copy. This will alleviate some of the burden imposed on the public when it is necessary for the Office to reconstruct a file.

June 30, 1983.

THERESA A. BRELSFORD,
Assistant Commissioner
for Administration.

PATENT NOTICES

Certificates of Correction for the Week of July 26, 1983

PP. 05,051	4,336,746	4,370,469	4,378,830
D. 251,401	4,343,597	4,370,624	4,379,171
D. 268,218	4,349,579	4,370,695	4,379,338
D. 268,458	4,349,721	4,370,704	4,380,348
D. 265,889	4,350,145	4,371,932	4,380,670
4,017,290	4,350,774	4,372,765	4,380,849
4,021,253	4,354,541	4,372,971	4,381,271
4,041,714	4,355,140	4,373,273	4,381,450
4,053,638	4,356,332	4,373,997	4,382,133
4,173,668	4,356,342	4,374,137	4,382,361
4,238,349	4,358,376	4,374,222	4,382,412
4,261,989	4,360,871	4,374,527	4,382,717
4,285,840	4,361,515	4,374,752	4,382,807
4,293,501	4,362,820	4,375,141	4,383,162
4,293,727	4,363,691	4,375,722	4,383,422
4,300,144	4,363,716	4,376,069	4,383,979
4,300,553	4,365,389	4,376,284	4,384,274
4,304,169	4,365,508	4,376,662	4,384,601
4,330,362	4,366,026	4,377,453	4,384,614
4,330,387	4,366,244	4,377,465	4,384,844
4,333,363	4,366,506	4,377,605	4,385,542
4,334,246	4,366,842	4,378,223	4,385,964
4,336,207	4,366,887	4,378,271	
4,336,693	4,370,011	4,378,362	

Disclaimers

Des. No. 264,516.—*Michel Joseph*, Saverne, France. BATHING SUIT. Patent dated May 25, 1982. Disclaimer filed May 19, 1983, by the assignee, *Adidas Fabrique de Chaussures de Sport*.

The term of this patent subsequent to Nov. 17, 1995, has been disclaimed.

3,830,764.—*Donald E. Hudgin*, Princeton Junction and *Thomas Zawadzki*, Princeton, N.J. DEGRADABLE HYDROCARBON POLYMERS. Patent dated Aug. 20, 1974. Disclaimer filed June 10, 1983, by the assignee, *Princeton Polymer Laboratories, Inc.*

Hereby enters this disclaimer to claims 5, 6, 15, 17, 18 and 19 of said patent.

4,322,666.—*Rolf Muller*, St. Georgen, Fed. Rep. of Germany. BRUSHLESS, PERMANENT MAGNET D-C PULSE CURRENT CONTROLLED, ESSENTIALLY UNIFORM TORQUE DYNAMO ELECTRIC MACHINE PARTICULARLY MOTOR. Patent dated Mar. 30, 1982. Disclaimer filed July 14, 1982, by the assignee, *Papst Motoren GmbH & Co., KG*.

The term of this patent subsequent to July 8, 1997, has been disclaimed.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 749-4176
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

All of the above-listed libraries offer CASSIS (Classification And Search Support Information System), which provides direct, on-line access to Patent and Trademark Office data.

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS RENE D. TEGTMEYER, Assistant Commissioner WILLIAM FELDMAN, Deputy Assistant Commissioner CONDITION OF PATENT APPLICATIONS AS OF April 2, 1983

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	1-16-81
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	11-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	3-1-82
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	3-09-82
Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	1-12-82
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	5-22-81
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-30-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics; Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	1-05-81
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	5-12-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	8-25-80
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	1-30-81
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-18-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—STEPHEN G. KUNIN, Director	7-27-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	8-27-82
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	9-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1983, except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,243,822 to 3,248,737, inclusive
Plant Patents Numbers 2,616 to 2,627 inclusive

REEXAMINATIONS

JULY 26, 1983

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,228,528 (110th) MEMORY WITH REDUNDANT ROWS AND COLUMNS

Ronald P. Cenker, Coplay; Frank J. Procyk, Center Valley, both of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Reexamination Request No. 90/000,153, Feb. 3, 1982.

Reexamination Certificate for Patent No. 4,228,528, Oct. 14, 1980, Ser. No. 10,739, Feb. 9, 1979.

U.S. Cl. 365/200

Int. Cl.³ G11C 13/00

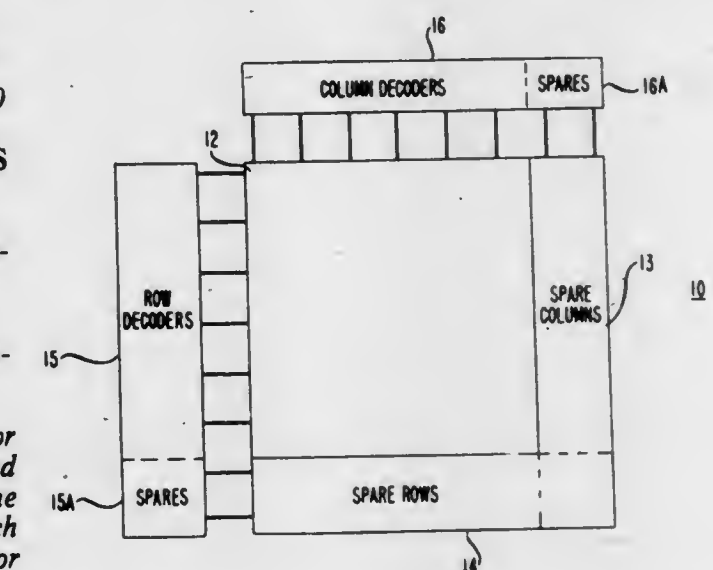
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1-6, having been finally determined to be unpatentable, are cancelled.

New Claims 7-10 are added and determined to be patentable.

7. A semiconductor memory comprising a semiconductor chip in which the memory cells are arranged in row and column lines, each with its own decoder, and in which some of the lines form the standard memory array and in which some of the lines are initially spares to be available for substitution for lines of the standard array which include defective cells **CHARACTERIZED IN THAT** each of the decoders associated with a standard line comprises a parallel group of address decoding transistors, one for each digit of the address to be decoded, a drive transistor whose gate is supplied by said parallel group and whose output is connected to the associated standard line conductor, and a fusible

link between the output of the drive transistor and the associated line conductor, and in which the decoder associated with each spare line comprises a plurality of decoding transistor pairs for the true and the complement of each digit of the address to be decoded, each decoding transistor



being connected between a point of reference potential and the decode node, a drive transistor whose gate is connected to the decode node, an associated spare line conductor, and a plurality of fusible links, a separate one between each decoding transistor and the decode node.

REISSUES

JULY 26, 1983

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,320

SELF-REGULATING HEATER

Alfred Hoser, Eitensheim, Fed. Rep. of Germany, assignor to Audi NSU Auto Union Aktiengesellschaft, Fed. Rep. of Germany

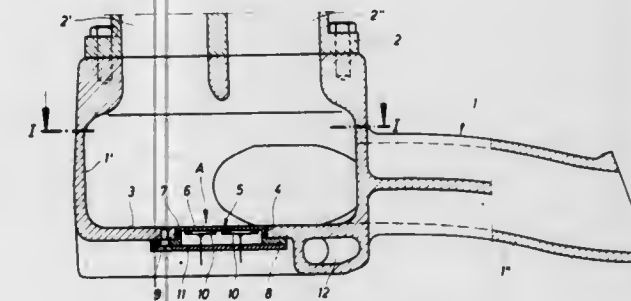
Original No. 4,242,999, dated Jan. 6, 1981, Ser. No. 774,988, Mar. 7, 1977. Application for reissue Mar. 25, 1981, Ser. No. 247,516

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1976, 2629610

Int. Cl.³ F02M 31/00

U.S. Cl. 123—549

10 Claims



7. A fuel entry system of an internal combustion engine, comprising a carburetor having a barrel through which fuel and air are adapted to pass, an intake manifold connected to said barrel and having a bent configuration to provide a wall substantially at right angle and opposite to said barrel, a stove disposed in said wall and offset with respect to said barrel, said stove comprising at least one self-regulating heater element having a steeply sloped positive temperature coefficient of resistivity, means to electrically connect the element to a power supply so that shortly after energization thereof the element is maintained at a preselected temperature whereby fuel droplets coming in contact with the stove will be vaporized to enhance start-up of the engine, said stove having a top plate in heat transfer relationship with said element, said top plate having a surface which faces the interior of said intake manifold and is flush with the inner surface of said wall and is provided with a multiplicity of heat conducting rods projecting from said surface into said intake manifold.

Re. 31,321

SOLAR HEATING SYSTEM

Henry Harrison, deceased, late of Locust Valley, N.Y. (by Dorothy D. Harrison, administratrix), assignor to Halm Industries Co. Inc., Glen Head, N.Y.

Original No. 4,237,863, dated Dec. 9, 1980, Ser. No. 817,335, Jul. 20, 1977. Continuation of Ser. No. 677,265, Apr. 15, 1976, abandoned. Application for reissue Jan. 22, 1981, Ser. No. 227,510

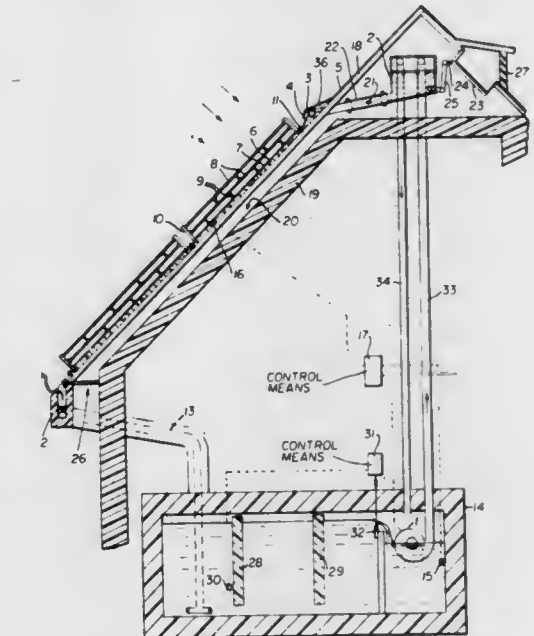
Int. Cl.³ F24J 3/02

U.S. Cl. 126—422

10 Claims

10. A solar heating system having at least one roof mounted panel for collecting heat from the sun, said panel having an upper sunlight-absorbing surface [at least one translucent cover mounted above the panel to protect it from the weather.] said panel having a lower surface of heat transfer to a stream of water, means for mounting said panel to form a passage for said stream of water, *wettable mat* means in said passage connected to said panel for maintaining said stream of water in substantially uniform contact with said lower surface of said panel, insulated tank means connected for receiving and storing said stream of water, and means for controlling said stream of water under said panel in response to the temperature of said panel and said water in said tank,

whereby said water collects heat from said panel at useful temperatures, said means for maintaining said stream of



water in substantially uniform contact with said lower surface of said panel comprises a mat of wettable fibrous material.

Re. 31,322

PROCESS FOR PRODUCING SULFUR-CURABLE ACRYLIC RUBBERS

Tetsu Ohishi, Tokyo; Kohichi Handa, Kamakura, and Haruo Ueno, Tokyo, all of Japan, assignors to Nippon Zeon Co. Ltd., Tokyo, Japan

Original No. 4,228,265, dated Oct. 14, 1980, Ser. No. 24,476, Mar. 27, 1979. Application for reissue Sep. 23, 1981, Ser. No. 304,788

Claims priority, application Japan, Mar. 27, 1978, 53-35050; Mar. 28, 1978, 53-35885

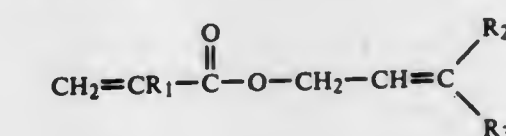
Int. Cl.³ C08F 220/40

U.S. Cl. 526—230

10 Claims

1. A process for producing a sulfur-curable acrylic rubber, which comprises copolymerizing in the presence of a radical initiator

- (1) 90 to 99.5% by weight of at least one alkyl acrylate with the alkyl group containing 1 to 8 carbon atoms, and
- (2) 0.5 to 10% by weight of at least one monomer of the general formula



wherein R₁ represents a hydrogen atom or a methyl group, and R₂ and R₃, independently from each other, represent an alkyl group containing 1 to 3 carbon atoms.

Re. 31,323

PREPARATION OF WATER-INSOLUBLE
CARBOXYMETHYL CELLULOSE ABSORBENTS

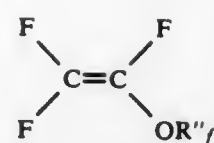
Herman L. Marder, Somerville; Nathan D. Field, Wyckoff, both of N.J., and Makoto Shinohara, Crystal Lake, Ill., assignors to International Playtex, Inc., Stamford, Conn.
Original No. 4,200,737, dated Apr. 29, 1980, Ser. No. 906,724, May 17, 1978. Application for reissue Apr. 19, 1982, Ser. No. 369,726

Int. Cl.³ C08B 11/20

U.S. Cl. 536—87

7 Claims

1. A process for the preparation of substantially water-insoluble, particulate carboxymethyl cellulose, which comprises treating a solid, water-soluble particulate sodium carboxymethyl cellulose having a degree of substitution of at least 0.4 with hydrogen chloride gas, and heating the carboxymethyl cellulose [at temperatures in excess of 100° C.] to convert the same to a partially acid form, cross-linked and substantially insolubilized material exhibiting a swell ratio of from 5 to 50.



[(5)] (4)

where

Each R_f independently is a C₁–C₈ saturated perfluoroalkyl; R'_f is Br or R_f; R'' is R_f or a radical obtained by removing one fluorine atom from a perfluoroalkyl ether; and m in formula (3) is an integer of 2 to 12.

Re. 31,325

STEPPING AC LINE VOLTAGE REGULATOR

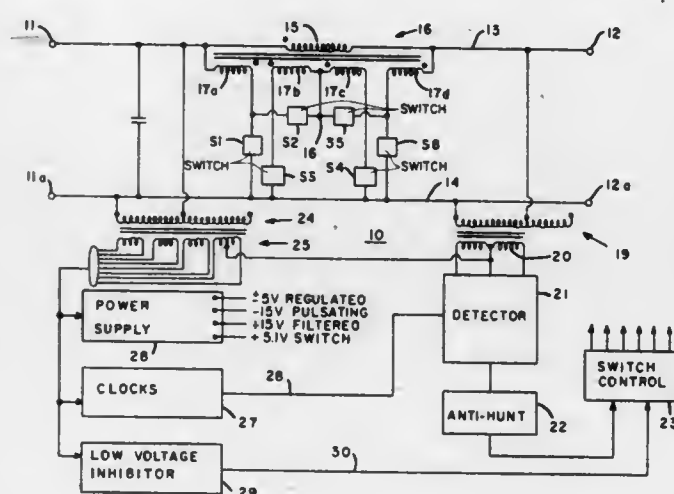
Roland L. Crapo, Bristol, Conn., assignor to The Superior Electric Company, Bristol, Conn.

Original No. 4,178,539, dated Dec. 11, 1979, Ser. No. 930,763, Aug. 3, 1978. Application for reissue Dec. 2, 1981, Ser. No. 326,580

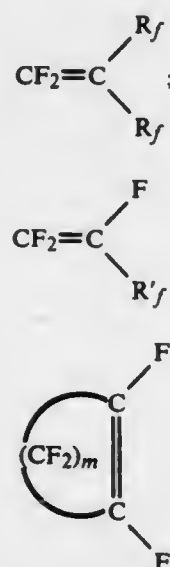
Int. Cl.³ G05F 1/30

U.S. Cl. 323—263

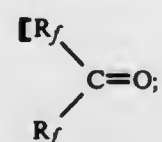
15 Claims



1. A stepping voltage regulator comprising a pair of input terminals connectable to a source of AC power, a pair of output terminals connectable to a load, a pair of lines connecting the two pair of terminals, a transformer having a secondary winding connected in series in one line and having at least four primary windings, a first primary winding being connected [through a first switch] in a first series circuit from one line through a first switch to the other line, a second primary winding being connected [through a second switch] in a second series circuit from said one line through a second switch to the other line, a third primary winding having one end connected through a third switch to the [end of] first series circuit between the first winding and the first switch, a fourth primary winding having one end connected through a fourth switch to the [end of] second series circuit between the second winding and the second switch, said one end of the third winding and said one end of the fourth [windings] winding having a common junction, a fifth switch connected between the other end of the third winding and the other line, a sixth switch connected between the other end of the fourth winding and the other line, [each of said windings having the same number of turns,] said first and third windings when energized inducing one direction of correcting voltage in the secondary winding and said second and fourth windings inducing the opposite direction of correcting voltage, switch control means for providing a selected conduction state [of only one of either] among plural conduction states of said switches including at least (a) the first switch only, [or] (b) only the third and fifth switches simultaneously, [or] (c) only the fifth and sixth switches simultaneously, [or] (d) only the fourth and sixth switches simultaneously [or] and (e) the second switch only, and



[(B) ketones having the following formula (4):]



and

(C) ethers having the following formula [(5)] (4)

detector means for sensing the value of the output voltage and providing a correcting signal to the switch control means to cause the switch control means to change to a different conduction state when the value of the output voltage exceeds a selected range of values.

Re. 31,326

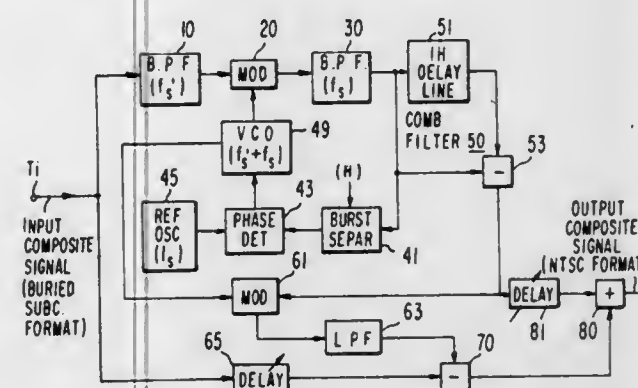
SIGNAL TRANSLATING APPARATUS FOR COMPOSITE
SIGNAL SUBJECT TO JITTER

John G. Amery, Quincy, Ill., and Robert W. Jorgenson, Pasco, Wash., assignors to RCA Corporation, New York, N.Y.
Original No. 3,872,497, dated Mar. 18, 1975, Ser. No. 351,036, Apr. 13, 1973. Application for reissue Mar. 18, 1977, Ser. No. 779,009

Int. Cl.³ H04N 9/12

U.S. Cl. 358—322

16 Claims



16. A video processing system comprising:

- a source of a color television signal of the form obtained by colorplexing a frequency shifted chrominance signal shifted to a lower frequency band with a luminance signal by using frequency interlacing;
- an extracting means for extracting a signal in the lower frequency shifted chrominance signal band from said color television signal and providing the extracted signal at its output;
- a first frequency conversion means having an output terminal for frequency converting the extracted signal in the lower frequency shifted chrominance signal band into a first signal in the chrominance signal band of a standard color television signal;
- a first separating means connected to the output terminal of said first frequency conversion means for separating the chrominance signal from said first signal, said first separating means including a first comb filter including a oneline delay element and providing the separated chrominance signal at its output;
- a second frequency conversion means for frequency converting the chrominance signal separated by said first separating means to the frequency band of said lower frequency shifted chrominance signal band;
- an adding means for adding the output of said second frequency conversion means to said color television signal in opposite phase to each other so that only the lower frequency

shifted chrominance signal in said color television signal is cancelled; and

g. means for mixing the output of said first separating means with the output of said adding means wherein a standard color television signal is obtained as the output of said mixing means.

Re. 31,327

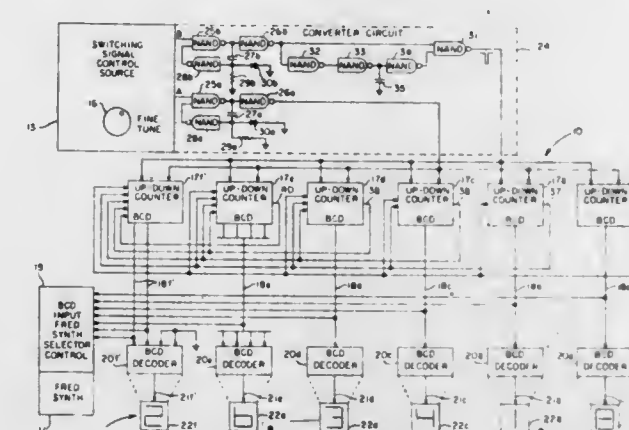
PROPORTIONAL DIGITAL CONTROL FOR RADIO
FREQUENCY SYNTHESIZERS

Max E. Peterson, Richardson, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.
Original No. 3,665,323, dated May 23, 1972, Ser. No. 141,895, May 10, 1971. Application for reissue Jun. 18, 1979, Ser. No. 49,868

Int. Cl.³ H03J 5/04, 5/00; H03K 21/30

U.S. Cl. 455—157

12 Claims



- In a proportional digital control system using binary coded decimal control for tuning radio frequency synthesizers: a switching signal control source with reference signal pulse output means [.] for producing a reference signal pulse waveform and an up-down count signal pulse means for producing an up-down count pulse waveform, with a change in count determined by said reference signal pulse waveform and the count direction, whether up or down [count], determined by phase relation of said up-down count signal pulse waveform to [the signal pulses of] said reference signal pulse [output means] waveform, and means for shifting [signal pulse] the phase of said up-down count signal [means] pulse waveform relative to [the] said reference signal [pulses] pulse waveform; a circuit chain of a plurality of up-down counter to binary coded decimal output circuit units connected to receive directly from said switching signal control source only the two said reference signal [pulses] and the phase shiftable up-down count signal [pulses] pulse waveforms, and with carry over interconnect between adjacent digit locations of said up-down counter circuit units; a frequency synthesizer with a BCD input frequency selector control circuit connected to the BCD output of said up-down counter circuit units; and a plurality of digit display devices with BCD signal input circuit means connected individually to receive the BCD output signals of the individual up-down counter circuit units of the respective digit locations.

PLANT PATENTS

GRANTED JULY 26, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

5,073

ALMOND TREE ("MESA")

Leonard D. James, 4017 Tully Rd., Modesto, Calif. 95356

Filed Apr. 19, 1982, Ser. No. 369,845

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—30

1 Claim

1. A new and distinct variety of almond tree, substantially as illustrated and described, particularly characterized by a bloom-time two or three days earlier than the Mission and substantially the same as the Nonpareil, and by a harvest period about two weeks earlier than the Mission.

5,074

PLUM TREE (AP-3)

Alvin Peters, 41736 Road 62, Reedley, Calif. 93654

Filed Jan. 18, 1982, Ser. No. 340,454

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—38

1 Claim

1. A new and distinct variety of plum tree, substantially as illustrated and described, which — while otherwise most similar to the Laroda in tree and fruit characteristics — bears fruit which ripens about six to seven weeks later than the fruit of the Laroda.

5,075

WILTON PYRAMIDAL HYBRID YEW TREE

Dirk van Heiningen, 6850 Carlisle Rd., Dover, Pa. 17315

Filed Jun. 29, 1981, Ser. No. 278,085

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—50

1 Claim

1. A new and distinct variety of hybrid Yew substantially as herein shown and described, characterized particularly by its novel shape and unique color and extent of foliage.

5,076

CHRYSANTHEMUM NAMED FIREBRAND (FP6-143-BS)

Leonard H. Shoemith, Westfield-Woking, England, assignor to

Pan American Plant Company, Parrish, Fla.

Filed Oct. 19, 1981, Ser. No. 312,887

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—74

1 Claim

1. A new and distinct spoon-tipped chrysanthemum, substantially as herein shown and described, particularly characterized by the bronze coloration of its ray florets and its floriferous and vigorous growth habit.

PATENTS

GRANTED JUL. 26, 1983

ERRATA

For CLASS	See PATENT NO.
604-067	4,394,862
604-090	4,394,863
384-092	4,395,076
525-351	4,395,501
377-015	4,395,624
382-041	4,395,697
382-027	4,395,698
382-041	4,395,699
382-027	4,395,700

PATENTS

GRANTED JULY 26, 1983

GENERAL AND MECHANICAL

4,394,781
SWIMSUIT

Otto Axmann, Rheinstrasse 50, 1000 Berlin 41, Fed. Rep. of Germany

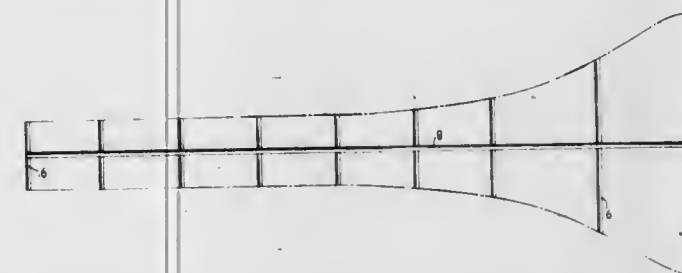
Filed Mar. 18, 1982, Ser. No. 359,600

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1981, 3111280

Int. Cl.³ A41D 5/00, 9/00; A41C 3/02

U.S. Cl. 2—67

6 Claims



1. A swimsuit comprising a fabric covered, elastic, air-penetrable form insert including a longitudinal rib having a plurality of transverse ribs secured thereto, said insert having the shape of a substantially U-shaped clamp having two shanks, a front shank which serves to resiliently engage the pubic bone of the wearer and a rear shank of which serves to resiliently engage the coccyx of the wearer.

4,394,782

MULTI PURPOSE HEAD SWEATBAND

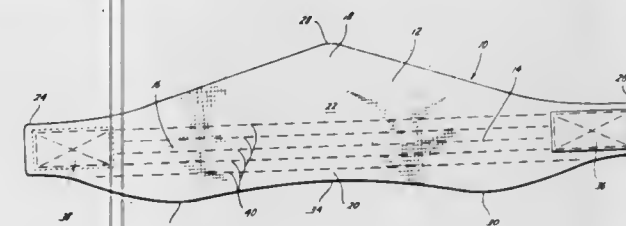
John J. Wasson, P.O. Box 5667, 6329 Masonic Dr., Alexandria, La. 71301

Filed Feb. 23, 1981, Ser. No. 237,205

Int. Cl.³ A42B 5/00

U.S. Cl. 2—181

7 Claims



1. A head sweatband for a person to wear comprising a cloth member for wrapping around the person's head, the cloth member having two sides, a top, a bottom, a mid-portion and two end portions, a front surface and a rear surface and a peak formed integrally of the top of the cloth member and two flaps, one formed integrally of each of the side portions of the cloth member at the bottom thereof, and securing means connected to the cloth member for securing the head sweatband on the wearer's head.

4,394,783

BODY CUSHION

Elizabeth J. Simmons, 18 Norton Rd., Broad Brook, Conn. 06016

Filed Dec. 1, 1980, Ser. No. 211,702

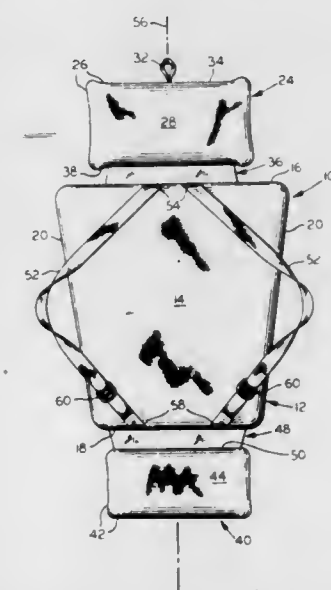
Int. Cl.³ A47G 9/00

U.S. Cl. 5—432

13 Claims

1. A body cushion comprising:
a base cushion having a generally trapezoidal shape with a top, a bottom substantially parallel to the top, a front section, a back section and nonparallel sides;

a top cushion;
a bottom cushion;
a first connector made of soft flexible material and having one end fixedly connected to the top of the base cushion and the other end attached to the top cushion;
a second connector made of soft flexible material and having one end fixedly connected to the bottom of the base cushion and the other end attached to the bottom cushion;
means for adjusting the length of the first and second connector for varying the separation between the top cushion



and the base cushion and between the bottom cushion and the base cushion; and
a pair of body straps each having a first end fixedly attached, in a spaced apart relationship to one another, to the top of the base cushion and each having a second end fixedly attached, in a spaced apart relationship to one another, to the bottom of the base cushion wherein the body straps are adapted for attachment around the shoulders of a person for securing the body cushion to the back of said person.

4,394,784

AIR BED WITH FIRMNESS CONTROL

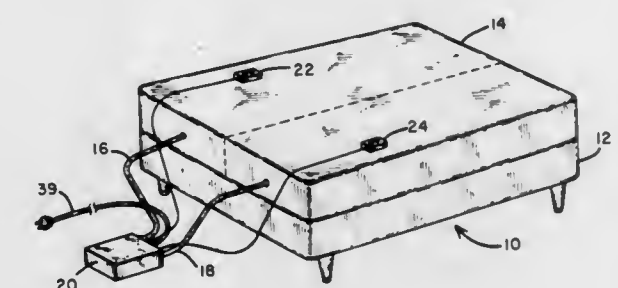
Gerald R. Swenson; Emil S. Swenson, both of Coon Rapids, and Gary A. Young, Burnsville, all of Minn., assignors to Dial-A-Firm International, Inc., Burnsville, Minn.

Filed Jul. 8, 1981, Ser. No. 281,368

Int. Cl.³ A47C 27/10

U.S. Cl. 5—453

27 Claims



1. An air bed system having firmness control of an air bladder confined within a mattress, comprising
(a) an air blower having an intake to atmospheric air and

- having an exhaust to atmospheric air, and having a pressurized air outlet;
- (b) an air line connected to said pressurized air outlet and connected to said air bladder;
- (c) an air valve interposed in said air line for selectively opening and closing air flow therethrough;
- (d) means for actuating said air valve for opening air flow through said air line and for energizing said air blower; and
- (e) means for actuating said air valve for opening air flow through said air line and for deenergizing said air blower.

4,394,785

APPARATUS FOR CLEANING SOLDERING IRON BITS
 Franz Vogler, Niederrohrdorf, Switzerland, assignor to Elvo Elektronik AG, Niederrohrdorf, Switzerland

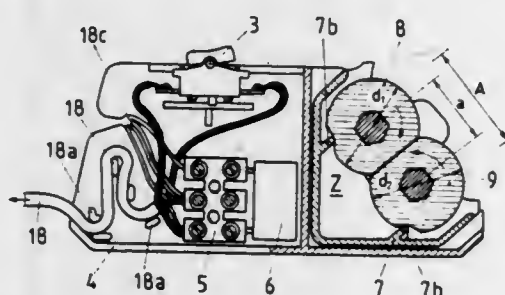
Filed Oct. 13, 1981, Ser. No. 310,777

Claims priority, application Switzerland, Mar. 6, 1981, 1524/81

Int. Cl.³ A46B 13/02

U.S. Cl. 15—21 D

16 Claims



1. An apparatus for mechanically cleaning hot soldering iron bits contaminated with contaminants, such as tin oxides and soldering residues, comprising:

at least two cooperating oppositely situated, counter-rotating cleaning bodies for cleaning a soldering iron bit of contaminants;

each of said cleaning bodies having a lengthwise extending axis;

means for mounting said two cleaning bodies such that the distance between said lengthwise extending axes is less than the mean diameter of said cleaning bodies, so that said cleaning bodies are continuously in mutual contact with one another at portions of their circumference; and

means for rotatably driving said counter-rotating cleaning bodies at different rotational speeds, whereby said mutually contacting portions of said cleaning bodies exert a kneading action upon one another and thus a self-cleaning action upon one another, to thereby ensure that during cleaning of a contaminated soldering iron bit essentially only non-contaminated portions of said counter-rotating cleaning bodies come into contact with said contaminated soldering iron bit.

4,394,786

APPARATUS FOR CLEANING AND SCALE DUST REMOVAL FROM STEEL ROD AFTER MECHANICAL DESCALING

Stanley L. Stalson, Richfield, and William H. Johns, Stow, both of Ohio, assignors to Wire Lab Company, Richfield, Ohio
 Continuation-in-part of Ser. No. 152,354, May 22, 1980, abandoned. This application Mar. 9, 1982, Ser. No. 356,482

Int. Cl.³ A47L 5/38

U.S. Cl. 15—306 A

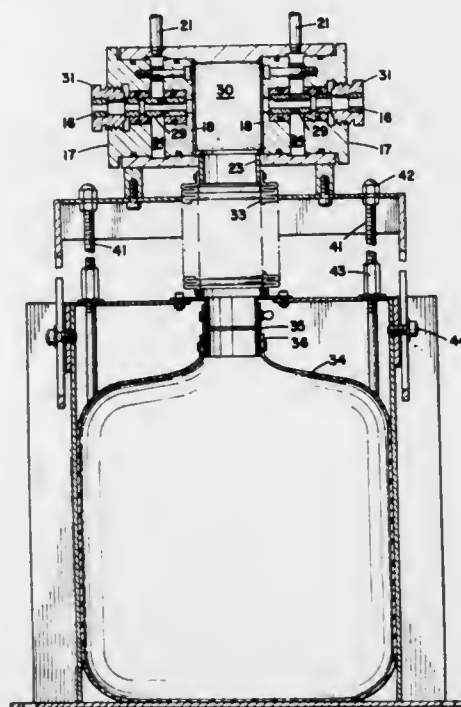
5 Claims

1. A waterless particle removing apparatus for removing scale particles from a carbon steel strand, the apparatus comprising:

a housing which defines an entrance opening, an exit opening, and a central chamber disposed in alignment along a central axis such that the strand is adapted to be moved

linearly along the central axis through the entrance opening, the central chamber, and the exit opening;

a compressed air manifold for supplying air under pressure; a tubular entrance nozzle having an entrance nozzle passage and a plurality of entrance air jet orifices, the entrance nozzle being disposed in the entrance opening with the entrance nozzle passage in alignment with the central axis, the entrance air jet orifices being disposed in fluid communication between the air manifold and the nozzle passage and being directed toward the central chamber in such a manner that a venturi effect is created drawing air from exterior of the housing, through the entrance nozzle passage where it mixes with scale particles freed from the steel strand, and into the central chamber, whereby the venturi effect prevents scale particles from escaping through the entrance nozzle passage to the exterior of the housing;



a tubular exit nozzle having an exit nozzle passage and a plurality of exit air jet orifices, the exit nozzle being disposed in the exit opening with the exit nozzle passage in alignment with the central axis, the exit air jet orifices being disposed in fluid communication between the air manifold and the exit nozzle passage and being directed toward the central chamber in such a manner that a venturi effect is created drawing air through the exit nozzle passage where it mixes with scale particles freed from the steel strand and into the central chamber, whereby the venturi effect prevents scale particles from escaping through the exit nozzle passage to the exterior of the housing; and,

a scale particle filtering device operatively connected with the central chamber for allowing scale particle free air to be returned to the exterior of the housing and collecting scale particles therein.

4,394,787

HYDRAULIC DOOR CLOSER CONSTRUCTION

Sidney Lieberman, Lancaster, Pa., assignor to Dorma Door Controls Inc., Reamstown, Pa.

Filed Jul. 27, 1978, Ser. No. 928,403

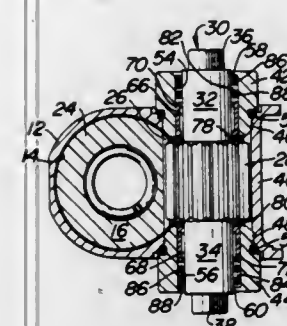
Int. Cl.³ E05F 3/14

U.S. Cl. 16—58

5 Claims

1. For use in hydraulic door closer apparatus of the type comprising a housing having a cylinder therein, a piston disposed in said cylinder, rotary output shaft means journaled in said housing, and means mechanically interconnecting said piston and said output shaft for transmitting forces to and from said piston and said output shaft, a fluid seal for said output

shaft comprising a cylindrical surface on said shaft adjacent to an end thereof, and an elongated annular chamber surrounding a portion of said surface and having a pair of axially spaced end walls, and a pair of O-ring members disposed side-by-side in



said chamber, the axial dimension of said chamber being greater than the combined axial dimension of said O-ring members, so that said O-ring members can adjust themselves axially within said chamber.

4,394,788

RATCHET BEARING FOR SHUTTER SLATS AND THE LIKE

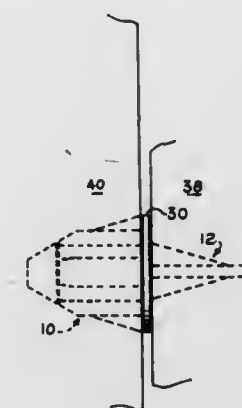
Henry G. Kohler, and Emeric L. Major, both of San Diego, Calif., assignors to Shutter Mart of California, Inc., San Diego, Calif.

Filed Jul. 30, 1980, Ser. No. 173,571

Int. Cl.³ E05D 11/08

U.S. Cl. 16—334

3 Claims



1. A ratchet bearing for rotationally mounting a first member relative to a second member and creating a plurality of detent stops throughout at least a portion of the course of relative rotational motion therebetween, said bearing comprising:

(a) a trunnion pin element having one end engageable in a first member and a projection portion defining a generally cylindrical surface;

(b) a bearing collar element with an internal surface at least in part engaged on said cylindrical surface and having means to engage said bearing element in a second member;

(c) said surfaces each defining unitary high and low portions when angularly traversed and at least one of said surfaces being at least in part biased against the other of said surfaces, whereby mutual rotation of said two elements about the axis of said generally cylindrical surface causes successive detentment of one element relative to the other element;

(d) one of said surfaces, defining a multiplicity of consecutive longitudinal ribs of the other of said surfaces defines a plurality of detents engaging between consecutive adjacent pairs of said ribs as said elements are mutually rotated causing successive detentment of one element relative to the other; and

(e) said trunnion pin has at the end thereof opposite said engageable end a tapered tip expanding to a circular shoulder adjacent said cylindrical surface said shoulder being of diameter greater than that of the smallest inside

diameter of said internal surface whereby said collar can be retained by said shoulder on said trunnion pin.

4,394,789

TOOTHED EDGING MEANS FOR TEXTILE MACHINERY

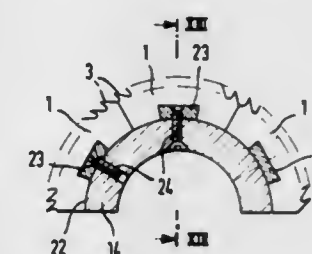
Josef Egerer, Schwabach, Fed. Rep. of Germany, assignor to Staedtler & Uhl, Schwabach, Fed. Rep. of Germany
 Filed Feb. 20, 1981, Ser. No. 236,398

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1980, 3007245

Int. Cl.³ D01G 15/84

U.S. Cl. 19—97

8 Claims



1. Toothed edging apparatus for mounting on a rotatable support element of a textile machine comprising tooth segments each having a plurality of teeth elements arranged generally along an arc, each of said segments being formed as a stamped sheet metal element, each of said segments having a foot portion from which said teeth elements extend, mounting means mounting said foot portion on said rotatable support element of said textile machine, said mounting means comprising a dovetail male element on said support element of said textile machine and a mating dovetail female groove in said foot portion, said dovetail male element having a longitudinal axis extending parallel to the axis of rotation of said rotatable support element, said tooth segments being insertable on said support element by being slid longitudinally along the axis of said support element as said male and female dovetail elements are engaged, and fastening means detachably fastening said dovetail male element on said support element of said textile machine, said dovetail male element having a radial inner face having a partial cylindrical surface, said support element of said textile machine also having at least a partial cylindrical surface corresponding to the cylindrical surface of said dovetail male element, said fastening means comprising threaded element extending between said dovetail male element and said support element to thereby threadedly connect said dovetail male element to said support element as said cylindrical surface of said dovetail male element engages said corresponding cylindrical surface of said support element.

4,394,790

FIBER FEEDING APPARATUS WITH CONTROLLED AIR FLOW

Alex J. Keller, Clover, S.C., and Akiva Pinto, Gastonia, N.C., assignors to Automatic Material Handling, Inc., Bessemer City, N.C.

Filed Dec. 30, 1981, Ser. No. 336,016

Int. Cl.³ D01E 15/40

U.S. Cl. 19—105

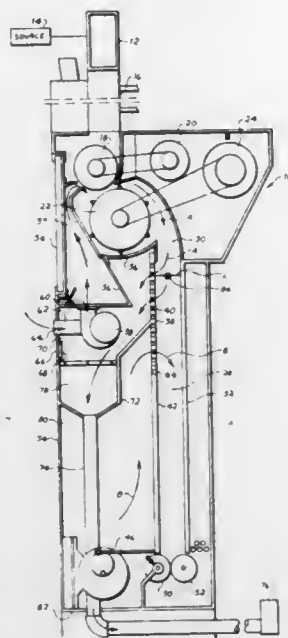
10 Claims

10. Apparatus for feeding fibers to textile processing equipment such as a carding machine, said apparatus including:

(a) an axially extending opening roller;

(b) a substantially enclosed fiber collecting chute means extending generally downwardly beneath said opening roller to receive fibers therefrom, said chute means including a generally vertically extending wall having an upper portion formed with perforations and having a lower portion arranged for oscillating movement for densifying

the fiber in said chute means during movement in one direction; and
(c) a closed compartment adjacent said chute means and separated therefrom by at least a portion of said perforated



wall portion and by said oscillating wall portion, whereby movement of said oscillating wall portion in the other direction thereof will cause air to be forced into said chute means through said perforated wall portion.

4,394,791

CLOSURE CLAMP FOR FOOD BAGS

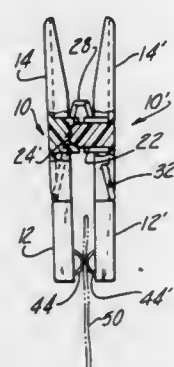
Francis R. Groth, 12561 Glenfield, Detroit, Mich. 48213

Filed May 26, 1981, Ser. No. 267,128

Int. Cl.³ B65D 77/10

U.S. Cl. 24—30.5 R

5 Claims



1. A clamp for closing food bags and the like comprising, a pair of clamp members, each clamp member including a bar-like jaw which is wide relative to its depth and a bar-like handle which is long relative to its width, each of said jaws defining a channel extending the width thereof, a tube of pliable material coextensive with said channel and seated in said channel with a circumferential portion thereof extending outside the channel, each of said handles extending transversely from said jaw and terminating in a free end with a fulcrum means on the handle, said jaws being of equal length and said handles being of equal length, said clamp members being disposed with the fulcrum means of one clamp member in pivotal engagement with the fulcrum means of the other clamp member with said jaws, tubes and handles respectively opposite each other, said fulcrum means and said tubes holding the jaws and handles in spaced relation with clearance space between the jaws throughout the depth thereof to receive the end of a bag, and a torsion spring having a torsion rod disposed between

said fulcrum means and the free ends of said handles with the free ends of the spring engaging the handles at the juncture thereof with the jaws and being adapted to hold said fulcrum means together and to urge said jaws closed, whereby said tubes are adapted to grippingly engage a bag along the full width of said jaws.

4,394,792

BUCKLE FOR A SAFETY BELT

Yves Schmidt, Audincourt, France, assignor to Aciers et Outillage Peugeot, Audincourt, France

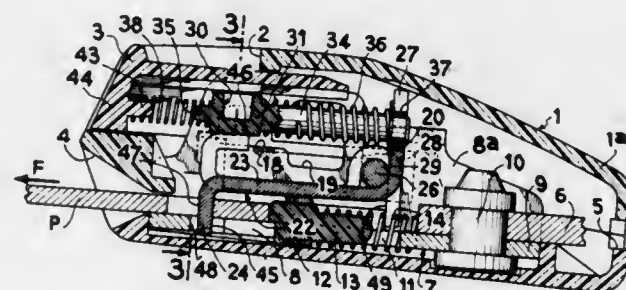
Filed May 13, 1981, Ser. No. 263,249

Claims priority, application France, May 14, 1980, 80 108277

Int. Cl.³ A44B 11/25

U.S. Cl. 24—230 A

10 Claims



1. In a safety belt buckle for attaching a portion of a safety belt to retaining means by means of a tongue member forming a latch which is fixed to said portion of the safety belt to be attached, said buckle comprising a support for fixing to the retaining means and defining a rectilinear passage in which the latch may be inserted and which defines a sliding plane for the latch, locking means for locking the latch which are mounted on the support to pivot about an axis which extends in a direction parallel to the plane of the passage and which define at least a first abutment surface for retaining the latch and extending in a direction perpendicular to the plane of the passage and transversely in the passage in a locked position of the buckle, stop means, means for mounting the stop means on the support so that the stop means are movable in translation in the support in a direction perpendicular to said pivot axis of the locking means, the stop means being cooperative with the locking means for stopping the locking means from releasing the latch in one position of the stop means and releasing the locking means in another position of the stop means when opening the buckle, the locking means defining at least a second abutment surface for coming in contact with the stop means in said locked position of the buckle, an operating knob for opening the buckle and mounted relative to the support so as to be movable in the same direction as the stop means, the buckle further comprising return springs for respectively acting on the stop means and the locking means and the operating knob; the improvement wherein said stop means comprise a body which is in a single piece and defines guiding and maintaining means for said springs, said guiding and maintaining means extending from opposite sides of said body in a direction perpendicular to said pivot axis of the locking means, and said means for mounting the stop means on the support comprise two opposed slide portions of said body which extend in directions transverse to said direction in which the stop means are movable in the support, and two opposed openings defined by the support, into which openings said slide portions respectively extend, each of said openings having a first part for guidingly engaging said slide portions in operation of the buckle and a second part for allowing engagement of said slide portions in said openings when initially assembling the buckle.

4,394,793

ROLL FOR USE IN CALENDERS OR THE LIKE

Josef Pav, and Erhard Münch, both of Krefeld, Fed. Rep. of Germany, assignors to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

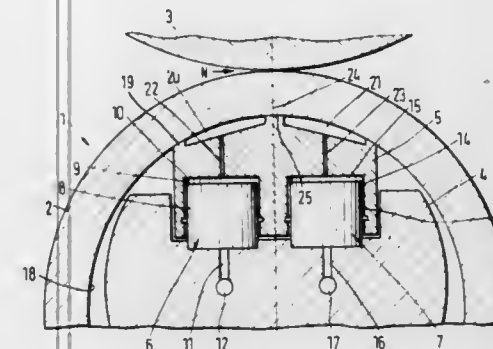
Filed Jun. 3, 1981, Ser. No. 269,986

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1980, 3022491

Int. Cl.³ B21B 13/14, 29/00

U.S. Cl. 29—116 AD

22 Claims



1. A roll, particularly for use in calendars or like machines, comprising an elongated carrier; a hollow cylindrical rotary shell spacedly surrounding said carrier and having a cylindrical internal surface; bearing elements forming a row extending in parallelism with the axis of said shell and being interposed between said shell and said carrier in the interior of said shell, each of said bearing elements having a convex surface adjacent to said internal surface and each of said convex surfaces having a plurality of pockets; and a plurality of fluid-operated pressure generating devices interposed between each of said bearing elements and said carrier to urge the convex surfaces of said bearing elements toward said internal surface, each of said pressure generating devices defining a plenum chamber for pressurized fluid and each of said bearing elements having means for admitting pressurized fluid into the respective pockets from more than one plenum chamber, the pressure generating devices of each of said pluralities forming a row, as considered in the circumferential direction of said shell.

4,394,794

METAL FASTENING SYSTEM AND METHOD

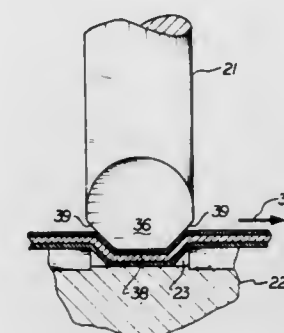
Richard Shirey, Avon, Ohio, assignor to Donn Incorporated, Westlake, Ohio

Filed Jan. 19, 1981, Ser. No. 226,385

Int. Cl.³ B23P 11/00, 17/00

U.S. Cl. 29—432

15 Claims



1. A die set for fastening two or more sheets of metal or the like together comprising a die and a mating punch, said die providing an elongated die cavity having a pair of opposed cutting edges at the entrance of said cavity, said cutting edges being contained within a single plane, said cavity being defined at least in part by opposed side walls and a back wall, said cavity having a lateral width back from said cutting edges greater than the spacing of said cutting edges, said cutting edges and cavity walls being fixed against relative movement,

said punch having a working portion proportioned to cooperate with said die to cut a ribbon from said sheets, to displace said ribbon to one side of said sheet into said cavity and to deform said ribbon to increased width to prevent separation of said sheets, said cavity being shaped with increasing dimensions in one longitudinal direction to allow release of said ribbon from said cavity by relative longitudinal movement in said one direction.

13. A method of connecting a plurality of sheets comprising positioning said sheets in face-to-face contact adjacent to an elongated die cavity having side walls which diverge as they extend from the cavity entrance to a back wall said walls being fixed against relative movement, shearing superposed ribbon portions from each sheet into said cavity, moving said portions to one side of said sheets to form an opening in said sheets and to position said portions in said die cavity against said back wall, deforming said portion within said die cavity to a size preventing return movement thereof through said opening, releasing said deformed portions from said die cavity by relative movement therebetween in a direction lengthwise thereof, and forming said die cavity with increased cross section in said one direction lengthwise thereof so that longitudinal movement in said one direction causes an immediate release of substantial frictional contact between said portions and the walls of said cavity.

4,394,795

CONNECTOR INSERTION TOOL

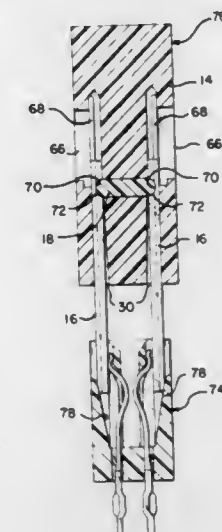
Ralph R. Goss, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 13, 1981, Ser. No. 263,377

Int. Cl.³ H05K 3/30

U.S. Cl. 29—739

1 Claim



1. A tool for mounting a connector having depending contact pins into a printed circuit board, said tool comprising:
a. a housing having a slot extending longitudinally therethrough and two spaced apart rows of a plurality of spaced apart apertures extending vertically from above the slot to the underside of the housing with the apertures intersecting the slot;
b. a plurality of channel-shaped push pins having an arcuate-shaped notch adjacent an upper end and positioned in the apertures with the lower ends extending below the housing for insertion into a connector to engage contacts therein; and
c. a bar having rounded edges positioned in the slot and passing through the arcuate-shaped notches in the push pins to retain the pins in the apertures and further to permit the pins to pivot laterally.

4,394,796

VEGETATION STEM CUTTING APPARATUS

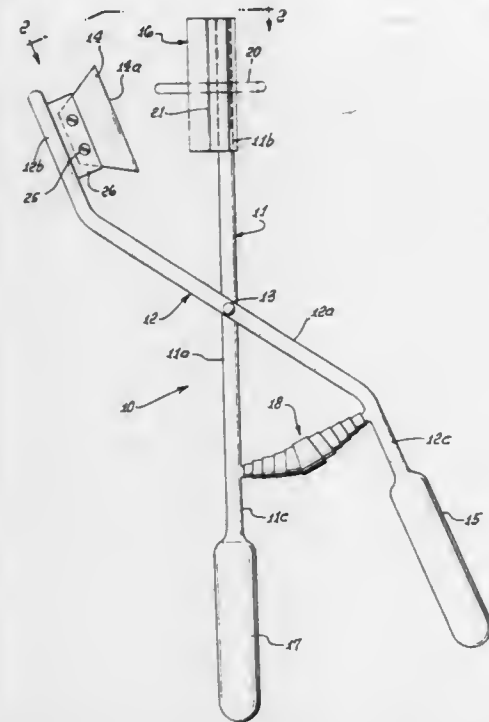
Brian A. Winer, P.O. Box 13 - Gallo Mannor, Johannesburg
2052, South Africa

Filed Jun. 29, 1981, Ser. No. 278,043

Int. Cl.³ A01G 3/00

U.S. Cl. 30-178

8 Claims



1. Vegetation stem cutting apparatus comprising
 - (a) elongated tongs which are interconnected at a pivot,
 - (b) a table carried by one tong proximate the end thereof,
 - (c) and a thin knife carried by the other tong to close toward the table when the tongs are pivoted to cut the stem placed on the table,
 - (d) the knife extending at a substantial angle relative to a normal to the table when the knife edge is closed into proximity to the table,
 - (e) the thin knife defining a first plane, and the table surface defines a second plane, said planes intersecting non-perpendicularly when the knife edge is closed into proximity to the table, the direction of relative closing of the thin knife toward the table surface being angularly offset at an angle β from a perpendicular to said surface,
 - (f) and a shallow groove in said surface to receive only an edge portion defined by the blade.

4,394,797

COVER FOR A RIFLE SIGHT

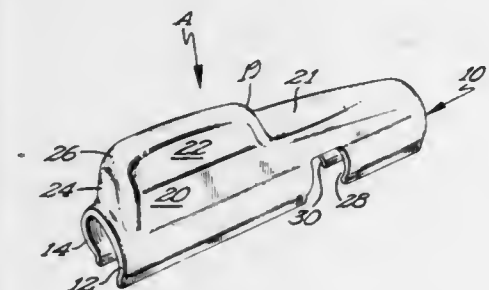
Ronald D. Schuster, P.O. Box 92, Claremont, Minn. 55924

Filed Dec. 28, 1981, Ser. No. 334,583

Int. Cl.³ F41G 1/04

U.S. Cl. 33-244

1 Claim



1. One piece cover for a barrel-mounted gun sight for allowing the gun to be slipped into and out of a gun case without the gun sight tearing the inside of the gun case comprising, in combination: a substantially hollow elongated body open at the bottom including: a first lowermost wall portion arcuately

formed transversely of the elongated body having a first end, a second end, a top edge, and a bottom edge; a second lowermost wall portion arcuately formed transversely of the elongated body having a first end, a second end, a top edge and a bottom edge; a first flat upper elongated sidewall portion having a bottom edge integrally formed with the top edge of the first lowermost wall portion, a top edge, a first end, and a second end, with the distance between the first end and the second end of the first flat upper elongated sidewall portion being less than the distance between the first end and the second end of the first lowermost wall portion; a second flat upper elongated sidewall portion having a bottom edge integrally formed with the top edge of the second lowermost wall portion, a top edge, a first end, and a second end, with the distance between the first end and the second end of the second flat upper elongated sidewall portion being less than the distance between the first end and the second end of the second lowermost wall portion; a first forward wall portion having a top edge, a bottom edge, a first end, and a second end, with the bottom edge of the first forward wall portion being attached to the top edge of the first flat upper elongated sidewall portion and disposed angularly inwardly of the vertical axis of the elongated body, with the distance between the first end and the second end of the first forward wall portion being generally equal to the distance between the first end and the second end of the first flat upper elongated sidewall portion; a second forward wall portion having a top edge, a bottom edge, a first end, and a second end, with the bottom edge of the second forward wall portion being attached to the top edge of the second flat upper elongated sidewall portion and disposed angularly inwardly of the vertical axis of the elongated body, with the distance between the first end and the second end of the second forward wall portion being generally equal to the distance between the first end and the second end of the second flat upper elongated sidewall portion; a first end wall, with the first ends of the first flat upper elongated sidewall portion, the second flat upper elongated sidewall portion, the first forward wall portion, and the second flat forward wall portion being attached to the first end wall along an arcuate portion; a top portion having a first end, a second end, a first edge, and a second edge, with the first edge being attached to the top edge of the first lowermost wall portion, with the second edge of the top portion being attached to the top edge of the second lowermost wall portion, with the first end of the top portion being generally co-planar with the second ends of the first and second lowermost wall portions; a second end wall having an arcuate shape, with the second ends of the first flat upper elongated sidewall portion, the second flat upper elongated sidewall portion, the first forward wall portion, and the top portion being attached to the second end wall; a first notch formed in the first lowermost wall portion between the first and second ends of the top portion; a second notch formed in the second lowermost wall portion between the first and second ends of the top portion, with the first and second notches allowing positioning on a ring formed on the gun barrel and for prohibiting the elongated body from sliding on the gun barrel.

4,394,798

WHEEL ALIGNMENT MEASURING APPARATUS

Osmond Beissbarth, Sulzbacher Str. 15, 8000 München 40, Fed. Rep. of Germany

Filed May 19, 1981, Ser. No. 265,126

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1980, 3022073

Int. Cl.³ G01B 7/315

U.S. Cl. 33-335

19 Claims

1. A wheel alignment measuring apparatus for a vehicle having a nearside front wheel and an offside front wheel, said apparatus being operable to produce, in one operation, read-

4,394,799

CONDUIT BENDING PLANE INDICATOR

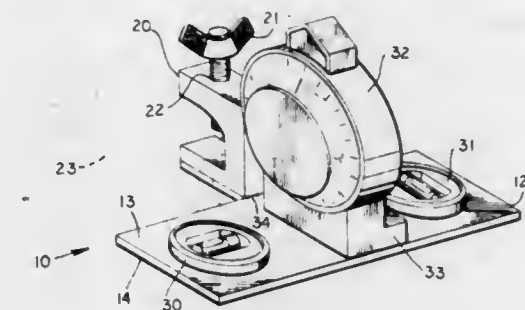
Elwood D. Moree, Rte. 1, Vienna, Ga. 31092, and Dennis C. Snowden, 740M Muckalee Creek Rd., Leesburg, Ga. 31763

Filed Aug. 31, 1981, Ser. No. 298,205

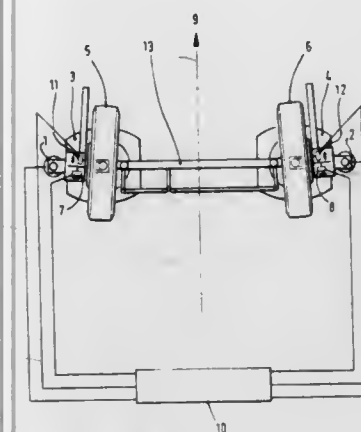
Int. Cl.³ G01C 9/00

U.S. Cl. 33-343

9 Claims



- ings for the steering difference angle, the caster and the king pin angles, said apparatus comprising,
 - a first angle measuring instrument including means for providing a first output signal representative of the steering angle of the nearside front wheel,
 - a second angle measuring instrument including means for providing a second output signal representative of the steering angle of the offside front wheel,
 - a third angle measuring instrument including means for providing a third output signal representative of the inclination of the nearside front wheel in a plane of motion which is substantially normal to the length direction of the vehicle when the wheels are in a straight ahead position,
 - a fourth angle measuring instrument including means for providing a fourth output signal representative of the inclination of the offside front wheel in a plane of motion which is substantially normal to the length direction of the vehicle when the wheels are in a straight ahead position,
 - a fifth angle measuring instrument including means for providing a fifth output signal representative of the inclination of the nearside front wheel in a plane of motion which is substantially parallel to the length direction of the vehicle when the wheels are in a straight ahead position,
 - a sixth angle measuring instrument including means for providing a sixth output signal representative of the incli-



nation of the offside front wheel in a plane of motion which is substantially parallel to the length direction of the vehicle when the wheels are in a straight ahead position,

a signal processing means for receiving said output signals and performing the following functions:

- (a) calculating the steering difference angle from the output signals of the first and second angle measuring instruments;
- (b) calculating the caster of the nearside front wheel from changes which occur in the output signals of the first and third angle measuring instruments as a result of steering motion of the nearside front wheel;
- (c) calculating the caster of the offside front wheel from changes which occur in the output signals of the second and fourth angle measuring instruments as a result of steering motion of the offside front wheel,
- (d) calculating the king pin angles of the nearside front wheel from changes which occur in the output signals of the first and fifth angle measuring instruments as a result of steering motion of the nearside front wheel;
- (e) calculating the king pin angles of the offside front wheel from changes which occur in the output signals of the second and sixth angle measuring instruments as a result of steering motion of the offside front wheel.

4,394,800

GUIDE CLAMP

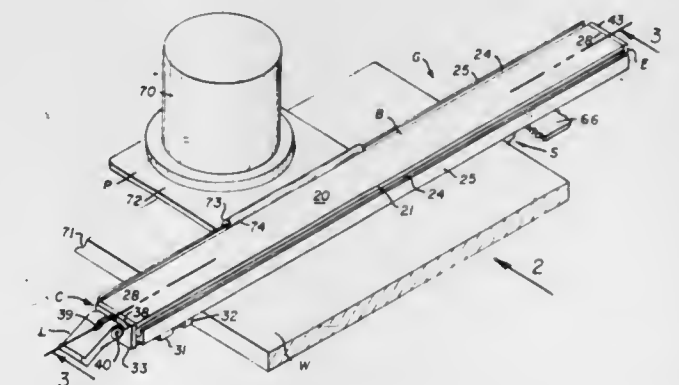
Norman Grisct, 380 Jennifer La., Orange, Calif. 92669

Filed Dec. 3, 1981, Ser. No. 326,840

Int. Cl.³ B43L 13/02

U.S. Cl. 33-443

17 Claims



1. A guide clamp adapted to grip a workpiece between opposing jaw faces, comprising:

- (a) a bar having guideway means along the reach thereof;
- (b) a clamp jaw at one end of the bar having a jaw face facing towards the bar and a lever means adapted to be actuated to exert a pull in a direction away from the bar;
- (c) a shifting jaw carried on the guideway means, having a jaw face facing the clamp jaw and being shiftable along the bar to space the jaw faces to embrace a workpiece between them;

- (d) a pull rod extended alongside the bar with one end being attached to the lever means to be pulled thereby; and,
 (e) a lock means at the shifting jaw connecting with the pull rod to normally slide along the pull rod as the shifting jaw is moved along the bar but to lock onto the pull rod when a workpiece is embraced by the jaws whereby actuation of the lever means to pull the rod moves the jaws together to grip the workpiece.

4,394,801

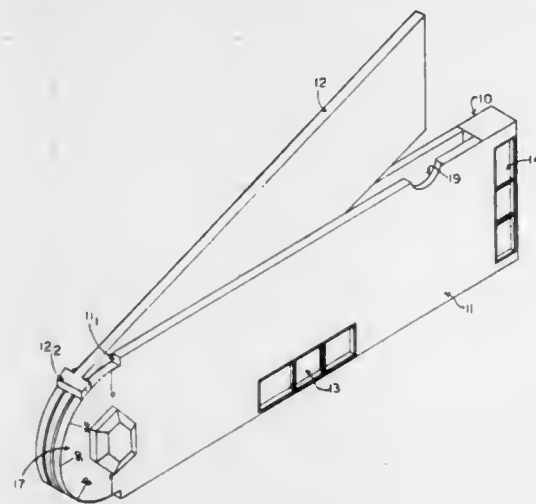
MULTIFUNCTION, MULTIPURPOSE CONSTRUCTION TOOL

Francis Thibodeaux, Rte. 1, Box 125, Krotz Springs, La. 70750
 Filed May 12, 1981, Ser. No. 262,998

Int. Cl.³ B43L 7/06

U.S. Cl. 33—496

8 Claims



1. In apparatus characterized as a multifunction, multipurpose tool for use in the construction trades, which includes in combination

a pair of operating arms having rounded terminal ends, the arms being pivotally connected via an axis through said rounded terminal ends one to the other,
 an angle indicator provided at the pivotal connection for reading the angular relationship between said pair of arms, the improvement comprising,
 on a first arm

an angular scale of indicia marks located on the outer surface of the outermost rounded end of said arm outboard of the pivotal axis through which said pair of arms are adjoined,

a pair of alternately disposed abutments located at the extremities defining the rounded end of said arm, the abutments further defining the beginning and end of said scale of angular component values, and
 on the second arm

a stop located on an outer edge of the rounded terminal end of said arm movable in unison therewith for indexing the scale of angular values between the alternately disposed abutments.

4,394,802

COUNTER-CONVECTION VAPOR CONTROL SYSTEM

Donald J. Spigarelli, Carlisle, Mass., assignor to The HTC Corporation, Concord, Mass.

Filed Apr. 24, 1981, Ser. No. 257,141

Int. Cl.³ F26B 3/04

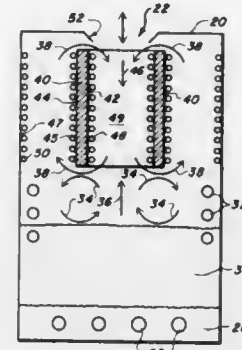
U.S. Cl. 34—27

17 Claims

1. For use in a vapor phase processing system having a vessel having top walls containing a vapor in a processing vapor zone and a central opening in the vessel top walls by which a work product is introduced into and removed from the processing vapor zone and through which the vapor in the processing vapor zone tends to upwardly flow by convection, a counter-convection vapor flow system comprising:

a structure disposed in association with the vessel and hav-

ing one or more first surfaces for forming a vertically oriented central channel in the vessel in communication with said opening and having one or more second surfaces for forming with said top walls a peripheral space in the vessel substantially not in communication with said opening; and



means associated with said structure for providing a temperature differential in the vessel to cause a flow of the vapor in the vessel which is upward in the peripheral space and downward in the central channel, said downward flow providing a counter-convection flow which opposes the upward flow of vapor from the processing vapor zone toward the vessel opening.

4,394,803

ELASTICIZED OVERLAY

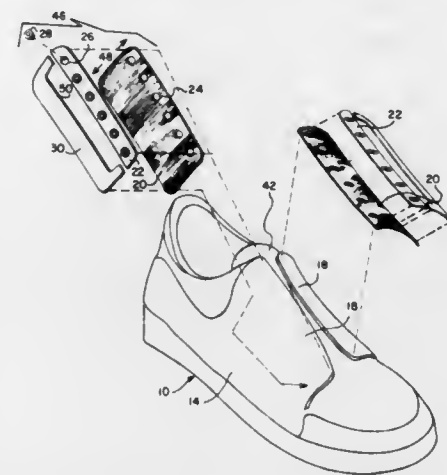
Samuel A. Goldstein, Newtown Square, Pa., assignor to Polsam, Inc., Newtown Square, Pa.

Filed Jun. 10, 1981, Ser. No. 272,284

Int. Cl.³ A43B 11/00; A43C 7/06

U.S. Cl. 36—51

12 Claims



1. In a shoe having an upper of the blucher construction type adapted to be secured to the foot of the wearer by a shoe lace, the combination of

a modified blucher construction, said modified blucher construction having no lacing openings therethrough, the blucher construction defining a longitudinal blucher opening therebetween;

a blucher overlay assembly means affixed to the blucher construction and defining an overlay opening in registry above the blucher opening,

said blucher overlay assembly means comprising an elasticized fabric and a plurality of eyelets therein for receiving portions of the lace therethrough,

the fabric having a connected longitudinal edge and a free longitudinal edge, the connected edge being secured to the modified blucher construction and the eyelets being secured in the said free edge,

whereby the fabric can be tensioned by the shoe lace.

4,394,804

ROTOR DRIVEN BUOYANT TOY

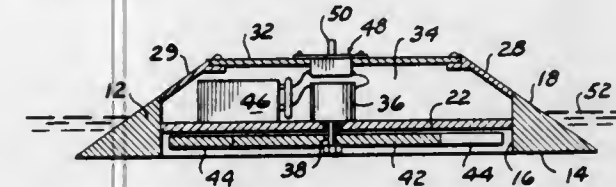
Nilson V. Ortiz, 2911 16th St. #210, San Francisco, Calif. 94103

Filed Nov. 12, 1981, Ser. No. 320,817

Int. Cl.³ A63H 23/04

U.S. Cl. 46—250

3 Claims



1. A floatable toy simulating a space saucer for placement in and movement in water, comprising:
 an endless ring body having a planar horizontal bottom surface and an inner peripheral surface normal to its bottom surface;
 a hollow housing extending diametrically across and projecting above said body,
 said housing having a horizontal bottom wall secured to said inner peripheral surface in upwardly spaced relation with respect to said body bottom surface;
 motor means within said housing including a reversible motor having a drive shaft projecting downwardly through said housing bottom wall;
 a reversing switch mounted on said housing and having a control button projecting above the upper limit of said housing;
 a battery within said housing and operatively connected with said motor through said switch; and,
 paddle wheel means axially secured to said drive shaft and loosely received by the inner peripheral surface of said body for moving said toy.

4,394,805

ESCAPABLE-WINDOW-SECURITY-GUARD SYSTEM

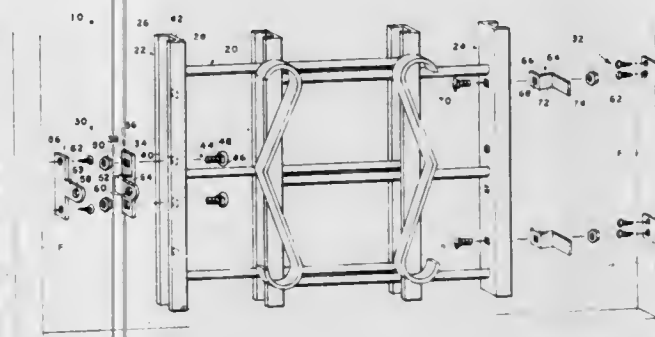
Roger L. Napper, 2064 Rainier Ave., Bel Air, Md. 21014

Filed Apr. 24, 1981, Ser. No. 257,331

Int. Cl.³ E06B 3/68

U.S. Cl. 49—55

4 Claims



1. In a system having means for hinging and locking grills over openings at window frames and the like, the improvement comprising: the means for hinging having means for fastening a said grill to a window frame, including means for freeing a said grill from a window frame on hingedly pivoting a grill to an open position relative to a window frame; the means for locking having respective means for attachment to a window frame and to a said grill; means for protecting all said fastening means from tampering when a said grill is hinged and locked to a window frame; said means for hinging including: a plurality of hinge hooks, said means protecting including each hinge hook having a first portion proportioned for fitting a recess in a side of a said grill, a second portion extending at an angle from the first portion and a third portion extending from the second portion in a direction generally parallel with the first portion, means for fastening each hinge hook to a said grill; a respective hinge catch plate for each hinge hook, means for

fastening, each hinge catch plate to a said window frame, each said hinge hook third portion passing through a slot in a hinge catch plate with the hinge catch plate covering the hinge hook fastening means and the hinge hook covering the hinge catch plate fastening means, and the means for freeing further including each hinge hook third portion proportioned for free withdrawal from a said hinge catch plate when a said grill is at said open position.

4,394,806

MULTIPLE PANE INSULATING STRUCTURE HAVING MEANS FOR REMOVING MOISTURE BETWEEN FACING SURFACES THEREOF

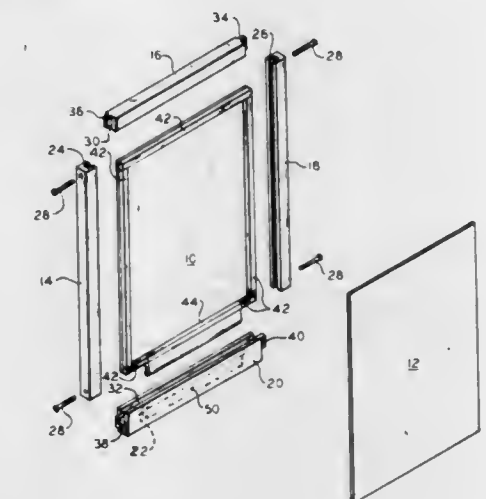
Ralph K. Day, 307 W. Harrison Ave., Maumee, Ohio 43537

Filed Sep. 8, 1980, Ser. No. 185,291

Int. Cl.³ E06B 7/12

U.S. Cl. 52—172

2 Claims



1. A multiple-glazed window structure comprising:
 at least two substantially parallel and spaced apart panes having an outer periphery defined by the outer marginal edges of said panes;
 an impervious gasket means disposed between the facing surfaces of said panes, said impervious gasket means extending along only a portion of the outer periphery of said panes and having spaced apart end portions defining the remaining portion of the outer periphery;
 a pervious gasket means disposed between the facing surfaces of said panes and extending between the ends of said impervious gasket means along the remaining portion of the outer periphery of said panes, said pervious gasket means and said impervious gasket means cooperating to define a chamber between said panes;
 an impervious flexing container positioned along the outer periphery of said panes adjacent said pervious gasket means, said container having an interior in fluid communication with said chamber through said pervious gasket means;
 a desiccant within the interior of said flexible container; and
 frame members supporting said panes and compressing said impervious and said pervious gasket means between said panes; said impervious gasket means, said container, and said panes defining a closed zone generally impervious to the ambient atmosphere.

4,394,807

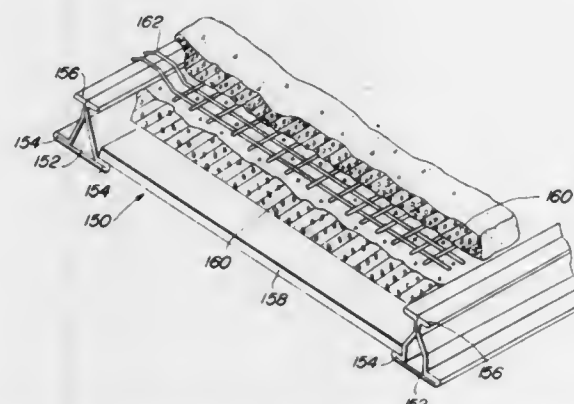
SHEET METAL STRUCTURAL SHAPE

Frank E. Carroll, 237 Maple Rd., Barrington, Ill. 60010
Continuation-in-part of Ser. No. 943,866, Sep. 19, 1978, which is a continuation-in-part of Ser. No. 762,778, Jan. 25, 1977, Pat. No. 4,114,335, which is a continuation-in-part of Ser. No. 648,500, Jan. 12, 1976, Pat. No. 4,048,777, which is a continuation-in-part of Ser. No. 457,996, Apr. 4, 1974, Pat. No. 3,965,641. This application Mar. 20, 1981, Ser. No. 245,902 The portion of the term of this patent subsequent to Sep. 20, 1994, has been disclaimed.

Int. Cl.³ E04C 1/00

U.S. Cl. 52—332

18 Claims



1. A rollformed sheet metal structural shape fabricated from a single sheet of metal for use in building construction, said shape being substantially symmetrical about a vertical bisecting plane, said shape comprising
 - two symmetrical legs extending from a point in said plane at the top of said shape downwardly, said legs extending away from said plane forming an included angle of about 30° to about 90° between said legs, said legs having a vertical height of about 1½ to about 10 inches;
 - a mounting flange generally perpendicular to said plane extending outwardly from the lower extremity of each of said legs;
 - a stiffening flange generally perpendicular to said plane extending outwardly from each of said legs at said point; said stiffening flanges being narrower than the distance between the outer extremity of said mounting flanges and having a projection extending from the outer extremity of at least one of said stiffening flange(s) for increased stiffness; and
 - a closure extending across the bottom of said shape from the outer extremity of each of said mounting flanges.

4,394,808

FASTENER FOR ATTACHING PANEL TO STUD

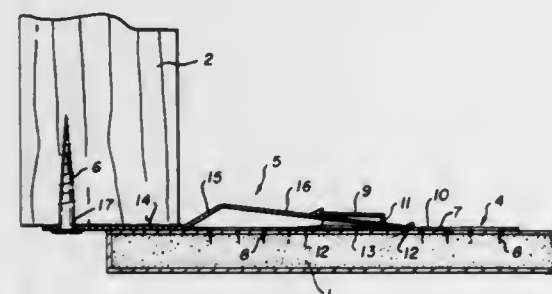
Stanley E. Thorsell, Edmonton, Canada, assignor to Robert S. Agar, Inc.; Thorsell Holdings Ltd. and Mudlake Holdings Ltd., all of, Canada

Filed Nov. 25, 1980, Ser. No. 210,179

Int. Cl.³ E04H 1/00; E04B 5/52

U.S. Cl. 52—483

1 Claim



1. In combination:
 - a gypsum board panel having attached thereto adjacent a

side edge thereof at least one gang nail plate, said plate having tangs extending from the inner face thereof and being embedded in the panel, said plate further having a transverse slot member extending outwardly from the outer face thereof, said slot member forming a clip-receiving slot extending in a generally horizontal direction;

a stiff, resilient clip, said clip comprising

a first end portion which lies generally flat against the panel and extends beyond the latter's side edge.

a second end portion which is upwardly and angularly disposed away from the panel, the end of said second end portion being wedged in the slot,

and a central portion extending upwardly and angularly from the panel and connecting said end portions, said second end portion and central portion combining to provide a V-shaped configuration with the apex directed away from the panel;

said first end portion forming an aperture in the section extending beyond the panel side edge;

a support member;

and means extending through the aperture into the support member to tie the clip and support member together;

whereby the clip wedges against the transverse slot member and thus the plate and clip remain tight together and provide, in conjunction with the tie means, a firm connection between the panel and support member.

4,394,809

CORELESS HUNG PANEL ASSEMBLY

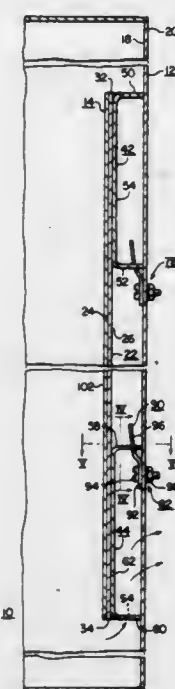
Edward F. Sherwood, Gettysburg, and Karl B. Orndorff, Bonneauville Boro, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 1, 1981, Ser. No. 269,136

Int. Cl.³ E04C 2/08

U.S. Cl. 52—512

2 Claims



1. A coreless, fireproof, hung panel assembly including a panel member which is disposed against, and which extends outwardly from, a wall surface, comprising:
 - a metallic panel member having top and bottom edges, first and second side edges, first and second major, parallel opposed sides, and first, second, third and fourth outer corners;
 - a plurality of metallic rib members fixed to, and extending outwardly from, the second major side of said panel member to stiffen as well as give depth to the resulting panel assembly said plurality of rib members including first and second horizontally oriented, elongated channel members, each of which have first and second leg portions and a connecting bight portion, with their bight portions being fixed to the second major side such that said first and

second channel members extend horizontally across the second side, immediately adjacent to the top and bottom edges, respectively, of the panel member, said first and second leg portions of the first and second horizontally oriented channel members extending outwardly by a predetermined dimension to function as top and bottom edges, respectively, of the resulting panel assembly;

a wall defining a flat surface;

and at least first, second, third and fourth support members of like construction fixed to said wall, each of said support members including an upstanding metallic tab portion which angles outwardly at a predetermined small angle from said wall;

said second leg portion of the first channel member having first and second elongated openings adjacent to the first and second outer corners, respectively, of the metallic panel member;

said first leg portion of the second channel member having first and second elongated openings adjacent to the third and fourth outer corners, respectively, of the metallic panel member;

said elongated openings being spaced inwardly by a predetermined dimension from the extreme ends of their associated outwardly extending leg portions;

said metallic tab portions of the first and second support members extending through the first and second elongated openings of the first channel member, and said metallic tab portions of the third and fourth support members extending through the first and second elongated openings of the second channel member;

wherein the predetermined dimension of the first and second leg portions of the first and second channel members, respectively, the predetermined angle between the tab portions and said wall, and the predetermined spacing between the elongated openings in the first and second channel members and the ends of their associated leg portions, are all selected such that said tab portions are flexed slightly outward by the weight of the resulting panel assembly when the ends of at least the first and second leg portions of the first and second channel members are cammed tightly against the wall surface via the angled metallic tab portions, to resiliently force the first, second, third and fourth corners of the metallic panel member tightly against said wall surface to assure flatness of said panel member.

4,394,810

CHAIN LINK REPAIR DEVICE

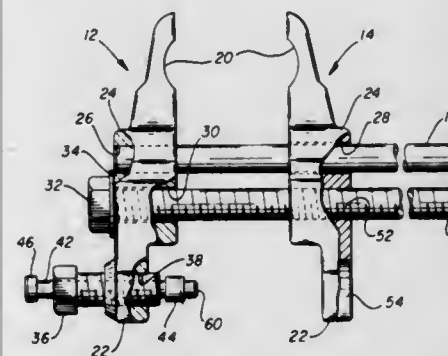
Larry E. Womble, 1400 Hardisty Rd., Bedford, Tex. 76021

Filed Nov. 17, 1980, Ser. No. 207,210

Int. Cl.³ B21L 21/00

U.S. Cl. 59—7

5 Claims



1. A chain link repair device for the repair or replacement of roller members of a roller drive chain comprising:
 - (a) A pair of jaw-heads,
 - (b) An elongated frame for the jaw-heads formed by means of a plurality of guide rods and at least one actuator screw all of which connect the jaw-heads with one another,
 - (c) Means for securing the guide rods in rigid relationship with one of the jaw-heads while maintaining the other

jaw-head in sliding relationship with the said plurality of guide rods,

- (d) Means for forcing the said jaw-heads towards each other when the actuator screw is rotated in a clockwise direction,
- (e) Engagement surfaces extending in a direction perpendicular to the guide rods and suitable for insertion between the links of a roller chain and engaging the rollers thereof,
- (f) A flange extending out of each of the said jaw-heads in a direction perpendicular to the said guide rods,
- (g) Impact Means provided on said flanges for transmitting a blow to drive a pin out of any of the rollers of the said roller chain.

4,394,811

FUEL CONTROL FOR GAS TURBINE WITH CONTINUOUS PILOT FLAME

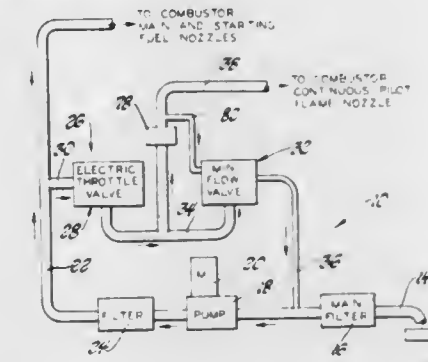
Robert M. Swick, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 22, 1981, Ser. No. 275,785

Int. Cl.³ F02C 9/38

U.S. Cl. 60—39.28 R

4 Claims



1. In a fuel system for a gas turbine engine of the type having a main nozzle means and continuous pilot flame nozzle means, said fuel system including a source of fuel, positive displacement pump means, fuel inlet means between said fuel source and said pump means, and distribution means between said pump means and said main nozzle means for directing pressurized fuel to said main nozzle means, the improvement comprising, means defining a control loop between said distribution means and said inlet means operative to bypass pressurized fuel back to said inlet means, throttle valve means disposed in said control loop operative to restrict fuel bypass flow in proportion to main nozzle means demand and to permit substantially unrestricted bypass flow at minimum main nozzle means demand, minimum flow valve means in said control loop downstream of said throttle valve means operative to maintain a minimum pressure in said control loop ahead of said minimum flow valve means, branch tube means connected to said continuous pilot flame nozzle means and to said control loop between said throttle valve means and said minimum flow valve means for directing fuel to said continuous pilot flame means, and pressure compensating means in said minimum flow valve means operative to increase the pressure in said control loop ahead of said minimum flow valve and in said branch line in proportion to a control parameter of said gas turbine engine.

4,394,812

SUPERCHARGED INTERNAL COMBUSTION ENGINE FOR MOTOR VEHICLES

Hans Mezger, Freiberg, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

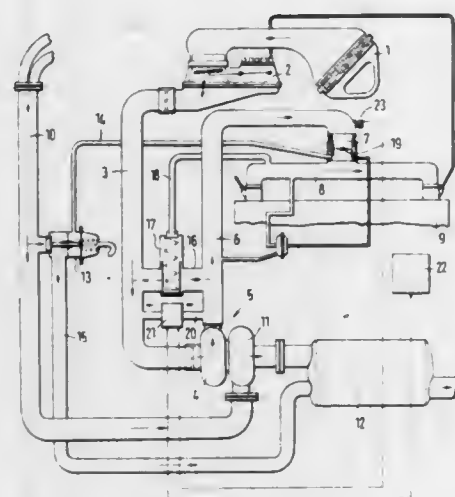
Filed Mar. 23, 1981, Ser. No. 246,587

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1980, 3011203

Int. Cl.³ F02B 37/12

U.S. Cl. 60—600

5 Claims



1. A supercharged internal combustion engine for motor vehicles, comprising an exhaust turbocharger including an exhaust gas turbine and a charging blower driven thereby, said charging blower receiving fresh air through an intake line and delivering same under pressure to the engine through a charging air line; a charge pressure control valve arranged in an exhaust manifold of the internal combustion engine, said charge pressure control valve being responsive to the charging blower charge pressure, and regulating an exhaust gas bypass line that bypasses the exhaust gas turbine; a selectively actuated performance control member regulating the passage cross section of the charging air line downstream of the charging blower; and a charging blower-coupled bypass line connecting the charging blower intake line to the charging air line at a location in the charging air line upstream of the performance control member, a blow-off valve means in said bypass line, means actuated in response to the position of the performance control member for closing the said blow-off valve means in all positions of the performance control member for which the passage is open; an additional bypass line coupled to the charging blower and connecting the intake line of the charging blower to the charging air line at a location in the charging air line upstream of the performance control member, said additional bypass line containing a solenoid valve means controlled by at least one of the operating parameters of the internal combustion engine for regulating the passage cross section of the additional bypass line,

characterized in that the at least one operating parameter includes engine rpm and said solenoid is actuated by an rpm transducer.

4,394,813

EXHAUST GAS HEAT RECOVERY SYSTEM IN INTERNAL COMBUSTION ENGINE

Yoshiharu Tanaka, Machida; Yoshiaki Watanabe, and Kou Sasaki, both of Kawasaki, all of Japan, assignors to Mitsui Engineering and Shipbuilding Company Limited, Tokyo, Japan

Filed Sep. 22, 1981, Ser. No. 304,600

Claims priority, application Japan, Dec. 25, 1980, 55-184755

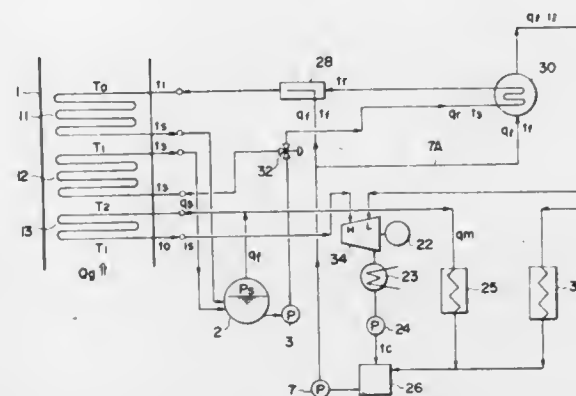
Int. Cl.³ F01K 23/10

U.S. Cl. 60—618

4 Claims

1. An exhaust gas heat recovery system in an internal combustion engine, comprising: an exhaust gas economizer having

heat transfer sections including a preheating section, an evaporating section and a superheating section; a feed water heater for heating water fed to said heat transfer sections of the exhaust gas economizer; a steam separation drum for separating steam and saturated water from fluid of steam-water mixture discharged from the exhaust gas economizer; a mixed-pressure turbine having a high pressure side and a low pressure side, a piping for feeding part of the steam separated in said steam separation drum to said superheating section of the exhaust gas economizer and further transferring said steam to the high pressure side of said mixed-pressure turbine; a piping for feed-



ing part of the saturated water separated in said steam separation drum to said feed water heater and said evaporating section of the exhaust gas economizer, respectively; a low pressure steam generator provided in said piping for returning the saturated water separated in said steam separation drum to said feed water heater; a piping for feeding low pressure steam in said low pressure steam generator to the low pressure side of said mixed-pressure turbine; and a piping for condensing exhausted steam from the mixed-pressure turbine in a condenser and thereafter circulating the water thus condensed to said feed water heater.

4,394,814

ENERGY GENERATION SYSTEM

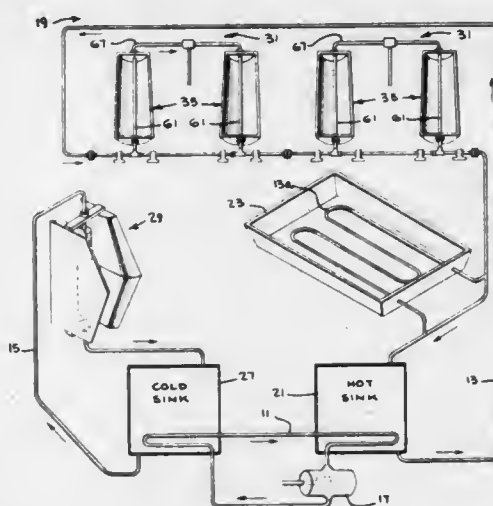
John C. Wardman, 1060 San Tomas Aquino Rd., Campbell, Calif. 95008, and James Y. Adams, 26966 W. Fremont Rd., Los Altos Hills, Calif. 94022

Filed Apr. 1, 1981, Ser. No. 249,908

Int. Cl.³ F03G 7/02

U.S. Cl. 60—641.15

7 Claims



1. A solar powered energy generation system comprising: (a) a solar collector comprising

1. at least one mirror, the mirror further comprising a laminated panel including a paperboard base having a generally parabolic cross-sectional shape and a reflective sheet overlaying the concave face of the parabolic base;

2. a copper conduit for conducting the first fluid means,

the conduit positioned along a line approximating the locus of points defining the focus of the mirror;

3. means mounting the collector for rotating the mirror's reflective overlay toward the sun;

4. means mounting the collector for tilting the mirror and conduit relative to the angle of the sun's radiation to the earth;

(b) a heat storage device;

(c) a heat engine;

(d) motive fluid means driving the heat engine;

(e) first fluid means transferring heat from the solar collector to the motive fluid means, the first fluid means passing in heat exchange relationship with the heat storage device intermediate the solar collector and the motive fluid means; and

(f) second fluid means for absorbing and removing heat from the motive fluid means, and

(g) wind means for cooling the second fluid means.

4,394,815

PROCESS FOR GENERATING ELECTRIC POWER BY MEANS OF TURBOGENERATORS USING HIGH PRESSURE VAPOR

Otto F. Domdey, Buchenstrasse 58, D-67 Ludwigshafen, Fed. Rep. of Germany

PCT No. PCT/EP80/00012, § 371 Date Nov. 6, 1980, § 102(e)

Date Nov. 6, 1980, PCT Pub. No. WO80/01932, PCT Pub.

Date Sep. 18, 1980

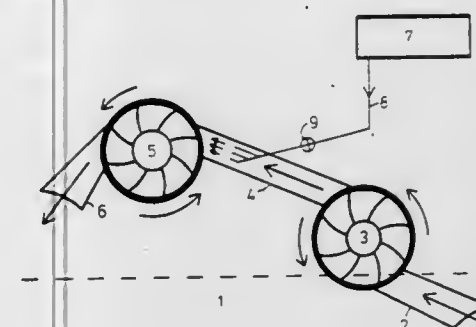
PCT Filed Mar. 3, 1980, Ser. No. 224,571

Claims priority, application Switzerland, Mar. 8, 1979, 2223/79

Int. Cl.³ F01K 25/06

U.S. Cl. 60—649

5 Claims



1. An improvement in a process for generating electrical current by means of hydraulic turbogenerators, wherein a water stream is used to supply motive power to the turbines and wherein high pressure vapor is injected into the water stream, said improvement comprising the steps of:

injecting the high pressure vapor at a point outside of the turbine spaces;

injecting the high pressure vapor through conduits with relatively small interior cross-sectional areas; and

injecting the high pressure vapor into a water stream having a very high flow rate,

such that continuous pressure and velocity increases are caused in the water stream by the injected vapor and practically no heat exchange takes place between the injected vapor and the water prior to contact with the turbines.

4,394,816

HEAT PUMP SYSTEM

Roger J. Voorhis, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 2, 1981, Ser. No. 317,093

Int. Cl.³ F25B 41/06

U.S. Cl. 62—205

9 Claims

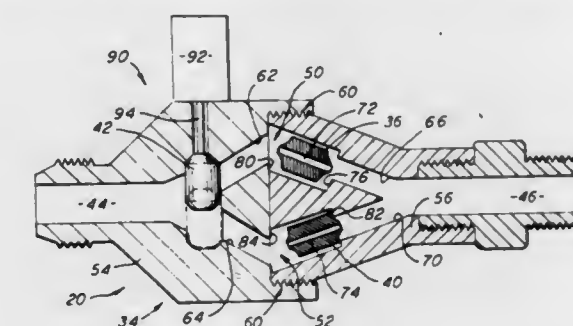
1. A heat pump system comprising: compressor means for compressing refrigerant vapor;

a first heat exchanger located within an enclosure for condensing refrigerant vapor from the compressor means; a second heat exchanger located outside the enclosure in heat exchange relationship with a heat exchange medium located outside the enclosure, for evaporating condensed refrigerant from the first heat exchanger;

an expansion device located between the first and second heat exchangers for expanding condensed refrigerant passing from the first heat exchanger to the second heat exchanger, and including

a body defining an inlet, an outlet, a first flow passage for conducting refrigerant from the inlet to the outlet, and a second flow passage spaced from the first flow passage and also for conducting refrigerant from the inlet to the outlet,

first restriction means located in the first flow passage and



defining first port means for metering refrigerant flow through the first flow passage at a first flow rate, second restriction means located in the second flow passage and defining second port means for metering refrigerant flow through the second flow passage at a second flow rate less than the first flow rate, and

a valve supported within the body for movement between a first position, closing the second flow passage to direct refrigerant through the first flow passage, and a second position, closing the first flow passage to direct refrigerant through the second flow passage;

a sensor for sensing the temperature of the medium outside the enclosure which is in heat exchange relationship with the second heat exchanger; and

means responsive to the sensor for moving the valve from the first position to the second position when the sensed temperature falls below a preset level.

4,394,817

APPARATUS FOR MAKING AND MAINTAINING AN ICE SURFACE

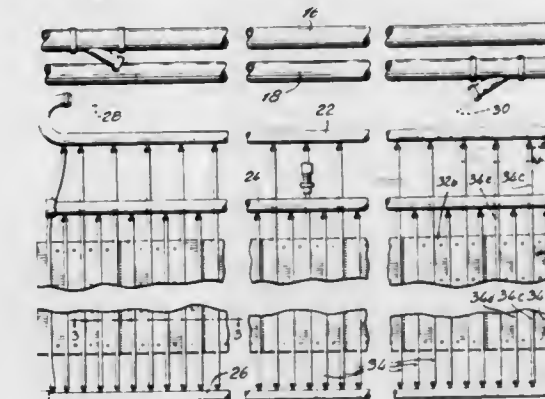
Jean M. Remillard, 9390 Eastman, LaSalle, Quebec, Canada H8R 2K8

Filed Sep. 9, 1981, Ser. No. 300,573

Int. Cl.³ A63C 19/10

U.S. Cl. 62—235

5 Claims



1. In an apparatus for making and maintaining an ice surface, a plurality of elongated strips adapted to be laid on a predeter-

mined area, each strip comprising at least a strip module extending longitudinally of the strip, each strip module being a flexible extruded plastic member including a plurality of spaced-apart parallel tubular sections interspaced by integral uninterrupted web portions, the web portions being in a common plane, and the longitudinal edges of each module having web extensions forming wings adapted for attachment with similar wings of adjacent strip modules to form the strip; and wherein alternating tubular sections of each module forming a strip communicate with a supply header for supplying a flowable refrigerant thereto, and the remaining tubular sections in the strip communicate with a return header at the same end of the strip, and a common closed reverting header is connected to each tubular section of the strip at the other end of the strip.

4,394,818

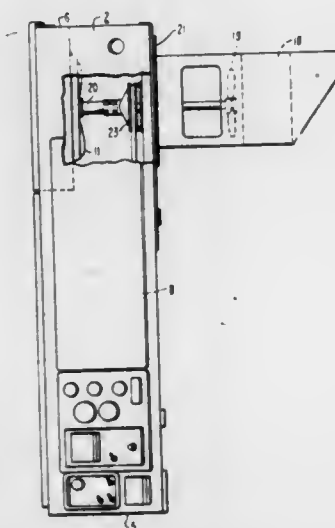
TRANSPORT REFRIGERATION UNIT WITH REMOVABLE POWER PACK FRAME

Jerry A. Brownfield, Minneapolis; Richard J. Sandberg, Bloomington; Thomas J. Niemi, Minneapolis, and Leland L. Howland, Bell Plaine, all of Minn., assignors to Thermo King Corporation, Minneapolis, Minn.

Filed Sep. 16, 1981, Ser. No. 302,901

Int. Cl.³ B60H 3/04

U.S. Cl. 62—239



1. In a transport refrigeration unit including an exterior section adapted to be mounted on the front face of a transport trailer or the like, an interior section including a refrigerant evaporator adapted to project rearwardly from the top, rear part of said exterior section into said trailer, and including a refrigerant compressor and at least an internal combustion engine for driving said compressor, a construction and structural arrangement of elements for said unit comprising:

said exterior section is of generally rectangular box shape and of significantly greater height than width, and includes a refrigerant condenser generally vertically disposed at the upper front face of said exterior section; said exterior section includes means defining a front opening having a height from closely adjacent the bottom of said exterior section to closely adjacent the lower edge of said condenser, and a width for substantially the width of said exterior section;

power pack frame means disposed in the lower portion of said exterior section for mounting, in separated relation and independently, at least both said engine and said compressor at vertically displaced levels, said engine being located with its base at a substantially lower level than the level of the base of said compressor;

said engine and compressor being disposed with their output and input ends, respectively, projecting in directs toward each other and with the compressor input end overlying said engine output end, each of said ends including first pulley means connected by first belt means lying in a vertical plane transverse to the width of said exterior

section for driving said compressor input means from said engine when it operates;

said power pack frame means includes an engine mount section including front and rear bottom horizontal rails to which said engine is secured, and front and rear vertical gusset members of generally rhomboid shape extending from closely adjacent one side of said exterior section for a major part of the length of said frame means and having said engine mounted in nested relation therebetween, said frame means including upper rail means extending from said gusset members to adjacent the other side of said section, said upper rail means supporting compressor mounting means.

4,394,819

VIBRATION ISOLATION AND PRESSURE COMPENSATION APPARATUS FOR SENSITIVE INSTRUMENTATION

Robert D. Averill, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

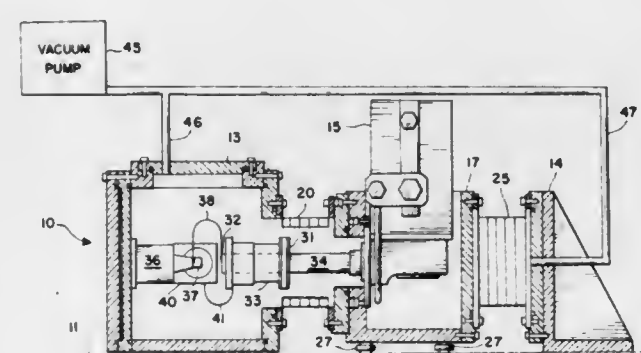
Filed Aug. 16, 1982, Ser. No. 408,575

Int. Cl.³ F25B 19/00

U.S. Cl. 62—514 R

7 Claims

13 Claims



1. The combination of sensitive instrumentation for detecting and measuring chemical constituents of the atmosphere and a cooler unit for cryogenically maintaining components of the sensitive instrumentation at cryogenic temperatures during operation thereof, the improvement therewith comprising:

vibration attenuating mechanism for minimizing vibrations transmitted from the cooler unit to the sensitive instrumentation components, said vibration attenuating mechanism including a housing assembly module secured to an instrument platform and housing a mount therein for retaining a sensitive instrumentation component in fixed position;

a reaction bracket module also secured to the instrument platform and spaced from said housing assembly module; a cooler unit module secured to the instrument platform intermediate said housing assembly module and said reaction bracket; and means for connecting said cooling unit module to said housing assembly module and said reaction bracket such that said cooling unit is substantially floating therebetween and vibrations inherent in said cooler unit operation are dampened and isolated from said sensitive instrumentation component.

4,394,820

DOUBLE ACTION BARREL LOCK

James A. Swisher, 464 Mill Hill Dr., Southport, Conn. 06490

Filed Feb. 23, 1981, Ser. No. 236,747

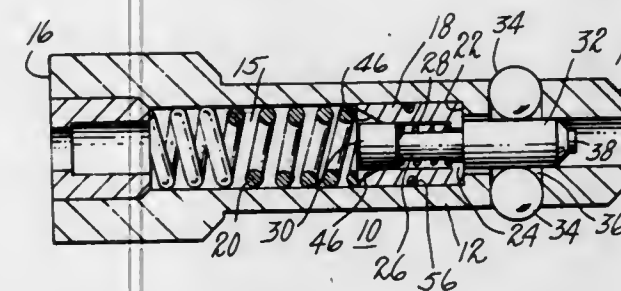
Int. Cl.³ E05B 67/36

U.S. Cl. 70—34

10 Claims

1. A lock of the type having a housing with an elongated aperture opening to the rear of the housing and a lock operating plunger axially movable in the housing, in which said

plunger is formed of a rear tool engaging portion spring biased forwardly and a forward locking portion spring biased rearwardly so that the plunger normally has a predetermined



overall length, and means engagable by an inserted picking tool to cause said forward locking portion to move forwardly in relation to the rear tool engaging portion to increase the overall length of the plunger.

4,394,821

DOOR LOCK MECHANISM

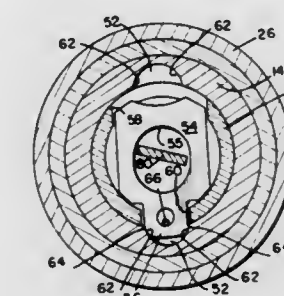
Walter E. Best, and William R. Foshee, both of Indianapolis, Ind., assignors to Best Lock Corporation, Indianapolis, Ind.

Filed Jun. 5, 1981, Ser. No. 270,825

Int. Cl.³ E05B 17/04, 63/00

U.S. Cl. 70—422

36 Claims



1. Door-lock mechanism having a torque-releasable knob, comprising

a knob sleeve mounted for rotation on its axis and connected to retract a door bolt, means for locking the sleeve against rotation to prevent it from retracting the bolt, a knob mounted for rotation on the axis of the sleeve and having a coaxial part surrounding a part of the sleeve, means for normally connecting the knob to rotate the sleeve to retract the bolt, and releasable under excessive relative turning force,

said means comprising a drive lug mounted on one of said parts and movable toward the other, drive faces on one and cam faces on the other of said lug and other part, means biasing the lug in a direction to engage said drive and cam faces for transmitting limited torque from the knob to the knob sleeve for rotating the latter to retract the bolt,

said drive and cam faces being so shaped and said biasing means having such force that excessive knob-turning force will cause the lug to be yieldingly cammed to a retracted position to release the normal drive connection from the knob to the sleeve.

4,394,822

HIGH REDUCTION METHOD AND APPARATUS FOR CONTINUOUSLY HOT ROLLING PRODUCTS

Kelth F. Simons, Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass.

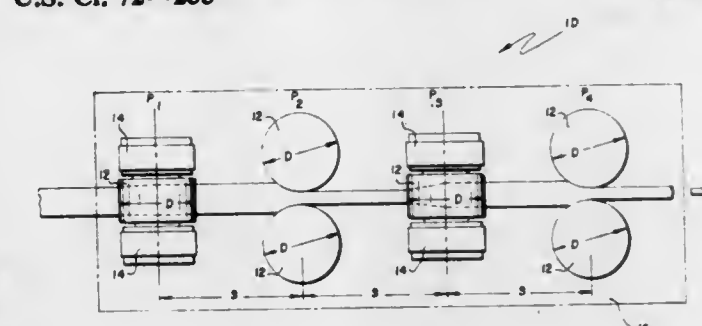
Continuation-in-part of Ser. No. 156,940, Jun. 6, 1980,

abandoned. This application May 6, 1981, Ser. No. 257,029

Int. Cl.³ B21B 13/12

U.S. Cl. 72—235

15 Claims



1. A high reduction method of continuously hot rolling a product, comprising: passing the product through a series of at least three roll passes and effecting in said roll passes progressively larger reductions on the product, with at least two successive roll passes in said series having their roll axes arranged at right angles relative to each other, and with the distribution of horizontal forces in at least the third roll pass being such that spontaneous entry is prevented in said third roll pass by a maximum opposing force which is greater than the available delivery force generated by the rolling action of the second roll pass; and employing the available delivery force of the first roll pass to exert an additional momentary force on the product in advance of the second roll pass, the said additional momentary force being of sufficient magnitude when combined with the available delivery force of the second roll pass to overcome said maximum opposing force and thus achieve forced entry of the product in said third roll pass.

12. Apparatus for continuously hot rolling a product, comprising: a series of at least three roll passes which effect progressively larger reductions on the product, with at least two successive roll passes in said series having their roll axes arranged at right angles relative to each other, the third of said roll passes having an angle of bite such that spontaneous entry of the product therein is prevented by a maximum opposing force which is greater than the available delivery force generated by the rolling action of the second roll pass; the available delivery force of the first roll pass being sufficient to exert a momentary additional force on the product in advance of said third roll pass, the said momentary additional force being of sufficient magnitude when combined with the available delivery force of said second roll pass to overcome said maximum opposing force and thus achieve forced entry of the product in said third roll pass.

4,394,823

ELECTRICAL SIGNAL GENERATING FUEL INJECTION VALVE

Odon Kopse, Utzenstorf, Switzerland, and Nestor R. Amaya, Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Oct. 13, 1981; Ser. No. 311,052

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1980, 3040811

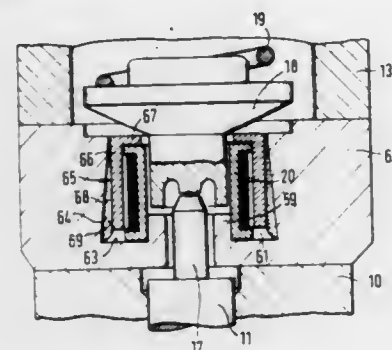
Int. Cl.³ G01M 15/00

U.S. Cl. 73—119 A

8 Claims

1. Electrical signal generating fuel injection valve having a housing (10, 13); a reciprocable needle valve element (11, 17) positioned in the housing; an induction coil (20) positioned to surround the needle valve element so that, upon movement of the valve ele-

ment, the reluctance of the electromagnetic circuit including the induction coil will change, thereby generating an electrical operating response signal, said housing including an insert ring (62, 72) formed with a central opening (61, 71) and having a bottom wall (63, 73) therein, in which opening the coil (20) is retained, and comprising, in accordance with the invention,



a holding sleeve (65) having a generally cylindrical, axially extending portion (66) and a radially inwardly extending flange (67) joined to said axially extending portion, fitted in the opening (61, 71) of the insert ring (62, 72), the induction coil being positioned within the cylindrical portion (66) of the holding sleeve and pressed against the bottom wall (63, 73) of the opening (61, 71) by said flange (67)

4,394,824

ACOUSTIC MICROSCOPE

Hiroshi Kanda, Tokorozawa; Isao Ishikawa, Hino; Toshio Kondo, Kunitachi, and Kageyoshi Katakura, Nakamachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

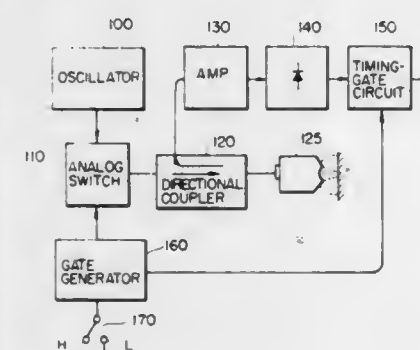
Filed May 6, 1981, Ser. No. 261,032

Claims priority, application Japan, May 6, 1980, 55-58707

Int. Cl.³ G01N 29/00

U.S. Cl. 73—606

7 Claims



1. An acoustic microscope having a first ultrasonic propagating solid medium, ultrasonic wave generator means for generating an ultrasonic wave from one end of said solid medium, a concave spherical surface formed at the other end of said solid medium, a second ultrasonic propagating medium arranged between said conical spherical surface and a specimen, driver means for driving said ultrasonic wave generator means with an electrical signal to effect generation of the ultrasonic wave whereby in response to the generated ultrasonic wave an ultrasonic wave is reflected from said specimen and a ultrasonic wave is reflected from the boundary between said concave spherical surface and said second ultrasonic propagating medium, and detector means for detecting the ultrasonic wave reflected by said specimen, said driver means driving said ultrasonic wave generator means with an electrical signal having characteristics to cause the reflected ultrasonic wave from said specimen to interfere with the reflected ultrasonic wave from the boundary between said concave spherical surface and said second ultrasonic propagating medium.

4,394,825 FLUID FLOW MEASURING APPARATUS

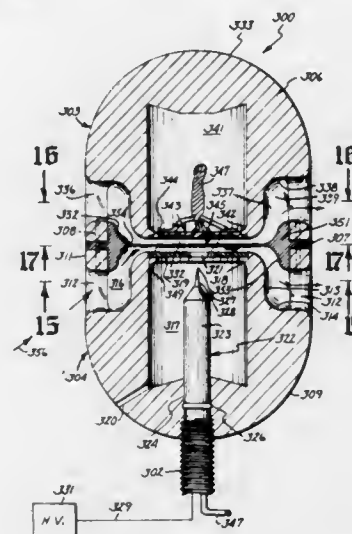
Zell DuVall, St. Paul, Minn., assignor to TSI Incorporated, St. Paul, Minn.

Continuation-in-part of Ser. No. 155,312, Jun. 2, 1980, Pat. No. 4,331,037. This application Sep. 25, 1981, Ser. No. 305,525

Int. Cl.³ G01F 1/56

U.S. Cl. 73—861.09

71 Claims



57. An apparatus for measuring the movement of a fluid comprising: housing means having a fluid flow path, side wall means having a plurality of rows of openings open to the outside of the housing means, and annular passage means between and in communication with said plurality of rows of openings and the fluid flow path, whereby fluid flows through said openings and annular passage into and out of said fluid flow path, and means for sensing the flow of fluid in said fluid flow path and providing information signals providing information as to the movement of the fluid flowing in said flow path.

4,394,826

ORIFICE METER WITH ISOLATION VALVE ON THE CARRIER

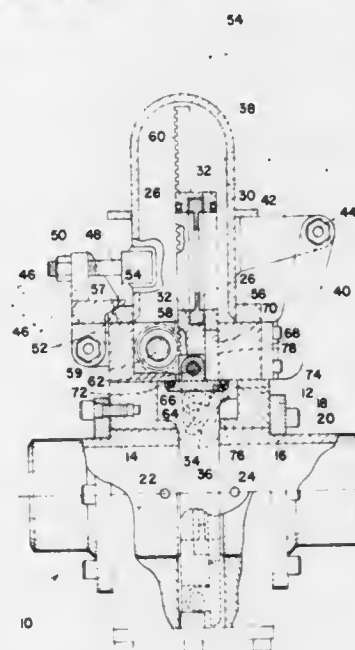
Davis A. Van Scoy, Simonton, Tex., assignor to Grove Valve and Regulator Company, Oakland, Calif.

Filed Dec. 24, 1981, Ser. No. 334,144

Int. Cl.³ G01F 1/42

U.S. Cl. 73—861.61

4 Claims



1. An orifice meter comprising:
a body having a lower main chamber with aligned flow passages therein and an upper service chamber;

an orifice disc carrier plate movable in said body between said main chamber and said service chamber;
a downwardly directed, sealing surface around the lower end of said service chamber; and
an isolation valve plate pivotally suspended from the bottom of said carrier plate;
an edge of said valve plate being engagable with said sealing surface when said carrier plate is raised to pivot said valve plate into horizontal position to then be moved into sealing engagement with said sealing surface upon further lifting of said carrier plate.

4,394,827

TRANSMISSION CONTROL SYSTEM WITH MODIFIED FRICTION ENGAGING MECHANISM ACTUATING PRESSURE

Seitoku Kubo, Toyota; Koujiro Kuramochi, Okazaki, and Tatsuo Kyushima, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

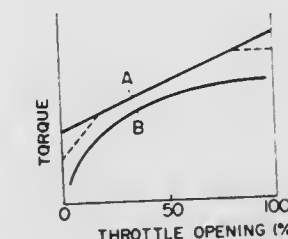
Filed Nov. 25, 1980, Ser. No. 210,214

Claims priority, application Japan, Mar. 27, 1980, 55-39537

Int. Cl.³ B60K 41/10

U.S. Cl. 74—868

2 Claims



1. For an automatic transmission for an automotive vehicle, comprising a gear transmission mechanism and a plurality of fluid pressure actuated friction engaging mechanisms, a plurality of speed stages being provided by said gear transmission mechanism according to selective actuation of said friction engaging mechanisms;

a fluid pressure control system, comprising:

(a) a line fluid pressure control valve which produces a line fluid pressure which increases from a predetermined base pressure approximately proportionally to a quantity representative of engine load;
(b) a throttle fluid pressure control valve which produces a throttle fluid pressure which is approximately proportional to said quantity representative of engine load;
(c) a means for controlling fluid pressure, which receives supply of said line pressure and said throttle pressure and outputs an output fluid pressure, and which comprises;

a first fluid pressure modulation valve, which is supplied with the throttle pressure, and which outputs a throttle modulator fluid pressure which is the same as throttle pressure when the throttle pressure is below a first predetermined level, and is equal to said first predetermined level when the throttle pressure is greater than said first predetermined level; and

a second fluid pressure modulation valve, which receives said line fluid pressure and said throttle modulator fluid pressure, and which produces, as said output of said fluid pressure control means, a fluid pressure which, when the line pressure is lower than a second predetermined pressure, is less than line pressure, but increases faster with increasing engine load than does said line pressure; when said line pressure is between said second predetermined pressure and a third predetermined pressure, is substantially equal to line pressure; and, when line pressure is greater than said third predetermined pressure, is substantially equal to said predetermined pressure;

(d) a shift valve which receives said output fluid pressure and which, according to the operational conditions of

the vehicle, selectively supplies it as an actuating fluid pressure to one of said friction engaging mechanisms; whereby the overall shape of a graph of said output fluid pressure of said fluid pressure control means as the ordinate, and engine load as the abscissa, is convex upwards; whereby said shift valve is provided with a pressure to supply to said friction engaging mechanism as an actuating fluid pressure, the variation of which with respect to engine load is of the same general nature, as is the variation of engine torque with respect to engine load.

4,394,828

SHIELDED/JACKETED RIBBON-CABLE SHEATHING STRIPPING TOOL

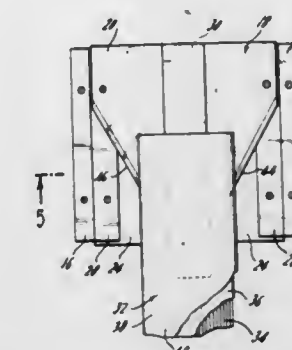
Dennis J. Garbis, P.O. Box 1555, Santa Ana, Calif. 92702, and Donald E. Baker, 11314 212th St., Lakewood, Calif. 90715

Filed Apr. 14, 1981, Ser. No. 254,154

Int. Cl.³ H02G 1/12

U.S. Cl. 81—9.51

3 Claims



1. A tool for use in stripping sheathing from a ribbon cable of the type characterized by a series of parallel conductors lying in a plane encased in one or more layers of sheathing having first and second opposite sides essentially parallel to the plane of the conductors connected along their longitudinal edges comprising a frame having at least two spaced-apart upright supports adapted to be mounted on a horizontal surface and when mounted, extending generally at right angles thereto, and a cutting assembly supported by said upright supports at a predetermined position above the horizontal surface, said cutter assembly including a cutting blade having a forward end, a central axis and at least two cutting edges in the plane of said blade extending rearwardly and at an angle to said central axis with the central axis being an axis of symmetry for said cutting blade, said blade being secured to said upright supports in a position generally parallel to the horizontal surface, and a non-cutting guide member mounted on a surface of said blade symmetrical with the central axis thereof and having a leading edge extending forwardly of the forward end of said blade, said guide member adapted to be inserted between the conductor sheath and conductors of said ribbon cable to separate the same prior to the cable contacting the cutting edges as the cable is pushed rearwardly to slit said sheath while permitting the enclosed conductors to pass therethrough undamaged.

4,394,829

FLYING SHEAR FOR METAL STRIP STOCK

Herbert M. Stoehr, New Berlin, Wis., assignor to Artos Engineering Company, New Berlin, Wis.

Filed Oct. 13, 1981, Ser. No. 310,620

Int. Cl.³ B26D 1/00

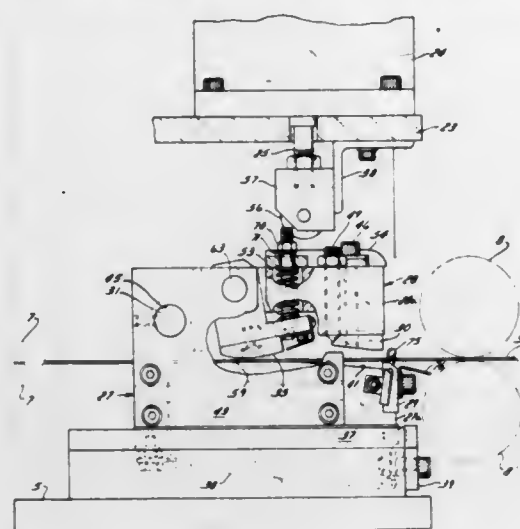
U.S. Cl. 83—314

9 Claims

1. Shearing apparatus for making a transverse cut through a strip while said strip is in lengthwise movement in a forward direction, said shearing apparatus being characterized by:

A. a lower blade carrier confined to forward and rearward motion and having thereon an upwardly projecting lower shearing blade and an upwardly facing clamping surface;

- B. an upper blade carrier having thereon a downwardly projecting upper shearing blade cooperable with said lower shearing blade;
- C. means connecting the upper blade carrier to the lower blade carrier for up and down motion relative thereto and for forward and rearward motion in unison therewith;
- D. vertical biasing means urging the upper blade carrier to a raised position in which the shearing blades are vertically spaced apart;
- E. thrust exerting means at a relatively stationary location above the blade carriers, engageable with said upper blade carrier to force it downwardly so that said blades can shear through a strip between them;
- F. a gripper carried by the lower blade carrier for pivoting relative thereto about a gripper axis that extends trans-



versely to said forward direction and is spaced above the level of said clamping surface, said gripper having a bottom surface curved eccentrically to said gripper axis for wedging engagement with the top surface of a strip therebeneath to clamp the strip against said clamping surface as the gripper swings forwardly about said gripper axis, thereby constraining the lower blade carrier to move forward with the strip; and

- G. link means providing a lost motion connection between said gripper and the upper blade carrier whereby movement of the latter to its raised position swings the gripper rearwardly to a normal position in which its said bottom surface is spaced substantially above said clamping surface but whereby the upper blade carrier is allowed to continue its descent after said bottom surface is engaged with a strip.

4,394,830

FEEDBACK REDUCER FOR AN ACOUSTIC ELECTRIC GUITAR

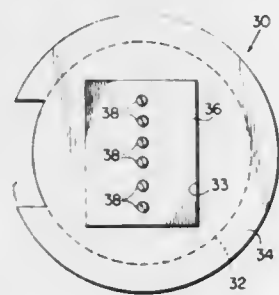
Paul J. Damiano, Manchester, Conn., assignor to RMI Corporation, Emerson, N.J.

Filed May 26, 1981, Ser. No. 266,903

Int. Cl.³ G10D 1/08; G10G 7/00; G10H 3/18

U.S. Cl. 84—1.15

12 Claims



1. A feedback reducing plug for insertion into a sound hole formed in the top plate of an acoustic electric guitar, or into the

sound hole formed in the top plate of an acoustic guitar when converting such acoustic guitar to an acoustic electric one, and adapted to be easily manually inserted into and removed from such sound hole without the need for tools and to hold its place in such sound hole after insertion until manually removed, said plug comprising:

- a head portion in the form of a rigid plate adapted to overlie the top surface of a top plate such as aforesaid and to completely cover the sound hole therein, and
- a securement portion extending from said head portion, said securement portion being adapted to extend into said sound hole and having means for holding said plug in place relative to a top plate such as aforesaid by a press fit engagement with the edge surface of said sound hole which edge surface extends from the top surface to the bottom surface of said top plate and defines said sound hole.

4,394,831

HELMET METAL MASS COMPENSATION FOR HELMET-MOUNTED SIGHTING SYSTEM

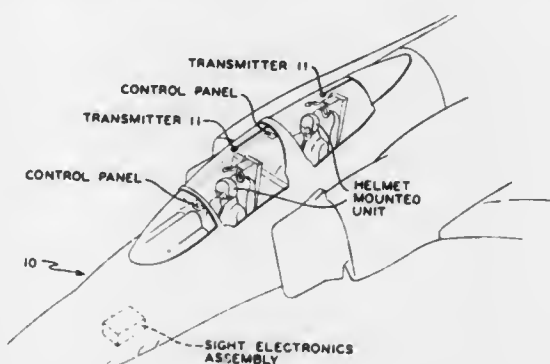
Werner H. Egli, Minneapolis; Jeffrey M. Setterholm, Minnetonka, and E. Jack Weir, Roseville, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 12, 1981, Ser. No. 233,747

Int. Cl.³ F41G 9/00; G01R 33/02

U.S. Cl. 89—41 EA

11 Claims



1. An electromagnetic system for utilizing electromagnetic field vectors in determining the orientation of a helmet, and for compensating for distortions of said electromagnetic field vectors caused by the metal mass of the helmet, the system comprising:

- transmitting means for transmitting electromagnetic field vectors, said transmitting means including a transmitting antenna having at least two transmitting coils;
- a receiving antenna having three non-coplanar receiving coils fixed to the helmet, said receiving coils sensing the electromagnetic field vectors transmitted by said transmitting antenna; and,
- control means responsive to said electromagnetic field vectors received by said receiving antenna for iteratively determining helmet orientation compensated for distortions of said electromagnetic field vectors caused by helmet metal mass, said control means having an output for supplying said compensated orientation to a utilization means.

4,394,832

BRAKE BOOSTER FOR AUTOMOTIVE VEHICLES

Rolf Weiler, and Peter Boehm, both of Frankfurt am Main, Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

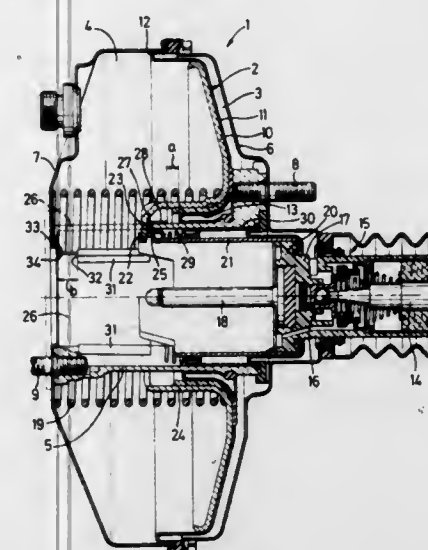
Filed Feb. 5, 1981, Ser. No. 231,838

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010605

Int. Cl.³ F15B 9/10

U.S. Cl. 91—376 R

14 Claims



1. A brake booster for automotive vehicles comprising:
- a low-pressure casing sealingly subdivided into a low-pressure chamber and a working chamber by an axially movable wall;
- a reinforcement tube extending axially through said casing having its ends fastened to the end walls of said casing and sealed to said movable wall by a rolling diaphragm;
- a mechanically actuated control valve to connect said working chamber with a selected one of said low-pressure chamber and atmosphere, said control valve having a housing axially movable within said tube and connected to said movable wall by ribs extending radially through longitudinal slots disposed in said tube, said rolling diaphragm rolling over at least a portion of said slots adjacent said working chamber; and
- a sliding element engaging and axially guided by axially extending rims of each of said slots, said elements having means distinct from said wall to axially displace said elements together with said wall and each of said elements having a covering bead which overlaps said portion of said slots between said slots and said rolling diaphragm.

4,394,833

BRAKE BOOSTER

Rolf Weiler, Frankfurt am Main-Sindlingen, and Wilfried Wagner, Frankfurt am Main, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York

Filed Mar. 2, 1981, Ser. No. 239,736

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1980, 3015187

Int. Cl.³ F15B 9/10

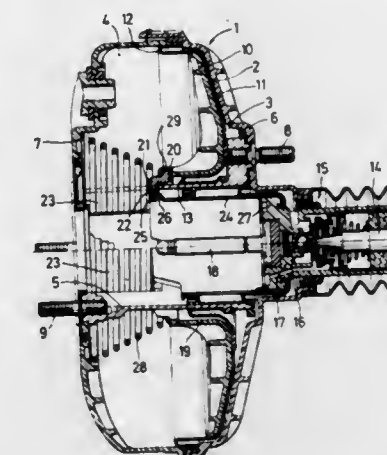
U.S. Cl. 91—376 R

10 Claims

1. A brake booster for automotive vehicles comprising:
- a low-pressure casing having a longitudinal axis sealingly subdivided into a low-pressure chamber and a working chamber by an axially movable wall, said wall including a flexible diaphragm and a rigid diaphragm plate having a cylindrical hub disposed coaxially of said axis extending into said low-pressure chamber, said hub having an annular end surface in said low-pressure chamber;
- a reinforcement tube disposed coaxially of said axis concentrically within said hub extending through said casing having its ends fastened to end walls of said casing, said tube having slots therein parallel to said axis, the outer

surface of said tube being closely adjacent the inner surface of said hub;

a mechanically actuatable control valve to connect said working chamber to a selected one of said low-pressure chamber and atmosphere, said control valve being disposed in a control valve housing which is axially movable in said tube in a force-transmitting relationship with a master cylinder piston actuating rod; and



a metallic spacer ring having a radially outwardly projecting shoulder outside said tube disposed coaxially of said axis in an abutting relationship with said annular end surface, said spacer ring having radially extending ribs projecting through said slots in a force-transmitting relationship with said control housing to transmit boosting forces from said wall to said control housing, said spacer ring being secured to said annular end surface by a lock-in connection means extending axially into said low-pressure chamber from said annular end surface.

4,394,834

CAN CRUSHER

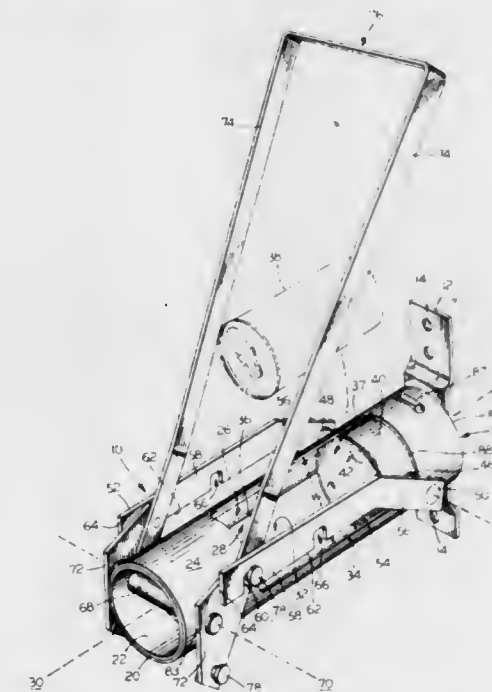
Richard D. Lowe, 3 West St., Windsor Locks, Conn. 06096

Filed Jul. 13, 1981, Ser. No. 282,670

Int. Cl.³ B30B 9/32

U.S. Cl. 100—245

13 Claims



1. A can crusher comprising:
- a housing having a tubular configuration with a base end and a front end, all symmetrically disposed about a centerline axis;
- mounting means for attaching the can crusher to a support means;

a front plug fixedly disposed within the housing symmetrically about the centerline axis at the front end, having a back surface for providing a crushing surface;

a ram, having a cylindrical configuration, disposed within the housing and slidably engageable therein having a front surface in a variable spaced-apart relationship to the front plug and together with the housing and the front plug define a can cavity therebetween;

guide means for guiding the ram along the centerline axis toward and away from the front plug;

a pair of ratchet arms disposed in a spaced-apart relationship to one another with the housing positioned therebetween; means for attaching the ratchet arms to the ram;

a pair of pivot plates disposed in a spaced-apart relationship to one another proximate the front end of the housing; means for rotatably attaching the pivot plates to the housing; handle means attached to the pivot plates for rotating the pivot plates about a rotation axis;

means for engaging the ratchet arms for providing movement of the ram toward or away from the front plug as the handle is rotated in a counterclockwise or clockwise direction respectively;

said housing having a first opening therein for inserting a can into the can cavity; and

a second opening in said housing for removing a crushed can from the can cavity.

4,394,835

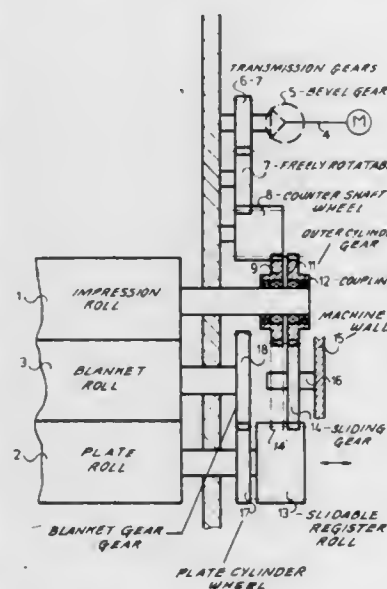
DRIVE FOR ROTARY-ROLLER OFFSET PRINTING MACHINES

Peter Gertsch, and Robert Imhof, both of Bern, Switzerland
Continuation-in-part of Ser. No. 308,484, Oct. 5, 1981, abandoned, which is a continuation of Ser. No. 113,376, Jan. 18, 1980, abandoned. This application Dec. 23, 1981, Ser. No. 333,683

Claims priority, application Sweden, Jan. 22, 1979, 7900573
Int. Cl.³ B41F 5/18, 13/00

U.S. Cl. 101-177

14 Claims



1. Drive means for a rotary-roller offset printing machine, with arbitrary reversibility of the rotation direction of impression roll means and of plate rolls of the machine, the drive means comprising:

impression roll means comprising an impression roll; a plurality of separate plate rolls for communicating with the impression roll means; a respective offset roll for each plate roll and being rotation-secured to the associated plate roll; each of the offset rolls being settable to be applied to the impression roll means for rotating together therewith;

two impression roll gears, each independently and rotatably connected with the impression roll means; coupling means for individually coupling one or the other of the two

impression roll gears to the impression roll means for rotating therewith;

a drive for the two impression roll gears;

a countershaft wheel connected with the drive for being rotated thereby; the one impression roll gear engaging the countershaft wheel for being driven thereby; an intermediate wheel connected with the countershaft wheel for being driven thereby to rotate in the direction counter to the direction of rotation of the countershaft wheel; the other impression roll gear engaging the intermediate wheel for being driven thereby; whereby depending upon which of the two impression roll gears is connected with the impression roll means, the direction of rotation of the impression roll means is determined;

an axle drivingly connected with the plate roll; an indexing wheel at that axle and rotatable therewith;

a sliding gear rotatably mounted for engaging and for rotating the indexing wheel and also being axially slidable for selectively meshing with the one or the other impression roll gear, whereby the direction of rotation of the plate roll is determined by whichever one of the impression roll gears is engaged by the sliding gear.

4,394,836

RIFLE-GRENADE WITH BULLET PASS-THROUGH DEVICE

Rene M. Chavee, and Andre J. Gabriels, both of Genk, Belgium, assignors to Fabrique Nationale Herstal, en abregé F.N., Societe Anonyme, Herstal, Belgium

Filed Nov. 20, 1980, Ser. No. 208,691

Claims priority, application Belgium, Nov. 30, 1979, 58241
Int. Cl.³ F42B 11/42

U.S. Cl. 102-485

4 Claims



1. Rifle-grenade, of the type comprising a head which is prolonged by a tubular shank, the aforesaid head being traversed by an axial bore running into the bore of the aforesaid tubular shank, characterized in that a bullet-pass-through device, of a single piece of material, is located in one of the aforesaid bores, this bullet-pass-through device being made from a material the hardness of which ranges from approximately 30 Shore A to approximately 70 Shore D.

4,394,837

PASSENGER STATION FOR ELEVATED RAILWAY SYSTEM

Lawrence K. Edwards, 3507 Slade Run Dr., Falls Church, Va. 22042

Filed Apr. 27, 1981, Ser. No. 257,954

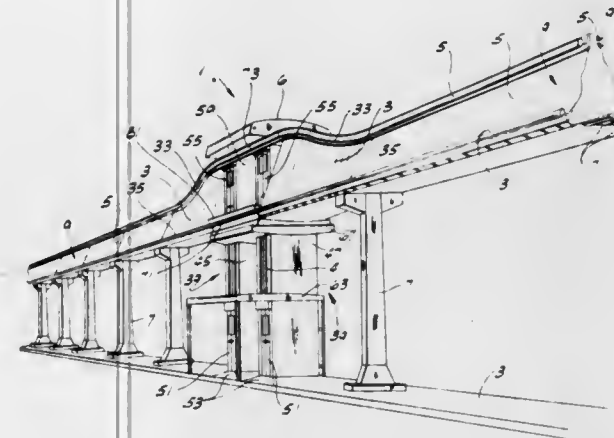
Int. Cl.³ B61B 1/02, 13/04

U.S. Cl. 104-28

19 Claims

1. In an elevated railway system comprising a beam structure, a track extending longitudinally of the beam structure along one side thereof, the track comprising a lower rail and an upper rail, and a car adapted to travel on the track having a door in its side toward the beam structure: a station comprising an elevator shaft structure extending up from ground level generally in the vertical plane of the beam structure in a gap in the beam structure, the gap in the beam structure being between first and second transition beam sections, the transition beam sections being effective to spread the upper and lower rail of the track, a track section extending alongside the transition beam sections on the same side thereof as the track on the beam structure and comprising a lower rail and an upper rail in continuity with the lower and upper rails of the beam structure, a track section extending alongside the elevator shaft

structure on the same side thereof as the track on the beam structure and comprising a lower rail and an upper rail in continuity with the lower and upper rails of the first and second transition beam sections, the lower and upper rails of said track section extending to the bottom and top of the door of a



car stopped at the station for passenger egress from and ingress to the elevator shaft structure between the rails, and a passenger elevator movable up and down in the elevator shaft structure for carrying passengers from ground level up to car door level and back.

4,394,838

BURNING CELL FOR SOLID WASTE FUEL MATERIALS

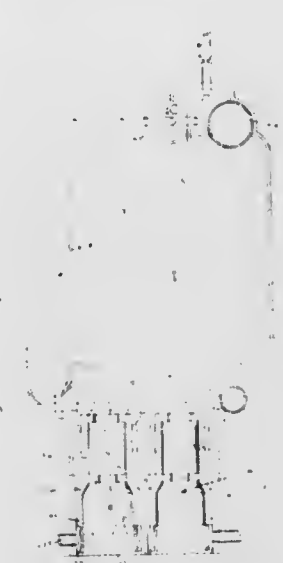
David D. D'Agrosa, Boulevard de la Luz 209, Mexico City 20, Mexico

Filed Apr. 27, 1981, Ser. No. 257,978

Claims priority, application Mexico, Apr. 30, 1980, 182176
Int. Cl.³ F23B 7/00

U.S. Cl. 110-234

11 Claims



1. A burning cell for solid waste fuel materials which comprises in combination a vertical lower cylindrical burning chamber for waste fuel, a vertical upper cylindrical burning chamber for fines, a partition separating said chambers, a reduced diameter outlet opening centrally arranged in said partition between said two chambers, a roof on said upper chamber, a reduced diameter outlet opening centrally arranged in said roof, a bottom in said lower chamber, feed means for solid waste fuel material arranged for feeding said waste fuel in the said lower chamber to build up a waste fuel pile on the bottom thereof, a plurality of circumferential arrays of inwardly radially directed tuyeres arranged in the side wall of said lower chamber near the bottom thereof, first air feed means to blow air into said lower chamber through said radially directed tuyeres and against said waste fuel pile, a helical array of downwardly inwardly and sidewardly inclined tuyeres arranged in the cylindrical wall of said upper chamber, second air feed means to blow air into said upper chamber through said tuyeres to produce an outer descending whirlpool of air which reverses direction at said partition to form a central

ascending whirlpool of air between the centrally arranged reduced diameter opening of said partition and the centrally arranged reduced diameter opening of said roof, whereby the large particle fuel is totally burned in said pile in the lower chamber, and the partially burned fines are entrained by the air from the tuyeres of said lower chamber and are conveyed upwardly into the said central ascending whirlpool through said upper chamber, to more thoroughly burn said fines while preventing sufficient contact between said fines and the walls of said upper chamber to cause said fines to stick to the walls of said upper chamber.

4,394,839

COMBUSTION APPARATUS

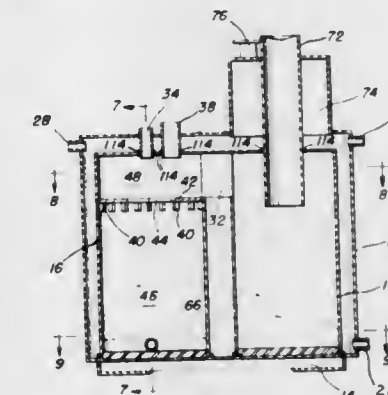
Ikeda Toshio, 12-19, 6 chome, Chiyoda, Sagami-hara, Kanagawa, Japan

Filed May 20, 1981, Ser. No. 265,596

Claims priority, application Japan, Oct. 16, 1980, 55-143629
Int. Cl.³ F23B 7/00

U.S. Cl. 110-234

7 Claims



1. A combustion apparatus comprising:
a hermetic casing including a furnace and a cyclone device operatively disposed therein with a space being provided therebetween;
said furnace being in communication with said cyclone device through a passage;
said hermetic casing having an inlet port for supplying fluid to said space and an outlet port for discharging fluid from said space;
said furnace including a firing port and a fire hole for supplying waste materials and an ashes hole for removing ashes all of which extend out of said hermetic casing;
an exhaust pipe being operatively positioned to extend through the top portion of said hermetic casing and a fire grate being disposed adjacent a bottom portion of said furnace;
a blower being operatively connected with said exhaust pipe and said fire grate to supply air to said furnace;
and said cyclone device including an ashes hole for removing ashes at the bottom portion thereof which extends out of said hermetic casing.

4,394,840

WORKPIECE GUIDE FOR AUTOMATIC SEWING MACHINE

Herbert Diekmann, Vlotho, and Helmut Niedrich, Gütersloh, both of Fed. Rep. of Germany, assignors to Durkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

Filed Dec. 1, 1981, Ser. No. 326,193

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1980, 8032048

Int. Cl.³ D05B 21/00

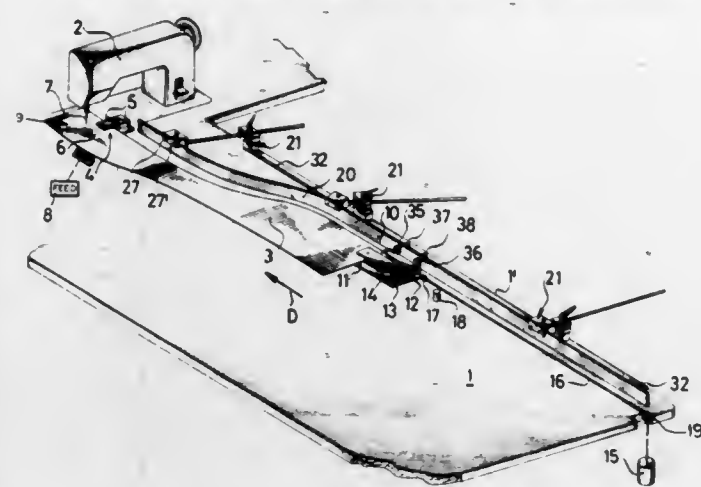
U.S. Cl. 112-121.15

10 Claims

1. In combination with a sewing machine having a work table and a fabric feed for displacing a workpiece to be sewn on said table in a predetermined forward longitudinal direction

through a sewing station on said table, a fabric guide comprising:

- a transversely elastically deformable band extending generally in said direction and oriented on edge;
- holder means engaging said band at a plurality of longitudinally offset locations for securing said band on said table with each of said locations in any of a multiplicity of



transversely offset positions, whereby said band can be deformed into and held in a nonstraight shape; a carriage displaceable on said table along said guide and provided with a clip fastenable on said workpiece; and means urging said carriage and clip longitudinally in a backward longitudinal direction opposite said forward longitudinal direction.

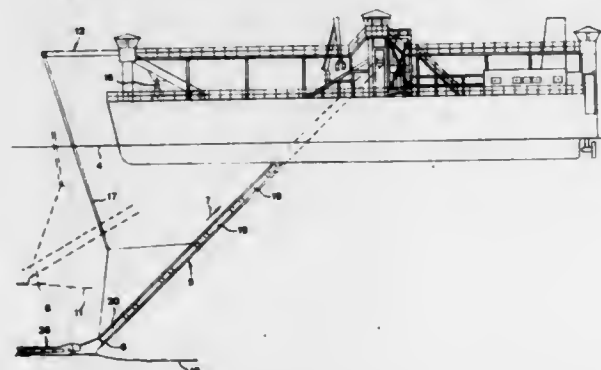
4,394,841

VESSEL FOR RECOVERING MATERIAL

Per B. Lundbäck, Västerleden 48 nb., 199 00 Enköping, Sweden
Filed Sep. 15, 1980, Ser. No. 187,327
Int. Cl.³ B63B 35/28

U.S. Cl. 114-26

19 Claims



1. A vessel for recovering material such as oil from the water, comprising a first conveyor, which is pivotably mounted on the vessel about an axis extending generally horizontally and transversely relative to the longitudinal direction of the vessel, a portion of said first conveyor being adapted to be located below the water level so as to enable the first conveyor to transfer the oil out of the water, and a lifting device connected to the first conveyor to pivot the first conveyor about said axis, the improvement comprising said lifting device being designed to adjust the lower portion of the first conveyor into different levels below the water level to locate the lower portion of the first conveyor in the vicinity of the bottom of the sea to pick up material such as timber therefrom, wherein the first conveyor is rotatably mounted to the vessel about a second axis extending generally in the longitudinal direction of the vessel, and further wherein the first conveyor is rotatable about the second axis by means of at least one operating member, the actuation of which is automatically controlled by a device sensing side heelings of the vessel and which is adapted, upon side heelings of the vessel, to rotate the first conveyor about the second axis to entirely or partially eliminate the

influence of said side heelings on the position of the first conveyor and the direction of the first axis.

4,394,842
ANCHOR

Rob van den Haak, Allegro 114, Krimpen an der IJssel, Netherlands

Continuation of Ser. No. 973,239, Dec. 22, 1978, abandoned.

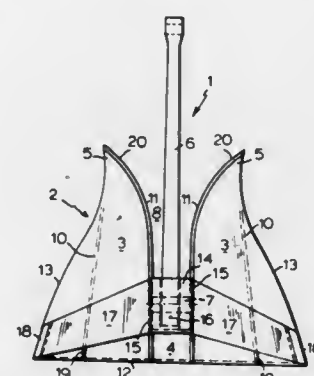
This application Nov. 24, 1980, Ser. No. 209,368

Claims priority, application Brazil, Dec. 29, 1977, 7708742; Netherlands, Jun. 30, 1978, 7807093

Int. Cl.³ B63B 21/34

U.S. Cl. 114-304

3 Claims



1. An anchor comprising:

- a fluke comprised of fluke hands of a reinforced closed hollow structure formed by upper and lower plates interconnected by inner edge plate members and converging towards each other to form thin leading, trailing and side edges, each of said fluke hands formed with an outwardly turned front tip portion;
- a forwardly pointed flange member mounted normal to said fluke and on said outwardly turned front tip portion to enhance the stabilizing action of said anchor;
- a hinge pin disposed at a point substantially coincident with the geometric center of gravity of said anchor;
- a shank mounted to said fluke by said hinge pin;
- a central box formed about said hinge pin and defined by upstanding plates and head plates to delimit fluke angle;
- rear stabilizer elements mounted at side corners of each of said fluke hands; and
- wing plates extending from said head plates convergently towards said rear stabilizer elements and divergently towards said trailing edge.

4,394,843

SELF-RIGHTING TRAFFIC MARKER

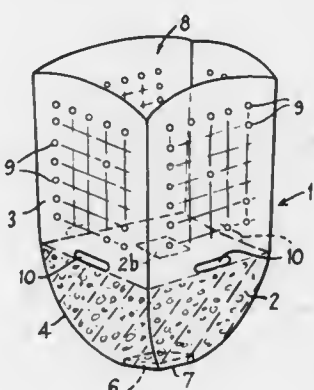
Gananath W. Ediriwira, 29, Cloister Rd., Acton W.3 London, England

Filed Jan. 5, 1981, Ser. No. 222,323

Int. Cl.³ E01F 9/01

U.S. Cl. 116-63 P

4 Claims



1. A portable self-righting traffic marker comprising:

a generally rigid body having a base on which the marker can rock and an integral rigid upper part, an outwardly flaring multi-faced region merging said base with said integral upper part, said integral rigid upper part of said body comprising a plurality of contiguous generally flat outwardly flaring side wall portions which define a nesting facility, formed as a hollow upper region having an open top, whereby a plurality of said traffic markers can be nested, one within the other, weight means for selectively weighting said base so that said marker returns to its upright position by itself when it is knocked over, land means on the bottom of said base for facilitating standing the marker on the ground in its upright position, and drain means for draining rain water entering said body through said open top.

4,394,844

CHIP COATER

Laurior A. Wood, 34 Bloody Brook, Amherst, 03031, and Donald N. Humphries, 45 Beave La., Bedford, N.H. 03102

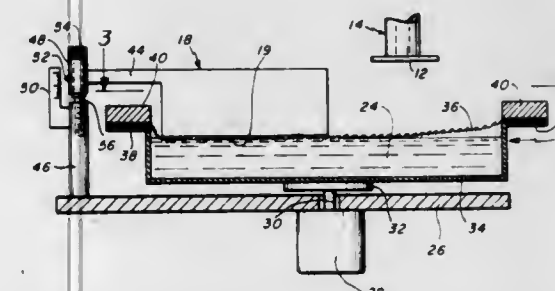
Division of Ser. No. 259,854, May 4, 1981, Pat. No. 4,346,124.

This application Jan. 7, 1982, Ser. No. 337,953

Int. Cl.³ B05C 1/06, 3/18

U.S. Cl. 118-260

6 Claims



1. Apparatus for applying an adhesive or the like to a circuit chip comprising:
a bath tray for carrying a quantity of a liquid adhesive or the like,
a mesh screen,
means securing said mesh screen to said bath tray with the screen extending at approximately the level of the liquid in the bath tray,
a leveling paddle,
and means supporting the paddle so as to sweep relative to the screen, essentially pressing the screen into the adhesive as the weeping action occurs.

4,394,845

SEED COATING APPARATUS

Frederic E. Porter, St. Louis, and James M. Scott, Minneapolis, both of Minn., assignors to Sandoz Ltd., Basel, Switzerland
Division of Ser. No. 191,528, Sep. 29, 1980, abandoned, which is a division of Ser. No. 73,882, Sep. 10, 1979, Pat. No. 4,238,523.

This application Feb. 5, 1982, Ser. No. 346,282

The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

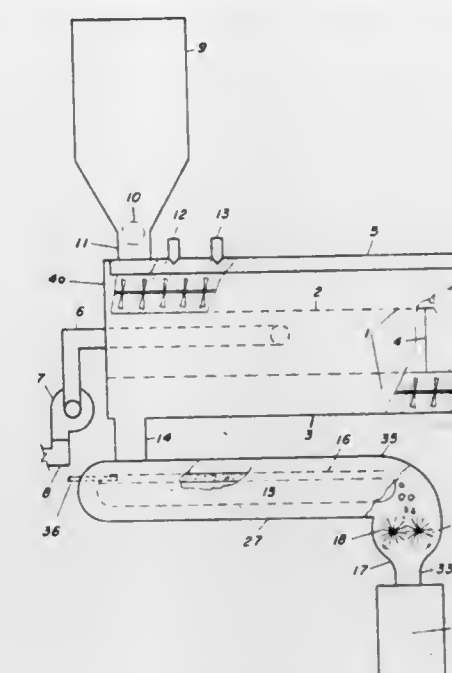
Int. Cl.³ A01C 1/06

U.S. Cl. 118-303

5 Claims

1. A seed coating apparatus comprising, in combination, a mill assembly having an upstream end and discharge end and adapted to mix and advance plant seeds, metering means at the upstream end of said assembly and adapted to introduce continuously a measured amount of seeds into said assembly, spray means downstream from said metering means and adapted to apply a curable liquid seed coating composition onto a seed mass advancing in said assembly, conveyor means having an upstream receiving end and a downstream discharge end and adapted to accumulate seeds for advancement thereon as an

agglomerated mass, the upstream end of said conveyor means being located in seed receiving relationship to the discharge end of said mill assembly, and a disagglomerator assembly



located at the discharge end of said conveyor means in position to receive and adapted to singulate seeds in agglomerated seeds discharged from said conveyor means.

4,394,846

CULTURE OF MARINE SPECIES

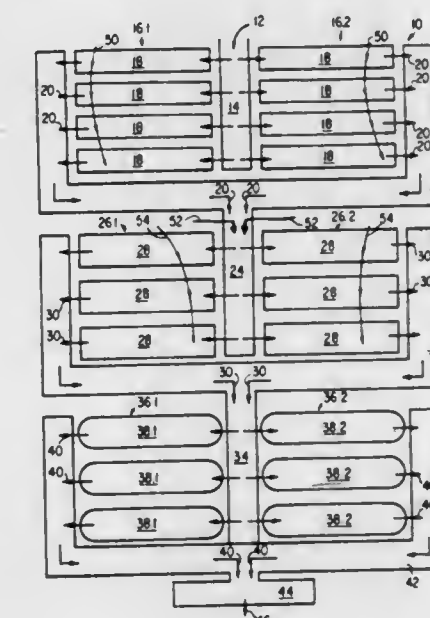
Oswald A. Roels, 28 Hewit Dr., Corpus Christi, Tex. 78404

Filed Sep. 9, 1981, Ser. No. 300,565

Int. Cl.³ A01K 61/00

U.S. Cl. 119-2

19 Claims



1. A method of utilizing nutrient deficient ocean waters for the culture of marine species, which comprises:
(a) maintaining a flow of nutrient deficient ocean waters into and through a finfish culture stage at a sufficient rate to limit the development of planktonic species in that stage, and supplying finfish feed to the stage for the culture of finfish therein;
(b) maintaining a flow of finfish culture stage effluent through a shrimp culture stage, and supplying plankton nutrients to that stage for the culture of plankton to constitute shrimp feed for the culture of shrimp in that stage; and
(c) maintaining a flow of shrimp culture stage effluent through a filter feeder stage for the culture of filter feeders therein.

4,394,847

UNIT FOR THE ADMINISTRATION OF LIQUIDS TO ANIMALS, MORE SPECIALLY A WATERING BOWL
Georg Langenegger, Bachstr. 10; Franz Bauer, Unterer Graben 2, both of D-8050 Freising, and Josef Langenegger, Deutscherstr. 10, D-8891 Petersdorf, all of Fed. Rep. of Germany

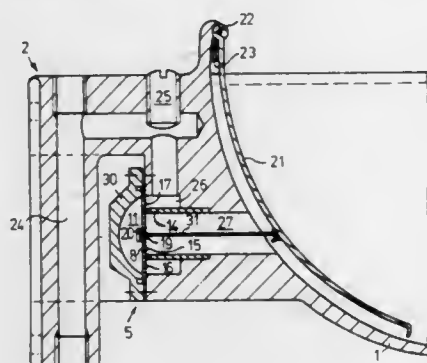
Filed Aug. 7, 1981, Ser. No. 290,961

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1980, 3030758

Int. Cl.³ A01K 7/02, 7/04, 7/06; F16K 7/17

U.S. Cl. 119—75

13 Claims



1. An animal waterer comprising:
a bowl formed with an animal actuable movable member;
a main valve connected to said bowl and having:
a housing,
a water inlet communicating with said housing,
a water outlet communicating with the interior of said bowl,
an annular wall separating said inlet from said outlet and having an annular edge,
a valve diaphragm in said housing spanned across said edge and defining in said housing a pilot space pressurizable to press said diaphragm against said edge and block communication between said inlet and said outlet, and
a first passage formed in said diaphragm communicating between said inlet and said space for enabling water from said inlet to pressurize said space and press said diaphragm against said edge;
means defining a throttle passage communicating between said space and through said outlet; and
a pilot valve operatively connected to said member and displaceable thereby for said throttle passage whereby actuation of said member by an animal enables throttled flow of water from said space through said throttle passage and said outlet into said bowl and relieves the pressure in said space whereby said diaphragm is displaced by the pressure of water at said inlet from said edge to permit water to flow past said edge from said inlet to said outlet, said throttle passage being a hole formed in said diaphragm, said pilot valve including a valve body disposed at said hole and biased to close said hole in the absence of displacement of said member.

4,394,848

CENTRAL HEATING BOILER

Dirk B. L. Siebelt, Nuenen, Netherlands, assignor to AWB Apparatenfabriek Warmtebouw B.V., Beek en Donk, Netherlands

Filed Jul. 22, 1981, Ser. No. 285,837

Claims priority, application Netherlands, Aug. 4, 1980, 8004437; Aug. 4, 1980, 8004613

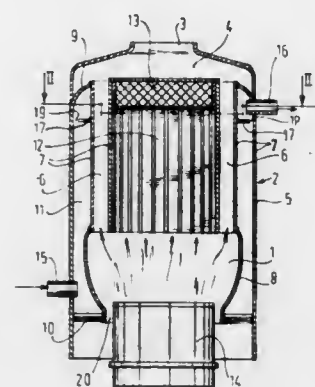
Int. Cl.³ F22B 7/00

U.S. Cl. 122—13 R

4 Claims

1. A boiler construction comprising, in combination:
a pair of upright, coaxial wall constructions comprising an outer wall of sheet metal having essentially a cylindrical shape and an inner wall formed for a substantial extent of its length by a group of longitudinally extending stave

elements joined by weldments to provide a liquid tight cylindrical upper portion of the inner wall having a predetermined spacing from said outer wall, said inner wall also including a lower portion in the form of a bell shaped skirt of sheet metal defining a combustion chamber welded to said upper portion at the lower end thereof and spaced inwardly from the lower portion of said outer wall, said stave elements defining longitudinally extending flue gas passages at the inner side of said upper portion of the inner wall, which flue gas passages are in communication with the core region of said inner wall portion, and there being a closure means for said core region at that end thereof opposite said combustion chamber; and
wall means joining said inner wall construction to said outer wall construction for forming a water jacket between such inner and outer wall constructions and for relieving the boiler construction of destructive mechanical stresses due to unequal thermal stresses which occur in normal opera-



tion of the boiler, said wall means comprising first and second annular wall portions of different radial widths respectively extending radially between the upper end of said upper portion of the inner wall and the outer wall and between the lower end of said combustion chamber and the outer wall whereby the spacing between the inner and outer wall constructions and the spacing between said annular wall portions defines a relatively small volume such that water therein is heated rapidly to temperature, inlet and outlet means for flowing water into said small volume, said skirt which defines the combustion chamber having its upper end of a diameter substantially the same as the diameter of said upper portion of the inner wall and having its lower end of a different diameter so that the radial width of one of the annular wall portions is sufficiently greater than the radial width of the other annular wall portion as to relieve said boiler construction of said destructive thermal and mechanical stresses.

4,394,849

VAPOR GENERATOR HAVING DRAINABLE TUBE BENDS AROUND BURNER OPENINGS EXTENDING THROUGH FURNACE BOUNDARY WALLS FORMED IN PART BY ANGULARLY EXTENDING FLUID FLOW TUBES

Harry H. Pratt, deceased, late of West Orange, N.J., by Mary D. Pratt, executrix, and William J. Gill, New York, N.Y., assignors to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Jun. 22, 1981, Ser. No. 276,122

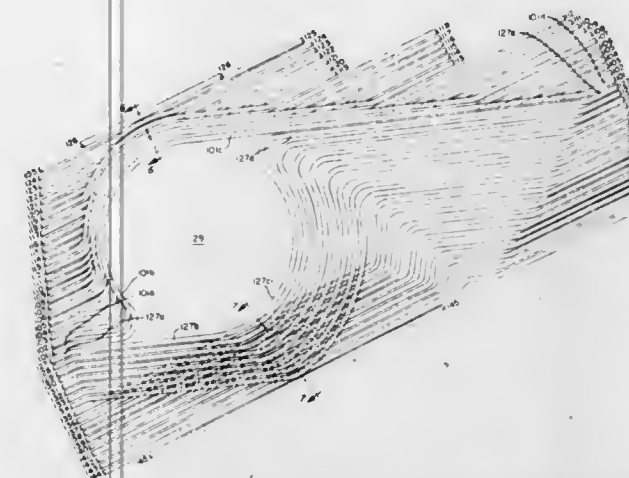
Int. Cl.³ F22B 15/00, 25/00, 37/10

U.S. Cl. 122—235 K

7 Claims

1. A vapor generator comprising a plurality of tubes connected together and arranged to form at least a portion of the boundary walls of a gas-tight enclosure; at least one opening extending through at least one of said boundary walls; a series of adjacent tubes extending around at least a portion of said opening with one of said tubes of said series extending in the plane of said one boundary wall and the other tubes of said

series respectively extending in additional planes spaced from each other and from said first plane; at least one additional series of adjacent tubes extending around said first series, with one of said tubes of said additional series extending in the plane of said one boundary wall and the other tubes of said additional



series extending in said additional planes, respectively; said tubes extending at an acute angle with respect to a horizontal plane for the entire lengths of said tubes; burner means registering with said opening to apply heat to said enclosure; and means for passing fluid through said tubes to apply said heat to said fluid.

4,394,850

CYLINDER BLOCK FOR AUTOMOTIVE INTERNAL COMBUSTION ENGINE

Yoshimasa Hayashi, Kamakura, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

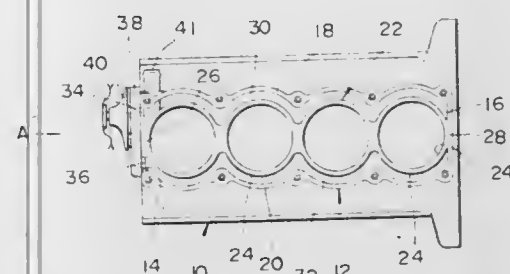
Filed Sep. 14, 1981, Ser. No. 302,238

Claims priority, application Japan, Sep. 16, 1980, 55-128400; Sep. 17, 1980, 55-131882[U]

Int. Cl.³ F01P 3/02

U.S. Cl. 123—41.74

7 Claims



1. A cylinder block for an automotive in-line multiple-cylinder internal combustion engine, comprising:
outer wall means including oppositely located first and second end wall sections, and oppositely located first and second side wall sections, the top surface of said wall sections being continuous and lying on a common plane; an elongate cylinder row structure spacedly located within said outer wall means, said cylinder row structure including a plurality of cylinder sections whose neighbouring cylinder sections are integrally connected with each other, said cylinder sections containing first and second extreme cylinder sections located at the opposite extremities of said cylinder row structure and positioned in the vicinity of said first and second end wall sections of said outer wall means, each cylinder section being formed with a cylinder bore therein, the top surface of said cylinder row structure lying on said common plane; and
first and second connecting wall means located between said outer wall means and said cylinder row structure, said first connecting wall means integrally connecting said first extreme cylinder section with said first end wall section, said second connecting wall means integrally connecting said second extreme cylinder section with said second end

wall section of said outer wall means, thereby forming first and second coolant passages which are separate and independent from each other, each coolant passage being defined between said side wall section and said cylinder row structure, the top surface of each connecting wall means lying on said common plane.

4,394,851

DECOMPRESSION DEVICE IN AN INTERNAL COMBUSTION ENGINE

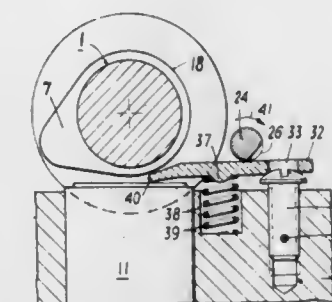
Josef Greier, and Colin T. Pomfret, both of Graz, Austria, assignors to Hans List, Graz, Austria

Filed Apr. 13, 1981, Ser. No. 253,279

Claims priority, application Austria, Apr. 15, 1980, 2038/80 Int. Cl.³ F01L 13/08

U.S. Cl. 123—182

5 Claims



1. A decompression device for an internal combustion engine having at least one cylinder, at least one valve, and a camshaft including at least one cam having a base circle cam surface, said decompression device comprising:
a controllable operating spindle mounted on said engine and extending along the length of and parallel to said camshaft;
at least one decompression cam disposed on said operating spindle and provided for each said at least one cylinder; a follower element for transmitting an operative lift of said camshaft cam to said valve;
a ratchet wheel connected to said spindle;
a trip element coacting with said ratchet wheel for restoring said decompression cam to an original position;
a decompression lever having one end for contacting said follower element and being articulately disposed between said decompression cam and said follower element;
a vertically adjustable bearing contacting the other end of said decompression lever; and
spring means for articulately mounting said decompression lever on said adjustable bearing and for applying said decompression lever to said decompression cam under spring loading, said at least one decompression cam being controllable to cause said decompression lever to selectively maintain said follower element in a decompression position with said follower element being spaced apart from said base circle cam surface.

4,394,852

COWL MOUNTED PULSE CONTROL START VALVE
Charles H. Tuckey, Cass City, and Alan D. Romig, Gagetown, both of Mich., assignors to Walbro Corporation, Cass City, Mich.

Filed May 18, 1981, Ser. No. 264,787

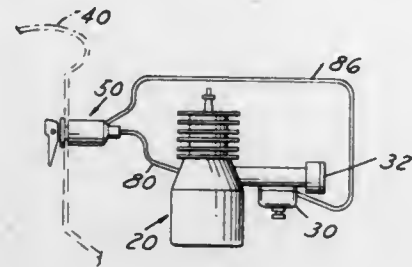
Int. Cl.³ F02M 1/16

U.S. Cl. 123—187.5 R

5 Claims

1. A system for priming a carburetor for an internal combustion engine which comprises:
(a) a conduit connected to the body of an engine to receive and conduct pulses from said engine, said conduit being directly connected to a carburetor having a fuel and air mixing passage operatively associated with said engine

- wherein pulses in said conduit will propel fuel into the mixing passage of said carburetor,
- (b) a valve in said conduit located remote from said engine having a manually movable part to close said conduit in one position and to open said conduit in a second position,
- (c) said valve comprising a valve body having a bore enslaved at one end to provide a valve seat, and said movable part comprising a plunger slidable in and guided by said bore, and a valve element on one end of said plunger to cooperate with said valve seat,
- (d) said valve plunger having an actuating stem on the other end extending from said body, and an actuating lever



- pivoted on a first axis on said stem, a spring urging said plunger toward a valve closed position, and a plurality of surfaces on said lever spaced at respective angles around said first axis to bear selectively against said body in selected positions of said lever to control the position of said valve element relative to said valve seat, and
- (e) said plurality of surfaces comprising two flat surfaces lying in planes parallel to the said first axis and contiguous to a corner surface, said corner surface forming a third surface, each surface to position said valve element, respectively, in a closed position relative to said valve seat, a maximum open position, and an intermediate position.

4,394,853

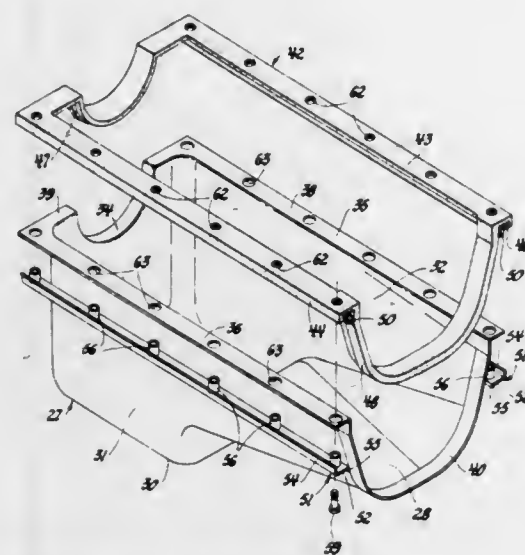
ENGINE OIL PAN ISOLATION MOUNTING

Jose M. Lopez-Crevillen, Westland, and John W. Huber, Plymouth, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 22, 1981, Ser. No. 275,739
Int. Cl.³ F02F 7/00

U.S. Cl. 123—195 C

3 Claims



1. In combination in a combustion engine, a crankcase having a pair of laterally spaced longitudinally extending generally parallel side rails connected laterally at their ends by end elements, said side rails and end elements having downwardly facing sealing surfaces comprising an oil pan receiving surface and fastener receiving openings through said side rail sealing surfaces, an oil pan defining an open topped downwardly closed container with a peripheral flange extending laterally outward from open upper edges of the container, said

flange having a top surface sealingly engageable with the oil pan receiving surface and spaced parallel side portions supportingly attached to said crankcase side rails, said side portions having openings aligned with said side rail openings,

a resilient vibration absorbing seal attached to said flange, said seal having an upper sealing portion extending along and clamped between said flange top surface and said oil pan receiving surface and peripheral retaining and isolating lips depending from said upper sealing portion and extending beneath said flange to secure the seal on the flange prior to assembly to the crankcase, said seal having openings through said sealing portion and said lips and aligned with said crankcase side rail openings and said oil pan side portion openings, and

securing means, including fasteners engaging said side rails and abutting support members engaging said seal isolating lips and urging said lips against the oil pan flange, to compress a predetermined limited amount the seal upper sealing portion between the flange and the oil pan receiving surface and the seal lips between the flange and the support members to thereby maintain sound isolating sealing engagement between the oil pan and the crankcase and sound isolating engagement between the oil pan and the securing means,

said support members including sleeves extending through said seal and oil pan openings and engaging said crankcase side rails to limit compression of said seal, said fasteners extending through said sleeves to said side rails, said oil pan openings being large enough to avoid engagement with said sleeves and said seal openings being small enough to grip the sleeves upon assembly of the support members with the seal and oil pan to retain these members together for assembly to the crankcase.

4,394,854

METHOD AND APPARATUS FOR SEPARABLY CONNECTING CRANKSHAFTS IN INTERNAL COMBUSTION ENGINES

Lothar Huber, Bühl-Altschweier, Fed. Rep. of Germany, assignor to Luk Lamellen und Kupplungsbau GmbH, Bühl, Fed. Rep. of Germany

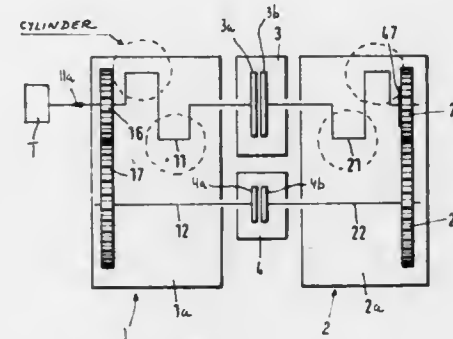
Filed Feb. 12, 1981, Ser. No. 233,890

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1980, 3005343

Int. Cl.³ F02D 17/02

U.S. Cl. 123—198 F

53 Claims



1. A method of establishing a separable connection between a rotating first crankshaft and a second crankshaft in an internal combustion engine wherein the first and second crankshafts respectively form part of discrete first and second units and the first and second units respectively further comprise first and second cylinder means for rotating the respective crankshafts and first and second camshafts rotating with the respective crankshafts, comprising the steps of accelerating the second crankshaft through the medium of the first camshaft; and thereupon connecting the second crankshaft with the rotating first crankshaft.

4,394,855

INTERNAL COMBUSTION ENGINE WITH EXTERNALLY SUPPLIED IGNITION HAVING AN IGNITION CHAMBER ASSOCIATED WITH THE MAIN COMBUSTION CHAMBER

Reinhard Latsch, Vaihingen; Ernst Linder, Mühlacker; Helmut Maurer, Horrheim; Klaus Müller, Tamm, and Franz Rieger, Aalen-Wasserralfingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

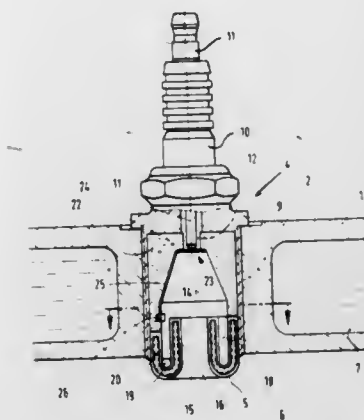
Filed May 7, 1981, Ser. No. 261,413

Claims priority, application Fed. Rep. of Germany, May 10, 1980, 3017948

Int. Cl.³ F02B 19/12

U.S. Cl. 123—254

14 Claims



1. An internal combustion engine having a main combustion chamber with externally supplied ignition having an ignition chamber associated with said main combustion chamber, said ignition chamber arranged to communicate directly with said main combustion chamber via a discharge means and separated therefrom by a first wall in which said discharge means is formed and which partitions off said ignition chamber from said main combustion chamber, said discharge means including a first overflow conduit which is formed by a nozzle that protrudes into said ignition chamber and through which a fuel mixture is directed from said main combustion chamber to said ignition chamber, said discharge means further including at least one additional overflow conduit arranged to discharge a fuel mixture tangentially into an annular chamber formed between an outer circumference of said nozzle and a portion of said ignition chamber wall surrounding said nozzle, said ignition chamber having an ignition device including an electrode terminating radially across the annular chamber from the end of said nozzle which forms a radial spark gap with said nozzle directed toward said wall of said ignition chamber, a heat pipe disposed in a wall of said nozzle and at least in a portion of the ignition chamber wall adjoining cooled portions of the engine and surrounding said nozzle.

4,394,856

COMPRESSION OPERATED INJECTOR WITH FUEL INJECTION CONTROL

Richard H. Smith, Birmingham, and Donald J. Armstrong, Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 29, 1981, Ser. No. 278,657

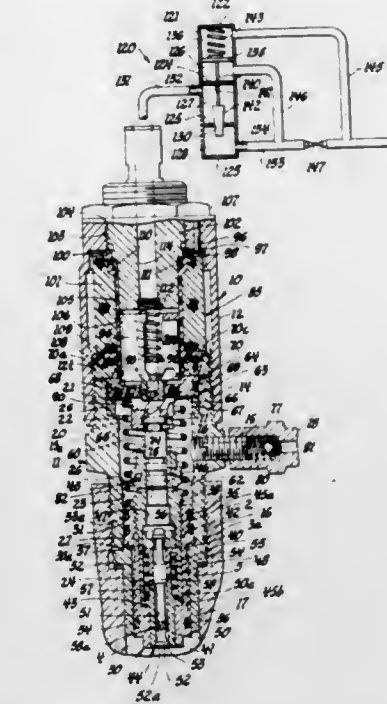
Int. Cl.³ F02M 49/02

U.S. Cl. 123—506

2 Claims

1. In a compression operated diesel fuel injector for use with an internal combustion engine, the fuel injector being of the type having a housing means with a compression operated cylinder means and piston means operatively associated therewith; the cylinder means and piston means defining an injection pump chamber and also defining with the housing means a fuel control chamber; the housing means having a supply passage to the fuel control chamber for supplying fuel thereto and; a fuel return passage from the control chamber for the return of fuel to a source of low pressure fuel; and, a solenoid

valve means operatively positioned to normally block flow of fuel from the control chamber to the fuel return passage, the improvement wherein a variable flow orifice means is operatively associated with the fuel return passage next adjacent to the solenoid valve means that is operative to control the pressure of fuel in said fuel return passage upstream of said variable



flow orifice means as a function of engine speed and load when the solenoid valve means is energized so as to regulate the flow of fuel from the fuel control chamber whereby to control engine compression operation of the cylinder means and thereby to correspondingly regulate the rate of fuel injection from the fuel injector as a function of engine speed and load.

4,394,857

INSERT FOR A STOVE

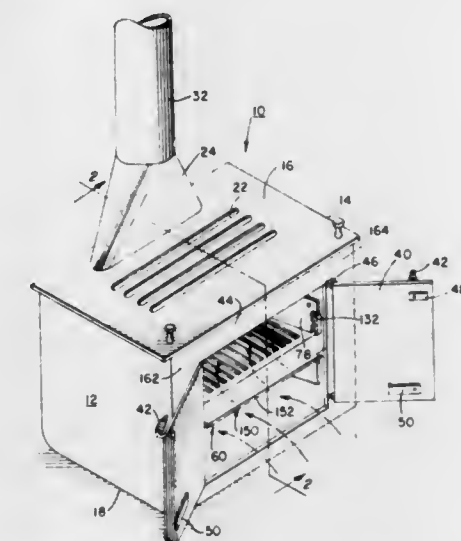
Samuel J. Iannone, 15 W. Willow St., Beacon, N.Y. 12508

Filed May 28, 1981, Ser. No. 268,005

Int. Cl.³ F24C 1/00

U.S. Cl. 126—60

10 Claims



1. A stove comprising: an outer front wall and outer side walls connected to said outer rear and front walls; a plurality of inner walls located within said outer walls and including an inner rear wall and inner side walls connected to said inner rear wall, said inner walls being spaced from said outer rear walls, said spacing between said outer and inner walls defining a first gap; a base including a base rear wall and base side walls connected to said base rear wall, said base rear wall being spaced from said inner rear wall and said base side walls

being spaced from said inner side walls to define a second gap;

a grate and grate support means on said base walls for removably mounting said grate on said base walls, said grate including bars having bumps projecting upwardly therefrom;

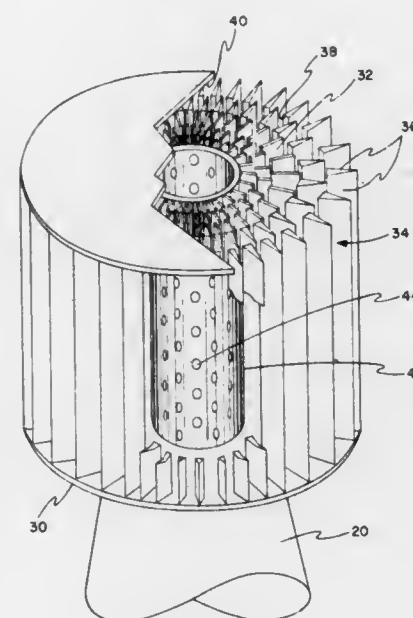
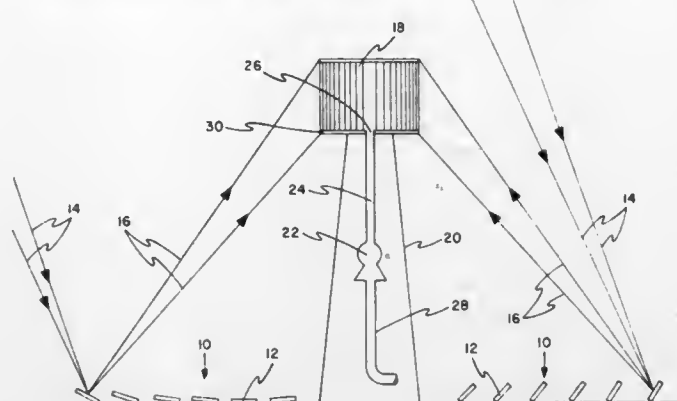
grate moving means for moving said grate;

first air flow directing plate means on said base for deflecting air into an area located beneath said grate;

means for removably mounting a second air flow directing means on said base for directing air flow to a coal fire on said grate; and

granular heat transfer means located in said second gap for modulating heat transferred from said insert member to said stove outer walls, said heat transfer means including a mixture of a first material having a high thermal conductivity and a second material having a low thermal conductivity.

from said heliostat field and reradiate heat energy to produce heated air in the vicinity of said slats; and



(b) means for distributing airflow of said heated air, which is pulled by said fan, from said vicinity of said slats to said air inlet orifice.

4,394,860

SOLAR LIGHT BULB

Derrick A. Smith, P.O. Box 1974, Hollywood, Fla. 33020

Filed Sep. 26, 1980, Ser. No. 191,122

Int. Cl.³ F23J 3/02

U.S. Cl. 126—439

14 Claims

1. A system for generating light directly using solar energy comprising:

(a) a single master concentrator and accumulator for the sun's rays to generate a concentrated beam of visible solar radiation;

(b) a single master distributor shaft for distributing said beam of visible solar radiation as a collimated light;

(c) a fork in said single master distributor shaft providing a pair of branch shafts extending in opposite directions, the fork being provided with a pair of mirrors to direct said collimated light beam along each branch shaft, each branch shaft being provided with a plurality of light-ray conducting tubes extending at right angles to said branch shaft, each branch shaft being provided with a mirror at the intersection of said branch shaft with said light-ray conducting tube to direct said beam down each said light-ray conducting tube by reflecting parallel fractions of said beam, the cross-sectional area of said branch shaft decreasing as the distance from the fork increases;

(d) a solar bulb operatively associated with each light-ray conducting tube, said solar bulb including a double walled upper bulbous portion providing an inlet from said light-ray conducting tube and a pair of heat outlet tubes, and a

4,394,858

PHOTOCHEMICAL CONVERSION AND STORAGE OF LIGHT ENERGY BY ENDOERGIC ISOMERIZATIONS

Paul J. Giordano, Hudson, and Richard C. Smierciak, Warrensville, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed Dec. 31, 1980, Ser. No. 221,589

Int. Cl.³ F24H 7/00; F24J 3/02

U.S. Cl. 126—400

10 Claims

1. A process for the capture and storage of radiant energy comprising exposing an oxidatively stable photocatalyst to said radiant energy in the presence of a reversibly isomerizable carbon containing compound, wherein said photocatalyst comprises a carbonyl compound of a metal selected from Re, Ir, Rh, Ru, Os, Pt and Pd and wherein said isomerizable compound is capable of forming an intramolecular strained carbon containing ring structure.

4,394,859

CENTRAL SOLAR ENERGY RECEIVER

M. Kevin Drost, Richland, Wash., granted to U.S. Department

of Energy under the provision of 42 U.S.C. 2182

Filed Oct. 27, 1981, Ser. No. 315,397

Int. Cl.³ F24J 3/02

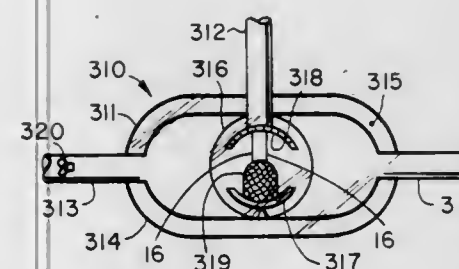
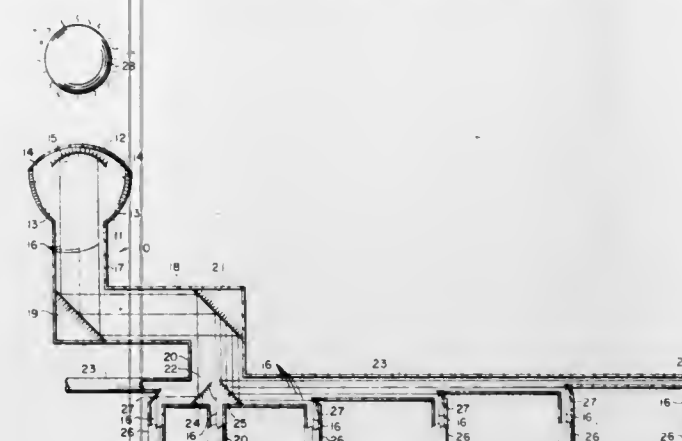
U.S. Cl. 126—438

6 Claims

1. An improved point focus central solar energy receiver, mounted on top of a tower surrounded by a heliostat field, for heating air, in the vicinity of said receiver, which is then drawn by a low pressure, induced draft fan through ductwork having an air inlet orifice on top of said tower, wherein the improvement comprises:

(a) a first plurality of solar energy absorbing, spaced-apart, and generally vertically oriented, elongated fin-shaped slats disposed in a first pluralism of concentric cylindrical arrays having a common axis and surrounding said air inlet orifice, with each of said slats generally radially oriented with respect to said axis and with said slats of adjacent said arrays not radially aligned with respect to each other, and wherein said slats absorb said solar energy

double walled lower bulbous portion, the upper portion thereof being divergently reflective, with the lower portion having walls which are either transparent or translucent to provide greater light diffusion, and the space



between the two walls being maintained under vacuum to provide heat insulation values; and (e) means within said solar bulb for the absorption and radiation of said concentrated beam of visible solar radiation.

4,394,861

OUTSIDE AIR BREATHING SUPPLY SYSTEM

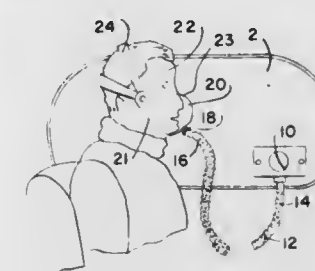
Lawrence A. Sciortino, 313 Yacht Club Dr., Fort Walton Beach, Fla. 32548

Filed May 11, 1981, Ser. No. 262,232

Int. Cl.³ A62B 7/00

U.S. Cl. 128—205.25

13 Claims



1. Small aircraft low altitude emergency outside ram air breathing supply apparatus comprising:

ram air source means for scooping external ram air from outside of an aircraft, the ram air source means having an inlet adapted to be mounted outside of an aircraft and an outlet adapted to be mounted inside of an aircraft, said ram air source means including mounting means adapted to be mounted in a surface structure of the aircraft, opening and closing means connected to the ram air source means and extending inward in the aircraft for selectively opening and closing the ram air source means and thereby selectively scooping external ram air from outside of the aircraft,

connection means connected to the outlet of the ram air source means inside the aircraft for connecting a conduction means to the ram air source means, ram air conduction means having first and second ends, the

first end of the conduction means connected to the conduction means for conducting ram air scooped from outside the aircraft by the ram air source means into the conduction means, the second end of the conduction means being freely movable within the aircraft in relation to the connection means and the ram air source means for positioning the second end of the conduction means near a face of a user,

support means connected to the second end of the conduction means for supporting the second end of the conduction means near a face of a user,

attachment means connected to the support means for attaching the support means to a user,

distribution means connected to the support means and connected to the second end of the conduction means for distributing substantially unpressurized, free flowing ram air from the ram air source and the conduction means to a facial area of a user, thus providing emergency outside ram air from outside of an aircraft to a user inside of the aircraft whereby a small aircraft controlled by the user may be flown to a safe landing area and safely landed during an emergency in which smoke or noxious fumes fill an interior of the small aircraft.

4,394,862

METERING APPARATUS WITH DOWNLINE PRESSURE MONITORING SYSTEM

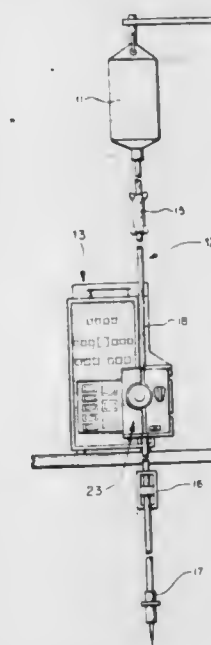
Norm Shim, Glenview, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Aug. 25, 1980, Ser. No. 180,939

Int. Cl.³ A61M 5/00

U.S. Cl. 604—67

6 Claims



1. A flow system for infusing a fluid from a supply reservoir into the human body, comprising, in combination:

a length of flexible-walled tubing extending from the supply reservoir to the body;

metering means continuously including at least one pressure member compressively engaged to the sidewall of said tubing for occluding the lumen thereof;

drive means for advancing the point of engagement of said pressure member along a segment of said tubing to urge fluid through said tubing;

downline pressurization means comprising a plunger spring-biased against said tubing downline of said tubing segment for continuously at least partially restricting the lumen of said tubing to increase the pressure of the fluid within said segment downline of said point of engagement;

pressure sensing means including a pressure transducer operatively engaging said tubing downline of said pressurization means for producing an output signal having a level

continuously indicative of the downline pressure level in the tubing; and
pressure monitor circuit means responsive to said output signal for terminating operation of said drive means in the event said pressure level reaches a predetermined maximum level.

4,394,863

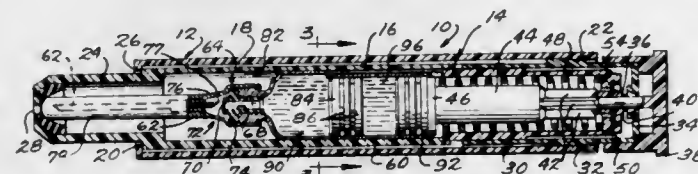
AUTOMATIC INJECTOR WITH CARTRIDGE HAVING SEPARATE SEQUENTIALLY INJECTABLE MEDICAMENTS

Elliot Bartner, Piscataway, N.J., assignor to Survival Technology, Inc., Bethesda, Md.

Filed Oct. 23, 1981, Ser. No. 314,381
Int. Cl.³ A61M 5/00

U.S. Cl. 604-90

5 Claims



1. In an automatic injecting device including an elongated housing assembly having a forward end, stressed spring means mounted within said housing so as to be released in response to a predetermined manual actuation procedure, and a medication injection cartridge assembly mounted within said housing assembly in cooperating relation with said stressed spring means, the improvement which comprises said medication injection cartridge assembly comprising

- a medicament container,
- a hypodermic needle disposed forwardly of said container mounted in a sterile condition within said housing assembly adjacent the forward end thereof,
- forward sealing means for sealing the forward end of said container from said hypodermic needle,
- a rearward piston mounted in the rearward end of said container for forward movement therein in slidably sealed relation thereto,
- a plurality of individual dosages of different relatively incompatible liquid medicaments within said container between said forward sealing means and said piston, said plurality of dosages including a forward dosage and a rearward dosage,
- movable interior sealing means within the interior of said container between said piston and said forward sealing means maintaining the individual dosages sealingly separated from one another, said interior sealing means comprising an intermediate piston between said forward and rearward dosages mounted for forward movement within said container in slidably sealed relation thereto,
- means operable in response to the manual accomplishment of said manual actuating procedure and the resultant release of said stressed spring means for moving said hypodermic needle forwardly and outwardly of said housing assembly into the muscle tissue of a patient and said piston forwardly into said container so that the plurality of individual dosages therein are moved forwardly out of sealed relation with respect to said forward and interior sealing means outwardly through said needle into the muscle tissue of the patient,
- said manual actuating procedure responsive means comprising a by-pass bulge in the peripheral wall of said container adjacent the forward end thereof of an axial extent sufficient to enable the forward movement of said rearward dosage to move said intermediate piston forwardly into a by-pass position adjacent the forward end of said container during which said forward dosage is moved forwardly and outwardly through said needle and following which the forward movement of the rearward dosage

continues through said by-pass bulge and outwardly through said needle.

4,394,864

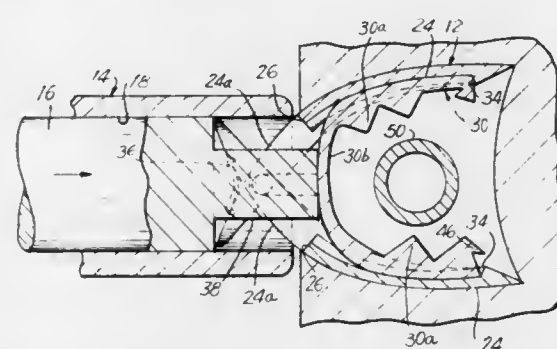
APPARATUS AND METHOD FOR EFFECTING OCCLUSION OF THE VAS DEFERENS

Jeffrey Sandhaus, Rte. 9W, Snedens Landing, Palisades, N.Y. 10964

Filed Apr. 15, 1981, Ser. No. 254,393
Int. Cl.³ A61B 17/12, 17/28

U.S. Cl. 128-321

18 Claims



15. Apparatus for occluding a vessel in a body, particularly the vas deferens in a vasectomy, comprising:

- a locking clip delivering instrument including a pair of jaw members pivotally coupled to each other for pivotal actuation between closed and open positions, said jaw members each tapering in a forward direction to a sharp point such that said clip delivering instrument, when said jaw members are in the closed position, constitutes a sharp pointed instrument capable of puncturing body tissue, said pair of jaw members defining an interior space between them for receiving a substantially U-shaped locking clip, said interior space tapering in the direction towards said pointed ends of said jaw members when said jaw members are in the closed position,
- a substantially U-shaped locking clip of the self-locking type positionable within said interior space between said jaw members such that when said jaws are in a closed position and said clip is in a position distal from said pointed ends of said jaw members, said clip is in an unlocked mode and when said instrument is actuated to an open position the clip is opened to an extent such that the vessel to be occluded is receivable therein;
- means for actuating said jaw members between closed and opened positions; and
- means for positioning the clip member within said interior space between said jaw members to a position proximal to said pointed ends of said jaw members such that when said jaw members are actuated to the closed position, said clip is closed and locked.

4,394,865

APPARATUS FOR DETERMINING LEVELS OF PHYSICAL LOADS

Georgy I. Sidorenko; Vladimir I. Stankevich; Vitaly V. Katsygin, and Georgy P. Lopato, all of Minsk, U.S.S.R., assignors to Belorussky Nauchnoissledovatel'sky Institut Kardiologii, Minsk, U.S.S.R.

Filed Jan. 8, 1981, Ser. No. 223,269
Claims priority, application U.S.S.R., May 22, 1980, 2920298; May 22, 1980, 2920300

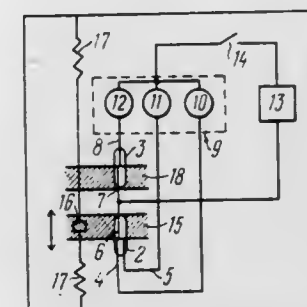
Int. Cl.³ A61B 5/10

U.S. Cl. 128-782

7 Claims

- 1. An apparatus for determining levels of physical loads, comprising:
 - a housing;
 - a seismic mass constituted by a permanent magnet;
 - elastic suspension means for securing said seismic mass in

said housing for movement in a given direction in response to movement of a user carrying the housing;
a first switching element positioned in said housing along the direction of movement of said seismic mass and constituted by a group of magnetically operated hermetically sealed changeover contacts including a normally open contact, a normally closed contact and a common contact;
a second switching element positioned in said housing along the direction of movement of said seismic mass and constituted by a pair of magnetically operated hermetically sealed normally open contacts, one of which is connected to said common contact of said first switching element;
an indicator positioned in said housing and including a first indicating element for indicating a first, minimum level of physical load and having a first terminal and a second terminal, a second indicating element for indicating a second level of physical load greater than the minimum level and having a first terminal and a second terminal, and a third indicating element for indicating a third level of physical load greater than the second level and having a first terminal and a second terminal, said first terminal of said first indicating element of said indicator being connected to said normally open contact of said first switching element, said first terminal of said second indicating



- element of said indicator being connected to said normally closed contact of said first switching element, and said first terminal of said third indicating element of said indicator being connected to the other of said normally open contacts of said second switching element;
- a power supply unit having a first output terminal and a second output terminal, said first output terminal being connected to said common contact of said first switching element; and
- a cut-out switch having a first terminal and a second terminal, said first terminal of said cut-out switch being connected to said second output terminal of said power supply unit and said second terminal of said cut-out switch being connected to said second terminals of said first, second and third indicating elements, said first and said second switching elements being positioned with respect to the direction of movement of said mass such that movement of said mass resulting from changes in levels of physical loads energizes said first indicating element when the level of physical load is less than the second level, energizes said second indicating element when the level of physical load is between said first and said third levels, and energizes said third indicating element when the level of physical load reaches the third level.

4,394,866

S-A NODE HELICAL LEAD FOR ATRIAL PACEMAKERS AND METHOD OF PLACEMENT

Howard C. Hughes, Cornwall, Pa., assignor to Research Corporation, New York, N.Y.

Filed Jan. 21, 1981, Ser. No. 226,831

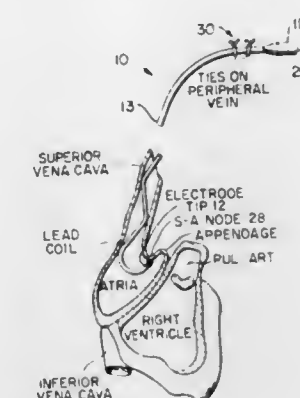
Int. Cl.³ A61N 1/04

U.S. Cl. 128-785

5 Claims

- 1. An improved electrically conductive lead for at least S-A Node Atrium Contact to provide atrium pacing and sensing comprising an electrical conductor having a lumen there through, an electrode tip, said electrode tip being electrically

connected to the electrical conductor adjacent one end of the conductor, and S-A Node helix, said helix extending from the electrode tip toward the other end of the electrical conductor



a distance of 6 to 12 inches and having at least one-and-a-half turns and a non-conductive biocompatible coating encasing the electrical conductor except the electrode tip.

4,394,867

SUCTION ARRANGEMENT IN A BOTTLE-CLEANING MACHINE FOR REMOVING OF LABELS FROM BOTTLES

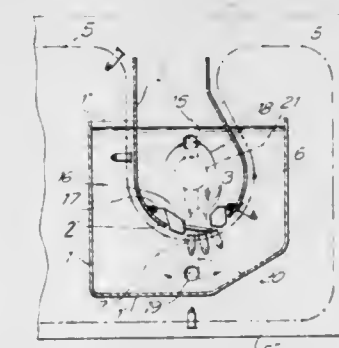
Joachim Ciongwa; Werner Heckmann, both of Dortmund; Klaus Jendrichowski, Holzwickede; Karl Quest, Dortmund; Christian Rüppell, Unna, and Wolfgang Süshardt, Dortmund, all of Fed. Rep. of Germany, assignors to Holstein und Kappert GmbH, Dortmund, Fed. Rep. of Germany

Filed Jun. 15, 1981, Ser. No. 275,514

Int. Cl.³ B08B 15/00

U.S. Cl. 134-104

7 Claims



- 1. In a bottle-cleaning machine, a suction arrangement for removing of labels from bottles comprising a label-softening container adapted to contain a liquid and having a bottom; a plurality of elongated bottle-receiving cells having each an open end for insertion of bottles with labels into the cells and for withdrawing the bottles after the labels have been removed therefrom, said bottle-receiving cells having each opposite said open end, a plurality of openings for the passage of liquid into the cells, said cells having axes and retaining the bottle in axially displaceable manner; conveyor means for transporting the cells with bottles inserted therein through said label-softening container and above its bottom; means for causing a stream of liquid from said softening container to detach and transport the labels and including wall means defining a suction compartment within said label-softening container and having a bottom portion upwardly spaced from said bottom and being formed in said bottom portion with a single opening having a width at least equal to the width of said open end of each cell as considered in the direction of movement of said cell, said conveyor means being arranged to transport said bottle-receiving cells with said open ends thereof under and closely adjacent to said bottom portion of said wall means past said single opening therein, said means for causing a stream of liquid further including means for sucking liquid from said suction compart-

ment arranged so that a stream of liquid forcedly flows upwardly from said label-softening container via said openings of said cells through said cells, then leaves said cells through said open ends thereof, flows upwardly into said suction compartment through said opening in said bottom portion of said wall means of said suction compartment, and then is discharged into said label-softening container, whereby under the action of the suction-caused stream of liquid the labels are loosened from the bottles inside said cells, transported through said open ends of the cells into said suction compartment, and then withdrawn from the latter; and means arranged above and adjacent said cells to prevent said bottles to leave said cells through said open ends under the influence of the stream of liquid passing therethrough and tending to displace the bottles.

4,394,868

HORIZONTAL DISCHARGE ASSEMBLY FOR VERTICALLY ORIENTED FIRE EXTINGUISHER

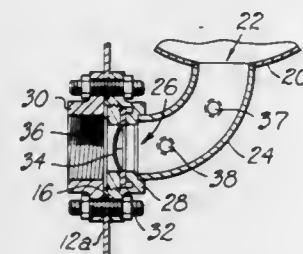
Bruce McLelland, Blue Springs, Mo., assignor to Fike Metal Products Corporation, Blue Springs, Mo.

Filed Dec. 1, 1980, Ser. No. 211,696

Int. Cl.³ F16K 13/04

U.S. Cl. 137—68 A

6 Claims



1. A horizontal discharge hazard suppression assembly, comprising:

- a tank for holding a pressurized hazard suppression material and having a lower outlet;
- an elongated, gently arcuate tubular elbow operatively secured to said tank outlet and in open communication with the interior of said tank;
- a selectively operable, rupturable disc;
- means mounting said disc in closing relationship to said elbow and adjacent the outlet end of said elbow remote from said tank;
- structure for mounting said tank and elbow adjacent a zone to be protected from hazard, with said tank being generally upright and said outlet end of said elbow being oriented generally horizontally, such that said material is disposed within said tank and elbow and bears directly against said disc; and
- means for rupturing said disc in response to the presence of a preselected hazardous condition within said zone such that said material flows directly from said outlet end of said elbow into said zone.

4,394,869

RESET CONTROLLER WITH IMPROVED INPUT MECHANISM

Gilbert H. Avery, Memphis, Tenn., assignor to Barber-Colman Company, Rockford, Ill.

Filed Dec. 16, 1981, Ser. No. 331,362

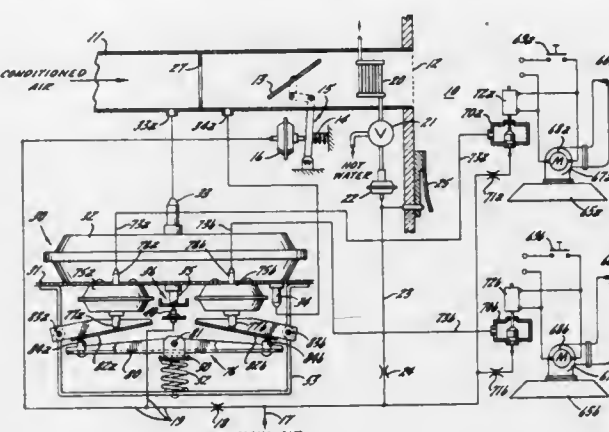
Int. Cl.³ G05D 16/06

U.S. Cl. 137—82

5 Claims

1. A pneumatic controller for providing a pneumatic control signal, said controller comprising a pneumatic control signal bleed nozzle, a flapper associated with said nozzle, means for applying a force tending to move said flapper in one direction relative to said nozzle, a bias member for applying a force tending to move said flapper in the opposite direction relative to said nozzle, said pneumatic control signal varying as a function of the position of said flapper, and mechanism for produc-

ing a force to alter the force applied by said bias member to said flapper, said mechanism comprising a pivoted lever for altering the force applied by said bias member to said flapper as said lever is swung back and forth, said mechanism further comprising first and second actuators for producing first and second forces as functions of first and second variable signals, respectively, the improvement in said pneumatic controller comprising, means for receiving said first and second forces



and for causing said lever to be positioned with a force which varies as a function of the sum of the weighted values of said first and second forces, said force receiving means comprising a second lever extending transversely of and pivotally mounted on said one lever to turn about a predetermined axis relative to said one lever, said actuators acting on said second lever so as to cause said second lever to pivot in one direction when said first force increases and to pivot in the opposite direction when said second force increases.

4,394,870

SYSTEM FOR MIXING CONCENTRATE AND WATER TO FORM FOUNTAIN SOLUTION FOR OFFSET PRINTING PRESSES

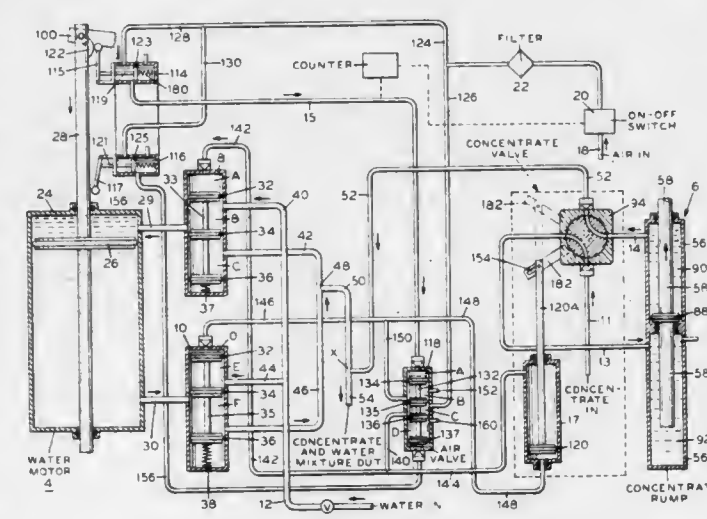
John MacPhee, Rowayton; David Wirth, Norwalk, both of Conn., and John St. John, Blue Jay, Calif., assignors to Baldwin-Gegenheimer Corporation, Stamford, Conn.

Continuation of Ser. No. 793,716, May 4, 1977, abandoned. This application Oct. 22, 1981, Ser. No. 314,012

Int. Cl.³ G05D 11/02

U.S. Cl. 137—99

5 Claims



1. A system for continuously and automatically mixing concentrate and water to form fountain solution comprising:

- (a) a water motor including a reciprocating piston having a stroke of fixed distance;
- (b) first water motor valve having first and second operating chambers;
- (c) a second water motor valve having a first and second operating chambers;
- (d) a first conduit at one end of said water motor adapted to communicate with first and second operating chambers of said first water motor valve;

- (e) a second conduit at the other end of said water motor adapted to communicate with said first and second operating chambers of said second water motor valve;
- (f) third water conduit means extending from one of said operating chambers in said first and second water motor valves;
- (g) a concentrate pump having a cylinder and piston therein and adjustable means interconnecting said water motor piston and said concentrate pump piston;
- (h) a concentrate valve in fluid communication with said concentrate pump;
- (i) a concentrate conduit extending from said concentrate valve into fluid communication with said third water conduit means to form a mixing conduit for mixing concentrate and water;
- (j) pneumatic means operatively associated with said water motor pistons and said water motor valves to move said water motor piston to cause water to flow into or out of said first and second operating chambers of said first and second water motor valves and into said third conduit means;
- (k) pneumatic means operatively associated with said concentrate pump and said concentrate valve for causing concentrate to flow through said concentrate valve and into said mixing conduit;
- (l) pneumatic valve means for actuating said pneumatic means; and
- (m) means connected to said reciprocating water motor piston for actuating said pneumatic valve means.

4,394,871

PROGRAMMABLE PRESSURE REGULATOR FOR TITANIUM SUPERPLASTIC FORMING APPARATUS

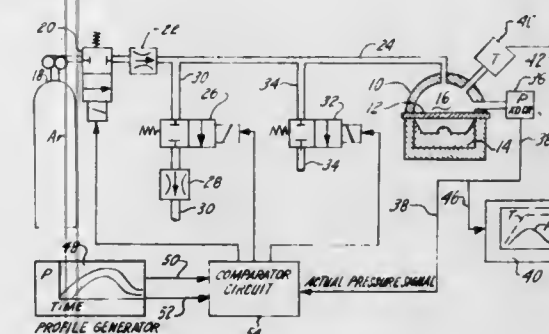
Dennis C. Czajka, and David P. Nordstrand, both of Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 31, 1980, Ser. No. 221,786

Int. Cl.³ G05D 11/00

U.S. Cl. 137—115

7 Claims



1. An apparatus for controlling gas pressure in a metal forming chamber comprising:

- a source of pressurized gas;
- first electrically responsive valve means interposed between said source of pressurized gas and said forming chamber and operable in response to an electrical signal to admit gas from said pressurized source to said forming chamber;
- second electrically responsive valve means coupled to said forming chamber, said second valve means being operable in response to an electrical signal to bleed gas from said forming chamber;
- pressure-sensing means coupled to said forming chamber, said sensing means being operable to produce a signal representative of the pressure of said gas in said chamber;
- a profile generator operable to produce time varying high and low set point signals representative of preselected upper and lower pressure limits of a series of linear profile segments, each segment enduring for a predetermined period of time during which said set point signal varies linearly from a first set point level to a second set point level;
- comparator means for comparing said electrical signal from said pressure-sensing means with each of said high and low set point signals, said comparator means operating to

apply an electrical signal to said first electrically responsive valve means in the event the difference between said electrical signal from said pressure-sensing means and said low set point signal represents a pressure in said forming chamber less than said lower pressure limit, said comparator means further operating to provide an electrical signal to said first electrically responsive valve means in the event the difference between said upper set point signal and said signal from said pressure-sensing means represents a gas pressure in said chamber greater than said upper pressure limit.

4,394,872

VALVE ASSEMBLY FOR PACKING REMOVAL

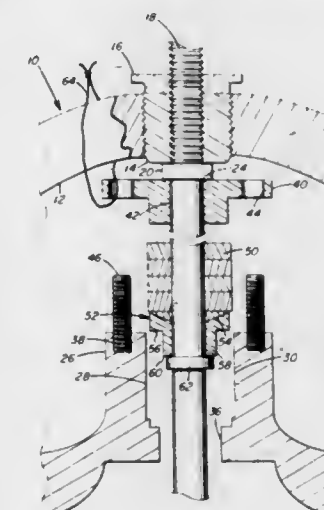
Howard T. Schobl, Coraopolis, Pa., assignor to Schobl Enterprises, Inc., Imperial, Pa.

Filed Jan. 5, 1981, Ser. No. 222,535

Int. Cl.³ F16K 41/02, 41/14

U.S. Cl. 137—315

8 Claims



1. In a valve including a valve body having a flow chamber with a valve seat therein and a closure member to move in said flow chamber relative to said seat, the combination comprising,

- a yoke supported by said valve body,
- a bonnet having a packing chamber supported by said valve body,
- a valve stem extending from said yoke through said packing chamber into said flow chamber for supporting said closure member,
- stem drive means supported by said yoke and spaced from said bonnet for displacing said valve stem in the direction of its length along said packing chamber,
- a packing gland detachably mounted and directly connected to the bonnet for slideably receiving said stem with a lower portion of said packing gland extending into said packing chamber for holding packing therein,
- said packing circumsposed about an intermediate portion of said stem within said packing chamber below said lower portion of said packing gland, and
- packing removal means circumsposed about said stem below said packing, said packing removal means including a drive ring adapted to engage a bottom portion of said packing, said packing removal means further including a collar member on said valve stem in said flow chamber to engage said drive ring independently of said closure member for displacing said packing from said packing chamber externally of said bonnet, said packing removal means applying an upwardly directed force to said packing by operation of said stem drive means after detachment of said packing gland from said bonnet.

4,394,873

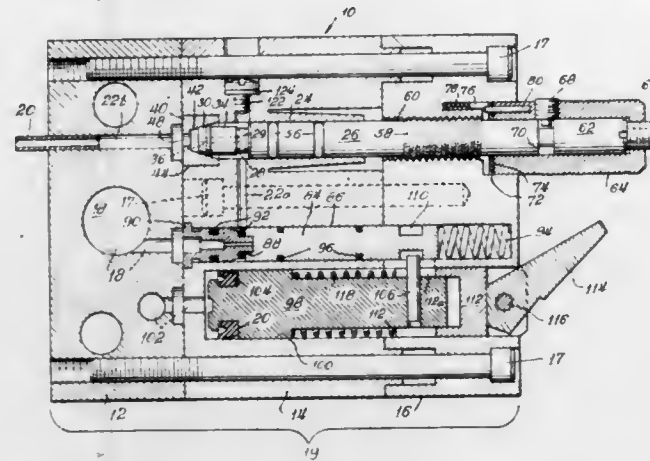
FLUID VALVE WITH COMPRESSIBLE CHANNEL
Thomas G. Switall, Wheeling, Ill., assignor to Ryco Graphic Manufacturing, Inc., Wheeling, Ill.

Filed Apr. 28, 1980, Ser. No. 145,370

Int. Cl.³ F16K 31/143

U.S. Cl. 137—613

16 Claims



1. A fluid valve for regulating the delivery of fluid through a passageway, said fluid valve comprising:
 - a. a valve seat in the passageway, said valve seat including an inside wall slightly tapered along the longitudinal axis of the passageway such that a cross-sectional dimension across said inside wall decreases in the downstream direction;
 - b. a flow adjustment member at least partially disposed in, and adjustable along the longitudinal axis of the passageway and including at its lower end a nozzle extending from and of reduced diameter relative to an upper portion of said flow adjustment member;
 - c. an elastomeric valve element in said passageway upstream of said valve seat and having a fluid conducting channel therein, at least the portion of said valve element having a cross-sectional dimension larger than the smallest cross-sectional dimension of the tapered inside wall and said valve element being attached to said flow adjustment member nozzle for adjustable movement along said valve seat so that said valve element portion will be increasingly radially squeezed as it is moved in the downstream direction while in engagement with said tapered inside wall, and said valve element will be allowed to radially expand, as it is moved by said adjustment member in the upstream direction;
 - d. a fluid conducting conduit through said flow adjustment member in fluid communication with said valve element channel; and
 - e. fluid interruption means disposed upstream of said valve element and said valve seat for interrupting the fluid flow to said passageway.

4,394,874

VALVE CONSTRUCTION FOR QUICK-CLOSURE COUPLING

Friedrich C. Walter, Karlsruhe, Fed. Rep. of Germany, assignor to Argus Verwaltungsgesellschaft mbH, Ettlingen, Fed. Rep. of Germany

Filed Apr. 10, 1981, Ser. No. 252,943

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1980, 3015485

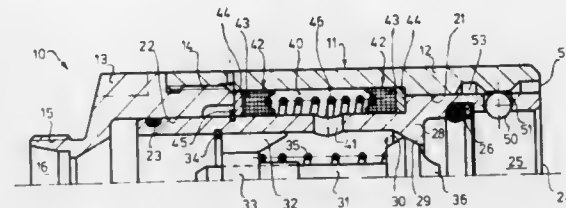
Int. Cl.³ F16L 37/28

U.S. Cl. 137—614.02

12 Claims

1. A socket valve, for use with a cooperating plug valve of a quick-closure coupling for fluid lines, comprising: a fixed housing; a sliding sleeve axially movable in said housing and having an end recess for insertion of a plug valve portion; a closure member on said sliding sleeve and biased to a closure position; an annular chamber defined between said sliding

sleeve and said housing and having one end proximal to and another end remote from said recess; at least one axially movable annular piston bounding said chamber at least at said other end thereof; locking means in the region of said recess for locking the plug valve in the latter, said sleeve being movable axially out of a securing position in which said locking means lock said plug valve, into release positions in which the locking means release the plug valve; means for admitting pressure fluid into said chamber to urge said piston to bear in said secur-



ing position of said sleeve against shoulders of said sleeve and said housing, respectively, said shoulders being annular shoulders; and biasing means urging said sleeve to said securing position, ends of said chamber being closed off with said annular piston, said piston being subjected to said fluid and effect of said biasing means, said piston being positioned for preventing parts of said coupling from separating when subjected to the force of said pressure fluid, said chamber closed off with said piston subjecting said sliding sleeve and said housing to fluid pressure for maintaining said sliding sleeve in sealing position.

4,394,875

ACTUATOR FOR A MINE ROOF SUPPORT UNIT
Walter Weirich, and Werner Grommas, both of Dortmund, Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhütte Westfalia, Lunen, Fed. Rep. of Germany

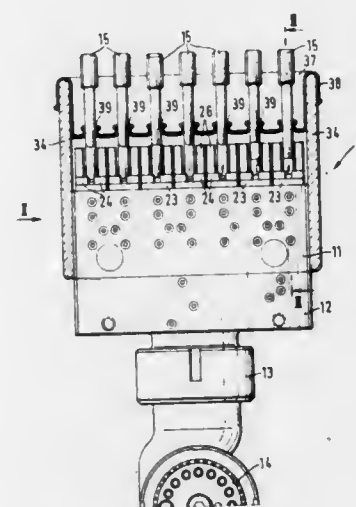
Filed Mar. 24, 1981, Ser. No. 247,029

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1980, 3012291

Int. Cl.³ F16K 31/52

U.S. Cl. 137—636.1

11 Claims



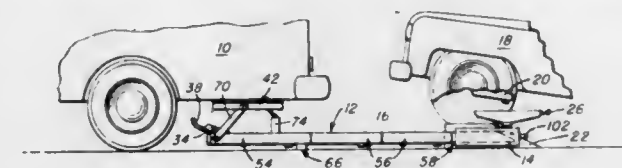
1. An actuator for use in the hydraulic control of a mine roof support unit, the actuator comprising a housing, a plurality of pairs of valves, and a respective common rocker arm for actuating the valves of each pair of valves, the valves of each pair of valves being detachably mounted in a respective pair of generally parallel bores formed in the housing, each of the rocker arms being mounted on a respective cover plate which covers the mouths of the corresponding bores, and each of the cover plates being detachably mounted on the housing, wherein a sleeve is detachably mounted on the housing, the sleeve being made of resilient material and extending away from the housing to provide a protective surrounding for the rocker arms, and wherein a resilient protective bellows is arranged on, and extends across, the sleeve, the rocker arms

4,394,877

WASTE FLUID RECEPTACLELance Whyte, 5307 Queensberry Ave., Springfield, Va. 22151
Filed Aug. 6, 1981, Ser. No. 290,525Int. Cl.³ B65B 3/04

U.S. Cl. 141—98

13 Claims



4,394,876

CONTAINER FILLING MACHINE

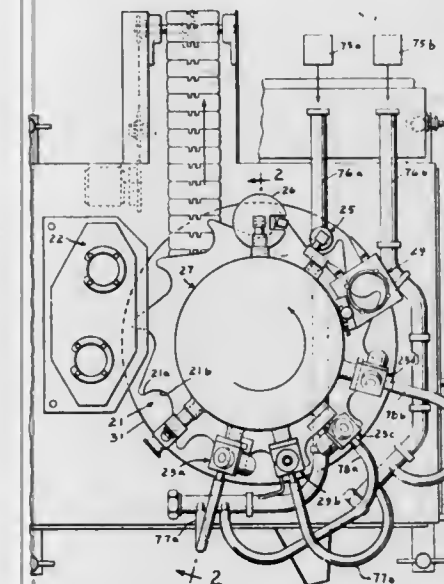
Jonathan G. Brown, Rockford, Ill., assignor to Anderson Bros. Mfg. Co., Rockford, Ill.

Filed Nov. 2, 1981, Ser. No. 316,982

Int. Cl.³ B65B 3/04

U.S. Cl. 141—137

13 Claims



1. A filling machine having a stationary support structure, conveyor means for advancing containers along a generally horizontal path with adjacent containers spaced apart a preselected pitch distance, at least one valved dispenser assembly for dispensing product into containers as they are advanced by the conveyor means, the valved dispenser assembly including a dispenser body having a product inlet and a downwardly opening product outlet and dispenser valve means on the dispenser body movable relative thereto between a closed position blocking flow from the product inlet to the product outlet and an open position for passing product from the product inlet to the product outlet, dispenser mounting means including crank means mounted on the stationary support structure for rotation about a generally horizontal crank axis and having an eccentric connected to the dispenser body to move the dispenser body in a generally upright closed loop course having horizontal and vertical components of movement, means for driving the crank means in timed relation with the conveyor means and such that the horizontal component of movement of the dispenser body is in the direction of movement of the conveyor means during the lower half of the closed loop course and in the opposite direction during the upper half of the closed loop course, fluid pressure operated valve actuator means mounted on the dispenser body for movement therewith and having an output member movable relative thereto and connected to the dispenser valve means for rapidly moving the dispenser valve means to its open position when the fluid pressure operated valve actuator means is operated to a first condition and for rapidly moving the dispenser valve to its closed position when the fluid pressure operated valve actuator means is operated to a second condition, control means for controlling application of fluid pressure to said fluid pressure operated valve actuator means to operate said fluid pressure operated valve actuator means to said first condition as the dispensing body moves through at least a portion of the lower half of its closed loop course and to operate said fluid pressure operated valve actuator means to said second condition during the remainder of the closed loop course.

4,394,878

COMBINATION PLANAR MOLDER

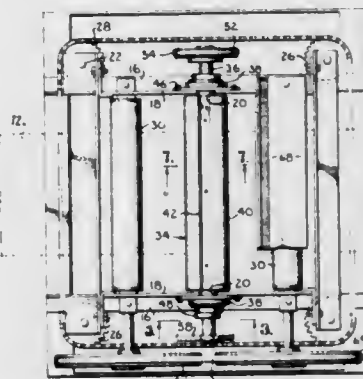
Verle L. Rice, and Dwight E. Check, both of Harrisonville, Mo., assignors to R. B. Industries, Pleasant Hill, Mo.

Filed Jul. 16, 1981, Ser. No. 283,946

Int. Cl.³ B27C 1/14

U.S. Cl. 144—131

9 Claims



1. A combination planar molder for wood comprising: a support framework; shaft means mounting either a planing knife or a molding bit; means for removably mounting said shaft means on said framework and comprising a sheave rigid with said shaft and bearing means mounted in said framework for pivotal movement and adapted to receive one end of said shaft means; prime mover means for turning said shaft means; and drive means for moving a length of wood past said planing knife or said molding bit.

4,394,879

METHOD OF REPAIRING DAMAGED KEYWAY

William A. Reynolds, 311 Graham St., Emporia, Kans. 66801

Filed Jun. 8, 1981, Ser. No. 271,678

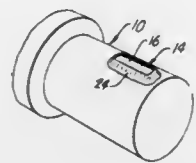
Int. Cl.³ B22D 23/00

U.S. Cl. 164—76.1

6 Claims

1. A method of repairing a deformed or damaged keyway in

a shaft or the like to provide a finished keyway having desired length and width dimensions, comprising the steps of:
providing an insert having length and width dimensions corresponding to the dimensions of the desired finished keyway;



placing said insert into the damaged keyway;
filling the free space between the defining walls of the damaged keyway and said insert with metallic weld material;
and
removing said insert.

4,394,880

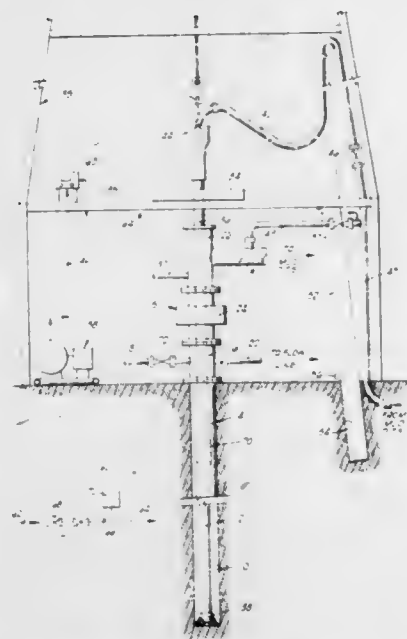
METHOD OF PREVENTING DRILL STRING OVERFLOW

Ben V. Faulkner, Rte. 1, Box 15, Washington, Okla. 73093
Continuation-in-part of Ser. No. 202,797, Oct. 31, 1980, Pat. No. 4,351,400. This application Apr. 27, 1981, Ser. No. 257,754
The portion of the term of this patent subsequent to Sep. 28, 1999, has been disclaimed.

Int. Cl.³ E21B 21/14

U.S. Cl. 175-69

5 Claims



1. A method of preventing drilling fluid overflow when adding or removing drill pipe sections to or from a drill string disposed in a well bore comprising the steps of:

introducing a gas into said drill string until a predetermined volume thereof is introduced therein;

introducing drilling fluid into said drill string after introducing said gas until a predetermined volume thereof is introduced therein and said gas is pressurized thereby displacing drilling fluid originally contained in said drill string downwardly within said drill string and upwardly within the annulus between said drill string and said well bore to lower the level of said drilling fluid in said drill string a distance such that upon releasing the introduced pressurized gas and drilling fluid from said drill string and removing drilling fluid and gas therefrom, the resulting level of drilling fluid in said drill string is below the level at which said drill pipe sections are added to or removed from said drill string;

releasing said introduced pressurized gas and drilling fluid from said drill string whereby said gas and drilling fluid flow upwardly through said drill string and drilling fluid and gas are removed therefrom; and then

adding or removing drill pipe sections to or from said drill string.

4,394,881

DRILL STEERING APPARATUS

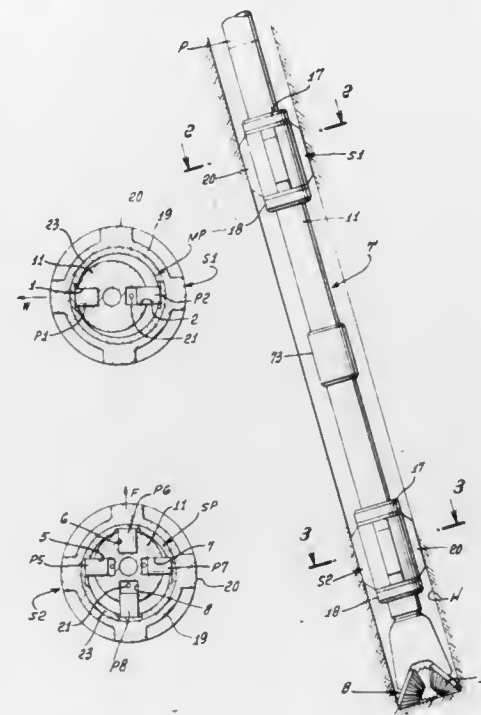
Kirk R. Shirley, 15719 Tumbling Rapids, Houston, Tex. 77084

Filed Jun. 12, 1980, Ser. No. 158,948

Int. Cl.³ E21B 7/08

U.S. Cl. 175-76

27 Claims



1. A steering tool adapted to control the angle and direction of a rotary well drilling string in the drilling of a well bore through earth formation, said tool comprising: an elongated body having an upper end connectible with the drilling string and a lower end connectible with the drilling string adjacent to the bit, a bore through said body for the flow of drilling fluid through the drilling string and the bit; master piston means adjacent the upper end of said body including a radially shiftable piston inwardly shiftable by engagement of the master piston means with the low side of the well bore wall; slave piston means adjacent the lower end of said body including a plurality of circumferentially spaced radially shiftable pistons for applying lateral thrust on the lower end of said body upon radial outward movement said body having a valve chamber between said master piston means and said slave piston means; fluid passage in said body establishing communication between said valve chamber and each of said slave piston means; and selective valve means in each of said passages between said valve chamber and said slave piston means for establishing fluid pressure communication through said valve chamber between said master piston means and selected passages between said valve chamber and said slave piston means to cause radial outward movement of a selected slave piston upon radial inward movement of said master piston.

4,394,882

CONTINUOUS CHAIN BIT WITH DOWNHOLE CYCLING CAPABILITY

Don F. Ritter, Jack A. St. Clair, and Henry K. Togami, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 17, 1981, Ser. No. 244,573

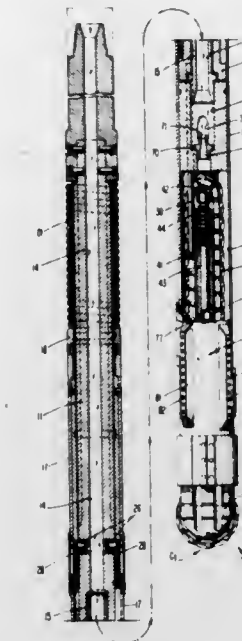
Int. Cl.³ E21B 11/06

U.S. Cl. 175-89

17 Claims

1. A continuous chain bit for hard rock rotary drilling and down hole cycling comprising:

a support body;
an auxiliary slidable drill head assembly on said body;
means for effecting rotation of the drill head assembly upon rotation of the support body;
means to shift said head assembly longitudinally relative to said body;



an endless chain on said head assembly having links for cutting into the rock and moveable along a feed path; and finger means carried by the support body to engage and hold said chain with respect to the support body while shifting said head assembly longitudinally relative to said support body, whereby said chain may be moved along the feed path and cycled to present new links for drilling.

4,394,883

WELL JAR

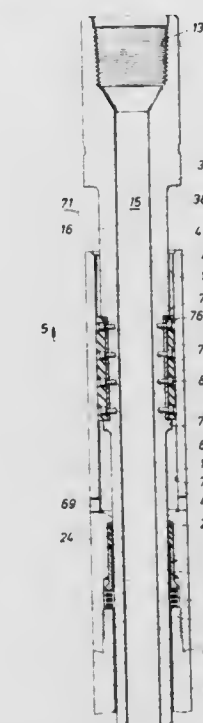
Edward L. Briscoe, Sheridan, Tex., assignor to Dailey Oil Tools, Inc., Houston, Tex.

Filed Nov. 3, 1980, Ser. No. 203,527

Int. Cl.³ E21B 31/107

U.S. Cl. 175-304

20 Claims



1. A rotary well jar subject to severe lateral and longitudinal drill string forces in a fluid-filled wellbore and the well jar having an elongate body with an axial passageway for fluid flows, the body having threaded connections at its ends for assembly into a string of well pipe, the body formed of a tubular barrel with an annulus exposed to well fluid between the mandrel and barrel, fluid seals positioned at one end of the

annulus forming an elongate chamber isolated from the fluid in the wellbore and latch means in the chamber to releasably latch the mandrel to the barrel until the latch means are selectively released for delivering an impact between hammer and anvil surfaces on the mandrel and barrel, the rotary well jar comprising;

- a plurality of individual resilient vibration snubbers longitudinally, individually mounted circumferentially around said mandrel and at an upper end of said annulus above said latch means and also aligned longitudinally in said annulus between said mandrel and said barrel;
- said snubbers spaced longitudinally from said fluid seal at a location to slideably engage with said barrel through out its telescoping movement along said mandrel;
- said snubbers disposed in circumferential spaced apart relationship about said mandrel with spaces forming flow channels therebetween in said annulus to accommodate well fluid flows when said mandrel and said barrel are rotated with the string of well pipe in the well bore;
- said snubbers having a curved exposed surface for engaging the inner surface of said barrel to dampen vibrational movements between said mandrel and said barrel during their telescoping movements for preventing injury to said fluid seals; and,
- said snubbers having a diameter, when not confined, larger than the internal diameter of said annulus to define an interference fit on positioning of said snubbers in said annulus.

4,394,884

SHOCK SUB

Uvon Skipper, 11710 Scottsdale Rd., Stafford, Tex. 77477

Filed Jul. 28, 1980, Ser. No. 172,662

Int. Cl.³ E21B 17/20

U.S. Cl. 175-321

12 Claims



1. A shock absorbing tool to be installed in a drill string above the drill bit, comprising:

- an upper mandrel which includes
 - an upper end threaded connector for connection into a drill string;
 - an outer tubular sleeve below said threaded connector and having a lower end seal around the interior thereof;
 - an inner tubular sleeve concentric within said outer tubular sleeve;
 - an annular cavity defined between said inner and outer tubular sleeves;
 - means for closing said annular cavity at the upper end;
 - alignment spline means extending axially into said annular cavity, said alignment spline means supported

interiorly of said outer tubular sleeve and further being located above said lower end seal;

(b) a lower mandrel which includes

(1) a lower end threaded connector for connection to a drill bit at the bottom of a drill string;

(2) an upstanding tubular sleeve;

(3) a bottom fitting joined to said connector and to said upstanding sleeve and further including an upwardly facing shoulder adapted to abut the lower end of said outer tubular sleeve to limit axial displacement of said outer tubular sleeve relative to said bottom fitting shoulder;

(4) a first set of splines on said upstanding sleeve meshing with a second set of splines for longitudinal displacement therebetween wherein said first and second sets of splines prevent relative rotation and permit relative axial displacement;

(5) wherein said first and second sets of splines are located for meshing above said lower end seal to define a lower fluid chamber above said lower end seal;

(6) wherein said lower end seal forms a leakproof seal against the exterior surface of said upstanding sleeve;

(7) wherein said upstanding sleeve extends above said meshed first and second sets of splines into said annular cavity to define an upper fluid chamber therein;

(8) seal means on said upstanding sleeve sealing against said upper mandrel to limit leakage from said upper fluid chamber on telescoping movement of said upstanding sleeve in said annular cavity;

(c) means for introducing a charge of compressible fluid into said annular cavity;

(d) wherein said first and second sets of splines telescope relative to one another, and said splines are constructed with a specific clearance to define a lengthwise flow path along said meshed splines between said upper and lower fluid chambers;

(e) a lengthwise axial passage for flowing drilling mud through said shock absorbing tool wherein said passage extends along the interior of said inner tubular sleeve and also serially through said upstanding sleeve and said fitting therebelow wherein said upstanding and inner sleeves telescope relative to one another and further wherein said sleeves include shoulder means exposed to mud flow along said passage;

(f) shoulder means, on exposure to drilling mud under pressure, are located and arranged to form a mud pressure depending force forcing said upper mandrel and lower mandrel apart and wherein the weight on the drill string forces said upper and lower mandrels towards each other; and

(g) wherein said upper and lower mandrels move relatively as fluid is transferred between said upper and lower fluid chambers along the flow path of said meshed splines.

4,394,885

LOAD RECEIVER WITH IMPROVED FIXING MEANS
Gilbert V. Dauge, Lagny; Jacques F. Langlais, Coudray Montereaux, and Daniel J. Quehen, Chilly Mazarin, all of France, assignors to Testut Aequitas, Paris, France

Filed Jan. 28, 1981, Ser. No. 229,156

Claims priority, application France, Feb. 4, 1980, 80 02377
Int. Cl.³ G01G 3/12, 21/23

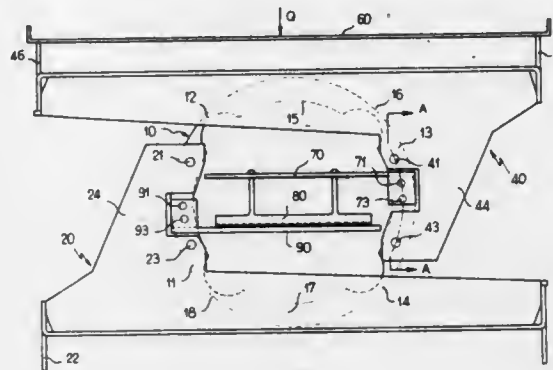
U.S. Cl. 177-210 C

8 Claims

1. A load receiver for use in a weighing scale or the like comprising:

a solid member having opposed lateral surfaces and at least one constricted zone arranged to provide an elastic response to stresses;

first and second support members, each of said support members including opposed connector portions for supporting said solid member therebetween; and



attachment means rigidly connecting said connector portions to said solid member with said connector portions in fixed spaced relationship with the lateral surfaces of said solid member.

4,394,886

STEERING GEAR WITH STEERING-ARM LEVER
Uwe Rathje, and Manfred Lappe, both of Dortmund, Fed. Rep. of Germany, assignors to O&K Orenstein & Koppel Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed Jan. 28, 1980, Ser. No. 116,358

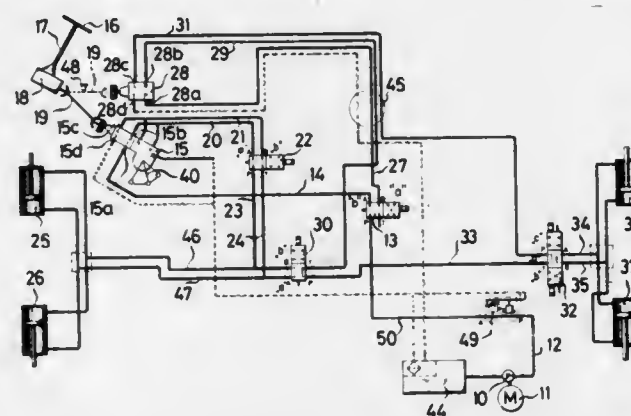
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902927

The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.

Int. Cl.³ B62D 5/08

U.S. Cl. 180-140

4 Claims



1. A steering gear with pitmans arm, steering tie rod and steering gear connecting rod for a vehicle which is drivable on the road and in terrain on wheels, with a steering mechanism which is actuated selectively hydraulically supported mechanically or purely hydraulically by means of hydraulic cylinders and electromagnetic valves, and a universal shaft which is connected with the steering wheel changing from the hydraulically supported system over to the purely hydraulically operating system by selectively connecting said universal shaft with one of two systems which serve the actuation of the steering mechanism, wherein in combination one of said systems comprises a steering transmission and the other of said systems includes a steering valve, said steering transmission and said steering valve being selectively actuated by said steering gear by selective connection with said universal shaft, respectively, said hydraulic cylinders include hydraulic cylinders of a front axle and hydraulic cylinders of a rear axle of the vehicle, further comprising

a hydraulic pump operatively connected to both of said systems,

motor means for driving said pump,

a plurality of control valves,

a flow control- and pressure limit-valve,

first conduits and said flow control- and pressure limit-valve connecting said pump to a first of said control valves,

a first line being connected to said first control valve and to said steering transmission,

second lines are connected to said steering transmission and to a second of said control valves, said second control valve constituting a two-way control valve,

third lines connecting said second control valve operatively with said hydraulic cylinders of the front axle of the vehicle,

a fourth line being connected to said first control valve and to said steering valve,

a fifth line being connected to said steering valve and a third of said control valves,

a sixth line being connected to said hydraulic cylinders of the front axle,

a seventh line being connected to said steering valve and to a fourth of said control valves,

an eighth line being connected to said third and fourth control valves,

a ninth line being connected to said third control valve and to said hydraulic cylinders of the front axle,

two tenth lines connecting said fourth control valve with said hydraulic cylinders of the rear axle,

said hydraulic cylinders of said rear axle including pistons and piston rods connected thereto, each of said hydraulic cylinders in cooperation with said pistons defining a piston-side chamber and a piston-rod-side chamber,

one of said tenth lines connects to said piston-side chamber of one of said hydraulic cylinders of the rear axle and to the piston-rod-side chamber of the other of said tenth lines connects to the piston-rod-side chamber of said one of said hydraulic cylinders of the rear axle and the other of said tenth lines connects to the piston-rod-side chamber of said one of said hydraulic cylinders of the rear axle and to the piston-side-chamber of the other of said hydraulic cylinders of the rear axle,

a first selective operative pressurized oil flow path comprising in order: said first conduits and said flow control- and pressure limit-valve to said first control valve, said fourth line, said steering valve, said fifth line connecting to said third control valve, said third control valve, said eighth line, said fourth control valve and said another of said tenth lines connecting to the piston-rod-side chamber of said one of said hydraulic cylinders of the rear axle and to the piston-side chamber of the other of said hydraulic cylinders of the rear axle,

a second selective operative pressurized oil flow path comprising in order: said first conduits and said flow control- and pressure limit-valve to said first control valve, said fourth line, said steering valve, said seventh line connecting to said fourth control valve, said fourth control valve, said one of said tenth lines connecting to the piston-side chamber of said one of said hydraulic cylinders of the rear axle and to the piston-rod-side chamber of the other of said hydraulic cylinders of the rear axle,

said steering wheel, said steering column and said universal shaft constituting means for selecting one of said first and second selective operative pressurized oil flow paths, respectively, depending on the turning of said steering wheel,

other selective operative pressurized oil flow paths through selective of said lines and selective of said control valves to said hydraulic cylinders of said front axle, and respectively, to said hydraulic cylinders of said rear axle, said control valves being selectively switched such that any one of said selective operative pressurized oil flow paths is operative with flow of pressurized oil therethrough.

4,394,887

LADDER STANDOFF DEVICE

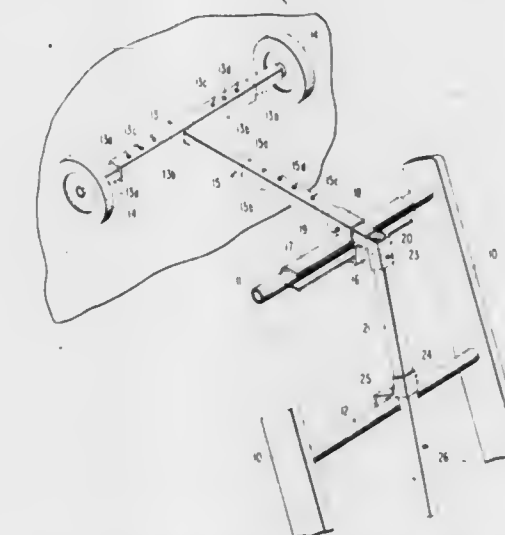
Donald E. Spinks, 2808 Genessee Ave., West Palm Beach, Fla. 33409

Filed Oct. 5, 1981, Ser. No. 308,871

Int. Cl.³ E06C 7/48

U.S. Cl. 182-214

10 Claims



1. A ladder standoff device adapted to be readily attached to and detached from a ladder and adapted, when attached, to be manually varied in position by a person standing on the ladder thereby to vary the orientation of the ladder relative to an adjacent wall structure, said device comprising an elongated axle member having a pair of wheels rotatably mounted at opposing ends thereof for selective rolling engagement with and along a wall structure adjacent the ladder, an elongated standoff bar one end of which is attached to said axle member at a position between said wheels, said standoff bar extending away from said axle member at substantially right angles thereto, first attachment means on said standoff bar, said first attachment means comprising fixed abutment means attached to said standoff bar and extending outwardly of said standoff bar, said fixed abutment means being adapted to be positioned adjacent one side of a rung of the ladder, and movable abutment means adapted to be variably positioned along said standoff bar relative to the opposite side of the ladder rung in opposed relation to said fixed abutment means, said fixed and movable abutment means cooperating with one another to provide a pivotal attachment of said standoff bar on the said ladder rung, handle means attached to the other end of said standoff bar, said handle means being operative upon manual manipulation to pivot said standoff bar about said pivotal attachment thereby to vary the position of said axle member and wheels relative to the adjacent wall structure, and second attachment means mounted on said handle means for selective releasable engagement with a portion of the ladder spaced from the said ladder rung to lock said standoff device against pivotal movement about the said ladder rung.

4,394,888

BRIDGING BAR ATTACHMENT MEANS FOR BI-ELEVATIONAL PLATFORM LIFT

David E. Clarke, St. Charles, Ill., assignor to Advance Lifts, Inc., St. Charles, Ill.

Filed Jun. 5, 1981, Ser. No. 270,995

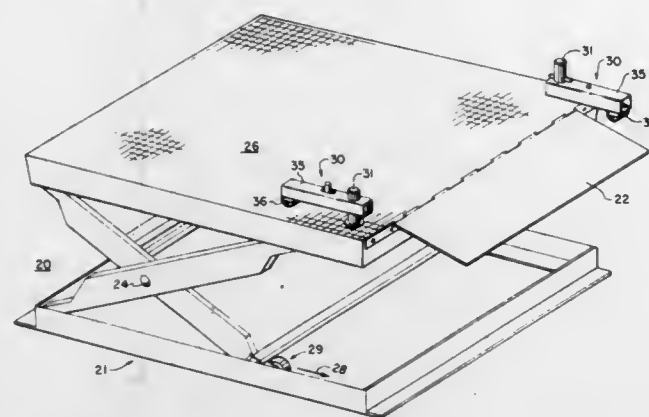
Int. Cl.³ B66B 9/00

U.S. Cl. 187-1 R

6 Claims

1. Bridging bar attachment means for use with bi-elevational platform lifts having a platform member which is pivotally attached on one end portion thereof and the opposite end portion thereof being free for angular movement to present desired angular positions of the platform member including in combination post means connectible to the platform level approximate to the free end portion thereof and extending upwardly generally perpendicularly therefrom to a predetermined

mined height, bridging bar frame means being pivotally connected to the post means and extending generally perpendicularly therefrom to define a free end portion thereof, the bridging bar frame means including on the free end portion thereof generally rounded and protruding shoulder means having a rounded contact surface thereon, the bridging bar frame means being pivotal with respect to the post means to be selectively positioned in a first extended position extending outwardly from the free end portion of the platform member, first restraining means for restraining the bridging bar frame means against movement with respect to the post means with the



bridging bar frame means in the first extended position thereof, the bridging bar frame means alternatively being selectively positioned in a second and non-extending position with respect to the platform member, and second restraining means for restraining the bridging bar frame means against movement with respect to the post means with the bridging bar frame means in the second non-extended position whereby with the bridging bar frame means extended from the platform member, the bridging bar frame means are useful to suspend the free end portion of the platform member from an adjacently spaced vertically offset loading level.

4,394,889

MODIFIED SLOWDOWN AND BRAKING OF AN ELEVATOR CAR

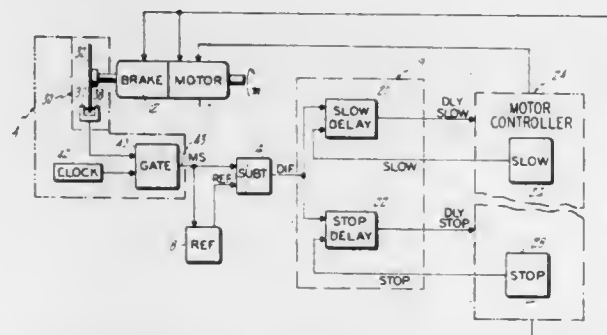
John E. Gray, Milperra, Australia, assignor to Otis Elevator Company, Farmington, Conn.

Filed Mar. 25, 1980, Ser. No. 261,240

Claims priority, application Australia, Apr. 5, 1979, PD8347 Int. Cl.³ B66B 1/32

U.S. Cl. 187—29 R

21 Claims



1. An elevator system comprising a car, a motor, having a shaft coupled to the car, and brake system for stopping the car, a motor and brake operation control system including a system for generating a control signal to initiate car stopping operations at a fixed distance from each floor based upon a predetermined maximum car velocity (V MAX), and a load compensating system for modifying said operation based upon actual car velocity (V), said elevator system characterized in that said compensating system comprises:

a motor speed sensor coupled to the motor shaft for producing, at least once during each motor revolution, a digital

motor speed (MS) signal reflecting V in relation to the angular velocity of the shaft, a reference signal generator for producing a predetermined digital reference (REF) signal manifesting the motor speed at V MAX, means for producing, from said REF and MS signals, a difference (DIF) signal reflecting the difference between V MAX and V, and means triggered by the control signal from the motor and brake operation system and responsive to said DIF signal for initiating the stopping operations after a delay following production of said control signal and for varying said delay in proportion to the difference between V MAX and V reflected by said DIF signal.

4,394,890

AUTOMATIC SLACK ADJUSTER

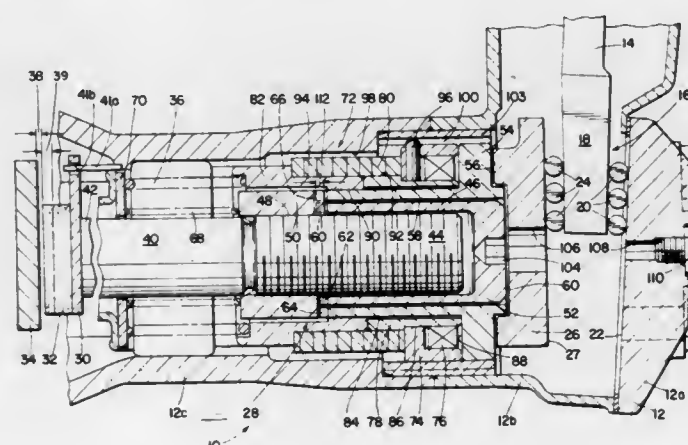
Charles W. Kleinhagen, Jr., Battle Creek, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Aug. 3, 1981, Ser. No. 289,030

Int. Cl.³ F16D 65/56

U.S. Cl. 188—71.9

28 Claims



1. An automatic, clearance sensing slack adjuster for maintaining a predetermined running clearance between the selectively engageable and disengageable friction surfaces of a brake comprising:

a housing;
a displaceable brake actuation means displaceable relative to said housing;
a rotatable driving member rotationally received in said housing;
means for rotating said driving member in response to greater than predetermined displacement of said brake actuation means;
a rotatable driven member rotationally received in said housing, said driven member rotatable relative to said driving member;
a rotatable adjustment member rotationally received in said housing, rotation of said adjustment member in a given direction of rotation effective to decrease slack in the brake and in the other direction of rotation to increase slack in the brake;
a normally engaged positive clutch for rotationally coupling said rotatable adjustment member to said driven member;
a force limiting friction clutch for rotationally coupling said driving member to said driven member, the torque transfer capacity of said force limiting friction clutch when rotating said driven member in the direction of rotation which will cause said adjustment member to be rotated in said given direction of rotation being greater than the torque required to rotate said adjustment member when said brake friction surfaces are not in contact but being less than the torque required to rotate said adjustment member when said brake friction surfaces are in contact; and
means accessible from the exterior of said housing for disengaging said normally engaged positive clutch and for

simultaneously rotating said rotatable adjustment member. juster and thereadably connected to the cam member, and an adjusting gear engaged with said adjusting rod and rotated to

4,394,891
DISC BRAKE

Harumi Oshima, Kawasaki, Japan, assignor to Tokico Ltd., Kawasaki, Japan

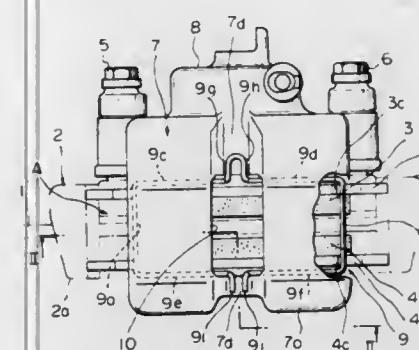
Filed Jan. 12, 1981, Ser. No. 224,486

Claims priority, application Japan, Jan. 19, 1980, 55-5018; Mar. 11, 1980, 55-31672[U]

Int. Cl.³ F16D 65/02

U.S. Cl. 188—73.38

4 Claims



1. A disc brake comprising a carrier adapted to be secured to a non-rotatable part of a vehicle and having two circumferentially spaced arm portions which straddle respectively the outer circumference of a rotatable disc, a pair of friction pads positioned on backing plates supported on said arm portions of the carrier to slide in the direction of the axis of the disc, a caliper mounted on the carrier to slide in the direction of the axis of the disc, said caliper including a brake actuator for applying one friction pad against one surface of the disc, said caliper having a limb portion straddling the outer circumference of the disc and engaging with the other friction pad to apply the same against the other surface of the disc, and a pad spring formed of a rod member and being retained on the caliper to bias the friction pads in the radially inward direction with respect to the disc, said backing plates having hook portions formed thereon which engage with the pad spring to retain and suspend the pad backing plates when the caliper has been disassembled from the carrier.

4,394,892

AUTOMATED BRAKING-GAP ADJUSTER SYSTEM FOR MECHANICAL DRUM BRAKE

Mitsutoyo Mizusawa, Ueda; Masayuki Seki, Tateshina, and Kazuo Sunohara, Ueda, all of Japan, assignors to Nisshin Kogyo Kabushiki Kaisha, Ueda, Japan

Filed Mar. 23, 1981, Ser. No. 246,185

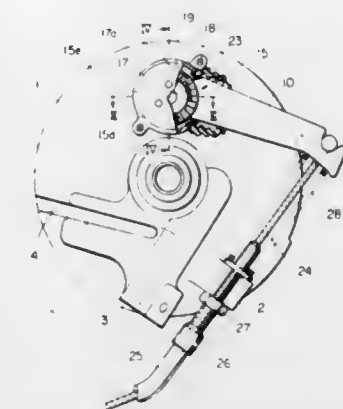
Claims priority, application Japan, Mar. 31, 1980, 55-41863; Mar. 31, 1980, 55-42952[U]; Mar. 31, 1980, 55-42953[U]; Mar. 31, 1980, 55-42954[U]; Mar. 31, 1980, 55-42955; Jan. 27, 1981, 56-9110[U]

Int. Cl.³ F16D 65/56

U.S. Cl. 188—196 BA

17 Claims

1. An automated braking-gap adjuster system for mechanical drum brakes, including a back plate, a pair of brake shoes each having one end pivotally supported on the back plate, a cam member interposed between the other end of the brake shoes and adapted to be rotated by a brake arm, a wedge adjuster having its tapered cam surfaces taking sliding abutment upon the brake shoes, said adjuster being disposed in the cam member such that it is rotatable with the cam member and slidable at right angles to the direction of expansion of the brake shoes when braking, an adjusting rod abutting upon the wedge ad-



cause said adjusting rod to move longitudinally so that said wedge adjuster is urged to thereby expand said brake shoes.

4,394,893

ENGINE SHUT-OFF SYSTEM WITH FLYWHEEL BRAKING

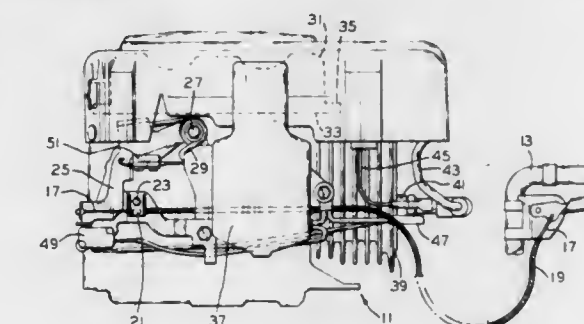
Peter G. Kronich, Sheboygan, and Dan R. Arendt, Belgium, both of Wis., assignors to Tecumseh Products Company, Tecumseh, Mich.

Filed Nov. 7, 1980, Ser. No. 205,010

Int. Cl.³ B60K 41/20

U.S. Cl. 192—1

25 Claims



1. A safety device for an internal combustion engine powered implement having a deadman control normally biased toward a first position and actuatable by an implement operator to a second position comprising:

a flywheel coupled to the engine crankshaft for rotation therewith;
a braking member having a friction surface normally biased into engagement with an annular surface of the flywheel, biasing of the deadman control and the biasing of the braking member both being accomplished by one coil spring, the braking member comprising a friction surface supporting lever, a pivot pin fixed relative to the engine pivotably supporting the friction surface supporting lever near one end thereof, the coil spring encircling the pivot pin and having one end fixed relative to the engine and the other end fixed relative to the friction surface supporting lever;
means coupling the braking member to the deadman control for retracting the frictional surface out of engagement with the flywheel annular surface upon movement of the deadman control to the second position;
a pair of electrical switches actuated by movement of the braking member, one of the electrical switches being actuated by movement of the braking member toward its engine engaging position to disable the engine ignition system.

4,394,894

MACHINE FOR MACHINING PANELS, PLANKS AND SECTIONS OR SIMILAR, IN PARTICULAR FOR WOOD AND THE DERIVATIVES THEREOF

Giuseppe Gemmani, Rimini, Italy, assignor to SCM Finanziaria S.p.A., Rimini, Italy

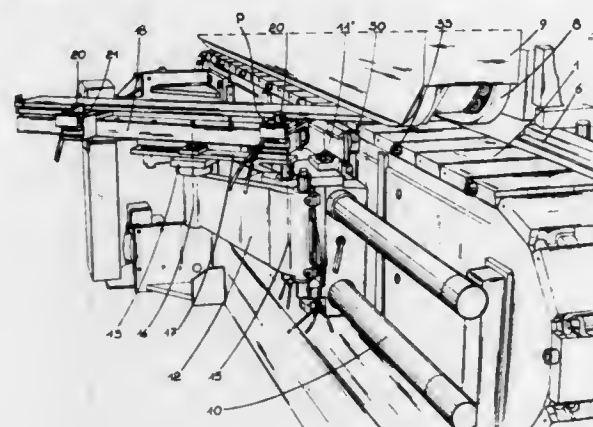
Filed Oct. 24, 1980, Ser. No. 200,075

Claims priority, application Italy, Oct. 25, 1979, 3519 A/79

Int. Cl.³ B65G 47/00

U.S. Cl. 198—339

13 Claims



1. Machine for machining workpieces, such as panels, planks and sections or similar, in particular for wood and the derivatives thereof, said machine comprising:

- conveying means for conveying workpieces in an infed direction along a conveying line;
- gripping means disposed above and cooperating with said conveying means for gripping workpieces being infed;
- a plurality of operating stations fixed in position along said conveying line for performing machining operations on workpieces being infed by said conveying means and said gripping means;
- carriage means cooperating with said conveying means for supporting and for infeeding workpieces, said carriage means being positioned at the side of the conveying means and being movable in the infed direction and in a return direction opposite the infed direction, said carriage means supporting a support surface for supporting a portion of a workpiece projecting laterally from the conveying means, and having means for adjusting the lateral spacing between said support surface and said conveying means to accommodate different size workpieces; and
- means for coupling said carriage means with said conveying means for conjoint movement therewith.

4,394,895

FACILITIES FOR THE EXAMINATION OF RADIOACTIVE BODIES

Maurice E. Ginniff, Seascale, and Eric K. Richardson, Sale, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

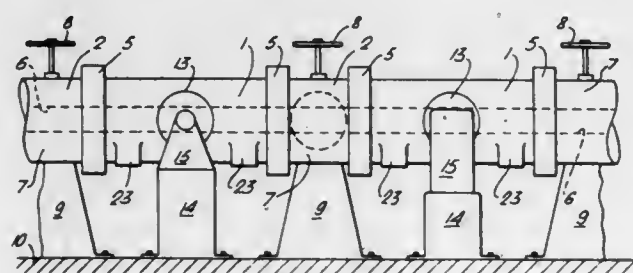
Filed Jan. 12, 1981, Ser. No. 224,116

Claims priority, application United Kingdom, Jan. 23, 1980, 8002193

Int. Cl.³ B65G 51/26, 54/02

U.S. Cl. 198—339

3 Claims



1. Facility for the examination of radioactive bodies com-

prising a movable carriage having means for supporting and transporting at least one radioactive body, a relatively thick radioactive shield having the property of shielding substantially all radioactive emissions, said shield surrounding and defining a shielded passage forming a path of travel for the carriage and having a transverse dimension to substantially fit about a corresponding dimension of the carriage, a plurality of examination stations spaced along the path of travel with said stations being confined within the dimensions of the shielded passage, examination equipment for said stations located outside the said shield at each examination station and in communication with its respective examination station within the shielded passage and means for moving the carriage along the shielded passage.

4,394,896

BACKLOG CONTROL SYSTEM FOR PROCESSING MACHINE

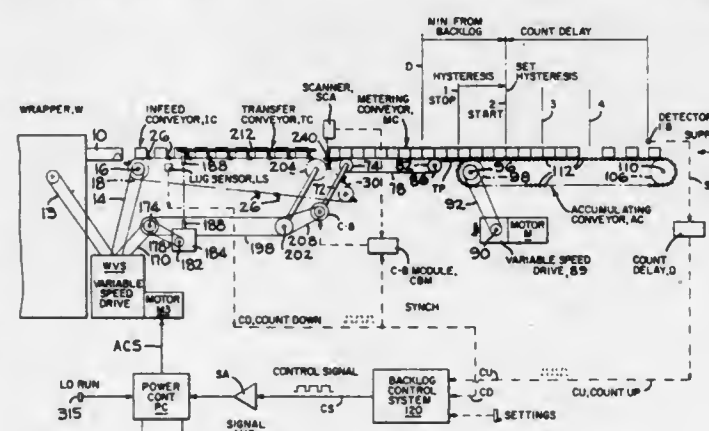
Jerry L. McComas, Sunnyvale, Calif., and Donald C. Crawford, Green Bay, Wis., assignors to FMC Corporation, Chicago, Ill.

Filed Jul. 29, 1980, Ser. No. 168,834

Int. Cl.³ B65G 43/00

U.S. Cl. 198—341

9 Claims



1. The method of controlling a backlog of articles supplied to a variable speed article processing machine; said method comprising the steps of serially removing unprocessed articles from the backlog and introducing them to the machine at a rate that is synchronized with machine speed, effecting a count corresponding to each article being removed from the backlog, randomly supplying unprocessed articles to a conveyor for addition to the backlog, counting each article being thus supplied at a point upstream of a selected maximum backlog position, delaying the transmission of each article supply count by a length of time equal to that required for the conveyor to transport an article from said upstream point to said selected backlog position for providing a delayed count, taking the difference between said delayed counts and said backlog removal counts and controlling machine speed on the basis of said count difference.

4,394,897

PALLET REGISTRY MECHANISM AND TRANSFER LIFT SYSTEM

John H. Brems, 32867 White Oaks Trail, Birmingham, Mich. 48010

Filed Nov. 14, 1980, Ser. No. 206,701

Int. Cl.³ B65G 47/00

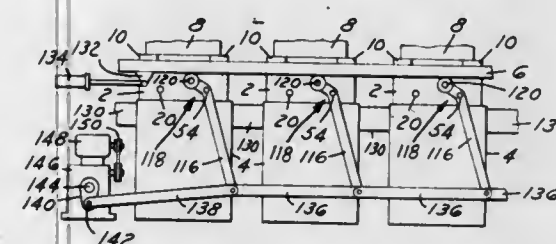
U.S. Cl. 198—345

4 Claims

1. In a multiple station transfer machine in which workpieces are located and supported in pallets, and in which said pallets are moved in sequence through said machine, utilizing, in part, vertically moving transfer means, interrelated registry mechanisms for locating and clamping said pallets, each of which comprises:

- (a) a registry frame,
- (b) one or more locating pin means slidably mounted in said

- frame to engage corresponding locating holes in said pallet,
- (c) clamping means for said pallet movably mounted in said frame,
- (d) energy storage means mounted in said frame,
- (e) mechanical means interconnecting said energy storage means with said locating pin means and with said clamping means to sequentially engage said locating pins in said holes in said pallet and clamp said pallet to said registry frame, and that improvement which comprises:
- (a) external actuating means for said registry interconnected with and operating said mechanical means to retract said clamping means from said pallet and thereafter to disengage said locating pin means from said holes, said external actuating means comprising a shaft rotatable about an axis



extending transversely to the line of transfer of said transfer machine and having a short actuator arm extending therefrom, and

- (b) lift means for said transfer means substantially contiguous with said external actuating means and operatively associated with said external actuating means comprising a lever having a fulcrum portion rotatable on said shaft, said lever having a long arm on one side of said fulcrum to be actuated by a power system, a first short arm on the other side of said fulcrum to contact and actuate said actuator arm to rotate said shaft, and a second portion eccentric to said shaft to provide a lift member for said transfer means, said lift means being sequentially interrelated with said clamping means and said locating pin means to raise said transfer means after said clamping means are retracted and said locating pin means are disengaged.

4,394,898

METHOD AND APPARATUS FOR PROVIDING BALANCED STACKS OF DIAPERS

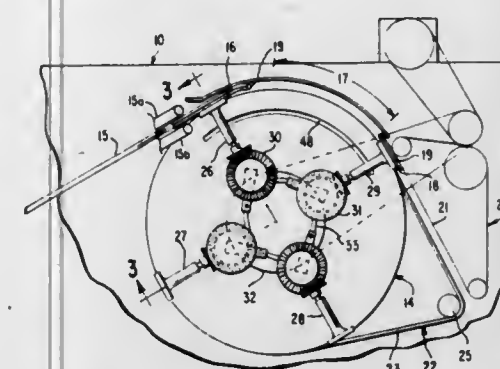
James F. Campbell, Green Bay, Wis., assignor to Paper Converting Machine Company, Green Bay, Wis.

Filed Apr. 23, 1981, Ser. No. 256,915

Int. Cl.³ B65G 47/24; B65H 289/24

U.S. Cl. 198—374

14 Claims



1. A method of arranging diapers for balanced stacking comprising advancing a series of diapers all in a particular orientation along a predetermined path toward a rotating drum, vacuum gripping each diaper in sequence for travel on said drum, rotating alternate diapers in said series 90 degrees to the right about an axis extending radially of said drum and rotating the remaining diapers in said series 90 degrees to the left also about an axis extending radially of said drum, and removing said series of diapers from said drum before completion of a drum rotation to provide a stream of diapers for

stacking wherein each diaper is oriented 180 degrees relative to the next adjacent diaper.

4. Apparatus for orienting diapers and the like comprising a frame, a drum mounted on said frame, means on said frame for rotating said drum, means operably associated with said frame for delivering a series of diapers to the surface of said drum for travel thereon, means for removing said series after traveling on said drum, said drum being equipped with an even-numbered plurality of turning devices for vacuum engagement of said diapers, and said drum being equipped with means for rotating alternate of said turning devices 90 degrees in one direction and the remaining turning devices 90 degrees in the opposite direction whereby adjacent diapers on said removing means are oriented 180 degrees relative to each other, to facilitate balanced stacking.

4,394,899

ARTICLE GROUPING APPARATUS

Rene Fluck, Schleithelm, Switzerland, assignor to SIG - Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

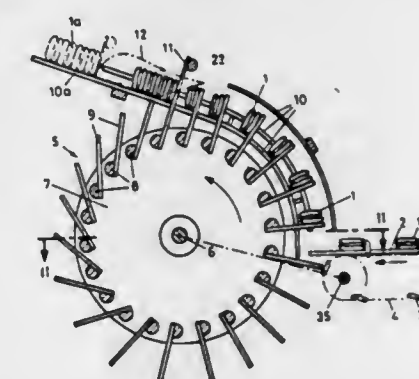
Filed Dec. 5, 1980, Ser. No. 213,724

Claims priority, application Switzerland, Dec. 13, 1979, 11066/79

Int. Cl.³ B65G 29/00

U.S. Cl. 198—408

8 Claims



1. In an apparatus for forming groups of upright-oriented, stacked articles, including a supply conveyor for advancing the articles in a flat-lying, spaced relationship; the improvement comprising

- (a) a conveyor wheel supported for rotation about a wheel axis and situated adjacent said supply conveyor;
- (b) means for rotating said conveyor wheel;
- (c) a plurality of transfer pushers pivotally secured to said conveyor wheel in a circular array about said wheel axis; said transfer pushers extending, from their pivotal attachment, in a direction oriented away from said wheel axis; said transfer pushers being arranged for consecutively lifting off flat-lying articles from said supply conveyor and for conveying the articles in a curvilinear path from an upstream end to a downstream end thereof;
- (d) guiding means for imparting a pivotal motion to said transfer pushers during their travel along said curvilinear path; said guiding means including
- (1) a plurality of pivot shafts rotatably mounted in said conveyor wheel in a circular array about said wheel axis and in an orientation parallel to said wheel axis; said transfer pushers being mounted to a respective said pivot shaft;
- (2) a crank arm attached to each pivot shaft;
- (3) follower means carried on each crank arm; and
- (4) a control disc supported adjacent said conveyor wheel; said control disc including a closed cam track into which project said follower means of said crank arms; the course of said closed cam track being such that upon rotation of said conveyor wheel the ends of said transfer pushers remote from their pivotal attachment are closer

- to one another in the zone of said downstream end than in the zone of said upstream end of said curvilinear path;
- (e) a guide track having a first, circularly arcuate portion coinciding with said curvilinear path; said first portion having a clearance through which said transfer pushers project for advancing articles by sliding the articles in an upright position along said first portion of said guide track; said guide track having a second portion adjoining said first portion and extending tangentially thereto in an upwardly sloping orientation; said second portion of said guide track constituting a gathering channel adjoining the downstream end of said curvilinear path for receiving articles from said transfer pushers in an upright orientation;
- (f) a gathering mechanism including a gathering pusher and moving means for displacing said gathering pusher in a closed orbital path for periodically engaging and advancing a group of upright-oriented, face-to-face arranged articles along said gathering channel from said downstream end; and
- (g) synchronizing means connected to said transfer pushers and said gathering pusher for mechanically coupling selected transfer pushers with said gathering pusher by interfitting engagement of said synchronizing means for synchronizing the motion of said gathering pusher with each said transfer pusher.

4,394,900

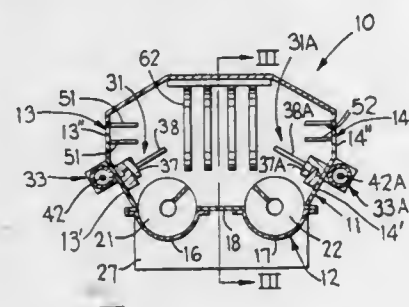
CENTRAL SYSTEM ELEVATOR

Roger T. Becker; John W. Hathaway, and J. Michael Harbour, all of Kalamazoo, Mich., assignors to Kalamazoo Conveyor Company, Kalamazoo, Mich.

Filed Jan. 12, 1981, Ser. No. 224,356

Int. Cl.³ B65G 37/00

U.S. Cl. 198—614



1. An elongated inclined conveyor apparatus for advancing and elevating solid materials, such as a mixture of large and small material pieces, for example fine and large metal chips and turnings, in a lengthwise direction along the conveyor apparatus, comprising:

elongated trough means disposed so as to incline upwardly relative to the horizontal, said trough means having a lower end for receiving therein said materials and an upper end for discharge of said materials, said trough means having wall means defining a generally channel-shaped trough having a bottom wall and a pair of generally upwardly projecting side walls, said bottom wall having means defining a substantially semicylindrical recess which opens upwardly and extends lengthwise along the trough;

first conveyor means movably disposed within and extending lengthwise of said trough for moving small materials upwardly along the trough, said first conveyor means including elongated helical flight means disposed in said recess means and being rotatable about the lengthwise axis;

first drive means operatively connected to said helical flight means for effecting rotation thereof in such direction as to cause the materials engaged by said flight means to be moved upwardly along said trough toward the upper end thereof;

second conveyor means movably disposed within and ex-

tending lengthwise along said trough for moving larger materials upwardly along said trough, said second conveyor means including first and second reciprocating conveyors extending lengthwise of said trough in parallel relationship with one another and supported for reciprocating lengthwise movement therein;

each of said first and second reciprocating conveyors including support means fixed to said wall means and defining an elongated path which extends in the lengthwise direction of said trough, an elongated support extending lengthwise of said trough and being guidably supported on said support means for linear reciprocal movement, and a plurality of material engaging elements mounted on said support at longitudinally spaced locations therealong, said material engaging elements having a configuration for engaging and advancing the materials upwardly along the trough during the forward stroke of the respective conveyor while permitting the material engaging elements to slidably move past the materials during the rearward stroke; said material engaging elements as associated with each of said first and second reciprocating conveyors projecting generally into the interior of said trough, and said material engaging elements as associated with the respective first and second reciprocating conveyors being spaced laterally a substantial distance apart to permit the positioning of said materials therebetween; and

second drive means drivingly connected to said first and second reciprocating conveyors for effecting linear reciprocation thereof in generally parallel relationship to the lengthwise direction of said trough.

4,394,901

MODULAR PLASTIC CONVEYOR BELT

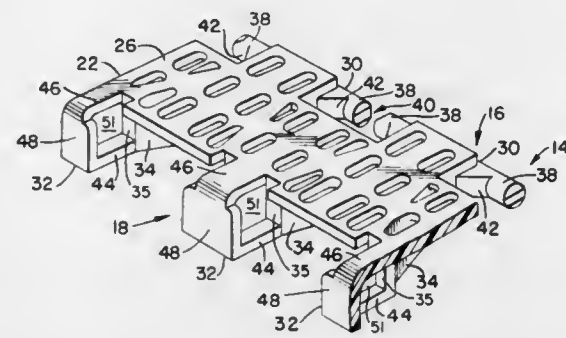
Gerald C. Roinestad, Winchester, Va., assignor to Ashworth Bros., Inc., Fall River, Mass.

Filed Dec. 16, 1980, Ser. No. 217,205

Int. Cl.³ B65G 15/30

U.S. Cl. 198—850

18 Claims



1. A modular plastic conveyor belt for conveying articles in a conveying direction comprising a plurality of plastic belt modules releasably connected to one another to form an extended belt, each module being formed of a single integral piece of plastic material bendable in a direction away from a plane in the conveying direction and having an upper surface, a lower surface, a first and a second end extending transversely of the conveying direction of the belt and a pair of opposed sides, a plurality of male members disposed along substantially the entire first end, and a plurality of female members disposed along substantially the entire second end for receiving and connecting to said male members of an adjacent connected module, each female member being shaped and dimensioned to delimit a connecting space within which the male members of an adjacent connected module can be shifted both laterally and longitudinally, means formed integral with said modules for laterally aligning adjacent modules when a tractive load is placed on the belt, each of said female members completely surrounding without a gap at least a portion of a respective male member in the aligned position and each of said male members along one of their sides being removed from the

surrounding relationship of said female members in a position wherein adjacent modules are shifted laterally whereby adjacent modules can be uncoupled by bending one of the modules in a direction away from a plane in the conveying direction to uncouple the laterally shifted male members from said female members.

4,394,902

OFFSET DEVICE FOR ARRANGING ALONG TWO PARALLEL LINES, ARTICLES WHICH ARRIVE FROM A SINGLE LINE

Guido Mazzoni, Busto Arsizio, Italy, assignor to Costruzioni Meccaniche G. Mazzoni S.p.A., Busto Arsizio, Italy

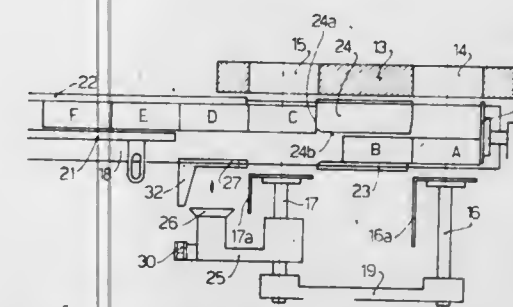
Filed May 26, 1981, Ser. No. 267,295

Claims priority, application Italy, Jun. 6, 1980, 22626 A/80

Int. Cl.³ B65G 47/26

U.S. Cl. 198—436

5 Claims



1. An offset device for arranging along two parallel lines articles which arrive from a single line, wherein a row of articles is arranged one after the other on a movable conveyor belt or the like so as to make up a continuous row subjected to a longitudinal guide device, a stop member for stopping the leading article in front of a cavity into which said article is to be introduced, pushing means for introducing said leading article into said cavity of the molding box, a drawing member mounted for reciprocating motion at right angles to said first row of articles to displace preselected articles from said first row to a second row parallel to the first row, a second guide device, a second stop member for the leading article of said second row and a second pushing means for introducing said leading article of said second row into a second cavity of the molding box capable of receiving the same.

4,394,903

WRAP-AROUND TYPE PACKAGE FOR BOTTLES

Martinus C. M. Bakx, Roosendaal, Netherlands, assignor to The Mead Corporation, Dayton, Ohio

Continuation of Ser. No. 208,205, Nov. 19, 1980, abandoned.

This application Nov. 10, 1982, Ser. No. 440,786

Claims priority, application United Kingdom, Nov. 15, 1979, 7939621

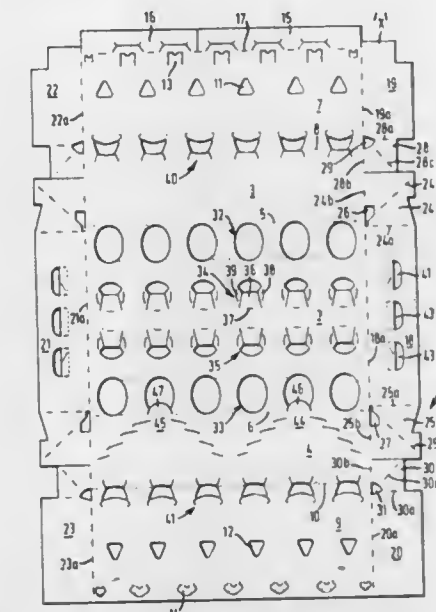
Int. Cl.³ B65D 75/08

U.S. Cl. 206—427

5 Claims

1. A carton of the wrap-around type for packaging a group of bottles arranged in a plurality of adjacent rows, which carton comprises top and bottom walls interconnected by spaced side walls forming a tubular structure with top and bottom walls substantially parallel to one another, top flaps joined to the ends of said top wall and folded downwardly to close at least partially the ends of said carton, gusset panels foldably joined to said top flaps at each end thereof and to adjacent side walls, each of said gusset panels including a diagonal fold line defining foldable gusset panel portions, characterized in that said fold lines by which said gusset panels are joined to the ends of said top flap are substantially parallel to but offset inwardly from the fold lines between said side walls and said top wall and in that said gusset panel portions

are folded inwardly into face-to-face contacting relationship with each other whereby the carton is tightened about its top



ends as the top flaps are folded downwardly and said gusset panel portions are folded about said diagonal fold lines.

4,394,904

PERIPHERALLY SUPPORTED PACKAGE FOR ADHESIVE-SURFACED ARTICLES

Franklin C. Larimore, Shoreview, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

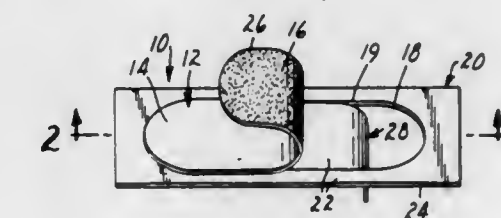
Continuation-in-part of Ser. No. 224,446, Jan. 12, 1981,

abandoned, which is a continuation-in-part of Ser. No. 203,566, Nov. 5, 1980, abandoned. This application Aug. 11, 1981, Ser. No. 292,008

Int. Cl.³ B65D 85/70

U.S. Cl. 206—447

18 Claims



1. A package comprising:

- (a) an adhesive-surfaced, delicate sheet-like article;
- (b) a release sheet laminated to the adhesive surface of said article and cut to form

- (1) a peripheral release carrier that is releasably adhered to peripheral areas of said adhesive surface and that has a central aperture exposing a major portion of the adhesive surface of said article; and
- (2) a release cover cut out of said release sheet and having the exact dimensions of said aperture in said peripheral release carrier, releasably adhered over the portion of said adhesive surface exposed by said aperture;

the ratio of the length of a straight line joining any two points on the perimeter of said article and passing through the center of said article, to the summation of the segments of that line overlapped by said peripheral release carrier, being at least about 5 to 1.

4,394,905

AUTO PLATFORM CARTON

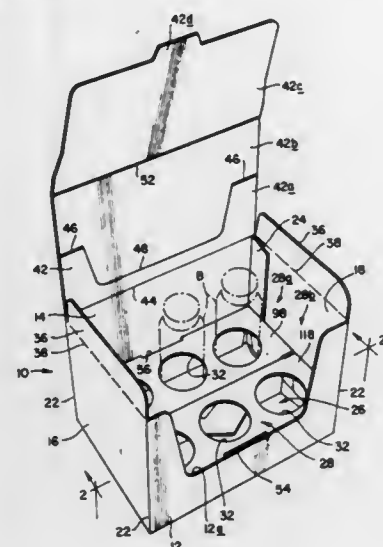
Robert A. Hackenberg, East Lyme, Conn., assignor to Robertson Paper Box Co., Inc., Montville, Conn.

Filed Nov. 12, 1980, Ser. No. 206,063

Int. Cl.³ B65D 73/00, 5/36

U.S. Cl. 206-486

14 Claims



1. A folding carton for containing fragile articles comprising
 - A. four wall panels hinged together for collapsing into a flat structure and opening up to form a generally rectangular tube,
 - B. a lock bottom for the carton, said bottom comprising
 - (1) a pair of parallel, generally rectangular bottom panels hinged to one pair of opposite carton wall panels and extending between the other pair of opposite carton wall panels, and
 - (2) a pair of gusset panels hinged to said other pair of wall panels and to the rectangular bottom panels, said bottom panels being foldable up inside the collapsed structure and opening out to occupy a substantially common plane perpendicular to the wall panels when the carton is set up, and
 - C. a platform foldable up inside the collapsed structure and spaced above the carton bottom panels when the carton is set up, said platform comprising a pair of similar mating platform sections, each section including
 - (1) a generally rectangular platform panel hinged at one edge to one panel in said first pair of wall panels, and
 - (2) a support panel hinged to the opposite edge of said platform panel and also to the underlying rectangular bottom panel so that, when the carton is set up, the platform panels swing down into a substantially common plane above the plane of the bottom panels with the support panels abutting one another to form a medial reinforcing rib between the platform and the carton bottom all along the platform which inhibits platform sag and rigidifies the carton as a whole.

4,394,906

FOOD CONTAINER/HOLDER

John C. Hollenbeck, 11 Mount Darwin Ct., San Rafael, Calif. 94903

Filed Jun. 23, 1981, Ser. No. 276,666

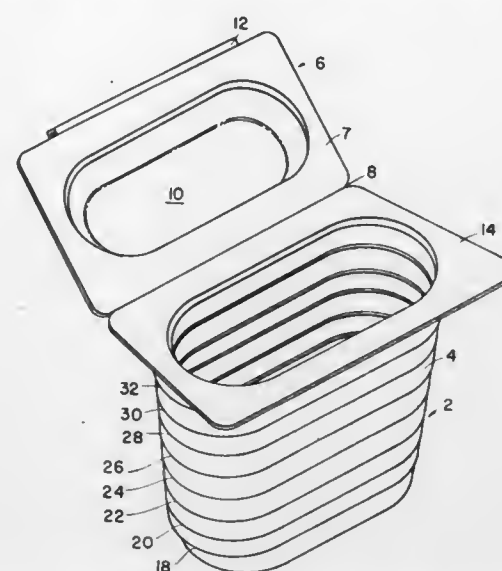
Int. Cl.³ B65D 1/26, 17/28, 83/00

U.S. Cl. 206-525

5 Claims

1. A food container/holder comprising a unitary foamed plastic body having a bottom container portion for said food with a plurality of corrugation bands ascending from a closed bottom to an opening, said opening defined in a first plane surface, a top hinged to an edge of said first plane surface, said top having a second plane surface, with a recess therein and a catch on an edge of said second plane surface for securing said first plane surface to said second plane surface, said bottom

portion having a length sufficient to contain substantially all of said food and said foamed plastic body and said corrugation



bands facilitating advancement of said food through said opening and maintaining said advancement.

4,394,907

DISPLACEMENT ERROR CORRECTION IN SORTING SYSTEMS

Rolf C. Bohme, Kyalami, and Max M. Lazerson, Northcliff, both of South Africa, assignors to General Mining Union Corporation, Limited, Johannesburg, South Africa

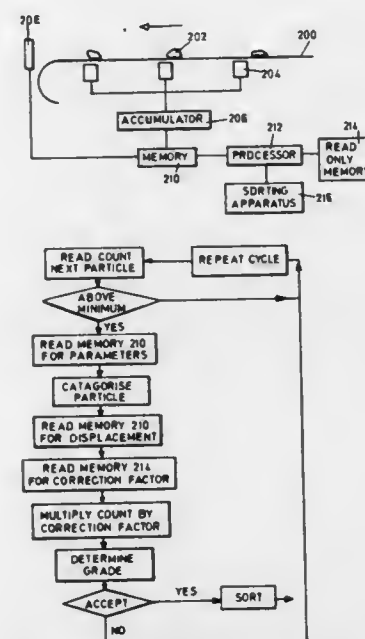
Filed Dec. 3, 1980, Ser. No. 212,515

Claims priority, application South Africa, Dec. 4, 1979, 79/6566; Jul. 15, 1980, 80/4248

Int. Cl.³ B07C 5/346

U.S. Cl. 209-556

8 Claims



6. A method of sorting particles which includes the steps of causing the particles to move in line spaced from one another sequentially past a plurality of in-line detectors, the detectors being responsive to the presence of a desired property in the particles and each producing, for each particle, an output signal which is dependent on the degree to which the property is present in the particle, and, for each particle, accumulating the output signals of the detectors, obtaining a measure of the displacement of the particle from the centre line of the detectors, and applying to the accumulation of the output signals a correction factor which compensates for the displacement of the particle from the centre line.

4,394,908

TOOL MAGAZINE FOR AUTOMATIC TOOL-CHANGING DEVICE

Pierre Pinchemaille, Albert, France, assignor to Line S.A., Albert, France

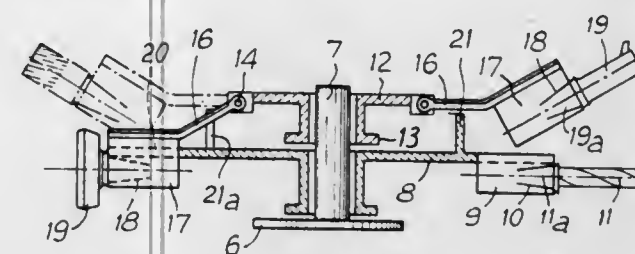
Filed Feb. 26, 1981, Ser. No. 238,603

Claims priority, application France, Mar. 26, 1980, 80 06758

Int. Cl.³ B23Q 3/157, 13/00

U.S. Cl. 211-1.5

8 Claims



1. A tool magazine for an automatic tool-changing device, comprising:
 - (a) a first substantially circular disc mounted for rotation about a magazine axis, said first disc having on the periphery thereof a plurality of first tool-receiving housings, the axes of said first housings being arranged substantially on radii of said first disc;
 - (b) a second substantially circular disc mounted for rotation about said magazine axis;
 - (c) a plurality of second tool-receiving housings pivotally mounted on said second disc, the axes of said second housings being arranged substantially on radii of said second disc, said second housings further being pivotable about respective axes substantially perpendicular to said second radii; and
 - (d) an opening on the periphery of said first disc wherein a first housing would normally be positioned for selectively receiving a second housing therein.

4,394,909

GUARD FOR A HANGER ASSEMBLY

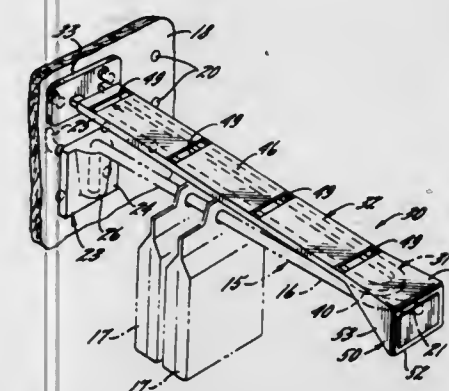
Stanley J. Valiulis, and Richard D. Barnes, both of Rockford, Ill., assignors to Southern Imperial, Inc., Tupelo, Miss.

Filed Oct. 16, 1980, Ser. No. 197,576

Int. Cl.³ A47F 5/00

U.S. Cl. 211-59.1

9 Claims



1. A guard for a hanger assembly adapted to be attached to an upright perforated panel and having an outwardly extending hanger arm, said guard comprising an elongated first section having inner and outer ends, means for attaching the inner end of said first section to said panel in overlying relation with said hanger arm, said guard further comprising an elongated second section having inner and outer ends, said second section being telescoped with said first section and being selectively slidable inwardly and outwardly relative thereto to enable adjustment of the effective length of said guard, a series of first detents spaced along said first section, a second detent formed

on said second section, said second detent successively engaging said first detents when said second section is slid inwardly and outwardly thereby to hold said second section releasably in selected adjusted positions along said first section, and said guard further comprising a shield on the outer end of said second section and located in front of the outer end of said hanger arm.

4,394,910

SHELF FOR ORDER PICKING SYSTEMS

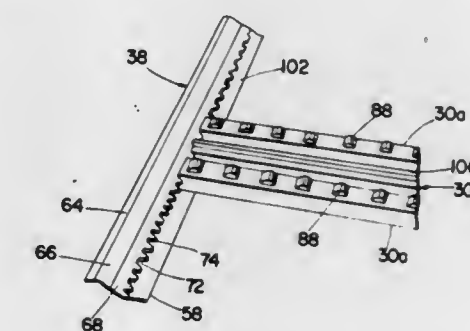
Daniel A. Miller, Lebanon, Ohio, assignor to Nestier Corporation, Columbus, Ohio

Filed Sep. 22, 1980, Ser. No. 189,195

Int. Cl.³ A47F 5/00

U.S. Cl. 211-490

22 Claims



1. A shelf for an order picking system comprising:
 - a generally rectangular frame defined by opposite side frame members and front and rear rails, said rails having upwardly facing bottom support surfaces inside of said frame, each of said rails having a plurality of uniformly spaced notches above said support surfaces opening inwardly of said frame, track members extending across said frame between said rails and having a width substantially less than the width of said frame between said side frame members, said track members having bottom end portions supported on said support surfaces and having end edge portions received in certain of said notches, and said track members being selectively adjustable across said frame in a direction between said side frame members by lifting same upwardly of said frame for transverse shifting and then lowering to a new position; further including, said bottom support surfaces being on bottom flanges having bottom flange edges inside said frame, said notches being defined on an upper rail flange spaced above said bottom flange, said upper rail flange having spaced-apart teeth between which said notches are defined, and said teeth having teeth ends spaced in a direction outwardly of said frame from said bottom flange edges.

4,394,911

HEAVY DUTY CRANE

Leroy L. Wittman, Marion, and Lyle B. Jensen, Cedar Rapids, both of Iowa, assignors to FMC Corporation, Chicago, Ill.

Filed Apr. 8, 1980, Ser. No. 138,461

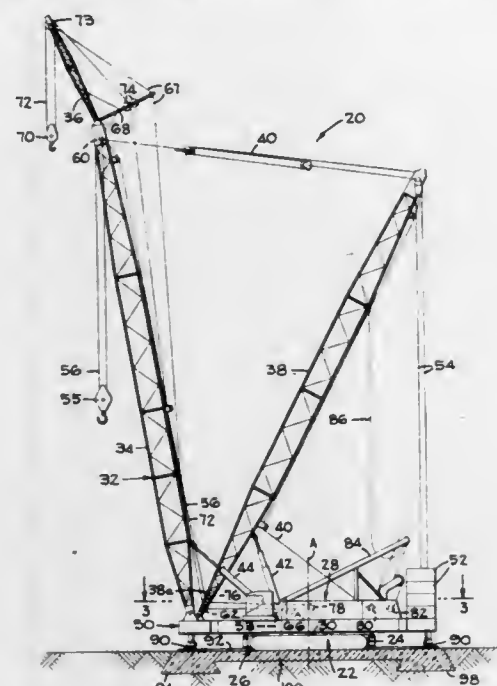
Int. Cl.³ B66C 23/72

U.S. Cl. 212-189

55 Claims

1. A mobile heavy duty self propelled crane for use on a foundation at a work site having a generally horizontal load supporting surface substantially at ground level, said crane including a lower works having ground engaging transport means, an upper works including an auxiliary frame means and mobile components operatively connected thereto and mounted on said lower works for rotation about a vertical axis, a large diameter steel ring having a lower surface and an upper surface, rotatable means for supporting the auxiliary frame on said ring for rotation relative thereto; the improvement which comprises means mounting said auxiliary frame means and certain components operatively connected thereto for substantial vertical movement, jack means operatively connected to said auxiliary frame means for vertically moving said frame

means and said vertically movable mobile crane components operatively connected thereto between a lowered working position wherein the auxiliary frame means is supported by said rotatable means on the upper surface of said ring while the lower surface of the ring is supported on the load supporting



surface of said foundation, and a raised transport position wherein said mobile ground engaging means supports all other vertically movable components of the crane a sufficient distance above the lower surface of said ground engaging transport means to provide adequate road clearance.

4,394,912

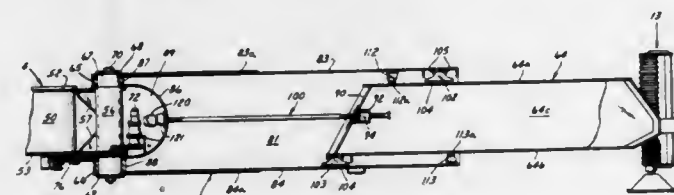
MOBILE CRANE HAVING TELESCOPING OUTRIGGERS AND POWER OPERATED SCREW MEANS FOR SAME

Stephen R. Epps, and Narahari Gattu, both of Cedar Rapids, Iowa, assignors to Harnischfeger Corporation, W. Milwaukee, Wis.

Filed Nov. 7, 1980, Ser. No. 203,942
Int. Cl.³ B66C 23/78, 23/30

U.S. Cl. 212-189

9 Claims



1. A mobile crane comprising, an elongated main frame, ground engaging means on said frame for supporting said frame for movement over the ground, a superstructure rotatably mounted on said frame and having an elevational boom pivoted thereto; and a pair of outriggers each having an inner end pivotally secured to said main frame at a location intermediate the length of said frame, said inner end of said outriggers is of bifurcated construction and defines an outwardly facing recessed pocket, vertically positionable ground engageable means carried by the outer end of said outriggers, one outrigger being secured to said frame at each side thereof and about a vertical axis for swinging between a transport position alongside said elongated main frame and a boom operative position extending transversely outwardly of said main frame, said outriggers comprising an elongated box and an inner beam telescopingly slideable within said box for contraction within said box and extending from said box, power operated extension means mounted between said box and beam of each of said outriggers for telescopingly sliding said beam relative to said box, said extension means comprising reversible motor means

mounted in said recessed pocket of said box and having an elongated threaded shaft extending from and rotatable in either direction by said motor means, and a non-rotatable threaded member carried by said beam and threadably engageable by said threaded shaft, whereby rotation of said shaft causes telescoping movement of said beam with said box.

4,394,913

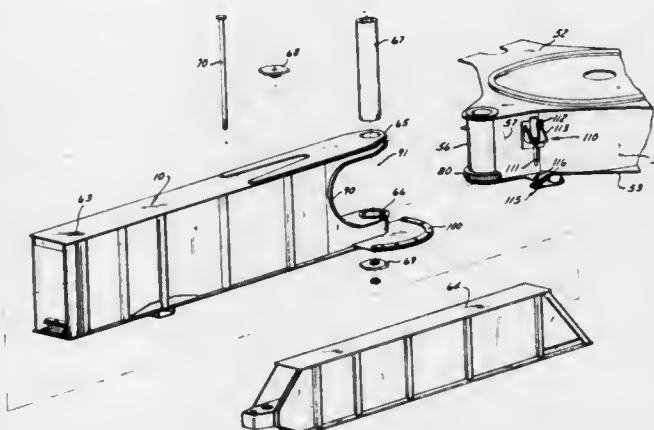
CRANE HAVING POWER OPERATED OUTRIGGERS AND LOCK MEANS THEREFOR

John M. Lanning, Solon, and Stephan R. Epps, Cedar Rapids, both of Iowa, assignors to Harnischfeger Corporation, West Milwaukee, Wis.

Filed Nov. 7, 1980, Ser. No. 203,944
Int. Cl.³ B66C 23/78

U.S. Cl. 212-189

3 Claims



1. A mobile crane comprising, an elongated main frame, ground engaging means on said frame for supporting said frame for movement over the ground, a superstructure rotatably mounted on said frame and having an elevational boom pivoted thereto; and a pair of outriggers each having an inner end pivotally secured to said main frame at a location intermediate the length of said frame, one outrigger being secured to said frame at each side thereof and about a vertical axis for swinging between a transport position alongside said elongated main frame and a boom operative position extending transversely outwardly of said main frame, said inner end of said outriggers being of bifurcated construction formed by a generally semi-circular plane welded transversely across said inner end and defining an outwardly facing recessed pocket, power operated means mounted on said outriggers and in said pocket for swinging said outriggers relative to said main frame, said power operated means comprising a hydraulic motor and a gear reducer driven thereby, said motor and reducer being disposed in a vertical direction, and a pinion gear attached to the lower end of said reducer and driven by said reducer, and a gear segment secured to said main frame adjacent a lower side of said main frame, said segment being in mesh with said pinion gear whereby rotation of said pinion gear causes swinging of said outrigger.

4,394,914

TELESCOPIC CRANES

Albert Privat, St. Chamond, France, assignor to Creusot-Loire, Paris, France

Continuation of Ser. No. 956,597, Oct. 30, 1978, abandoned.

This application Dec. 19, 1980, Ser. No. 218,175

Claims priority, application France, Nov. 21, 1977, 77 34850

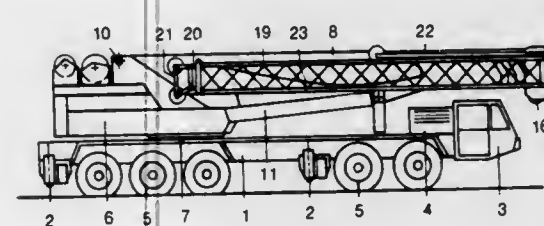
Int. Cl.³ B66C 23/00

U.S. Cl. 212-203

3 Claims

1. A telescopic crane comprising:
(a) a telescopic shaft comprising a plurality of telescopic elements;
(b) a boom of variable length comprising an outer section and at least one slidable inner section;

(c) means connecting said boom to said shaft for rotation of said boom relative to said shaft;
(d) means for varying the length of said boom and comprising a double-acting jack;
(e) a mast;
(f) means connecting one end of said mast to said boom for rotation of said mast relative to said boom;
(g) means connecting the body of said jack to one of said telescopic elements of said shaft for rotation of said jack relative to said one telescopic element;



(h) the outermost of said telescopic elements of said shaft comprising a mortise into which said jack fits in retracted position;
(i) means connecting the rod of said jack to the other end of said mast for rotation of said jack relative to said mast; and
(j) tie means connecting said other end of said mast to a point on said boom located outwardly of said means connecting said boom to said mast.

4,394,915

HOT MELT ADHESIVE COMPOSITIONS AND BOTTLE ASSEMBLIES USING SAID COMPOSITIONS

Jeffrey Nelson, Milwaukee, Wis., assignor to Findley Adhesives Inc., Elm Grove, Wis.

Filed Apr. 12, 1982, Ser. No. 367,738

Int. Cl.³ B65D 23/00; C08L 53/00

U.S. Cl. 215-12 R

10 Claims

1. A hot melt adhesive which comprises a blend of: (1) a block copolymer selected from the class consisting of: (a) an A-B-A block copolymer where A is a monovinyl aromatic hydrocarbon and B is either a conjugated diene or a rubbery mono-olefin and (b) a teleblock copolymer comprising molecules having at least three branches radially branching out from a central hub, each said branch having polystyrene terminal blocks and a butadiene segment in the center; (2) an ethylene/vinyl acetate copolymer; (3) a tackifying resin which serves to extend the adhesive properties of the system; (4) a stabilizer; and (5) a wax or oil diluent.

4,394,916

CHILD-RESISTANT CLOSURE ASSEMBLY

Ned J. Smalley, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 29, 1982, Ser. No. 362,584

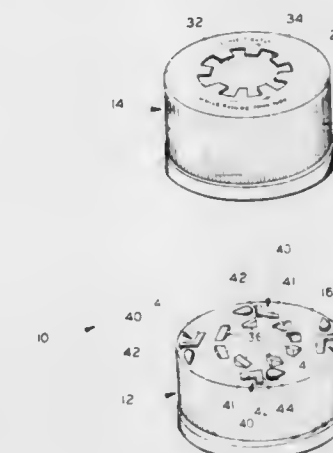
Int. Cl.³ B65D 55/02

U.S. Cl. 215-220

4 Claims

4. A safety closure assembly for a threaded container neck comprising:
an inner cap member including a top panel and a depending annular skirt, said inner cap skirt having threads formed thereon for engaging the threaded container neck, said inner cap panel having at least one upstanding, non-concentric driving lug formed on the upper surface thereof;
an outer cap member including a top panel and a depending annular skirt, said outer cap member loosely encompassing said inner cap member and permitting relative rotational movement therebetween, and means for retaining said inner cap member within said outer cap member but

permitting limited relative axial movements of said inner and outer cap members;
a plurality of peripherally spaced, upstanding ratchet lugs on said inner cap panel;
a plurality of depending integral leaf spring elements on the bottom surface of said outer cap member normally biasing said inner and outer cap members to a second relative axial position in which said non-concentric aperture and driv-



ing lug are out of engagement, said leaf springs being arranged to drivingly engage said ratchet lugs when said outer cap member is rotated in a closure tightening direction and to cam past said ratchet lugs when said outer cap member is rotated in a closure removal direction; and said non-concentric aperture being angularly misaligned with said upstanding drive lug when said leaf spring members are drivingly engaging said ratchet lugs.

4,394,917

SEALED CLOSURE-CONTAINER PACKAGE

Christian Looser, Lutznberg, Switzerland, assignor to Alcan International Limited, Montreal, Canada

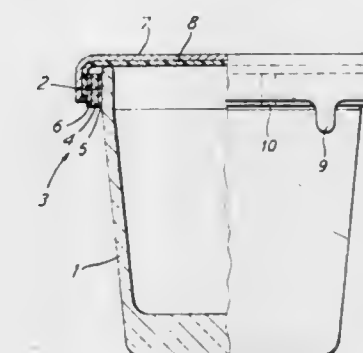
Filed Jan. 29, 1982, Ser. No. 344,005

Claims priority, application Switzerland, Feb. 3, 1981, 721/81

Int. Cl.³ B65D 81/36

U.S. Cl. 215-232

7 Claims



1. Sealed package for use or reuse as a drinking vessel comprising a container having an essentially cylindrical surface adjacent the container mouth, a ring, formed of a length of tape-like material, adhered to said cylindrical surface by means of a layer of pressure sensitive adhesive carried by said tape-like material, said pressure sensitive adhesive being selected to be peelable from said container surface without leaving objectionable residues thereon, and a foil cover secured to said ring by means of a heat-sealable material.

4,394,918

SCREW CAP WITH TAMPER-PROOF HOLD RING
Jean Grussen, Brevil, France, assignor to Charles A. Breskin
Assoc. Inc., White Plains, N.Y.

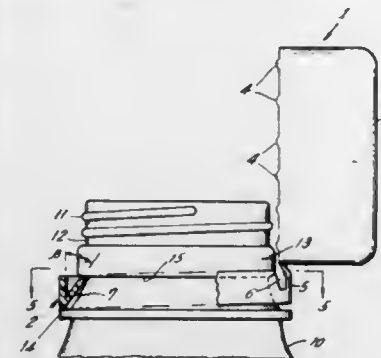
Filed Jul. 1, 1981, Ser. No. 279,364

Claims priority, application France, Feb. 11, 1981, 81 02723

Int. Cl.³ B65D 41/34

U.S. Cl. 215—243

18 Claims



1. A screw cap for covering the opening in the neck of a container, comprising:
the cap being a single molded member comprised of a semi-rigid material, having the ability to flex elastically;
the cap comprising:
a cap body, including an end for covering the opening in the container neck and including a lower edge away from the end;
a closed, annular, hold ring for surrounding the container below the neck thereof; the ring being connected to the cap body at the lower edge of the cap body by a plurality of attachment tabs which are sized and shaped for being breakable upon being stressed more than a predetermined amount;
a plurality of lock-lugs attached to the ring and protruding inwardly from the ring and also toward the end of the cap body, and the lock-lugs terminating at respective free ends, which free ends are adapted for engaging an element of the container to prevent raising of the lock-lugs past that container element; the lock-lugs protruding in such a manner that a circle passing through the free ends of the lock-lugs has a diameter less than the diameter of the container element;
a flange for providing a generally non-breakable connection between the cap body and the ring, said flange being flexible for permitting the cap body to pivot off the hold ring with the flange serving as the pivot hinge, said flange being located between two tabs of said plurality of attachment tabs.

4,394,919

CLOSURE FOR CONTAINER

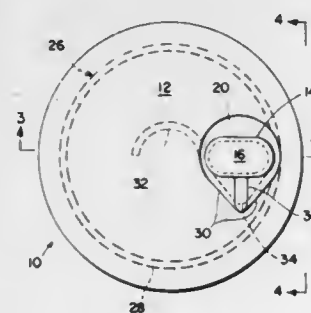
Raymond D. von Alven, San Rafael, and Lee E. McGill, Orinda, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Jul. 23, 1981, Ser. No. 286,117

Int. Cl.³ B65D 41/32

U.S. Cl. 215—253

16 Claims



1. A closure for a container for sealing the neck of the con-

tainer comprising a generally flat cap hermetically sealed to the neck, a score line in a surface thereof, a tear-initiating means associated with the score line which comprises a hollow tubular member extending upwardly from the top surface of the cap and adapted for initiating a rupture of the score line at a stress-concentrating locus on the score line, said tubular member having a generally flat closed outer end and an open inner end which coincides with an opening in the surface of the cap, and said tubular member having a generally oval cross-section, said oval cross-section defining a major axis and a minor axis.

4,394,920

SELF LOCKING CONTAINER CLOSURE

Ernst R. Jamer, 625 Shelter Creek La. #353, San Bruno, Calif. 94066

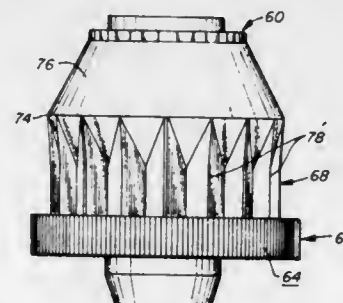
Continuation-in-part of Ser. No. 182,552, Aug. 29, 1980, Pat. No. 4,331,248, and a continuation-in-part of Ser. No. 256,350, Apr. 21, 1981, abandoned. This application Oct. 23, 1981, Ser. No. 314,282

The portion of the term of this patent subsequent to May 25, 1999, has been disclaimed.

Int. Cl.³ B65D 41/48

U.S. Cl. 215—253

20 Claims



1. A container closure for use on a container of the type having a hollow neck, a rim at the end of the neck, the rim circumscribing the mouth of the container, and a ring extending around the neck, the closure comprising:
a top portion adapted to seat against said rim to seal said container;
a radially expandable skirt depending from said top portion to surround a portion of said neck, said skirt having an upper edge attached to said top portion and a lower edge opposite said top edge, said lower edge extending past said ring;
said skirt having a plurality of inwardly directed shoulder portions, said shoulder portions having means for rotationally biasing said shoulder portions away from the ring as said shoulder portions pass the ring on the container, said shoulder portions also including a ring engagement surface adapted for engagement under said ring to secure said closure on said container; and
a retaining ring frangibly attached to said skirt below said ring engagement surface to restrict the radial movement of said shoulder portions.

4,394,921

GLASSWARE STOPPER WITH VENTING VALVE

Robert J. Miskinis, 9758 Airport Vista Rd., Santee, Calif. 92071

Filed Sep. 24, 1981, Ser. No. 305,166

Int. Cl.³ B65D 39/16

U.S. Cl. 215—296

1 Claim

1. A vent stopper for a glassware vessel having a standard taper opening with a tapered surface comprising:
a reusable stopper body (made of a polymer resin) having a diameter less than the diameter of the vessel opening and having a standard taper outer surface to sealably conform to the tapered surface of the vessel, an inner end for extending into the neck of the vessel, and an outer shank end, said shank end having a diameter no greater than the

4,394,923

THREADED CAP WITH INNER PLUG

Hiroaki Sugiyama, Numazu, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Jan. 5, 1982, Ser. No. 337,210

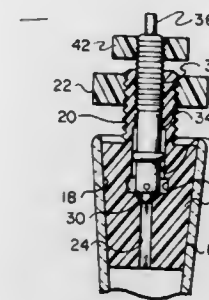
Claims priority, application Japan, Jan. 14, 1981, 56-2851[U]

Int. Cl.³ B65D 41/04

U.S. Cl. 215—329

3 Claims

diameter of the stopper body to enable the stopper body to be totally and instantly sealed within the vessel opening below the rim of the vessel opening anywhere along the entire standard taper surface,
a first bore extending from said inner end to proximate the center of said stopper body,
a second bore extending from said outer end and communicating with said first bore,
a valve seat at the intersection of said first and second bores,
a valve stem having a passage therein mounted within said second bore and selectively movable into and out of en-



agement with said seat for selectively blocking and opening communication between said bore and said passage, an extractor assembly for extracting said stopper from the vessel opening by breaking the seal between said standard taper surfaces, said shank end of the stopper being threaded, an extractor nut threadably mounted on the threaded shank end and having a diameter greater than the diameter of the vessel opening so as to engage the rim of the vessel opening and upon turning exert an axial force on the stopper body to break the seal between said surfaces and allow the stopper to be lifted freely out of the vessel opening.

4,394,922

RUBBER STOPPER WITH PLASTIC PULL RING

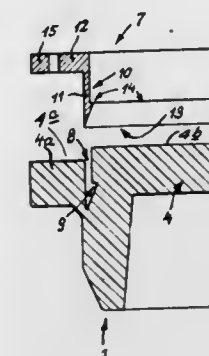
Hans Wimmer, Aachen, Fed. Rep. of Germany, assignor to The West Company, Phoenixville, Pa.

Continuation of Ser. No. 126,888, Mar. 3, 1980, abandoned. This application Jul. 29, 1981, Ser. No. 288,020

Int. Cl.³ B65D 39/00, 39/16, 41/28

U.S. Cl. 215—300

6 Claims



1. A closure assembly for containers or the like comprising a stopper made of resilient material including a flange overlying the axial end face surrounding the discharge opening in the container, a gripping member detachably secured to the stopper including a body portion and a ring member pivotally connected to the body portion and adapted to overlie the flange of the stopper, said ring member being hinged to said body portion at diametrically opposed hinge locations and an overcap having a peripheral skirt portion and a top flange overlying at least the ring member and the juncture of the ring member and the body portion.

4,394,924

PROCESS FOR MAKING GABIONS PROVIDED WITH INNER PARTITIONS

Giulio Zaccheroni, Bologna, Italy, assignor to S.p.A. Officine Maccaferri via Raffaele Maccaferri & Figli, Bologna, Italy

Filed May 12, 1981, Ser. No. 262,881

Claims priority, application Italy, Jun. 10, 1980, 67902-A/80

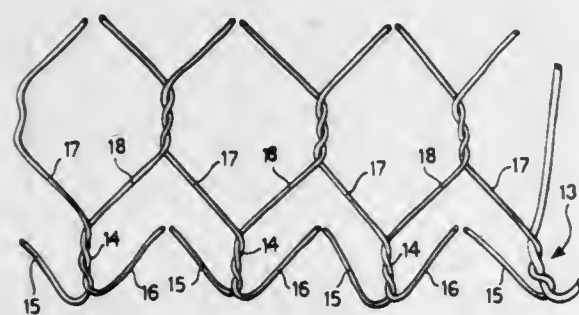
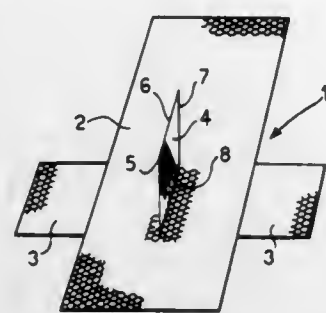
Int. Cl.³ B65D 6/08, 25/04

U.S. Cl. 220—19

3 Claims

1. A process for the articulated connection of an edge portion of a hexagonal-mesh, wire-netting panel to a further netting panel intended to form the bottom of a gabion, said edge portion comprising a marginal row of meshes of which each adjacent pair has a common side formed by twisting two wires together, free end portions of said two wires diverging each to form a side of a respective one of said pair of meshes, wherein said articulated connection is effected by:
bending each said free end portion of wire back into said respective one of said pair of meshes to form a hook, so that each common side of said marginal row of meshes terminates in two said hooks; and
inserting said common sides through a row of meshes of said

further netting panel and laterally shifting and withdrawing said hexagonal-mesh wire-netting panel so as to en-



gage said hooks with the netting of said further panel to form the articulated connection.

4,394,925 FUEL TANK-FILLER PIPE PARTICULARLY FOR MOTOR VEHICLES

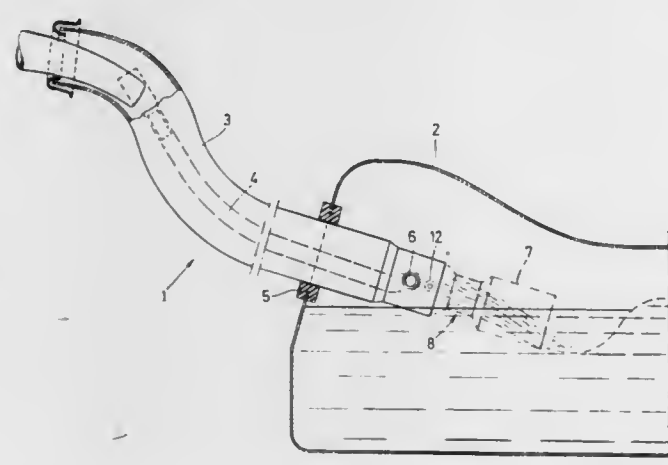
Egon Rump, Cologne, and Wolfgang Franzen, Hurth, both of Fed. Rep. of Germany, assignors to Ford Motor Company, Dearborn, Mich.

Filed May 29, 1981, Ser. No. 268,452

Int. Cl.³ B65B 3/04; B67C 3/00; G05B 00/00

U.S. Cl. 220-86 R

5 Claims



1. A fuel tank-filler neck for avoiding the return of fuel from a fuel tank during the filling process, said fuel tank-filler neck being adapted to be disposed sloping upwards from said fuel tank at an oblique angle, comprising a filler pipe, an air vent being provided in a lower portion of said filler pipe adapted to be disposed within said fuel tank; a mouth at an upper end of said filler pipe adapted to receive a fuel pump nozzle; a Venturi-type neck of reduced diameter extending said lower portion of said filler pipe below said air vent; and an air vent pipe extending within said filler pipe from said mouth to said air vent in said lower portion of said filler pipe.

4,394,926 REVERSE BUCKLING RUPTURE DISK APPARATUS

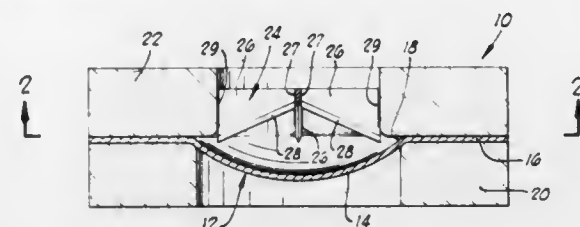
Sam A. Ou, Bixby, and Ronald J. LaPelle, Tulsa, both of Okla., assignors to BS & B Safety Systems, Inc., Tulsa, Okla.

Filed Feb. 18, 1982, Ser. No. 350,100

Int. Cl.³ F16K 17/40

U.S. Cl. 220-89 A

2 Claims



1. An improved reverse buckling rupture disk apparatus comprising:

a reverse buckling rupture disk including a concave-convex portion connected to an annular flat flange portion by a transition connection;

at least one support member for supporting said flat flange portion of said rupture disk in a pressure relief area; and knife means attached to said support member and positioned with respect to the concave-convex portion of said rupture disk whereby upon the reversal thereof, said concave-convex portion is severed by said knife means, said knife means comprising:

four blade legs positioned at right angles to each other having sharpened cutting edges thereon attached together at the internal ends thereof and attached to said support member at the external ends thereof, each of said blade legs having at least a portion of the cutting edge thereof inclined towards said rupture disk from the internal end to the external end thereof and having a portion of the cutting edge adjacent the transition connection of said rupture disk extending towards the concave-convex portion thereof beyond the plane of the annular flange portion thereof whereby upon reversal of the concave-convex portion of said rupture disk, said concave-convex portion is progressively severed by said cutting edges of said blade legs from points adjacent said transition connection to the center of said concave-convex portion of said rupture disk; and a spike attached to said knife means at the point where the internal ends of said blade legs are attached together positioned extending towards said rupture disk whereby upon reversal of said concave-convex portion of said rupture disk, said concave-convex portion is punctured by said spike.

4,394,927 METALLIC CONVENIENCE CLOSURE

Edgar H. Zysset, Sylvania, Ohio, assignor to General Can Company, Inc., City of Industry, Calif.

Filed Sep. 14, 1981, Ser. No. 301,554

Int. Cl.³ B65D 17/36, 17/34

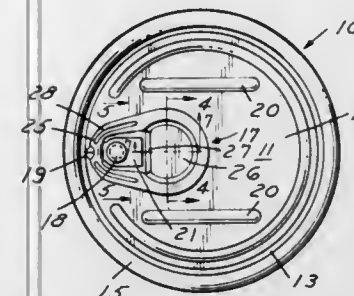
U.S. Cl. 220-273

5 Claims

1. A metallic convenience closure for a cylindrical container comprising

a central panel, an endless severing line formed in the central panel and defining a central removable portion and a peripheral fixed portion, means forming a part of the fixed portion for attaching a closure to the end of a container to close the end, a manually graspable pull-tab attached to the removable portion of the panel and having a nose portion movable upon lifting of the tab into position adjacent the score line for severing the score line, said tab including a first portion riveted to said removable portion of the panel,

a second portion extending radially outwardly toward the score line and terminating in said nose portion, and a manual grasping portion integral with the second portion and extending radially inwardly, said first portion having at least one straight edge,



said removable portion of the panel having a portion thereof deformed including a complementary straight edge engaging the straight edge of said first portion of the tab preventing rotation of the tab about the axis of the rivet thereby maintaining registry of the nose portion with the score line during the opening of the convenience closure.

4,394,928 SPLASH-PROOF CONTAINER AND COVER

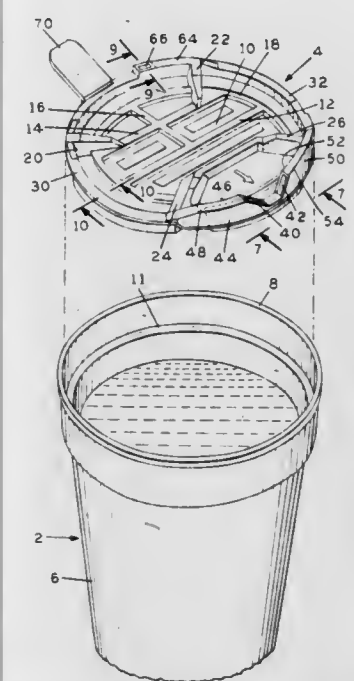
Morris Philip, c/o Philip Knitting Mills, 26 Bruckner Blvd., Bronx, N.Y. 10454

Continuation-in-part of Ser. No. 138,444, Apr. 22, 1980, Pat. No. 4,322,014, which is a continuation-in-part of Ser. No. 61,197, Jul. 27, 1979, abandoned. This application Mar. 20, 1981, Ser. No. 246,043

Int. Cl.³ B65D 41/26, 51/16

U.S. Cl. 220-366

6 Claims



1. A splash-proof container for liquids and a cover recessed within the open end of said container, said container having an upwardly extending flange defining the perimeter of its open end and extending upwardly above said cover and a shelf interconnecting said flange and the body of said container, said shelf extending substantially at right angle to the vertical axis of said container and transverse to said body and said flange and circumferentially around said vertical axis, said cover having a peripheral rim defining the outer perimeter thereof, said peripheral rim having flat portions thereof in engagement with said shelf, said peripheral rim having raised portions extending upwardly away from said shelf, said raised portions having spaced rib passages extending generally radially inwardly from said raised portions and said peripheral rim toward the center of said cover and opening into said con-

tainer, liquid and air ports extending through said raised portions to the exterior of said container, said shelf, said raised portions in said peripheral rim, said generally radial rib passages and said ports forming connecting passages for liquid to flow from said container when said container is tilted and for air to flow thereto but forming baffles and deflectors for the liquid contents of said container when said container is vertical and is shaken.

4,394,929 CRYOGENIC LIQUID STORAGE CONTAINER HAVING AN IMPROVED ACCESS CONDUIT

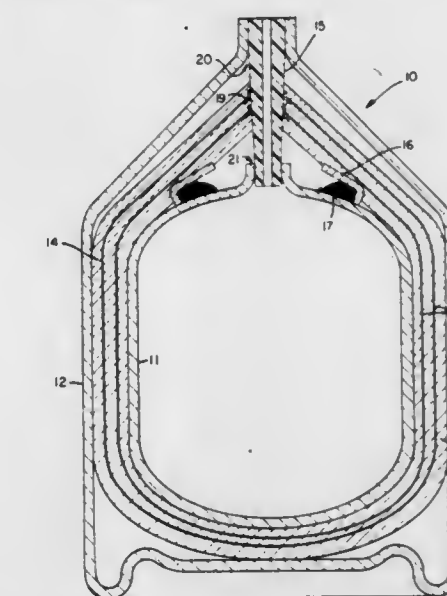
Nandlal P. Patel, Indianapolis, Ind., and Roger J. Dolida, Kingwood, Tex., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Apr. 10, 1981, Ser. No. 252,949

Int. Cl.³ B65D 25/18; F17C 13/00

U.S. Cl. 220-421

1 Claim



1. A vacuum insulated cryogenic container comprising: an inner vessel for holding a cryogenic liquid, said inner vessel having an access opening; an outer shell enclosing said inner vessel in a spaced apart relationship so as to form an evacuable space therebetween, said outer shell having an access opening disposed substantially in alignment with said access opening of said inner vessel; thermal insulation material disposed in said evacuable space; and an access conduit joining said access opening of said outer shell to said access opening of said inner shell such that said inner vessel is supported within the outer shell in said spaced apart relationship by said access conduit; wherein said access conduit is an elongated body having a substantially constant inside diameter of cylindrical configuration and a variable outside diameter which decreases linearly in dimension within said evacuable space to form a gradual taper from a point proximate to the juncture of said access conduit with said outer shell to a point proximate the juncture of said access conduit with said inner vessel, said variable outside diameter of said access conduit decreases linearly such that the ratio of stress in said conduit due to bending moment to said strength of said conduit material is substantially constant along the length of said conduit within said evacuable space between said two juncture points, said access conduit being composed of a material whose strength increases with decreasing temperature.

4,394,930

ABSORBENT FOAM PRODUCTS

Ralf Korpman, Somerset City, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Mar. 27, 1981, Ser. No. 248,387

Int. Cl.³ H05B 3/68; A47J 41/00; B32B 27/00; C08J 9/00
U.S. Cl. 220—444 19 Claims

1. An absorbent foam product prepared by mixing together a solid, particulate, water-insoluble, water-swellaable polymer having a gel capacity of at least 10, a solid, particulate blowing agent, and a liquid polyhydroxy organic compound and allowing the mixture to foam.

14. An absorbent article comprising a foam coated substrate, said foam coated substrate obtained by (a) mixing together a solid, particulate, water-insoluble, water-swellaable polymer having a gel capacity of at least 10, a solid, particulate blowing agent, and a liquid polyhydroxy organic compound to obtain a foamable composition, (b) coating said composition onto a substrate, and (c) allowing the mixture to foam.

19. A dual walled container for transporting aqueous fluids having a breakable inner wall and a non-breakable outer wall and having in a portion of the space between the two containers walls, a foam prepared by mixing together solid, particulate, water-insoluble, water-swellaable polymer having a gel capacity of at least 10, a solid, particulate blowing agent, and a liquid polyhydroxy organic compound and allowing the mixture to foam.

4,394,931

HEAT-INSULATED CONTAINER PROVIDED WITH A LOCATING AND/OR SUPPORTING DEVICE

Terence Cotgrave, Deeside, Wales, and David A. Cliffe, Middleton, England, assignors to Shell Internationale Research Maatschappij B. V., The Hague, Netherlands

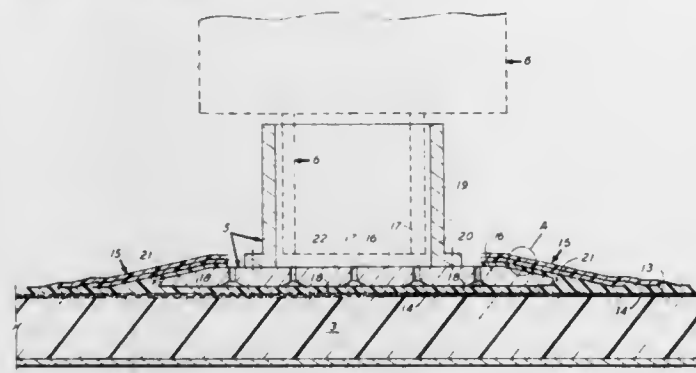
Filed Apr. 27, 1981, Ser. No. 258,028

Claims priority, application United Kingdom, Apr. 25, 1980, 8013743

Int. Cl.³ B65D 25/02, 90/04, 25/10

U.S. Cl. 220—453

13 Claims



1. A heat-insulated container for liquefied gases, comprising a rigid outer shell internally lined with a heat-insulating rigid polyurethane foam material and provided with a means for locating and supporting structures or apparatus to the inner surface of said container, wherein:
said locating means comprises a plate member formed of a material having a low coefficient of thermal expansion;
said plate member being bonded to the inner side of said heat-insulating material with a cured epoxy resin formulation;
said plate member being provided with means for securing or locating a structure or apparatus thereto; and
a laminate collar comprising a fiber material and a cured epoxy resin formulation mounted about the periphery of said plate member, said laminate collar being bonded to said plate member and said heat-insulating material with a cured epoxy resin formulation.

4,394,932

VENDING MACHINE HAVING TILTABLE FLAP CLOSURE

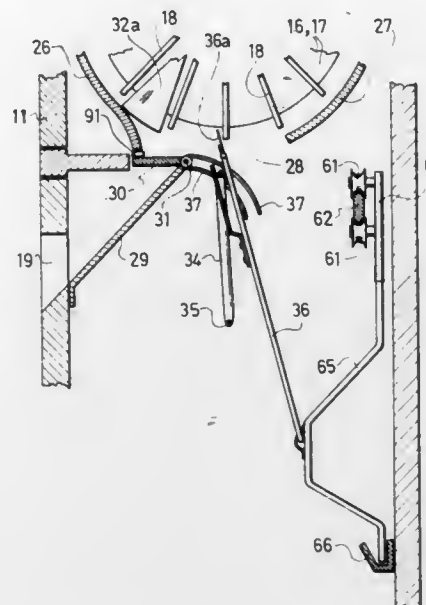
Allan Ahlström, Mahults Herrgard, Simlangsdalen, Sweden 31038

Filed Aug. 14, 1981, Ser. No. 292,429

Int. Cl.³ G07F 11/52

U.S. Cl. 221—83

4 Claims



1. A vending machine of the type where a number of drums are arranged in a cabinet to be rotatable about a horizontal shaft and which includes a mechanism for selecting either of the drums and a release mechanism permitting rotation of a selected drum, the machine further comprising

a front shield and a rear shield each covering less than 90° of the lower circumference of said drums, said front shield being stationary while said rear shield is swingable about the shaft carrying said drum between a first position in which it leaves a passage between itself and said front shield and a second position in which it closes said passage a flap tiltable about a horizontal axis to occupy either of two positions and adapted in one of said positions to partly close said passage, and

an actuator operable by said release mechanism for rotating a drum selected by said selector mechanism and to tilt said flap into the other of its said positions.

4,394,933

CAPSULE ORIENTING APPARATUS

E. Michael Ackley, 1273 N. Church St., Moorestown, N.J. 08057

Filed Apr. 29, 1981, Ser. No. 258,745

Int. Cl.³ B65G 47/24

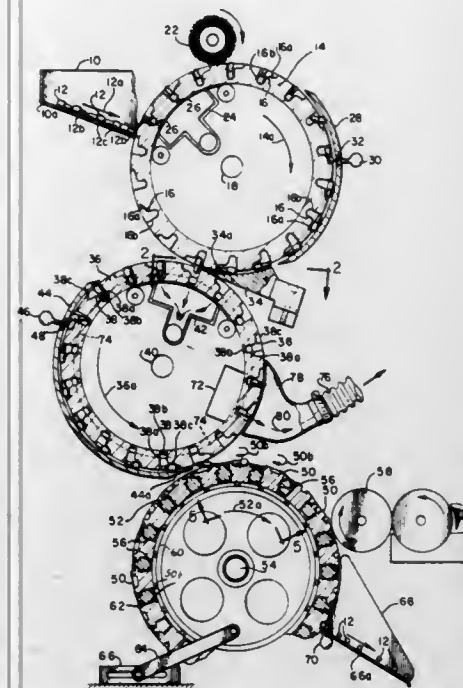
U.S. Cl. 221—173

23 Claims

1. Apparatus for orienting capsules having telescoping cap and body portions, said apparatus comprising:
means for supplying, in random orientation, capsules having telescoping cap and body portions;
rectifying means for receiving said capsules in random orientation and for delivering said capsules in uniform orientation;
and selection means for receiving said capsules from said rectifying means and for segregating any of said capsules which are not in uniform orientation, said selection means including:

- (1) a transfer mechanism having a set of pockets for receiving said capsules from said rectifying means and for moving said capsules to a discharge point, each of said pockets having a recessed portion disposed perpendicular to the direction of movement of said transfer mechanism and sized larger than said body portions of said capsules and smaller than said cap portions of said capsules;
- (2) means for driving said capsules from said rectifying means into said pockets in said transfer mechanism,

whereby capsules having their body portions in said recessed portions of said pockets are loosely held and capsules having their cap portions in said recessed portions of said pockets are tightly held;



- (3) means for discharging said loosely held capsules from said pockets in said transfer mechanism at said discharge point; and
- (4) means for ejecting said tightly held capsules from said pockets in said transfer mechanism at an ejection point.

4,394,934

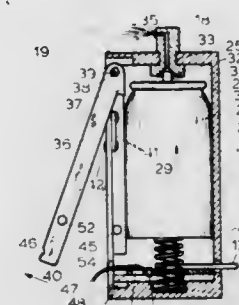
FLUID DISPENSING ANTI-BURGLAR DEVICE

Charles R. Fegley, 1606 Frush Valley Rd., Laureldale, Pa. 19605
Continuation of Ser. No. 53,990, Jul. 2, 1979, abandoned. This application Mar. 9, 1981, Ser. No. 242,053

Int. Cl.³ B67B 7/24

U.S. Cl. 222—5

27 Claims



1. A fluid dispensing anti-burglar device for use with a pressurized container, the device comprising:
 - (a) a body member;
 - (b) means for supporting said pressurized container in said body member, wherein said pressurized container has a fluid-dispensing element adapted to release fluid under pressure from said pressurized container when actuated;

- (c) a passageway in said body member having an entry section at one end thereof;
- (d) dispensing element-actuating means mounted in said body member and adapted to engage and actuate said fluid-dispensing element;
- (e) spring means biased to force said fluid-dispensing element and said dispensing element-actuating means into engagement with each other, thereby causing said fluid-dispensing element to be actuated;
- (f) trigger means adapted to releasably retain said spring means in a cocked position in which said fluid-dispensing element and said dispensing element-actuating means are separated from each other;
- (g) trigger-actuating means associated with said trigger to actuate said trigger upon the application of an electric current to said trigger-actuating means, whereby said spring is released from its cocked position causing said fluid-dispensing element to be actuated, and fluid under pressure is released from said container to pass through said passageway;
- (h) delay means for causing the delay of the application of electric current to said trigger-actuating means after electric current is applied to said device, thereby permitting the removal of said electric current if the electric current is accidentally applied to the device;
- (i) and a circuit board containing the trigger-actuating means and the delay means mounted within said body member.

4,394,935

ZERO SETTING MECHANISM FOR SERVICE STATION PUMPS

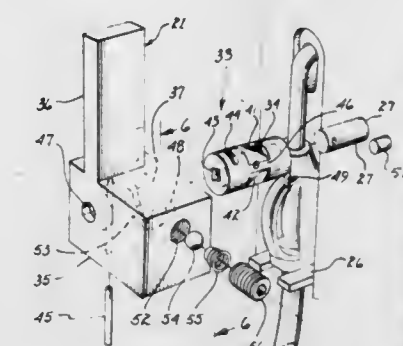
Mario Orlando, 2320 E. North La., Phoenix, Ariz. 85021

Filed Feb. 13, 1981, Ser. No. 234,337

Int. Cl.³ B67D 5/26

U.S. Cl. 222—35

9 Claims



1. An actuating mechanism comprising an actuatable shaft, an actuating member adapted to rotate a predetermined distance in one direction and the reverse thereof, a coupling element between said actuatable shaft and said actuating member and attached to said actuatable shaft, said coupling element and said actuating member being adapted to move relative to each other, movable stop means on said coupling element, fixed stop means for engagement by said movable stop means, interengaging means between said coupling element and said actuating member having one position for effecting movement of said coupling element upon movement of said actuating element until engagement of said fixed stop by said movable stop, whereupon relative movement in one direction occurs between said coupling element and said actuating element, said interengaging means having a second position for effecting movement of said coupling element in the reverse direction upon movement of said actuating element in the reverse direction to a predetermined position, and means for moving said interengaging means from said second position to said one position while holding said actuating member stationary.

4,394,936

DEFORMABLE CONTAINER AND A FLAT PIECE FOR MAKING A CONTAINER

Henri Shavit, General Guisanstrasse 1, 4144 Arlesheim, Switzerland

Filed Oct. 14, 1981, Ser. No. 270,988

Int. Cl.³ B65D 35/08, 35/14

U.S. Cl. 222-107

9 Claims



1. A deformable container of semi-rigid material consisting of,
 - a. a planar first work piece resistant to thermoplastic deformation with an at least one side having a fusible coating thereon,
 - b. a shaped folding edge means defining a center segment with an opening therethrough,
 - c. a first side wall segment transverse to the said center segment commencing at a section of the said shaped folding edge means and terminating at the periphery of the said first work piece furthest from the said shaped folding edge,
 - d. a second side wall segment transverse to the said center segment commencing at a section of the said shaped folding edge symmetrically opposite that of the commencement of fold of the first side wall segment and terminating at the periphery of the said first work piece furthest from the said shaped folding edge from whence the second side wall segment commenced,
 - e. said center segment disposed to controllably deflect the said first and second side wall segments into depressed cavities therein having an elevation following the shaped folding edge means and thereto fixedly separate the first side wall segment and second side wall segment proximately situated to the said shaped folding edge,
 - f. side edge means on the periphery of the said first and second wall segments defining the depressed cavities therein and disposed to be fusibly mated to form a hollow space for filler material,
 - g. closing edge means around the periphery of said mated side walls defined by the unfused portions of the said fused right and left side alls disposed to be fusibly mated after filling the said hollow space,
 - h. a second work piece consisting of an extended collar means and a discharge opening means with a connecting means thereon projecting transversely from the said collar with a bore through the longitudinal axis of the said discharge opening means and extended collar means, said discharge opening means disposed to project through the said opening in the said central segment and said collar means to be fusibly connected to the said fusible coating, and
 - i. a closing lid means operatively associated with the said connecting means on the said discharge opening means to stop discharge of the filler material.

4,394,937

SAFETY CAN CONVERSION APPARATUS

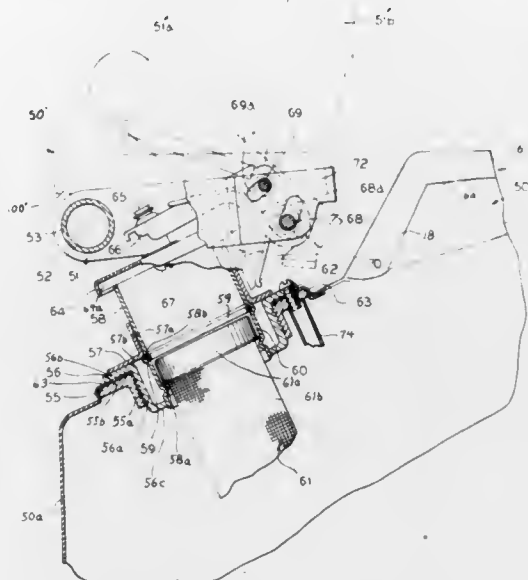
Frank S. Flider, Mattoon, Ill., assignor to Justrite Manufacturing Company, Chicago, Ill.

Filed Nov. 3, 1980, Ser. No. 203,588

Int. Cl.³ B65D 47/08

U.S. Cl. 222-189

20 Claims



12. An improved safety closure adapter arrangement for mounting on a storage container such as the type known as a Jerry can, said container including a hollow interior for receiving fluid contents, the upper surface of said container being provided with an opening through which said fluid content may be poured, said improved safety closure adapter arrangement comprising:
 - pour spout means;
 - means for securing said pour spout means in said opening;
 - safety cap means, said safety cap means adapted to seat on the outer surface of said pour spout means in closing relation to said pour spout means whereby a substantially fluid-and-vapor-tight seal results when said safety cap means is in a closed position;
 - operating handle means;
 - pivot support means, said pivot support means designed to be secured to the upper end of said container proximate to said opening;
 - said pivot support means supporting said operating handle means for pivotal movement thereof;
 - link means, said link means connecting said safety cap means to said operating handle means whereby pivotal movement of said operating handle means is effective to selectively move said safety cap means from a closed position to an open position relative to said pour spout means;
 - said operating handle means being pivotally connected on one side and extending over and across said spout's outer end opening, whereby said operating handle makes supporting and stabilizing contact with the bottom of a stacked Jerry can when said safety cap means is in its closed position;
 - spring means, said spring means cooperating with said link means to bias said link means to a default position wherein said safety cap means is securely seated on said pour spout means in said closed position;
 - said improved safety closure adapter arrangement being designed to fit completely within the open region of the Jerry can proximate to said opening when in said closed position, whereby said handle means, said link means, said pour spout means, and said safety cap means do not extend beyond the sides of said container or above a line extending from the elevated horizontal handle of said Jerry can.

4,394,938

DISPENSER AND PACKAGE FOR LIQUID OR GRANULAR MATERIALS

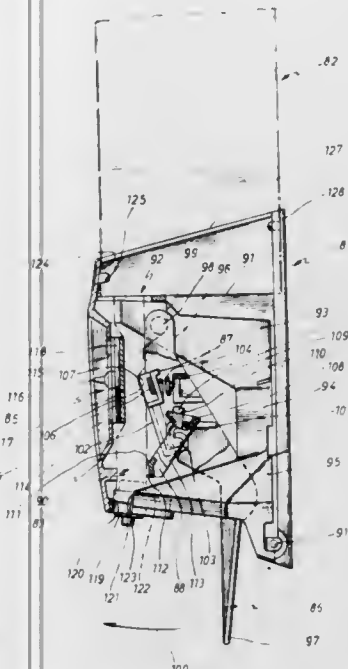
John R. Frassanito, San Antonio, Tex., assignor to Sani-Fresh International, Inc., San Antonio, Tex.

Filed Aug. 11, 1980, Ser. No. 176,909

Int. Cl.³ G01F 11/02

U.S. Cl. 222-207

12 Claims



1. Apparatus for dispensing liquid or granular materials, for use with a package which contains liquid or granular material and has a resilient tube associated with said package, comprising:
 - a housing, said housing including means for supporting said package;
 - a backup block, having a compression surface thereon, associated with said housing;
 - a dispensing arm having a first end portion pivotally associated with said housing and having a second, free end portion;
 - a first dispensing block associated with said dispensing arm, said first dispensing block being disposed adjacent the compression surface of said backup block; and
 - a second dispensing block pivotally and yieldably mounted (associated) with respect to said dispensing arm, said second dispensing block disposed beneath, and spaced from, the first dispensing block whereby, upon an actuating force being imposed upon the free end portion of said dispensing arm, the first dispensing block contacts the resilient tube at a first predetermined impact point to compress the resilient tube against the compression surface of the backup block, and the second dispensing block contacts the resilient tube at a second predetermined impact point spaced from, and below, said first impact point, to apply a force to the resilient tube.

4,394,939

DISPENSER CONTAINER FOR VISCOUS FLUIDS

Günter Thor, Krefeld-Traar; Albert Stöffler, and Dietholf Mehl, both of Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jan. 19, 1981, Ser. No. 226,149

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1980, 3035728

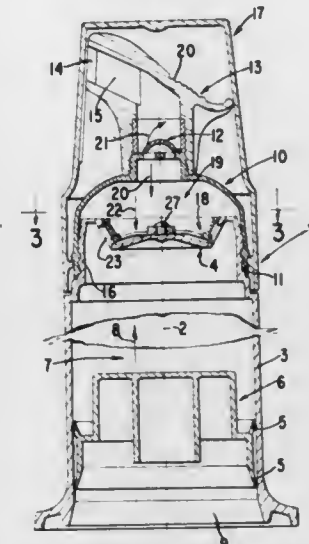
Int. Cl.³ B65D 83/00, 37/00

U.S. Cl. 222-207

9 Claims

1. A dispensing container intended for single use prepared by pressure diecasting, which comprises a container body provided at one end with a resiliently compressible portion including a mouthpiece; a storage chamber to hold material to be dispensed; a piston member arranged at the other end of said

container to define a boundary of the storage chamber, the piston member being movable towards and restrained from movement away from said compressible portion; a top surface to define another boundary of the storage chamber; and an elastically compressible pump means defined by said compressible portion and by said top surface and having an inlet valve in the top surface, an outlet valve, and a pump chamber between the valves, said inlet valve comprising (1) an annular slot



extending circularly in the top surface symmetrically to the longitudinal axis of the container and having a cross-section extending at an angle of from about 45° to 75° from the direction normal to the container axis and (2) a circular cover ring held sealingly in front of the annular slot and elastically under constant stress, the cover ring being held by three or more spokes radiating from a hub positioned in the center of the top surface.

4,394,940

DISPENSER FOR FLUENT MATERIALS

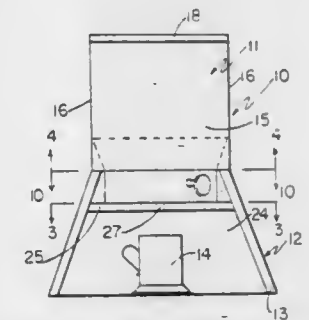
Oscar F. A. Peterson, 3125 Portage Ave., Winnipeg, Manitoba, Canada R3K 0W4

Filed May 11, 1981, Ser. No. 262,317

Int. Cl.³ G01F 11/24

U.S. Cl. 222-276

5 Claims



1. A dispenser for fluent materials comprising in combination a hopper for holding said material, said hopper including an apertured base, said apertured base including a pair of feeding apertures one on each side of a center line of said base, a metering and dispensing plate supported below said base, actuating means extending from said plate for partial rotational movement thereof relative to the vertical axis of said dispenser from one dispensing position through to another dispensing position and vice versa, means to support said plate relative to said base, dispensing means situated below said plate and operatively connected therewith, and means in said plate for metering fluent material from said hopper and dispensing same through said dispensing means, said means in said plate including aperture means formed through said plate, one of said aperture means aligning with one of said feeding apertures in said base and the other of said apertures aligning with said

dispensing means, when said plate is in one dispensing position, and the other of said aperture means aligning with the other of said feeding apertures and the one said aperture means aligning with said dispensing means, when said plate is in the other dispensing position, a pair of movable wall portions one in each of said aperture means in said plate, linkage means operatively extending between said actuating means and said movable wall portions for moving said wall portions relative to said aperture means to vary the volume thereof, said aperture means comprising an elongated slot formed through said plate and having a metering portion at each end thereof, said actuating means including a rod rotatably mounted in said plate and extending into the center of said slot, said linkage means comprising a pair of crank arms each pivotally connected by one end thereof, to one end of said rod and by the other end thereof one each to one of said movable walls.

4,394,941

FLUID DISPENSER

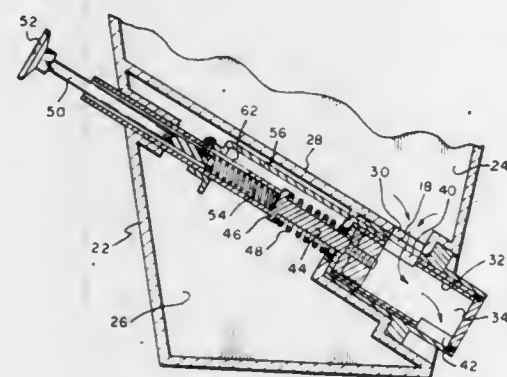
Giuseppe Recine, Philadelphia, Pa., assignor to Thomas L. Shannon, Jr., Philadelphia, Pa.

Filed Aug. 31, 1981, Ser. No. 297,691

Int. Cl.³ B01D 53/04

U.S. Cl. 222—355

4 Claims



1. A dispenser for dispensing fluent material comprising: an outer tubularly shaped body member including an opening in a side wall adjacent the first end thereof and having a second open end; an inner tubularly shaped member within said outer member and axially movable with respect thereto, both ends of said inner member being closed, a first opening in a side wall of said inner member adjacent the first end thereof and a second opening in an opposite side wall adjacent the second end thereof; means for biasing said inner member toward the first end of said outer member to a fill position wherein the opening of said outer member coincides with said first opening of said inner member and wherein the portion of said inner member having said second opening is within said outer member; a plunger means extending from the first end of said outer member and being connected to said inner member for moving said inner member to a dispensing position wherein the portion of said inner member having said second opening extends outward beyond the second end of said outer member, and a closure means for closing communication between the opening in said outer member and said first opening in said inner member prior to movement of said inner member.

4,394,942

AUTOMATIC APPARATUS FOR SUPPLYING A FIXED QUANTITY OF PARTICLE OR POWDER

Yoshitomo Yoshioka, Tokyo, Japan, assignor to K.K. Yoshioka Seisakusho, Tokyo, Japan

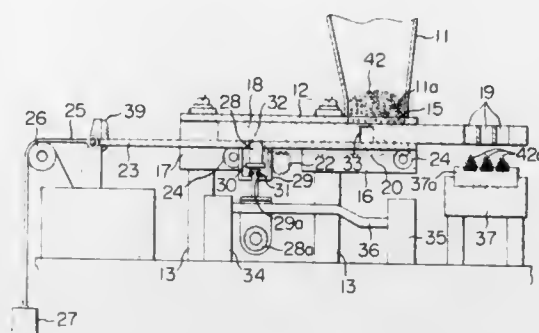
Filed Mar. 17, 1981, Ser. No. 244,861

Claims priority, application Japan, Jul. 11, 1980, 55-093861

Int. Cl.³ G01F 11/10

U.S. Cl. 222—361

13 Claims



1. Apparatus for repeatedly and laterally transferring a predetermined amount of powdered or particle material contained in a fixedly located hopper having an outlet port to a fixedly located working table installed separately at a lateral distance from said hopper, comprising:

measuring transfer means provided below said hopper and which is reciprocally movable laterally from an original position below said hopper to a predetermined position above said working table, and laterally back to said original position below said hopper;

measuring cavity means including at least one through hole of a predetermined configuration provided vertically and penetrating through said measuring transfer means such that said at least one through hole is located at a position above said working table when said measuring transfer means is at its predetermined position above said working table, and said at least one through hole is located at a position directly below said outlet port of said hopper when said measuring transfer means is at said original position below said hopper;

gate means provided beneath said measuring transfer means and which includes means for interlocking with said measuring transfer means to move with said measuring transfer means from its original position to its said predetermined position, said gate means including means for closing the bottom of said at least one through hole of said measuring cavity means during said movement from said original position to said predetermined position, said interlocking means including means for releasing said gate means from said measuring transfer means at said predetermined position, said gate means being slideable back to its original position when so released, thereby leaving the bottom of said at least one through hole open directly above said working table at said predetermined position;

said measuring transfer means comprising a main substantially horizontally arranged plate of a predetermined thickness reciprocally driven to reciprocate between said original and said predetermined positions along a given path;

said gate means comprising a bottom plate provided beneath said main plate and contacting the bottom of said main plate for closing the bottom of said at least one through hole during said movement from said original position to said predetermined position; and

an upper plate substantially horizontally arranged above said main plate and having an opening therein in registration with said outlet port of said hopper and being in fixed position relative to said hopper;

said main plate having a solid portion which covers said opening in said upper plate during movement of said main plate between said original and predetermined positions, thereby maintaining said outlet port of said hopper in a closed condition during movement of said main plate; and

said upper plate, said main plate and said bottom plate comprising a sandwich-type structure with said main plate interposed between said upper and bottom plates and being slidable in the horizontal direction relative to said upper and bottom plates.

4,394,943

TILTING TRAP CHAMBER

Göran Sjönell, 11 Askrikevägen, Lidingö, Sweden

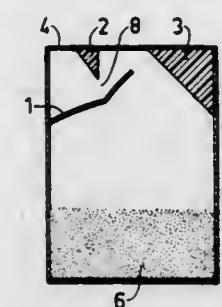
Continuation of Ser. No. 147,380, May 7, 1980, abandoned. This application Jan. 18, 1982, Ser. No. 340,032

Claims priority, application Sweden, May 16, 1979, 7904286

Int. Cl.³ G01F 11/26

U.S. Cl. 222—456

8 Claims



1. A container for dispensing measured amounts of a powdered material comprising a top wall, a bottom wall and side walls connecting said top and bottom walls, said top wall being provided with a discharge opening, a partition being disposed adjacent said discharge opening and extending downwardly from the bottom surface of said top wall, a first inclined wall extending upwardly from the sidewall below said discharge opening, said first inclined wall having one end attached to said sidewall and the other end being free and extending upwardly beyond said partition below the bottom surface of said top wall, and a second inclined wall extending downwardly from said bottom surface of the top wall towards the sidewall opposite to said first inclined wall, openings being provided between said first and second inclined walls, between said free end of said first inclined wall and said bottom surface of said top wall, and between the lower end of said partition and said first inclined wall form a flowpath for said powdered material, and said second inclined wall preventing the presence of a column of the powdered material above the opening between said free end of said first inclined wall and said bottom surface of said top wall when said container is tilted during dispensing of said powdered material.

4,394,944

VALVED CLOSURE FOR DISPENSING CONTAINER

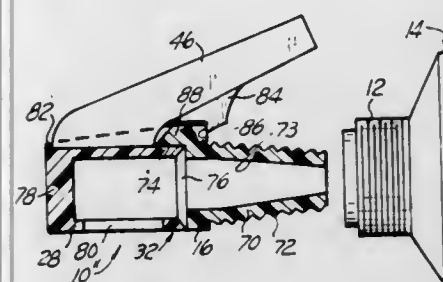
Jakob Rech, Detroit, Mich., assignor to Jerome Applefield and Sheldon Applefield, both of Southfield, Mich.

Continuation of Ser. No. 943,534, Sep. 18, 1978, abandoned, which is a continuation-in-part of Ser. No. 726,418, Sep. 24, 1976, Pat. No. 4,141,476. This application Sep. 15, 1980, Ser. No. 187,321

Int. Cl.³ B65D 47/30

U.S. Cl. 222—553

9 Claims



1. A closure cap for a dispensing container, said closure cap being operable by a finger of the hand holding said container,

4,394,945

VALVE HAVING SUCK-BACK FEATURE

James H. Taylor, Jr., Plainville, Conn., assignor to Loctite Corporation, Newington, Conn.

Filed Aug. 6, 1981, Ser. No. 290,421

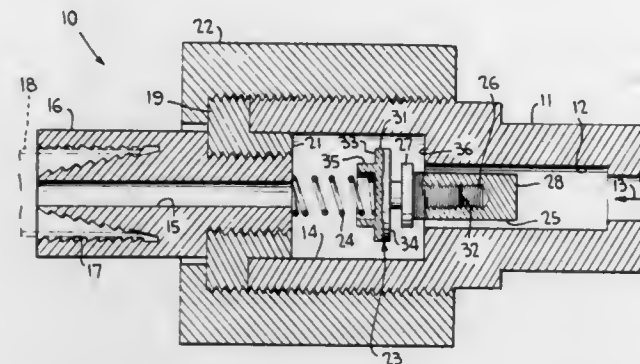
Int. Cl.³ B65D 5/72

U.S. Cl. 222—571

8 Claims

1. In a valve assembly comprising a housing containing a liquid discharge passage, a discharge nozzle extending from said passage, a discharge valve in said passage for closing the flow of liquid therethrough upon engagement with a valve seat, and said passage downstream of said valve defining a variable volume chamber in communication with said nozzle for creating a suck-back flow of liquid from said nozzle upon an increase in volume of said chamber, the improvement

wherein said valve is spring-biased into a closing position and is moved into an open position in response to a predetermined level of liquid pressure in said passage upstream thereof, said valve having a portion engaging said valve seat in said closing position, said valve seat being defined by the wall of said discharge passage upstream of said variable volume chamber, and said valve having a stop shoulder thereon axially spaced from said valve portion, the wall of the variable volume chamber adjacent to said valve seat defining an abutment, said stop



shoulder and said valve portion being disposed in said chamber adjacent said abutment, said stop shoulder and said valve portion being disposed in said chamber when said discharge valve is in said open position, whereby upon a decrease of said liquid pressure below said predetermined level said valve moves into said closing position and thereafter continues movement upstream into said passage until said stop shoulder and said abutment interengage the volume of said chamber thereby expanding to effect said suck-back flow of liquid from said nozzle.

4,394,946

COLLAPSIBLE BOOTJACK

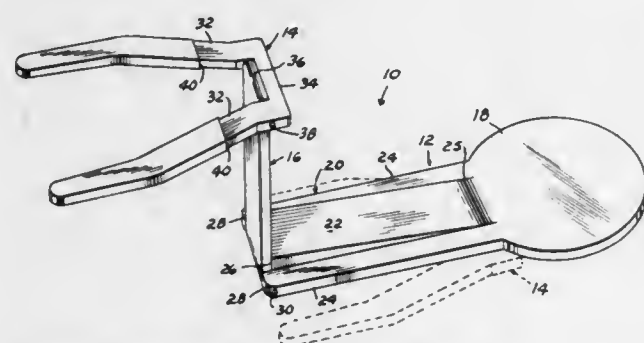
Robert C. McCormick, Grand Prairie, Tex., assignor to Hy-Jacker Products, Inc., Santa Maria, Calif.

Filed May 18, 1981, Ser. No. 264,377

Int. Cl.³ A47J 51/02

U.S. Cl. 223-115

3 Claims



1. A compact foldable bootjack, comprising:
 - an elongated horizontal base having a forward bifurcated end portion;
 - an elongated tongue struck out of said base adjacent its bifurcated end,
 - said tongue having a transverse forward edge surface disposed above the upper surface of the base;
 - an elongated upstanding planar link pivotally connected at its depending end portion with the bifurcated end portion of said base and normally contacting said tongue edge surface for preventing rearward pivoting movement of said link; and,
 - a normally horizontal yoke comprising a generally U-shaped planar member having a bight portion and forwardly projecting diverging legs adapted for frictionally engaging a boot quarter when disposed therebetween to facilitate removal of the boot from the user's foot, said yoke legs straddling the upper end portion of said link and pivotally connected therewith with said bight portion normally contacting the adjacent rearward surface

of said link for preventing upward pivoting movement of the yoke legs, whereby said yoke legs may be pivoted downwardly to lie in the plane of said link and said yoke and said link may be pivoted forwardly and downwardly as a unit to underlie the plane of said base when not in use.

4,394,947

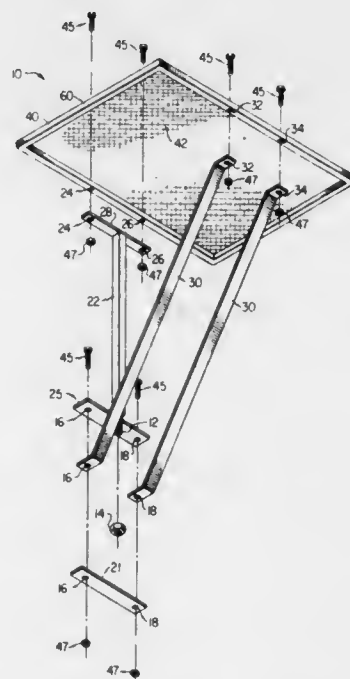
AUTOMOBILE CARGO CARRYING RACK
Paul Tartaglia, 12414 Veronica Cir., Dallas, Tex. 75234

Filed Mar. 16, 1981, Ser. No. 244,262

Int. Cl.³ B60R 9/06

U.S. Cl. 224-42.43

1 Claim



1. An all purpose cargo carrying rack for connecting to the tongue of a standard trailer hitch, said carrying rack comprising:

a platform forming a horizontal supporting surface for cargo to be carried, said platform including a rectangular frame surrounding said supporting surface;

securing means for connecting said platform to the trailer hitch tongue, said securing means including:

- (1) a vertical member having a first horizontal plate member at one end having means for aligning and releasably securing to one of the sides of said frame, the other end of said vertical member having a threaded extension for passing through an aperture in the trailer hitch tongue to releasably secure said vertical member by means of a threaded nut, a second horizontal plate member adjacent to said threaded extension and offset therefrom;
 - (2) a pair of spaced struts having means for releasably securing one end of each strut to a side of the frame opposite said one of the sides, said struts constructed to extend from the side of the frame opposite said one of the sides downwardly toward and below said second horizontal plate member;
 - (3) a third horizontal plate member;
- said second horizontal plate member, said third horizontal plate member, and the ends of said spaced struts opposite said one end of each strut having means to substantially vertically align the second and third horizontal plate members and to releasably secure them and said ends of said spaced struts together while a portion of the trailer hitch extends between said second and third horizontal plate member.

4,394,948

BICYCLE CARRIER FOR VEHICLES

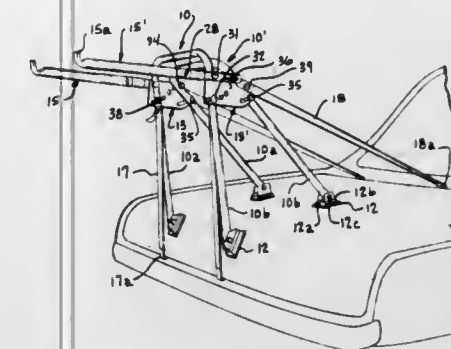
Joseph V. Graber, 3739 County Trunk M, Middleton, Wis. 53562

Filed Mar. 8, 1982, Ser. No. 356,197

Int. Cl.³ B60R 9/10

U.S. Cl. 224-314

11 Claims



1. A foldable bicycle carrier for mounting on a body portion of a vehicle comprising:

- (a) front and rear transverse frames of generally U-shaped configuration each formed of one-piece tubular stock and each having first and second leg portions and a transverse intermediate portion integral with one end of the first and second leg portions and extending therebetween,
- (b) front vehicle engaging feet on the free ends of each of the first and second leg portions on the front transverse frame and rear vehicle engaging feet on the free ends of each of the first and second leg portions on the rear transverse frame,
- (c) first and second bicycle support arms,
- (d) first and second side plates,
- (e) means including said first and second side plates connecting the front and rear transverse frames at a location adjacent their intermediate portions for relative movement between a folded position in which the leg portions on the front frame are disposed adjacent the leg portions on the rear frame and an open position in which the leg portions on the front frame diverge relative to leg portions on the rear frame in a direction away from said intermediate portions to space the front vehicle engaging feet from the rear pair of vehicle engaging feet,
- (f) arm mounting means mounting one end portion of the first and second bicycle support arms respectively on the first and second side plates for angular adjustment relative thereto and relative to the front and rear transverse frames through a plurality of positions in which each of the arms extend outwardly from the rear transverse frame at different angles to a plane through the front and rear vehicle engaging feet, and
- (g) strap means for attaching the bicycle carrier to a vehicle with the front and rear vehicle engaging feet resting on a body portion of the vehicle.

4,394,949

PIN WHEEL FEED MECHANISM

Yoshifumi Gomi, Shiojiri, Japan, assignor to Epson Corporation, Nagano and Kabushiki Kaisha Suwa Seikoshu, Tokyo, both of Japan

Filed Apr. 13, 1981, Ser. No. 253,971

Claims priority, application Japan, Apr. 15, 1980, 55-51128[U]

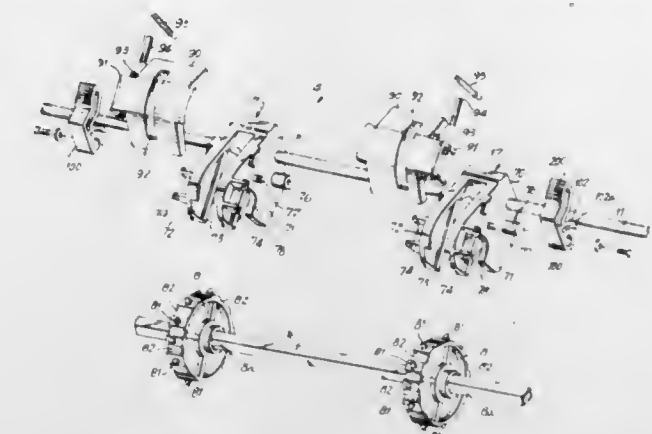
Int. Cl.³ G03B 1/24

U.S. Cl. 226-76

10 Claims

10. A feed mechanism for transporting documents having perforations along the marginal edges thereof, the improvement comprising a pin wheel having a plurality of equiangularly spaced pins which project radially from the surface of said wheel rotatably supported on said feed mechanism, said pins successively engaging in said perforations in said documents as said pin wheel rotates, the engagement of said perfo-

rations with said pins creating bunched portions of said documents between adjacent pins as said documents are fed, said wheel having a notch formed in the surface thereof between



each pair of adjacent pins, said bunched portions of said documents projecting in said notches to prevent disengagement of said perforations from said pins.

4,394,950

APPARATUS FOR FLOATINGLY MOVING A LENGTH OF MATERIAL

Carl Kramer, Am Chorusberg 8, 5100 Aachen, Fed. Rep. of Germany

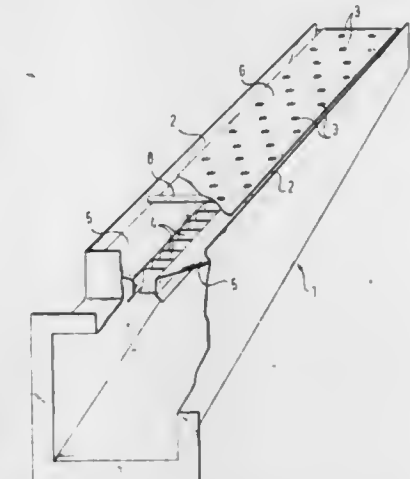
Filed Jun. 30, 1981, Ser. No. 279,219

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1980, 3026132

Int. Cl.³ B65H 17/32; F26B 13/00

U.S. Cl. 226-97

12 Claims



1. A system of nozzles for guiding a length of material in a floating manner by a blowing medium, comprising nozzle frame means with slit nozzles extending laterally transversely to the direction of motion of the length of material having hole nozzles between the slit nozzles, characterized by a guide-vane grille arranged along the axis of the nozzle frame means for the supplied blowing medium and a diffuser joining the guide-vane grille with an exhaust impedance for delaying the blowing medium in separation-free manner.

4,394,951

ACTIVE TAPE STORAGE BIN

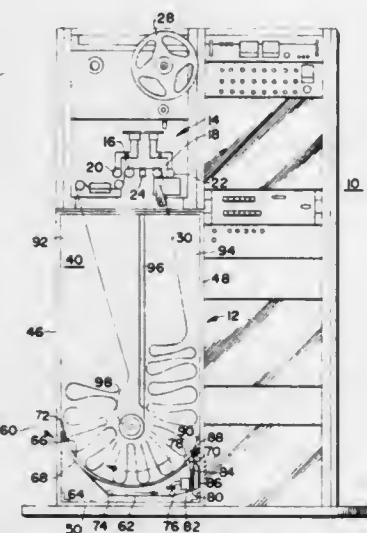
Joseph C. Ruda, Noblesville; Richard E. Wartzok, Indianapolis, and Robert J. Wedekind, Logansport, all of Ind., assignors to RCA Corporation, New York, N.Y.

Filed Jan. 19, 1982, Ser. No. 340,772

Int. Cl.³ B65H 17/42; G11B 15/36

U.S. Cl. 226—118

10 Claims



1. A magnetic tape handling apparatus comprising:
 - (A) a substantially vertical compartment defined by a pair of walls which are so spaced as to require the supply of tape in said compartment to form a stack of folds as the tape is fed into said compartment at one end thereof; said tape being paid out from said compartment at its other end;
 - (B) a conveyor belt located along the bottom of said compartment for supporting said tape stack; said conveyor belt having an upper run and a lower run;
 - (C) means arranged in said compartment for shaping at least a portion of the upper run of said conveyor belt along a U-shaped path; and
 - (D) means for driving said conveyor belt from said one end to said other end to rotate said stack of folds around said U-shaped path for presenting the payout end of said tape stack at said other end for removal from said compartment.

4,394,952

ADJUSTABLE DECK BOARD FEEDER FOR AUTOMATIC PALLET NAILING APPARATUS

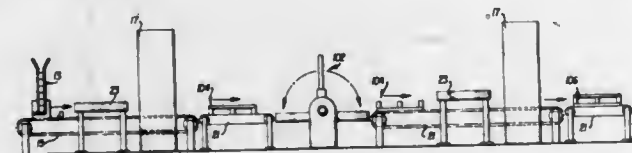
Richard A. Crane, Rte. 2, Box 246A, Beaverdam, Va. 23015

Filed Oct. 17, 1980, Ser. No. 197,963

Int. Cl.³ B27F 7/02

U.S. Cl. 227—7

31 Claims



1. A board feeding apparatus for feeding deck boards to a pallet nailing machine comprising:
 - a plurality of elongated hoppers arranged in parallel for receiving respective stacks of deck boards, each of said hoppers having a board restraining means on one end thereof defining an area permitting passage of a deck board endwise out of said one end, said plurality of hoppers being commonly supported at a rear end by means establishing a pivot about which said hoppers can rotate and at a front end by a common releasable support, said hoppers being pivotable as a unit upon raising of said releasable support;
 - a plurality of driving members, each respectively associated with one of said hoppers for pushing the deck board a

predetermined amount endwise out of said one hopper through said area, said driving members being adjustable in position along the length of said hoppers; and, means for simultaneously moving predetermined ones of said driving members from a rest position to a position causing simultaneous pushing of bottom deck boards from the ends of predetermined ones of said hoppers, said moving means thereafter retracting said driving members to said rest position.

4,394,953

METHOD OF JOINING INDIVIDUAL PARTS OF AN X-RAY ANODE, IN PARTICULAR OF A ROTATING ANODE

Alfred Sonnweber, Lermoos; Hubert Bildstein, Reutte, and Lambert Egger, Höfen, all of Austria, assignors to Schwarzkopf Development Corporation, New York, N.Y.

PCT No. PCT/AT80/00022, § 371 Date Mar. 12, 1981, § 102(e)

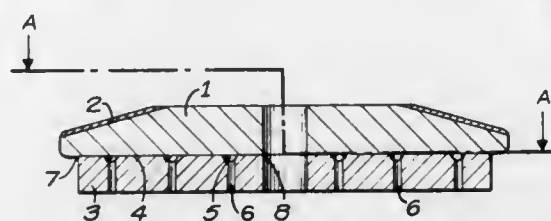
Date Mar. 10, 1981, PCT Pub. No. WO81/00226, PCT Pub. Date Feb. 5, 1981

PCT Filed Jul. 7, 1980, Ser. No. 247,539

Int. Cl.³ B23K 1/20; H01J 35/10; B23K 1/19

U.S. Cl. 228—124

2 Claims



1. A method for joining individual parts of an X-ray anode, in particular of a rotating anode, comprising providing a metal part composed of a high-melting metal or an alloy thereof and at least one graphite part having a graphite surface provided with grooves which are non-intersecting with the edges of said graphite surface, and said graphite part being provided with a plurality of approximately vertical boreholes extending through said graphite part towards said graphite surface and opening into said grooves, soldering the metal part to the graphite surface of said graphite part and removing excessive solder and gases formed during said soldering through said grooves and said boreholes.

4,394,954

CONTAINER AND BLANK FOR CONSTRUCTING SAME

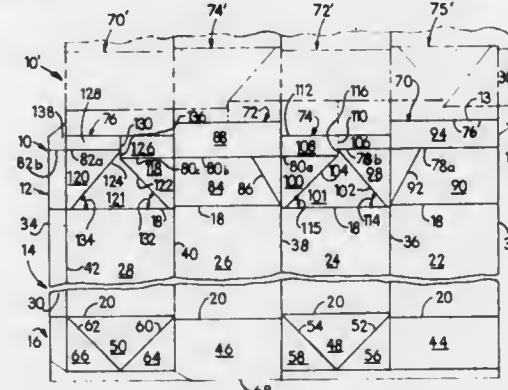
Robert E. Lisiecki, Orchard Lake, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Jul. 6, 1981, Ser. No. 280,739

Int. Cl.³ G65D 5/74

U.S. Cl. 229—17 G

7 Claims



1. A plastic coated paperboard blank for constructing a container adaptable to being folded into a flat end container, the blank comprising: four body panels and a side seam flap; end closure panels respectively connected by horizontal score

4,394,956

ELECTRIC STOCK PROD

James S. Andrews, Westminster, and Leonard L. Hlerath, Denver, both of Colo., assignors to The Magrath Company, McCook, Nebr.

Continuation of Ser. No. 754,341, Dec. 27, 1976, abandoned.

This application Jul. 30, 1979, Ser. No. 62,450

Int. Cl.³ B68B 11/00; F41B 15/04

U.S. Cl. 231—2 E

23 Claims



1. A head for an electric animal prod or the like comprising a body of insulating material having a width substantially greater than its thickness and having a shaft attaching means at its rear end adapted to receive a shaft extending rearwardly thereof, a pair of spaced electric contact tips secured to and projecting forwardly from the front end of said body, the front end of said body having a configuration between said tips providing a long insulated path between said tips having a length substantially greater than the spacing between said tips, said body being adapted to be placed laterally against an animal with said tips in position for simultaneous electrical contact with the animal.

4,394,957

SENSOR CONTROL DEVICE

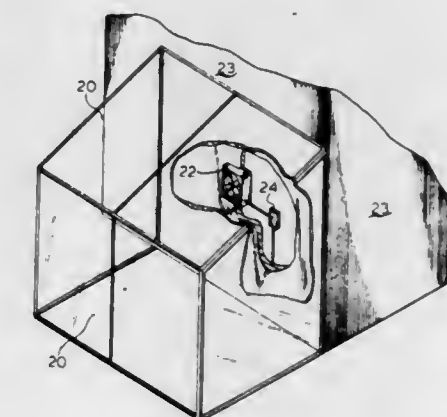
John P. Newton, III, Box 55, Selkirk, N.Y. 12158

Filed Mar. 20, 1981, Ser. No. 245,724

Int. Cl.³ F24F 7/00; H03K 5/159

U.S. Cl. 236—49

24 Claims



lines to one of the ends of the body panels; end closure panels including a pair of outer panels consisting of upper and lower closure panels respectively connected by horizontal score lines to the other ends of two of the body panels, a front panel and a back panel respectively connected by horizontal score lines to said other ends of the other two body panels, each including a gable panel defined by diagonal score lines extending toward each other from the horizontal score lines, a pair of fold back panels connected by the diagonal score lines to opposite sides of the respective gable panels, and a pair of infold lips separated from each other by a centrally located vertical score line and separated from the respective fold back panels by substantially horizontal score lines, one of which is lower than the other, and both of which meet the respective diagonal score lines at the upper ends thereof at spaced points along the vertical score line, resulting in a short vertical side at the top of each of the gable panels.

4,394,955

BAG WITH BENDABLE RETAINER STRIP, AND METHOD OF MAKING THE SAME

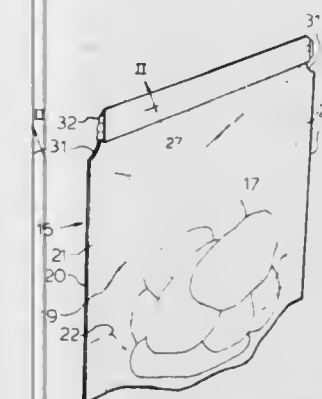
Charles D. Raines, Columbus, Ga., and Earl W. Williams, Phenix City, Ala., assignors to Plicon Corporation, Columbus, Ga.

Filed Feb. 20, 1981, Ser. No. 236,337

Int. Cl.³ B65D 33/02, 33/06

U.S. Cl. 229—65

16 Claims



1. A bag of the type having opposed first and second bag walls with their opposite side edges sealed to one another in respective sealed areas adjacent each of such side edges, and with their bottom edges sealingly attached to one another to provide a bag having a top bag mouth opening, and comprising:

- a substantial portion of said first bag wall projecting substantially upwardly as a lip above said second bag wall and thereby above said bag mouth opening;
- a bendable retainer strip secured to, carried by, and extending across said lip;
- a clearance indentation in each of such sealed side edges of said bag each indentation extending into but not beyond such sealed area and further extending from adjacent to the lower edge of said lip downwardly to a substantial distance below said bag mouth opening, thereby to define an end tab extension at each opposite end of said lip; and
- each of said opposite end tab extensions of said lip including said strip and projecting into overhanging relation to said indentations and said end tab extensions each having its respective tip end in alignment with its adjacent such side edge, so that said lip is adapted to be folded over into closing relation to said bag mouth opening and onto the outer face of said second wall, and said end tab extensions being then adapted to be bent over within said clearance indentations onto the outer face of said first wall for maintaining said bag closed, but permitting said bag to be reopened by bending said end tab extensions out of engagement with said first wall and unfolding said lip away from said bag mouth opening.

1. A control circuit adapted to be coupled with a power source for providing an output capable of controlling the operation of a device such as a blower, with said circuits output being a function of a change in a controlled environment from a predetermined level, comprising:

- sensor means capable of sensing a change in the environment and providing a signal corresponding to said change;
- logic means capable of receiving said signal and providing an output for controlling the operation of the device, said logic means includes: first generating means capable of generating periodically a reference pulse of predetermined pulse width; second generating means capable of generating a pulse having a width that varies as a function of the signal corresponding to the change from the predetermined level; and means capable of determining the difference in width of said pulses and based upon said difference gate or inhibit the output of the control circuit so that the output is proportional to the change in the environment with small changes from the predetermined level inhibited from causing undesired oscillation of the output about said level.

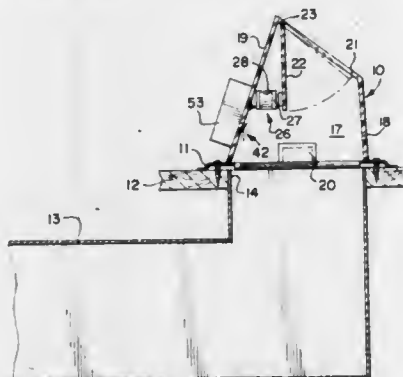
4,394,958

AIR FLOW AND CONDITION RESPONSIVE DAMPER
John A. Whitney, Fort Wayne, and Richard Rosenbrock, Bluffton, both of Ind., assignors to Franklin Electric Co., Inc., Bluffton, Ind.

Filed Dec. 23, 1981, Ser. No. 333,753
Int. Cl.³ F24F 13/06

U.S. Cl. 236-49

15 Claims



14. A method of controlling the air flow in a forced air system including a blower, a plurality of air outlets, and ducts leading from said blower to said outlets, each of said outlets including a flapper valve that is movable to an open outlet position and to a closed outlet position, said valves being normally in said open outlet position and the force of air through the ducts and to the outlet acting to move the valve to the closed outlet position, a releasable latch for holding the valve in the open outlet position, and a control including a temperature sensor for releasing the latch at a present temperature level, said method comprising the steps of opening said flapper valves, engaging said latches, operating said blower to exert a force on each of said flapper valves, at each of said outlets sensing the temperature utilizing said sensor, and releasing the latch utilizing said control when the sensed temperature is displaced from said preset temperature.

4,394,959

MULTIMODE HEATING SYSTEM AND METHOD FOR HEATING

Auke O. T. de Vries, Leek, Netherlands, assignor to N.V. Nederlandse Gasunie, Groningen, Netherlands

Continuation of Ser. No. 955,609, Oct. 30, 1978, abandoned.

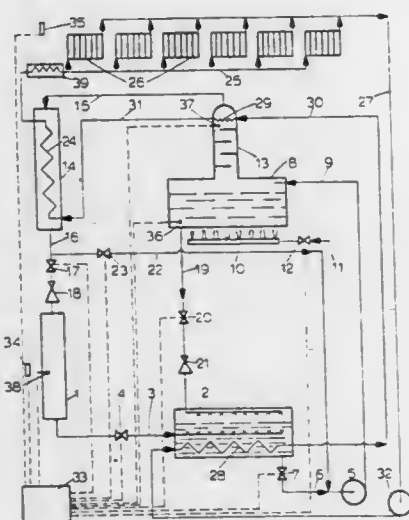
This application Dec. 5, 1980, Ser. No. 213,486

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1977, 2748415

Int. Cl.³ G05D 23/00; F25B 27/02

U.S. Cl. 237-2 B

25 Claims



1. A multimode heating system for heating one or more rooms comprising first circulation means for circulating a heating fluid to treat the environment in the rooms, second circulation means for circulating an operating fluid and an absorbing liquid through a heat absorption path, said second

circulation means including primary heat pump means through which the operating fluid and absorbing liquid are circulated for absorbing heat from cold and hot heat sources, means for transferring heat within said second circulation means to the heating fluid within said first circulation means by one or more heat exchangers, and control means for controlling changes in the operation of the multimode heating system between first and second operating modes in response to exterior temperature conditions so that when exterior temperatures are above a predetermined point, the system operates in a first mode wherein the operating fluid is circulated through said cold heat source and subsequently mixed with said absorbing liquid for circulation through said hot heat source and when exterior temperatures fall below said predetermined point, said control means changes the system to the second operating mode wherein the flow of the operating fluid bypasses said cold heat source and said absorbing liquid and passes directly as a liquid from said transfer means to said hot heat source to be evaporated there with substantially only the operating fluid being circulated and used to heat the heating fluid in said first circulation means.

4,394,960

HEATING APPARATUS FOR A PASSENGER COMPARTMENT OF A MOTOR VEHICLE
Sadaharu Nakazawa, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

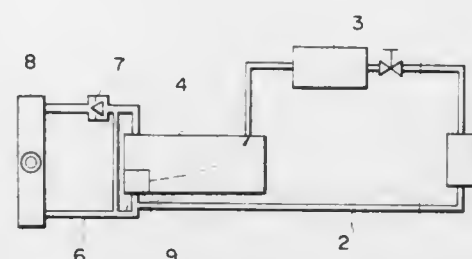
Filed Jun. 30, 1981, Ser. No. 279,301

Claims priority, application Japan, Jul. 1, 1980, 55-91416[U]

Int. Cl.³ B60H 1/02

U.S. Cl. 237-12.3 C

10 Claims



1. A heating apparatus for a passenger compartment of a motor vehicle, said vehicle having an engine and a liquid cooling circuit system for the engine, said cooling system including a radiator and a pump forming a high pressure portion and a low pressure portion during operation of said pump within the liquid cooling system,

the heating apparatus comprising:

means defining a vehicle cabin heating circuit including a liquid flow passage having an upstream end communicating with the high pressure portion of the liquid cooling system and a downstream end communicating with the low pressure portion of the cooling system so as to allow a portion of the liquid within the cooling system to flow through said liquid flow passage;

a heat exchanger fluidly disposed within said liquid flow passage;

control means responsive to cooling fluid temperature for selectively causing cooling fluid to flow through the liquid flow passage and through the heat exchanger means in a first circulating mode wherein cooling fluid in the liquid flow passage is substantially isolated from the cooling circuit to prevent flow through the engine and the engine cooling system to enable the heater means to rapidly heat the portion of cooling fluid in the liquid flow passage without heating fluid in the cooling system for rapid passenger compartment warm-up, and a second circulating mode wherein cooling fluid from the engine and cooling circuit flows into said liquid flow passage of the heating circuit, said control valve means including a normally

closed first valve preventing liquid flow from the cooling circuit into the heating circuit liquid passage in the first circulating mode and being operable to gradually open when liquid temperature in the heating circuit is above a first predetermined level, thereby initiating the second circulating mode wherein fluid in the cooling circuit gradually flows into the heating circuit to prevent a sudden temperature drop in said heating circuit;

means for defining a bypass passage in the heating circuit having one end communicating with the liquid flow passage at the downstream end thereof and an opposite end communicating with said liquid flow passage at the upstream end thereof, said bypass passage being positioned to allow cooling liquid to circulate through the liquid flow passage and bypassing the engine cooling system;

pump means within said liquid flow passage for effecting circulation of liquid through said liquid flow passage and said bypass passage; and

heater means for heating the cooling liquid flowing through said liquid passage.

4,394,961

TRACK FOR TOY VEHICLES WITH JUMPING-OFF AND JUMPING-ON RAMPS

Werner Müller, Blumberg, Fed. Rep. of Germany, assignor to Helmut Darda Spielwaren- und Maschinenbau GmbH, Blumberg, Fed. Rep. of Germany

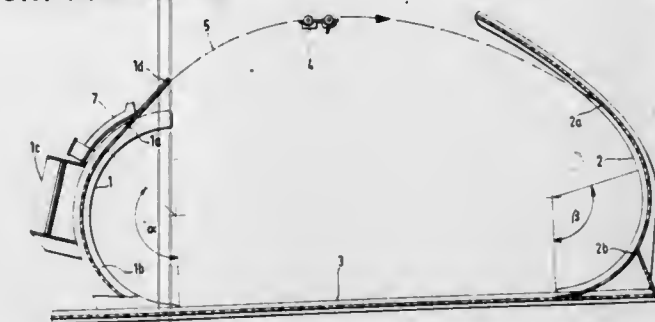
Filed Jan. 16, 1980, Ser. No. 113,501

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1979, 2902191

Int. Cl.³ A63H 18/08; E01B 23/00

U.S. Cl. 238-10 R

10 Claims



1. A track arrangement for toy vehicles, comprising a vehicle track including arcuately curved jump-off and jump-on ramps between which a toy vehicle can carry out a free-flying jump, at least said jump-off ramp being of flexible material so as to be deflectable transversely of the track elongation, said jump-on ramp having a free-vehicle touchdown end which is wider than the remainder of said jump-on ramp, a handle at a rear side of said jump-off ramp, and a sighting device above said handle so that the jump-off ramp may be sighted-in on the jump-on ramp.

4,394,962

SOLENOID OPERATED FUEL INJECTOR AND CONTROL VALVE

Dennis A. Wilber, Elizabethtown, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Filed Feb. 23, 1981, Ser. No. 237,257

Int. Cl.³ F02M 47/02

U.S. Cl. 239-88

16 Claims

1. A valve for controlling fluid flow between a low pressure fluid supply and a fluid utilizing device which produces a back pressure which varies above and below the supply pressure, comprising

(a) a valve housing containing a valve cavity, an inlet passage for connection with the low pressure fluid supply, an outlet passage for connection with the fluid utilizing device, and a flow control passage arranged to provide the sole path for fluid communication between said inlet and

outlet passages through said valve cavity, said valve housing including a valve seat surrounding said flow control passage;

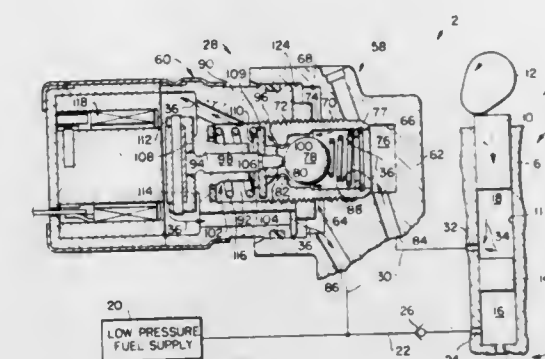
(b) a ball positioned within said valve cavity and movable between a closed position in which said ball contacts said valve seat to form a seal capable of preventing back flow from said outlet passage to said inlet passage and an open position in which fluid may flow in either direction between said inlet and outlet passages;

(c) ball biasing means for continuously biasing said ball toward said closed position with a closing force sufficient to maintain said ball in said closed position even when the back pressure drops below the supply pressure;

and

(d) operator means included within an operator housing for moving said ball between said open and closed positions in response to an electrical control signal, said operator means including

(1) a stem having a longitudinal axis aligned with the center of said ball and movable between an advanced position in which one end of said stem contacts said ball to move said ball to said open position and a retracted position in which a predetermined gap is formed between said one end of said stem and said ball when said



ball is in said closed position to insure full closure of said valve,

(2) operator biasing means for biasing said stem toward said advanced position with an opening force sufficient to overcome the biasing force imparted to said ball by said ball biasing means, said operator biasing means including a coil compression spring positioned coaxially around said stem,

(3) an electromagnetic means for moving said stem from said advanced position to said retracted position when electrically energized and for allowing said stem to be moved to said advanced position under the force imparted thereto by said operator biasing means, said opening force being sufficiently greater than said closing force to cause said ball to move from said closed to said open position in less than one millisecond, and

(4) adjustable connecting means for adjustably connecting said operator housing to said valve housing in a manner to permit said operator housing to be moved in position along the longitudinal axis of said stem relative to said valve housing to adjust the clearance between said valve seat and said ball when said stem is moved to its advanced positions and for adjusting said predetermined gap between said ball and said one end of said stem when said stem is in said retracted position.

4,394,963

FUEL INJECTION NOZZLE

Masatoshi Iwata, Oyama, Japan, assignor to Kabushiki Kaisha
Komatsu Selsakusho, Tokyo, Japan

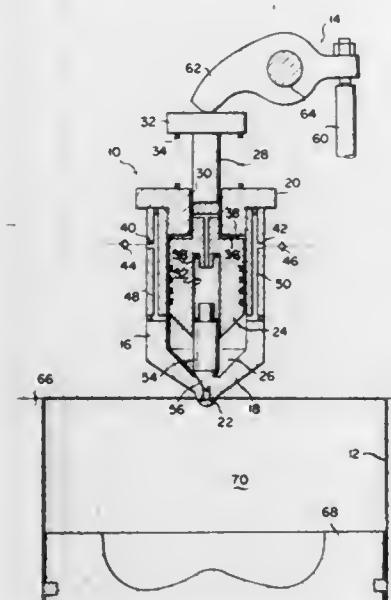
Filed Sep. 3, 1981, Ser. No. 299,129

Claims priority, application Japan, Sep. 4, 1980, 55-125045[U]

Int. Cl.³ F02M 61/08

U.S. Cl. 239—89

6 Claims



1. A fuel injection nozzle for the delivery of fuel, premixed with air, to the combustion chamber of a cylinder in an internal combustion engine, comprising:

- a hollow nozzle body having formed therein at least one spray hole adapted to open to the combustion chamber of the engine cylinder;
- a piston slidably mounted in the nozzle body for reciprocating movement between a first and a second position and defining therein a premixing chamber to be placed in and out of communication with the combustion chamber of the engine cylinder via the spray hole, the piston having a bore formed axially therein;
- there being in the nozzle body a fuel inlet port and an air inlet port which are both open to the premixing chamber when the piston is in the first position and which are closed by the piston upon movement thereof from the first toward the second position;
- a valve member slidably fitted in the bore in the piston and having one end projecting outwardly therefrom for opening and closing the spray hole in the nozzle body; and
- spring means acting between the piston and the valve member for normally causing the latter to close the spray hole in the nozzle body;
- the valve member being adapted to be acted upon, during the piston stroke from the first to the second position, by the compressed fuel-air mixture in the premixing chamber so as to move against the force of the spring means for opening the spray hole.

4,394,964

FUEL PUMP-INJECTOR UNITARY ASSEMBLY FOR
INTERNAL COMBUSTION ENGINEAndre Ecomard, Marly le Roi, and Philippe Pinchon, Rueil-
Malmaison, both of France, assignors to Institut Francais Du
Petrole, Rueil-Malmaison, France

Filed Jun. 26, 1981, Ser. No. 277,543

Claims priority, application France, Jun. 27, 1980, 80 14369

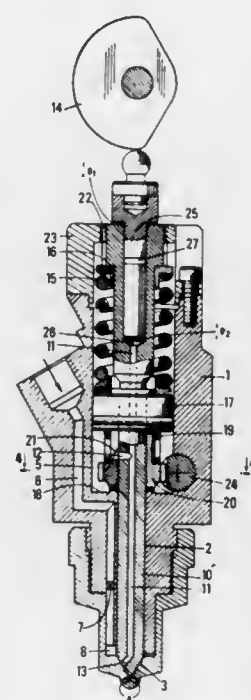
Int. Cl.³ F02M 45/00

U.S. Cl. 239—90

10 Claims

1. A fuel pump-injector unitary assembly for an internal combustion engine, comprising an injector body having an axial bore with the bottom traversed by at least one fuel spray nozzle, at least one fuel inlet duct opening in said axial bore near the bottom thereof, a plunger or needle slidable in said bore between a first position wherein said plunger is spaced

from the bore bottom, and a second position corresponding to the position of the end of injection, where the tapered lower end of the plunger obturates the spray nozzles, said pump-injector unitary assembly comprising means for metering the fuel quantity injected through said spray nozzle, said metering means comprising a transfer passageway provided in the plunger and communicating at a first end with a fuel discharge duct when the plunger is in its first position, with said fuel discharge duct opening through the wall of said axial bore, a metering ring surrounding said plunger and located in an annu-



4,394,965

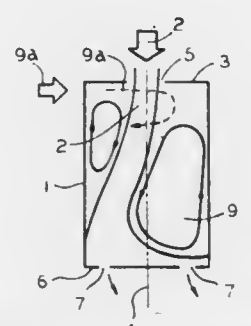
PULSATING SHOWER USING A SWIRL CHAMBER
Wolfgang Backe, Wolf-Dieter Goedecke, and Reinhard
Schwenzer, all of Aachen, Fed. Rep. of Germany, assignors to
Friedrich Grohe Armaturenfabrik GmbH & Co., Hemer, Fed.
Rep. of Germany

Filed May 18, 1981, Ser. No. 264,563

Claims priority, application Fed. Rep. of Germany, May 17,
1980, 3018917Int. Cl.³ B05B 3/14

U.S. Cl. 239—102

5 Claims



1. A shower fixture connected to a fluid supply, said shower fixture comprising:
a swirl chamber,

said swirl chamber being of approximately cylindrical shape and having a central longitudinal axis, said chamber having an upstream end face, said upstream end face having an inlet opening, said inlet opening being positioned on said central longitudinal axis and in fluid communication with said fluid supply to provide a supply jet, said swirl chamber having a downstream end face having a plurality of outlet apertures arranged along a pitch circle, said pitch circle being concentric with said central longitudinal axis, and means for generating a control flow, said control flow means comprising one or more tangentially located inlet apertures in the wall of said swirl chamber, said inlet apertures being located near said upstream end face.

4,394,966

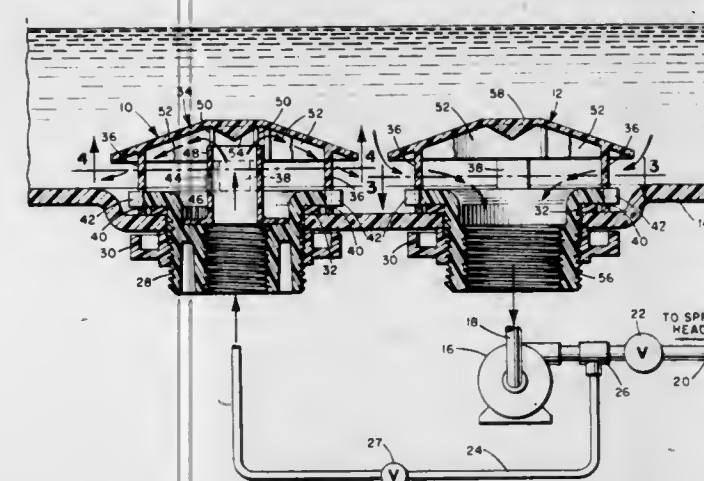
SPRAYING APPARATUS HAVING A FLUID STORAGE
TANK WITH AGITATOR AND ANTI-VORTEX TANK
FITTINGSLarry L. Snyder, and Martin T. Smith, Jr., both of Lincoln,
Nebr., assignors to Snyder Industries, Inc., Lincoln, Nebr.

Filed May 9, 1978, Ser. No. 904,274

Int. Cl.³ B05B 9/00

U.S. Cl. 239—127

25 Claims



1. A spraying apparatus comprising:

- a fluid storage tank;
- pump means connected to said fluid storage tank by a fluid outlet pipe for pumping fluid from said fluid storage tank;
- spray means connected to said pump by a spray pipe for spraying fluid pumped from said fluid storage tank;
- a bypass return pipe connected between said spray pipe and said fluid storage tank for returning a portion of the fluid in said spray pipe to said fluid storage tank;
- agitator means connected to said bypass return pipe in said fluid storage tank for mixing the fluid in said fluid storage tank by transferring the momentum of the fluid in said bypass return pipe to the fluid in said fluid storage tank, said agitator means comprising agitator cap means overlaying the opening in said bypass return pipe at a fixed distance therefrom for directing the fluid discharged by said bypass return pipe into said fluid storage tank in a spiral rotating fashion, said agitator cap means being formed by a conical plate having its concave side positioned adjacent the opening in said bypass return pipe to provide a focus for the fluid discharged thereby, said conical plate having spiral shaped fins on its concave side for imparting a spiral rotating motion to the fluid discharged by said bypass return pipe, and nozzle means coupled to said bypass return pipe for defining a fixed gap between said conical plate and said nozzle means to control the flow momentum in said fluid storage tank; and
- anti-vortex means connected to said fluid outlet pipe and mounted on the bottom wall of said fluid storage tank for preventing the formation of a gyrating vortex as the fluid in said fluid storage tank discharges through said fluid outlet pipe to thereby prevent pump cavitation in said

4,394,967

GUN FOR APPLYING PAINTS BY HOT PROCESS

Jean Amiaut, 1 Rue des Cluzeaux, F-93240 Stains, France

PCT No. PCT/FR80/00184, § 371 Date Aug. 12, 1981, § 102(e)

Date Aug. 12, 1981, PCT Pub. No. WO81/01670, PCT Pub.

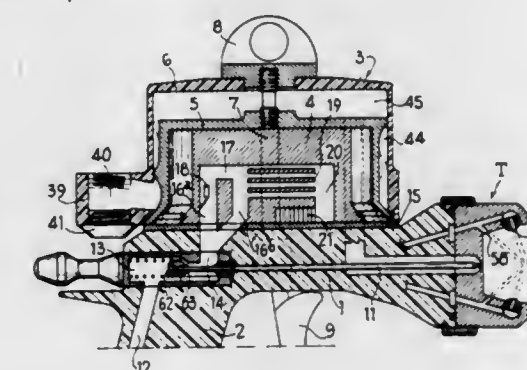
Date Jun. 25, 1981

PCT Filed Dec. 18, 1980, Ser. No. 293,641

Claims priority, application France, Dec. 18, 1979, 79 30910;
Oct. 31, 1980, 80 23293Int. Cl.³ B05B 1/24

U.S. Cl. 239—133

7 Claims



1. A gun for the hot application of paints, comprising a substantially horizontally extending body having a downwardly extending grip, an assembly comprising a cylindrical heating block having a vertical axis and including electric resistances mounted on the body, a first envelope defining with the block a sinuous path for the heating of air, and a second envelope defining a path for paint, means for automatically controlling the temperature of the spraying air, said second envelope being in the shape of a bell pivotally mounted on top of and around the first envelope and defining with means provided on an outer surface of the first envelope communicating first and second annular paths for the paint superimposed around said first envelope and communicating with a chamber defined between end walls of the first envelope and second envelope, said chamber having an outlet conduit which extends through said heating block, a vertical hot air outlet passageway which coaxially surrounds said outlet conduit, said conduit and said passageway separately opening outside said block into said body, said body being of insulating material and carrying a rotary spraying head having lateral branches, each of said branches comprising two air jets at least one of which two jets is adjustable, said block, first envelope and second envelope being in coaxial relation to one another on said vertical axis in said assembly, means for securing said assembly to a top part of said body, said second envelope comprising a lateral boss having a passage which communicates with said first path and second path for the paint, said boss being connectible selectively to a source of paint supplied by gravity located above the body and to a source of paint supplied by aspiration located below said body, and means for allowing said second envelope to be adjusted in position about said vertical axis relative to said first envelope and for securing said second envelope in the adjusted position relative to said first envelope, whereby said source of paint can be placed in a convenient position relative to said body, said vertical axis being so located relative to the grip that said passage in said boss can be placed in close proximity to a second vertical axis in vertical alignment with said grip.

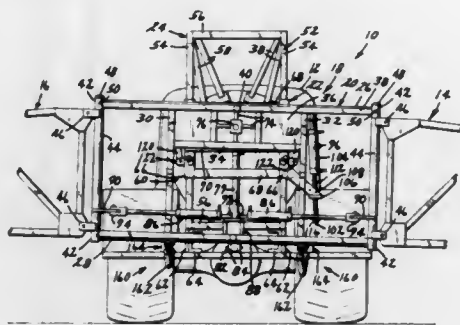
4,394,968

POSITIONING APPARATUS FOR BOOM STRUCTURES

Loren E. Tyler, Box 170, Benson, Minn. 56215
 Filed Mar. 30, 1981, Ser. No. 249,066
 Int. Cl.³ A01C 23/04

U.S. Cl. 239—167

4 Claims



1. A positioning apparatus comprising:
 a boom structure;
 means for pivotably mounting said boom structure on a vehicle, said mounting means including a pin member about which said boom structure pendulously swings;
 means for moving said boom structure upwardly and downwardly between an upper transit position and lower operating positions, said moving means including an hydraulic cylinder for moving upwardly and downwardly said pin member and said boom structure swinging from said pin member; and
 means for angularly self-centering said boom structure when said moving means moves said boom structure from a lower operating position to the upper transit position, said angularly self-centering means including a pair of chains, one said chain attached between said boom structure and said vehicle on each side of a vertical plane passing through said pin member.

4,394,969

SHOWERHEAD CONTROL

Emile Jette, 1328 NE, 110 Ter., Miami, Fla. 33161
 Continuation-in-part of Ser. No. 219,851, Dec. 31, 1980, abandoned, which is a continuation-in-part of Ser. No. 868,200, Jan. 9, 1978, Pat. No. 4,273,289, which is a continuation-in-part of Ser. No. 863,694, Dec. 29, 1977, abandoned, which is a continuation-in-part of Ser. No. 790,277, Apr. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 743,766, Nov. 22, 1976, abandoned. This application Feb. 10, 1981, Ser. No. 233,209

Int. Cl.³ B05B 1/18, 1/32, 7/00

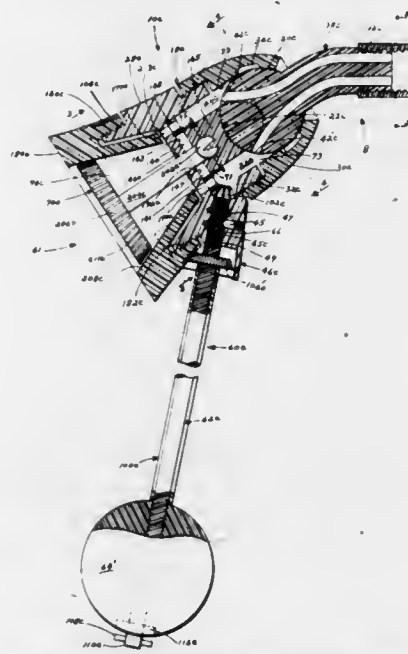
U.S. Cl. 239—414

9 Claims

1. A showerhead device assembly including means for controlling temperature and the flow of water therethrough pivotally connected by a ball and socket means to a shower arm having separate hot and cold water passages extending there-through comprising:

- A. A main housing having passage means between an inlet and a discharge portion including separate hot and cold water chambers divided by a first partition, a water temperature and flow control means in the form of a second partition positioned at the downstream end of said chambers for varying the temperature and volume of water leading to the discharge portion and screwthreads at its downstream end;
 B. The discharge portion including connection means for engaging a valve and spray producing means;
 C. The valve and spray producing means comprising:
 (a) an annular frustoconical skirt shaped body having an inner surface and an upstream end adapted to contact said second partition to shut off the flow of water,
 (b) a disc having a frustoconical peripheral surface with a plurality of grooves, said grooves cooperating with the inner surface of said skirt shaped body to define outlet

- passages, and a stem extending in an upstream direction for connecting the disc to the first partition,
 (c) the connection means comprising screwthreads for cooperation with the screwthreads of said main housing whereby by screwthreading said valve and spray producing means to said main housing the texture of the spray exiting said outlet passages can be varied and the flow of water past said second partition can be shut off by contacting said second partition with the upstream end of said skirt shaped body; and



- D. An elongate control means having an upper end carried by said main housing and connected to said second partition and to said valve and spray producing means for:
 (a) varying the volume and temperature of the water leading to the discharge portion;
 (b) moving the valve and spray producing means with respect to said main housing to vary the spray texture of the spray exiting said outlet passages; and
 (c) varying the direction of the spray by moving the socket with respect to the ball of said ball and socket means.

4,394,970

FUEL INJECTION NOZZLE FOR COMBUSTION ENGINES

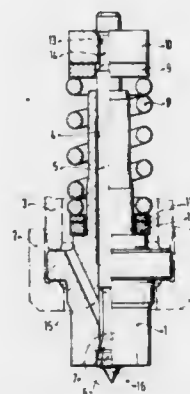
Karl Hofmann, Remseck; Kurt Seifert, Esslingen, and Josef Jungbauer, Erding, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
 Filed Feb. 6, 1981, Ser. No. 232,338

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1980, 3004454

Int. Cl.³ B05B 1/32

U.S. Cl. 239—453

7 Claims



1. A fuel injection nozzle having an inlet end from which direction fuel flows and an injection end from which fuel is

4,394,972

FUEL INJECTION NOZZLES

James C. Potter, London, England, assignor to Lucas Industries PLC, Birmingham, England

Filed Apr. 12, 1982, Ser. No. 367,803

Claims priority, application United Kingdom, Apr. 14, 1981, 8111783

Int. Cl.³ F02M 61/00; B05B 1/32

U.S. Cl. 239—453

10 Claims

injected for combustion engines comprising a nozzle housing having a flat injection end surface, a bore in said nozzle housing, said bore including a small diameter section and an enlarged cylindrical end portion of uniform diameter which directly adjoins said small diameter section to form a valve seat through which a fuel jet is discharged, said enlarged cylindrical end portion extending from said valve seat to said flat injection end surface of said housing, a valve needle in said bore, said valve needle including a valve needle head portion, said valve needle head portion including a conical section with a cross sectional portion of greater diameter than said valve seat which conical section is arranged to close against said valve seat to close said bore and arranged to open in the direction of fuel flow, said valve needle head portion including a cylindrical portion of uniform diameter which adjoins said conical portion and extends downstream of said conical portion, said cylindrical head portion extends into said enlarged cylindrical end portion of said bore with a slight radial play when said valve needle is seated in a closed position against said valve seat, said valve needle head portion further includes a cone portion extending axially from said cylindrical portion with the vertex end of the cone in the direction of fuel injection to thereby shape the fuel jet emitted by said nozzle.

4,394,971

FUEL INJECTION NOZZLE ASSEMBLY

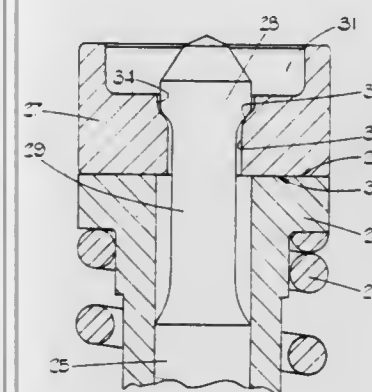
David J. Gaskell, Sudbury, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Mar. 4, 1981, Ser. No. 240,547

Int. Cl.³ F02M 61/08

U.S. Cl. 239—453

1 Claim



1. A fuel injection nozzle assembly for use in a fuel injection nozzle for an internal combustion engine, the nozzle assembly comprising a body portion defining a bore having a seating at one end thereof, a valve member having a stem portion extending through the bore, a head located at one end of the stem for cooperation with said seating, a spring abutment located about said stem, a coiled compression spring positioned between said abutment and said body portion, an enlarged portion on the stem, a collar having a first arcuate aperture extending there-through and through which can pass the enlarged portion of the stem, second and third arcuate apertures intersecting said first aperture, each of said second and third apertures being sized to accommodate a reduced portion of the stem, said apertures defining a gap through which can pass the reduced portion of the stem, said apertures all having different diameters and a part annular shoulder defined by and recessed in said second and third apertures, said shoulder defining a convex surface and being engaged by a surface of convex form defined on said enlarged portion of the stem, said shoulder being divided into two portions, said portions being non-diametrically located on opposite sides of said first aperture, said collar being engaged by said spring abutment whereby the force exerted by the spring acts to maintain said surface in engagement with said shoulder.

4,394,973

INJECTION VALVE

Rudolf Sauer, Benningen; Wolfgang Kienle; Werner Paschke, both of Schwieberdingen, and Waldemar Hans, Bamberg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 30, 1981, Ser. No. 249,297

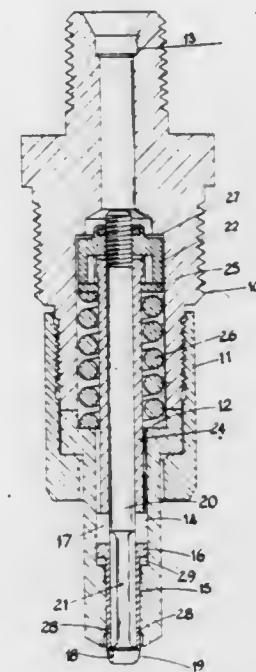
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1980, 3013007

Int. Cl.³ F02M 61/16, 61/18, 51/08

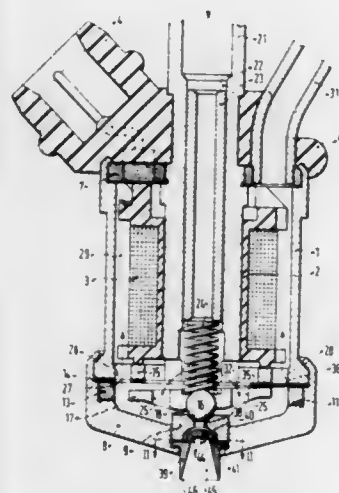
U.S. Cl. 239—467

4 Claims

1. An injection valve for fuel injection systems of internal combustion engines including a movable valve element associated with a fixed valve seat in a valve seat body, said valve seat body having an annular wall recess downstream of said valve seat, a nozzle means downstream of said valve seat having horizontal fuel guidance bores therein,



said nozzle means having an end portion having a plurality of flat sides, said end portion protruding into said recess, and intermediate chambers formed between the sides of the end protrusion and the wall of said recess, said horizontal fuel guidance bores extending from said intermediate chambers to a spin chamber in said nozzle means,



said spin chamber having a frusto-conical interior wall, said fuel guidance bores extending tangentially of said spin chamber interior wall whereby fuel is tangentially discharged into said spin chamber, the interior wall of said spin chamber diverging outwardly in the direction of flow whereby a fuel stream emerges from the spin chamber in a conical configuration.

4,394,974

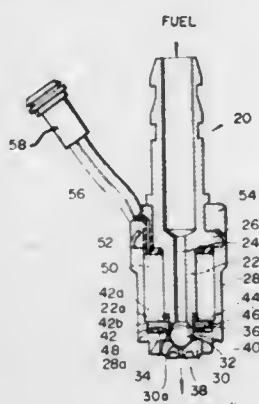
FUEL INJECTOR VALVE

Masaaki Saito, Yokosuka, and Tadaki Ota, Kawasaki, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Mar. 11, 1981, Ser. No. 242,421
Claims priority, application Japan, Mar. 24, 1980, 55-38319[U]

Int. Cl.³ B05B 1/30

U.S. Cl. 239—585

6 Claims



1. A fuel injector valve, comprising:

- a casing;
- a main magnetic pole securely disposed within said casing and provided with an electromagnet coil wound thereon, said main magnetic pole being elongate and cylindrical and formed with an axial fuel passage through which fuel is supplied and a tip section;
- a valve seat member securely connected to said casing so as to be located opposite to the tip section, said valve seat member being formed with a fuel injection opening through which fuel is dischargeable out of said fuel injector valve, the axis of said fuel injection opening being aligned with the axis of the fuel passage of said main magnetic pole;
- a spherical valve member movably disposed within a valve

chamber to be filled with fuel, said valve chamber being defined between the main magnetic pole tip section and said valve seat member, the fuel within said fuel chamber being supplied through the fuel passage of said main magnetic pole and dischargeable out of said fuel chamber through the fuel injection opening of said valve seat member; and

- a side magnetic pole securely connected to said casing and located spaced around said spherical valve member, the axis of said side magnetic pole being aligned with the axis of said main magnetic pole; and
- an adapter member in contact with and interposed between the main magnetic pole tip section and said casing to secure the locational relationship therebetween, said adapter member being generally annular and having inner and outer peripheral surfaces which securely contact the main magnetic pole and said casing, respectively; said adapter member including a cylindrical section containing said inner peripheral surface thereof, and a radially and outwardly extending flange section containing the outer peripheral surface thereof, said cylindrical section being fitted in a peripheral cutout section of said main magnetic pole, said flange section being fitted in a lower inner recess of said casing so that the bottom surface thereof contacts said side magnetic pole.

4,394,975

ROCK DUST BLOWER

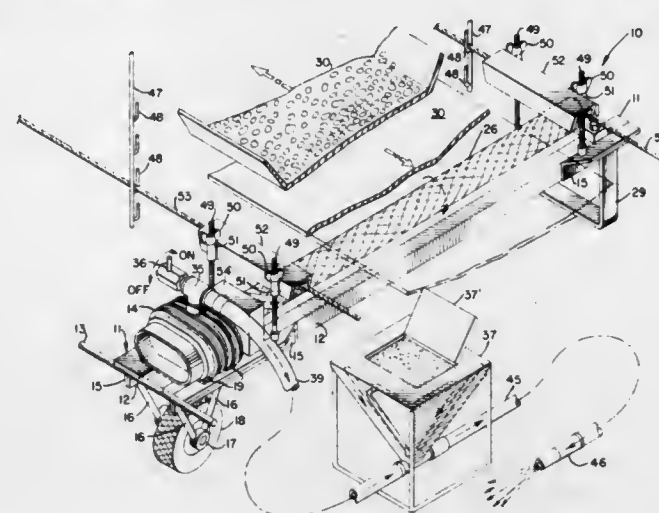
Clyde A. Bare, Jr., Box 244; Buddy L. Bare, Box 714, both of Crab Orchard, W. Va. 25827, and Walter A. Hill, Rte. 2 Box 1725, Beckley, W. Va. 25801

Filed Jul. 2, 1981, Ser. No. 279,853

Int. Cl.³ A01C 3/06

U.S. Cl. 239—654

4 Claims



1. A rock dust applying device comprising a framework having mounted thereon a roller adapted to engage with the undersurface of a travelling endless conveyor and to be rotated thereby, a gear train rotated by said roller, a blower mounted on said framework and being driven by said gear train, said blower directing a stream of air through a conduit which directs some of the air through a hopper to thereby agitate a rock dust contained therein which is to be sprayed on to the surface of a mine tunnel or shaft, said blower also directing a stream of air through a conduit extending below said hopper to aspirate some of the dust from within said hopper and to direct the rock dust laden air to a nozzle for spraying the surface of a mine shaft or tunnel with said rock dust laden air.

4,394,976

HYDRAULICALLY OPERATED PUSH-OFF MANURE SPREADER

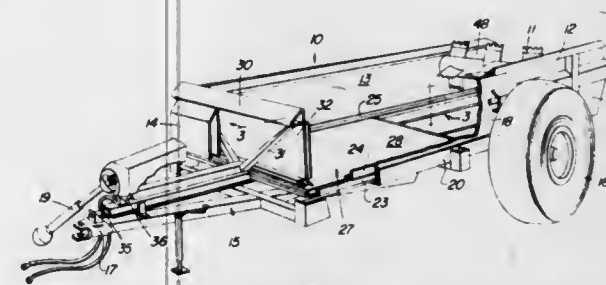
Rory Rae, Port Colborne, Canada, assignor to Deere & Company, Moline, Ill.

Filed Jul. 9, 1981, Ser. No. 281,746

Int. Cl.³ A01C 15/12, 15/16

U.S. Cl. 239—679

6 Claims



6. In a manure spreader having a box open at its rear end for discharge of animal waste contained therein, said box having a floor structure composed of a rear lower horizontal portion at the rear part of the box, and a front upper horizontal portion supported at its opposite fore-and-aft extending edges to move lengthwise of the box from a front extension of the rear portion to a rear overlying relation to the rear portion, said rear floor portion having an upper plastic surface so that animal waste may slide easily thereover as the forward portion moves rearwardly; transversely spaced parallel and fore-and-aft extending rails mounted on the upper surface of the rear floor portion transversely inwardly respectively of said fore-and-aft extending edges of said front floor portion and engaging the underside of the front floor portion for retaining the underside of the front portion out of engagement with the upper plastic surface of the rear floor portion as it moves between its front extension and overlying positions with respect to the rear floor portion, a transverse vertically extending push-off supported to shift lengthwise of the front portion; and power means for shifting the front portion relative to the rear portion and the push-off relative to the front portion.

4,394,977

METHOD FOR IMPROVING THE UTILIZATION OF HEAT ENERGY PRODUCED IN A WOOD GRINDING PROCESS

Ari A. M. Mijala, Tampere, Finland, assignor to Oy Tampella AB, Tampere, Finland

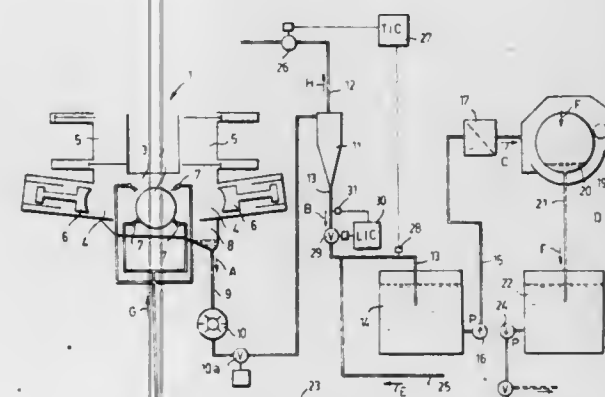
Filed Nov. 4, 1981, Ser. No. 318,095

Claims priority, application Finland, Nov. 18, 1980, 803598

Int. Cl.³ B02C 19/12

U.S. Cl. 241—21

5 Claims



1. A method for improving the utilization of the heat energy produced in a wood grinding process according to which method wood is ground by means of a rotating grinding member (2) in a grinding space (3) under a pressure exceeding atmospheric pressure, warm shower water (G) is sprayed into the grinding space, groundwood pulp (A) is conveyed from the grinding space

into a steam separator (11) wherein the heat energy contained in the groundwood pulp is released in the form of steam (H).

the groundwood pulp is brought from the steam separator into a thickener (18) from which removed water is brought back into the grinding space as shower water (G), water (E) is added to the shower water, and steam (H) released in the steam separator is recovered for further use,

characterized in that, the steam separator (11) is pressurized in order to recover under pressure the steam (H) released from the groundwood pulp (A),

the additional water (E) for the shower water (G) is after the steam separator mixed with the pulp suspension (B) relieved of steam,

the pressure of the steam (H) released in the steam separator is adjusted so that the temperature of the pulp suspension (B) after the water addition (E) corresponds substantially to the desired temperature of the shower water (G).

4,394,978

METHOD FOR TREATMENT OF WASTE METAL AND LIQUID DROSS

Anton Weiss, Vienna, Austria, assignor to Waagner-Biro A.G., Austria

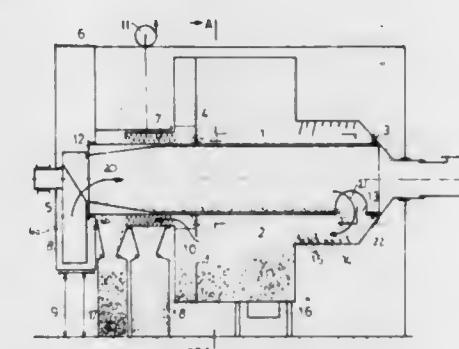
Filed Feb. 6, 1981, Ser. No. 232,309

Claims priority, application Australia, Feb. 18, 1980, 870/80

Int. Cl.³ B02C 17/04

U.S. Cl. 241—23

7 Claims



1. In a method for treating liquid dross obtained from metal smelting and remelting operations, such as in connection with aluminum extraction, including the steps of pouring the dross from the melting furnace into a skimming trough, charging the dross from the skimming trough into a rotating, substantially horizontal cooling pipe, passing the dross through the cooling pipe from one end to the other so that the inner surface thereof is at least partially wetted thereby, and so that the dross is cooled to a temperature below the melting point thereof and wherein it is granulated, the improvement comprising:

conducting the steps of charging the dross from the skimming trough into the cooling pipe and passing the dross through the cooling pipe substantially in the absence of air or oxygen;

subjecting the granulated dross to an autogenous grinding process; and

separating the ground dross into a granulated metal fraction and a fine-grained fraction, the latter fraction containing substantially powdered metal oxide.

4,394,979

WEAR AND ABRASION RESISTANT WALL STRUCTURE, PARTICULARLY FOR MILLS FOR GRINDING A CHARGE COMPRISING MAGNETIC MATERIAL

Bertil Brandt, Skelleftea, Sweden, assignor to Socared S.A., Switzerland

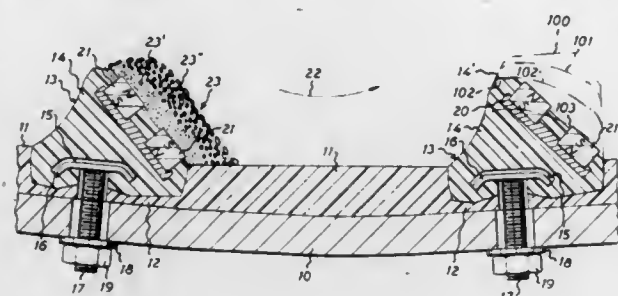
Filed Jun. 25, 1980, Ser. No. 162,855

Claims priority, application Sweden, Jul. 13, 1979, 7906098

Int. Cl.³ B02C 17/00

U.S. Cl. 241-26

28 Claims



1. A method of operating a mill for processing particulate material in which said mill includes a mill barrel wall defining therein a treatment chamber, means for establishing at points on the barrel wall a magnetic field substantially normal to said barrel wall as said field emanates from said barrel wall into the treatment chamber, and means for rotating said mill barrel, said method comprising the steps of introducing into said chamber particulate magnetic material of sufficient quantity to be attracted to said barrel wall at said points to form on said barrel wall an automatically regenerating abrasion protective layer, rotating said mill barrel, and maintaining said magnetic field at sufficient strength to retain said magnetic material against said barrel wall as the abrasion protective layer at said points during complete rotations of said mill barrel.

4,394,980

DEVICE FOR THE SIMULTANEOUS AND CONTINUOUS FEEDING OF PULVERULENT SOLIDS AND OF LIQUIDS INTO TREATMENT MACHINES

Dieter März, Mannheim; Philipp Schmitt, Lampertheim, and Peter Weidenhammer, Mannheim, all of Fed. Rep. of Germany, assignors to Draiswerke GmbH, Mannheim, Fed. Rep. of Germany

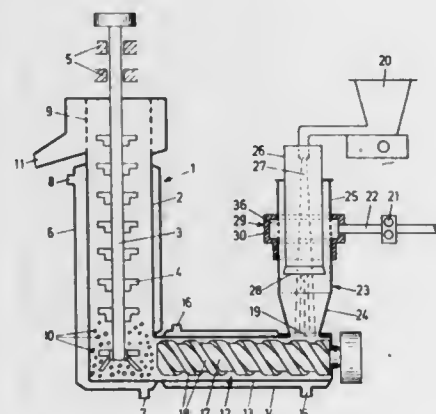
Filed May 6, 1981, Ser. No. 261,245

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018729

Int. Cl.³ B02C 23/36

U.S. Cl. 241-46.02

10 Claims



1. Device for the simultaneous and continuous feeding of pulverulent solids and of liquids into a treatment machine, having a feed orifice for solid and liquid materials the orifice being formed on the casing of the treatment machine and having a walled feed branch extending upwardly therefrom, a ring passage located above said orifice having aperture means

for the feed of liquid material positioned on the inner wall of the feed branch and means for feeding the solid material located in the center of the ring passage, characterized in that the free cross-section of said aperture means is adjustable.

4,394,981

APPARATUS FOR DISPERSING FINELY DIVIDED SOLID PARTICLES IN A LIQUID VEHICLE WITH A MECHANISM FOR REDUCING SCREEN CLOGGING

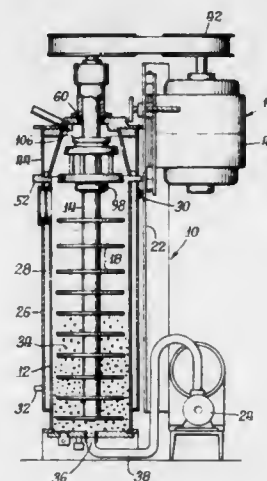
George R. Schold, 8460 Macoma Dr. NE., St. Petersburg, Fla. 33702

Filed Jul. 25, 1980, Ser. No. 172,134

Int. Cl.³ B02C 23/36

U.S. Cl. 241-46.17

18 Claims



1. Apparatus for deagglomerating and dispersing solid particles held in agglomerated form and carried in suspension in a liquid vehicle by the action of a dispersing media on the solids comprising:

a mixing vessel having a fluid inlet at one end thereof and a fluid outlet at the other end thereof, said vessel being adapted to have a charge of dispersing media introduced thereinto, and said inlet being adapted to be operatively connected to a pump means whereby a fluid mixture may be moved by said pump means under pressure through said inlet and through the dispersing media in said vessel to said fluid outlet;

a rotatable shaft extending into said vessel and adapted to be driven from a power source;

a rotor separator mounted on said shaft for rotation therewith for separating dispersing media from the fluid mixture, said rotor separator being disposed on said shaft near said fluid outlet and in the path of flow between said vessel inlet and said outlet, said rotor separator including a filter screen surrounding and spaced from said shaft;

agitator means disposed in close association with said separator to prevent dispersing media from clogging said filter screen, said agitator means including

a pair of axially spaced radially extending slinger agitator members disposed at each end of said screen and surrounding and attached to said shaft to rotate therewith and extending radially outwardly substantially beyond the radial position of said screen, and

a plurality of circumferentially spaced elongated agitator bars extending between and connecting said slinger agitator bars, said elongated members being disposed radially outwardly from and spaced from said screen.

4,394,982

LINER PLATE FOR GRINDING MILLS

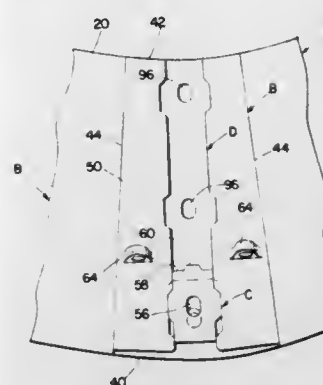
Clive J. Wilson, Scottsdale, Ariz., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Mar. 30, 1981, Ser. No. 249,204

Int. Cl.³ B02C 17/22

U.S. Cl. 241-183

15 Claims



1. A liner plate for grinding mills comprising: a generally transparent shaped plate having front and rear surfaces, opposite sides, and short and long ends, an integral lifter bar section upstanding from said front face adjacent said long end thereof and spaced inwardly from said sides, said integral lifter bar section extending over substantially less than one-half the length of said plate between said ends thereof, at least one bolt receiving hole extending through said integral lifter bar section substantially perpendicular to said plate, and cooperating means on said plate between said integral lifter bar section and said short end for securing a replaceable lifter bar section thereto.

4,394,983

TIRE AND REFUSE SHREDDER

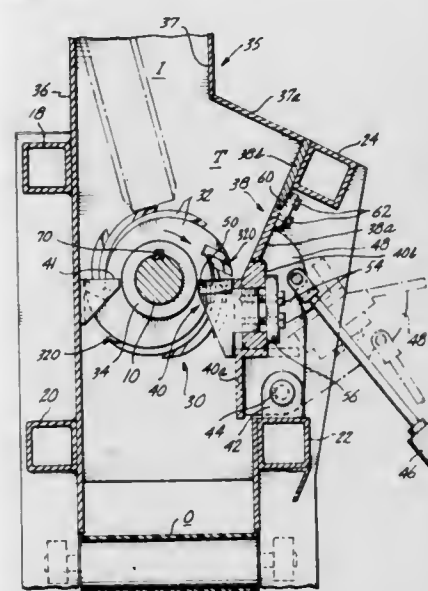
Carl M. Ulisky, Lake Stevens, Wash., assignor to KACA Corporation, Lake Stevens, Wash.

Filed Mar. 2, 1981, Ser. No. 239,219

Int. Cl.³ B02C 18/18

U.S. Cl. 241-243

14 Claims



1. A shredder operable to shred vehicle tire carcasses comprising a feed hopper including a descending chute cross-sectionally configured and dimensioned so as generally to both orient and guide the tires in a path of descent, a driven elongated shredder rotor of generally cylindrical configuration mounted extending horizontally across said path of descent with a first side of the rotor substantially adjacent one side of said path, said hopper having a widening recess extending laterally outward from the opposite, second side of the chute path at the level of the rotor axis and for a predetermined

height above the same, so as to accommodate the lower portion of the tire swung laterally into the same over the top of the rotor, said rotor comprising a series of disc-like cutters successively spaced from each other and each with a circumferentially projecting cutting element extending from side to side thereof and formed by radially inner and outer faces mutually converging at an acute angle forwardly in the direction of cutter rotation to a cutting edge sharpened so as to pierce through the tire as it bottoms into engagement with the cutter and thereby initiate cutting a flap-like segment out of the tire and, conjointly therewith, initiate lateral advancement of the bottom portion of the tire toward said recess, and shredder tooth means comprising a generally horizontal series of successively spaced teeth mounted to project generally horizontally from the hopper's second side substantially at rotor axis level into interdigital relationship with the successive cutters and with side edges in closely spaced relationship with such cutters for shearing of the tire rubber at such side edges by cutting element rotation past the same.

4,394,984

ICE BLOCK LOADING MECHANISM FOR AN ICE SHAVING MACHINE

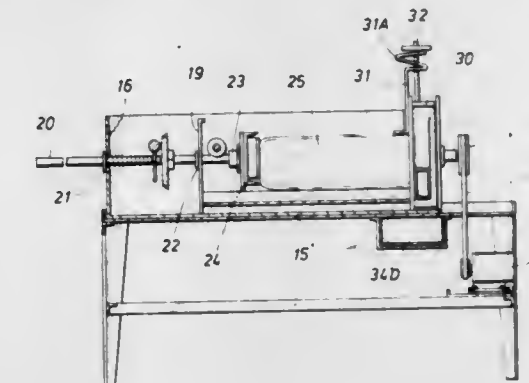
Rayburn M. Hight, and Paul M. Corrick, both of Houston, Tex., assignors to Polar Bear, Inc., Houston, Tex.

Filed Jan. 5, 1981, Ser. No. 222,545

Int. Cl.³ B02C 13/286, 18/22

U.S. Cl. 241-278 R

17 Claims



1. A feed mechanism for an ice shaving apparatus which comprises:

(a) ram means for engaging a block of ice to be fed into an ice shaving apparatus;

(b) an elongate guide rod connected to said ram means;

(c) means for mounting said guide rod to move axially along a locus which moves said ram means toward and away from the ice shaving apparatus;

(d) means for incrementally advancing said guide rod to thereby advance said ram means;

(e) means for initially positioning said guide rod and said ram means to receive a block of ice between said ram means and the ice shaving apparatus; and means for releasably and controllably engaging said guide rod which includes;

(1) a loose coil spring about said guide rod;

(2) means for pulling said spring to a tight gripping condition;

(3) means relaxing said coil spring to a loose condition; and

(4) means for anchoring one portion of said coil spring.

4,394,985

WINDING APPARATUS FOR THREADS OR YARNS

Felix Graf, Winterthur, and Armin Wirz, Ossingen, both of Switzerland, assignors to Rieter Machine Works Limited, Winterthur, Switzerland

PCT No. PCT/EP80/00037, § 371 Date Mar. 10, 1981, § 102(e) Date Mar. 2, 1981, PCT Pub. No. WO81/00248, PCT Pub. Date Feb. 5, 1981

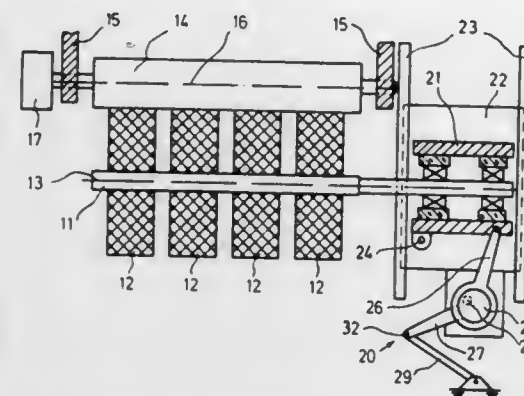
PCT Filed Jun. 26, 1980, Ser. No. 243,922

Claims priority, application Switzerland, Jul. 10, 1979, 6408/79

Int. Cl.³ B65H 54/42

U.S. Cl. 242—18 DD

12 Claims



1. A winding apparatus for threads or the like, comprising: a bobbin support roll upon which there is formed at least one bobbin package; a friction drive roll cooperating with said bobbin support roll; each of said rolls having an axis of rotation; said rolls being arranged substantially mutually parallel to one another and with their axes of rotation located in superimposed fashion in a substantially vertical plane; one of said rolls being subjected to displacement movements caused by an increase in the size of the bobbin packages formed upon the bobbin support roll; means for mounting and guiding said one roll to enable said one roll to carry out said displacement movements in a direction substantially parallel to said vertical plane; means providing a pivot axis for enabling pivotal movement of one of the rolls in a direction substantially parallel to said vertical plane about said pivot axis; said mounting means including bearing means located at one end of said roll subjected to said displacement movements for supporting said roll; and coupling means responsive to the displacement movements of said one roll for causing pivotal movements of said one pivotable roll about said pivot axis in the sense of bringing about an automatic parallelization of said rolls with respect to one another.

4,394,986

YARN WINDING APPARATUS

Katsumi Hasegawa, Kusatsu; Takahiro Kawabata, and Shintaro Kuge, both of Otsu, all of Japan, assignors to Toray Industries, Inc., Japan

Filed May 13, 1981, Ser. No. 263,350

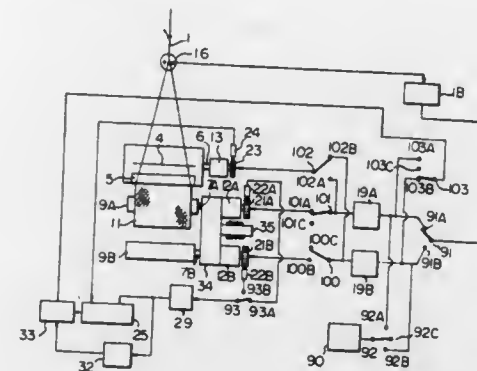
Int. Cl.³ B65H 54/08, 59/38

U.S. Cl. 242—18 R

7 Claims

1. A yarn winding apparatus comprising: (a) a winding device for winding a yarn to form a yarn package on a bobbin, which includes a pair of winding spindles for mounting a bobbin and capable of being alternately positioned in a winding position of the winding device, a traverse element for imparting a traverse motion to the yarn, and a driving shaft for driving the traverse element; (b) a pair of first motors, each driving a corresponding winding spindle which is in the winding position;

- (c) a second motor for driving the traverse element driving shaft;
- (d) a pair of spindle speed detecting means, each detecting the speed of rotation of a corresponding winding spindle which is in the winding position, and for generating a first electrical signal corresponding to the detected rotational speed thereof;
- (e) means for detecting the speed of rotation of the traverse element driving shaft and for generating a second electrical signal corresponding to the detected rotational speed thereof; and
- (f) a pair of means for controlling rotational speed of said motors,



- a first speed controlling means including means for controlling one of the pair of first motors which is positioned in the winding position so as to keep a yarn winding speed substantially constant from the beginning to the completion of the winding operation of the yarn package; and
- a second speed controlling means including means for controlling the second motor so as to substantially keep the ratio of the rotational speed of the winding spindle to the rotational speed of the traverse element driving shaft at a predetermined value or values from the beginning to the completion of the winding operation of the yarn package in response to the first electrical signal and the second electrical signal.

4,394,987

MECHANISM FOR CAUSING THE ROTATION OF THE SPOOL IN A MACHINE FOR TYING A KNOT

Luigi Pedroia, Via Cadogno 1, 6648 Minusio, Switzerland

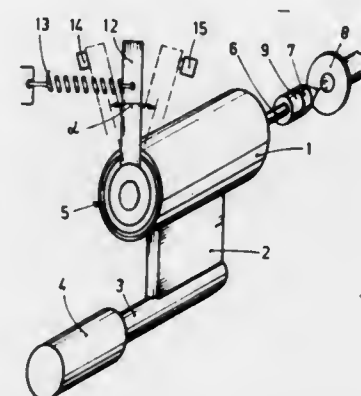
Filed Apr. 7, 1981, Ser. No. 251,780

Claims priority, application Switzerland, Apr. 14, 1980, 2832/80

Int. Cl.³ B65H 75/30; A22C 11/12

U.S. Cl. 242—46.2

3 Claims



1. In mechanism for rotating a spool adapted to receive a supply of filament about the axis of the spool, a motor, a clutch member driven by the motor and selectively engageable with the spool to rotate the spool, and means to reciprocate the motor bodily along the axis of the spool to engage and disengage the clutch member thereby to drive and release the spool, respectively; the improvement comprising means mounting the

motor for limited bodily rotation about said axis upon an increase in tension in the filament on the spool, and means limiting said bodily rotation of the motor in both directions.

4,394,988

ARRANGEMENT FOR CONSTANT FEEDING OF YARN

Jan Hruby, Svornosti, and Karel Pleskac, Jiraskova, both of Czechoslovakia, assignors to Zbrojovka Vsetin, narodni podnik, Vsetin, Czechoslovakia

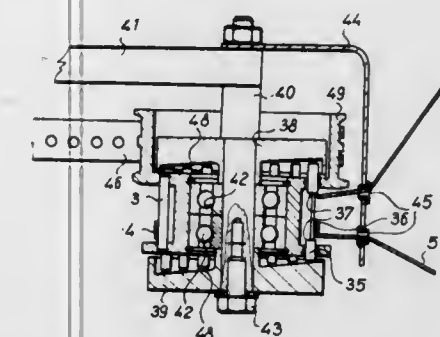
Filed Dec. 3, 1980, Ser. No. 212,429

Claims priority, application Czechoslovakia, Dec. 3, 1979, 8322/79; Jun. 6, 1980, 4006/80

Int. Cl.³ B65H 51/22

U.S. Cl. 242—47.12

4 Claims



1. Arrangement for the constant feeding of yarn to textile machines, comprising a rotatable cage drum supported on a driven rotatable member coaxially thereof, the circumference of the drum being formed by a number of spaced stable bolts parallel with the rotation axis of the drum, the drum being adapted for the deposition of a number of yarn windings, and elements on the drum shiftable in a direction axially of the drum, the shiftable elements being situated between said stable bolts, the axially shiftable elements being rollers, the middle part of the rollers being recessed to a smaller diameter so as to form faces of the rollers for guiding yarn along the circumference of the cage drum, and comprising a stable face cam firmly connected to a bolt on a holder adapted to be fixed to the frame of a textile machine, said rollers bearing with their extreme faces on said stable face cam.

4,394,989

ADJUSTABLE ENDLESS LOOP TAPE CARTRIDGE WITH SHIPPING LOCK

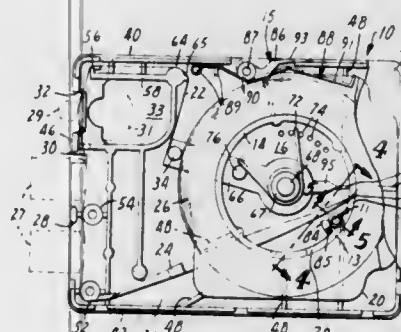
Alfred H. Moris, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 30, 1981, Ser. No. 259,184

Int. Cl.³ G11B 23/10

U.S. Cl. 242—55.19 A

4 Claims



1. In a cartridge comprising: a housing adapted to be received in a machine and having access openings adapted to receive heads and a tape drive mechanism in said machine; a cylindrical hub attached to said housing at a position spaced from said access openings, said hub having a cen-

tral opening and a slot extending axially across the full width of the hub and communicating with said central opening;

an endless length of tape having a major portion wrapped about said hub to form a coil and a minor portion extending from the innermost wrap of the coil through said slot into said central opening, and around the side surface of the coil to the outermost wrap of the coil; and

means on said housing for defining a tape path for and producing tension in said minor portion, comprising means for guiding said minor portion past said access openings in a predetermined position for engagement by the heads and drive mechanism of the playback machine, a guide pin guiding said minor portion between said access openings and the outermost wrap of said coil, means mounting said guide pin for movement between a first position providing a first path length between said access openings and said coil and a second position providing a second path length longer than said first path length between said access openings and said coil, and means for biasing said guide pin toward said second position with a low force to provide a low tension in the outermost wrap of the coil, the improvement wherein:

said hub comprises a flexible cantilevered portion having a first end partially defining said slot, having a second end spaced from said first end that is fixed on said housing, and being separated from said housing between said first and second ends, and said cartridge comprises an adjustment member movably mounted on said housing and having a surface contacting said cantilevered hub portion, said adjustment member being movable to change the position of the surface contacting said cantilevered portion and thus change the position of said cantilevered portion radially of said hub to adjust the length of said minor portion and position said guide pin at a predetermined position between said first and second positions.

4,394,990

WEB CINCHING AND WINDING APPARATUS AND METHOD

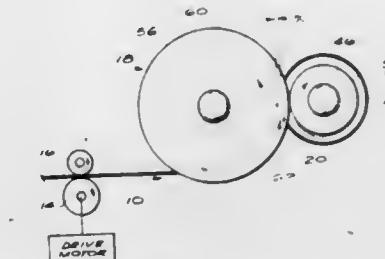
Maurice A. Kildal, Webster, and Stephen J. Hassall, Churchville, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,592

Int. Cl.³ B65H 17/08

U.S. Cl. 242—65

15 Claims



1. Apparatus for automatically cinching the end portion of a web onto a cylindrical core and winding convolutions of web on the core to form a roll comprising: means for transporting a web to said core at one speed; means for guiding the end portion of the transported web around the outer periphery of said core; core driving means adapted to be (1) drivingly engaged with said core in a first mode of operation for rotatably driving said core at an outer peripheral speed in excess of said one speed for automatically cinching the transported web end portion onto said core and winding convolutions of web onto the core to form a roll having a roll surface, and (2)

drivingly disengaged from said core in a second mode of operation;
roll surface driving means adapted to be drivingly engaged with the roll surface in a first operating condition, and drivingly disengaged from the roll surface in a second operating condition, said roll surface driving means being in its second operating condition when said core driving means is in its first mode of operation; and means responsive to a predetermined roll surface diameter as web is wound on the roll for substantially simultaneously placing said core driving means in its second mode of operation and said roll surface driving means in its first operating condition.

4,394,991

DOUBLE BEARING FISHING REEL

Hideo Noda, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

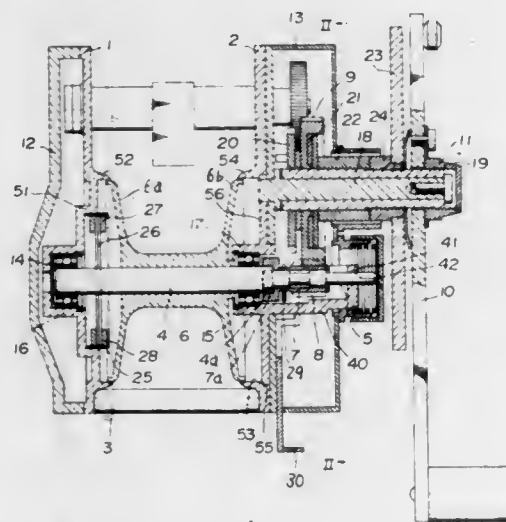
Filed Jan. 6, 1981, Ser. No. 222,990

Claims priority, application Japan, Jan. 24, 1980, 55-7861[U]

Int. Cl.³ A01K 89/00

U.S. Cl. 242—84.1 R

8 Claims



1. A fishing reel comprising a pair of first and second side frames connected opposite to each other at a regular interval; a housing mounted adjacent said second side frame to define an enclosed space between said second side frame and housing; a spool shaft rotatably supported between said side frames and having an extending shaft portion extending through said second side frame and extending outwardly therefrom into said space; a spool disposed between said side frames and rotatable with said spool shaft; a tubular shaft being positioned in said space on said extending shaft portion of said spool shaft, slidable between a position where a clutch element on said tubular shaft engages with a clutch element on said spool shaft and a position where said clutch element on said tubular shaft disengages from said clutch element on said spool shaft, and having a pinion; a driving gear mounted in said space and engaging said pinion; an input shaft carrying said driving gear and having a handle; and first and second bearing cylinders mounted adjacent said first and second side frames for journaling said spool shaft, said second bearing cylinder having a support arm connected therewith and extending into said space in the same direction as said extended shaft portion of said spool shaft, said support arm having an extending end portion thereof a support member with a shaft bore for supporting said extending shaft portion whereby said support member supports said extending shaft portion.

4,394,992
ENERGY ABSORBER FOR LOAD CARRYING FLEXIBLE PULLING MEANS

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep. of Germany

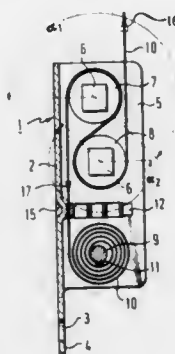
Filed Jan. 8, 1981, Ser. No. 223,428

Claims priority, application Fed. Rep. of Germany, Jan. 14, 1980, 3001091

Int. Cl.³ A62B 35/00; B65H 75/48

U.S. Cl. 242—85

4 Claims



1. Energy absorber for a load carrying flexible belt pulling means for a safety belt system, comprising a rigid body, a wind-up roller as a storing element for the belt pulling means at the body with one end of the belt pulling means fastened to the wind-up roller, at least one non-rotatable friction roller around which the belt pulling means are partly wrapped-around, said friction roller spaced from said wind-up roller and mounted in said body, a form-spring for the belt pulling means disposed between said storing element and the friction surface of said friction roller, said form-spring fixed in the body solely to press the belt pulling means against the body to exert a predetermined tension force on the belt pulling means.

4,394,993

RESILIENTLY MOUNTED SPLIT PAWL LOCKING MEANS FOR DUAL SPOOL RETRACTOR

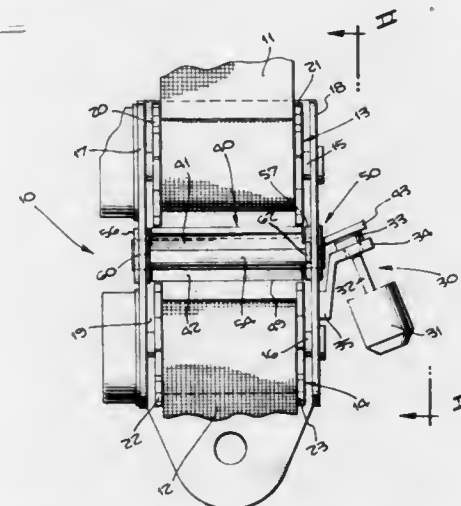
Nazareth Stambouljan, Los Angeles, Calif., and Fred F. Neumann, Rochester, Mich., assignors to American Safety Equipment Corporation, San Fernando, Calif.

Filed Aug. 17, 1981, Ser. No. 293,117

Int. Cl.³ B65H 75/48

U.S. Cl. 242—107.4 A

10 Claims



1. In an emergency locking dual spool safety belt retractor having a frame, two belt storage spools rotatably mounted in said frame, a spool locking ratchet on each spool, inertia sensor means and pawl means operated by said sensor means to engage each said ratchet to lock said spools against further belt protraction, the improvement in pawl means comprising the provision of:

split pawl means for locking said two belt storage spools and including two separate pawl members; and resilient means for mounting said pawl members to said

frame and to each other operably located between said spools and ratchets to normally act as a unitary double ended pawl with resilient material thereof being interposed between said pawl members and between said members and said frame whereby in the event either one of said members engages a tooth of one of said ratchets in a tip-to-tip condition, said resilient means will be compressed between said members and said one member will be resiliently urged into engagement with a next tooth of said one of said ratchets.

4,394,994

TAPE FAST-FORWARDING AND REWINDING APPARATUS

Hirotohi Oono, Yokohama, Japan, assignor to Victor Company of Japan, Kanagawa, Japan

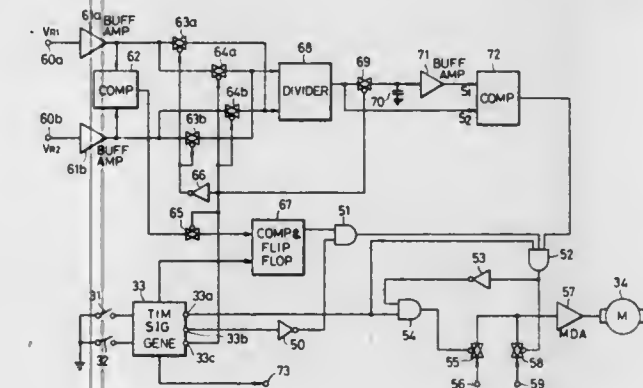
Filed Jun. 19, 1981, Ser. No. 275,282

Claims priority, application Japan, Jun. 20, 1980, 55-83553

Int. Cl.³ G03B 1/04; G11B 15/32

U.S. Cl. 242—200

6 Claims



1. A tape fast-forwarding and rewinding apparatus comprising:

rotating means for rotating a tape take-up side reel in a direction so as to take up a tape upon tape fast-forwarding mode, and for rotating a tape supply side reel in a direction so as to take up the tape upon tape rewinding mode; rotation driving means for driving said rotating means so that the tape which is taken up by said tape take-up side reel or said tape supply side reel travels at a first fast-forwarding or rewinding speed, and so that the tape travels at a second fast-forwarding or rewinding speed which is a high speed faster than said first fast-forwarding or rewinding speed;

detection means for substantially detecting the radii of tape rolls of wound tape which are wound around both the take-up side and the supply side reel rotated by said rotating means;

memorizing means for memorizing a ratio between the radii of the tape rolls of wound tape which are substantially wound around both the reels obtained by said detection means, when said tape is travelling at said first fast-forwarding or rewinding speed; and

controlling means for controlling said rotation driving means so that said tape travels at said second fast-forwarding or rewinding speed after travelling at said first fast-forwarding or rewinding speed, and controlling said rotation driving means so that the speed of said tape becomes said first fast-forwarding or rewinding speed from said second fast-forwarding or rewinding speed when a value which is a reciprocal of the ratio between the radii of the tape rolls of wound tape which are substantially wound around both the reels obtained by said detection means when said tape is travelling at said second fast-forwarding or rewinding speed, is equal to the value of the ratio memorized in said memorizing means, as a result of comparison performed.

4,394,995

REEL-TURNABLE TORQUE ADJUSTING MEANS
Hideki Hayashi, and Kazuki Takai, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

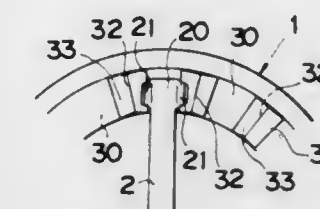
Filed Mar. 23, 1981, Ser. No. 246,702

Claims priority, application Japan, Mar. 21, 1980, 55-37610[U]

Int. Cl.³ G03B 1/04; G11B 15/32; B65H 17/02

U.S. Cl. 242—207

2 Claims



1. A reel-turntable torque adjusting means which comprises: a reel-turntable member for conveying a rotational force to a reel turntable; said reel-turntable member being formed with a plurality of steps having different heights at an upper peripheral portion thereof; a spring member having one or more tip ends pressed against the steps, respectively; said spring member having slanting portions on opposite sides of each of said tip ends; and a motor-driven friction plate against which said reel-turntable member is pressed by said spring member.

4,394,996

DRAPERY PACKAGE

Eli Heimberg, North Dartmouth, Mass., assignor to Cameo Curtains, Inc., New York, N.Y.

Filed Aug. 6, 1981, Ser. No. 290,555

Int. Cl.³ B65H 75/06

U.S. Cl. 242—222

5 Claims



1. A drapery package assembly comprising:

a core member having a central portion and two enlarged end sections, one of said two end sections containing a substantially uniformly spaced gap adjacent to said central portion, a longitudinally folded drapery having a top end, a bottom end, and a middle section therebetween, said bottom end of said drapery being located within said substantially uniformly spaced gap of said one end section of said core member, said middle section of said drapery being wrapped around the core member in spiral fashion, and the top end of the drapery lying against and being exposed on the exterior of the wound drapery.

4,394,997

SEQUENTIAL TIME DISCRIMINATION SYSTEM FOR SUB-DELIVERY SYSTEMS

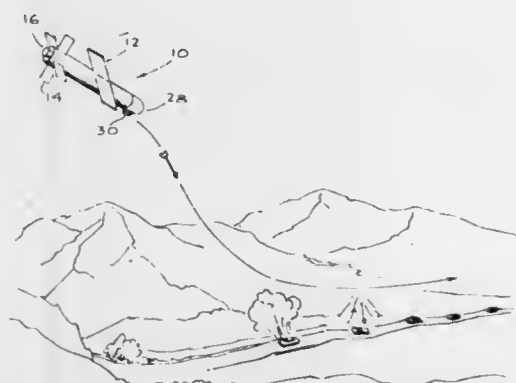
Inge Maudal, Claremont, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Continuation of Ser. No. 139,947, Apr. 14, 1980. This application Jan. 12, 1982, Ser. No. 345,311

Int. Cl.³ F41G 7/22

U.S. Cl. 244—3.16

7 Claims



1. A method for directing a plurality of sub-missiles to selected targets comprising the steps of: sequentially and at predetermined time intervals releasing a succession of guided sub-vehicles directed to at least one predetermined target; marking a target upon impact by a sub-vehicle; detecting the marking of the impacted target; and directing subsequently released sub-vehicles to preselected targets other than an impacted target.

4,394,998

PROCESS AND APPARATUS FOR EXPLORING THE ATMOSPHERE OF A PLANET

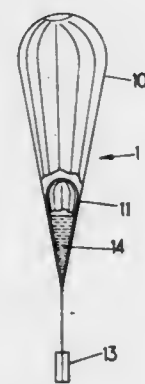
Joseph Taillet, Boulogne, and Jean Maulard, Clamart, both of France, assignors to Office National d'Etudes et de Recherche Aérospatiales (ONERA), Chatillon Sous Bagneux, France

Filed May 18, 1981, Ser. No. 264,852

Int. Cl.³ B64B 1/62

U.S. Cl. 244—31

8 Claims



8. An apparatus for exploring the atmosphere for Venus at a predetermined constant altitude, comprising: a gas tight, rigid enclosure; means for opening said enclosure in said atmosphere above said predetermined altitude; and a buoyant assembly located in folded condition in said enclosure; said buoyant assembly comprising: a first gas tight deformable inflatable envelope accommodating a first container containing water, said first container being constructed to fracture under the pressure forces developed by water vapour at a first altitude in said atmosphere; a second gas tight deformable inflatable envelope accommodating a second container containing a fluid selected from the group consisting of toluene, 2-octene(cis) and

anisol, said second container being constructed to fracture under the pressure forces developed by said fluid at a second altitude lower than said first altitude, and a payload commensurate in weight with the buoyancy of said envelopes and connected to said envelopes.

4,394,999

REDUNDANT OR EMERGENCY STEERING MECHANISM ESPECIALLY FOR AN AIRCRAFT

Ludwig Botzler, Neubiberg, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany

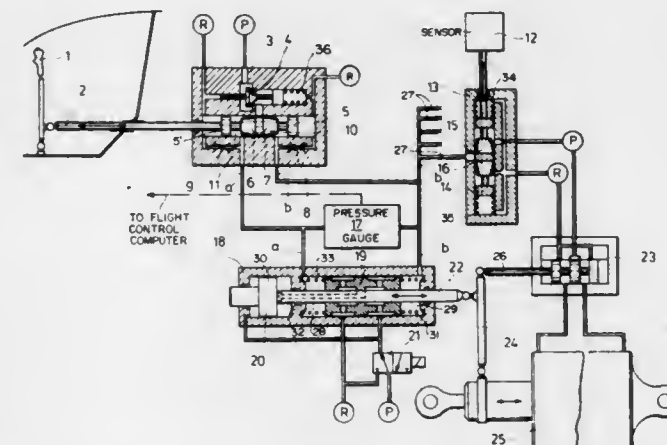
Filed Aug. 18, 1980, Ser. No. 179,102

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1979, 2933780

Int. Cl.³ B64C 13/16, 13/40

U.S. Cl. 244—78

7 Claims



1. A redundant emergency control mechanism for steering an aircraft, comprising pilot controlled mechanical steering means (1, 2), first pressure transducer means (3) operatively connected to said pilot controlled mechanical steering means (3) for converting a movement of said mechanical steering means into a first hydraulic steering control signal component representing a pilot control action, operating condition sensor means (12) which are independent of an electrical power supply for sensing instantaneous flight operating conditions, second pressure transducer means (13) operatively connected to said operating condition sensor means (12) for converting flight operating condition representing signals into flight operating condition representing second hydraulic steering control signal components, pressure operated control actuator means (18) including a source of pressure (P) and conduit means operatively connecting said control actuator means (18) to said first and second pressure transducer means for receiving said first and second hydraulic steering control signal components in a superimposed manner in said control actuator means (18) for converting the resulting combined signal into a mechanical steering control action when an electrical power supply failure occurs in the aircraft, said mechanism further comprising pressure operated power actuator means (25), valve means (23) operatively connecting said second pressure transducer means (13) to said pressure operated power actuator means (25), and mechanical linkage means (22, 24, 26) operatively interconnecting the output (22) of said pressure operated control actuator means (18) to the respective outputs (26, 24) of said valve means (23) and of said pressure operated power actuator means (25), whereby an operation of said control actuator means (18) overrides the normal automatic operation of said power actuator means (25).

4,395,000

LATCH AND LOCK MECHANISM FOR AN AIRCRAFT CARGO DOOR ASSEMBLY

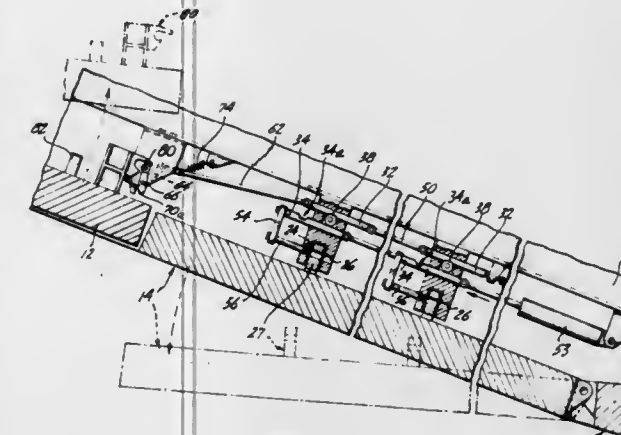
James E. Deviny, Redmond, and Miloslav Puncoc, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Sep. 30, 1981, Ser. No. 307,178

Int. Cl.³ B64C 1/14; E05C 1/08

U.S. Cl. 244—118.3

14 Claims U.S. Cl. 244—122 AE



6. A latch and lock mechanism for an aircraft fuselage door assembly wherein an outwardly opening nonplug-type closure member and an inwardly opening plug-type closure member are hinged to the aircraft fuselage along opposite sides of a fuselage doorway such that said closure members meet in the midsection of the doorway when the door assembly is closed, comprising:

latch means affixed to fixed structure of the aircraft fuselage and positioned to receive and secure said outwardly opening closure member in a closed position, said latch means being selectively deployable between a latched position and an unlatched position by means of an elongated push-pull latch actuator rod operably coupled to said latch means;

cam interlock means for securing said latch actuator rod with said latch means in said latched state, said cam interlock means including a lock body having first and second spaced-apart bores and a transverse channel extending therebetween, said latch actuator rod being slidably engaged in said first bore and a push-pull lock actuator rod slidably engaged in said second bore, a locking member slidably engaged in said channel, said latch and lock actuator rods having mutually opposing detents each sized to receive a portion of said locking member in locking relationship, and the dimension of said locking member along said channel being greater than the length of said channel between said bores such that said locking member is constrained to be engaged at all times with the detent of one or the other of said actuator rods; and

cam-actuated linkage means responsive to opening and closing of said plug-type closure member for moving said lock actuator rod between an unlocked position wherein said detent of said lock actuator rod opens into said channel so as to receive said locking member and a locked position wherein said detent of said lock actuator rod is displaced from said channel so as to constrain said locking member to engage and lock said latch actuator rod with said latch means in said latched position, said linkage including a cam mounted on said inwardly opening closure member, said cam being cooperably engageable with a movable cam follower coupled to said lock actuator rod such that said lock actuator rod is moved to said locked position when said inwardly opening closure member is closed and said lock actuator rod is moved to said unlocked position when said inwardly opening closure member is opened.

4,395,001

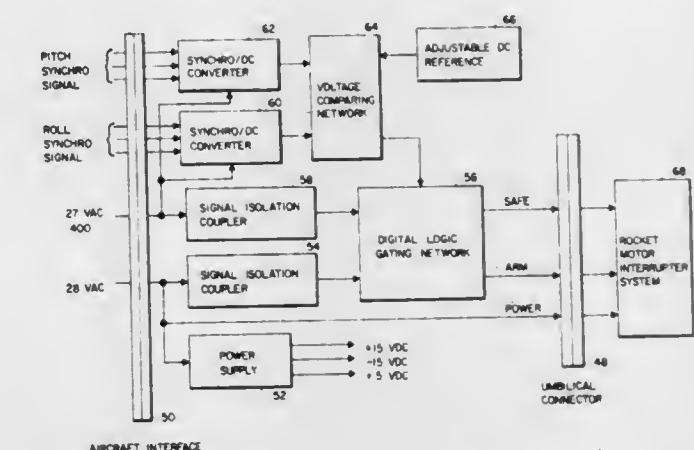
ATTITUDE SELECTIVE AIRCREW ESCAPE CONTROL

W. James Stone; Vernon D. Burklund, and Robert B. Dillinger, all of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 27, 1978, Ser. No. 890,099

Int. Cl.³ B64D 25/10

8 Claims



1. An improved escape system for an aircraft having a catapult-assisted ejection seat, wherein the improvement comprises:

a seat mechanism mounted in the aircraft and adapted to be ejected therefrom; sustainer motor means associated with said seat mechanism for providing ejection movement of said seat mechanism at a predetermined time; means for firing said sustainer motor means mounted on said seat mechanism; a pressure hose in open communication between said means for firing said sustainer motor means and said sustainer motor means; and interrupter means associated with said seat mechanism for selectively preventing action of said sustainer motor means, wherein said interrupter means disconnects said pressure hose from one of said means for firing said sustainer motor means and said sustainer motor means during an ejection occurring when the attitude of the aircraft exceeds predetermined limits on pitch and roll.

4,395,002

EMERGENCY DRAINING MECHANISM FOR THE CENTRIFUGAL SPREADER OF AN AIRPLANE

Jouni Kantojärvi, Sompatie 13 E 9, 80230 Joensuu; Pertti Lahti, Lentoasema as 6 B, 80100 Joensuu, and Veikko Lindholm, Unkuniemenkatu 3, 80200 Joensuu, all of Finland

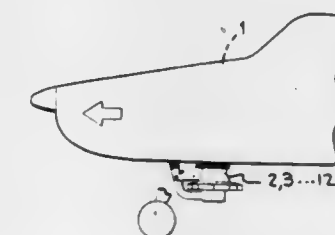
Filed Jul. 21, 1981, Ser. No. 285,512

Claims priority, application Finland, Aug. 4, 1980, 802435

Int. Cl.³ B64D 1/16

U.S. Cl. 244—136

10 Claims



1. An aircraft mounted system for dispensing granular or powdered material including: a container for holding granular or powdered material, said

container having a lower downwardly facing discharge opening;
 pivotal support means mounted on a pivot fixedly positioned with respect to said container for pivotal movement between a first position in which an outer end of said pivotal support means is positioned immediately adjacent and beneath said discharge opening of said container and a second position spaced away from said discharge opening;
 a centrifugal dispensing wheel mounted on said outer end of said pivotal support means so as to adjacently face said discharge opening to receive granular or powdered material therefrom when said pivotal support means is positioned in said first position;
 motor means supported on said pivotal support means for drivingly rotating said centrifugal dispensing wheel; and
 power means for moving said pivotal support means to its second position so as to move said centrifugal dispensing wheel to a position remote from said discharge opening to permit a rapid emergency release discharge of substantially all granular or powdered material in said container.

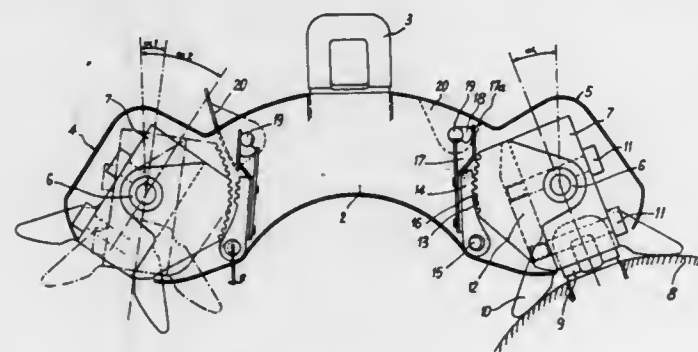
4,395,003
DEVICE FOR SUSPENDING UNDER AIRCRAFT
MISCELLANEOUS LOADS WITH VARIABLE DISTANCE
BETWEEN CENTERS

Pierre F. Coutin, Paris, France, assignor to R. Alkan & Cie, France

Filed Jun. 12, 1981, Ser. No. 272,845
 Claims priority, application France, Jun. 13, 1980, 80 13252
 Int. Cl.³ B64D 1/02

U.S. Cl. 244-137 R

10 Claims



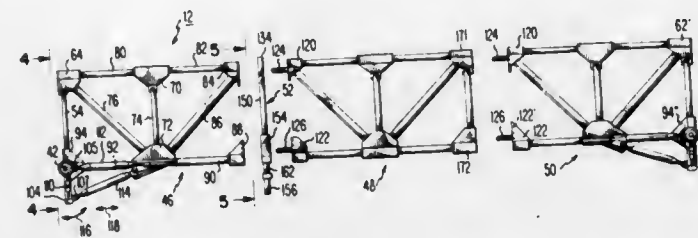
1. A device for carrying under aircraft multiple loads disposed at variable distances between centers, which comprises:
 - (a) a central frame structure equipped at its upper face with suspension members adapted to co-act with hook means of the aircraft,
 - (b) a pair of lateral hollow nacelles carried on each side of said central frame structure,
 - (c) load supports disposed within each lateral nacelle and presenting load suspension means registering with an aperture of the corresponding nacelle, said load supports being mounted in bearings carried by each nacelle to rotate about the longitudinal axis of said nacelle, and
 - (d) control means associated to said load supports to cause the load supports disposed within each nacelle to rotate about the longitudinal axis of said nacelle, thus ensuring a variation in the distances between centers of the loads suspended to the load supports of one nacelle and to the load supports of the other nacelle.

4,395,004
MODULAR SPACECRAFT STRUCTURES
 Eugene R. Ganssle, Skillman, N.J., and Nelson F. Samhammer, Fairless Hills, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,251
 Int. Cl.³ B64G 1/22

U.S. Cl. 244-158 R

12 Claims



1. A structure adapted to be stored in a launch vehicle, said structure supporting components which together with the structure form a spacecraft, the spacecraft to be launched from the launch vehicle when the latter is in space, said structure comprising:

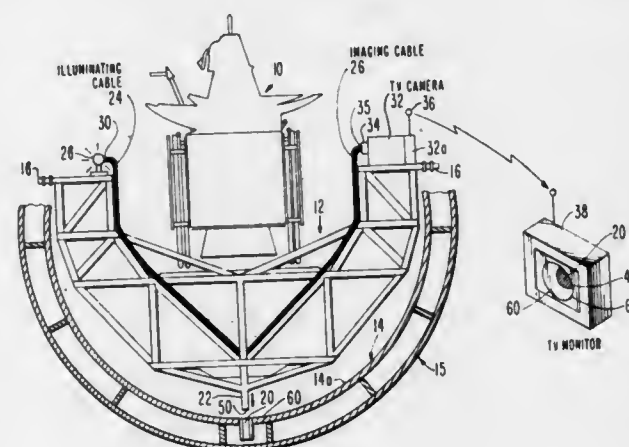
a first module comprising a first support body having a given longitudinal extent including means adapted to receive said components, said body including a first pair of trunnion members extending in opposite directions from said body, said trunnion members being adapted to be received in respective trunnion receiving means in said launch vehicle, said body including first mounting means for securing another body to said first support body, and
 a substantially planar keel structure means of a thickness much less than said longitudinal extent of said first support body and including second mounting means secured to and mating with said first mounting means and including a keel member adapted to engage said receiving means on said launch vehicle, said keel member extending in a direction normal to the direction of said trunnion members, said second mounting means being adapted to receive third mounting means from said another body.

4,395,005
APPARATUS FOR REMOTELY INDICATING
ALIGNMENT OF MALE AND FEMALE MEMBERS
 Eugene R. Ganssle, Skillman, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,250
 Int. Cl.³ B64G 1/64

U.S. Cl. 244-161

3 Claims



1. In combination:
 - (a) a spacecraft cradle adapted to be mounted in the cargo bay of a spacecraft launch vehicle and including means for receiving a spacecraft thereto, a male keel member depending from and below said cradle,

a female keel receiving means adapted to be secured to said launch vehicle cargo bay,
 illuminating fiber optic means attached to said keel member for illuminating said keel receiving means during insertion of said keel member therein, and
 image display means including fiber optic imaging means attached to said keel member for receiving and remotely displaying the image of said illuminated keel receiving means and its spaced relation to the keel member during said insertion at a location remote from said keel receiving means, said displayed image providing information sufficient to provide alignment guidance of the keel member to said keel receiving means during said insertion.

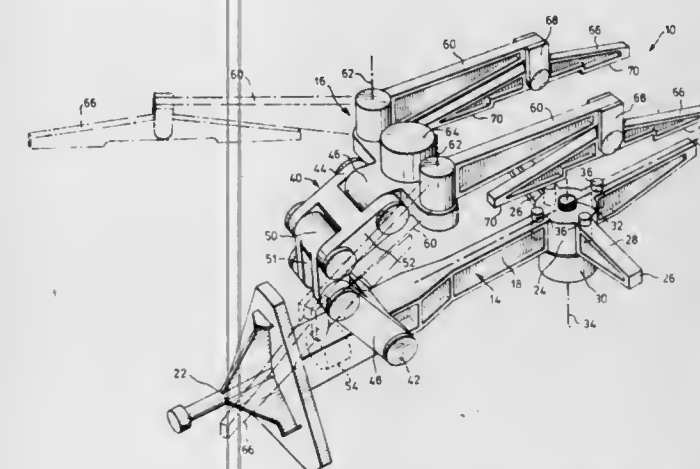
4,395,006
MECHANISM FOR CAPTURING AND RELEASING A
SPINNING OBJECT

Henry J. Taylor, Willowdale, Ontario, Canada

Continuation-in-part of Ser. No. 13,379, Feb. 21, 1974, abandoned. This application Feb. 25, 1981, Ser. No. 237,820
 Int. Cl.³ B64G 1/64

U.S. Cl. 244-161

14 Claims



1. A coupling system for capturing, braking and deploying an object which rotates about a first axis prior to capture comprising:

an adaptor and an end effector, said adaptor comprising:
 (a) an adaptor housing having an adaptor axis, said adaptor housing being adapted to be mounted on said object with its adaptor axis aligned with said first axis,
 (b) a passive turntable mounted on and carried by said adaptor housing, said passive turntable being free to rotate about said adaptor axis independently of said adaptor housing,
 said end effector comprising:
 (a) clamping means adapted to be movable between a capture/deploy position and a clamping position with respect to said passive turntable to receive and release said turntable when in the capture/deploy position and to prevent rotation of the turntable when in said clamping position,
 (b) means for driving said clamping means between said capture/deploy position and said clamping position,
 (c) brake means carried by said clamping means for applying a brake torque to said adaptor housing when said turntable is secured by said clamping means,
 (d) spin-up drive means carried by said clamping means and adapted to engage said housing to cause the housing to be rotatably driven about said adaptor axis prior to deploying of said object in use.

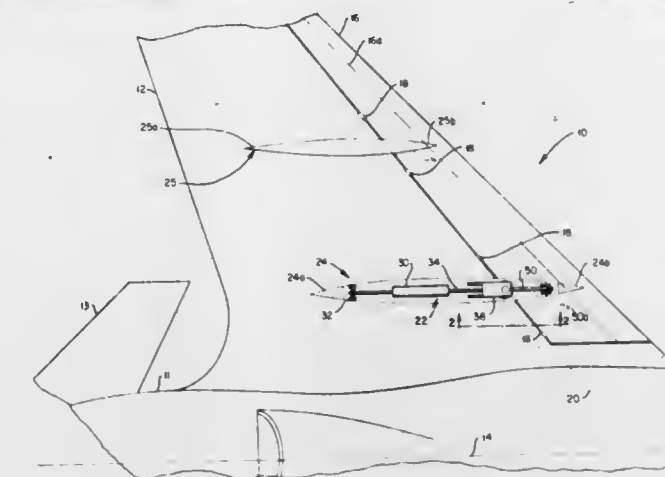
4,395,007
ACTUATION SYSTEM FOR A CONTROL SURFACE OF
AN AIRCRAFT

George A. Owl, Jr., Gardena, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 13, 1980, Ser. No. 206,597
 Int. Cl.³ B64C 3/50

U.S. Cl. 244-215

5 Claims



1. An actuation system for positioning a control surface mounted on an aircraft airfoil, said control surface being rotatable about a first axis at an acute angle to the longitudinal axis of said aircraft, comprising:

a first crank having a first end and a second end, said second end being pivotally mounted to said airfoil, said first crank being rotatable about a second axis substantially perpendicular to said longitudinal axis;
 a second crank having a first end pivotally mounted to said first crank rotatable about a third axis substantially perpendicular to said second axis, said second crank having a second end pivotally mounted to said control surface rotatable about a fourth axis substantially perpendicular to said second and third axes; and
 an actuator coupled to said airfoil and to said first end of said first crank, such that upon extension or retraction of said actuator in a direction parallel to said longitudinal axis of said aircraft said control surface is rotated by rotation of said first and second cranks, said first and second cranks rotating relative to each other to compensate for the relative change of position of said control surface relative to said longitudinal axis of said aircraft.

4,395,008
AIRCRAFT WING AND FLAP ARRANGEMENT
 Barry Sharrock, and David P. Halliday, both of Preston, England, assignors to British Aerospace Public Limited Company, London, England

Filed Jan. 14, 1981, Ser. No. 224,959
 Claims priority, application United Kingdom, Jan. 22, 1980, 8002176

Int. Cl.³ B64C 3/50, 9/16

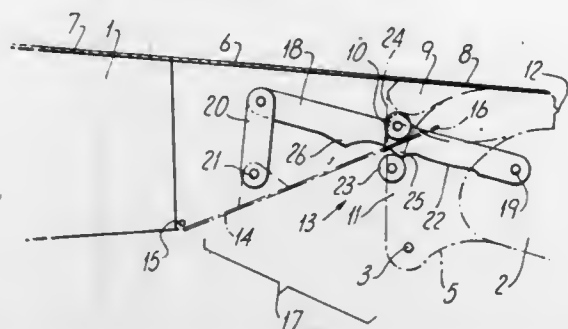
U.S. Cl. 244-215

8 Claims

1. A wing and flap arrangement including a fixed wing portion, a flap member extending rearwardly of the fixed wing portion, a variable camber upper surface member in the form of a cantilevered leaf spring, said upper surface member being anchored to said fixed wing portion such that it trails therefrom and is biased toward said flap member at all times, a pivot pivoting said flap member to said fixed wing portion about a generally spanwise axis, actuation means adapted to effect deflection of said flap member about its pivot, and upper surface urging means for urging said upper surface member from said flap member against the bias of the leaf spring when a slot is required, said upper surface urging means including a cam track and cam track engaging member, one of which is

carried by said upper surface member and the other is carried by said flap member and arranged so that on relatively small upward and downward deflection from a neutral position, said upper surface member and the upper surfaces of said fixed

(+17°)



wing portion and said flap member together define a substantially continuous surface, whilst on relatively large downward deflection from the neutral position said cam track and cam track engaging member co-operate to urge said upper surface member from said flap member.

4,395,009

RACEWAY CLAMP

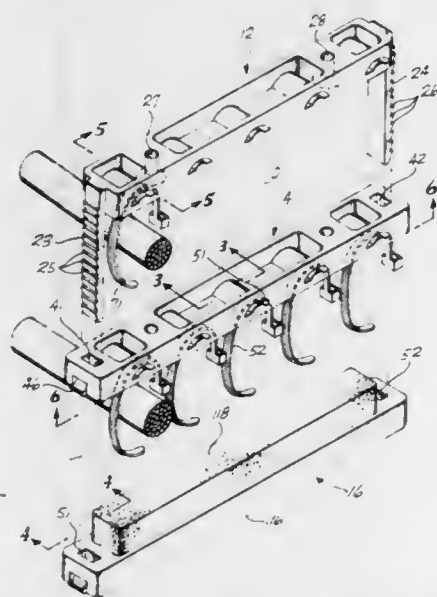
Odo S. Bormke, Gig Harbor, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 28, 1981, Ser. No. 267,953

Int. Cl.³ F16L 3/22

U.S. Cl. 248—68 CB

1 Claim



1. A raceway clamp assembly comprising:

- a three-part clamp for retaining an array of wire bundles at a predetermined distance spaced individually one from another, said three-part clamp including a U-shaped base member having serrated side arms for retaining in snap fit relationship an intermediate wire bundle supporting element, and a cushioned third element in pressure fit relationship with said intermediate wire bundle supporting element within said raceway clamp assembly;
- said third element having an aperture, said aperture having an inner facing surface portion with complementary serration for interlocking with said serrated side arms;
- said U-shaped base member having a bottom portion, and said bottom portion including a plurality of mounting holes for securing said raceway clamp assembly to aircraft structure;
- said serrated side arms being resiliently movable toward and away from each other, said serrated side arms being substantially parallel, and said serrated side arms having exterior surface serrations facing downward toward said bottom portion;
- said intermediate wire bundle supporting element having an aperture, said aperture having an inner facing surface

portion with complementary serration for interlocking with said serrated side arms; and each of said apertures of said third element and said intermediate wire bundle supporting element having associated respectively therewith a finger tab for releasing respectively said third element and said intermediate wire bundle supporting element, thereby permitting adjustment respectively of said third element and said intermediate wire bundle supporting element along the length of said serrated side arms.

4,395,010

DEVICE FOR THE SETTING UP OF A DATA DISPLAY DEVICE ON A WORK SURFACE

Olav Helgeland, Nittedal; Guttorm Rudi, Fjellhamer, and Odd Engely, Faren, all of Norway, assignors to Tandberg Data A/S, Oslo, Norway

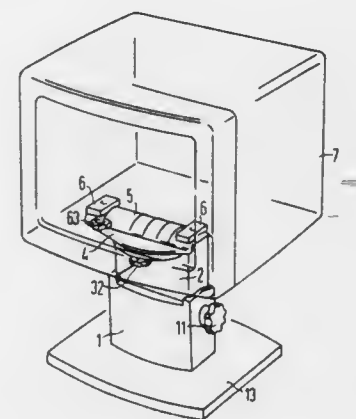
Filed Apr. 13, 1981, Ser. No. 253,368

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1980, 3036852

Int. Cl.³ A47G 29/00

U.S. Cl. 248—371

6 Claims



1. A system for setting up a data display device on a work surface, comprising: an elevation adjustment means; rotation means for rotation of the device about a vertical axis; swivel means for swivelling or tilting the device about a horizontal axis; a weight balancing means for compensating at least a portion of a weight of the data display device; a stand having a stationary telescope member and an extendable telescope member in cooperation therewith; a base plate arranged on the extendable telescope member which receives a rotary plate in rotary fashion; said swivel means comprising the rotary plate provided with an arch, and at least two sliding elements arranged on the arch for bearing the data display device; said weight balancing means comprising a substantially linear energy storage member arranged on the stand; said elevation adjustment means comprising a toothed rack arranged on the extendable telescope member and a pinion which engages in the toothed rack, said pinion being arranged on a shaft which is provided with a first control knob located on the stationary telescope member; the base plate having a passage for the linear energy storage member and at least two concentrically arranged base plate guide slot means for guiding rotation of the rotary plate; two rotary plate guide slot means corresponding to the two sliding elements of the swivel means which run in a direction of the arch for guiding the sliding elements; said swivel means comprising two outside supports or abutment members lying opposite the sliding elements at the rotary plate guide slot means, and first connection element means aligned through the rotary plate guide slot and which holds the sliding elements and the outside abutment members in a releasable connection; second connection element means passing through said base plate guide slot means and which hold the rotary plate to the base plate in a releasable slidable connection to permit rotation of the rotary plate relative to the base plate;

and said second connection element means including a screw with a nut designed as a control knob.

4,395,011

MOUNTING AND GUIDING DEVICE FOR ADJUSTABLE MOTOR VEHICLE SEATS

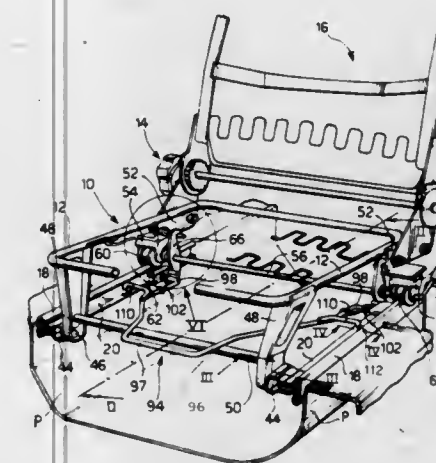
Mario Torta, Turin, Italy, assignor to Lifel di Torta E.C. S.A.S., Belnasco, Italy

Filed Nov. 26, 1980, Ser. No. 210,709

Int. Cl.³ A45D 19/04; B60N 1/02

U.S. Cl. 248—393

13 Claims



1. In an adjustable motor vehicle seat having a base frame with two side members, a mounting and guiding device of the type comprising:

- a pair of fixed guides formed by profiled sheet metal elements having means of attachment to lower internal wall parts of the vehicle so as to extend substantially horizontally and parallel to each other longitudinally of said vehicle;
- a pair of movable guides which are formed by profiled sheet metal elements slidably connected to respective said fixed guides;
- respective support means which connect said movable guides with respective said side members of said base frame, which overlie said guides;
- at least one longitudinal rack fixed to a respective said fixed guide and defining a longitudinal array of positioning slots, and
- a respective hand-operated movable latch which is selectively engageable and disengageable with the slots of said rack, and is carried on the movable guide corresponding to said fixed guide having said rack, wherein the improvement consists in: each fixed guide comprising a box-section which defines a longitudinal slot facing inwardly of said device, and a side wall facing outwardly of said device for fixing said guide to a vertical part of said lower internal wall part of said vehicle;
- each movable guide comprising a guide part which is slidable within said fixed guide, and a lateral part which projects inwardly of said device through said slot and carries said support means;
- each rack comprising a strip of sheet metal fixed centrally to said side wall of said fixed guide so that a part of said rack projects from said slot in said guide, said positioning slots being formed in said projecting part,
- said projecting lateral part of each movable guide associated with said rack comprising a pair of walls which are spaced above one another and between which is interposed said projecting part of said rack, said projecting lateral part of said movable guide defining an opening in which said latch is slidable,
- said support means comprising, for each movable guide, an articulation bracket fixed to said projecting lateral part adjacent the front end of said movable guide, and an upright which is articulated at its lower end to said

bracket and is fixed at its upper end to the front of a respective said side member of said base frame, said two uprights being pivoted about a common horizontal transverse axis to permit the seat to tip forwards, and said support means further comprising, in correspondence with each fixed guide, a fork mounted at the rear of said side member of said base frame, and a roller which is rotatably mounted in said fork to rest on an upper edge of said fixed guide which serves as a track.

4,395,012

SUPPORT FOR A MAILBOX

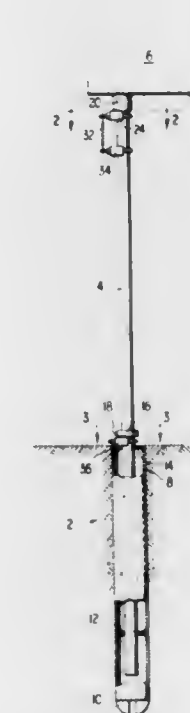
Frederick K. Rance, 402 14th St., Rte. 1, Devils Lake, N. Dak. 58301

Filed Nov. 20, 1981, Ser. No. 323,341

Int. Cl.³ F16M 13/00

U.S. Cl. 248—545

6 Claims



3. A support comprising: a first cylindrical element, two annular washers, each attached to said first cylindrical element and each having a central hole aligned with an axis generally parallel with the axis of said cylindrical element, support means for supporting an object and adapted to be held by said two annular washers, a locking collar adapted to be secured to said support means, for preventing relative motion, past a predetermined point, between said support means and said first cylindrical element and, means for attaching an object to said support means; wherein said support means comprises a second cylindrical element having threads on one end, and said means for attaching an object to said support means comprises: a plate for supporting said object, a threaded cylindrical element, secured at one end to said plate, for mating with said threaded portion of said support means, means attached to said threaded element, for frictionally grasping said support means, elastic means connected between said threaded cylindrical element and said support means for returning said plate to a predetermined orientation with respect to said support pipe after rotational displacement of said plate.

4,395,013

LANTERN HOLDER

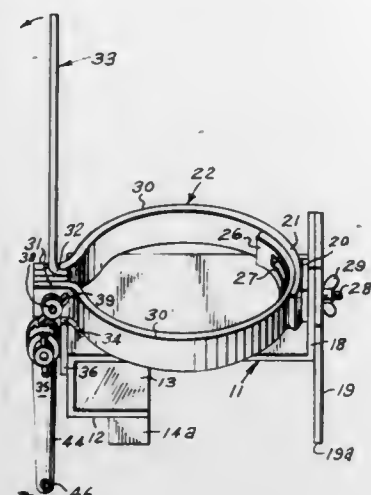
Lawrence H. Wissinger, 337 Montgomery Ave., Springfield, Ohio 45506

Filed Feb. 23, 1981, Ser. No. 237,002

Int. Cl.³ F16M 13/00; A47K 1/08

U.S. Cl. 248—558

2 Claims



1. A lantern holder, comprising, in combination, a base, a split-clamp ring secured to said base for clamping onto the outer periphery of a lantern base, an upright member secured to said split-clamp ring, for removably supporting an elevatable light reflector and shade combination, and a clamp screw received in said base for clamping said base to an object, such as a seat or ladder top, said base is open, on one end, to receive the longitudinal side edge of a seat, and a lip formed and extending downwards from said open end, includes a pair of spaced-apart legs fixedly secured thereto, and said legs, said lip, and a plate secured to the opposite end of said base, forms surface rest means, for said base, when said base is not clamped to an object, and said split-clamp ring comprises two arcuately curved valves, one pair of ends including an elongated horizontal slot for freely receiving a bolt fastener, which is received through a spacer, said opposite end of said base and said plate, which is elevated when said holder is to be mounted to the top of a ladder.

4,395,014

POOL DECK FORM FOR VINYL LINER SWIMMING POOL

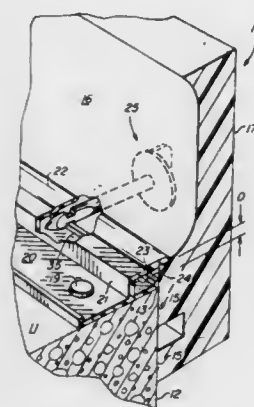
Max W. Deason, 1818 W. Price St., Tucson, Ariz. 85705

Filed Nov. 17, 1981, Ser. No. 322,394

Int. Cl.³ E04B 1/16

U.S. Cl. 249—9

6 Claims



1. An apparatus for forming a deck and coping thereof for a pool, said apparatus comprising,
(a) a liner retainer strip having a channel extending along the length thereof contoured and dimensioned to receive the peripheral edge of a pool liner of flexible, waterproof material, said channel including

a first elongate generally horizontally oriented inner surface extending along said liner retainer,
a second elongate generally horizontally oriented inner surface extending along said liner retainer and generally parallel to said first elongate inner surface,
a lip extending outwardly from said first elongate inner surface toward said second inner surface,
the space between said lip and said second elongate inner surface representing a longitudinal channel opening facing said central area of said pool and extending along said liner retainer generally parallel to said pool wall,
the vertical distance between said lip and said second inner surface generally being constant along the length of said retainer strip and being less than the vertical distance from said first inner surface to said second inner surface,

- (b) a continuous strip of semirigid material including
(i) a facing surface free of adhesive and positioned below and horizontal edge against said upper portion of said pool wall,
(ii) a front form surface extending upwardly from said facing surface to form a contoured surface for temporarily supporting concrete poured above said horizontal edge onto said horizontal support surface of said pool, said concrete forming a pool deck and coping thereof contiguous to said pool wall when set, and
(iii) a back wall surface generally opposed to said front form surface and facing said central area of said pool, and
(c) an elongate support member having
(i) a first end shaped and contoured to pass through said strip of semirigid material and be fixedly detachably secured in said liner retainer, and
(ii) a second end provided with a head having an inner surface contoured to contact said back wall surface of said continuous semirigid strip and to hold said continuous semirigid strip in position against said upper portion of said pool wall when said first end is fixedly secured in said liner retainer, said elongate member being under tension along at least a portion of the length thereof when said first end is secured in said liner retainer channel and said head is contacting said back wall surface of said semirigid strip of material.

4,395,015

CAKE MOLD

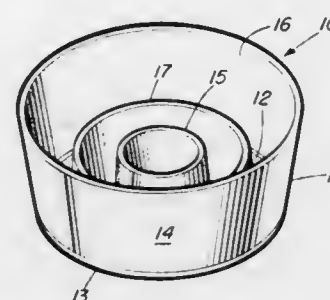
Margaret Reardon, 8 Kimball St., Worcester, Mass. 01605

Filed Dec. 21, 1981, Ser. No. 332,848

Int. Cl.³ B28D 7/36

U.S. Cl. 249—115

3 Claims



1. Cake mold, comprising:
(a) a main container having a bottom wall with a circular peripheral edge and having an annular side wall extending upwardly and outwardly from the said peripheral edge of the bottom wall to define a primary top opening, and
(b) an annular division wall extending upwardly from the bottom wall coaxially of the side wall and terminating in a free top edge to define a secondary top opening, the division wall being tapered inwardly and upwardly from

the bottom wall and having a height which is substantially less than that of the side wall.

4,395,016

AXIAL FLOW REGULATOR IMPROVEMENTS INCLUDING RESTRICTOR

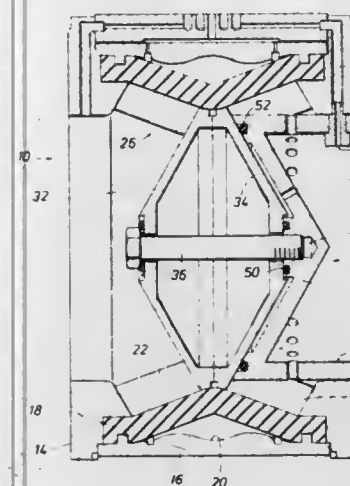
Robert H. Welker, Sugar Land, Tex., assignor to Welker Engineering Company, Sugar Land, Tex.

Filed Apr. 6, 1981, Ser. No. 251,206

Int. Cl.³ F16K 7/07, 47/14

U.S. Cl. 251—5

4 Claims



1. An apparatus including a restrictor for installation on the downstream side of an axial flow regulator which flow regulator includes a central plug diverting fluid flow into an annular space thereabout, said regulator having an annular housing having inlet and outlet body elements received therein, said body elements each defining a plurality of integral spaced ribs forming opposed cage elements for retention of said central plug therebetween, said body elements defining cylindrical inlet and outlet openings, locking opening means being defined in the downstream one of said body elements, the restrictor comprising:

a surrounding cylindrical sleeve defining a solid circumferential wall forming a close fit within said outlet opening of said downstream body element a plurality of fluid flow openings being formed in said cylindrical wall to thereby define a maximum throughput capacity, said restrictor further including a generally conical central closure member being integral with said cylindrical wall and extending across and within said cylindrical wall to close off an axial flow path there through an annular seal groove being formed in the outer peripheral portion of said restrictor and opening toward said plug, seal means received in said seal groove and establishing a seal between said restrictor and plug, locking means extending through said cylindrical wall and into said locking opening and securing said restrictor in assembly with said downstream body element.

4,395,017

BUTTERFLY VALVE SEALING MEANS HAVING AN IMPROVED O-RING GROOVE

Richard A. Brautigan, Tulsa, Okla., assignor to Dover Corporation, Tulsa, Okla.

Continuation of Ser. No. 124,538, Feb. 25, 1980, abandoned.

This application Dec. 21, 1981, Ser. No. 332,959

Int. Cl.³ F16J 15/32; F16K 1/226

U.S. Cl. 251—306

1 Claim

1. In a butterfly valve having a body with an internal circumferential sealing surface and a disc rotatably supported in the valve body, the disc having a circumferential sealing surface therearound, the disc being rotatable so that when the valve is in the closed condition the disc sealing surface is adjacent to or in physical contact with the body sealing sur-

face, the improvement comprising a groove formed in the valve disc sealing surface, the groove in cross section having an outer portion communicating with the disc sealing surface and an inner portion, the groove outer portion having paralleled sidewalls in said cross section, the inner portion being also defined in part by paralleled sidewalls in said cross section, the width of the inner portion between its sidewalls being at least 140% of the width of the outer portion between its sidewalls, the cross-sectional area of the inner portion in said cross section being at least 140% of the cross-sectional area of the

groove outer portion in said cross section, the juncture of the inner and outer portions in said cross section providing opposed ledge surfaces in a common plane; and

an O-ring gasket received in said groove, the cross-sectional area of the total of the groove inner and outer portions being about 105% of the cross-sectional area of the O-ring gasket, the O-ring gasket when in position in the groove normally extending slightly beyond the disc sealing surface to compressibly engage the valve body sealing surface when the valve is in the closed condition.

4,395,018

VALVE MEMBER WITH FIXED SEAL SHUTOFF

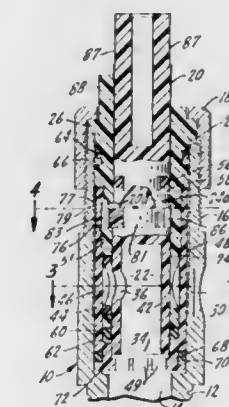
Alfred M. Moen, Grafton, Ohio, assignor to Stanadyne, Inc., Windsor, Conn.

Continuation of Ser. No. 173,490, Jul. 30, 1980, abandoned, which is a continuation-in-part of Ser. No. 925,538, Jul. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 871,178, Jan. 23, 1978, abandoned. This application Feb. 16, 1982, Ser. No. 348,997

Int. Cl.³ F16K 5/04

U.S. Cl. 251—310

29 Claims



1. Fluid valve means including sleeve means, inlet and outlet port means in said sleeve means, a stem movable within said sleeve means between open and closed positions and having

inlet and outlet port means, said stem inlet port means being in communication with said sleeve means inlet port means, said stem outlet port means being movable into register with said sleeve means outlet port means to thereby define a path of flow through said valve means from said communicating stem and sleeve means inlet port means through said stem outlet port means and said sleeve means outlet port means, and a fixed seal member carried by said sleeve means and for closing flow between said sleeve means inlet and outlet port means, said seal member being annular, at least in part, with the annulus being arranged about an axis perpendicular to the axis of said stem, said seal member being spaced from said sleeve means outlet port means with said path of flow through said valve means never being through said seal member at any position of said stem to thereby protect said seal member from movement and wear caused by dynamic water pressure and foreign matter within the water, said stem outlet port means being in register with and closed by said seal member when said stem is in a closed position.

4,395,019

SEAL FOR WEAR RESISTANT INSERTS

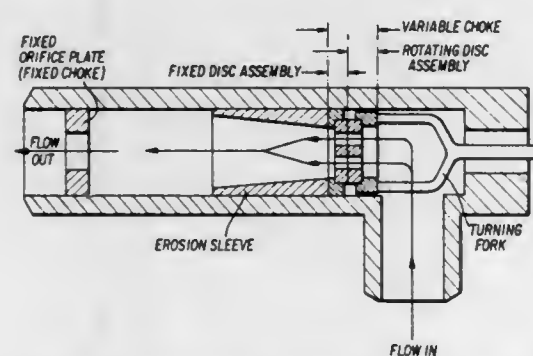
Raymond C. Searles, Russell, Ky., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 24, 1981, Ser. No. 257,049

Int. Cl.³ F16K 3/02

U.S. Cl. 251—357

13 Claims



1. In a pressure let-down valve comprising a valve body and a variable choke within said body, said variable choke comprising a fixed disc assembly and a rotating disc assembly, said rotating disc assembly comprising a retaining ring and a wear-resistant insert means affixed to said retaining ring, an improvement wherein:

said wear-resistant insert means is attached to said retaining ring by a split locking ring means containing a fastening means in the front surface thereof.

4,395,020

STRUT COMPRESSOR

Phillip A. Spainhour, Waukegan, Ill., assignor to Ammco Tools, Inc., North Chicago, Ill.

Filed Mar. 15, 1982, Ser. No. 358,204

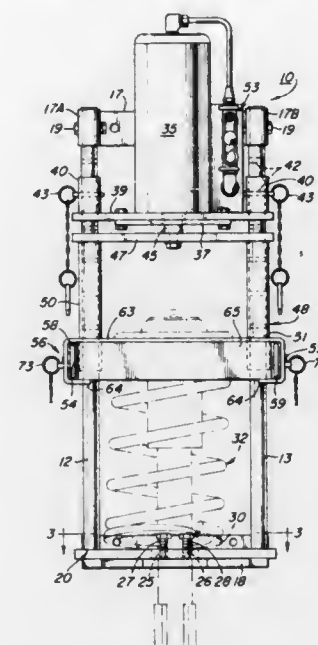
Int. Cl.³ B23P 19/04

U.S. Cl. 254—10.5

7 Claims

1. Apparatus for use in assembling and disassembling a strut assembly of the type having a shock absorber axially disposed within a coil spring, comprising in combination a plurality of mutually parallel support rails, first platen means mounted at a fixed position on said support rails for operatively engaging one end of a coil spring disposed between said rails in substantial parallelism therewith, second platen means mounted for movement along said rails for engaging the other end of said coil spring, and means for applying a force to said second platen means to move said second platen means toward said first platen means to compress said coil spring between said first and second platens, said second platen means comprising first and second pivot

members freely pivotable about an axis extending transversely to the longitudinal axes of said rails, and front and



rear spring engaging slides adjustably mounted to said pivot members and extending therebetween for engaging said other end of said coil spring.

4,395,021

VERTICAL CONTINUOUS ANNEALING FURNACE AND ITS OPERATING METHOD

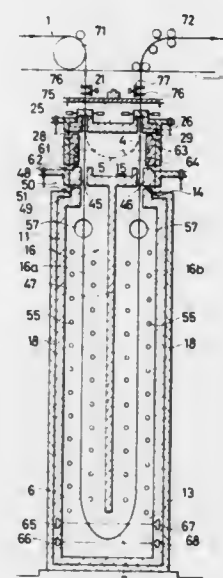
Ryoji Terakado; Masaru Iwasa; Ituo Takahashi; Norio Anzawa, and Gen Yoshida, all of Muroan, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Feb. 8, 1982, Ser. No. 347,235

Int. Cl.³ C21D 9/56

U.S. Cl. 266—85

15 Claims



1. A vertical continuous annealing furnace, comprising: a furnace proper having a furnace mouth opening upward in the top thereof, for admitting a steel strip into the furnace, the strip forming a catenary-like loop therein; a first furnace cover horizontally mounted on the top of the furnace proper so as to close said furnace mouth, the first furnace cover being laterally slidable with respect to the furnace proper so as to open and close the furnace mouth and having two long narrow openings laterally extending from one side to the other thereof and longitudinally spaced so that the descending and ascending portions of the strip can pass therethrough; and a second furnace cover horizontally spaced below said first furnace cover so as to divide the furnace proper into an upper pre-chamber and a lower heating chamber, the

second furnace cover being laterally slidable so as to permit the two chambers to be cut off and connected as required, having two long narrow openings laterally extending from one side to the other thereof and longitudinally spaced so that the descending and ascending portions of the strip can pass therethrough, the second furnace cover also having a partition extending from the undersurface thereof to near the bottom of the furnace to vertically divide the heating chamber into a heating zone and a soaking zone.

4,395,022

METHOD OF AND APPARATUS FOR CONTROLLED COOLING OF METALLURGICAL PRODUCTS

Philippe A. Paulus, and Marios Economopoulos, both of Liege, Belgium, assignors to Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie, Brussels, Belgium

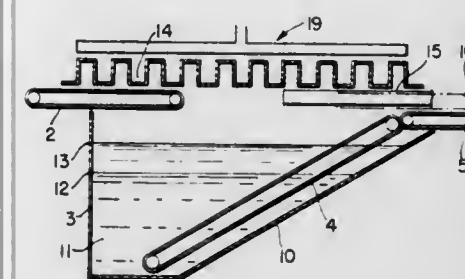
Filed Feb. 2, 1978, Ser. No. 874,629

Claims priority, application Belgium, Feb. 8, 1977, 851213; Apr. 29, 1977, 854158; May 10, 1977, 854478

Int. Cl.³ C21D 9/56

U.S. Cl. 266—106

4 Claims



1. An installation for controlled cooling of a metallurgical product, comprising, a vessel for holding a liquid bath, a device for continuously transferring the product to said vessel, a cover arranged above the vessel, said cover being provided with a condenser for recovering vapour from the bath, means for continuously raising the product from the vessel, and means for keeping a substantially homogeneous temperature throughout the bath, in which the cover of the vessel comprises:

- a first portion formed by a corrugated condenser of the contact type, arranged above the vessel and extending from its inlet side to at least a point where the conveyor or the product emerges from the bath; and
- a second portion which is of a heat-insulating nature and extends from the said point at least to the outlet of the vessel.

4,395,023

SHROUD FOR STEEL MAKING ELECTRIC-ARC FURNACE

Fumio Tomizawa; Katsutoshi Sobata, both of Yokohama; Yoshiaki Yoshimatsu, Kure; Sadayuki Saito, Yotsukaido; Takashi Otani, and Senzaburo Hirano, both of Chiba, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha and Kawasaki Seitetsu Kabushiki Kaisha, both of Japan

Filed Jun. 14, 1982, Ser. No. 388,154

Claims priority, application Japan, Sep. 22, 1981, 56-149808; Sep. 22, 1981, 56-149809

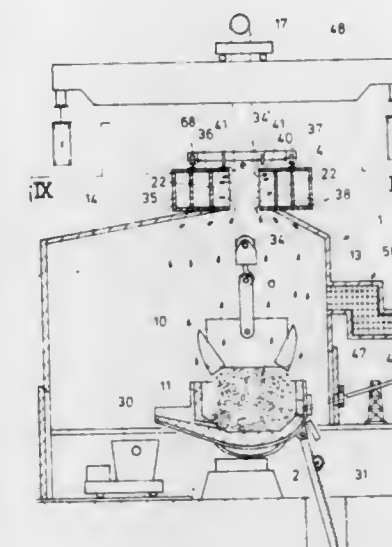
Int. Cl.³ H05B 7/20

U.S. Cl. 266—158

6 Claims

1. In a shroud for a steel making electric-arc furnace comprising insulating and dust proofing walls surrounding sides and a top of a steel making electric-arc furnace main body, and doors provided in a side wall of said sound insulating and dust proofing walls to allow a scrap bucket which is suspended to pass through from the side; the improvement which comprises an opening provided in the top wall of said sound insulating and dust proofing walls, a dust collecting suction duct on the top wall covering said opening and having an opening therein

in registry with the opening in the top wall, said openings being of a minimum width enough for a suspending device of said scrap bucket to move transversely to the center of said electric-arc furnace main body, said suction duct having its



suction port in communication with said openings of minimum width, and a movable top door provided over said dust collecting suction duct and adapted to open or close said openings of minimum width.

4,395,024

APPARATUS FOR HARDENING METALLIC WORKPIECES INCLUDING FURNACE AND WORKPIECE TRANSPORT STRUCTURE, A PART OF WHICH CAN REMAIN IN THE FURNACE DURING FURNACE OPERATION

Wolfgang Rembges, Cologne, and Jan G. Elwart, Erfstadt, both of Fed. Rep. of Germany, assignors to Klöckner Ionon GmbH, Leverkusen, Fed. Rep. of Germany

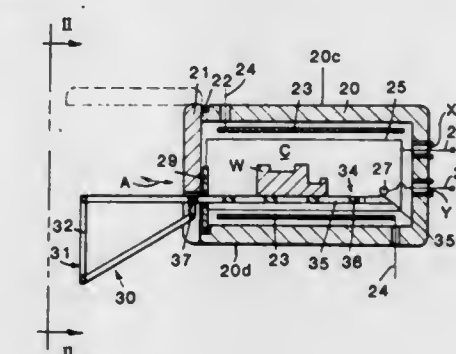
Filed Jan. 8, 1982, Ser. No. 338,058

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1981, 3101351

Int. Cl.³ C23C 11/10

U.S. Cl. 266—252

17 Claims



1. An apparatus for the treatment of a workpiece which comprises:

a furnace, said furnace including a hollow body having an open end and defining a treatment chamber therein, a door pivotally connected to said hollow body to open or close the open end thereof, upper and lower heating means located within said treatment chamber, two electrodes located within said treatment chamber between said upper and lower heating means, one of said electrodes being in the form of a cup-shaped Faraday cage whose open end faces the open end of said hollow body, and two electrical lines, each of said electrical lines being attached at one of its ends to a respective electrode and then extending through an electrically insulated opening in said hollow body so as to be connected to a voltage source located outside of said hollow body, each

said electrical line being electrically insulated from all other elements of the furnace, and
 a transport structure, said transport structure being movable with respect to said furnace and including a metallic mounting portion and a metallic platform portion, said platform portion being electrically insulated from said mounting portion, and said transport structure being constructed such that said mounting portion is located outside of said hollow body when said transport structure is moved with respect to said furnace such that said platform portion, which at least initially supports the metallic workpiece to be treated, is operatively positioned within said treatment chamber and the door of said furnace is pivoted to close the open end of said furnace.

4,395,025

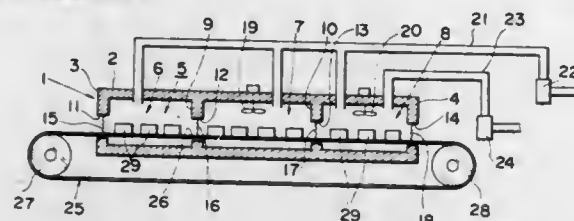
METHOD AND APPARATUS FOR THE CONTINUOUS FURNACE BRAZING AND GAS SOFT-NITRIDING TREATMENTS OF IRON ARTICLES

Teruoki Watanabe; Tadao Kanno; Akio Hidaka, all of Kawagoe, and Shunji Kobayashi, Sayama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 113,649, Jan. 21, 1980, abandoned, which is a division of Ser. No. 56,922, Jul. 12, 1979, abandoned.
 This application Sep. 24, 1981, Ser. No. 305,341
 Claims priority, application Japan, Jul. 12, 1978, 53-84680; Jul. 13, 1978, 53-85384

Int. Cl.³ C21D 1/06

U.S. Cl. 266—257

5 Claims



1. A continuous treatment furnace for brazing and gas soft-nitriding iron parts, comprising:
 - a furnace body including:
 - a brazing chamber for brazing said iron parts in a protecting atmosphere substantially comprising a controlled gas for brazing;
 - a furnace cooling chamber, provided subsequent to said brazing chamber, for gradually cooling said iron parts in a protecting atmosphere substantially comprising said controlled gas; and
 - a gas soft-nitriding chamber, provided subsequent to said furnace cooling chamber, for gas soft-nitriding said iron parts in a gas soft-nitriding atmosphere substantially comprising said controlled gas and an ammonia gas;
 - a protecting gas supply line branched to feed said controlled gas to said brazing chamber, said furnace cooling chamber, and said gas soft-nitriding chamber;
 - an ammonia gas supply line connected to feed said ammonia gas to said gas soft-nitriding chamber;
 - said chambers being provided with partition walls therebetween;
 - each said partition wall being provided with an opening therein to permit communication between said chambers; and
 - a shielding steel curtain being disposed so as to cover each said opening while permitting said iron parts to be passed therethrough.

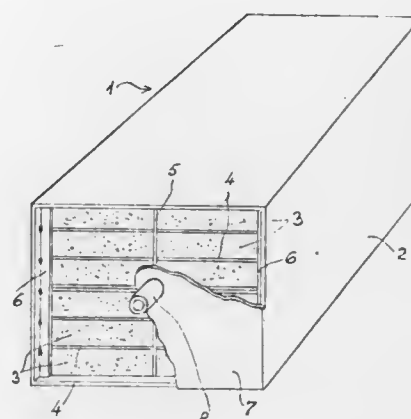
4,395,026

REFRACTORY GAS-PERMEABLE STRUCTURAL UNIT

Fritz Hödl, Vienna, and Friedrich Kassegger, Wiener Neustadt, both of Austria, assignors to Arbed S.A., Luxembourg, Luxembourg
 Filed Jun. 25, 1981, Ser. No. 277,218
 Claims priority, application Luxembourg, Jun. 25, 1980, 82552; Jun. 25, 1980, 82553; Jun. 25, 1980, 82554
 Int. Cl.³ C21B 7/16

U.S. Cl. 266—265

26 Claims



1. A refractory gas-permeable structural unit for blowing a gas into a metal treatment vessel and through its casing, characterized by a passageway formed by faces of at least two elongated refractory elements, said elements being separated from one another by a thin metal layer so that gas passage takes place between said elements along said metallic layer, said elements each having first and second longitudinal faces and hot and cold end faces, said metallic layer being arranged on the first longitudinal face of at least one of said elements; a metal housing surrounding said elements to connect them with one another and sealingly abutting against said second longitudinal faces of said elements; and means for supplying gas and including a gas distribution chamber formed at said first end faces of said elements and a conduit communicating with said distribution chamber.

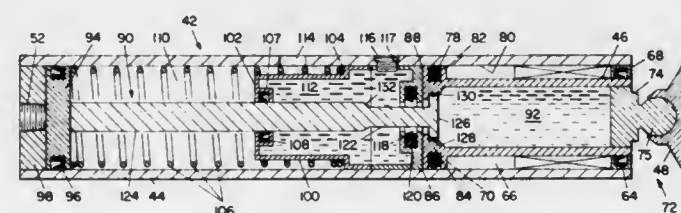
4,395,027

PRESSURE INTENSIFYING DEVICE

Robert A. Nordmeyer, 5034 Marmol Dr., Woodland Hills, Calif. 91364
 Filed Sep. 15, 1980, Ser. No. 187,588
 Int. Cl.³ B23Q 3/08

U.S. Cl. 269—25

8 Claims



1. A two stage hydraulic pressure device comprising:
 - a housing cylinder having a telescoping inner cylinder disposed concentrically therein and movable between a retracted position and extended workpiece contact positions, said telescoping cylinder including an outer solid workpiece contact end and an inner sealing end, said sealing end including means for sealing said telescoping cylinder to said housing cylinder during movement between said extended and retracted positions;
 - a drive rod concentrically located within said cylinder housing, for applying power to said telescoping cylinder, said drive rod having a body portion, a narrower neck portion and an enlarged head fixed to said neckwork, said head having a larger cross-sectional area than said rod body;

means for sealing said drive rod body to said cylinder housing and means for introducing hydraulic fluid into the telescoping cylinder and fluid reservoir chamber defined by the interior of said housing cylinder between said telescoping cylinder seal means and said drive rod seal means;
 means on the inner surface of the telescoping cylinder sealing end for engaging said drive rod head to prevent movement of said drive rod head rearward out of said telescoping cylinder, said engaging means including partial seal means on the inner surface of said telescoping cylinder sealing end for partially sealing said drive rod head to said telescoping cylinder when said head is at said sealing end whereby as said head is forced against hydraulic fluid in said telescoping cylinder, said telescoping cylinder is extended until it meets sufficient resistance force to cause hydraulic fluid to bleed past said head through said partial seal as said head is moved forward and said telescoping cylinder remains stationary;
 and additional drive rod body seal means for sealing the drive rod body to the cylinder housing, said additional sealing means encompassing said drive rod neck when said drive rod is retracted, whereby forward movement of said drive rod body causes sealing contact with said additional seal whereupon more pressure is applied to said telescoping cylinder as said drive body rod is forced into said telescoping cylinder.

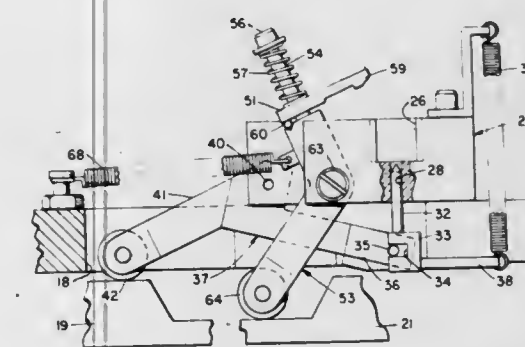
4,395,028

WORKPIECE POSITIONING, CLAMPING AND CONVEYING APPARATUS

William C. Kent, Garland, Tex., assignor to Western Electric Company, Inc., New York, N.Y.
 Filed Oct. 26, 1981, Ser. No. 314,941
 Int. Cl.³ B23Q 1/00

U.S. Cl. 269—50

6 Claims



1. An apparatus for locating and clamping an article, which comprises:
 - a workholder having a nest formed therein to receive an article with a hole therein;
 - a locating pin slidably mounted in the workholder for movement into the nest and into the hole formed in the article;
 - a clamp for engaging the article positioned in said nest;
 - a first lever means having a first cam follower mounted on one end thereof and means mounted on the other end for moving said slidable pin into the nest and in the hole formed in the article positioned in said nest to accurately locate the article in the nest;
 - a second lever means having a second cam follower mounted on one end and means mounted on the other end for pivotally mounting said clamp;
 - spring means for urging said clamp against said other end of said second lever; and
 - cam track means for sequentially engaging said first and second cam followers to pivot said first and second lever means to sequentially move said locating pin into the hole formed in the article positioned in said nest, and to pivot said clamp to engage the article positioned by said locating pin.

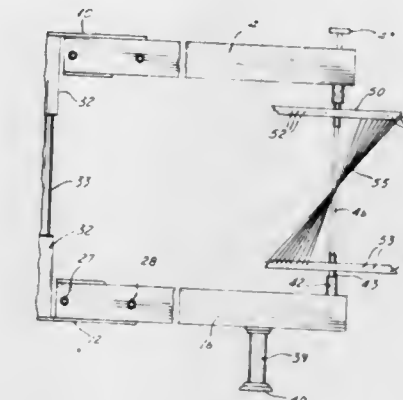
4,395,029

FIXTURE FOR MANUFACTURING RATTAN TYPE FURNITURE

Denny G. Davis, Littleton; Robert C. Emerson, Aurora, and George J. Banks, Jr., Littleton, all of Colo., assignors to Almar Products Corporation, Calif.
 Filed Dec. 11, 1980, Ser. No. 215,253
 Int. Cl.³ B65H 81/00

U.S. Cl. 269—57

1 Claim



1. A rattan type furniture manufacturing assembly comprising:
 - (a) a pair of interchangeable base members each comprising a flat plate having four angle members secured to one major surface thereof to define four arm holding supports with a square socket member secured to and projecting normally from said one major surface in given orientation with respect to said arm holding supports;
 - (b) eight interchangeable arm means in the form of square cross-section tubes each removably secured in a different one of said arm holding supports of said two base members with the four arm means secured to each of said base members extending outwardly thereof at right angles to each other;
 - (c) a square central shaft having each of its ends releasably received with a close fit in a different one of said square socket members of said pair of base members for supporting said base members apart with said arm means of one of said base members in alignment with said arm means of the other of said base members;
 - (d) four torque rods each rotatably received through bores in a different aligned pair of said arm means at the free end thereof;
 - (e) a plurality of hollow tubular disc holding means each receiving a different one of said torque rods and being releasably secured thereto; and
 - (f) adjustable foot means mounted on each of said arm means of one of said base members at the free end thereof and projecting axially outward of said assembly, whereby said assembly may be supported on said foot means when associated with either one of said base members with said central shaft and said torque rods extending vertically.

4,395,030

QUICK ACTION VISE

Frank G. Eskuchen, Coral Gables, Fla., assignor to Leonard G. Eskuchen; Raymond F. Eskuchen and Wayne R. Lindholm, all of Palatine, Ill.

Filed Feb. 2, 1982, Ser. No. 345,196

Int. Cl.³ B23Q 3/02

U.S. Cl. 269—181

6 Claims

1. A quick action vise comprising:
 - a base defining a longitudinal axis and including a generally upstanding portion;
 - a first clamping jaw fixedly secured to said base in spaced relation to said upstanding portion;
 - a second clamping jaw;
 - means cooperative with said base for supporting said second clamping jaw for movement along a predetermined path

4,395,036

SHEET FEEDER WITH STACK-HOLDING TRAY HAVING FLEXIBLE-BAND-COUPLED GUIDE ELEMENTS

Carl A. Bergman, South Dartmouth; Roy L. Thomas, New Bedford, and Richard A. Bourbeau, North Dartmouth, all of Mass., assignors to Standard Duplicating Machines Corporation, New Bedford, Mass.

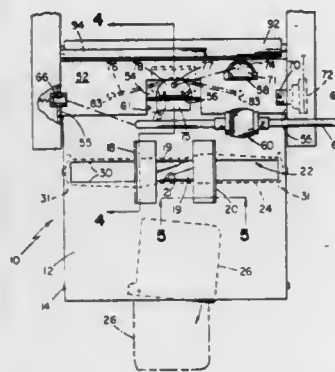
Division of Ser. No. 204,559, Nov. 6, 1980, abandoned, which is a continuation of Ser. No. 33,740, Apr. 26, 1979, abandoned.

This application Dec. 7, 1981, Ser. No. 327,779

Int. Cl.³ B65H 1/04

U.S. Cl. 271-171

5 Claims



1. Apparatus for holding a stack of sheets for entry into a sheet feeder, comprising:
 - a tray for vertically supporting said stack,
 - left and right stack guide elements moveable toward and away from the lateral edges of said stack for centering said stack in said tray,
 - extensions of said stack guide elements that extend below said tray,
 - a flexible band formed in a loop,
 - said band being attached at a first location to a first of said extensions and a second location to the second of said extensions, said second location being about halfway around said loop from said first location, such that said stack guide elements move inward and outward laterally in unison,
 - band guide elements at the lateral edges of and below said tray,
 - said band guide elements having slot means for vertically restraining said band, and
 - band-bending means for bending said band during inward movement of said stack guide elements so that when said movement stops the band tends to move said stack guide elements outwardly as it assumes an equilibrium position, thereby preventing overtightening of said stack guide elements against said stack.

4,395,037

APPARATUS FOR STACKING TEXTILE FABRIC SHEETS ON TOP OF ONE ANOTHER

Rolf Heine, Rinteln, Fed. Rep. of Germany, assignor to Herbert Kannegiesser GmbH & Co., Vlotho, Fed. Rep. of Germany

Filed May 20, 1981, Ser. No. 265,494

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1980, 3022619

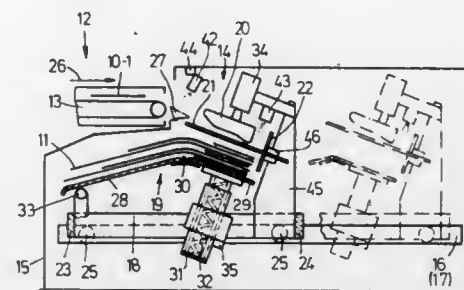
Int. Cl.³ B65H 29/70

U.S. Cl. 271-188

5 Claims

1. Stacking apparatus for stacking sheet-like textile fabrics or the like on top of one another as they exit devices for processing textile fabrics in the manufacture of articles of outer clothing on a feed mechanism (12), which apparatus includes a stacking table (19) mounted to be movable vertically, a movable clamping plate (20) mounted to be pressed towards the stacking table, and a stacking rake (21) disposed between the stacking table and the clamping plate and movable forwards and backwards in the conveying direction of the feed mechanism and onto which the textile fabrics are conveyed by the feed mechanism, in order to be deposited on the stacking table,

characterised by: the stacking rake comprising a plurality of laterally spaced and longitudinally oriented prongs (38) and the clamping plate defining, on a clamping side thereof, a plurality of laterally spaced and longitudinally oriented recesses (40) located in a working region of the stacking rake prongs and cooperable therewith to grippingly engage textile fabrics, the width of said recesses corresponding at least to the cross-sectional width of said prongs.



ses (40) located in a working region of the stacking rake prongs and cooperable therewith to grippingly engage textile fabrics, the width of said recesses corresponding at least to the cross-sectional width of said prongs.

4,395,038

TELESCOPING AIR JETS FOR PILING

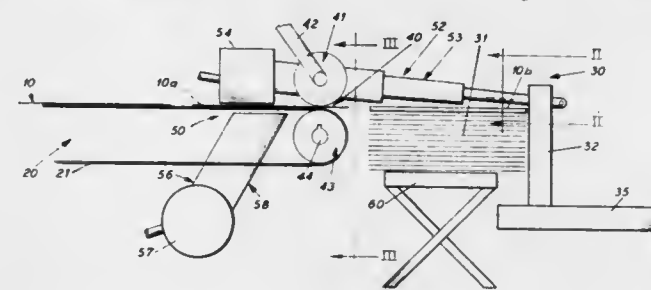
Donald C. Fitzpatrick, Chatham, N.Y.; Gerald A. Guild, Dalton, and Arthur T. Karis, Lenox, both of Mass., assignors to Beloit Corporation, Beloit, Wis.

Continuation of Ser. No. 113,722, Jan. 21, 1980, abandoned. This application Sep. 29, 1981, Ser. No. 306,736

Int. Cl.³ B65H 29/24

U.S. Cl. 271-195

13 Claims



1. A method of handling sheets to be stacked in a pile against a backstop, comprising:
 - conveying sheets seriatim upstream of said pile in a direction towards said backstop,
 - continuously issuing pressurized air in a generally downward and lateral direction in the direction of conveyance of said sheets from means mounted directly overlying said pile directing lift air against the undersurface of each successive sheet at a point upstream of said pile as the sheet is being conveyed toward said pile, and
 - transporting each successive sheet over said pile into jogging relationship with said backstop and depositing the sheet onto said pile with combined lift and transport forces effected by the pressurized air and lift air.

4,395,039

METHOD OF EXERCISING

Robert T. Kaiser, South Jordan, Utah, assignor to Kaiser-Farmer Development Corp., Utah

Filed May 26, 1981, Ser. No. 267,382

Int. Cl.³ A61H 1/02; A63B 21/02, 21/32

U.S. Cl. 272-126

17 Claims

1. A method of exercise specifically adapted for independent, individual use by a patient for rehabilitation of the patient's injured shoulder or arm using the patient's non-injured arm as an actuating force, the method comprising the steps of:
 - a. grasping with the non-injured arm of the patient, an elongated rigid member, said rigid member having a free end

with an attached exercise gripping means coupled thereto by an elastic connecting means;

- grasping the exercise gripping means with the hand of the injured arm or shoulder of the same patient while maintaining the injured arm in a relaxed condition;
- moving the free end of the elongated rigid member with a non-injured arm to rotate the injured arm and shoulder to a comfortable extreme position in preparation for exercise;



- reciprocating the free end of the rigid member in a desired exercise path to apply gentle tension through the elastic connecting means to reciprocate the patient's injured arm or shoulder; and
- repeating steps c and d of the foregoing sequence while gradually increasing the extent of injured arm movement to greater extremities.

4,395,040

ADJUSTABLE BASKETBALL GOAL

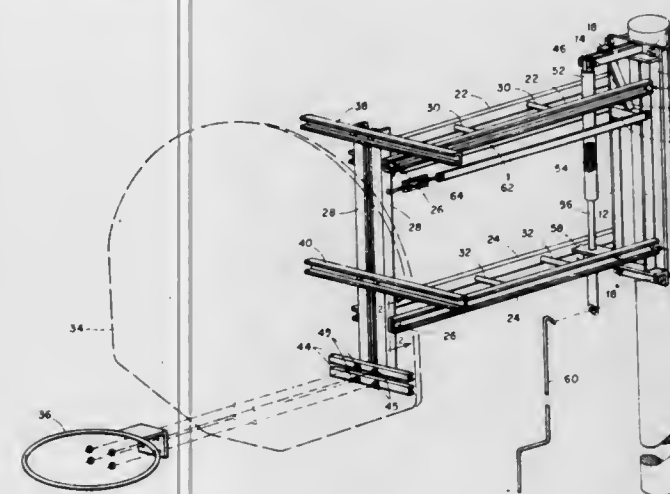
David White, 119 S. Main St., Fayette, Iowa 52142

Filed Apr. 12, 1982, Ser. No. 367,441

Int. Cl.³ A63B 63/08

U.S. Cl. 273-1.5 R

2 Claims



1. An adjustable support for basketball backboards and goals and the like, said support comprising a rear vertical support, a front vertical support spaced forwardly from the rear vertical support, upper and lower horizontal supports pivotally connected to the front and rear supports so as to form a parallelogram arrangement, tightening means extending between the rear vertical support and the front vertical support to maintain the rigidity of the structure as its pivotal connections wear through normal use, a main support arm fixed to the rear vertical support and extending forwardly therefrom, adjustable means having its upper end pivotally connected to the outer end of the main support arm and having its lower portion pivotally connected to the lower horizontal supports so as to provide for raising and lowering of the front vertical supports, backboard mounting means affixed to the front vertical support, and goal mounting means on the lower end of the front vertical support providing for direct fastening to said support of the goal and the backboard.

4,395,041

BALL TRANSFER AND CAPTURE GAME AND METHOD

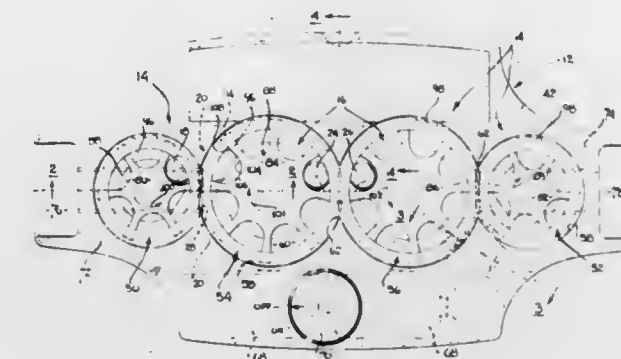
Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356, and Emil H. Von Winkelmann, Van Nuys, Calif., assignors to Adolph E. Goldfarb, Northridge, Calif.

Filed Feb. 11, 1981, Ser. No. 233,463

Int. Cl.³ A63F 7/00

U.S. Cl. 273-119 A

22 Claims



1. A competitive multi-player game-playing apparatus, comprising:
 - a frame means;
 - a plurality of sets of balls, each set distinctively marked for association with each player;
 - at least three wheels, mounted in the frame means such that each wheel is adjacent to at least one other wheel and is rotatable about a vertical axis, including at least one wheel associated with each player, and at least one wheel intermediate the player-associated wheels, each wheel including a plurality of peripheral pockets, each proportioned and arranged so as to receive and carry a ball and permit a ball to pass outwardly;
 - motor means mounted in the frame means for effecting simultaneous rotation of all of said wheels, each at a rate of rotation which generates sufficient centrifugal force such that the balls tend to move out of the pockets, and wherein the rates of rotation of the wheels are synchronized and the respective sizes of the wheels, and the proportions and arrangements of the pockets are designed such that a space is formed between pockets in adjacent rotating wheels through which a ball tend to transfer;
 - means on the frame means for confining the balls in the pockets in the rotating wheels other than at the transfer spaces, so that a ball will move through a path about the periphery of the rotating wheel between transfer spaces; and
 - means mounted in the frame means for controlling transfer of balls through at least one transfer space, said control means being operable by each player.
20. A method of moving a plurality of balls unidirectionally along a figure eight route having a first circular path, a second circular path and a junction therebetween, including the steps of:
 - automatically by use of a motor and continuously directing certain of said balls in a linear sequence around the first path one at a time past the junction;
 - automatically by use of a motor and simultaneously and continuously directing certain others of the said balls in a linear sequence around the second path one at a time past the junction;
 - transferring to a different path automatically any ball passing the junction when another ball is not already occupying the different path at the junction; and
 - selectively blocking the junction point during different spaced time periods to prevent any ball from going through said junction to a different path.

4,395,042 GAME APPARATUS

James W. Boswell, 2401 Rockmart Hwy., Apt. 7A, Rome, Ga. 30161

Filed Mar. 10, 1982, Ser. No. 356,776
Int. Cl.³ A63B 69/36

U.S. Cl. 273—176 B

10 Claims



1. A game apparatus of diminutive size used to improve a player's golf stroke in which a golf ball is hit to the game apparatus from a location spaced from the game apparatus, comprising an upright structural framework having a front, back and two sides, said framework having a plurality of levels one atop the other, each level having a floor to separate it from the adjacent levels, the floor extending from the front to the rear of the game apparatus, each level having a vertically disposed flexible means spaced rearwardly from the front edge of the floor, a plurality of apertures within the flexible means, board means located rearwardly of the flexible means in conjunction with each level to which there is attached on the rearwardly side thereof a net means, said board means including a plurality of apertures juxtaposed with the net means to thereby provide a passage through the board means into the net means, whereby the player's properly stoked golf ball penetrates a selected aperture of the flexible means and a selected aligned aperture in the board means to lodge in the net means.

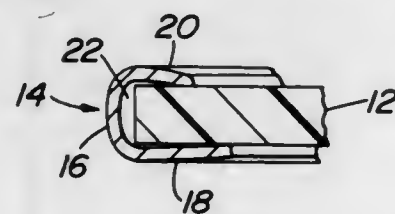
4,395,043 GAME CHIP

Frank Gargione, Absecon Highlands, N.J., assignor to Keystone Bingo Products, Inc., Levittown, Pa.

Filed Feb. 20, 1981, Ser. No. 236,419
Int. Cl.³ G09F 3/18; A63F 3/08

U.S. Cl. 273—239

8 Claims



1. A game chip comprising a circular disk of translucent or transparent material, a ring surrounding said disk with discrete flanges on the ring overlying and contacting the outer periphery of the opposite side faces of said disk, said ring being a smooth magnetizable sheet material free from burrs and wrinkles, said sheet material being substantially thinner than the thickness of said disk, at least one of said flanges being inclined inwardly whereby the thickest portion of the chip is across the ring at the outer peripheral surface of the disk, the inner periphery of said ring being concave, and a gap between the outer periphery of said disk and the inner periphery of said ring.

4,395,044 SPACE BOARD GAME APPARATUS

Carl J. Hula, 9021 Forest Dr., Hickory Hills, Ill. 60457

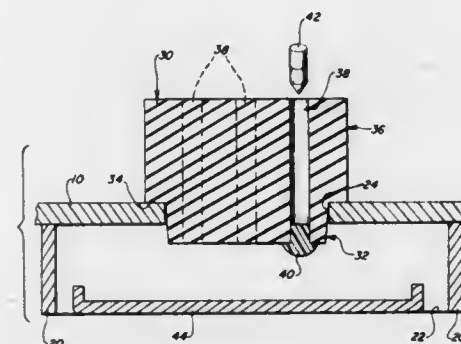
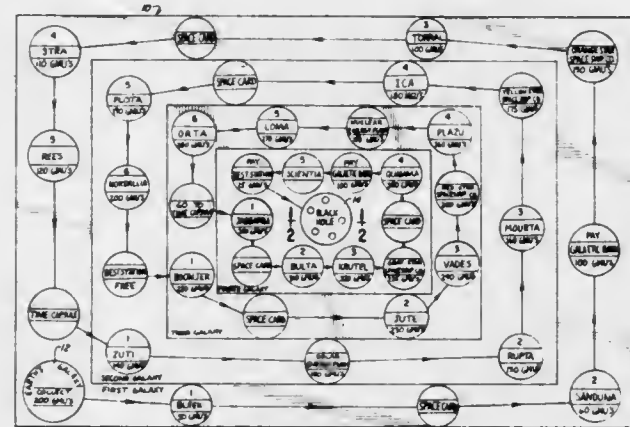
Filed Jul. 2, 1981, Ser. No. 278,341
Int. Cl.³ A63F 3/00

U.S. Cl. 273—253

9 Claims

1. A board game apparatus comprising a playing board

having marked spaced defining a path, means associated with said spaces for identifying a value associated therewith, first chance means operable by the players for determining the number of spaces to be traversed, a plurality of pieces representing money, a plurality of said money pieces being allocated to each player before the game commences, means for providing penalties to a player and rewards to a player according to his position on said playing path, and second chance means selectively operable by the players of the game, said second chance means comprising an up-standing member defining a plurality of generally elon-



gated vertical apertures, and means receivable within said apertures for selectively plugging and closing the bottom of at least one of said apertures and insert means receivable in said apertures and being adapted to pass through unplugged ones of said apertures, whereby during play a player is required to place one of said insert means into one of said apertures after at least one of said apertures has been closed by another player with said plug means, said player continuing in said game if said insert means falls completely through an unplugged one of said apertures, and said player being penalized if said insert means remains in a plugged one of the apertures.

4,395,045 TELEVISION PRECISION TARGET SHOOTING APPARATUS AND METHOD

Ralph H. Baer, Manchester, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

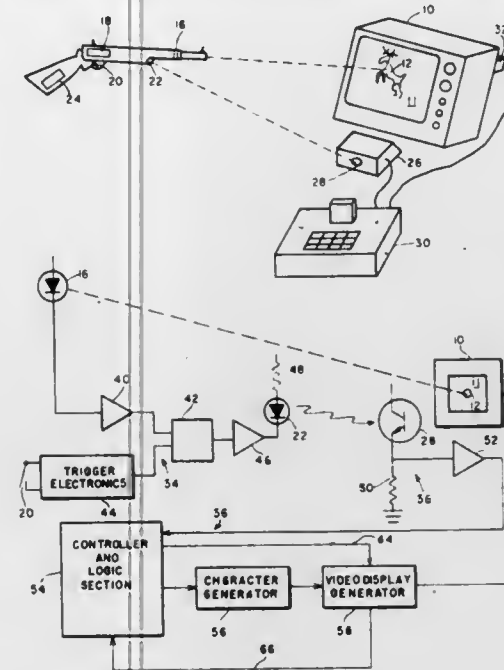
Filed Jun. 16, 1980, Ser. No. 159,530
Int. Cl.³ A63F 9/22

U.S. Cl. 273—312

13 Claims

1. Apparatus for shooting at targets displayed on the screen of a raster scan display, comprising: a simulated weapon having means for sensing at a distance brightened raster scan segments on the screen of a raster scan display and trigger means; and means responsive to a trigger pull for generating a signal to brighten the raster to thereby permit said simulated weapon to sense brightened raster scan segments.

9. A method of shooting at targets displayed on the screen of a raster scan display with a simulated weapon having a trigger and electro-optical sensing means, comprising the steps of:



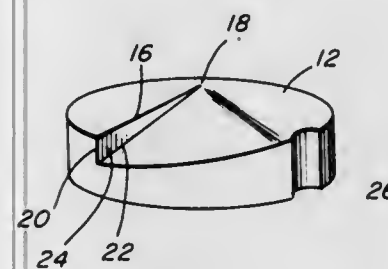
aiming at the displayed target;
pulling the trigger;
brightening the display screen; and
sensing short segments of the brightened display raster.

4,395,046 HAND THROWN GAME DISC

Stavros Cosmopoulos, 8 Bridge St., Norwell, Mass. 02061
Filed Jul. 27, 1981, Ser. No. 287,304
Int. Cl.³ A63B 65/10

U.S. Cl. 273—424

3 Claims



1. A game disc, comprising:
(a) a generally circular body of monolithic construction formed with top and bottom faces;
(b) at least one of said faces being in the form of an auger flight of up to 360°;
(c) said auger flight defining an obtuse angle of about 160°;
(d) said generally circular body of monolithic construction formed with at least one notch in the peripheral edge thereof;
(e) said game disc being of a solid water bouyant material of composite construction comprising a hard, heavy center portion and a lighter resilient outer portion.

4,395,047 SHAFT SEAL WITH SEAL IMPELLER FOR MATERIALS PROCESSING MACHINERY

William F. Lahner, III, Lewisburg, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Feb. 10, 1982, Ser. No. 347,645
Int. Cl.³ F16J 15/42

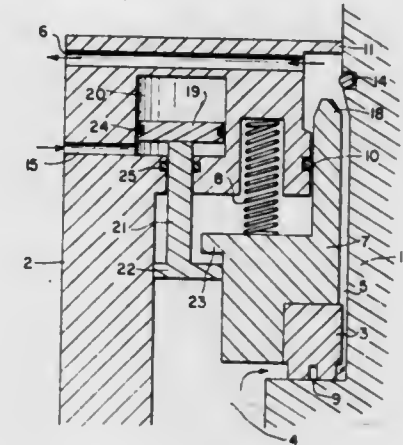
U.S. Cl. 277—3

3 Claims

1. A shaft seal assembly for materials processing machinery of a type in which the material is fed into a machine housing

containing a materials processing rotor and the material is therein processed and subsequently discharged therefrom at substantially atmospheric pressure, said seal assembly comprising:

a cylindrical seal stator carried on said housing and through which the shaft of said rotor extends,
a cylindrical seal impeller carried on said shaft within said seal stator, said cylindrical seal impeller comprised of an initial body portion adjacent fluid restraining means, and a main body portion terminating in direct proximity with the interior of said machine housing, said fluid restraining means extending between said housing and said rotor shaft at a location outboard of said seal impeller, and said fluid



restraining means comprised of a ring member extending to within close proximity of said rotor shaft, but spaced therefrom,
a plurality of elongated, oblique, impeller vanes forming the perimeter of said seal impeller, said impeller vanes on said main body portion located coaxial with and radially outward of the impeller vanes on said initial body portions; and
fluid injection means extending from the exterior of said machine housing to a position forward of said fluid restraining means and aft of the inboard extremity of said seal impeller.

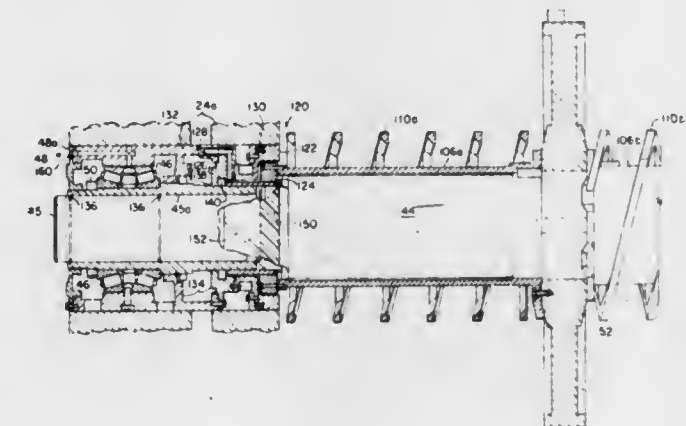
4,395,048 PUMP SAFETY DEVICE

Francis Timmermans, Jeumont, and Jean Vandervorst, Ferriere la Grande, both of France, assignors to Jeumont-Schneider, Puteaux, France
PCT No. PCT/FR81/00006, § 371 Date Sep. 24, 1981, § 102(e) Date Sep. 24, 1981, PCT Pub. No. WO81/02184, PCT Pub. Date Aug. 6, 1981

PCT Filed Jan. 22, 1981, Ser. No. 306,615
Claims priority, application France, Jan. 24, 1980, 80 01517
Int. Cl.³ F16J 15/38

U.S. Cl. 277—65

10 Claims



1. A pump having a casing, a pump shaft rotatably mounted

within said casing, a high pressure fluid chamber, a low pressure fluid chamber, and a dynamic gasket mounted in said casing and contacting said shaft for separating said high pressure chamber from said low pressure chamber and a safety device, comprising:

- a compressible safety gasket;
- a cylindrical piston coaxially surrounding said shaft and having a first sealing surface facing a second sealing surface on said shaft with said safety gasket received therebetween, said first sealing surface being spaced from said second sealing surface by an amount such that said safety gasket is in an uncompressed state, said cylindrical piston being mounted in a chamber formed in said casing for movement axially of said shaft; and
- means for moving said cylindrical piston axially of said shaft to compress said safety gasket between said first and second sealing surfaces in the event of a rupture of said dynamic gasket, whereby, while said dynamic gasket is operative, said safety gasket is not used, but when said dynamic gasket ruptures and high pressure fluid enters said low pressure chamber, said safety gasket is compressed to prevent leakage of fluid from said low pressure chamber.

4,395,049

METALLIC SEALING DEVICE FOR A HIGH-VACUUM CLOSURE

Siegfried Schertler, Haag, Switzerland, assignor to Vat Aktiengesellschaft Für Vakuum-Apparate-Technik, Haag, Switzerland

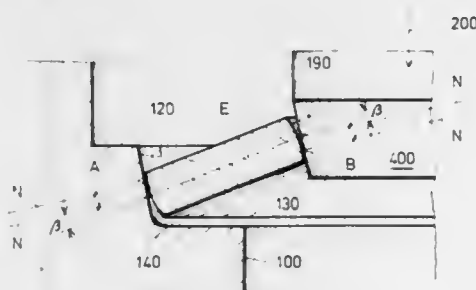
Filed Dec. 11, 1980, Ser. No. 215,404

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1979, 2951150

Int. Cl.³ F16L 17/00

U.S. Cl. 277—236

5 Claims



1. Metallic sealing device for a high-vacuum closure where the sealing device is repeatedly opened and closed, such as a high-vacuum valve, comprising a first sealing surface formed as a surface of revolution, a second sealing surface formed as a surface of revolution, said first and second sealing surfaces being coaxial, said sealing surfaces being repeatedly adjustable relative to one another in the axial direction for movement between an open position and a closed position, a metallic sealing ring located between said first and second sealing surfaces, said sealing ring having a cross-sectional configuration capable of rolling on said sealing surfaces when said first and second sealing surfaces are moved relative to one another between the open and closed positions, said sealing ring consists of a substantially non-ductile material, in the closed position of the sealing device the sealing forces act on said first and second sealing surfaces and on said sealing ring in the range of exclusively elastic deformation, said sealing ring being fixed to one of said first and second sealing surfaces by shrinking said sealing ring thereon, the generating angle of said first and second sealing surfaces in the region of contact with said sealing ring is smaller than the friction angle, and at least the surfaces of said sealing ring in contact with said first and second sealing surface have a rounded convex configuration.

4,395,050 SEALING ARRANGEMENT SPECIFICALLY FOR SHUT OFF DEVICES

Peter Wirz, Unterkulm, Switzerland, assignor to Klinger AG, Zug, Switzerland

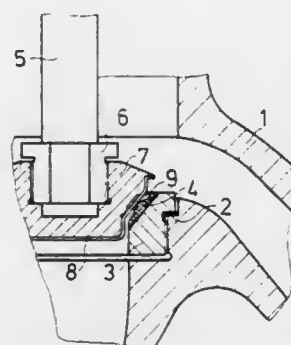
Filed May 20, 1981, Ser. No. 265,274

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019516

Int. Cl.³ F16K 25/00

U.S. Cl. 277—236

9 Claims



1. In a sealing arrangement for a valve having a valve seat member and a cooperating valve closure member, a thin-walled elastically deformable member carried by one of said valve members and which is engageable with the other of said valve members substantially in line contact therewith, and means for moving one of said valve members laterally relatively to the other of said valve members to seat said thin-walled elastically deformable member on the other of said valve members, the improvement comprising: each of said thin-walled elastically deformable member and said other valve member being comprised of a metal body of a hardness in excess of 30 HRC (298 HV); a continuous coating on top of one of the metal bodies and being of a soft, ductile metal of a hardness appreciably less than the hardness of said metal body and located at least at the area of said line contact and overlying thereat the surface of said metal body completely filling any surface, discontinuities, micropores and interstices; said soft metal coating being shearing by lateral movement of said valve and deformable members relatively to each other by abrasive action of the hard metal surface onto the soft metal surface until establishment of direct contact between the surface of the hard metal body without coating and the exposed hard metal areas of the metal body provided with the coating, the surface discontinuities, micropores and interstices of later metal body remaining filled by said soft metal such that the mechanical closure forces are carried and transmitted by the exposed hard metal body areas only, and said no load carrying surface discontinuities, micropores and interstices remain filled by said soft metal to ensure a perfect seal.

4,395,051 QUICK-CHANGE HOLDER

Takashi Tonomura, Toyama, Japan, assignor to Kabushiki Kaisha Fujikoshi, Toyama, Japan

Filed Feb. 6, 1981, Ser. No. 232,417

Claims priority, application Japan, Feb. 21, 1980, 55-20381[U]

Int. Cl.³ B23B 31/22

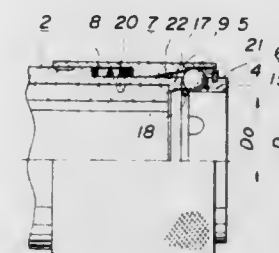
U.S. Cl. 279—75

3 Claims

1. A quick-change holder comprising: a cylindrical body of sleeved shape having one end fixed to the spindle of a machine tool and formed with both a plurality of radial through-holes, which are arranged in a circumferential direction thereon, and a center bore which extends in the axial direction thereof; a plurality of balls loosely fitted in said radial through-holes, respectively, and having a larger diameter than the radial

thickness of said cylindrical body at the circumferential portion where said radial through-holes are arranged; a nut insertable into the center bore of said cylindrical body at the other end thereof opposite to said spindle for attachment of an adaptor coupled in a driving power transmitting relationship to said spindle, said nut having its outer circumference formed with a circumferential groove, with and from which said balls can engage and disengage, so that said balls are brought into engagement with said circumferential groove when said nut is inserted into said circumferential body; and

a sleeve mounted on said cylindrical body, said sleeve enclosing said cylindrical body, being movable in the axial direction and being urged uni-directionally in the axial direction by means of a spring, said sleeve having its inner circumference engageable with said balls and composed of portions having larger and smaller diameters, said sleeve being axially moved against the action of said spring so that said balls can be moved outwardly in the radial direction from the smaller diameter portion to the larger diameter portion of said inner circumference thereby bringing said balls into and out of free engage-



ment with said circumferential groove whereby said nut can be mounted on and demounted from said cylindrical body, wherein the improvement resides in that the portion of said cylindrical body which merges into said radial through-holes and which is located at the side of said spindle is formed with a conical inner circumference which diverges to the outside; and in that a spring having free wire ends with a gap therebetween so as to be compressible inwardly in the radial direction and brought into abutment engagement with the conical inner circumference of said cylindrical body is in contact with said conical inner circumference, so that said second-named spring made engageable with said conical inner circumference is brought into abutment engagement, when said nut is not inserted, with those portions of said balls, which protrude inwardly from said radial through-holes, to push said balls outwardly in the radial direction and is thrust, when said nut is inserted, by the leading end of said nut facing the spindle so that it is released from engagement with said balls until it is positioned on the inner conical circumference of said cylindrical body.

4,395,052

URANIUM SLURRY HAULING SYSTEM

Curtis W. Rash, Corpus Christi, Tex., assignor to Proco, Inc., Corpus Christi, Tex.

Filed Apr. 3, 1980, Ser. No. 136,487

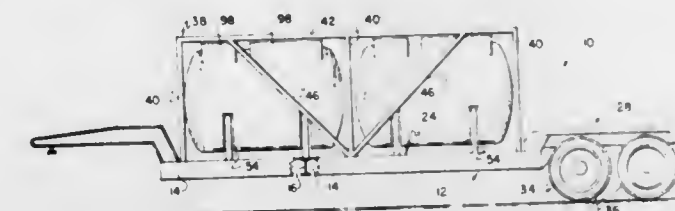
Int. Cl.³ B60P 3/22

U.S. Cl. 280—5 C

13 Claims

1. A trailer for hauling liquid uranium slurry, comprising a frame having a plurality of longitudinally extending frame members, a plurality of transverse frame members rigid with the longitudinally extending frame members, wheels at one end of the frame defining a path of trailer movement generally parallel with the longitudinal frame member and a towing tongue at the other frame end for connection to a towing vehicle; a generally cylindrical liquid slurry tank having a horizontal cylindrical axis generally parallel to the direction of travel

and including at least one depending saddle mounted in direct load supporting relation with one of the transverse frame members; a metal framework rigid with the trailer frame members for protecting the tank during trailer rollover, the framework comprising upstanding members extending to adjacent the height of the tank and horizontal members extending to adjacent the length of the tank; and



means confining the saddle and allowing racking movement of the frame independent of the tank, comprising means constraining the saddle against movement parallel to the direction of travel; and means allowing independent limited upward vertical movement of the saddle relative to the frame.

4,395,053

ELECTRIC CORD SUPPORT BRACKET ASSEMBLY FOR LAWNMOWERS AND THE LIKE

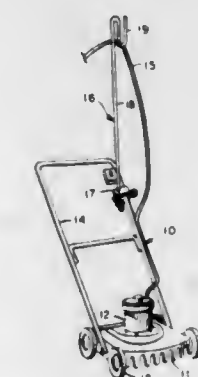
Paul P. Kalfas, 2735 S. Christiana Ave., Chicago, Ill. 60623

Filed Apr. 23, 1981, Ser. No. 256,916

Int. Cl.³ B62B 11/00

U.S. Cl. 280—47.34

5 Claims



1. A bracket assembly for supporting the electric power cord of a wheeled electric implement having a push handle of tubular construction, comprising a clamp having an opening for receiving a tubular portion of said handle and having screw fasteners for securing said clamp in place; a generally rigid and vertically-extending rod having a lower end secured to said clamp and a length sufficient to locate the upper end thereof at least as high as the shoulder of a user holding said push handle in normal operation of said implement; and guide means at the upper end of said rod for supporting and guiding the power cord of said implement upwardly over a user's shoulder, said clamp being generally C-shaped and having a pair of parallel arms joined by an integral connecting portion; said arms being spaced apart to receive said tubular portion of said handle therebetween; said arms being provided with a pair of aligned openings adjacent the free ends thereof for receiving the lower end portion of said rod; said screw fasteners being threadably mounted upon said clamp to engage said tubular portion of said handle and to urge the same into tight locking engagement with said clamp and the portion of said rod between said arms when said fasteners are tightened, said portion of said rod between said arms being provided with a recess facing towards said connecting portion of said clamp and adapted to receive an arcuate portion of said tubular portions of said handle, whereby, upon tightening of said fasteners against said tubular

portion of said handle, said rod is locked against both axial and rotational movement relative to said clamp.

4,395,054 SKI BRAKE

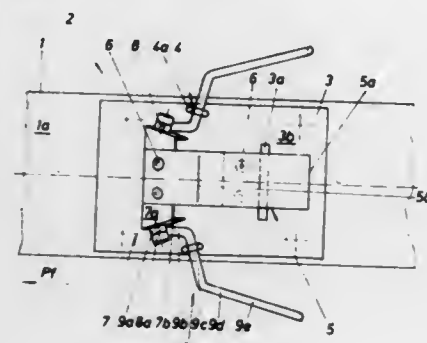
Heinz Wittmann, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland

Continuation of Ser. No. 46,553, Jun. 7, 1979, abandoned. This application Jun. 11, 1981, Ser. No. 272,620

Claims priority, application Austria, Jun. 22, 1978, 4533/78 Int. Cl.³ A63C 7/10

U.S. Cl. 280—605

10 Claims



1. A ski brake for use on a ski, comprising: a base plate adapted to be mounted on said ski; bearing means on said base plate; a pair of laterally spaced brake arms pivotally and laterally slidably mounted on said bearing means, each of said brake arms having a brake leg portion and a pedal portion, said brake arms each being pivotal between (1) a braking position wherein said brake leg portions project beneath the running surface of said ski and said pedal portion extends upwardly inclined to the upper surface of said ski and (2) a retracted position wherein said brake leg portions and said pedal portion extend above said upper surface of said ski;
- a control part and pivotal securement means pivotally securing said control part to said pedal portions of each of said brake arms, said pivotal securement means effecting, upon a pivotal movement of said control part relative to said pedal portions between an initial position wherein said brake arms are positioned in their laterally outermost position and a final position wherein said brake arms are positioned in their laterally innermost position, a laterally inward movement of said brake arms, said control part including a generally inverted U-shaped member having a bight portion with an upwardly facing surface and a pair of downwardly extending support legs at the lateral edges of said bight portion, said support legs being formed at a right angle to said bight portion and opening at a diverging angle away from the free ends of said brake leg portions, said pivotal securement means effecting said pivotal coupling about an axis that is normal to the plane of said support legs; and
- resilient means effecting an erection of said brake arms to said braking position and a simultaneous urging of said control part to said initial position thereof to urge said brake arms to their said initial position thereof.

4,395,055

SKI RELEASE SIDE CLAMPING BINDING WITH HINGED JAW MEMBERS

Richard G. Spademan, 1421 Old County Rd., Belmont, Calif. 94002

Filed Mar. 20, 1978, Ser. No. 890,574

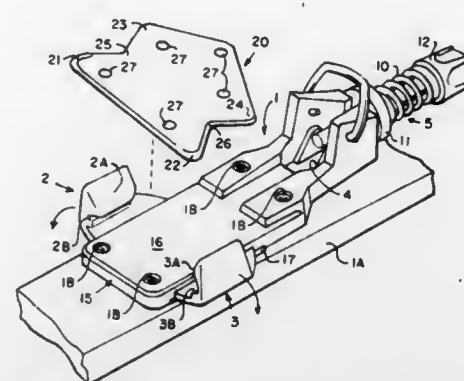
Int. Cl.³ A63C 9/08

U.S. Cl. 280—624

7 Claims

1. In a ski release binding comprising at least one movable jaw member and means for releasably clamping a ski boot to a ski with the jaw member rearward of the toe and forward of

the rear of the heel of the ski boot wherein, during release, the jaw member is moved, the improvement comprising means for



allowing the jaw member to move in a second direction after the jaw member is moved a predetermined distance in a first direction.

4,395,056

NOTE BOOKLET, PROVIDED WITH A FOLDABLE COVER, EFFECTIVE TO ACT AS A SHEET AND PEN HOLDER

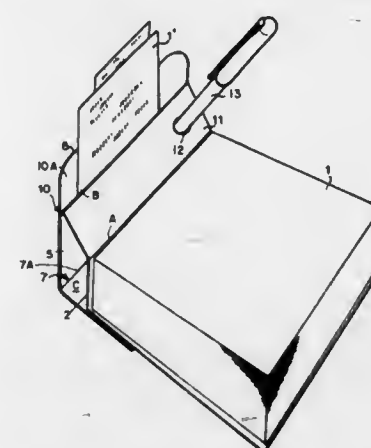
Enrico Sferragatta, Monza, Italy, assignor to Mille Note System S.r.l., Monza, Italy

Filed Jul. 13, 1981, Ser. No. 282,519

Claims priority, application Italy, Oct. 16, 1980, 23113/80[U] Int. Cl.³ B42D 3/00; B65D 5/52

U.S. Cl. 281—31

4 Claims



1. A note booklet, which comprises a plurality of superimposed note sheets secured in a pad to the back of a cover member, said cover member having a first plane section connected to said back along a first fold line, a second plane section connected to said first plane section along a second fold line, a third plane section connected to said second plane section along a third fold line, and a flap connected to said second plane section to define therewith a pocket; said cover member being foldable into a configuration whereby said first plane section extends backwards from said pad of note sheets to position said second plane section and flap behind said note sheets with said flap and pocket exposed behind the note sheets, and with said third plane section extending in underlying relation to the bottom of said note sheets pad.

4,395,057

BOOK HOLDER

John W. Young, 260 Overlook Dr., Lancaster, Ohio 43130

Filed Apr. 29, 1981, Ser. No. 258,609

Int. Cl.³ B42D 9/00, 3/16

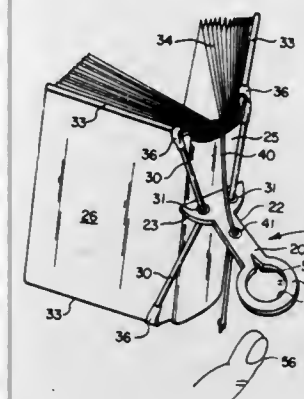
U.S. Cl. 281—42

8 Claims

1. A holder for a book which has opposing covers attached at opposite sides to a book spine, each cover having in it reading position a top and a bottom edge, the holder comprising: (a) a handle means constructed to contact the cover of the

book on the spine of the book and having a digit receiving opening;

- (b) a pair of elastic bands connected to the handle means, each band having attachment means at each end constructed to attach over the opposite top and bottom edges of a different one of said book covers the combined length



of each band and its attachment means being less than the distance between the top and bottom edges of said covers when said connection means are detached from the covers and said elastic bands are relaxed and being constructed to attach to the book by elastic tension of the bands when the attachment means fit over the opposite top and bottom edges of the book covers.

4,395,058

CLIP FOR SUSPENSION FILING

Christopher E. Terrell, London, England, assignor to W. F. Industries, Inc., Wheeling, Ill.

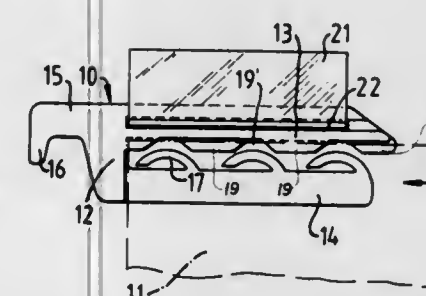
Continuation-in-part of Ser. No. 955,655, Oct. 30, 1978, abandoned. This application Mar. 17, 1981, Ser. No. 244,709

Claims priority, application United Kingdom, Nov. 3, 1977, 45845/77

Int. Cl.³ B42D 17/00; B42F 15/00

U.S. Cl. 281—46

3 Claims



1. A clip for removably engaging the side rail of a suspension filing system for the filing of magazines, journals and the like, comprising a generally flat, one piece, resilient plastic member having a bifurcate part and a hook part, said member having a length and depth both substantially greater than its thickness, the bifurcate part having two fingers extending in a direction lengthwise of said member away from the hook part and being displaced from one another in a direction depthwise of said member, said fingers being engageable respectively inside and outside the spinal portion of a magazine for gripping said spinal portion therebetween, one of said fingers having at least one resiliently deflectable arcuate prong having a free end and a convex portion projecting therefrom for engaging the inside spinal portion of a magazine; the other of said fingers having at least two longitudinally spaced, alternately arranged projections on opposite sides of an edge of said other finger facing said one finger, the space between successive projections forming a notch aligned with the convex portion of said prong, whereby the prongs bias the inside spinal portion of the magazine to thereby press the outside spinal portion of the magazine into the notch while the alternately arranged projections en-

gage opposite faces of the magazine adjacent the spinal portion thereof to enhance the gripping action of the clip by resisting end-wise as well as rotational displacement of the clip; said hook part having an open-sided recess opening in a depthwise direction, whereby when two clips are engaged at opposite ends of the spinal portion of a magazine, the hook part on each clip is engageable over a respective side rail of the suspension filing system with said rail received in the recess and said fingers being disposed horizontally, whereby the magazine and associated clips are removably suspended from the two side rails of the suspension filing system.

4,395,059

FOLDABLE POSTING BOARD ASSEMBLY

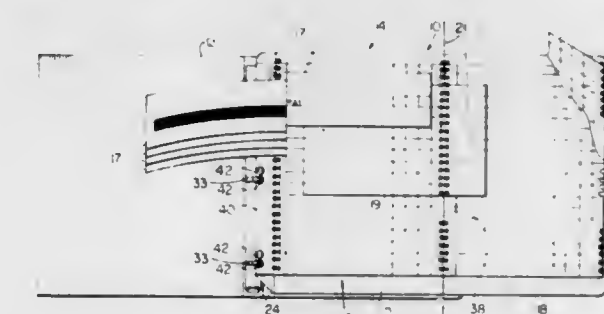
Thomas H. Russell, III, 14 Sulgrave Rd., West Hartford, Conn. 06107

Filed Nov. 19, 1980, Ser. No. 208,306

Int. Cl.³ B42F 13/00

U.S. Cl. 282—29 B

27 Claims



1. A foldable posting board assembly comprising a foldable posting board and at least one record sheet, said foldable posting board having at least two generally rectangular panels and means for hingedly connecting said panels together in foldable relation to each other about a hinge line and defining a column of mounting elements located along a line substantially coincident with said hinge line to hold a portion of said one record sheet in a predetermined position relative to said posting board, said posting board being movable between an opened position wherein said panels are disposed within a generally common plane and a closed position wherein said panels are in generally overlying relation relative to each other, said mounting elements projecting beyond a surface of said panels when said posting board is in its opened position, said one record sheet having a column of apertures therethrough spaced inwardly from the edges thereof and a fold line extending thereacross in generally bisecting relation to said apertures and dividing said record sheet into separate sections, said mounting elements projecting bodily through said apertures and beyond said one record sheet when said posting board is in its open position and said one record sheet is unfolded along said fold line, said apertures when said record sheet is unfolded along said fold line serving to each entirely surround a respective one of said mounting elements to locate said record sheet relative to said mounting elements, said one record sheet being foldable along said fold line with said mounting elements projecting there-through and to a position wherein one of said sections overlies another of said sections, and said apertures when said record sheet is folded along said fold line serving to each partially surround a respective one of said mounting elements to locate said record sheet relative to said mounting elements.

4,395,060

PORTABLE, REUSABLE PIPE COUPLING

Edward L. Lapham, 13219 Pine Dr., Cypress, Tex. 77429

Filed Feb. 20, 1981, Ser. No. 236,232

Int. Cl.³ F16L 35/00

U.S. Cl. 285—39

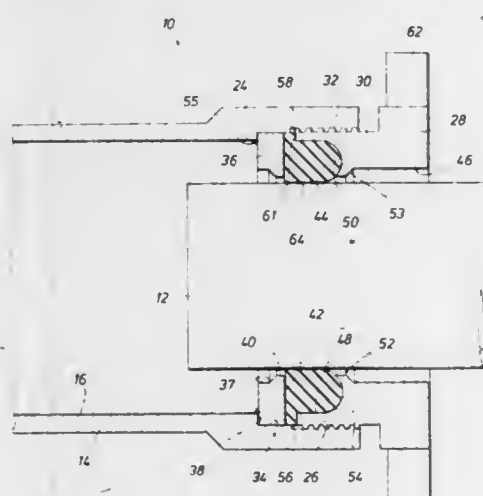
11 Claims

1. A portable, reusable coupling for connecting cylindrical conduit, said coupling comprising: (a) an elongated tubular coupling body defining a generally

cylindrical internal passage of sufficient dimension to receive end portions conduit therein, said coupling body being formed to define internal shoulder means at each extremity thereof, said coupling body also having internal body threads at each extremity thereof;

(b) annular metal seal support ring means being provided within each extremity of said coupling body and having abutting relation with said internal shoulder means;

(c) seal retainer means being provided at each extremity of said coupling, each of said seal retainer means defining annular externally threaded connection rim means adapted to be received in connected adjustable relation by said internal body threads, said seal retainer means cooperating with said annular seal support ring means to define a variable volume internal seal chamber having said seal support ring means as a circular wall thereof and to define an annular variable volume internal seal locking groove, said seal retainer means further defining a curved concave circular seal support surface extending to the inner periphery of said seal retainer means and forming a seal supporting wall of said seal chamber; and



(d) annular resilient seal means being disposed within said internal seal chamber and defining a deformable annular sealing portion having a generally cylindrical inner sealing periphery for sealing engagement with end portions of conduit, said resilient seal means being of sufficient internal dimension to receive end portions of conduit therein, upon linear movement of said seal retainer means to reduce the volume of said seal chamber said sealing portion of said seal means being mechanically deformed thus forcing the inner peripheral sealing portion thereof into sealing engagement with end portions of conduit, said seal means defining a convex curved circular surface having mating engagement with said curved concave circular support surface of said seal retainer means, said seal means further defining a radially outwardly extending circular locking flange being received within said seal locking groove, upon said linear movement of said seal retainer means said locking flange of said seal means being mechanically locked within said seal locking groove.

4,395,061 SWIVEL UNIT

Lawrence E. Helzer, Buena Park, Calif., assignor to Hughes Tool Company, Houston, Tex.

Filed Jun. 15, 1981, Ser. No. 273,821

Int. Cl.³ F16L 27/00, 17/02, 21/00

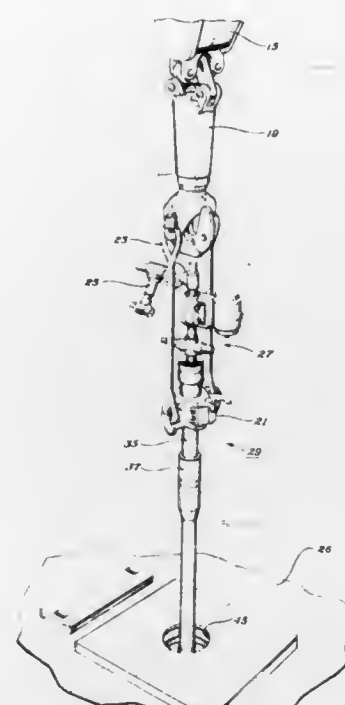
U.S. Cl. 285—281

5 Claims

1. A swivel unit for an inflatable packer drill stem test tool assembly, comprising:

an outer housing having a lower end adapted for connection to said drill stem test tool and having an upper end;
an inner shaft having a base portion received within said

outer housing and having a neck portion protruding from said outer housing;
bearing means for rotatably mounting said outer housing about said inner shaft; and



wherein said outer housing has a downwardly facing shoulder formed in the exterior surface thereof for supporting said assembly.

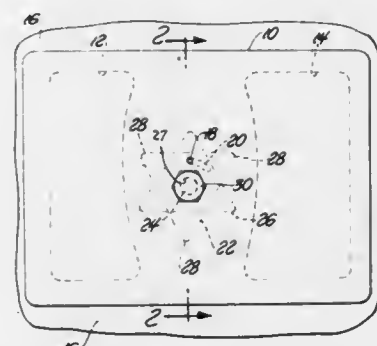
4,395,062
COVER HOLD DOWN MECHANISM
Erwin F'Geppert, Novi, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 2, 1980, Ser. No. 193,225

Int. Cl.³ E05C 5/04

U.S. Cl. 292—64

1 Claim



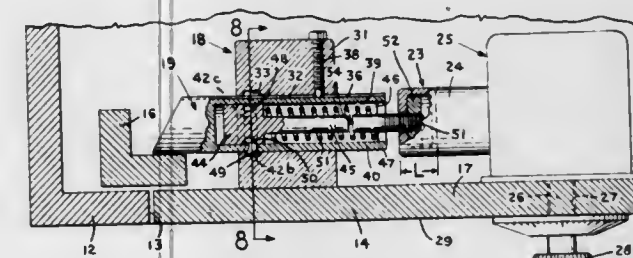
1. In combination, first and second members (16 and 10) designed to be secured together, said first member having an accessible face and an inaccessible face, said first member having a triangular opening (26) extending between the two faces, said second member having an opening (27) extending therethrough; a connector device comprising a screw (24) having an enlarged accessible head (30) and a threaded shank extending through the opening in the second member toward the first member, a nut (22) threaded on the shank, said nut having a triangular perimetrical configuration that is slightly smaller dimension than said triangular opening whereby the nut can be extended through the triangular opening without disconnecting the nut from the screw, said nut having a cut-away area (20) whose length measured about the axis of the screw is approximately sixty degrees, and a motion-limiting member (18) extending from the second member into the cut-away area of the nut so that after the nut has been passed through the triangular opening in the first member the screw

can be turned to initially produce limited rotary movement of the nut approximately sixty degrees into a position of axial overlapment with the inaccessible surface of said first member, said screw being further turnable to cause the nut to move axially along the screw into tightened engagement with the inaccessible face of said first member; said motion-limiting member acting to prevent rotation of the nut while said nut is undergoing said last-mentioned axial motion toward the inaccessible face of said first member.

4,395,063
SELF INTERLOCKING DEAD BOLT ASSEMBLY
Eric L. Bianco, 405 E. First Ave., Roselle, N.J. 07203
Filed May 12, 1980, Ser. No. 148,720
Int. Cl.³ E05B 9/02

U.S. Cl. 292—150

22 Claims



1. A self interlocking dead bolt assembly movable from an unlocked position to a locked position and vice versa relative to a strike member comprising,
a. bolt guide means having a bore end to end therethrough, and locking groove means inwardly of one end of said bore,
b. an elongated dead bolt means slidably mounted in the bore of the bolt guide means for movement from the unlocked to the locked position and vice versa,
c. said dead bolt means having a strike end and an elongated chamber extending inwardly from the end remote from the strike end to define an annular wall on said dead bolt means,
d. transverse passage means in said annular wall a predetermined distance from the strike end of the dead bolt means,
e. sized ball means operatively associated with said transverse passage means,
f. an actuating means for moving the dead bolt from the unlocked to the locked position and vice versa,
g. said actuating means also connected for relative movement with the dead bolt means to normally urge said sized ball means to move through said transverse passage means into engagement with said locking groove means to interlock the dead bolt in the locked position, and
h. said ball members to move out of said locking groove and to return through said transverse passage means when said actuating means initiates movement of said dead bolt to the unlocked position.

4,395,064
ELECTRIC AUTOMOBILE TRUNK LOCK MECHANISM
Dominique Bellot, Rueil, and Michel Barre, Chaville, both of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Apr. 14, 1981, Ser. No. 253,909

Claims priority, application France, Apr. 14, 1980, 80 08259

Int. Cl.³ E05C 3/26

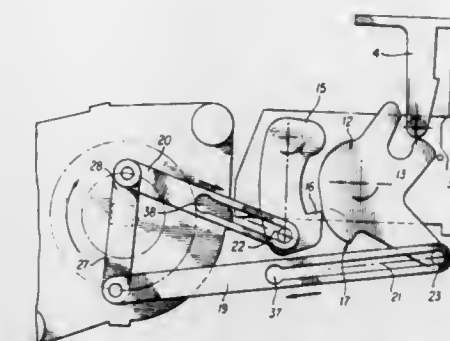
U.S. Cl. 292—201

6 Claims

1. An electric lock mechanism for the servo locking and unlocking of a vehicle hatch lid, comprising a fixed catch mounted on said hatch lid and a compact motor unit mounted on the body of said vehicle, wherein said compact motor unit comprises:

an electric motor having a shaft;
a rotary bolt engagable with said catch;

a blocking lever adapted to block said bolt in a locked position;
crankshaft means connected to said motor shaft;
first and second links respectively connecting said crankshaft means to said bolt and said blocking lever; and

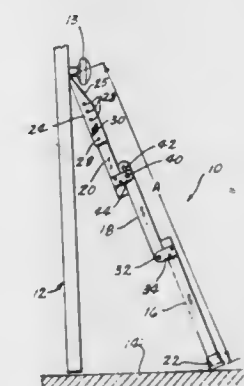


means for rotating said electric motor shaft by half turn intervals in a first direction;
whereby each half turn of said motor shaft alternately locks and blocks said lock, and unlocks and unblocks said lock.

4,395,065
DOOR STOP MECHANISM
Ben L. Nelson, Rte. #1, Box 4995, Bonita Springs, Fla. 33923, and Leonard L. Hayes, 1906 - 10th Ave., Lewiston, Id. 83501
Filed Aug. 31, 1981, Ser. No. 297,872
Int. Cl.³ E05C 17/30, 17/32

U.S. Cl. 292—339

9 Claims



1. A door stop mechanism comprising,
a lower rod segment having upper and lower ends,
a center rod segment having upper and lower ends, the lower end of said center rod segment underlying the upper end of said lower rod segment and being pivotally secured thereto by a first pivot means,
an upper rod segment having upper and lower ends, the lower end of said upper rod segment underlying the upper end of said center rod segment and being pivotally secured thereto by a second pivot means,
said first pivot means attached to the upper end of said lower rod segment and receiving the lower end of said center rod segment,
said second pivot means attached to the lower end of said upper rod segment and receiving the upper end of said center rod segment.

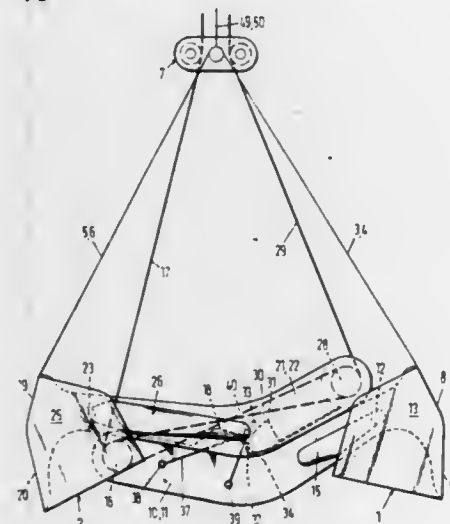
4,395,066
GRAB

Leendert van Huuksloot, Zevenbergschen Hoek, Netherlands, assignor to Nemag B.V., Zierikzee, Netherlands
Filed May 27, 1981, Ser. No. 267,660
Claims priority, application Netherlands, May 30, 1980, 8003176

Int. Cl.³ B66C 3/12

U.S. Cl. 294—70

5 Claims



1. A grab comprising a pair of buckets interconnected by arms capable of pivoting movement relative to each other, the free ends of said arms are provided with means for guiding operating or closing ropes by which the buckets can be opened and closed, said buckets have rear edges secured by means of hoist ropes or the like to a cross-beam, to which said hoist ropes are connected, characterized in that the arms are provided at some distance from the free ends with arcuate bridge members forming arcuate elevations directed to one another, and as the grab buckets are opened and closed the contact point between said bridge members is displaced as said bridge members and said arcuate elevations roll one over the other.

4,395,067

LIFTING ASSEMBLY

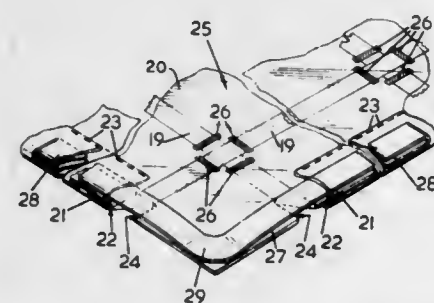
Peter D. L. Robin, Cheshire, England, assignor to Spanset Inter A.G., Basel, Switzerland

Filed Jun. 25, 1981, Ser. No. 277,446
Claims priority, application United Kingdom, Jun. 26, 1980, 8020924

Int. Cl.³ B66C 1/18

U.S. Cl. 294—74

10 Claims



1. A lifting assembly, comprising: a cloverleaf lifting sling in combination with a base of plastic sheet material, said sling having a central portion and four loop portions forming a cloverleaf configuration, said base serving to hold said central portion to maintain the sling in its cloverleaf configuration, and having peripheral sleeve means for storing said loop portions of the sling.

4,395,068

STATIC LINE RETRIEVAL APPARATUS

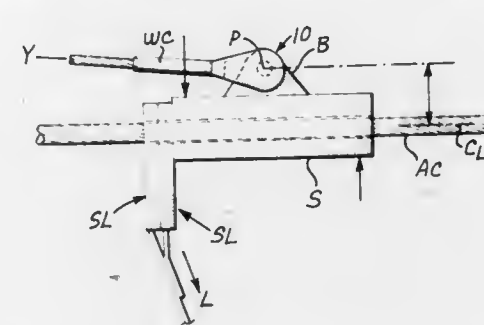
Gerald C. Simmons, Bothell, and Noel E. Hilby, Maple Valley, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Feb. 23, 1981, Ser. No. 237,025

Int. Cl.³ B66C 1/14

U.S. Cl. 294—78 R

9 Claims



1. Winch cable driven retrieval apparatus for retracting static lines slidably mounted on a fixed anchor cable or the like, comprising:

a retrieval member having an opening extending completely therethrough of a diameter sufficient to insert an anchor cable completely through said retrieval member, said retrieval member further including a front end surface adapted to confront at least one static line attachment member slidably mounted on said anchor cable;

a pair of attachment members extending from oppositely disposed side portions of said retrieval member, said attachment members including spaced forward end portions positioned on opposite sides of said anchor cable and located along an imaginary line which passes through said anchor cable;

coupling means joining a winch cable assembly with each forward end portion for smoothly drawing said retrieval member along said anchor cable toward a retracted position responsive to selective retraction of said winch cable; whereby said retrieval member contacts and slides said at least one static line attachment member toward said retracted position while inherently resisting the formation of kinks in said anchor cable and keeping friction to a minimum.

4,395,069

PINCERS-TYPE GRIPPER FOR SEIZING OBJECTS AND GRIPPING HEAD EQUIPPED WITH SUCH GRIPPERS

Gerard Lebret, Dompiere sur Avre, France, assignor to E. P. Remy et Cie., Dreux, France

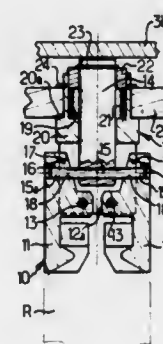
Filed Aug. 6, 1981, Ser. No. 290,506

Claims priority, application France, Sep. 30, 1980, 80 20941

Int. Cl.³ B25J 15/00

U.S. Cl. 294—87.22

6 Claims



1. A gripper for seizing elongated objects such as bottles, the gripper comprising:

stationary support means having a central axis extending between a clevis end portion and an opposite end;
a set of jaws hingedly mounted in said clevis end portion, each jaw being rotatable between an open position and a shut position about a respective pivot axis spaced from and lying in a plane perpendicular to said central axis;
an operating rod slidably disposed in said stationary support coaxial with said central axis, said operating rod having a first end portion extending between said jaws and a second end portion;
an actuating member fastened to said operating rod adjacent said first end and extending transversely to said rod, each of said jaws having an aperture loosely receiving said actuating member, the actuating member having two lateral contact surfaces parallel to each other, and the aperture of each jaw having a planar opening cam surface and an opposed planer closing cam surface, said cam surfaces being non-parallel and extending at an angle such that said opening cam surface is parallel to the contact surfaces of the actuating member when the jaws are in the open position and said closing cam surface is parallel to the contact surfaces of the actuating member when the jaws are in the shut position;
stop means fixed on said operating rod; and
spring means disposed between the stationary support means and said stop means and urging the operating rod in the direction such that one contact surface of the actuating member bears against the opening cam surfaces of said jaws for urging the jaws to said open position.

4,395,070

HOLD OPEN APPARATUS

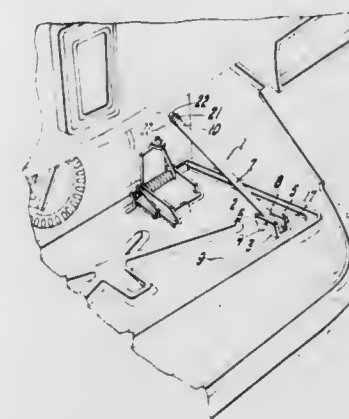
Jan S. Veltman, 6747 Norwood Ave., Allen Park, Mich. 48101, and Edward A. Ferrari, 809 E. Seven Mile, Detroit, Mich. 48203

Filed Feb. 17, 1981, Ser. No. 234,615

Int. Cl.³ B62D 25/00

U.S. Cl. 296—1 C

9 Claims



1. A hold open apparatus for permitting a movable external member which is biased in a normally-closed position adjacent a stationary external member to be held in an open position spaced apart from said stationary external member, comprising:

a base member having means for attaching said apparatus to said movable external member;
a rod member pivotally mounted on said base member;
resilient means on said base member urging said rod member to automatically rotate into a position in which said rod member extends upwardly from said base member;
said rod member being rotatably connected to said base member so that said rod member can be rotated into a position in which a substantial portion of said rod member extends substantially parallel to said base member;
said rod member having a lower portion thereof which limits the movement of said rod member upwardly to an upper position under the influence of said resilient means;
said lower portion of said rod member cooperating with said base member after said rod member has rotated a predeter-

mined amount to limit the rotational movement of said rod member relative to said base member;
said movable external member being biased in said normally-closed position adjacent said stationary external member in a fashion so that there is an axis of rotation disposed between said moveable external member and said stationary external member;
said rod member being constrained to move in a plane which intersects said axis of rotation disposed between said moveable external member and said stationary external member in a predetermined angular relationship; and
said resilient means automatically urging said rod member to rotate into said upper position when said movable external member is moved away from said normally-closed position adjacent said stationary external member.

4,395,071

FURNITURE WITH REMOVABLE CUSHIONS

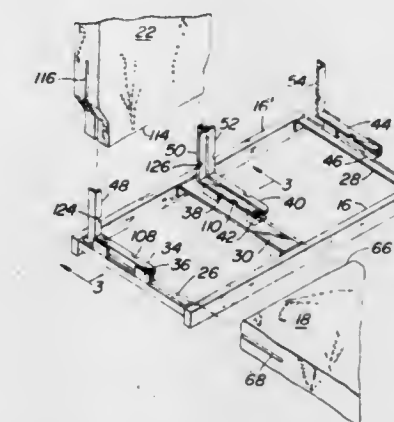
William B. Laird, 861 E. Market St., Marietta, Pa. 17547

Filed Feb. 23, 1981, Ser. No. 237,338

Int. Cl.³ A47C 4/02

U.S. Cl. 297—440

10 Claims



1. Furniture of the chair, love seat and couch type comprising a frame having at least one removable cushion, said cushion having oppositely disposed grooves, a pair of tongues on said frame, each tongue projecting into one of said grooves, latch means within said removable cushion, said latch means including a latch member projecting into at least one of the grooves on the cushion for latching cooperation with mating structure on the associated tongue, and an actuator on the cushion and connected to the latch member for releasing the latch member so that the cushion may be removed.

4,395,072

VEHICULAR HYDRAULIC BRAKE SYSTEM

Juan Belart, Walldorf, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jul. 31, 1981, Ser. No. 289,015

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1980, 3034628

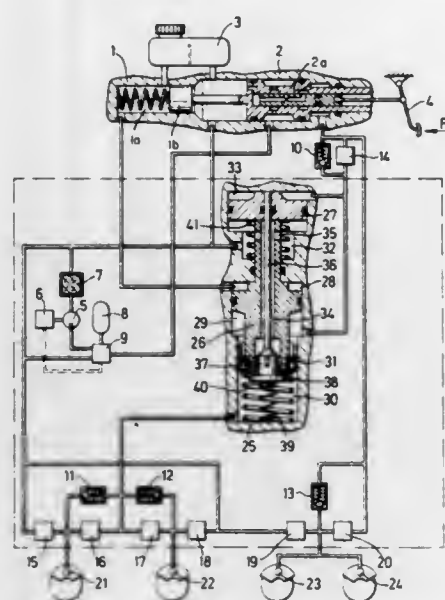
Int. Cl.³ B60T 8/02, 13/14

U.S. Cl. 303—114

16 Claims

1. A control arrangement for use in hydraulic braking systems, particularly of automotive vehicles equipped with anti-skid control devices, for controlling the pressure of hydraulic fluid admitted into brake circuits leading to respective brake-operating cylinders in dependence on pressures developed in a master cylinder and an auxiliary source, comprising
a housing part having at least one internal surface bounding a chamber centered on an axis; and
a control unit accommodated in said chamber and including an actuating piston axially movable in said chamber and subdividing the same into at least an actuating compartment hydraulically connected with the master cylinder and a working compartment hydraulically connected with at least one of the brake circuits in use;

means on said actuating piston for at least partially bounding a communicating path open toward the auxiliary source in use and toward said working compartment; and
means for preventing flow of the hydraulic fluid in said



path when the pressure in said working compartment predominates and for permitting such flow when the pressure supplied from the auxiliary source predominates in use, including a deflectable sealing element carried by said actuating piston and extending into said path.

4,395,073

BRAKE FLUID PRESSURE CONTROL APPARATUS IN SKID CONTROL SYSTEM

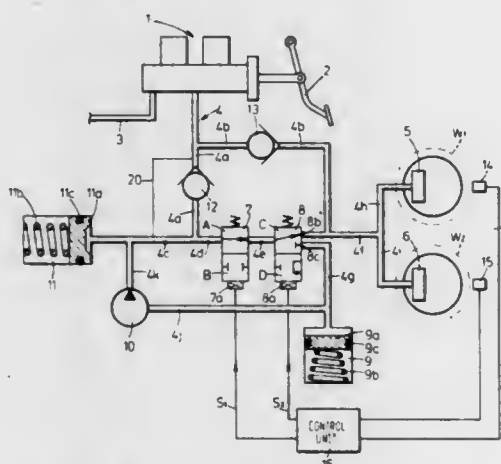
Tetsuro Arikawa, and Yasuo Samatsu, both of Yokosuka, Japan, assignors to Nippon Air Brake Co., Ltd., Kobe, Japan
Filed Mar. 2, 1981, Ser. No. 239,417

Claims priority, application Japan, Mar. 3, 1980, 55-26239; Mar. 14, 1980, 55-32827

Int. Cl.³ B60T 8/02

U.S. Cl. 303—116

6 Claims



1. A brake fluid pressure control apparatus in a skid control system for a vehicle having at least one wheel and a brake for the wheel comprising:

- (a) a fluid pressure control valve device arranged between a master cylinder and wheel cylinder of said brake for the wheel, said fluid pressure control valve device receiving control signals of a control unit measuring the skid condition of the wheel to control the brake fluid pressure to said wheel cylinder;
- (b) a hydraulic reservoir which, when the brake fluid pressure to said wheel cylinder is decreased with control of said fluid pressure control valve device, reserves the brake

fluid discharged through said fluid pressure control valve device from said wheel cylinder;

- (c) a pressure fluid supply conduit connecting said master cylinder with said fluid pressure control valve device;
- (d) a fluid pump for returning the brake fluid from said hydraulic reservoir into said pressure fluid supply conduit;
- (e) a first check valve arranged in said pressure fluid supply conduit, said first check valve being opened when the brake fluid flows from said master cylinder toward said fluid pressure control valve device, and the outlet of said fluid pump being connected to said pressure fluid supply conduit between said first check valve and said fluid pressure control valve device;
- (f) a pressure fluid return conduit connecting said master cylinder with said wheel cylinder;
- (g) a second check valve arranged in said pressure fluid return conduit, said second check valve being opened when the brake fluid flows from said wheel cylinder toward said master cylinder; and
- (h) means for receiving the brake fluid discharged from said fluid pump, said receiving means being a fluid pressure adjusting valve having a chamber, said brake fluid discharged from said fluid pump being led into said chamber of the fluid pressure adjusting valve and said chamber, when said valve is opened, communicating with said hydraulic reservoir.

4,395,074

CONNECTING SPIKE FOR FLEXIBLY CONNECTING TWO CHAIN LINKS OF A TRACK

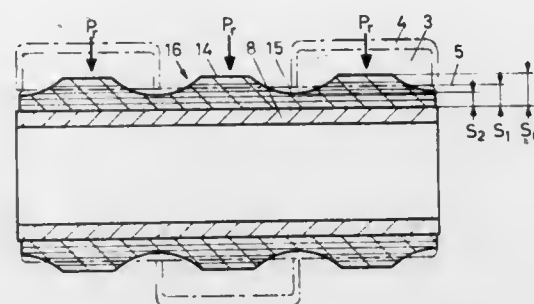
Walter Haldimann, Pfäffikon; Fritz Held, Forch, and Rudolf Fehr, Pfäffikon, all of Switzerland, assignors to Huber & Suhner AG, Herisau, Switzerland

Filed Jul. 1, 1980, Ser. No. 165,194

Int. Cl.³ B62D 55/20

U.S. Cl. 305—43

3 Claims



1. Connecting spike for flexibly connecting the chain links of a track, where said spike comprises a metal rod, and an integral elastic sheathing undetachably bonded thereto, said sheathing having thicker and thinner portions, said thicker portions being provided by longitudinal ribs and said thinner portions being provided by longitudinal channels having an approximately circular-segmented cross-section, such that the radius of the cross section of said spike at said thicker portions is greater and at said thinner portions is smaller respectively than the radius of the chain link bore of said track, said sheathing upon insertion of the spike into said chain link bore being elastically deformed such that axial shift of said spike within said bore is substantially prevented.

4,395,075

MISALIGNMENT SYSTEM FOR A MICROTOME

Lawrence R. Barrett, Washington, and Allan J. Weiner, Weston, both of Conn., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Mar. 24, 1982, Ser. No. 361,262

Int. Cl.³ F16C 32/02; G01N 1/06

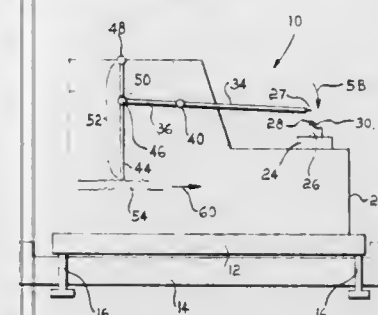
U.S. Cl. 308—2 R

9 Claims

1. In a microtome of the type having a first member pivotally

movable with respect to a second member on a pair of main pivot balls captured between fixed sockets provided on one of the members and a fixed and a movable socket provided on the other of the members, the improvement which comprises:

- a misalignment pivot system for permitting movement without the generation of a restoring force of the movable socket in the direction of an axis (Q-Q') connecting the centerlines of the balls to match the exact separation between the main pivot balls,



the misalignment pivot system itself comprising a socket and a groove formed on either the movable socket or on one of the members and a pair of fixed sockets confrontationally provided on the other of the movable socket or the one of the members, a first misalignment pivot ball captured between a pair of fixed sockets and a second misalignment pivot ball captured between the fixed socket and the groove, the axis (W-W') between the centers of the misalignment pivot balls being substantially perpendicular to the axis (Q-Q') connecting the centerlines of the main pivot balls.

4,395,076

BEARING DESIGN FOR DRILL BIT

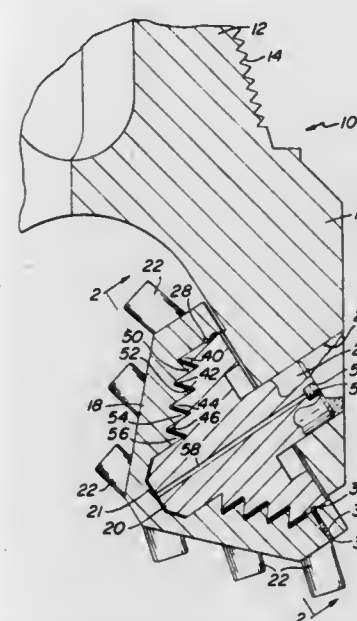
Daniel R. Sabre, 1520 Palethorp St., Philadelphia, Pa. 19122

Filed Nov. 12, 1981, Ser. No. 320,185

Int. Cl.³ F16C 19/00

U.S. Cl. 384—92

9 Claims



1. A rotary earth boring drill bit comprising a bit body having at least one apron, a bearing journal extending from said apron, and a rotary cone cutter rotatively mounted on said bearing journal, said bearing journal having a generally cone-shaped bearing wall formed by a plurality of steps extending along said bearing wall, each of said steps comprising a pair of adjacent walls joined at an apex having an acute included angle, said cutter having a bearing wall cooperating with said bearing wall of said bearing journal and formed with a

plurality of steps mating in bearing contact with said steps of said bearing journal.

4,395,077

SPINDLE ASSEMBLY

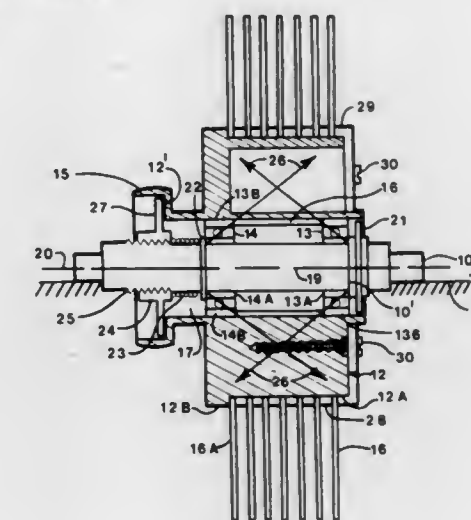
Simon F. Wong, Sunnyvale, Calif., assignor to Sperry Corporation, New York, N.Y.

Filed Jul. 27, 1981, Ser. No. 286,903

Int. Cl.³ F16C 19/06

U.S. Cl. 308—189 A

6 Claims



1. A spindle assembly comprising: a hub having an inner cylinder having an interior wall forming a hub bore, an outer cylinder having an exterior wall around which a member to be rotated is positioned, and a plurality of ribs angularly disposed about said inner cylinder and each extending lengthwise of the hub for connecting the exterior wall of the inner cylinder to the interior wall of the outer cylinder, a shaft extending through said bore and adapted at each end for fixed mounting to a stationary support, said shaft defining an annular shoulder near one end thereof, bearing means disposed within the hub bore intermediate the hub and the shaft for rotatively supporting the hub concentrically about the shaft such that the center line of the hub bore is substantially collinear with the longitudinal axis of the shaft, said bearing means comprising first and second ball bearings disposed along the hub bore in spaced relation to one another, said ball bearings each having an outer race bonded to the hub bore, said first bearing having a side distal the second bearing, said side contacting said shoulder, preloading means engaging said bearing means for supplying a force therethrough to hold the shaft longitudinal axis in substantially collinear alignment with said hub bore center line during rotation of the hub about the shaft, said preloading means including a spring circumscribing said shaft proximate the side of said second bearing distal the first bearing, said shaft having a threaded portion and a nut engaged with said threaded portion for compressing said spring so as to establish forces between said shaft and said hub via said ball bearings, and a pulley part connected with the outer cylinder of said hub for receiving applied force to rotate the hub with respect to the shaft.

4,395,078

BEARING UNIT WITH IMPROVED INNER RACE

Harvey E. Smith, Sr., Grand Rapids, and Siegfried K. Weis, Byron Center, both of Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.

Continuation of Ser. No. 124,556, Feb. 25, 1980, Pat. No.

4,323,288. This application Sep. 14, 1981, Ser. No. 301,871

The portion of the term of this patent subsequent to Apr. 6, 1999, has been disclaimed.

Int. Cl.³ F16C 19/06

U.S. Cl. 308—196

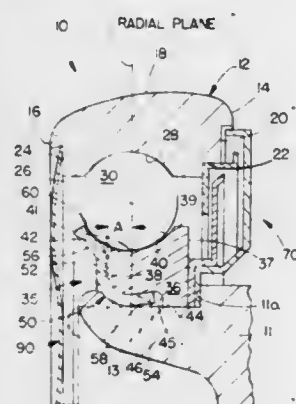
10 Claims

1. In a bearing assembly having inner and outer race means for supporting a plurality of anti-friction ball members therebe-

tween, and a plurality of such balls positioned between inner and outer raceways on said race means, the improvement comprising:

said inner race means having first support means including a major portion of said inner raceway for supporting the primary portion of any load on said assembly and second support means engaged with said first support means and including a minor portion of said inner raceway for retaining and guiding said ball members and supporting a minor portion of any load on said assembly;

said major raceway portion on said first support means extending on both sides of a radial plane of said assembly which passes through the center line of said ball members and the root diameter of said inner raceway;



said first support means including a first shoulder having a diameter slightly larger than said root diameter of said inner raceway to allow insertion of said ball members between said inner and outer raceways prior to assembly of said second support means without heating or otherwise resizing or modifying any part of said inner or outer race means or ball members during assembly, said first shoulder also providing resistance to removal of said ball members after insertion;

said first support means also having a generally radially extending surface adjacent said first shoulder and a recess; said second support means including a portion engaging said generally radially extending surface of said first support means and a flange bent into and engaging said recess to retain said inner race members in engagement.

4,395,079

PLASTIC MOLDED MESH SCREEN COVERING FOR AUDIO CABINETS

Masayoshi Yano, and Fuminori Hirose, both of Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

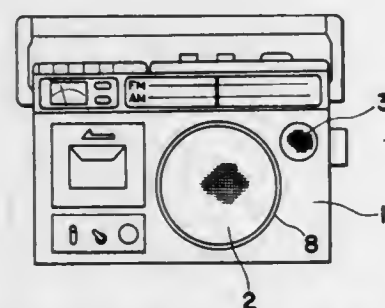
Filed Jan. 19, 1981, Ser. No. 226,089

Claims priority, application Japan, Jan. 19, 1980, 55/4793; Jan. 19, 1980, 55/4886[U]

Int. Cl.³ A47B 81/06

U.S. Cl. 312-7.1

6 Claims



1. A molded plastic mesh screen covering for at least one sound emitting opening defined in an audio cabinet, said mesh screen structure comprising a plurality of equally spaced latitudinal threads extending generally perpendicular to a plurality of equally spaced longitudinal threads, said latitudinal and

longitudinal threads being interwoven so as to intersect to be integrally interconnected together at each area of intersection to provide a unitary structure having a diameter measured from a mold parting line, said line defined as passing through said areas of intersection, to a diametrically opposite point on each of said respective threads in a direction facing outwardly from said cabinet, said diameter being substantially equal to the diameter of said threads.

4,395,080

CONSTRUCTION SET FOR THE MANUFACTURE OF FRAMES FOR FURNITURE

Klaus Winn, Giessen; Klaus-Ludwig Engelbach, Dillenburg, and Leo Schnirch, Haiger, all of Fed. Rep. of Germany, assignors to Weyel KG Visuelle Einrichtungen, Haiger, Fed. Rep. of Germany

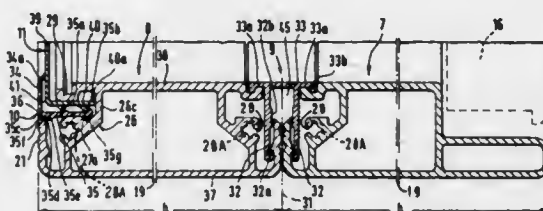
Filed Jan. 28, 1981, Ser. No. 229,387

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1980, 3003367

Int. Cl.³ A47B 47/00; F16B 12/00

U.S. Cl. 312-257 R

23 Claims



1. A construction set for the assembly of frames for furniture-like display cabinets and show cases, comprising:

an elongated first profile means having a closed surface at one edge thereof and a first connecting edge means at another edge remote from said one edge, said first profile means having a first flat surface thereon;

an elongated second profile means having a second connecting edge along an edge adjacent said first connecting edge, said first and second connecting edges being a mirror image of the other, said second profile means having a second flat surface thereon coplanar with said first planar surface, said first and second connecting edges each including first means defining a space between said first and second profile means and separating said first and second flat surfaces and second means defining a connecting leg, said connecting legs extending parallel to each other and perpendicular to said first and second flat surfaces, said first and second profile means abutting one another along said first and second connecting edges on a side thereof remote from said space; and

connecting profile means received in said space and having a pair of spaced and parallel legs straddling and engaging said first and second connecting legs, and a connecting flat wall member connected to and extending at a right angle to said first and second connecting legs, said connecting profile means functioning to hold said first and second profile means together, said connecting flat wall member having an outwardly facing surface which is coplanar with said first and second flat surfaces and closing said space between said first and second profile means.

4,395,081

ELECTRICAL CONNECTOR

Aleksandras A. Melys, Hillside, N.J., assignor to Sweda International, Inc., Pine Brook, N.J.

Filed Apr. 6, 1981, Ser. No. 251,426

Int. Cl.³ H01R 4/66

U.S. Cl. 339-14 R

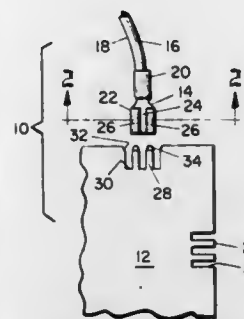
8 Claims

1. An electrical ground plane connector system, comprising: an integral sheet metal contact having an open barrel crimp

portion which crimps about a conductive wire and a ground plane connector portion; and

a ground plane of a conductive material having a plurality of slots cut into an edge thereof to form at least a pair of times each time having a plurality of longitudinally extending sharp conductive edges;

said ground plane connector having rolled longitudinal sides



which form partially open spring cylinders for receiving said times, wherein said sharp conductive edges frictionally engage said spring cylinders;

each of said spring cylinders being adapted to be in contact engagement with at least three of said plurality of conductive edges of its respective time; whereby the degree of electrical contact between said ground plane and contact is improved.

4,395,082

OBTURATOR

Clive S. Rumble, Apt. 2106, 330 Spadina Rd., Toronto, Canada

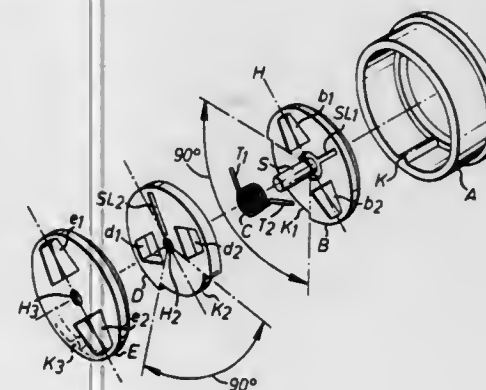
Filed May 27, 1980, Ser. No. 153,523

Claims priority, application United Kingdom, Jun. 1, 1979, 7919147

Int. Cl.³ H01R 13/44

U.S. Cl. 339-41

3 Claims



1. An obturator, comprising:

an outer housing having an inner surface with a key means extending inwardly of said inner surface;

an outer first plate rotatably disposed in said housing, having a first arcuate keyway for cooperating with said key means to allow limited rotation of said first plate with respect to said housing, two apertures for accepting prongs, and first means for anchoring a spring;

a second plate rotatably disposed in said housing adjacent said first plate, having a second arcuate keyway for cooperating with said key means to allow limited rotation of said second plate with respect to said housing, two apertures for accepting prongs capable of alignment with the apertures of said first plate, and second means for anchoring a spring;

spring means cooperating with said first and second means for anchoring for rotatably urging said first and second plates to a first position in which the apertures of said first and second plates are not aligned;

an inner third plate fixed with respect to said housing adjacent said second plate, having a first pair of apertures for accepting prongs capable of alignment with the apertures

of said second plate but being unaligned with the apertures of said second plate when said second plate is in said first position; and

two reciprocating detents extending from the surface of said third plate, each having a first end which extends into one of the apertures of said second plate when said second plate is in said first position, to prevent rotation of said second plate, whereby said first plate may be rotated against the bias of said spring means by prongs situated in the apertures of said first plate so that the apertures of said first plate become aligned with the apertures of said second plate, whereupon the ends of said reciprocal detents may be moved toward said third plate by the prongs and said first and second plates may be rotated with respect to said third plate by the prongs so that the apertures of said second plate are aligned with said first pair of apertures of said third plate, relative rotation between said second and third plates being prevented unless each of said detents is moved.

4,395,083

ELECTRICAL CONNECTOR HAVING REMOVABLE CONTACTS

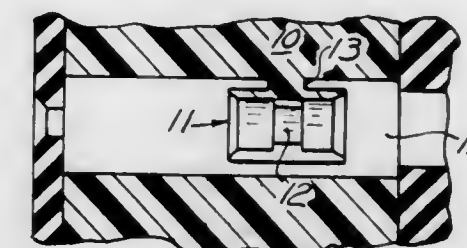
David L. Frear, Afton, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jun. 30, 1981, Ser. No. 279,147

Int. Cl.³ H01R 13/42

U.S. Cl. 339-59 R

10 Claims



1. In combination with an electrical connector having removable contacts said connector of the type having: a housing; a plurality of contacts, each contact having a rear portion, a forward mating portion, and an annular groove between said forward and rear portions, and means for releasably mounting said contacts in said housing including an insert having a plurality of bores therein, each bore having therein a portion of a respective contact having the annular groove therein and a contact retention member, the improvement wherein said contact retention member comprises:

an arcuate segment having forward and rear ends, axially extending sides between said ends, one of said sides being radially deflectable, on the inside of said segment an inwardly projecting and radially tapered arcuate shoulder engaging the annular groove in a respective contact, said shoulder extending radially inward a greater distance at said deflectable side of said segment than at said other side, and on the outside of said segment, means, located adjacent said other side of said segment and between said ends thereof, for pivotally mounting to said insert the arcuate segment in each bore so that an axial side of said arcuate segment may be deflected radially outwardly to disengage the projecting shoulder from the groove in the contact whereby, a tool may be inserted into a bore in said insert to engage and pivot an axial side of said arcuate segment radially outwardly in said bore so that the projecting shoulder of said segment disengages from the groove in the contact thereby releasing the contact in said bore for removal from the connector.

4,395,084

ELECTRICAL SOCKET FOR LEADLESS INTEGRATED CIRCUIT PACKAGES

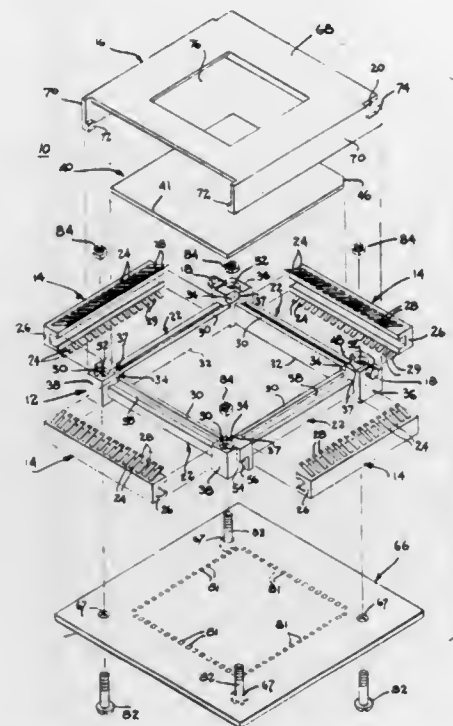
Richard A. Conrad, Vista, Calif., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Jul. 6, 1981, Ser. No. 280,324

Int. Cl.³ H01R 23/72

U.S. Cl. 339—75 MP

7 Claims



1. A socket for making electrical connections to leadless integrated circuit packages comprising:
a frame having elongated, generally T-shaped sides where the center leg of each T is horizontally disposed and extends outwardly from the center of the frame;
contact assemblies, each corresponding to a respective side of the frame, where each assembly includes an elongated, generally C-shaped support having a vertical side, two resilient horizontal sides and an open end, and a plurality of parallel, spaced-apart, resilient, electrically conductive contacts embedded within, parallel to, and along the length of the vertical side of the C-shaped support; and
means for detachably mating the contact assemblies to the frame.

4,395,085

WATERPROOF CONNECTOR

Nori Inoue, Yokkaichi, Japan, assignor to Tokai Electric Wire Company Limited, Yokkaichi, Japan

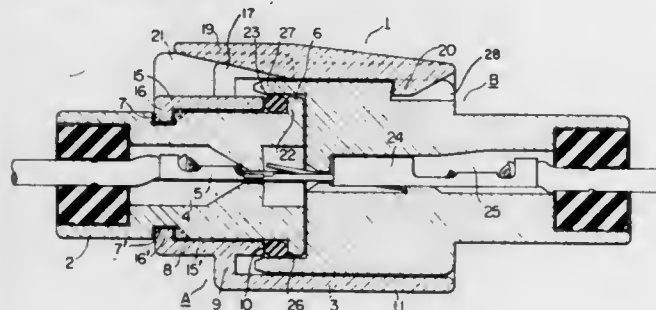
Filed May 20, 1981, Ser. No. 265,689

Claims priority, application Japan, May 23, 1980, 55/71794[U]

Int. Cl.³ H01R 13/52

U.S. Cl. 339—94 R

1 Claim



1. A waterproof connector comprising:
a male housing part,

a female housing part adapted to fit on said male housing part, and
an "O" ring made of rubber or the like elastic material resiliently pressed between said housing parts,
said male housing part having a fitting portion constituted by an inner sleeve around which said "O" ring is wound and a large-diameter sleeve portion which is formed at a predetermined radial distance from said inner sleeve,
said female housing part having a cylindrical wall defining the opening for receiving said male housing part,
said cylindrical wall being fitted in the gap between said inner sleeve and said large-diameter sleeve portion of said male housing part,
said "O" ring being pressed between the outer peripheral surface of said inner sleeve and the inner peripheral surface of said cylindrical wall of said female housing part,
said male housing part includes said inner sleeve and an outer sleeve formed as separate bodies,
said inner sleeve having an annular protrusion formed on the outer periphery of one open end thereof,
said outer sleeve including said large-diameter sleeve and a small-diameter sleeve portion having an inside diameter substantially equal to the outside diameter of said inner sleeve and a thickness substantially equal to the projection length of said annular protrusion,
said large-diameter sleeve portion being connected to said small-diameter sleeve portion through an annular wall and being extended forwardly beyond an opening of said small-diameter sleeve portion with a predetermined radial distance from the latter, and
said male housing part being provided with an annular recess for receiving said "O" ring between said annular protrusion of said inner sleeve and said open end of said small-diameter sleeve portion of said outer sleeve.

4,395,086

ELECTRICAL CONTACT FOR ELECTRICAL CONNECTOR ASSEMBLY

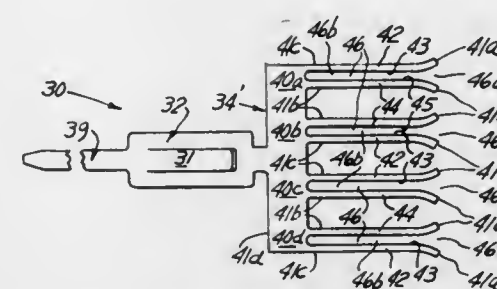
Edward K. Marsh, Orlando, Fla., assignor to The Bendix Corporation, Southfield, Mich.

Filed Apr. 20, 1981, Ser. No. 255,600

Int. Cl.³ H01R 13/50

U.S. Cl. 339—176 M

16 Claims



1. An electrical contact for electrically interconnecting with a conductive blade, the contact characterized by a plurality of interconnected plate-portions (40) with each said plate-portion (40) having a lateral forward edge (41a) and a longitudinal slot (46) extending inwardly from the lateral forward edge, said slots (46) being aligned with one another and defining the axis of a single uninterrupted passage that extends through all the plate-portions, the plate-portions cooperating to form a common jaw for receiving the blade.

4,395,087

STRIP OF BORDER-HELD CONTACT ELEMENTS FOR A CONNECTION DEVICE, AND A PROCESS FOR FORMING SUCH CONTACT ELEMENTS

Paul Gorre, and Jean M. Giraud, both of Suresnes, France, assignors to Socapex, Suresnes, France

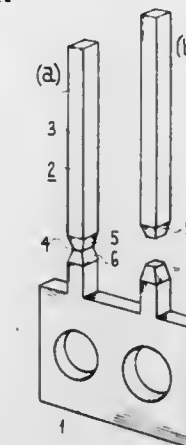
Filed Mar. 4, 1981, Ser. No. 240,482

Claims priority, application France, Mar. 7, 1980, 80 05203

Int. Cl.³ H01R 13/00

U.S. Cl. 339—278 R

3 Claims



1. In a strip of border-held contact elements for a connection device, comprising a support forming the border, in the form of a ribbon, and a plurality of contact elements in the form of rectangular-section rails, secured by one of their ends to one of the sides of the border by a securing means, in a comb arrangement, the border, the elements and their securing means being formed from the same continuous electrically conducting material, said securing means is formed by a bar disposed perpendicularly to the axis of the rail along two symmetrical wings, and a U-shaped stirrup whose base, which is common to the legs thereof, is supported by the border, the respective ends of the wings and of the legs being connected together and said bar having a triangular-shaped section whose apex is turned to face said common base.

4,395,088

COLOR SELECTIVE FILTERS

Kenneth Firth, Chelmsford, and Richard K. Howard, Witham, both of England, assignors to The Marconi Company Limited, Chelmsford, England

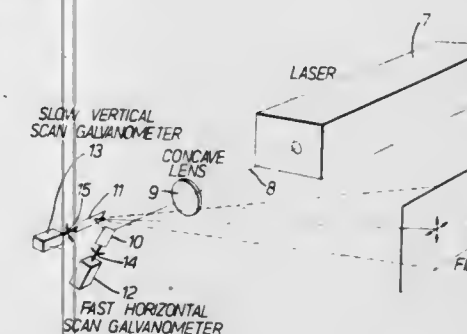
Filed Mar. 11, 1981, Ser. No. 242,610

Claims priority, application United Kingdom, Mar. 13, 1980, 8008564

Int. Cl.³ G03H 1/04, 1/26

U.S. Cl. 350—3.7

9 Claims



1. A method of making a colour selective filter in the form of a holographic reflector including the steps of: illuminating a photosensitive film with a beam of light from a coherent monochromatic laser in which the area of the beam spot on the film is small as compared with the total area of the film; moving the laser beam relative to the film so that each point on the area of the film is illuminated a large number of times and the total illumination received by each point is substantially constant;

causing a wave derived from the illuminating beam to interfere with the illuminating beam; and developing the film so as to change the latent image thereon into a colour selective filter.

4,395,089

CLAMP CONSTRUCTION FOR USE IN OPTICAL FIBER CABLES

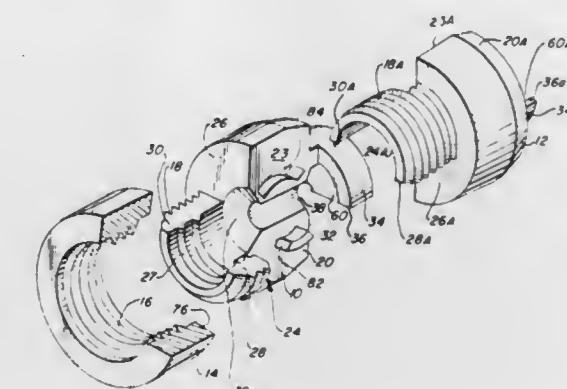
William H. McKee, West Covina, Calif., assignor to TRW Inc., Elk Grove Village, Ill.

Continuation-in-part of Ser. No. 943,153, Jun. 11, 1979. This application Jun. 16, 1980, Ser. No. 159,716

Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.20

15 Claims



8. In combination, an optical fiber cable comprising concentric sheaths spaced apart by interposed, parallel strength members; an optical fiber element disposed in the innermost sheath and extending therefrom at one end; a clamp comprising clamp elements pivotally connected in a scissorlike manner and having spaced pairs of clamping jaws disposed at opposed clamp ends extending from a central clamp body portion, and clampingly engaging concentric elements of said cable; said jaws comprising opposed end portions of said clamp elements whereby said opposed pairs of jaws are simultaneously movable into cable gripping and releasing positions during pivotal movement of said clamp elements; the interval between the jaws in gripping position being such as to enable such jaws at said one end to securely engage the optical fiber cable outer sheath disposed therebetween; the interval between the clamping jaws at the opposed end in gripping position being such as to enable said jaws at said other end to securely engage said optical fiber element disposed therebetween; said clamp elements defining a passageway extending through said clamping jaws in which said cable is received; each clamp element having an arcuate recess and projecting lug formed in opposed relation on opposite sides of said passageway; the lug of each clamp element being received in the recess of the other clamp element and coacting therewith so as to define such pivotal connection between said clamp elements.

4,395,090

OPTICAL CUT-OFF FILTER

Hans F. Mahlein, Unterhaching, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 5, 1981, Ser. No. 240,868

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1980, 3011501

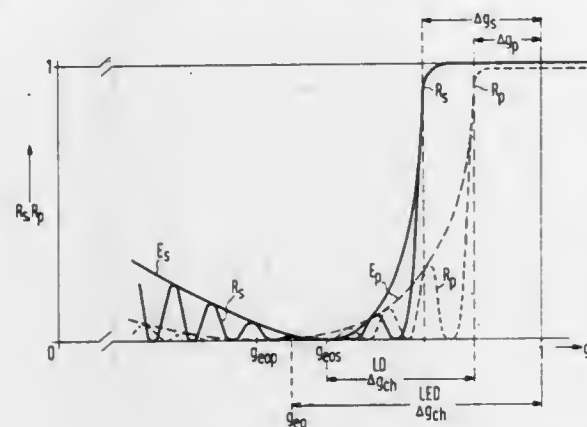
Int. Cl.³ G02B 5/28

U.S. Cl. 350—166

10 Claims

1. In an optical cut-off filter in the form of a multilayer system comprising a sequence of dielectric layers A and B interposed between a transparent bordering medium having an index of refraction n_0 , and with an index of refraction n_A for each of the layers A and an index of refraction n_B for each of said layers B selected so that, for a preselected radiation angle of incidence θ , the pass band of the filter has an envelope E_θ of

the reflecting secondary maxima for the s-component vibrating perpendicular to the radiation plane of incidence and an envelope E_p for the p-component vibrating parallel to the radiation plane of incidence of the electrical field vector of the incident



radiation, and wherein each envelope has a zero location, the improvement comprising having the indices of refraction n_A and n_B of the dielectric layers A and B of the filter selected so that the zero locations of the two envelopes E_s and E_p lie at somewhat different wavelengths.

4,395,091

OPTICAL COUPLING DEVICE FOR USE WITH A PLASMA EMISSION SPECTROMETER

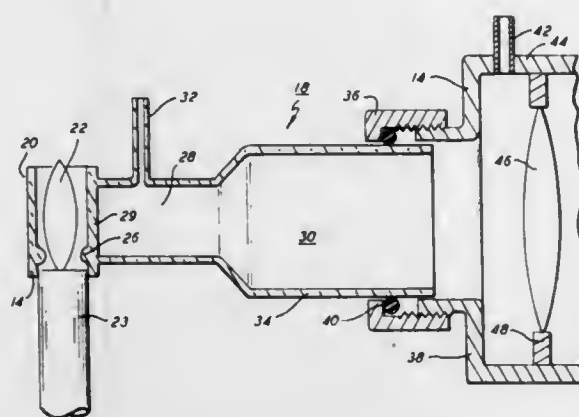
Albert J. Russo, Norwalk, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 31, 1980, Ser. No. 202,511

Int. Cl.³ G01N 21/73; G02B 5/00

U.S. Cl. 350—319

9 Claims



1. An optical coupling device for use with a plasma emission spectrometer comprising:
 - a hollow optically transparent high temperature body, said body having a first segment and a second segment, said first and said second segments being axially aligned and affixed to each other;
 - means for gaseously sealing the end portions of said body;
 - means for venting said body whereby said device provides an oxygen-free optical path along said body; and
 - a hollow optically transparent high temperature tube integral with said first segment at the end thereof distal from said second segment, said tube being adapted to surround a plasma torch and align said body therewith.

4,395,092
COMPACT TELEPHOTO ZOOM LENS
 Takayuki Itoh, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

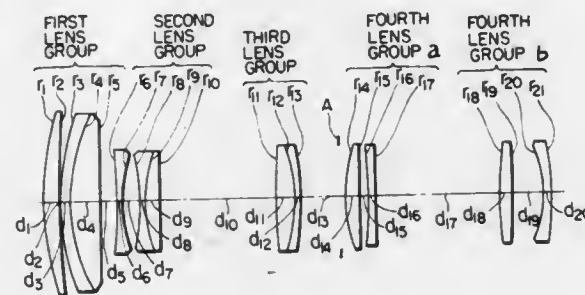
Filed Mar. 4, 1981, Ser. No. 240,421

Claims priority, application Japan, Mar. 10, 1980, 55-30037

Int. Cl.³ G02B 15/14

U.S. Cl. 350—427

2 Claims



1. A compact telephoto zoom lens comprising, in order from the object side, a variator system including a first lens group functioning as a focusing group having a positive focal length, a second lens group functioning as a main variator having a negative focal length, a third lens group functioning as a compensator for maintaining an image plane constant having a positive focal length, and a relay lens system, said first lens group including a positive meniscus lens convex on the object side and a positive cemented lens comprising a negative meniscus lens convex on the object side and a positive lens, said second lens group including a negative lens whose lens concave surfaces confront each other and a negative cemented lens comprising a biconcave lens and a positive lens, said third lens group including a positive cemented lens composed of a biconvex lens and a negative meniscus lens, said relay lens system including a fourth lens group a comprising a positive lens having a stronger convex surface on the object side and a biconcave negative lens and a fourth lens group b comprising a biconvex positive lens and a negative meniscus lens having a stronger concave surface on the object side, said fourth lens group b being disposed a predetermined distance from said fourth lens group a, said zoom lens satisfying the following conditions:

F No. 1:4.5 f = 82.0 ~ 195.0 ω = 15.2° ~ 6.2°					
LENS NO.	r	d	N	v	
FIRST LENS GROUP	1	87.373	3.95	1.51633	64.1
	2	284.393	0.10		
	3	69.120	2.30	1.80518	25.4
	4	46.684	8.05	1.48749	70.1
	5	-1885.831	4.409		
SECOND LENS GROUP	6	-161.880	1.70	1.69680	55.5
	7	46.010	4.45		
	8	-60.000	1.50	1.69680	55.5
	9	40.111	3.80	1.80518	25.4
	10	-1590.000	30.980		
THIRD LENS GROUP	11	114.300	5.00	1.58913	61.0
	12	-42.520	1.60	1.80518	25.4
	13	-83.000	11.897		
	14	39.214	4.10	1.58913	61.0
	15	-2275.000	1.79		
FOURTH LENS GROUP a	16	-269.221	2.10	1.80518	25.4
	17	269.221	32.87		
	18	71.700	3.50	1.62588	35.7
	19	-265.000	8.45		
	20	-30.398	1.70	1.80610	40.9
FOURTH LENS GROUP b	21	-79.717			

Variable	f		
Distance	82.0	135.0	195.0
d5	4.409	26.751	37.624
d10	30.980	17.429	1.718
d13	11.897	3.105	7.943

-continued

$$\begin{aligned}
 f_{min}/f_l &= 0.759, \\
 f_{min}/f_{I-II} &= -1.246, \\
 f_{min}/f_{I-III} &= -0.085, \\
 f_{min}/f_{I-IVa} &= 1.088, \\
 f_{min}/f_{I-IVb1} &= 1.920, \\
 (n_{I1} + n_{I2})/2 &= 1.6968, \\
 r_{IVa1}/f_{min} &= r_{14}/f_{min} = 0.478, \\
 l_{IVa1}/f_{min} &= d_{17}/f_{min} = 0.401, \\
 l_{IVb2}/f_{min} &= d_{19}/f_{min} = 0.103, \\
 |r_{IVb3}/f_{min}| &= |r_{20}/f_{min} = 0.371, \text{ and} \\
 n_{IVb2} &= 1.80610,
 \end{aligned}$$

where:

- f_{min} is the overall focal length of said zoom lens at a wide angle position thereof;
- f_l is the focal length of said first lens group;
- f_{I-II} is the resultant focal length of said first and second lens groups at said wide angle position;
- f_{I-III} is the resultant focal length of said first, second and third lens groups at said wide angle position;
- f_{I-IVa} is the resultant focal length from said first lens group to said fourth lens group a at said wide angle position;
- f_{I-IVb1} is the resultant focal length from said first lens group to said positive lens of said fourth lens group b at said wide angle position;
- n_{I1} is the refractive index of said first negative lens of said second lens group at the d-line thereof;
- n_{I2} is the refractive index of said second negative lens of said second lens group at the d-line thereof;
- r_{IVa1} is the radius of curvature of the first lens surface of said fourth lens group a;
- l_{IVa1} is the distance between said fourth lens groups a and b;
- l_{IVb2} is the distance between said positive lens and said negative meniscus lens of said fourth lens group b;
- r_{IVb3} is the radius of curvature of the first lens surface of said negative meniscus lens of said fourth lens group b;
- n_{IVb2} is the refractive index of said negative meniscus lens of said fourth lens group b at the d-line thereof;
- f is the overall focal length;
- ω is the half viewing angle of the designated lens;
- r is the radius of curvature of the designated lens;
- d is the lens thickness or distance between adjacent lenses;
- N is the refractive index at the d-line; and
- v is the Abbe number.

4,395,093

LENS SYSTEM FOR PANORAMIC IMAGERY

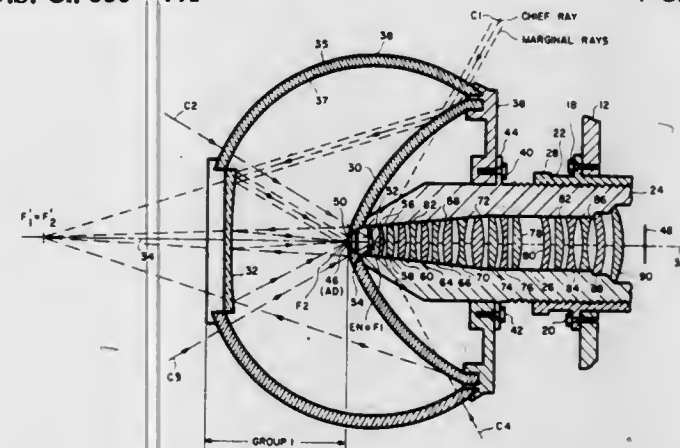
Gottfried R. Rosendahl, and Wiley V. Dykes, both of Winter Park, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 21, 1981, Ser. No. 265,874

Int. Cl.³ G02B 13/06

U.S. Cl. 350—441

7 Claims



1. An optical system for 360° annular image transfer having mirror means positioned upon a predetermined optical axis so

as to form an entrance pupil for said optical system adapted for passing therethrough chief rays and marginal rays of image forming light, and thereby reduce the vertical field angles of said chief rays and marginal rays of image forming light to a predetermined magnitude wherein the improvement comprises, in combination:

- first lens means spatially disposed downstream from said mirror means on said optical axis for providing a positive power to correct for negative field curvature caused by said mirror means, and for bending the marginal rays of image forming light toward said optical axis and into a position approximately parallel to said optical axis, said first lens means having first and second negative lenses spatially disposed downstream from said mirror means on said optical axis, each negative lens of which has a low refractive index, and each negative lens of which is spaced for air cooling so as to prevent heat damage, and first, second, third and fourth positive lenses spatially disposed downstream from said second negative lens on said optical axis, each positive lens of which has a high refractive index, and each positive lens of which is spaced for air cooling so as to prevent heat damage;
- second lens means spatially disposed downstream from said first lens means on said optical axis and having an overall power of zero for providing primary and secondary color correction;
- third lens means spatially disposed downstream from said second lens means on said optical axis for bending the marginal rays of image forming light from the aforesaid position approximately parallel to said optical axis toward a predetermined image plane, and for providing additional field curvature correction and secondary color correction; and
- fourth lens means spatially disposed downstream from said third lens means on said optical axis for adding a positive Petzval curvature such that an image may be formed at said image plane, for bringing the chief rays of image forming light incident upon said image plane at a predetermined angle, and for providing additional field curvature correction and secondary color correction.

4,395,094

LARGE APERTURE RATIO PHOTOGRAPHIC LENS WITH MEANS FOR CORRECTING ABERRATIONS

Yoshinari Hamanishi, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

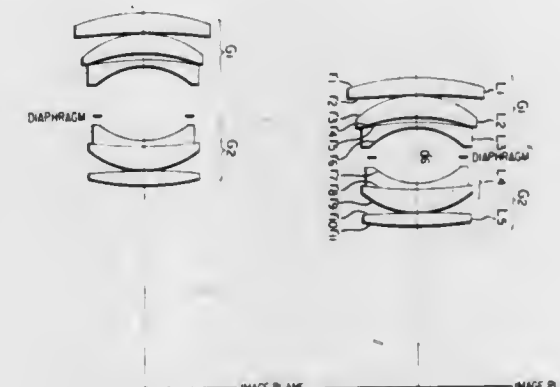
Filed Jan. 5, 1981, Ser. No. 222,539

Claims priority, application Japan, Jan. 31, 1980, 55/10703
 The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.

Int. Cl.³ G02B 9/62, 15/14

U.S. Cl. 350—467

8 Claims



1. In a large aperture ratio photographic lens with means for

correcting aberrations comprising a forward group including at least one negative lens and having a composite positive refractive power, a rearward group also including at least one negative lens and having a composite positive refractive power, and a diaphragm provided between said two groups, the improvement residing in that during the shift from an infinity object photography condition to a short distance object photography condition, focusing is effected by moving both of said two groups toward the object side while enlarging the diaphragm space between said two groups and that said photographic lens satisfies the following conditions:

$$2.4 < f_1/f < 4.5 \quad (1)$$

$$2.5 < f_1/f_2 < 5.5 \quad (2)$$

where f is the total focal length of the entire system during the infinity photography condition, f_1 is the focal length of said forward group, and f_2 is the focal length of said rearward group.

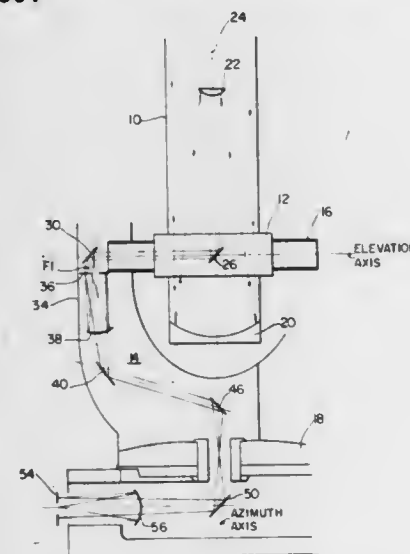
4,395,095

OPTICAL SYSTEM FOR INFRARED TRACKING
Richard F. Horton, Dunkirk, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 20, 1981, Ser. No. 265,273
Int. Cl.³ G02B 17/06, 23/06

U.S. Cl. 350—504

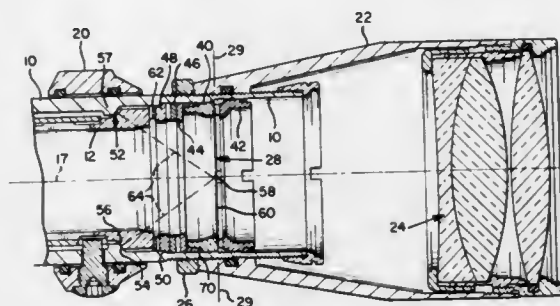
5 Claims



1. An optical system for relaying a telescope image from a movable telescope by folding the bundle through a movable telescope mount to a fixed focal plane remote therefrom with improved imaging for off axis focusing comprising:
 - means folding the bundle out of the telescope optical axis and converging it to a focal point outside the telescope;
 - a first apertured flat mirror disposed around the bundle axis with its plane at an oblique angle thereto and containing the focal point;
 - a spherical concave mirror downstream of an facing the first apertured flat mirror for folding the bundle back to the apertured flat mirror from which it is folded to a second apertured flat mirror;
 - said second apertured flat mirror disposed around the bundle axis with its plane at an oblique angle thereto and folding the bundle to an ellipsoidal concave mirror;
 - said ellipsoidal concave mirror disposed downstream of an facing the second apertured flat mirror for folding the bundle back to the second apertured flat mirror and converging it to focal points in the aperture thereof in the plane of the second aperture flat mirror;
 - whereby aberrations caused by off-axis focusing of objects by the telescope are minimized in the periphery of the field at the focal plane.

4,395,096
VARIABLE MAGNIFICATION TELESCOPIC SIGHT HAVING RETICLE CENTERING MOUNT
Dale E. Gibson, Salem, Oreg., assignor to Leupold & Stevens, Inc., Beaverton, Oreg.

Filed Oct. 13, 1981, Ser. No. 311,001
Int. Cl.³ G02B 7/10, 27/32; F41G 1/38
U.S. Cl. 350—560 20 Claims



1. Reticle mounting apparatus for a telescopic sight, comprising:
 - a housing tube containing lenses supported in axial alignment along an optical axis;
 - a reticle mounting ring secured within said tube;
 - a reticle sight means attached to said mounting ring and providing a sight point; and
 - a reticle centering sleeve provided around said mounting ring, said sleeve having a longitudinal cross-section of tapered shape which is wedged between said tube and said mounting ring to center the sight point on said optical axis.

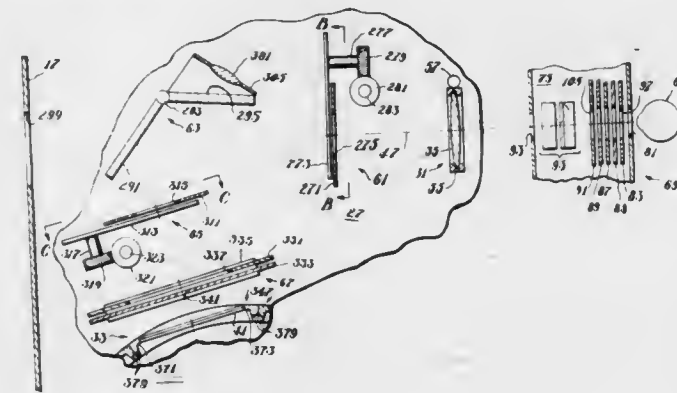
4,395,097

COMPACT REFRACTION INSTRUMENT
Richard C. Mohrman, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Aug. 11, 1980, Ser. No. 177,144
Int. Cl.³ A61B 3/02

U.S. Cl. 351—201

5 Claims



1. A refraction instrument comprising:
 - (a) housing means;
 - (b) target means supported by said housing means, said target means including at least one binocular target having first and second halves;
 - (c) first and second optical means, supported by said housing means, for making said target means appear at or near infinity when said target means is viewed through said optical means, said optical means and said target means defining a pair of optical paths;
 - (d) first and second sets of corrective optics for emulating a series of ophthalmic prescriptions, said corrective optics supported relative to said housing means in optical alignment with said optical means;
 - (e) means, supported by said housing means and interposed along said optical paths between said optical means and said target means, for separating said optical paths so as to

- provide separate and independent views of said halves of said binocular target;
- (f) means, supported by said housing means, for suppressing accommodation; and
- (g) apparatus, supported by said housing means between said optical means and said target means, for permitting retinoscopic examination through at least one of said first and second optical means and one of said sets of corrective optics while simultaneously maintaining a view of at least one of said halves of said binocular target through at least the other of said first and second optical means and other of said sets of corrective optics.

4,395,098

SHUTTER TIME CONTROL CIRCUIT

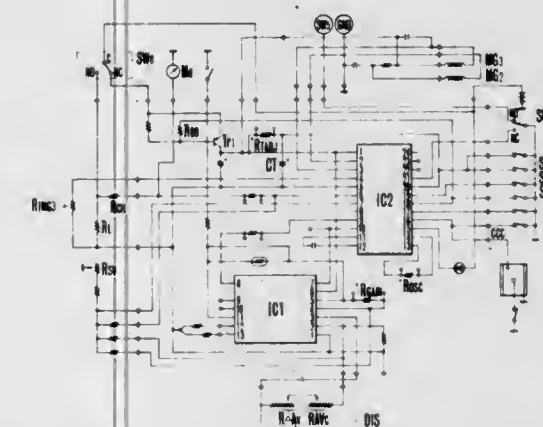
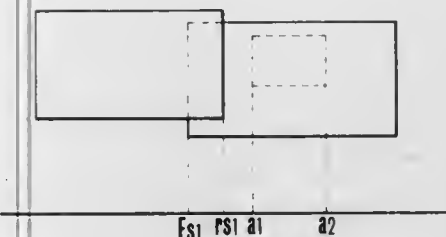
Masanori Uchidoi, Yokohama, and Kazunobu Urushihara, Inagi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 147,268, Feb. 5, 1980, abandoned. This application Oct. 7, 1981, Ser. No. 309,385

Claims priority, application Japan, May 8, 1979, 54-56541
Int. Cl.³ G03B 7/08

U.S. Cl. 354—23 D

5 Claims



1. A shutter control circuit for a shutter having a mechanical condition producing a delay, comprising:
 - (a) a counter circuit for counting pulses when a shutter release operation is performed;
 - (b) a shutter time information circuit for producing a digital value corresponding to an exposure time;
 - (c) preset means having impedance means for adjustably presetting time information corresponding to a mechanical condition of the shutter mechanism;
 - (d) converting means for converting the time information preset by said impedance means into a digital value;
 - (e) a shutter time information setting circuit including a first part coupled to said shutter time information circuit for setting said digital value from the shutter time information circuit and a second part coupled to said converting means for setting said digital value from the converting means;
 - (f) a shutter time control circuit coupled to said counter circuit and the first and second parts of said shutter time information setting circuit, said shutter time control circuit forming a shutter closing signal when the value counted by said counter circuit has assumed a value corre-

- sponding to the sum of the digital values set by said first and second parts of the shutter time information setting circuit; and
- (g) shutter control means for closing the shutter in response to the closing signal.

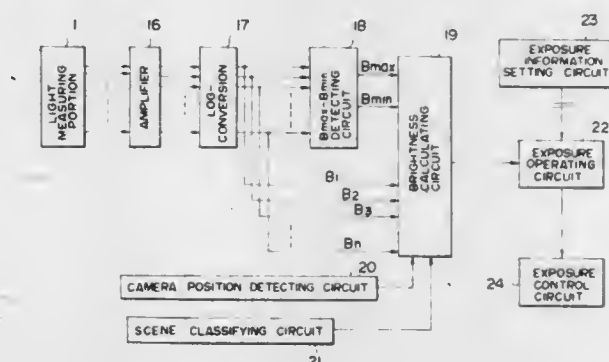
4,395,099

SCENE BRIGHTNESS MEASURING SYSTEM
Takaaki Terasita, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 4, 1981, Ser. No. 260,410
Claims priority, application Japan, May 2, 1980, 55/58820
Int. Cl.³ G03B 7/097, 7/099

U.S. Cl. 354—31

13 Claims



1. A method of determining the correct exposure for photographing a scene in which n various parts thereof have differing amounts of illumination comprising the steps of measuring respective brightness values B_i , where $i=1, 2, 3, \dots, n$, for said n various parts of said scene with respective photosensitive devices sensitive to the brightness of associated ones of said parts; determining the maximum brightness value B_{max} and the minimum brightness value B_{min} from among the measured brightness values B_i ; automatically assigning weighting factors $K_1, K_2, K_3, K(i+3)$, and α for said brightness values B_{max}, B_{min} , and B_i ; electronically computing the correct scene brightness B according to the following formula:

$$B = K_1 + K_2 \cdot B_{max} + K_3 \cdot B_{min} + \alpha \sum_{i=1}^n K(i+3) \cdot B_i$$

- and automatically adjusting the camera exposure for photographing said scene in accordance with the calculated scene brightness B .

4,395,100

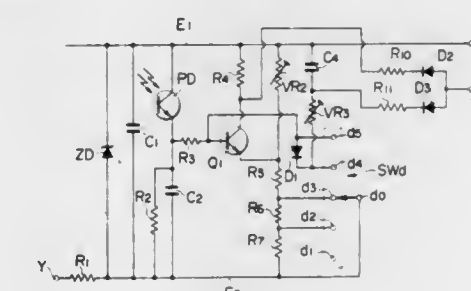
ILLUMINATION MODE SWITCHING CIRCUIT FOR AUTOMATIC ELECTRONIC FLASH
Isao Kondo, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

Continuation of Ser. No. 173,051, Jul. 28, 1980, abandoned. This application Jun. 16, 1982, Ser. No. 389,039

Claims priority, application Japan, Sep. 5, 1979, 54-114672
Int. Cl.³ G03B 7/16

U.S. Cl. 354—33

11 Claims



1. An illumination mode switching circuit for an automatic

electronic flash which permits a selection among an automatic illumination control mode in which the emission of flashlight from a flash discharge tube is interrupted in response to an output from a photometric integrating circuit including a photoelectric transducer element, a manual illumination control mode in which the emission of flashlight from the flash discharge tube is interrupted with a time constant which is determined by a time constant circuit, and a full illumination mode in which a full emission of flashlight from the flash discharge tube is permitted; characterized by the provision of an illumination mode selecting changeover switch having a first terminal connected to an automatic illumination control level pre-setting circuit for selecting an automatic illumination control level, a second terminal for a manual illumination control which is connected to the time constant circuit and a third terminal for full emission which is connected to the photometric integrating circuit, and an isolation diode connected between the second and the third terminal, the arrangement being such that whenever the changeover switch is thrown to the second terminal, the photometric integrating circuit is disabled through the isolation diode while the time constant circuit is enabled to thereby select the manual illumination control mode, while whenever the changeover switch is thrown to its third terminal, the photometric integrating circuit is disabled and the time constant circuit is also disabled by the isolation diode to thereby select a full illumination mode.

4,395,101

APPARATUS FOR PRESETTING PHOTOGRAPHING DISTANCE FOR CAMERA

Ichiro Morimoto, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

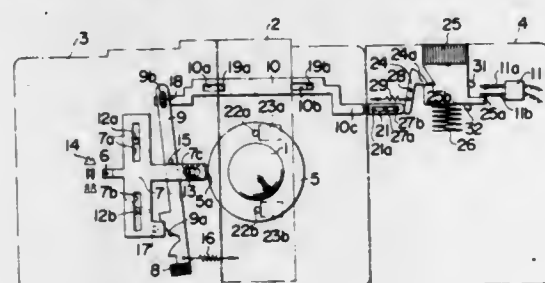
Filed Oct. 5, 1981, Ser. No. 308,476

Claims priority, application Japan, Nov. 14, 1980, 55-162958[U]

Int. Cl.³ G03B 3/02, 15/05

U.S. Cl. 354-128

7 Claims



1. An apparatus for presetting the photographing distance for a camera which includes means for adjusting the photographing distance by causing a movement of a taking lens in the direction of an optical axis and means for establishing a normally focussed position of the taking lens in response to the closure of a lens protective cover which opens or closes the front surface of the taking lens; the apparatus comprising: switch operating means disposed on an electronic flash which is internally housed within or which is detachably mounted on the camera for turning on or off a power switch of the electronic flash; flash photography operating means for operating the switch operating means in a direction to turn the power switch on; interlock means responsive to a movement of the flash photography operating means to operate said means for adjusting the photographing distance to bring the taking lens to a flash photography position which is located on the nearer side than the normally focussed position; and said switch operating means including an indicator member having a lamp for indicating the completion of a charging operation within said electronic flash; said indicator member being movable between a position in which it projects outwardly of said electronic flash and in which said power switch is turned on, and another position retracted within

said electronic flash and in which said power switch is turned off.

4,395,102

BELLOWS FOR FOLDING CAMERA

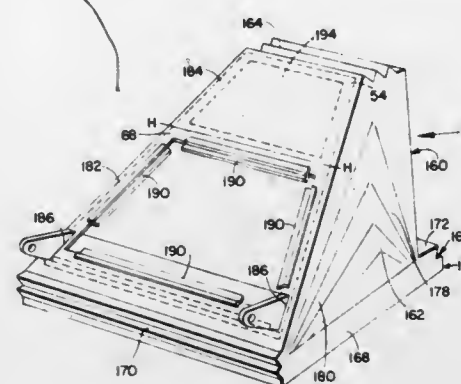
Donato F. Pizzuti, Lynnfield, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 28, 1981, Ser. No. 334,982

Int. Cl.³ G03B 17/04

U.S. Cl. 354-187

7 Claims



1. A folding bellows for light shielding the exposure optical path in a folding camera of the type including a base housing section having a film plane therein, a lens housing section mounting an objective lens and being pivotally coupled to the base section, adjacent one end of the film plane, for movement between an upstanding operative erected position and a storage position folded back over the base section so as to overlie at least a portion of the film plane, and a mirror assembly including a mirror pivotally coupled to the base section, adjacent an opposite end of the film plane, for coordinated movement with the lens housing section between an erected position for reflecting image forming light rays transmitted by the lens onto the film plane to expose a film unit thereat and a folded storage position overlying at least a portion of the film plane with at least a portion of the mirror located between the film plane and the lens housing section located in its folded position, said bellows being formed of a thin, flexible, light opaque material and comprising:

- a bottom section attached to the base housing section in surrounding relation to the film plane;
- a forward wall joined to a leading end of said bottom section and being attached to a rear wall of the lens housing section, said forward wall having an opening therein aligned with said lens through which image forming light rays are transmitted into the interior of said bellows;
- a rear wall joined to a trailing end of said bottom section and configured to overlie a back side of the mirror when said bellows and mirror are erected, said rear wall including lower section thereof that is attached to a facing portion of the mirror, and an upper section thereof that is not attached to that portion of the mirror facing said upper section;
- a pair of oppositely spaced side walls, each of said side walls extending between a corresponding side portion of said bottom section and adjacent ends of said forward and rear walls;
- an extensible top wall joining adjacent upper ends of said forward, rear and side walls, said top wall being movable between retracted and extended positions;
- said bellows being movable in response to corresponding movement of the lens housing section and mirror assembly between an erected position, wherein said upper and lower sections of said rear wall are in substantially coplanar relation overlying the back side of the erected mirror, said top wall is in its said retracted position and said bellows forms at least a portion of an ambient light excluding exposure chamber surrounding the exposure optical path

extending between the lens, mirror and film plane, and a substantially flat folded storage position overlying at least a portion of the film plane wherein said upper section of said rear wall is folded back over its lower section and said top wall is in its said extended position.

4,395,103

FILM WINDING DEVICE FOR CAMERA

Nobuo Tezuka, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

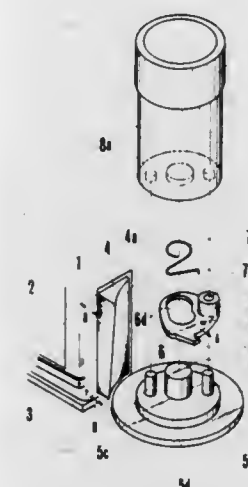
Filed Jul. 16, 1981, Ser. No. 283,883

Claims priority, application Japan, Jul. 22, 1980, 55-100080

Int. Cl.³ G03B 1/04

U.S. Cl. 354-212

6 Claims



1. A camera having a film winding mechanism, comprising: a spool for winding film thereon; an engagement member having a guide groove into which a rotation shaft of the spool is engaged and having an engaging portion at its end, said engagement member being engaged at a predetermined position on a circle coaxial to the rotating shaft within the circumference of the spool, and rotatable around said predetermined position within a range defined by the contact of the guide groove wall against the rotation shaft of the spool; and an elastic member for urging the engagement member outwardly out of the circumferential surface of the spool, whereby when the film is engaged at its perforation with the engaging portion and wound, the engagement member is moved by the tension of the film against the urging force of the spring to a position where it is restricted by the contact of the rotation shaft against the guide groove wall, the shape of the guide groove being designed so as to allow the projection of the engaging portion out of spool circumference to be slightly larger than the base thickness of the film.

4,395,104

ELECTRICALLY PROGRAMMED SHUTTER ASSEMBLY

Karl-Heinz Lange, Bunde, Fed. Rep. of Germany, assignor to Balda-Werke Photographische Geräte und Kunststoff GmbH & Co., KG, Bunde, Fed. Rep. of Germany

Filed Sep. 11, 1981, Ser. No. 301,339

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1980, 3034214

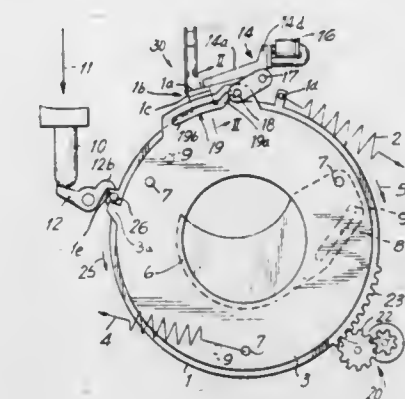
Int. Cl.³ G03B 9/24

U.S. Cl. 354-230

8 Claims

1. An electronically controlled programmed shutter assembly for a camera for insuring a predetermined minimum lens opening comprising: an opening ring biased for rotation in a first rotational direction; a closing ring mounted adjacent to said opening ring and biased for rotation in the first rotational direction; shutter blades mounted on one of the opening and closing

rings, the blades opening in response to rotation of the opening ring in the first rotational direction with respect to the closing ring and closing in response to rotation of the closing ring in the first rotational direction with respect to the opening ring; and electromagnetic means for holding said closing ring in the first rotational direction; said opening ring including hold-



4,395,105

DEVICE FOR ADJUSTING DRIVING SPRING OF FOCAL PLANE SHUTTER

Michio Senuma, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

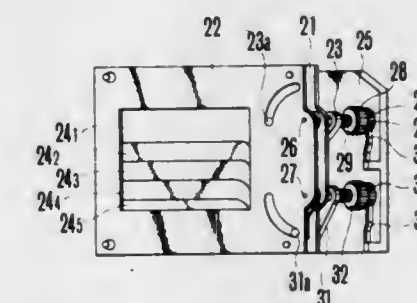
Filed Dec. 31, 1981, Ser. No. 336,497

Claims priority, application Japan, Jan. 13, 1981, 56-3160

Int. Cl.³ G03B 9/40

U.S. Cl. 354-246

4 Claims



1. A shutter mechanism including a shutter, a shutter driving spring and an adjusting device for adjusting said shutter driving spring, comprising: a ratchet wheel capable of adjusting the driving force of said shutter driving spring, said ratchet wheel consisting of a ratchet part which has fine teeth and a gear part which has relatively coarse teeth, said gear part being arranged to engage the gear of an automatic adjuster; and a ratchet pawl which keeps the ratchet wheel stationary by engaging the teeth of the ratchet part, said ratchet pawl being arranged to be disengaged from one of the teeth of the ratchet part and to come into engagement with another tooth of the ratchet part to consequently have the driving force of said spring adjusted when the automatic adjuster is actuated with the gear thereof engaged with said gear part of the ratchet wheel.

4,395,106 COMPENSATION FOR DIAPHRAGM CONTROL IN SLR CAMERA

Masahiro Kawasaki, Tokyo; Zenichi Okura, Ichikawa, and Fumio Urano, Omiya, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

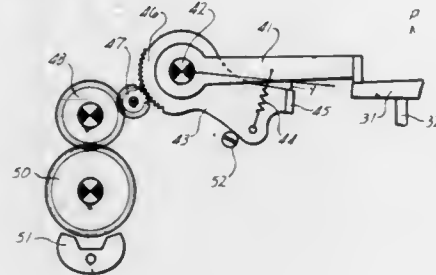
Filed Sep. 9, 1981, Ser. No. 300,683

Claims priority, application Japan, Sep. 11, 1980, 55-126782

Int. Cl.³ G03B 7/20

U.S. Cl. 354-271

4 Claims



1. A camera comprising:
 - a first displaceable actuator;
 - a second displaceable actuator;
 - a diaphragm adjustable between a maximum aperture value and a minimum aperture value responsive to displacement of the second actuator;
 - means for generating a first signal representative of the displacement of the first actuator;
 - means for generating a second signal representative of the desired aperture value of the diaphragm for correct exposure;
 - means for comparing the first and second signals;
 - means for displacing the first actuator upon shutter release;
 - means for maintaining the second actuator stationary during an initial portion of the displacement of the first actuator and displacing the actuators as a unit during the remainder of the displacement of the first actuator; and
 - means responsive to the comparing means for arresting displacement of the actuators when the first and second signals assume a predetermined relationship.

4,395,107 FILM CASSETTE

Hermann Lührig, Leverkusen; Franz Hoffacker, Langenfeld; Guido Kovacic, Unkel; Dieter Engelsmann, Unterhaching; Siegfried Zobel, Munich; Hubert Hackenberg, Holzkirchen, and Karl Wagner, Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

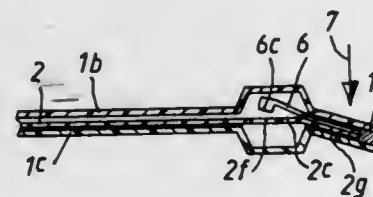
Filed May 15, 1981, Ser. No. 264,668

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019664

Int. Cl.³ G03B 17/26, 1/04

U.S. Cl. 354-275

35 Claims



13. A film cassette for multi-exposure film strips, comprising a body part having an inner compartment for a film strip, and at least one opening for passage of the film strip therethrough between an initial position before exposure and a final position after exposure of the film strip; and means for preventing unintentional withdrawal of the film strip from said body part in each of said positions, said preventing means being arranged

releasable by a disconnecting element of a camera and located between said body part and the film strip inside said body part.

4,395,108 COLOR BALANCED SCRATCH SUPPRESSING PROJECTION APPARATUS FOR COLOR TRANSPARENCIES

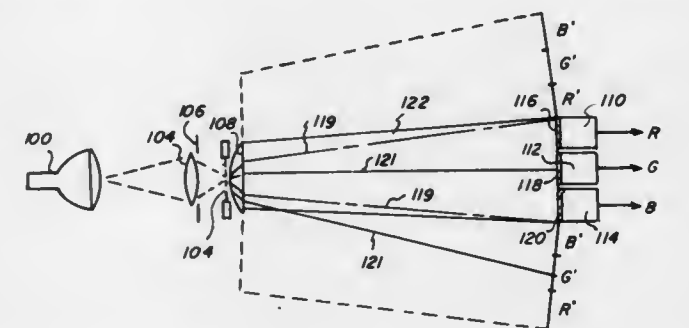
John E. Morse, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 12, 1982, Ser. No. 348,383

Int. Cl.³ G03B 27/00; G02B 5/14

U.S. Cl. 355-1

9 Claims



1. In apparatus for projecting color transparencies, a color balanced scratch suppressing optical arrangement comprising:
 - an objective lens having a rectangular aperture and defining first and second conjugate planes;
 - a rectangular light integrating bar having a first end face adjacent said first conjugate plane and a second end face;
 - means for defining a plurality of color regions on the second end face of said bar; and
 - a condenser lens disposed between said first conjugate plane and said first end face of said integrating bar, said condenser lens being constructed and located with respect to said second end face to form an image of said rectangular aperture at the plane of said second end face, the linear dimensions of said image being an even multiple of the corresponding dimensions of said second end face.

4,395,109 FIXING DEVICE FOR ELECTRONIC DUPLICATOR MACHINE

Shunichi Nakajima, Yokohama, and Hiroshi Odaira, Chigasaki, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

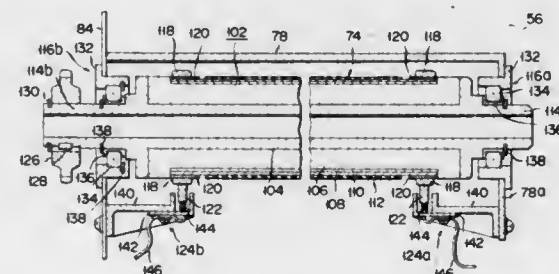
Filed Jun. 5, 1980, Ser. No. 156,866

Claims priority, application Japan, Jun. 11, 1979, 54-73325; Jun. 11, 1979, 54-73326; Jun. 11, 1979, 54-73327; Jun. 11, 1979, 54-73328; Jun. 11, 1979, 54-73329; Jun. 11, 1979, 54-73330; Jun. 11, 1979, 54-73331

Int. Cl.³ G03G 15/20

U.S. Cl. 355-3 FU

8 Claims



1. A fixing device for an electronic duplicator machine for heating toner attracted to copying paper and for fixing the toner onto the copying paper, said fixing device comprising:
 - a rotatable heat generating roller which includes:
 - (a) a hollow cylindrical body journaledly supported at each end for rotation about its elongated axis;

- (b) a heat insulating layer formed on the outer circumferential surface of said hollow cylindrical body for preventing heat transmission to said hollow cylindrical body;
 - (c) a heat generating layer covering said heat insulating layer and including an electrically resistive layer through which electric current flows to generate heat and an electrically insulating layer disposed between said electrically resistive and said heat insulating layers, and
 - (d) conducting means including a first group of conducting members circumferentially disposed at regular intervals on one end portion of said electrically resistive layer and a second group of conducting members circumferentially disposed at regular intervals on the other end portion of said electrically resistive layer;
- power supply means including a first terminal and a second terminal each having a fixed position relative to said rotatable heat generating roller and being connected to a power source, said first and second terminals respectively contacting a predetermined number of said conducting members of said first group and a predetermined number of said conducting members of said second group as said heat generating roller rotates relative thereto so as to preferentially heat that portion of the electrically resistive layer which lies between said predetermined number of conducting members of said first group in contact with said first terminal and said predetermined number of conducting members of said second group in contact with said second terminal; and
- a supporting roller disposed parallel to said heat generating roller to support the copying paper in a contacting relationship with said heat generating roller, said supporting roller including a nip area in contact with said preferentially heated portion of said electrically resistive layer.

4,395,110 DEVELOPING DEVICE WITH APPLICATOR CONTOURED TO STIR DEVELOPER APPLIED TO A DEVELOPER SUPPORT

Nagao Hosono, Chofu, and Hatsuo Tajima, Matsudo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

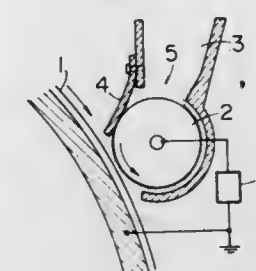
Filed Feb. 26, 1981, Ser. No. 238,633

Claims priority, application Japan, Mar. 4, 1980, 55-27730; Mar. 4, 1980, 55-27731

Int. Cl.³ G03G 15/08

U.S. Cl. 355-3 DD

12 Claims



1. A developing device for developing a latent image formed on a latent image bearing member with a developer, comprising:

developer support means positioned with a small clearance between it and said latent image bearing member; developer supply means for supplying the developer to said developer support means; and applying means for applying the developer supplied by said developer supply means onto the surface of said developer support means and for defining the thickness of a layer of the developer on said developer support means; said applying means being positioned in the proximity of or in contact with said developer support means, and comprising a screen provided with surface irregularities at least on a surface thereof facing said developer support means and a pressing member for pressing said screen against said developer support means.

4,395,111 SHEET CONVEYING DEVICE

Yuji Takahashi, Tokyo, and Hisaji Masaki, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

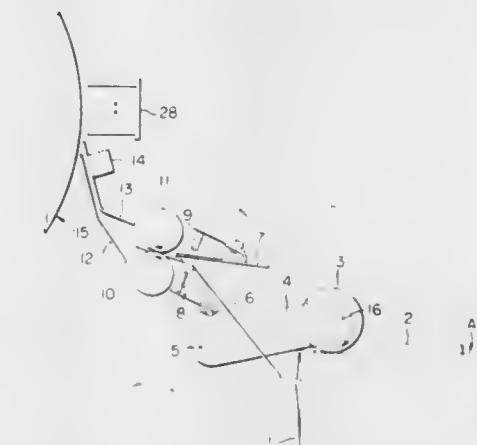
Filed Aug. 26, 1981, Ser. No. 296,257

Claims priority, application Japan, Aug. 28, 1980, 55/118612; Aug. 28, 1980, 55/118613

Int. Cl.³ G03G 15/00

U.S. Cl. 355-14 R

22 Claims



1. A conveying device, comprising:
 - (a) a sheet conveying pathway;
 - (b) sheet conveying means for conveying a sheet along said conveying pathway;
 - (c) abnormal feed detection means for detecting that the sheet is abnormally conveyed along said conveying pathway;
 - (d) jam detection means for detecting sheet jamming, said detection means being provided on one part of said conveying pathway at a position downstream of said abnormal feed detection means; and
 - (e) control means for delaying a jam check timing by said jam detection means for a predetermined time when abnormal feeding is detected by said abnormal feed detection means.

4,395,112 LATENT ELECTROSTATIC IMAGE DEVELOPING DEVICE

Nobuhiro Miyakawa, Suita; Kiyoshi Shibata, Osaka; Toshio Watanabe, Takatsuki, and Yosuke Ohata, Habikino, all of Japan, assignors to Mita Industrial Co., Ltd., Japan

Filed Sep. 9, 1981, Ser. No. 300,525

Claims priority, application Japan, Sep. 19, 1980, 55-131073

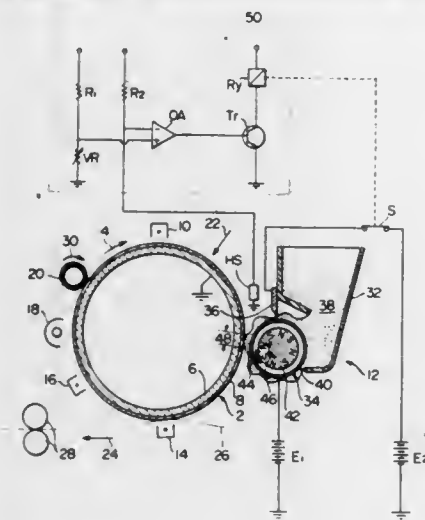
Int. Cl.³ G03G 15/00

U.S. Cl. 355-14 D

4 Claims

1. In a latent electrostatic image developing device for developing a latent electrostatic image formed on an image-bearing member by applying a developer thereto, said developing device comprising developer applicator means for holding

developer on the surface thereof, carrying the developer to a developing zone and applying it to a latent electrostatic image in the developing zone and bias voltage applying means for applying a bias voltage to the developer held on the surface of the developer applicator means; the improvement wherein the bias voltage applying means comprises a first dc fixed voltage supply and a second dc fixed voltage supply and wherein the developing device further includes detector means for detecting the relative humidity of the environmental atmosphere and



control means for connecting both the first and the second dc fixed voltage supplies to the developer held on the developer applicator means to adjust the applied bias voltage to a first value when the detected relative humidity is less than a predetermined value, and connecting only the first dc fixed voltage supply to the developer held on the developer applicator means to adjust the applied bias voltage to a second value less than the first value when the detected relative humidity exceeds the predetermined value.

4,395,113

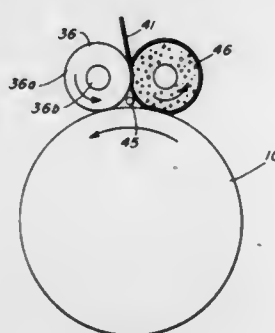
METHODS AND APPARATUS FOR CLEANING PHOTOCONDUCTIVE MEMBERS

William R. Buchan, Pepperell, and Eddie W. Cielakie, Westford, both of Mass., assignors to Nashua Corporation, Nashua, N.H.

Filed Oct. 29, 1981, Ser. No. 316,285
Int. Cl.³ G03G 21/00

U.S. Cl. 355—15

8 Claims



3. A method of cleaning a photoconductive surface comprising:
providing elastically yieldable roller means having a smooth, yieldable periphery adjacent the periphery of a photoconductive surface;
moving said photoconductive surface so as to carry a layer of developer, comprising toner particles dispersed in a gelatex dispersant, generally toward said yieldable roller means;
applying a lubricating liquid to said developer layer;
pressing said yieldable roller means against said developer layer with its axes being parallel to said photoconductive surface and with
the smooth yieldable periphery of said elastically, yieldable roller means being arcuately deformed into con-

cave, smooth faced pad means penetrating said developer layer to a depth such that said concave smooth faced pad means is generally spaced from said photoconductive surface by a distance not exceeding the diameter of the minimum sized particles of said toner;
rotating said elastically yieldable roller means so that its periphery moves at a speed at least equal to the speed of said moving photoconductive surface but in a direction opposite thereto, with
said rotation being operable to apply a shearing force to said gelatex dispersant operable to reduce the viscosity thereof;
maintaining a gap between said concave, smooth faced, pad means and said photoconductive surface, with said gap having a thickness not exceeding the diameter of said minimum sized toner particles; and
applying doctor blade means to the periphery of said rotating, elastically yieldable roller means to remove toner particles therefrom.

4,395,114

TONER RECOVERY DEVICE

Hiroaki Ura, Kunitachi; Tsugio Hirabayashi, and Junichi Koiso, both of Hachioji, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

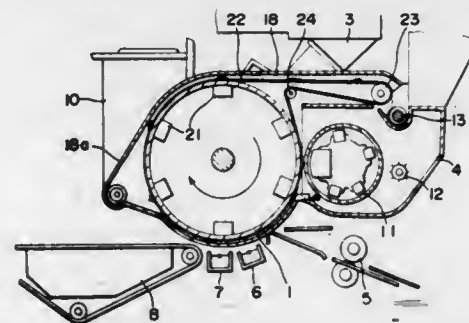
Filed Dec. 22, 1981, Ser. No. 333,623

Claims priority, application Japan, Dec. 26, 1980, 55/183882; Dec. 26, 1980, 55/183883

Int. Cl.³ G03G 15/00, 15/08

U.S. Cl. 355—15

9 Claims



1. In a toner recovery device in which a non-magnetic rotary member positioned coaxially with, and adjacent to, a charge receptor and having magnets embedded around the circumferential surface thereof is rotated and an endless belt wound on said rotary member is moved so as to recover a toner collected by a cleaning device into a developing unit, the improvement wherein a plurality of protuberances are equidistantly and projectingly formed around the circumferential surface of said rotary member to prevent said endless belt from floating as a whole, and said protuberances drive said endless belt.

4,395,115

CONVEYOR UNIT FOR BOOK CARRIER IN ELECTRO-PHOTOGRAPHIC COPYING MACHINES

Hiroshi Tsuda, Mitaka; Kiyoshi Miyashita, Hachioji; Akira Shimizu, Hachioji; Masaji Nishikawa, Hachioji, and Muneo Kasuga, Hachioji, all of Japan, assignors to Olympus Optical Co. Ltd., Tokyo, Japan

Filed Aug. 14, 1980, Ser. No. 178,169

Claims priority, application Japan, Sep. 27, 1979, 54-124886
The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

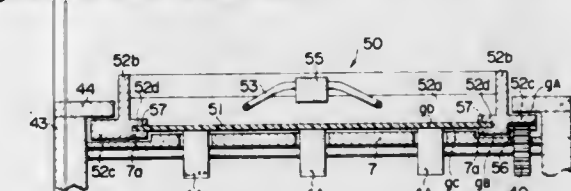
Int. Cl.³ G03B 27/62

U.S. Cl. 355—25

14 Claims

1. A conveyor unit in an electrophotographic copying machine for selectively conveying either a thin original or an original having substantial thickness, such as a book, to an exposure station to form an electrostatic latent image of said original for a copying purpose, comprising:

a book carrier including a frame having a transparent central portion on which said original having substantial thickness is placed to be conveyed to said exposure station;
a driven member formed on said book carrier for conveying it;
first and second commonly driven drive members on said unit respectively engageable with said thin original and said driven member for respectively driving said thin original and said carrier; and



a rigid, stationary carrier retainer plate on said unit for maintaining a slight clearance with respect to the upper surface of the frame of said book carrier to constrain said book carrier from shifting upward as said drive member cooperates with said driven member while providing sufficient clearance to facilitate simple and rapid insertion and/or removal of the book carrier from the conveyor unit.

4,395,116

ARTWORK GENERATION APPARATUS AND PROCESS FOR CHARTS

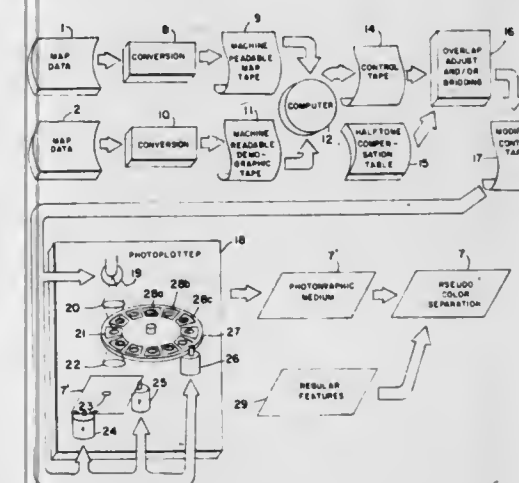
Charles R. Patton, III, 895 Palo Verde, Long Beach, Calif. 90815, and Douglas E. Lippincott, 7861 Harhay, Midway City, Calif. 92655

Filed Jan. 22, 1981, Ser. No. 227,215

Int. Cl.³ G03B 27/32, 41/00

U.S. Cl. 355—32

17 Claims



1. A method for preparing artwork for charts from predetermined data depicting type of information and associated location for application to a chart, comprising the steps of:
establishing relative movement between a image receiving medium and an imaging source of an imaging station in accordance with said data to establish said locations sequentially;
providing a plurality of different symbols of halftone patterns useful for making apparent said type information at said station;
selecting from said plurality, the symbol to be imaged onto said medium in accordance with said type of information data; and
flashing the selected symbol onto said medium at the associated location.

4,395,117 PRINTING APPARATUS HAVING AN IN-FOCUS DETECTOR

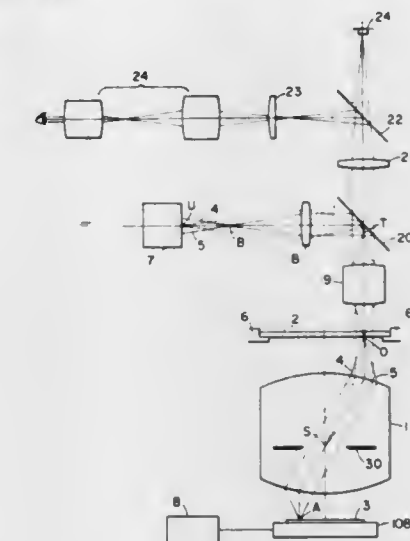
Akiyoshi Suzuki, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 10, 1981, Ser. No. 242,349

Claims priority, application Japan, Mar. 18, 1980, 55-34376
Int. Cl.³ G03B 27/52, 27/70

U.S. Cl. 355—43

4 Claims



1. A printing apparatus having an in-focus detector, comprising:
a mask carrier for supporting a mask thereon;
a wafer carrier for supporting a wafer thereon;
an imaging optical system for projecting the image of the mask onto the wafer;
an optical system for directing to the wafer through said imaging optical system a detection light having a predetermined inclination with respect to the optical axis of said imaging optical system; and
means for observing therethrough the position of the reflected detection light from the wafer;
whereby in-focus condition may be detected depending on whether or not the position of said detection light is a predetermined position.

4,395,118

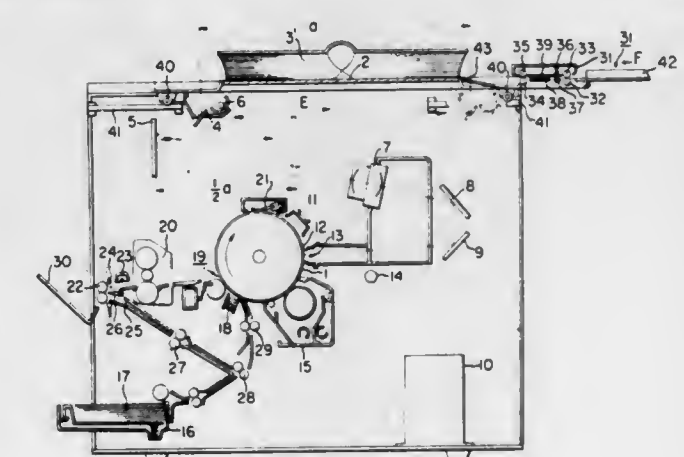
COPYING APPARATUS

Shigehiro Komori, and Masaru Yamaguchi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 46,627, Jun. 8, 1979, abandoned, which is a continuation of Ser. No. 748,396, Dec. 7, 1976, abandoned, which is a continuation of Ser. No. 556,201, Mar. 7, 1975, abandoned. This application Feb. 11, 1982, Ser. No. 347,784
Claims priority, application Japan, Mar. 12, 1974, 49-28361

Int. Cl.³ G03B 27/62

U.S. Cl. 355—75

2 Claims



1. A copying apparatus comprising:

an original holder having a holding surface for supporting a thick original for exposure;
sheet original transport means having at least two pairs of rollers, said apparatus further comprising an exposure station disposed between said pairs of rollers and provided independently from said original holder at a position contiguous thereto, said original holder and said sheet original transport means being integrally connected, wherein a sheet original is scanned while being fed by said transport means past said exposure station toward said thick original holding surface;

movable optical means having a scanning range for scanning an image of a thick original supported on said holding surface, said optical means being movable substantially within the scanning range, wherein said movable optical means scans the thick original while moving toward said sheet original transport means;

mode selecting means for moving said original holder between a first position wherein said exposure station of the sheet original is within said scanning range for the thick original to allow exposure operations for sheet originals substantially within said scanning range, and a second position wherein said exposure station of the sheet original is out of said scanning range;

copy processing means for producing on copy material an image of an original image scanned by said optical means; a frame for integrally supporting said original holder and said sheet original transport means; and

a guiding member for moving said original holder and sheet original transport means together with said frame through a distance substantially corresponding to the distance between said exposure station and a contiguous end of said holder surface, wherein the scanning distance for thick originals corresponds to the length of the holder surface.

4,395,119

METHOD FOR AUTOMATIC, NON-DESTRUCTIVE MEASUREMENT OF ECCENTRICITY OF COATED ELECTRODES

Kazuo Nakata, Fujisawa; Akihiko Iochi, Odawara; Isamu Kaise, Fujisawa; Kazuo Takeuchi, and Katsuhiko Nomura, both of Kamakura, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

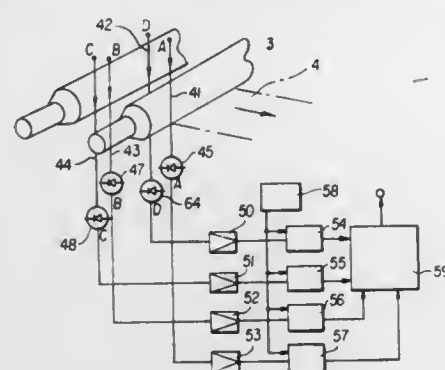
Filed Oct. 30, 1980, Ser. No. 202,240

Claims priority, application Japan, Nov. 8, 1979, 54-144996

Int. Cl.³ G01N 21/88; G01B 11/02

U.S. Cl. 356—73

8 Claims



1. A method for automatic, non-destructive measurement of eccentricity of a core wire located within a coating composition of a coated electrode by the use of optical means, comprising:

moving, in a direction substantially transverse to the axis thereof, at least one coated electrode having an exposed core wire portion;

providing at least two paired optical detecting means each having a light source for projecting a light beam toward a coated electrode on one side of the coated electrode and a signal generator located on the other side of said coated electrode to generate signals according to the intensity of incident light, positioning at least one of said detecting

means to measure the diameter and location of said exposed portion of said core wire and positioning at least one of the remaining detecting means at a point spaced from said one of said detecting means in the axial direction of said wire to measure the diameter and location said coating of said coated electrode; and
processing the signals from said signal generators by an arithmetic means to measure the eccentricity of said coated electrode.

4,395,120

METHOD OF AND APPARATUS FOR MEASURING THE REFRACTIVE POWER OF A CONTACT LENS

Fumio Takahashi, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 954,207, Oct. 24, 1978, abandoned.

This application Feb. 3, 1981, Ser. No. 231,029

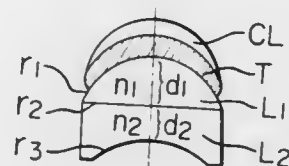
Claims priority, application Japan, Sep. 1, 1977, 52-104191;

Oct. 28, 1977, 52-128628; Oct. 13, 1978, 53-12589

Int. Cl.³ G01B 9/00

U.S. Cl. 356—125

19 Claims



1. A method of measuring the refractive power of a contact lens comprising:

combining a reference lens system of small refractive power the refractive elements of which are known with a contact lens to be inspected;

measuring the back focal distance of the combined optical system of the reference lens system and the contact lens combined together, namely, the distance from the vertex of the last refractive surface of the lens to the focus thereof; and

determining the refractive power of the contact lens from the value of said back focal distance and the known value of said reference lens system.

4,395,121

APPARATUS FOR DETERMINING THE ANGULAR POSITION OF A TARGET ILLUMINATED BY LIGHT PULSES

Pierre Nory, Orsay, and Guy Ripart, Le-Plessis-Robinson, both of France, assignors to Societe Anonyme dite: Compagnie Industrielle des Lasers, Marcoussis, France

Filed Feb. 20, 1981, Ser. No. 236,347

Claims priority, application France, Feb. 20, 1980, 80 03676

Int. Cl.³ G01B 11/26; G01J 1/20

U.S. Cl. 356—152

8 Claims

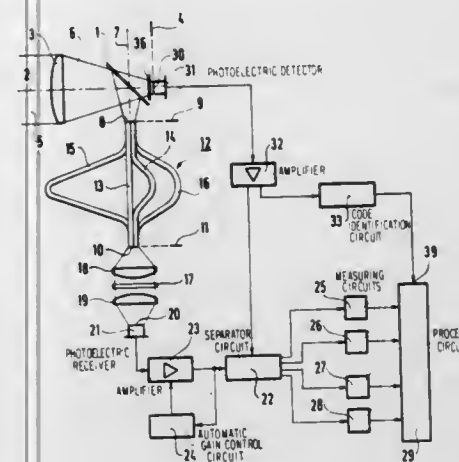
1. Apparatus for determining the angular position of a target which is illuminated by light pulses, said apparatus including: objective lens means for concentrating light from the illuminated target onto a reception surface so as to form a light spot on said surface when the target is illuminated by a light pulse;

a system for receiving said light spot, said system including a photoelectric receiver; and

an electric circuit connected to the output of the photoelectric receiver to generate signals which are representative of the position of the light spot on the reception surface; the improvement wherein the receiving system includes:

a group of n bundles of optical wave guides with the wave guides which form part of the same bundle being all of the same length, and said bundles being of different lengths so as to form a sequence of predetermined lengths, the input surfaces of the wave guides of each bundle being disposed

side by side and facing n respective predetermined portions of the reception surface so that the wave guides of the n bundles transmit light pulses from said spot, the output surfaces of the wave guides being disposed so that the pulses caused by light from said spot act on the same photoelectric receiver in a time sequence which is representative of said sequence of predetermined lengths, whereby the photoelectric receiver delivers, in operation, successive electric pulses whose amplitudes are representative of the illumination of respective portions of the reception surface by the spot, and
wherein said electric circuit includes:



a separator circuit whose input is connected to the output of the photoelectric receiver, said separator circuit including n outputs to deliver respective ones of said successive electric pulses corresponding to each light spot received on the reception surface;
 n measuring circuits respectively connected to the n outputs of the separator circuit to deliver measuring signals which are representative of the amplitudes of respective ones of the successive electric pulses; and
a processing circuit connected to the outputs of the n measuring circuits to transform the measuring signals into signals which are representative of the position of the light spot on the reception surface.

4,395,122

DEFECT DETECTION SYSTEM

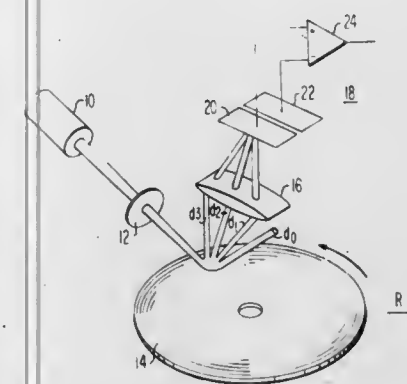
Peter D. Southgate, and Istvan Gorog, both of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Apr. 29, 1981, Ser. No. 258,759

Int. Cl.³ G01N 21/89

U.S. Cl. 356—237

10 Claims



1. A flaw detection system for detecting protuberances on a surface of a disc having a groove formed thereon, said system comprising:

a source of illumination for providing a beam of light;
means for focusing said beam of light to a spot on the surface of said disc;
means for detecting the light beam reflected from said surface, said detecting means having first and second light

sensitive surfaces, said detecting means being positioned such that said first light sensitive surface is illuminated, to the relative exclusion of said second light sensitive surface, by said light beam when said light beam is reflected from a first portion of a protuberance on said disc surface, said second light sensitive surface is illuminated, to the relative exclusion of said first light sensitive surface, by said light beam when said light beam is reflected from a second portion of said protuberance and said first and said second light sensitive surfaces are illuminated substantially equally by said light beam when said light beam is reflected from a portion of said disc surface where protuberances are absent;

the structure of the groove in the region of the spot illuminated by the light beam serving as a diffraction grating for diffracting light reflected from said illuminated spot to form a zero diffraction order cone and higher diffraction order cones of light;

an anamorphic optical system for focusing a plurality of said higher diffraction order cones onto said first and second light sensitive surfaces; and

means, responsive to said detecting means, for indicating the presence of said protuberance.

4,395,123

INTERFEROMETRIC ANGLE MONITOR

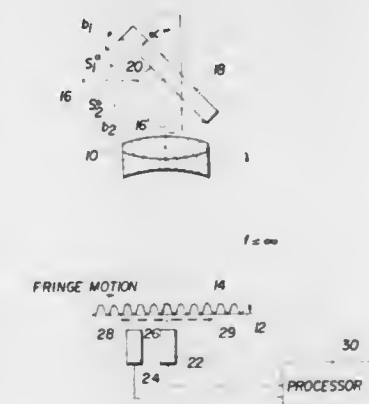
Peter O. Minott, Bowie, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 8, 1980, Ser. No. 195,227

Int. Cl.³ G01B 9/02

U.S. Cl. 356—353

11 Claims



1. Apparatus for measuring the angular displacement of a rotatable object having means for reflecting optical beams, by measuring the linear displacement of a series of optical interference fringes, comprising:

means for providing from sources (S_1 , S_2) separated by a distance (d) coherent radiation in the form of two mutually coherent, generally parallel optical beams (b_1 , b_2) directed toward said reflecting means (20) of said rotatable object;

imaging optical means (10) positioned to receive said two optical beams from said reflecting means (20), for providing a focal plane (12) optically at a distance (Z) from said reflecting means of a relatively larger magnitude in relation to the distance (d) separating said sources whereby an interference fringe pattern (14) is formed at said focal plane (12) which translates linearly thereacross in response to angular movement of said reflective means;

detector means (22) located at a predetermined point along said focal plane and being operable to provide an output signal indicative of translation of said fringe pattern; and means (30) responsive to said output signal for providing a measure of said angular movement of said reflective means.

4,395,124

APPARATUS FOR POSITION ENCODING

Paul W. Remijan, Southbridge, Mass., assignor to Randwal Instrument Co., Inc., Southbridge, Mass.

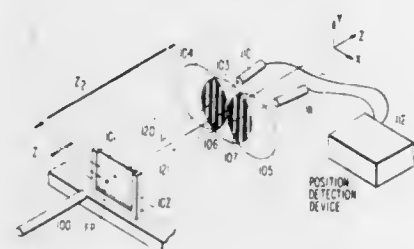
Division of Ser. No. 863,948, Dec. 23, 1977, Pat. No. 4,265,534.

This application Mar. 2, 1981, Ser. No. 239,524

Int. Cl.³ G01B 9/00

U.S. Cl. 356—373

20 Claims



1. Apparatus for indicating the position of a movable element along a motion axis, said apparatus comprising:

- A. interference pattern generating means for generating a first diffraction and a second diffraction that are of different order, that have equal strength and that overlap thereby to produce a first high contrast, low noise interference fringe pattern in a first area of overlap,
- B. first detection means positioned to view the first interference fringe pattern for producing signals dependent upon the first interference fringe pattern, and
- C. motion means for producing relative movement of said generating means and said detection means along the motion axis thereby to move said first interference fringe pattern with respect to said detection means.

4,395,125

CENTERING SYSTEM

Nobutaka Kaneko, Hachioji, and Toshihide Fujiwara, Fuchu, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

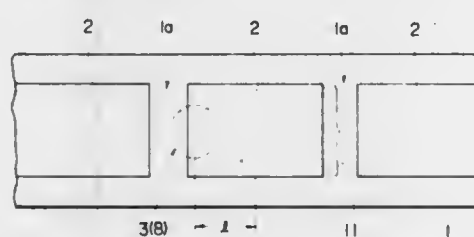
Filed Aug. 5, 1980, Ser. No. 175,415

Claims priority, application Japan, Aug. 16, 1979, 54-103612

Int. Cl.³ G01B 11/00; G01N 21/86

U.S. Cl. 356—400

2 Claims



1. A sample centering system comprising a photometric means for colorimetrically measuring samples applied onto a carrier shifted in a certain definite direction, a sample detecting means arranged at a definite interval apart from said photometric means in the carrier shifting direction, a sample detection signal generating means connected to said sample detecting means and capable of generating a first signal when the output from said sample detecting means varies so as to be coincident with a predetermined threshold level, a shifting timer start signal generator means connected to said sample detection signal generating means and capable of generating a second signal, a sample detection permitting timer means connected to said shifting timer start signal generator means and capable of commencing operation at a predetermined definite time after shifting of said carrier is started and having a first predetermined definite operation time, a sample detection inhibiting timer means connected to said sample detection permitting timer means and capable of inhibiting sample detection during a predetermined definite time after shifting of said carrier is started, a shifting timer connected to said shifting timer start

signal generator means and capable of commencing operation when said second signal is put in and having a second predetermined definite operation time to generate a third signal, a carrier shifting controller connected to said shifting timer and capable of being operated by said third signal, and a carrier shifting mechanism connected to said carrier shifting controller and capable of stopping said carrier with a signal from said carrier shifting controller, said second signal being generated when said first signal is generated if said first signal is generated within said first predetermined definite operation time, or when said first predetermined definite operation time has lapsed if said first signal is not generated within said first predetermined definite operation time.

4,395,126

APPARATUS FOR REFLECTANCE MEASUREMENT OF FLUORESCENT RADIATION AND COMPOSITE USEFUL THEREIN

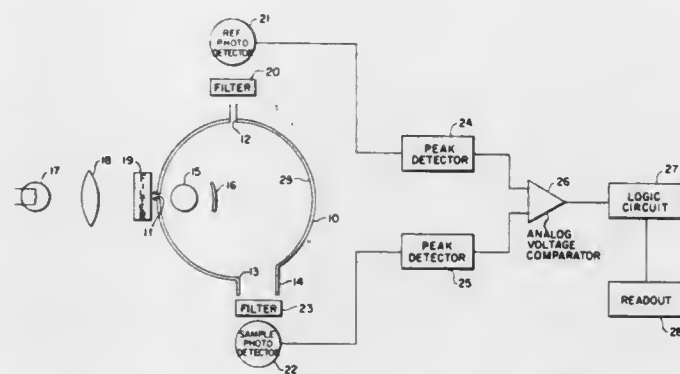
Donald L. Kramer, Indian Harbor Springs, Fla., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Mar. 12, 1981, Ser. No. 242,890

Int. Cl.³ G01N 21/64

U.S. Cl. 356—417

15 Claims



1. Apparatus useful in reflectance measurement of fluorescent radiation emitted by an analyte during transition thereof from an excited state to a ground state, comprising an integrating sphere within which an analyte can be subjected to incident radiation effective to raise such analyte to an excited state, the inner surface of said integrating sphere comprising a composite of two components, at least one of which is in a finely divided state, is dispersed in a vehicle binder which is substantially nonabsorptive of radiation, is transmissive of fluorescent radiation, and is absorptive of incident radiation; and the other component is reflective of both incident and fluorescent radiation.

4,395,127

OPTICAL PAPER DETECTOR

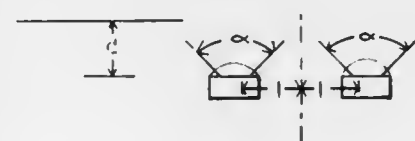
Kenneth R. Duvall, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Treasury, Washington, D.C.

Filed Sep. 11, 1980, Ser. No. 186,364

Int. Cl.³ G01N 21/89; G01B 11/06

U.S. Cl. 356—430

8 Claims



1. In an improved optical paper control assembly wherein a light source and an optical paper detector are adapted to sense the presence of more than a single sheet of paper to be printed wherein said improvement comprises an improved optical paper detector, said improved detector comprising a planar

array of photosensors having individual sensing angle α , substantially equal to 75 degrees, said photosensors being spaced from each other a first distance substantially equal to s and from said paper a second distance d substantially equal to $0.65s$ where d and s are related to α by the following relationship

$$d = s/2 \tan(90^\circ - \alpha/2)$$

where said array is responsive to light transmittance through a continuous area of said paper which is substantially coincident with the physical area of said planar array.

4,395,128

MIXING TOWER FOR CONCRETE OR THE LIKE

Paul Mathis, Merdingen, and Max Zimmer, Efringen-Kirchen, both of Fed. Rep. of Germany, assignors to Mathis System-Technik GmbH, Merdingen, Fed. of Germany

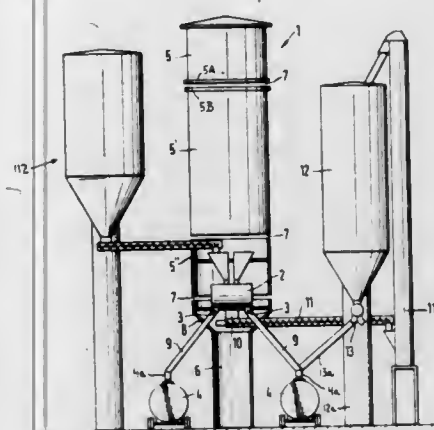
Filed Jul. 15, 1981, Ser. No. 283,384

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1980, 3027069

Int. Cl.³ B28C 7/04, 9/00

U.S. Cl. 366—18

23 Claims



1. A mixing tower for the production of concrete, dry mortar and like materials comprising:

- a plurality of prefabricated, superimposed modules including a lowermost module which constitutes at least the predominant source of support for the remainder of said modules and a mixing module having a mixing device for mixing ingredients to form a flowable product, said lowermost module being in direct contact with a selected module supported by the same, and said lowermost module having a maximum transverse dimension as considered along a predetermined direction which is smaller than the corresponding maximum dimension of said selected module so that the latter projects to at least two sides of said lowermost module, at least one of said modules being provided with outlet means for discharging the product formed in said mixing module to transport means.

4,395,129

FEED SYSTEM FOR ASPHALT RECYCLING DRUM MIXERS

Joseph E. Musil, Ely, Iowa, assignor to Iowa Manufacturing Company of Cedar Rapids, Iowa, Cedar Rapids, Iowa

Filed Feb. 4, 1982, Ser. No. 345,565

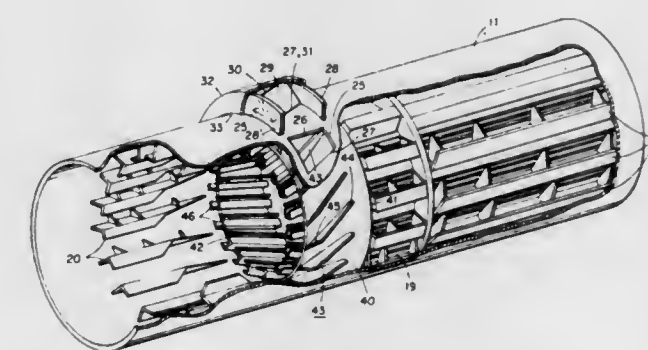
Int. Cl.³ B28C 1/22, 5/20, 5/46

U.S. Cl. 366—25

4 Claims

1. In a drum mixer for recycling old asphalt pavement which has been removed and sized to produce an aged mix, the mixer including a cylindrical outer drum having upstream and downstream ends; means for rotating the outer drum about its axis; burner means at the outer drum upstream end for injecting hot gases axially into the outer drum towards its downstream end; means for introducing virgin aggregate into the outer drum adjacent its upstream end; means for introducing aged mix into the outer drum at a medial location thereon downstream of the virgin aggregate introducing means, the aged mix introducing

means including a plurality of feed ports through the outer drum spaced circumferentially therearound, a conical inner drum within and fixed to the outer drum in axial alignment therewith, the large and small ends of the inner drum constituting upstream and downstream ends thereof corresponding to said ends of the outer drum, the feed ports opening radially onto the exterior of the inner drum adjacent its upstream end and having leading and trailing edges with respect to the direction of drum rotation, a stationary shroud of generally annular configuration surrounding the exterior of the outer drum and the feed ports effective to define an enclosed channel of annular configuration between the shroud and the feed ports, the shroud including a circumferential wall, and a hopper associated with the shroud for introducing aged mix into said channel, aged mix from the hopper entering the shroud circumferential wall tangentially thereof; means in conjunction with rotation of the outer drum for moving virgin aggregate and aged mix in a downstream direction through the interiors of the outer and inner drums including flights arranged about the interiors of the outer and inner drums; and means for introducing fresh asphalt into the interior of the outer drum downstream of the inner drum, the improvement comprising: a pair of annular side walls in said channel and carried upon the outer drum wall, the side walls being respectively disposed upstream and downstream of the feed ports and in close proximity to the interior of the shroud; a plurality of aged mix deflectors dis-



posed in said channel, the deflectors being carried upon and rotating with the outer drum relative to the shroud, the deflectors having leading and trailing faces and ends with respect to the direction of drum rotation, each deflector being secured between the annular side walls and disposed in close proximity to the interior of the shroud and one of the feed ports effective so that aged mix introduced into the shroud from the hopper is immediately directed by the annular side walls and the deflector leading face into the associated feed port and onto the exterior of the inner drum during drum rotation; and a plurality of flights circumferentially spaced about the exterior of the inner drum between the same and the outer drum interior, the flights having upstream and downstream ends corresponding to said ends of the inner drum such that aged mix passing through the feed ports contacts the flights adjacent their upstream ends and is directed therealong and the exterior of the inner drum to the downstream ends of the flights and the inner drum, aged mix thereupon joining virgin aggregate emerging from the interior of the inner drum during drum rotation, the flights extending in skewed relation to the drum axis so that said flight upstream and downstream ends constitute leading and trailing ends of the flights with respect to the direction of drum rotation, the deflectors and the trailing edges of the feed ports also extending in skewed relation in the same direction to the drum axis as are said flights, the trailing ends of the deflectors abutting respective ones of the trailing edges of the feed ports.

4,395,130

INTERCONNECTED PUMPING MECHANISM

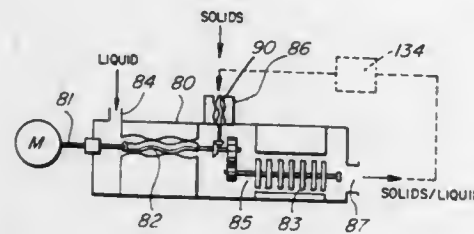
Oleh Kutowy, R.R. #3, North Gower, Ontario, Canada

Filed Apr. 1, 1981, Ser. No. 249,938

Int. Cl.³ B01F 5/12

U.S. Cl. 366—137

20 Claims

**1. A dual pump comprising:**

- (a) a casing;
- (b) a first pumping mechanism within said casing, said first pumping mechanism having an operating shaft within said casing, said operating shaft being operated by a motor, said first pumping mechanism having pumping structure so constructed and arranged as exclusively to provide a high pressure, low volume liquid flow, said first pumping mechanism having axial output;
- (c) a second pumping mechanism within said casing, in direct liquid flow connection with said first pumping mechanism, said second pumping mechanism having an operating shaft within said casing, said operating shaft being operated by the same said motor, said second pumping mechanism having an axial input in direct liquid flow connection to said axial output of said first pumping mechanism; said second pumping mechanism having a first radial port at said direct liquid flow connection between said first pumping mechanism and said second pumping mechanism, and a second port at said opposite end thereof; said second pumping mechanism having pumping structure so constructed and arranged as exclusively to provide a low pressure, high volume aqueous liquid flow; and
- (d) a connection between said first pumping mechanism and said second pumping mechanism, said connection being within said casing and being in the direct axial path of said liquid flow, thereby obviating the need of the shaft seal between the output of said first pumping mechanism and the input of said second pumping mechanism.

4,395,131

APPARATUS FOR AGITATING, CONVEYING AND WEIGHING PARTICULATE MATERIAL

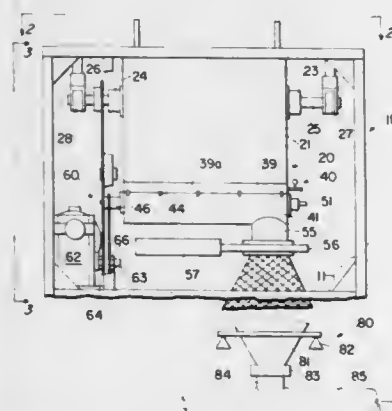
Robert C. Barlow, Seaford, Del., assignor to O. A. Newton & Son Company, Bridgeville, Del.

Filed Sep. 30, 1980, Ser. No. 192,376

Int. Cl.³ B01F 15/02

U.S. Cl. 366—141

5 Claims

**1. In combination,**

- (a) an agitator hopper comprising

- (i) a housing having a feed opening in the upper part thereof,
 - (ii) a rotating agitator in said housing,
 - (iii) a shaft drivingly connected to said agitator, and
 - (iv) a delivery opening in a lower part of said housing,
- (b) a screw conveyor below said agitator hopper comprising
- (i) a housing having an inlet in the upper part thereof in communication with the outlet of said agitator hopper,
 - (ii) a conveyor screw in said housing having a shaft, and
 - (iii) a delivery conduit connected with said screw conveyor housing for receiving material therefrom and having a cut-off valve therein,
- (c) a weighing hopper including
- (i) an inlet connected to the delivery conduit,
 - (ii) material receiving and weighing means, and
 - (iii) discharge means for discharging weighed material therefrom, and
- (d) drive means for said shafts of said agitator hopper and screw conveyor including means for selectively varying the speed thereof,
- whereby the rate of delivery of material of said weighing hopper may be selected to utilize the entire filling period available at the slowest delivery speed and thereby to obtain the least amount of material in flight subsequent to the closure of said valve.

4,395,132

STIRRING GEAR WITH INTERNAL HEATING

Achiel Wyffels, Roeselare, Belgium, assignor to Constructie Werkhuizen Vandekerckhove N.V., Roeselare, Belgium

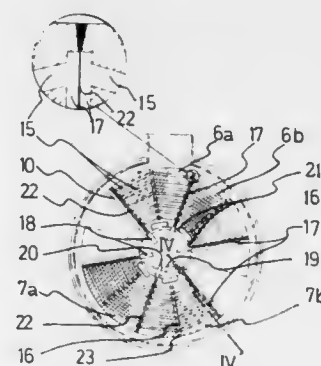
Filed Dec. 29, 1980, Ser. No. 220,920

Claims priority, application Belgium, Dec. 28, 1979, 880930

Int. Cl.³ B01F 15/06

U.S. Cl. 366—147

19 Claims



1. Stirring gear with internal heating comprising a central tubular shaft for the supply of the heat exchange medium and stirring paddles mounted perpendicular to said shaft and provided with hollow inner spaces for the access of the heat exchange medium, wherein a stirring paddle comprises a solid plate with a hollow inner space therein and said space further comprising a system of interconnecting ducts, wherein a number of said ducts extend substantially radially of said shaft and a number of said ducts extend substantially transversely of said shaft, wherein said transversely extending ducts define at least one radial array of ducts, wherein adjacent said radial ducts are interconnected by said radial array.

4,395,133

COOKING APPARATUS HAVING A STIRRING DEVICE

Roy L. R. Clevenholm, Staffanstorpe, and Carl-Olof H. Mellqvist, Helsingborg, both of Sweden, assignors to Landskrona Finans AB, Landskrona, Sweden

Filed Sep. 14, 1981, Ser. No. 301,585

Claims priority, application Sweden, Sep. 25, 1980, 8006705

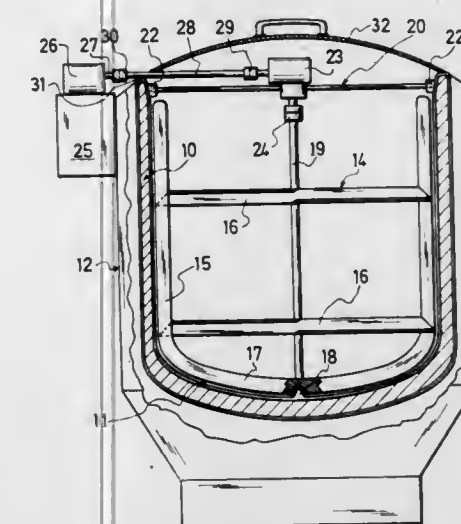
Int. Cl.³ B01F 7/32

U.S. Cl. 366—241

2 Claims

1. A vessel provided with a stirring device for stirring contents charged in the vessel comprising, a bowl shaped con-

tainer open at the top, tiltable support means operatively connected to said container to support said container upright and tilt said container for pouring the contents therefrom, and a stirring device comprising a stirrer having a central shaft extending into said container from the top thereof substantially parallel with respect to the geometric central axis of said container, and agitators attached to said central shaft to stir the contents of the container when said shaft is rotated about its longitudinal axis, a fixed conical stud at the bottom of said container, a substantially conical recess in the bottom of said stirrer operatively and removably engaging said stud so that said stud rotatably supports said stirrer, a truss structure having radial arms, detachable connectors for connecting the radially outer ends of said truss arms adjacent the upper edge of said container, a first angular gearing supported on said truss structure adjacent the upper end of said central shaft, a stud shaft operatively connected to said angular gearing and extending substantially parallel to said central shaft, quick cou-



pling means interconnecting said stud shaft and the upper end of said central shaft, a radially extending stud shaft operatively connected to said angular gearing, a radial drive shaft extending from adjacent the outer end of said radial stud shaft to a position adjacent the outer top edge of said container, a quick connect coupling interconnecting said radial stud shaft and the radially inner end of said radial drive shaft, a drive motor mounted on the outer side of said container adjacent the radially outer end of said radial drive shaft and having an output shaft extending substantially perpendicular to said radial drive shaft, a second angular gearing operatively connected to said output shaft and having a stud shaft extending substantially radially to a position adjacent the radially outer end of said radial drive shaft, and a quick coupling means interconnecting said outer end of said radial drive shaft and the adjacent end of said stud shaft of said second angular gearing, so that said container can be tilted while simultaneously operating said stirrer by said drive motor.

4,395,134

JOYSTICK SWITCH FOR TIMEPIECES

Nunzio A. Luce, 39 Galston Dr., R.D. #4, Trenton, N.J. 08691

Int. Cl.³ G04B 47/00; G04F 8/00, 10/00

U.S. Cl. 368—3

10 Claims

1. An electronic game timepiece having a display device for displaying game elements and electronic circuitry including a printed circuit board having a plurality of conductors thereon connecting electronic-circuit elements on said printed circuit board to drive said display device;

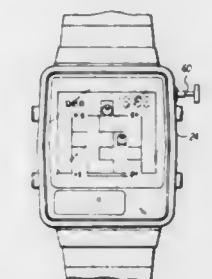
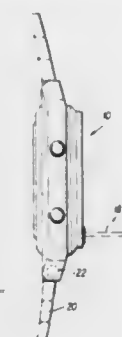
said electronic timepiece including a casing having said display device and said electronic circuitry mounted therein;

a joystick-type switch mounted on said timepiece casing and adapted to be moved into a plurality of contacting positions;

said joystick-type switch having contacting means normally

spaced a distance away from said printed circuit board conductors; and

a plurality of conductors mounted on said printed circuit board in close proximity and corresponding to said contacting means of said joystick-type switch, said plurality



of conductors being connected to said electronic-circuit elements such that movement of said joystick-type switch into each of its contacting positions causes simulated displacement of at least one of said game elements across said display device.

4,395,135

OPTIONAL ALARM AND BATTERY BACKUP SYSTEM FOR A TALKING TIMEPIECE

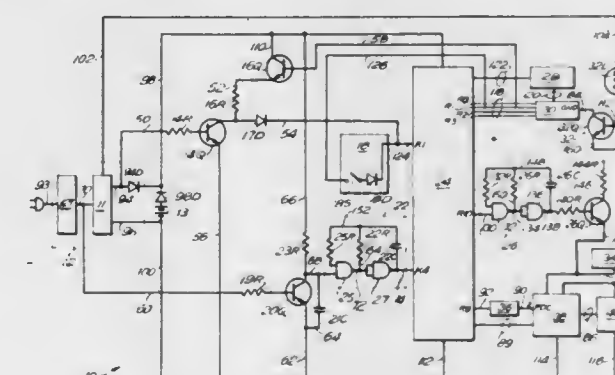
Richard J. Frantz, Cheshire, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed May 6, 1982, Ser. No. 375,412

Int. Cl.³ G04B 21/08

U.S. Cl. 368—63

3 Claims



1. A talking timepiece including a keyboard having a voice/tone switch, a speech processor, and a tone alarm generator, said timepiece having at least two modes of operation including a first mode in which said voice/tone switch is provided for selective manual switching between said speech processor adapted to provide for audible speech sounds in the form of voice messages for announcing time and said tone alarm generator adapted to provide for tone sounds for announcing time and including a power supply failure mode in which said voice/tone switch is bypassed, said speech processor is disabled and tone sounds are automatically produced by said tone alarm generator for announcing time, said timepiece comprising:

- a. a computer electrically coupled to said keyboard, to said tone alarm generator and to said speech processor and responsive to said selective manual switching of said voice/tone switch for controlling both said speech processor to produce said voice messages at selected times and said

tone alarm generator to produce said tone alarm sounds at selected times during said first mode of timepiece operation; and, said computer adapted for automatically controlling said tone alarm generator to produce said tone sounds, independent of said selective manual switching of said voice/tone switch, at predetermined times during said power supply failure mode of timepiece operation,

b. a power supply for providing power to said computer and said speech processor during said first mode of timepiece operation,

c. a battery backup electrically coupled to said power supply for providing power to substantially only said computer during said power supply failure mode of timepiece operation when said power supply fails, and

d. circuit switching means electrically coupled to said power supply and battery and to said computer and responsive to a failure of said power supply for bypassing said voice/tone switch to provide for said computer to automatically control said tone alarm generator independent of said voice/tone switch to produce said tone alarm sounds at predetermined times during said power supply failure mode of timepiece operation.

4,395,136

ELECTRONIC TIMER

Kenichi Yoda, Hirakata; Hideo Togawa, Tsu; Eizou Ogawa, Ise, and Masao Kayahara, Kadoma, all of Japan, assignors to Matsushita Electric Works, Ltd. and Matsushita Electric Industrial Co., Ltd., both of Osaka, Japan

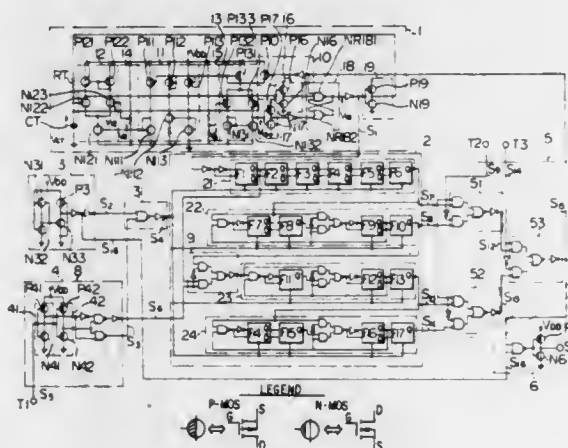
Filed Jan. 8, 1981, Ser. No. 223,326

Claims priority, application Japan, Jan. 17, 1980, 55-3845

Int. Cl.³ G06F 1/04

U.S. Cl. 368—156

8 Claims



1. An electronic timer comprising a CR oscillating circuit, a counting circuit including a plurality of partial counting circuits connected in cascade to one another for counting oscillated outputs of said CR oscillating circuit, an output circuit driving an associated following circuit in response to an output selected out of outputs from one of said partial counting circuits in the final stage of said cascade connection, an automatic resetting circuit for automatically resetting said plurality of partial counting circuits of said counting circuit upon an application of a source current, an external resetting circuit for resetting the partial counting circuits in response to an external signal, a test circuit for dividing said plurality of partial counting circuits into a plurality of groups, and a test signal generating circuit for inspecting the function of each of said divided groups by externally driving said test circuit, said external resetting circuit and said test signal generating circuit being formed of a common circuit comprising first and second inverting circuits receiving a common external signal and respectively having a low inverting threshold value and a high inverting threshold value so that, when said external signal reaches only said low inverting threshold value, a signal driving said test circuit will be provided and, when the external signal reaches said high inverting threshold value, an external

resetting signal resetting said plurality of partial counting circuits of said counting circuit will be provided.

4,395,137

SYNCHRONIZING SYSTEM FOR OSCILLATING MECHANISM

Wallace F. Wiley, 9200 Elmonte, Prairie Village, Kans. 66207

Filed Dec. 21, 1981, Ser. No. 332,601

Int. Cl.³ G04B 17/02, 15/14, 17/12

U.S. Cl. 368—179

13 Claims



1. Apparatus for enhancing the accuracy of a timing system including a mechanism controlled by a powered oscillating member, said apparatus comprising:

an oscillating structure having a greater mass than said member;

a magnetic attracting device including a pair of components, one of the components being carried by the member for movement therewith and the other component being carried by the structure for movement with the latter; and

means mounting the structure for oscillatory movement on a path of travel bringing the components periodically into spaced apart mutually magnetically attracted relationship during oscillation of the structure and the members, whereby energy is transferred between the member and structure through the device during such relationship to govern the rate of oscillation of the member and to continue the oscillation of the structure.

4,395,138

ELECTRONIC TIMEPIECE

Hiroyuki Chihara, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

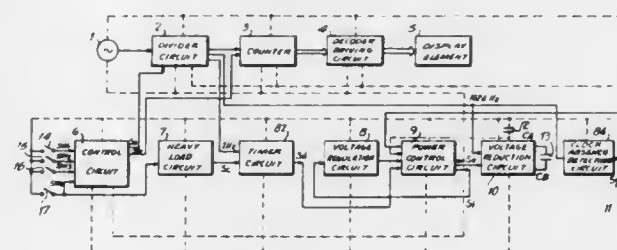
Filed May 22, 1981, Ser. No. 266,674

Claims priority, application Japan, May 22, 1980, 55-68221; May 22, 1980, 55-68222; May 22, 1980, 55-68223

Int. Cl.³ G04B 1/00

U.S. Cl. 368—204

16 Claims



1. In electronic timepiece including a time standard signal generating circuit, divider circuit means receiving said standard signal and outputting timekeeping signals of lower frequency, display means indicating at least timekeeping data, and a source of voltage, and at least one heavy load circuit intermittently operating and drawing a current from said voltage source, said heavy load current being large in comparison with normal operating current for timekeeping, the improvement therein comprising:

a voltage reduction circuit, said reduction circuit providing a voltage output which is a division of said source voltage; a voltage regulation circuit, said regulation circuit providing a constant voltage output;

power control circuit means for selecting one of said voltage reduction and voltage regulation circuits to provide voltage input to said timekeeping circuits, said regulation circuit being selected when said at least one heavy load circuit operates, said reduction circuit being selected when said at least one heavy load circuit is inoperative; and

means for detecting operation of said at least one heavy load circuit.

4,395,139

TEMPERATURE DETECTING DEVICE

Masayuki Namiki; Masaaki Kamiya; Yoshikazu Kojima, and Kojiro Tanaka, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

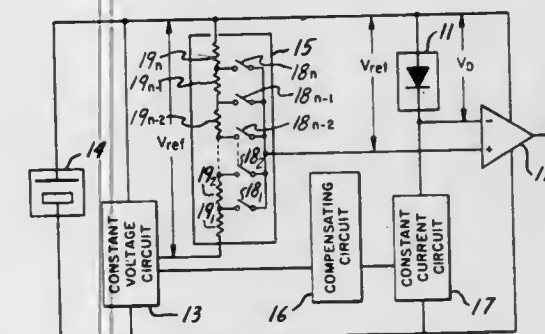
Filed Feb. 20, 1981, Ser. No. 236,492

Claims priority, application Japan, Mar. 14, 1980, 55-32215

Int. Cl.³ G01K 7/00

U.S. Cl. 374—178

10 Claims



1. A temperature detecting device comprising: a constant voltage circuit and a series circuit of a temperature detecting means and a constant current circuit connected to a power source in parallel, a resistance ladder circuit connected between an output terminal of said constant voltage circuit and one terminal of said power source, means connecting an output terminal of said resistance ladder circuit to a first input terminal of a differential amplifier, and means connecting a second input terminal of said differential amplifier to a connection point of said temperature detecting means and the constant current circuit, whereby a temperature signal is produced as an output voltage of said differential amplifier.

4,395,140

BEARING MOUNTING WITH HYDRAULIC FASTENING MEANS FOR CRANES AND THE LIKE

Harvey J. Sable, Hudson, Ohio, assignor to Rotek Incorporated, Aurora, Ohio

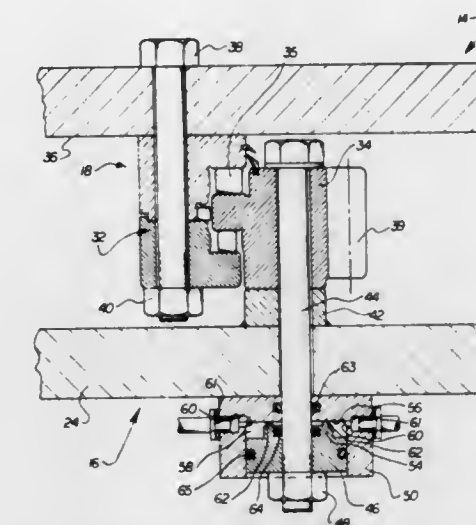
Filed Oct. 2, 1981, Ser. No. 307,780

Int. Cl.³ F16C 27/00

U.S. Cl. 384—99

13 Claims

1. In an apparatus having a multiloading rolling contact bearing for transmitting relatively high loads including moment loads between first and second structures and having a bearing member releasably connected to said second structure and a plurality of spaced elongated clamping elements extending between said bearing member and said second structure, said elements extending through receiving holes in said bearing member and second structure, the improvement comprising piston means for tensioning said elements to apply a clamping force between said bearing member and said second structure, said piston means being received in hydraulic chamber means on one of said second structure and said bearing member for receiving hydraulic pressure fluid to urge said piston means away from said bearing member and said second structure for tensioning said elements during operation of said bearing to transmit loads between said structures, each of said elongated elements having first means at one end thereof for transmitting the force of



4,395,141

BEARING AND SEAL ASSEMBLY FOR STERN TUBES OF VESSELS

Günter Pietsch; Gerhard Walter; Günter Mewes, all of Hamburg, and Gert Schrader, Rosengarten, all of Fed. Rep. of Germany, assignors to Howaldtswerke Deutsche Werft Aktiengesellschaft Hamburg und Kiel, Hamburg, Fed. Rep. of Germany

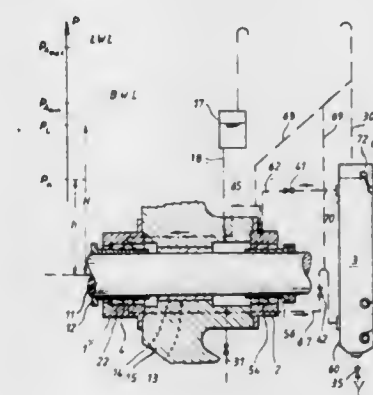
Filed Apr. 5, 1982, Ser. No. 365,586

Claims priority, application Fed. Rep. of Germany, Apr. 13, 1981, 3114494; Sep. 26, 1981, 3138413

Int. Cl.³ F16C 33/74; F16J 15/40

U.S. Cl. 384—147

7 Claims



1. In a bearing and seal assembly for stern tubes of vessels wherein there is a rotatable stern shaft and a bearing surrounding a portion of the stern shaft and wherein there is means for supplying oil under pressure to provide lubrication between said bearing and said portion of the stern shaft, and wherein there is an aft seal assembly surrounding said stern shaft at the outboard end of said bearing, and wherein said aft seal assembly contains two sealing elements spaced apart axially and an annular chamber defined by said sealing elements and means for applying a liquid lubricating the sealing elements into said annular chamber under pressure, the improvement comprising a gravity tank for a lubricant providing lubrication of the bearing, the gravity tank being arranged inside the vessel in a height to induce a head of the oil lower than the possible minimum of the head of the sea-water surrounding the aft seal assembly,

a circulation system for the liquid in the annular chamber,

which comprises a tank for said liquid, the tank being positioned inside the vessel in a height to induce a head of said liquid in said annular chamber lower than the head of the oil in the bearing,
a separating tank for separating and purifying the liquid, a first pipe for said liquid connecting the upper part of the tank with the annular chamber,
a second pipe for said liquid connecting the annular chamber with the separating tank, and
pumping means for circulating said liquid from the tank through said first pipe, circumferentially through said annular chamber and through said second pipe to the separating tank which is connected with the tank inducing the head of the liquid in the circulation system.

4,395,142

SELF-ADJUSTING ANGULAR CONTACT SPHERICAL BEARING

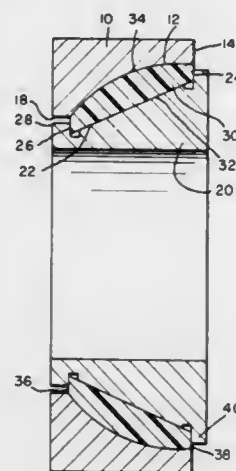
John H. Lobeck, South Bend, Ind., assignor to The Torrington Company, Torrington, Conn.

Filed Mar. 18, 1981, Ser. No. 245,180

Int. Cl.³ F16C 23/04

U.S. Cl. 384—192

2 Claims



1. A spherical bearing comprising: an outer race having a curved, indented inner surface generally tapering inwardly from one axial end of the outer race toward the other end; a one piece support having an annular channel, the bottom surface of the annular channel tapering toward the axis of the support from one side of the annular channel to the other side of the annular channel and in the same direction as the curved, indented inner surface of the outer race; and a single removable annular plastic liner snap fitted within said annular channel, and having an inner surface complementary with the bottom surface of the annular channel and an outer surface complementary with the curved, indented inner surface of the outer race.

4,395,143

ANNULAR, FLEXIBLE BEARINGS FOR RADIAL LOADS

Gordon J. Bakken, Buzzards Bay, Mass.; Alfred R. Randall, Brigham City, Utah, and Richard W. Bodily, Malad, Id., assignors to Thiokol Corporation, Newtown, Pa.

Filed Aug. 21, 1978, Ser. No. 934,754

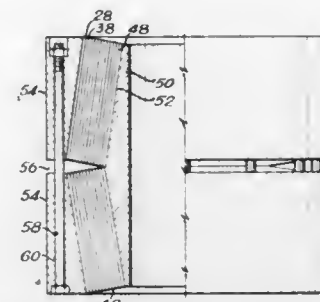
Int. Cl.³ F16C 27/02

U.S. Cl. 384—221

4 Claims

1. An annular, flexible bearing comprising:
a bearing assembly comprising concentric, annular, conic layers of rigid material and similarly shaped layers of elastomer alternately arranged therewith, each said layer being bonded to adjacent layers;
an inner ring having an inner, cylindrical surface and an outer, conic surface bonded to the inner, conic surface of the bearing assembly;
an outer ring having an inner, conic surface bonded to the outer conic surface of the bearing assembly;

an annular plate having an inner diameter slightly larger than that of the inner ring; and
a flexible, annular bearing pad comprising alternate layers of rigid material and elastomer stacked and bonded together,



the bearing pad being bonded on one side to the thicker edge of the inner ring; and
means for compressing said bearing assembly by moving the annular plate toward the outer ring in an axial direction, and moving the inner ring via the annular bearing pad.

4,395,144

APPARATUS FOR PRINTING ALPHANUMERIC INFORMATION ON PHOTOGRAPHIC SLIDE MOUNTS

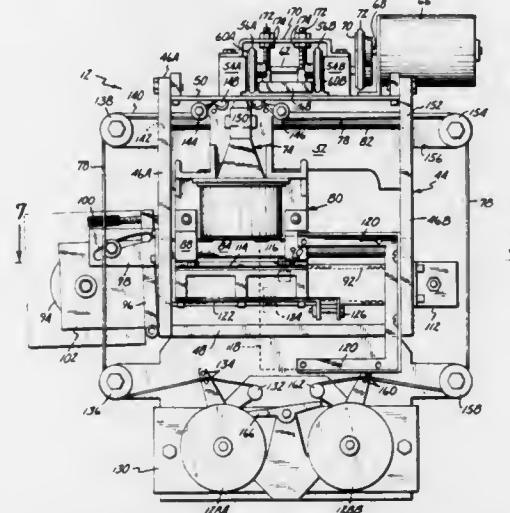
Daniel O. Adams, Blaine, and Gregg S. Beckman, St. Louis Park, both of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Jan. 21, 1982, Ser. No. 341,296

Int. Cl.³ B41J 3/10; B41F 17/00

U.S. Cl. 400—30

16 Claims



1. Apparatus for printing alphanumeric information on photographic slide mounts, the apparatus comprising:

- a generally horizontal slide track along which the photographic slide mounts are advanced, the slide track having an entrance end and an exit end and including a film insertion station proximate the entrance end and a printing station between the film insertion station and the exit end;
- film insertion means for causing a photographic film transparency to be at least partially inserted into the slide mount at the film insertion station;
- mount indexing means for causing the slide mount to be indexed from station-to-station along the slide track;
- a frame positioned generally below the slide track which includes first and second side supports and a top platform having a printing aperture therein at the printing station of the slide track;
- guide means cooperating with the platform for defining the slide track from the film insertion station to the printing station;
- a plurality of horizontal guides supported by the frame and defining a carriage track, the horizontal guides and carriage track both being positioned below the slide track and carriage track being aligned in a plane parallel to a

plane defined by the slide track and running in a generally transverse direction to the slide track;

(g) a carriage movable on the carriage track below the slide track;

(h) a print head carried by the carriage below the slide track for printing alphanumeric characters through the printing aperture of the top platform of the frame onto a bottom surface of a slide mount when the slide mount is positioned at the printing station of the slide track;

(i) carriage drive means for moving the carriage on the carriage track; and

(j) control means for controlling the print head and the carriage drive means to print selected alphanumeric information on the slide mount positioned at the printing station, the control means including:

- means for storing data representative of the alphanumeric information to be printed on the slide mount;
- means for providing a carriage drive control signal to the carriage drive means to move the carriage in a selected direction on the carriage track;
- means for providing signal pulses representative of the incremental motion of the carriage on the carriage track, the means for providing signal pulses including:
 - a linear optical encoder having a first end portion, a second end portion and an intermediate portion, with a plurality of lines spaced at predetermined incremental distances being carried on the intermediate portion of the linear optical encoder;
 - optical sensor means for optically sensing the lines of the linear optical encoder and producing signal pulses as the linear optical encoder moves relative to the optical sensor means as a result of movement of the carriage on the carriage track;
 - aperture plate means having an aperture which defines a window portion of travel of the carriage on the carriage track during which actuation of the print head is permitted; and
 - window sensor means for optically sensing the aperture and producing a signal as relative movement of the aperture occurs as a result of movement of the carriage on the carriage track; and
- means for controlling the print head as a function of the stored data and the signal pulses, the means for controlling the print head initiating operation of the print head after a first predetermined number of signal pulses have been provided and being responsive to the signal from the window sensor means to disable the print head when the carriage is outside of the window portion of travel.

4,395,145

SERIAL PRINTER

Felice Giaccone, Giverno; Raffaele Becchi, and Boris Ukmar, both of Ivrea, all of Italy, assignors to Ing. C. Olivetti, & C., S.p.A., Italy

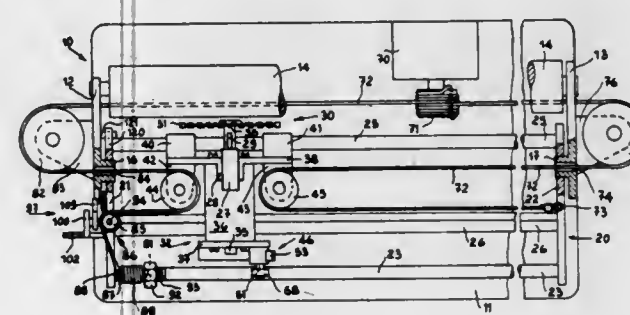
Filed May 28, 1981, Ser. No. 267,911

Claims priority, application Italy, Jun. 5, 1980, 67869 A80

Int. Cl.³ B41J 1/24, 19/20, 11/20

U.S. Cl. 400—59

14 Claims



1. A serial printer comprising a base, a platen mounted on said base, a frame pivoted on said base and including guides parallel to said platen, a carriage slideable on said guides and a

printing device mounted on said carriage, wherein said frame has two lateral pivots which lie adjacent to the lateral ends of said guides on an axis parallel to said platen in such a way that said guides can swing about said axis while remaining constantly parallel to said platen, wherein a motor mounted on said base controls the displacement of said carriage along said guides by means of a flexible connection cable, wherein a coaxial hole is provided in each one of said lateral pivots of said frame and wherein said flexible cable passes through the coaxial hole of said pivots.

4,395,146

METHOD AND APPARATUS FOR OPERATING A THERMAL PRINTER WITH UNIFORM HEAT DISTRIBUTION

Kiyoshi Arai, Higashikurume, Japan, assignor to Sony Corporation, Tokyo, Japan

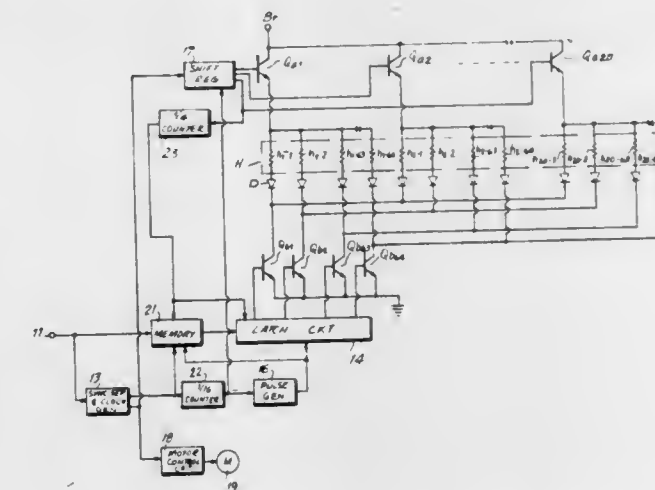
Filed Nov. 2, 1981, Ser. No. 317,064

Claims priority, application Japan, Nov. 6, 1980, 55-156242

Int. Cl.³ B41J 3/04; G01D 15/10; G08B 5/36

U.S. Cl. 400—121

10 Claims



1. Apparatus for controlling a printer of the kind having m blocks of print heads, each block including n print heads (m and n are integers), comprising storage means for storing data representing the selective energization of said print heads; selecting means for selecting a group of nonadjacent data in each block, where the number of data in each said group is less than n; and energizing means responsive to said data for energizing print heads in each block corresponding to said selected group of data, each successive block being energized sequentially, said selecting means including means for selecting a different group of data following each energization of the corresponding print heads in the m-th block.

4,395,147

DAISY WHEEL PRINTER

Gerald Avison, Cambridge, and Philip T. Blenkinsop, Herts, both of England, assignors to Spiralux Limited, Kent, England

Filed Jul. 2, 1981, Ser. No. 279,758

Claims priority, application United Kingdom, Jul. 9, 1980, 8022459

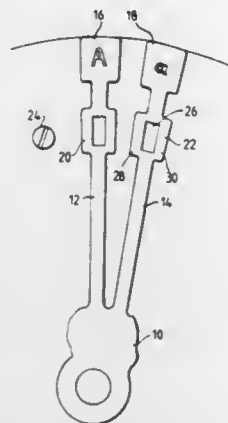
Int. Cl.³ B41J 1/30

U.S. Cl. 400—144.2

6 Claims

1. A printer having a printing head comprising:
a daisy wheel including a plurality of radial stalks, each of said stalks having a zone, the radial position of said zones being identical for all of said stalks;
at least one slit-like aperture at said zone of each said stalk, said at least one aperture being positioned so as to divide said stalk into at least two branches of equal circumferential width, said stalks and apertures being sized and configured such that equal circumferential widths are provided

for said apertures and the spacing between branches of adjacent ones of said stalks;
means for rotating said daisy wheel; and
non-contacting sensor means constructed and adapted for providing a signal in response to a sensed transition of an



edge of one of said branches as said daisy wheel is rotated, whereby a train of said signals is generated at regular intervals during rotation of said wheel, the frequency of said signals being a multiple of the number of said stalks passing said sensor means.

4,395,148

POSITIONING OF A MULTICOLOR RIBBON

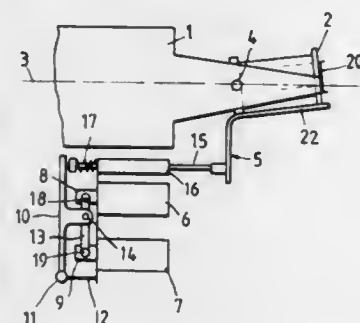
Manfred Grüner, Ulm, and Wolfgang Hendrischk, Neu-Ulm, both of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany
Filed Apr. 13, 1981, Ser. No. 253,874

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1980, 3014820

Int. Cl.³ B41J 35/14

U.S. Cl. 400—212

5 Claims



1. In a printer having a movable carriage with a print head mounted thereon, an arrangement for obtaining different color printings, there being an ink ribbon having a plurality of ink tracks, comprising:

a ribbon guide displaceably mounted on the head for holding the ribbon in front of the head in a plurality of different positions so that different ink tracks face the head;
at least two electromagnets, respectively having plungers, and each one providing either a fully retracted or a fully protracted plunger position;

first lever means, including a one-arm lever pivoted at one end about a point fixed relative to the carriage, and being coupled to the plungers, to establish four different displacement positions of the free end of the one-arm lever, the positions depending upon the combination of states of energization and de-energization of the magnets, there being four such combination states accordingly; and

second lever means connected to the one arm lever at a point between a pivot point of the one-arm lever and the free end thereof for translating the four displacement positions thereof into four different guide positions for establishing

respectively said plurality of different positions of the ribbon guide.

4,395,149

RIBBON DRIVE MECHANISM

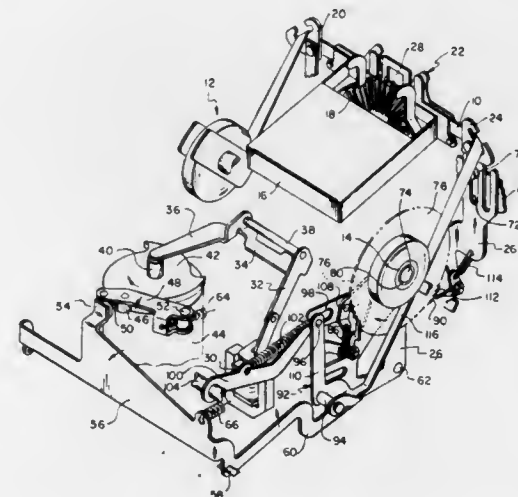
Scott J. Longrod, Woodbury, Conn., assignor to SCM Corporation, New York, N.Y.

Filed Sep. 11, 1981, Ser. No. 301,342

Int. Cl.³ B41J 33/18, 35/10

U.S. Cl. 400—215

3 Claims



1. A system for feeding a ribbon in typewriters and similar machines having a frame and a print point comprising:

a supply spool fixed with respect to the frame carrying a supply of ribbon;

a ribbon guide fixed with respect to the frame for guiding the ribbon from the supply spool towards the print point;

a bracket vertically moveable relative to the frame;

a take-up spool mounted on the bracket for vertical movement therewith and for receiving the ribbon from the supply spool;

a ribbon guide mounted on the bracket for vertical movement therewith for guiding the ribbon from the fixed ribbon guide toward the take-up spool;

means for raising the bracket for raising the ribbon to the print point;

means for incrementally winding the ribbon on the take-up spool for feeding the ribbon relative to the print point including:

a metering disc (78) mounted on the bracket (26) for vertical movement therewith for rotating the take-up spool (14),

a feed pawl (82) mounted for movement with the bracket and engaging the metering disc,

a shaft (104) mounted on the frame,

a lifting arm (100) pivotally mounted directly on the shaft, a first pin (108) for coupling the feed pawl to the lifting arm and located a predetermined distance from the shaft, and

a second pin (96) for coupling the bracket to the lifting arm for moving the lifting arm in response to the vertical movement of the bracket, the second pin located a distance from the shaft less than the predetermined distance of the first pin from the shaft causing the lifting arm to move the first pin a greater amount than the movement of the second pin for moving the feed pawl relative to the bracket to advance the metering disc for feeding the ribbon relative to the print point.

4,395,150

TYPEWRITER DECIMAL TAB MECHANISM

Jorge Costa, Yverdon, Switzerland, assignor to Hermes Precisa International S.A., Yverdon, Switzerland

PCT No. PCT/CH79/00024, § 371 Date Oct. 14, 1979, § 102(e)

Date Aug. 28, 1979, PCT Pub. No. WO79/00621, PCT Pub.

Date Sep. 6, 1979

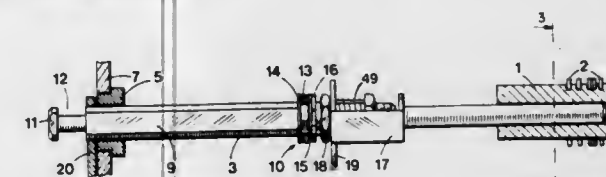
PCT Filed Feb. 13, 1979, Ser. No. 166,972

Claims priority, application Switzerland, Feb. 14, 1978, 1607/78

Int. Cl.³ B41J 21/14

U.S. Cl. 400—285

7 Claims



1. Decimal tab mechanism for a typewriter of the type having a printing element carried on a carriage moving parallel to a platen, said mechanism comprising a tab bar capable of being displaced longitudinally and comprising a series of tab blades which may be separately selected, activation means for activating the tab blades selected to place said selected tab blades in active position for cooperation with a carriage stop, an assembly of decimal tab stops each controlled by a key on a keyboard so as to be activated and made to cooperate with a tab bar stop, and a drive shaft connected by temporary coupling means to a continuously rotating machine function shaft, characterized in that the decimal tab mechanism comprises an apparatus for displacing the tab bar longitudinally ahead in the direction of typing, said apparatus being activated by the drive shaft by spring means, a first lever rotating around a stationary axis and disposed orthogonally to the rotation axis of the drive shaft, a control lever having a cam driving the means for activating the selected tab blade, said control lever and cam being integral with the drive shaft and acting on said activation means before the longitudinal displacement of the tab bar, a first angle plate swivelling around said stationary axis and having a nose which rests against the control lever, said spring means including a first spring urging said nose against said control lever, a second spring connecting said first angle plate to said first lever so that a rotation of the control lever is transmitted elastically to a rotation of the first lever cooperating with the tab bar, said first lever comprising clips which engage in an arm of an axle coaxial to the tab bar in such a way that a rotation of the first lever effects a sliding of said tab bar, and connection means between the drive shaft and the decimal tab stops, said connection means including devices for moving a selected decimal tab stop into active position only after longitudinal displacement of the tab bar.

4,395,151

PRINT HEAD DRIVE BELT TENSIONING MEANS AND METHOD FOR LINE PRINTER

Horst M. Krenz, St. Joseph, Mich., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Nov. 2, 1981, Ser. No. 317,663

Int. Cl.³ B41J 19/14

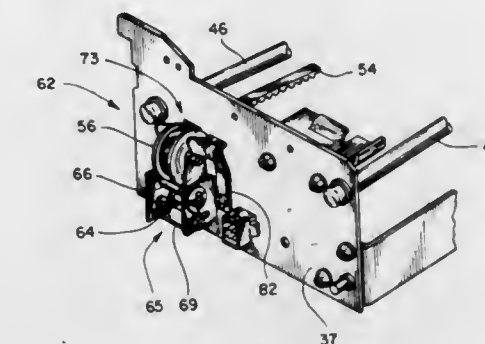
U.S. Cl. 400—320

2 Claims

1. For use in a line printer having a print head for traversing between a first side frame and a second side frame of said printer, said print head being driven in its traverse by a flexible synchronous belt close-looped around a synchronous idler pulley rotatably mounted on an axle external to said first side frame and a motor-driven synchronous pulley external to said second side frame, improved means for providing and maintaining a predetermined tension on said belt comprising:

U-shaped bracket means for supporting said idler pulley, said bracket means including pivot means adjacent to the closed end of said U-shaped bracket means for pivotally

coupling said bracket means to said first side frame, said bracket means including inwardly and downwardly sloping slot means in each leg of said bracket means and adjacent to the open end of said U-shaped bracket means for retentively receiving said axle of said idler pulley; clamping means consisting of screw means for selectively freeing or fixing the pivot action of said bracket means; spring means for exerting belt-tightening pressure against said U-shaped bracket means when said bracket means is



free to pivot for providing a predetermined pressure on said belt;

such that when said clamping means is set to free the pivot action of said U-shaped bracket means, said idler pulley support means and said pulley pivot in response to said belt-tightening pressure of said spring means, and when said pivot means is thereafter fixed by said clamping means, said predetermined tension on said belt is maintained without an undesired continual pressure on said belt by said spring means.

4,395,152

DRIVE-FOR FRICTION ROLLS IN PRINTERS

Wolfgang Hendrischk, Neu-Ulm, Fed. Rep. of Germany, assignor to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

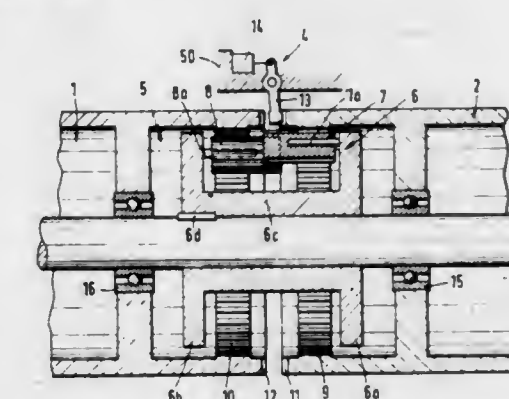
Filed Apr. 13, 1981, Ser. No. 253,408

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1980, 3014609

Int. Cl.³ B41J 11/50, 19/78

U.S. Cl. 400—569

8 Claims



1. Friction drive in printers, including a common shaft and first and second juxtaposed friction rolls, journaled on that shaft, the improvement comprising:

a differential having a cage and two meshing planet gears journaled on the cage for revolving about the shaft, the planet gears being in engagement with each other; first and second gears disposed respectively inside the first and second rolls and respectively meshing the planet gears for driving engagement; and

holding means for selectively holding the first roll or the second roll so that the respective other one is driven via the respective planet gear as engaging respectively the first or

the second gear pertaining to the roll not being held by the holding means.

4,395,153
FILE

Huibertus Schimmel, Alphen aan den Rijn, Netherlands, assignor to Samson Efficiency B.V., Alphen aan den Rijn, Netherlands

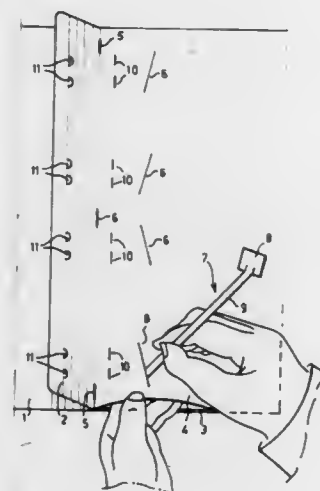
Filed Sep. 28, 1981, Ser. No. 306,630

Claims priority, application Netherlands, Aug. 14, 1981, 8103821

Int. Cl.³ B42F 13/06

U.S. Cl. 402—15

13 Claims



1. A file, comprising a cover and at least two securing members, each securing member being formed of an oblong, narrow lacing portion pointed at one end and connected at its other end to a foot portion which is short and wide with respect to the facing portion; said cover being connected to a support sheet wherein at least two inserting openings, which are wide with respect to the foot, and pertaining to each inserting opening, at least one protruding opening and one securing opening are provided, said protruding openings and said securing openings being narrower than the foot of the securing member so that the securing member is insertable and lacable with its point through the inserting opening and subsequently through the protruding opening, resulting in that the foot will be hooked on the support sheet at the protruding opening whereas, after possibly lacing the lacing portion through sheet material to be filed in the file, the point of the lacing portion is insertable through the securing opening; the distance between the inserting opening and the pertaining protruding opening being larger than the length of the foot portion, measured along the longitudinal axis of a securing member.

4,395,154

GEODESIC DOME CONNECTOR

Martha E. Phillips, 3906 Ridgemoor Rd., Baltimore, Md. 21206, and Roger A. Dudik, 21619 Gunpowder Rd., Lineboro, Md. 21088

Filed Oct. 1, 1981, Ser. No. 307,530

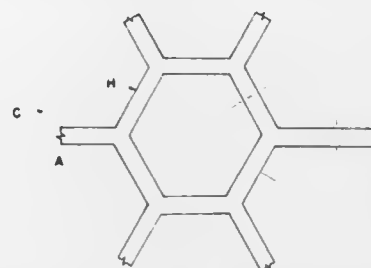
Int. Cl.³ F16B 7/00

U.S. Cl. 403—172

2 Claims

1. In a connector for geodesic dome struts, having a tubular hub wall of axially aligned facets forming interior corners of the hub wall, with a plurality of arms radiating lengthwise from respective of the facets in peripheral angular spacing and in elevational-angle relation to respective of said facets, the improvement comprising: said arms being perpendicular to respective of said facets in plan view, and a system for assembly to comprise a said connector with selected said peripheral angular-spacing between said arms, at least a majority of said arms being paired in plane-parallel relation, said system for assembly including means for bracing the hub-wall against forces applied in any direction along said struts, said hub wall

and means for bracing being separate and requiring assembly, means rendering said hub wall flexible for assembly, and said hub wall flexibly guidable on said means for bracing during assembly, including: said bracing means being in the form of a gusset for assembly to said hub wall, a plurality of peripheral edges on said gusset in pre-selected adjacent relation for correspondence with respective adjacent facets of said hub wall, the means rendering the hub wall flexible for assembly to the gusset comprising said hub wall being in two separate peripherally extending pieces prior to assembly, said two separate



peripherally extending pieces being substantially equal in peripheral extension, said means rendering the hub wall flexible for assembly further including said peripheral extension leaving peripheral gaps between said two separate peripherally extending pieces on assembly, said peripheral gaps proportioned for receiving material for joining said at least two separate peripherally extending pieces on assembly, and means for better conforming the gusset to the hub wall on assembly, comprising said adjacent edges on the gusset being straight and with the corners cut off leaving respective spacings at the interior corners of the hub wall.

4,395,155

REFLECTIVE HIGHWAY MARKER

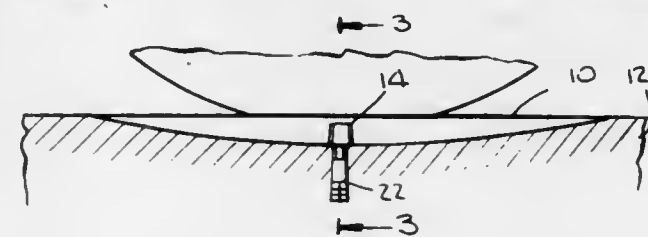
Frank Bartolotti, Camby Rd., Millbrook, N.Y. 12545, and Douglas Dockstader, 48 High Meadows Pk., Dover Plains, N.Y. 12522

Filed Aug. 18, 1980, Ser. No. 178,990

Int. Cl.³ E01F 9/04

U.S. Cl. 404—9

5 Claims



1. A method of providing a reflective marker in a highway, comprising the steps of:

- (a) forming in a highway pavement an elongated groove oriented with its longitudinal axis extending substantially longitudinally of the highway, and
- (b) affixing the said groove a reflective highway marker whose height does not exceed the depth of the groove at the place of affixation,
- (c) said reflective highway marker having a reflective surface which is oriented to face oncoming vehicles,
- (d) the length and depth of the groove forward of said reflective highway marker being sufficient to expose said reflective surface to drivers of oncoming vehicles when their approach distance from the reflective highway marker is adequate for highway guidance purposes,
- (e) the groove which is formed in the highway pavement being narrower than the width of vehicle tires to prevent destructive contact between the vehicle tires and the reflective highway marker,
- (f) said elongated groove being tapered in depth forward of

the reflective highway marker from substantially zero depth where the groove terminates at the pavement of the highway to a depth substantially corresponding to the height of the reflective highway marker at the place of affixation thereof,

- (g) the length of the elongated groove formed in the highway pavement ranging from approximately 1 foot to approximately 3 feet,
- (h) the length of the elongated groove forward of the reflective surface ranging from approximately 1 foot to approximately 1 foot, 6 inches,
- (i) the depth of the elongated groove at the place of affixation of the reflective highway marker approximating 1 inch,
- (j) the width of the elongated groove ranging from approximately 1.5" to approximately 3.5", and
- (k) the reflective surface on the reflective highway marker is inclined rearwardly from its lower to its upper edge at an angle ranging from approximately 1 degree to approximately 5 degrees from the vertical.

4,395,156

SURFACE MATERIAL SPREADING

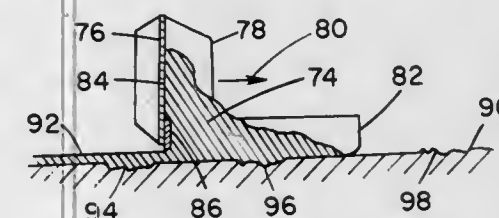
Henry W. Sprague, III, 21 Geneva Walk, Long Beach, Calif. 90803

Filed Aug. 8, 1980, Ser. No. 176,286

Int. Cl.³ E01L 19/18

U.S. Cl. 404—110

16 Claims



12. A particulate material spreader rake for use with a vehicle already fitted with an attachment lifter capable of pulling it and a pile of particulate material when the spreader rake is disposed at the rear of said vehicle and is mounted on said lifter, said spreader rake comprising:

- a bucket formed by a transverse back plate and side plates; means for attaching said bucket to an attachment lifter such that the back plate is held in a substantially vertical plane transverse to the direction in which it is to be pulled; and height selection means for holding said transverse plate at a selected height above a roadway independently of the action of said lifting means but held down by side arm hydraulic force;
- said attachment means comprising a pair of arms, extending substantially in parallel one to the other, each fixed at a first end thereof to a respectively associated one of said end plates;
- a pair of bucket extensions carried one on each end of said bucket and extending parallel with said arms respectively, and downwardly therefrom, and forward from said end plates;
- means for adjusting the height of the lower edge of each of said bucket extensions above the roadway relative to the position of said transverse plate above said roadway; and said end plates lying in parallel planes perpendicular to the plane of said transverse plate, said arms being fixed to respectively associated ones of said end plates at the outer opposite said transverse plate;
- said means for adjusting height comprising two independently acting structures each fixed to a respectively associated one of said arms adjacent to, and at the side of the arm opposite from, the end plate associated with said one arm whereby said arms lie outside the width of the bucket

and the height adjusting structures lie outside the width of the arms.

4,395,157

SAFETY OFF-SHORE DRILLING AND PUMPING PLATFORM

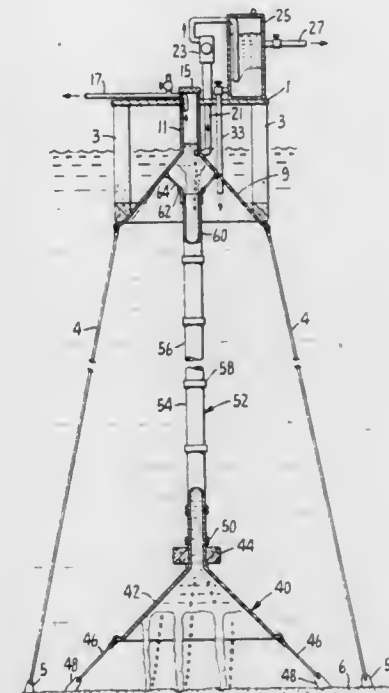
Byron H. Cunningham, 1661 Los Piedras Ct., Los Gatos, Calif. 95030

Filed Jul. 9, 1981, Ser. No. 281,575

Int. Cl.³ E02B 17/00; E02D 23/00

U.S. Cl. 405—60

4 Claims



1. A safety off-shore drilling, pumping and storage platform comprising in combination:

- a surface floating platform comprising a catchment basin in the form of a first inverted funnel having flotation means thereon and flexible means for anchoring said platform to the ocean floor,
- a second catchment basin being in the form of an inverted submerged funnel, said basin having flotation means thereon and flexible anchoring means for attaching said funnel to the ocean floor, and
- a flexible lightweight tube connecting said lower funnel to said upper funnel.

4,395,158

METHOD AND APPARATUS FOR ENTRENCHING AN ENLONGATED UNDER-WATER STRUCTURE

Jerry A. Brooks, Rte. 2, Box 204, Silver Creek, Miss. 39663

Filed Jan. 22, 1981, Ser. No. 227,219

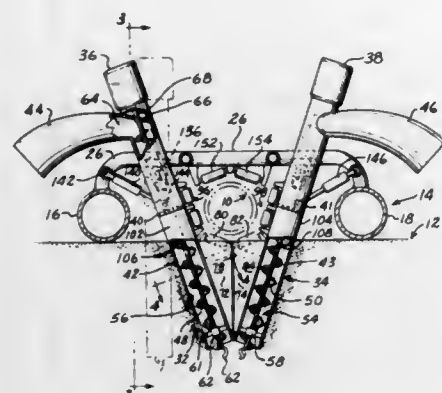
Int. Cl.³ E02F 5/08

U.S. Cl. 405—161

14 Claims

1. Apparatus for entrenching an elongate submarine structure such as a pipe or cable comprising a vehicle having a front and a rear and adapted to be moved along the floor of a body of water; a first auger assembly mounted at a location offset toward one side of the vehicle; a second auger assembly mounted at a location offset toward the other side of the vehicle; means mounting said assemblies on said vehicle for movement to a first position in which the augers are spaced apart to receive therebetween the pipeline to be entrenched, and to a second position in which the augers are inclined inwardly and lower end portions of the auger assemblies are adjacent to each other beneath the elongate structure; motor means on said vehicle for moving said augers to said first and second positions;

each auger assembly comprising an auger having an upper portion and a lower portion; motor means for rotating the auger; a casing partially surrounding said lower portion to leave a front face of the auger exposed for cutting, said casing



cooperating with said auger to convey bottom material toward the upper portion of the auger; and casing means substantially enclosing said upper portion and cooperating with said upper portion for conveying the material away from the trench thus formed by the augers.

4,395,159

MECHANICAL PROTECTION COATING FOR COATED METAL SUBSTRATE

Ergo Karuks, Don Mills, and Martin Rohn, Willowdale, both of Canada, assignors to FRC Composites Limited, Don Mills, Canada

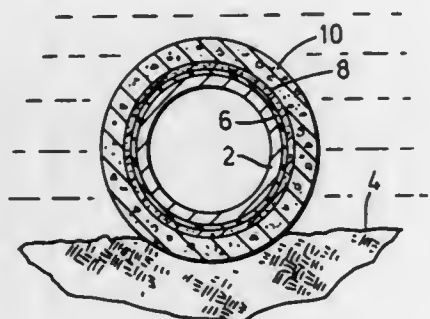
Filed Feb. 18, 1981, Ser. No. 235,719

Claims priority, application Canada, Jun. 6, 1980, 353491

Int. Cl.³ F16L 1/04

U.S. Cl. 405-172

16 Claims



1. In combination with an elongated metal pipe having a thin smooth corrosion protective coating thereon, said corrosion protective coating being one of an epoxy coating, a polyethylene coating, a polyurethane coating and a coal tar coating, a thin cementitious coating adhered to said corrosion protective coating to provide protection for said corrosion protective coating, said cementitious coating being capable of flexing with said pipe and comprising: a cementitious material, a fine filler material of quantity in the range of 0 to 3.5 parts by weight per part of said cementitious material, a polymeric material of quantity in the range 0.05 to 0.55 parts by weight of polymer solids per part of said cementitious material, chopped fibres or flakes of quantity in the range 0 to 0.20 parts by weight per part of said cementitious material, the thickness of said cementitious coating being between 0.5 to 5.0 millimeters, said coating adhering to said corrosion protective coating, said cementitious coating having substantial electrical conductivity when saturated with water, to enable cathodic protection of said pipe by an electric current conducted through said cementitious coating.

4,395,160

TENSIONING SYSTEM FOR MARINE RISERS AND GUIDELINES

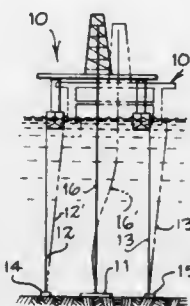
Sijtze deJong, San Jose, Calif., assignor to Lockheed Corporation, Burbank, Calif.

Filed Dec. 16, 1980, Ser. No. 216,800

Int. Cl.³ E02B 17/00

U.S. Cl. 405-195

46 Claims



1. A method of maintaining substantially constant tension on an elongate structure, said elongate structure being secured to a stationary underwater object and extending upward to a buoyant object, said method comprising the steps of:

- (a) positioning a weighted structure in proximity to said elongate structure;
- (b) positioning first rack means to interact with said elongate structure so that said elongate structure restrains upward motion of said first rack means;
- (c) securing second rack means to said weighted structure, said second rack means facing said first rack means;
- (d) securing pinion means to said buoyant object, said pinion means extending between said first and second rack means and having teeth that mesh with corresponding teeth on said first and second rack means, gravity acting downward on said weighted structure thereby causing said second rack means to exert a torque on said pinion means that causes said pinion means to impart an upward force to said first rack means, said pinion means undergoing rotational motion as said buoyant object changes position relative to said underwater object, said rotational motion of said pinion means causing said pinion means to travel vertically along said first rack means and to produce concomitant vertical motion of said weighted structure relative to said elongate structure, said upward force imparted to said first rack means remaining substantially constant as said pinion means travels along said first rack means, thereby causing a substantially constant upward tension to be transmitted to said elongate structure.

4,395,161

TRANSITION PLATE FOR A MINE ROOF TRUSS

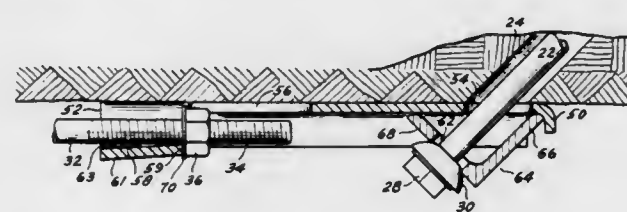
Edwin B. Wilson, Quakertown; C. Frederick Eben, Laureldale; Charles L. Meyer, Bethlehem, and Charles W. Schaeffer, Lebanon, all of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Nov. 19, 1981, Ser. No. 323,151

Int. Cl.³ E21D 20/00

U.S. Cl. 405-259

7 Claims



1. A transition plate for connecting the inclined and horizontal chords of a mine roof truss comprising a generally flat body having a longitudinal axis extending between the body ends, one face of said flat body defining a generally planar plate

bearing surface adapted to be closely received against a mine roof, a first opening in said flat body adjacent one end of the flat body positioned on said longitudinal axis and adapted to receive a mine roof bolt, and an elongated saddle portion extending outwardly from said one face along said longitudinal axis adjacent said other end adapted to receive a tie member.

4,395,162

CARTRIDGE FOR USE IN ANCHOR BOLTING

John M. Murphy, Mansfield; Robert H. Spensley, Swanwick, and John Ellis, Sutton in Ashfield, all of England, assignors to Societe Anonyme d'Explosifs et de Produits Chimiques, Paris, France

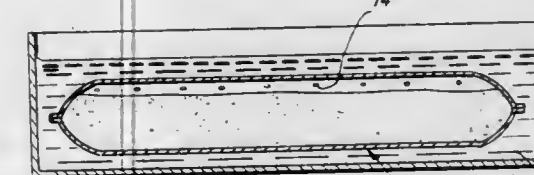
Filed Jun. 25, 1981, Ser. No. 277,343

Claims priority, application United Kingdom, Jul. 23, 1980, 8024033.

Int. Cl.³ E21D 20/02; B65D 25/08

U.S. Cl. 405-261

6 Claims



1. An anchoring cartridge for use in anchoring a reinforcing or fixing element in a borehole in a substrate, said cartridge comprising:

- a frangible flexible, sealed casing formed from an inert, liquid-impermeable material; and
- a particulate liquid-settable solid component in said casing, said cartridge being at least partially evacuated so as to cause the casing to be in contact with the solid component over substantially its whole outer surface within the casing, said casing material being perforable to permit ingress of liquid therethrough upon perforation thereof and upon immersion in a body of the component-setting liquid.

4,395,163

MINING APPLIANCE

Raymond J. Perraud, Villeurbanne, France, assignor to Societe d'Etude et de Construction de Machines pour Toutes Industries S.E.C.O.M.A. S.A., Meyzieu, France

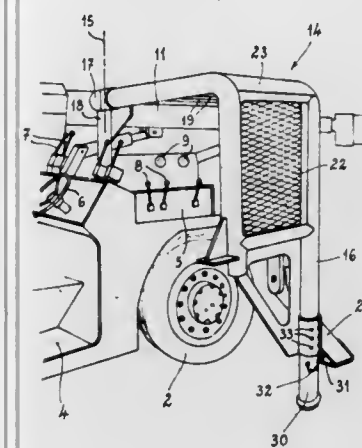
Filed Oct. 22, 1980, Ser. No. 199,683

Claims priority, application France, Oct. 26, 1979, 79 27267

Int. Cl.³ E21C 11/02

U.S. Cl. 405-303

4 Claims



1. In a traveling mining machine with an internal driving station for controlling the movement of the machine, an operating station located on a side of said machine, and a tool controlled by the operating station, the improvement which comprises:

- a cab including a substantially horizontal canopy formed with openings enabling an operator to observe an area

above said canopy, a substantially vertical shield extending downwardly along one edge of said canopy, and a seat on said vertical shield; and

means defining a vertical pivot axis for said cab at a corner of said canopy remote from said shield whereby said cab is integrally swingable from an internal position wherein said canopy forms the sole roof for said driving station to an external position wherein said shield covers and protects said operating station and extends downwardly behind an operator working said tool from said operating station.

4,395,164

PNEUMATIC TUBE INSTALLATION FOR POSTING SAMPLES OF MATERIAL

Herbert Beltrop, Hamm; Josef Teutenberg, Beckum, and Manfred Hilbig, Neubeckum, all of Fed. Rep. of Germany, assignors to Krupp Polysius AG, Fed. Rep. of Germany

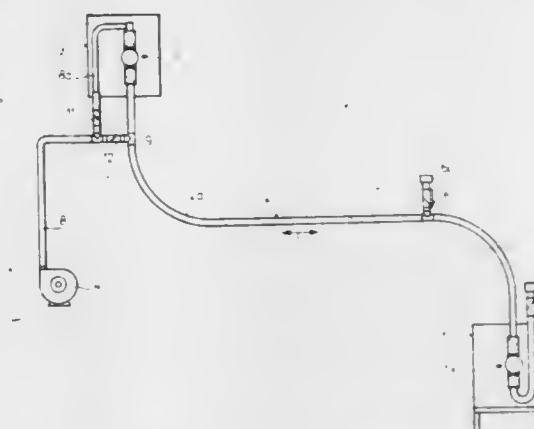
Continuation of Ser. No. 133,982, Mar. 26, 1980, abandoned, which is a continuation-in-part of Ser. No. 907,009, May 18, 1978, abandoned. This application May 28, 1981, Ser. No. 267,800

Claims priority, application Fed. Rep. of Germany, May 20, 1977, 2722865

Int. Cl.³ B65G 51/26

U.S. Cl. 406-74

6 Claims



1. In an installation for automatically posting a sample carrier between at least one dispatch station and a receiving station, said installation comprising pneumatic tube means communicating at one end with one end of one of said stations and at its opposite end with one end of the other of said stations and through which tube means said carrier may travel between said dispatch station and said receiving station, and air blower means coupled to said tube means and operable to effect movement of said carrier through said tube means, the improvement comprising carrier support means at least at one of said stations and having an opening therein for the accommodation of said carrier; means mounting said support means for movements between a plurality of positions at said one of said stations; driving means for moving said support means between said positions in one of which said opening is aligned with said tube means; sealing means for effecting a seal between said tube means and said support means when the latter is in said one of said positions; means for adjusting said sealing means to break said seal prior to movement of said support means from said one of said positions to another; clamp means carried by said support means; and means for moving said clamp means into engagement with said one of said carriers prior to movement of said support means from said one of said positions.

4,395,165

CHIP SHUTTLE TRACK

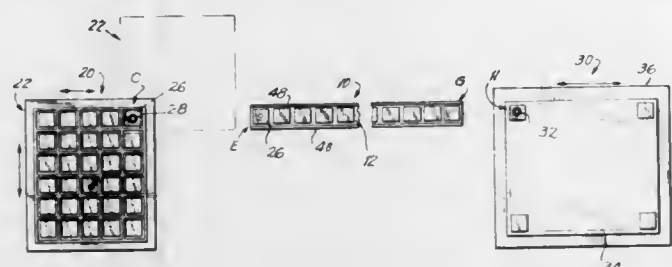
Ignatius J. DeRobertis, Poughquag; Javathu K. Hassan, Hope-well Junction; Robert L. Judge, Poughkeepsie, and John A. Paivanas, Hyde Park, all of N.Y., assignors to International Business Machine Corp., Armonk, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,232

Int. Cl.³ B65G 51/02

U.S. Cl. 406—88

8 Claims



1. An air film conveyor and transporting prismatic conductor chips, the chips having a spaced distribution of a plurality of hemispheric solder mounds within an area on a surface facing said air film, said conveyor comprising:

- a base plate, and a pair of upstanding side guide walls extending longitudinally of said base plate, said guide walls being spaced apart a distance slightly greater than the lateral dimension of said chips;
- means providing a motion-controlling laminar air flow, which surrounds the chips and forms an air film supporting said chips and propelling them downstream such that the slight spacing between the chips and the guide walls causes the flow resistance to be higher in the one region defined by such slight spacing than in the region defined by the longitudinal spacing between the ends of individual chips, whereby a continuous and flexible separation action occurs between the chips;
- the volumetric flow rate of air per foot of conveyor being in the range of 0.0005 to 0.015 standard cubic feet per second.

4,395,166

FLUIDIZATION AND DISTRIBUTION

Leon Ulveling, Howard, Luxembourg, assignor to Paul Wurth S.A., Luxembourg

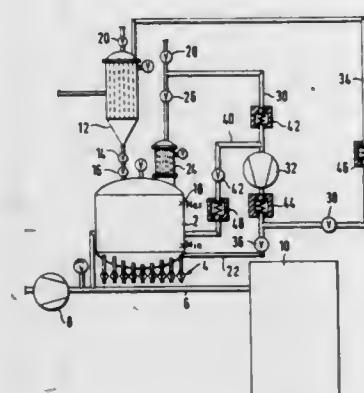
Filed Mar. 25, 1981, Ser. No. 247,511

Claims priority, application Luxembourg, Apr. 4, 1980, 82336

Int. Cl.³ B65G 53/36

U.S. Cl. 406—124

20 Claims



1. In a process for transportation of a pulverized material, the material being delivered to and temporarily stored in a first container and being subsequently fed from the first container to a second container, the material being thereafter withdrawn from the second container and fluidically conveyed to a consuming device, the improvement comprising:

- injecting a pressurized gas into the second container to maintain a pressure therein greater than the consuming device pressure;

venting some of said gas from the second container; filtering pulverized material from the vented gas; increasing the pressure of the vented and filtered gas; re-injecting at least a portion of the vented and pressurized gas into the second container; selectively delivering gas to the first container at a pressure which is at least as high as the pressure within the second container; establishing communication between the first and second containers during the delivery of pressurized gas to the first container whereby the pressurized gas aids in feeding material from the first container into the second container; and continuing to vent gas from the second container during the time that communication is established between the containers whereby at least a portion of the gas injected into the second container is filtered, increased in pressure and thereafter delivered to the first container.

4,395,167

ROUTER ESPECIALLY FOR USE AS A FIBER-METAL CUTTER

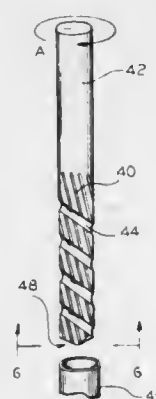
Fred Maternus, Chicago, Ill., assignor to National Carbide Tool, Inc., Skokie, Ill.

Filed Mar. 9, 1981, Ser. No. 241,489

Int. Cl.³ B26D 1/12; B23B 27/10

U.S. Cl. 407—54

14 Claims



1. A router comprising a shaft having at least two intersecting sets of flutes formed thereon, wherein each of said flutes is turned in the same direction, said two sets overlapping in any circumference of said shaft, each flute in a first of said sets having an edge for cutting a kerf, and each flute in a second of said sets having a relatively large cross-section to carry debris cut away by said first set, the pitch angle of both sets of said flutes and the cutting edge of said first set of flutes being such that said router turns in a direction which drives cutting debris downwardly.

4,395,168

MULTIPLE CUTTER ROTARY TOOL

Frank Vicari, 249 Conklin St., Farmingdale, N.Y. 11735

Filed Dec. 19, 1980, Ser. No. 218,397

Int. Cl.³ B27C 3/00

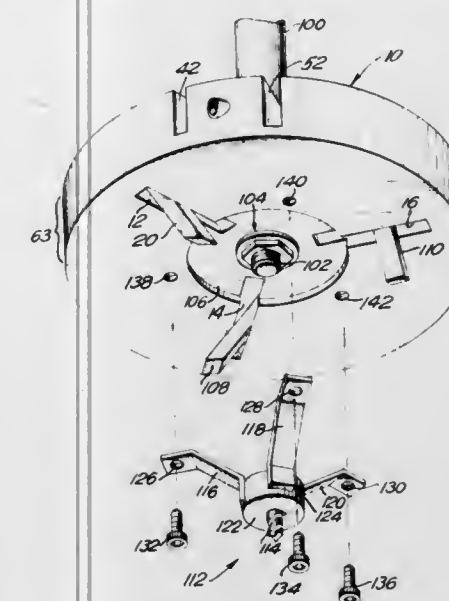
U.S. Cl. 408—20

19 Claims

1. A tool for use with a rotary drive for cutting a workpiece, comprising:

- a disc-shaped body having centrally located means for mounting to the rotary drive and defining an axis of rotation;
- a first plurality of elongate (apertures) slots formed substantially radially in said disc-shaped body and passing through from one side to the other side of said disc-shaped body and being adapted for receiving a first tool bit in each of said first plurality of slots;
- each of said first plurality of slots being elongated to have a length substantially greater than a width of said first tool

bit to permit said first tool bit to be positioned at preselected points along the length of said first elongate slot; a second plurality of slots formed in the rim of the said disc-shaped body pointing generally outwardly from the center of said disc-shaped body and being adapted for receiving a second tool bit in each slot; and a third plurality of slots formed in one side of said body and the rim of said disc-shaped body and not extending through said body and pointing generally outwardly from



the center of said body and being adapted for receiving at least one of the first tool bits in each slot, whereby upon said disc-shaped body being mounted to the rotary drive and a first tool bit being arranged in each of said first plurality of slots the tool is adapted for axial cutting and upon a second tool bit being arranged in each of said second plurality of slots, the tool is adapted for radial cutting and upon at least one of the first tool bits being arranged in each of said third plurality of slots the tool is adapted for radial cutting of the workpiece.

4,395,169

DRILL BIT

Takashi Kashiwagi, and Hiroshi Kasutani, both of Gifu, Japan, assignors to Mitsubishi Kinzoku Kabushiki Kaisha, Tokyo, Japan

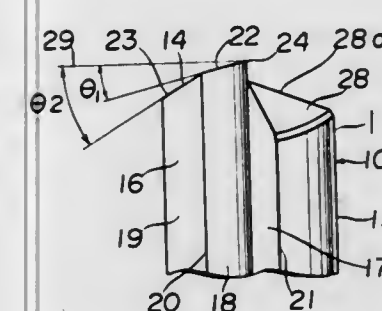
Filed Jun. 26, 1980, Ser. No. 163,264

Claims priority, application Japan, Jul. 4, 1979, 54-92229[U]

Int. Cl.³ B23B 51/06

U.S. Cl. 408—59

11 Claims



1. A drill bit comprising:

- a body of a cylindrical shape having a face at its forward end and a straight groove of a generally V-shape including two side faces and a corner into which said faces merge; said groove being formed in the circumferential surface thereof and extending along the longitudinal axis of the bit body;
- said corner being disposed in the vicinity of the longitudinal axis of said bit body;
- said bit body having a drilling fluid passageway extending

longitudinally through said bit body and opening to said end face;

- one of said two side faces having semi-cylindrical convex surface extending radially outwardly from said corner and a flat surface extending radially outwardly from said semi-cylindrical surface to the periphery of said cylindrical bit body;
- said semi-cylindrical surface and said flat surface extending along the longitudinal axis of said bit body;
- said semi-cylindrical surface terminating at its forward end in an arcuate inward cutting edge while said flat surface terminates at its forward end in a straight outward cutting edge;
- said arcuate inward cutting edge and said straight outward cutting edge sloping radially outwardly in a direction away from said forward end of said drill bit body;
- said forward end of said drill bit having an apex in the vicinity of said longitudinal axis, and the inner end of said arcuate inward cutting edge being disposed at said apex of said forward end; and
- said arcuate inward cutting edge being offset from said straight outward cutting edge when viewed from the forward end of said bit body.

4,395,170

DRILL, DRILL CHUCK, AND METHODS OF CHUCKING AND UNCHUCKING

Michael E. Clarey, Easley, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Aug. 18, 1980, Ser. No. 179,359

Int. Cl.³ B25B 13/44; B23B 31/06

U.S. Cl. 408—241 R

3 Claims



1. Powered drill comprising a housing and including a keyless slidable jaw chuck having a plurality of slidable jaws provided with externally extending teeth mounted within a chuck body having mating angularly spaced slideways for said jaws extending forwardly and inwardly in said chuck body and a traverse nut rotatable on said chuck body having internal threads engaged with said jaws together with a locking shell slidable relative the traverse nut so as to rotate together therewith relative the chuck body, at least one and preferably a plurality of lugs or teeth extending around an annular end of said locking shell adjacent said drill housing and at least one and preferably a plurality of mating lugs or teeth provided on said drill housing adjacent said locking shell, wherein said lugs or teeth are angulated to provide a vector force during torquing which acts in a direction forwardly of the chuck tending to release said lugs or teeth of said sliding shell from their toothed engagement with said drill housing so that, when said shell is slid rearwardly towards said drill, said shell and traverse nut are held against rotation relative said drill and upon actuation of the drill to rotate said chuck body, said jaws will be automatically extended or retracted, depending upon the drill rotation direction, to chuck or unchuck a drill bit or other accessory inserted therebetween, and spring means for retaining said sliding shell in its forward, released or unlocked position to enable normal operative rotation of said chuck while requiring positive operator applied rearward pressure thereon

for engaging said locking means, said spring means further comprising a spring detent for selectively holding said shell in either a forward position wherein said teeth are disengaged for drilling, or the like, and in a rearward position wherein said teeth are engaged for chucking and unchucking so that the inclination of said teeth pops said detent from said rear position to said forward position at a predetermined torque.

4,395,171 CHUCK KEY

Günter H. Röhm, Heinrich-Röhm-Str. 50, 7297 Sontheim, Fed. Rep. of Germany

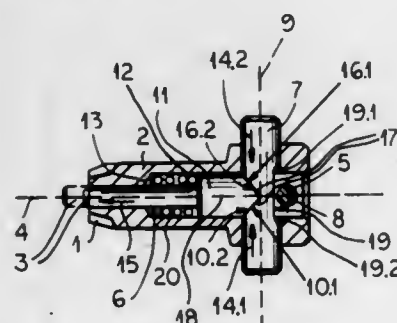
Filed Feb. 6, 1981, Ser. No. 232,174

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1980, 3004644

Int. Cl.³ B23B 31/06

U.S. Cl. 408—241 R

9 Claims



1. A chuck key comprising:
 - a body extending along an axis and having an axially forwardly directed end formed with an array of teeth centered on said axis, said body being formed with a bore opening axially forwardly at said forward end;
 - a crosspiece extending generally radially from said body and fixed thereon remote from said forward end;
 - a pin displaceable axially in said bore of said body between a front position projecting axially forwardly from said body beyond said teeth and a rear position withdrawn axially backwardly in said body;
 - a spring braced between said pin and said body and urging said pin into said rear position;
 - an operating member mounted to be movable radially relative to said body and having an outer end projecting radially from said body; and
 - means including a pair of interengaging formations on said member and on said pin for displacing said pin against the force of said spring from said rear to said front position on depression of said one end of said member radially inwardly.

4,395,172

CARGO RESTRAINT SYSTEM WITH SPRING FUSE

Dieter W. Hoener, Bellevue; Neville L. Lambert, Seattle, and Erwin V. Schweizer, Kent, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 12, 1980, Ser. No. 215,613

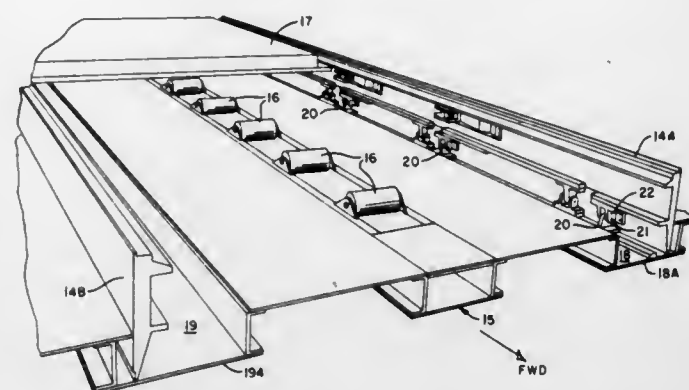
Int. Cl.³ B64D 1/10

U.S. Cl. 410—84

11 Claims

1. A combined cargo delivery and logistics cargo restraint system comprising a pair of parallel guide rails for cargo-carrying pallets extending longitudinally along a floor of an aircraft which has a cargo-receiving and delivery opening, a single one of said rails at spaced points therealong being provided with pallet locks for releasably engaging pallets to hold them in positions along the guide rails, a logistics control means coupled to simultaneously move the pallet locks into a first position where said pallet locks will release pallets for movement either forward or aft of the aircraft and a second position where said locks will prevent either forward or aft movement of a pallet, a system of levers coupled to each of said locks, and a cargo-delivery control system including cam means for se-

quentially actuating each system of levers to move the pallet locks along the rail into a third position where the locks will prevent forward movement of a pallet but will permit aft movement of the pallet by movement of a lock against a biasing force of a spring acting on the lever system thereof; wherein each system of levers includes an actuator arm coupled by a uniball joint to a control arm, and a pivot shaft supported by a



single one of said rails to interconnect said control arm and a pallet lock, and wherein said system further includes troughs formed in said floor of the aircraft, and means mounting said guide rails for pivotal movement from positions where they extend upwardly from the floor to positions where they are rotated downwardly into the troughs and form a flush surface with the remainder of the aircraft floor.

4,395,173

DRILL SCREW WITH PROTECTIVE BURRS

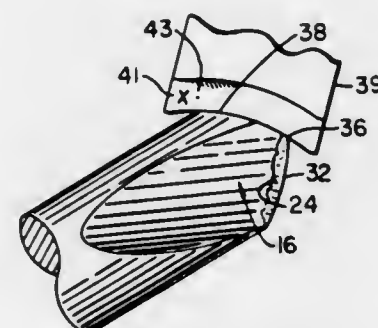
Henry A. Sygnator, Arlington Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Jun. 30, 1981, Ser. No. 279,103

Int. Cl.³ F16B 25/00

U.S. Cl. 411—387

4 Claims



1. A drill screw comprising an elongated shank, a first shank end having a head with drive receiving surfaces thereon and a second shank end having a drill tip formed thereon, said tip having first and second opposing flutes extending partially along said shank each flute intersecting first and second terminal end portions, said intersection of said first flute with said first terminal end portion defining a first cutting edge and the intersection with said second terminal end portion defining a first drag edge, the intersection of the second flute with said second and first terminal ends defining second cutting and drag edges, respectively, the first and second terminal end portions intersecting to define a chisel which extends angularly between said first and second flutes, a first and a second burr extending at least partially along said first and second cutting edges, respectively, at points spaced from said chisel to protect said cutting edges thereby preserving their effective cutting action.

4,395,174

SELF-PENETRATING FASTENER FOR FASTENING ROOFING PANELS TO METAL BEAMS

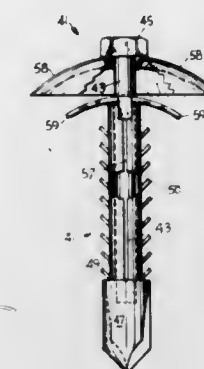
James D. Freeman, 11 W. Grand Ct., Springfield, Ill. 62704

Filed May 18, 1981, Ser. No. 264,453

Int. Cl.³ F16B 15/06

U.S. Cl. 411—510

9 Claims



1. A self-penetrating fastener for attaching a sheet-material panel to a plate-like support, comprising: a relatively rigid shaft having an enlarged head and an enlarged hole-forming tip; a sleeve closely surrounding the portion of said shaft between said head and said tip and having axially spaced resilient barb-like projections sized to squeeze through an aperture formed by said tip and to expand beyond the rim of the exit end of said aperture, so as to fasten said panel to said plate-like support by gripping them between said head and expanded portions of said projections; and a bowed spring-material thin spider-like wafer positioned to be compressed between said head and the top surface of said panel.

4,395,175

PROCESS FOR TREATING SCRAP ANODES AND APPARATUS THEREFOR

Hidetoshi Tsurimoto, Tanashi; Koichi Tokunaga, Funabashi, both of Japan, and Martin K. Schonfeldt, Townsville, Australia, assignors to Mescos, Inc., Tokyo, Japan and Copper Refineries Pty. Ltd., Townsville, Australia

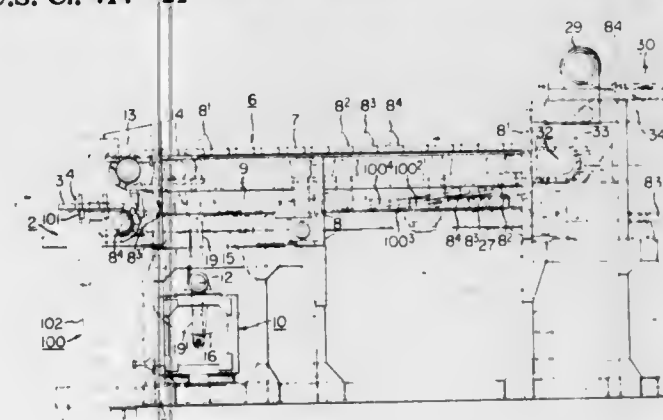
Filed Nov. 14, 1980, Ser. No. 206,805

Claims priority, application Japan, Nov. 20, 1979, 54-149481

Int. Cl.³ B65G 57/08

U.S. Cl. 414—21

17 Claims



5. An apparatus for handling scrap anodes, each of which has a barrel, comprising:
 - an endless conveying means comprising a pair of upper and lower strips having projections for engaging scrap anodes disposed thereon at regular intervals, said conveying strips being disposed in parallel and at regular intervals from each other;
 - a pair of fixed rails disposed parallel to and under said conveying strips and along the moving direction thereof adapted to have scrap anodes hang therefrom by their upper end shoulder portions, said scrap anodes being

pushed along said rails by said projections of said lower strip;

a pair of movable rails disposed following said pair of fixed rails, which movable rails are adapted to move reciprocally in a horizontal direction, which movable rails receive scrap anodes from said fixed rails, said anodes being pushed along said movable rails by said projections of said lower strip;

supporting means for supporting the barrels of the scrap anodes disposed between said movable rails, under said endless conveying strips, and designed to be reciprocally movable horizontally;

working means for moving said supporting means horizontally;

a vertically rotatable rotating plate disposed under said pair of fixed rails and connected through drive-transmitting means with said endless conveying means, said rotating plate being arranged to support the scrap anodes at their lower ends and adjust the scrap anodes to a nearly horizontal position by lifting, in proportion to their movement, the lower ends of said scrap anodes each being suspended by both upper end shoulder portions thereof;

a horizontally rotatable receiving stand disposed under said supporting means and being adapted to ascend and descend between an upper no load position and a lower full load position, as well as rotate horizontally;

lifting means for causing said receiving stand to ascend and descend between the no load position and the full load position;

rotating means for rotating said receiving stand in a horizontal plane; and

controlling means for controlling the operations of the afore-said respective means, said controlling means being constructed so that said conveying strips and rotating plate are operated thereby to move the scrap anodes to a substantially horizontal position during their transportation along said fixed and movable rails, then move said anodes up to and on the supporting means and halt said anodes thereat; further said working means being operated for moving said supporting means and dropping the scrap anodes onto said receiving stand while maintaining their horizontal position; and still further said rotating means being operated for turning said receiving stand supporting said dropped scrap anodes through a predetermined angle, and said lifting means being operated for lowering said receiving stand by predetermined distances.

4,395,176

APPARATUS FOR HANDLING HARVESTED MATERIAL

John C. Green, Ely, England, assignor to Hassy Horticultural Development Ltd., Cambridgeshire, England

Continuation-in-part of Ser. No. 111,096, Oct. 1, 1980,

abandoned. This application Mar. 12, 1981, Ser. No. 242,994

Claims priority, application United Kingdom, Mar. 5, 1979, 7907585

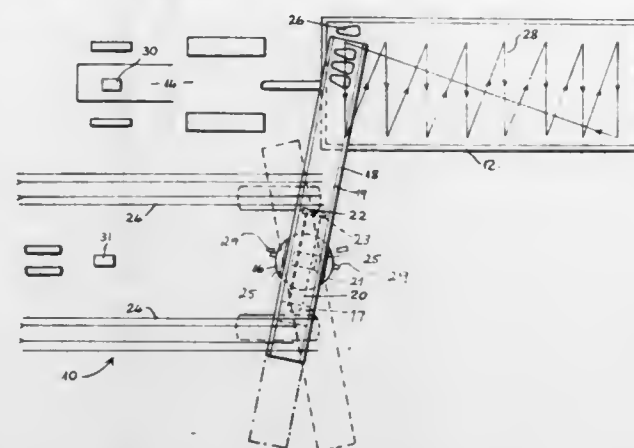
Int. Cl.³ B65G 67/08, 67/22

U.S. Cl. 414—57

10 Claims

1. Apparatus for use in handling material harvested by a first vehicle and loaded from the first vehicle on to a second vehicle travelling alongside the first vehicle; the apparatus comprising: a base mounted on the first vehicle, a conveyor support mounted on the base, a conveyor and conveyor drive means carried by the conveyor support for conveying harvested material from the first vehicle towards the second vehicle in a conveying direction which lies at an oblique angle to the direction of motion of the vehicles, shuttle means arranged to cause the conveyor support to reciprocate on the base parallel to the conveying direction, drive interrupting means connecting the shuttle motion with the conveyor drive means to cause the conveyor to be driven only during one sense of reciprocation of the conveyor support, and throttle means on the respective vehicles for adjusting the relative speeds of the vehicles in relation to the value of said oblique angle of the conveying

direction to cause the harvested material to be delivered to said second vehicle in uniform layers, with the harvested material



in successive conveyor operations between its drive interruptions laid in rows at right angles to the direction of travel of the vehicles and across the width of the second vehicle.

4,395,177

APPARATUS FOR FEEDING FOLDED AND FLATTENED CARTONS TO A PACKAGING MACHINE

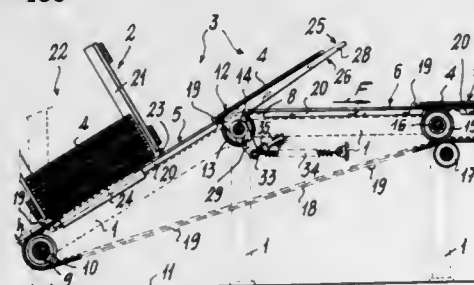
Enzo Seragnoli, Bologna, Italy, assignor to G. D. Società per Azioni, Bologna, Italy

Filed Apr. 24, 1981, Ser. No. 257,357

Claims priority, application Italy, May 15, 1980, 3425 A/80
Int. Cl.³ B65G 59/06; B65H 3/24, 5/02

U.S. Cl. 414—130

10 Claims



1. In an apparatus for feeding folded and flattened cartons to a packaging machine, a combination comprising:
 - a continuous path formed of a first rising section, a junction zone, and a second substantially horizontal section associated with its end portion opposite to said junction zone with a packaging line for said packaging machine;
 - conveyor means movable in a single direction along said continuous path;
 - pusher means carried by said conveyor means;
 - a magazine for holding said folded and flattened cartons and overlying said rising section, said magazine having an upper loading opening and a lower outlet opening;
 - movable supporting means for the cartons at said junction zone between said first and second sections of the path; and
 - actuating means synchronized with said conveyor means for oscillating said supporting means between a first position arranged in continuation of said first rising section and a second position, where they are arranged substantially coplanar and parallel to said conveyor means along said second substantially horizontal section.

4,395,178 TRANSFER SYSTEM FOR USE BETWEEN PLATFORMS HAVING RELATIVE MOTION BETWEEN ONE ANOTHER

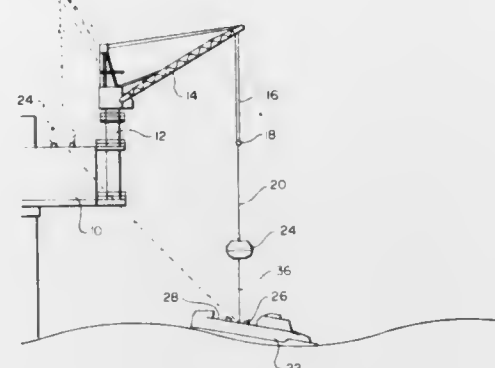
Wayne O. MacDonell, San Francisco, Calif.; Donald L. Graves, Federal Way, and Thomas Timar, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 8, 1980, Ser. No. 214,257

Int. Cl.³ B65G 67/58

U.S. Cl. 414—138

49 Claims



1. A docking station adapted to be used in conjunction with a vessel adapted to float on water, a carrier adapted to be positioned at a landing location on the carrier, a downhaul line operatively connected from said vessel to said carrier, and uphaul means to lift said carrier to said station, said docking station comprising:

- a. a docking structure having an upwardly facing receiving surface to engage said carrier as said carrier is lifted by uphaul means and placed on said docking structure;
- b. said docking structure having a laterally open through slot to receive said downhaul line extending downwardly from said carrier to said vessel.

3. A transfer system comprising:

- a. a first platform;
- b. a second platform movable relative to said first platform;
- c. first uphaul means operatively connected to said first platform;
- d. a carrier adapted to be moved between said first and second platforms, said carrier comprising a carrier housing and extendable and retractable intermediate uphaul means adapted to be connected between said carrier housing and the first uphaul means, said intermediate uphaul means including actuating means to raise and lower said carrier housing relative to the first uphaul means by retracting and extending said intermediate uphaul means;
- e. downhaul means operatively connected between the carrier and the second platform and adapted to pull said carrier to said second platform;
- f. said actuating means being characterized in that it exerts a tension force through said intermediate uphaul means greater than weight of the carrier;
- g. said downhaul means being characterized in that it has a downhaul operating mode where it exerts on said carrier a downhaul force greater than a value which is equal to the tension force less the weight of the carrier;
- h. said actuating means comprising a resilient actuating mechanism comprising an actuating member which is yieldingly urged toward movement in a direction to retract said intermediate uphaul means and yieldingly resist movement in a direction to extend said intermediate uphaul means;
- i. said actuating mechanism comprising velocity control means to limit velocity of the actuating member in a direction to retract said intermediate uphaul means.

4,395,179

APPARATUS AND METHOD FOR CHARGING MATERIAL INTO A RECEPTACLE

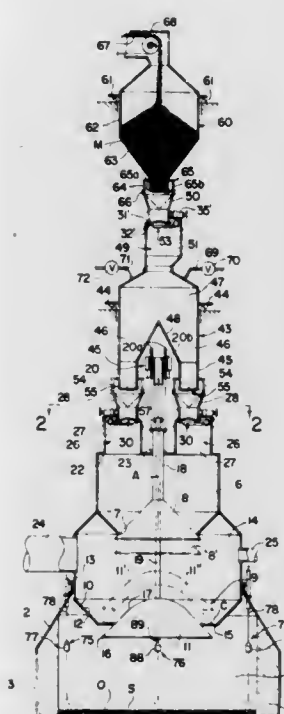
Andrejs Berzins, Parma, Ohio, assignor to Davy Inc., Cleveland, Ohio

Continuation of Ser. No. 25,877, Apr. 2, 1979, abandoned, which is a continuation of Ser. No. 822,811, Aug. 8, 1977, abandoned, which is a continuation-in-part of Ser. No. 665,552, Mar. 10, 1976, Pat. No. 4,067,452. This application Jan. 15, 1981, Ser. No. 225,442

Int. Cl.³ F27B 9/38

U.S. Cl. 414—161

22 Claims



1. Apparatus for charging particulate charge material into a receptacle having an upper portion including a top and upright side wall means defining a chamber into which charge material is to be deposited to form a stockline, said apparatus comprising

choked feed means above said receptacle adapted to discharge charge material downwardly in a single downwardly flowing stream of compact cross section along a single path;

nonrotatable and laterally immovable dividing means below said choked feed means in said path of said stream and above said receptacle adapted to have said downwardly flowing single stream of charge material substantially directly impinge downwardly on said driving means and uniformly divide said downwardly flowing single stream of charge material into a plurality of separate streams of charge material;

gas lock means at the upper portion of said receptacle permitting the entrance of charge material into said receptacle without harmful loss of gas from within said receptacle;

means for causing said plurality of separate streams from said dividing means to pass through said gas lock means into said receptacle; and

said receptacle having distributor means located therein for distributing within said receptacle material delivered thereto, spreader means above said distributor means for laterally spreading charge material to said distributor means from said gas lock means, and said distributor means and said spreader means being operable substantially independently of said gas lock means.

4,395,180

ENGINE UNIT MAINTENANCE COMPLEX

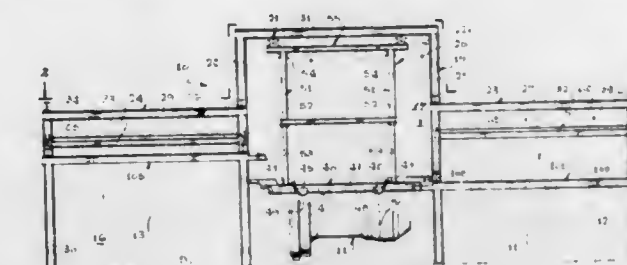
John A. Magnotte, La Mirada, Calif., assignor to Westmont Industries, Santa Fe Springs, Calif.

Filed Sep. 15, 1980, Ser. No. 186,970

Int. Cl.³ B65G 1/06; B66C 7/14

U.S. Cl. 414—282

18 Claims



1. An engine maintenance complex comprising a main frame forming a delivery way having a loading station at one location, service frames forming a plurality of service bays at other locations laterally of the delivery way and a receiving station for the end of each service bay adjacent the delivery way, a transportation rail system on said main frame extending throughout said delivery way, said transportation rail system having a transverse transportation bridge providing a transportation track, horizontally moveable engine support means in travelling engagement with said transportation bridge, a service bridge in each of said service bays adapted to provide a service track for said moveable supports, a plurality of vertically moveable connection means between said service bridge and respective service frame for moving said service bridge vertically between an uppermost position and a lowermost position, and releaseable interconnections at adjacent ends of said service bridge and said transportation bridge adapted for mutual engagement when said bridges are at the same elevation and in longitudinal alignment to enable said moveable supports to pass between said transportation bridge and a selected service bridge.

4,395,181

ROBOT VEHICLE

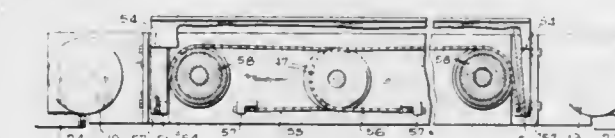
Weston R. Loomer, Walton, Ky., assignor to Litton Systems, Inc., Florence, Ky.

Continuation of Ser. No. 925,525, Jul. 17, 1978, abandoned, which is a continuation of Ser. No. 729,393, Oct. 4, 1976, abandoned. This application Mar. 13, 1980, Ser. No. 130,019

Int. Cl.³ B65G 65/00

U.S. Cl. 414—284

9 Claims



1. A load transporting system comprising:

- (a) a movable vehicle;
- (b) means for moving said vehicle along a first predetermined path;
- (c) substantially horizontally disposed lift means mounted on said movable vehicle to raise or lower a load with respect thereto;
- (d) a plurality of flexible members each extending along second predetermined paths and each having a respective first end and a respective second end;
- (e) first connecting means interconnecting said lift means and said flexible members proximate said respective first ends of said flexible members;
- (f) second connecting means interconnecting said movable vehicle and said flexible members proximate said respective second ends of said flexible members;

- (g) eccentric means carried by said vehicle for rotation in a predetermined rotative direction;
- (h) said eccentric means further including a surface disposed for coaction with said flexible members such that there is a first portion of each of said flexible members extending between said first connecting means and a place at which said flexible members first engage said surface, whereby rotation of said eccentric means in said predetermined rotative direction effects movement of said first portions of said flexible members and effects operation of said lift means for either raising or lowering a load;
- (i) means for driving said eccentric means in said predetermined rotative direction; and
- (j) a plurality of spaced guide means for facilitating passage of said flexible members about said eccentric means;
- (k) said guide means being located between said eccentric means and said first connecting means.

4,395,182

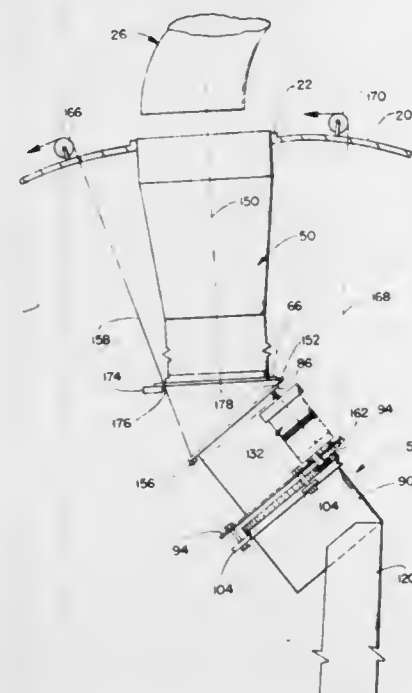
FILLING AND DISTRIBUTION APPARATUS AND METHOD FOR SILOS

Donald W. Suwyn, 3535 - 108th St., Caledonia, Mich. 49316
Filed Oct. 10, 1980, Ser. No. 196,096

Int. Cl.³ B65G 3/04, 31/04, 65/32

U.S. Cl. 414-299

11 Claims



1. Apparatus for selectively center filling and distributor filling a feed storage structure, the structure being of the type including a roof having an access aperture, said apparatus comprising:

- a center fill tube having a central axis, an upper inlet end and a lower discharge end, said fill tube dimensioned to fit through the access aperture;
- feed distributor means selectively positionable at the discharge end of the center fill tube for distributing feed in a generally circular pattern radially of the central axis of the fill tube;

support means connected to said feed distributor means for supporting said distributor means in a first operative position in line with said center fill tube and in a second inoperative position out of alignment with said center fill tube; and

positioning means connected to said feed distributor means for selectively moving said distributor means between said first operative position in line with said center fill tube to said second inoperative position out of alignment with said center fill tube after a predetermined quantity of feed is loaded into the feed storage structure and from said second position to said first position after another predetermined quantity of feed is loaded into the feed storage structure, said positioning means including a cable having

an end secured to said feed distributor means, said cable having a length sufficient to pass out of the feed storage structure to an operator, and wherein said feed distributor means comprises:

- a first tube having a central axis, an inlet end and an outlet end;
- a second tube having a central axis, an inlet end and an outlet end, said second tube being positioned in telescoping relationship with said first tube;

means for rotatably supporting said second tube on said first tube;

drive means engaging said second tube for rotating said second tube with respect to said first tube, said drive means including a drive motor mounted on one of said first and second tubes, said drive motor having an output shaft; and

a pan secured to said second tube at its outlet end and positioned at an angle with respect to the central axis of said second tube so that when said distributor means is in the first operative position, feed will be directed by the pan radially outwardly from the central axis of said second tube, said feed distributor means is dimensioned to fit within the access aperture of the feed storage structure, said means for rotatably supporting said second tube comprises:

an annular mounting ring secured to said first tube adjacent its outlet end;

a channel-shaped ring secured to said second tube adjacent its inlet end; and

a bearing secured to said mounting ring and riding within said channel-shaped ring so that said second tube is rotatably supported from said first tube, and wherein said drive means further comprises:

means interconnecting said output shaft of said drive motor to said second tube for rotating said second tube as said output shaft rotates, and wherein said apparatus further includes:

control means operatively connected to said drive motor so that said drive motor may be actuated only when said distributor means is in said first position.

6. A method of top filling a feed storage structure with feed having coarse and fine elements, said structure being of the type which includes an elongated, generally cylindrical tank defining an interior side surface, a closed top having a centrally located access aperture and a bottom discharge aperture, said method comprising the steps of:

directing feed from ground level to said access aperture;

distributing said feed in a circular pattern and towards the interior side surfaces of said cylindrical tank until a predetermined quantity of feed is loaded into said structure;

center filling feed into said structure through said access aperture until another predetermined quantity of feed is loaded into said structure; and

repeating said distributing and center filling steps until said structure is fully loaded so that alternating layers of coarse feed elements and fine feed elements are formed within said structure.

4,395,183

LOADING DEVICE

Stig Wirholm, Sollentuna, and Sören Berggren, Vallentuna, both of Sweden, assignors to Tellus Maskin AB, Vallentuna, Sweden

Filed Mar. 13, 1981, Ser. No. 243,500

Claims priority, application Sweden, Mar. 17, 1980, 8002061

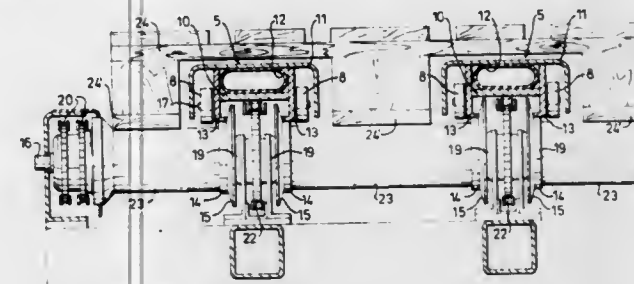
Int. Cl.³ B65G 25/00

U.S. Cl. 414-416

6 Claims

1. A loading device for loading and unloading a container or similar receptacle with one side to be opened, comprising: a carrying stand (2), said stand having a plurality of oblong lifting beams (5), each of which along their entire length are formed of a lower beam portion (10) and an upper beam por-

tion (11), and are provided with a flexible closed hose (12) between the beam portions with adjustable air supply for restricted control of the lifting and lowering of the upper beam portion (10), a number rows of carrying of wheels on said stand for carrying the lifting beams (5) and mechanical drive means for moving said beams in longitudinal direction, characterized in that each lower beam portion (10) along its length is provided with vertical side flanges (13), which stand on the periphery of rows of said carrying wheels (14), and running



wheels (8) distributed and mounted along the side flanges (13), which running wheels are located entirely free from engagement with the carrying stand (2) and the lowermost portion of their periphery being located at a slightly lower level than the level of the highest portion of the periphery of the carrying wheels (14), whereby the longitudinal stand (2) is supported by the carrying wheels (14), and the portion of the lifting beams (5) projecting outside the carrying stand (2) can be supported by means of said running wheels (8) rolling against a support, such as a container bottom.

4,395,184

MEANS AND METHOD FOR PROCESSING MINIATURE ELECTRONIC COMPONENTS SUCH AS CAPACITORS OR RESISTORS

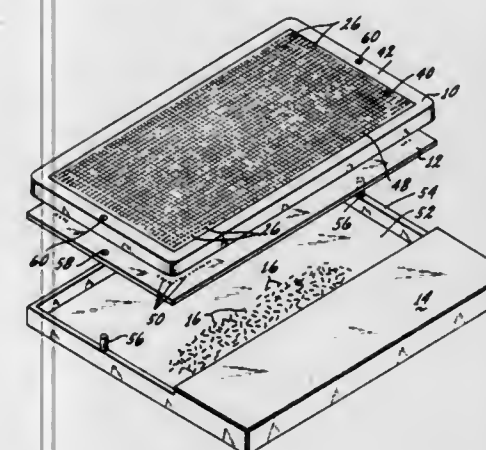
Denver Braden, Carlsbad, Calif., assignor to Palomar Systems & Machines, Inc., Escondido, Calif.

Filed Feb. 21, 1980, Ser. No. 123,201

Int. Cl.³ H05K 3/30; B65G 65/04

U.S. Cl. 414-417

16 Claims



1. Means to handle miniature electronic parts such as capacitors, resistors or the like, comprising:

- (a) part pushing means having support means and having a bank of juxtaposed pushers secured together to move as a unit and said pushers facing said support means, and said pushing means having means operative to force said bank of pushers toward said support means;

(b) a part handling plate having a plate-like body having a multiplicity of juxtaposed passageways extending from face to face of said body, said passageways having resilient walls whereby when said passageways are slightly smaller in cross-section than the cross-section of the parts to be supported thereby, the passageways will resiliently grip the parts, said plate being disposed between said bank of pushers and said support means and said passageways

being aligned with said pushers, whereby said pushers may be forced into said passageways to force parts disposed in said passageways into locations with the ends of the parts oriented relative to a face of said plate-like body in position to be operated upon, and

(c) a part unloading plate disposed on said support means between said part handling plate and said support means and said part unloading plate having a multiplicity of recesses in its face toward said part handling plate matching the locations of said passageways whereby parts can be unloaded from said passageways by forcing said parts with said pushers out of said passageways and into said recesses whereupon said part unloading plate can be removed from said support means to dump said parts.

4,395,185

SELF-LEVELING BOAT TRAILER

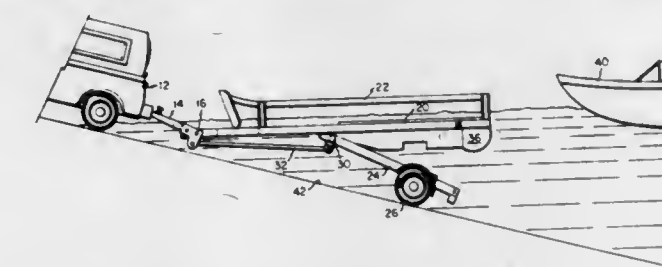
Morris L. Whaley, Star Rte. (Moss Lake), Gainesville, Tex. 76240

Continuation-in-part of Ser. No. 288,544, Jul. 30, 1981, abandoned. This application Mar. 18, 1982, Ser. No. 359,516

Int. Cl.³ B60P 1/28, 3/10

U.S. Cl. 414-483

11 Claims



1. A self-leveling boat trailer comprising:

a support platform adapted to receive the hull of a boat, said support platform including a wheeled undercarriage and means for coupling a first end of said support platform to a vehicle;

flotation means disposed at a second end of said support platform for causing said second end of said support platform to float upon immersion into water; and

means for lowering said first end of said support platform in response to the flotation of said second end whereby said support platform is maintained in a level position.

4,395,186

VEHICLE FOR TENDING LOW GROWING VEGETATION

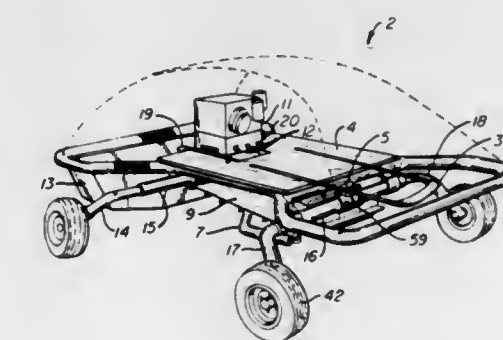
Garry R. Whyte, Portland, Oreg., assignor to Turtle Tractor Company, Portland, Oreg.

Filed Aug. 7, 1980, Ser. No. 176,193

Int. Cl.³ B60P 1/00

U.S. Cl. 414-528

1 Claim



1. A powered vehicle for tending low growing vegetation comprising:

a frame having intersecting cross-braces;
a platform mounted to the frame having an engine mounted thereon;
front and rear center swing tubes having a torsion bar spring suspension and a double articulated steering system in which the torsion bars are held by a vise means, said vise means being surrounded by a collar, and said collar being wrapped in a stainless steel mesh screen, and glued to the interior of the swing tube; and
four legs, each adjustable in at least two directions and mounted within said swing tubes, having a motor connected by hydraulic lines to the engine, and supporting a wheel and tire.

4,395,187

AUTOMATIC CARGO ELEVATOR FOR VEHICLE

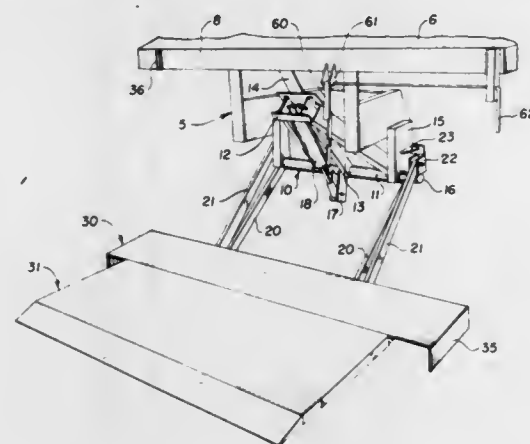
Quentin D. Corley, Jr., 326 S. Rock Island, Dallas, Tex. 75207

Filed Oct. 24, 1980, Ser. No. 200,317

Int. Cl.³ B60P 1/48

U.S. Cl. 414—557

17 Claims



14. In a cargo elevator for attachment to a cargo vehicle having a cargo bed; an elevator platform including a base platform and a folding platform hingedly attached to said base platform; said elevator platform being mounted, by means of said base platform, to be raised and lowered between a ground position and a bed position, with said base platform being maintained in a generally horizontal position during these movements; the improvement comprising

an articulated locking and folding mechanism connected between fixed pivots on said base platform and said folding platform, for effecting the locking of said folding platform in the plane of said base platform, and for effecting the downward folding and unfolding of said folding platform; said mechanism including an actuator lever; said actuator lever being engageable with an actuator arm on said vehicle, during upward movement of said elevator platform, to effect the folding of said folding platform from a load position to a stored position under said base platform and said cargo bed; and said engaged actuator lever and actuator arm effecting the unfolding of said folding platform to said load position, during downward movement, of said elevator platform and effecting the locking of said folding platform in said load position.

4,395,188

LOAD CARRYING ARRANGEMENT FOR A LIFT TRUCK

Otmar Kaup, Aschaffenburg, Fed. Rep. of Germany, assignor to Kaup & Co. KG, Aschaffenburg, Fed. Rep. of Germany

Filed Apr. 29, 1981, Ser. No. 258,796

Claims priority, application Fed. Rep. of Germany, May 12, 1980, 3007899

Int. Cl.³ B66F 9/18, 9/14

U.S. Cl. 414—622

9 Claims

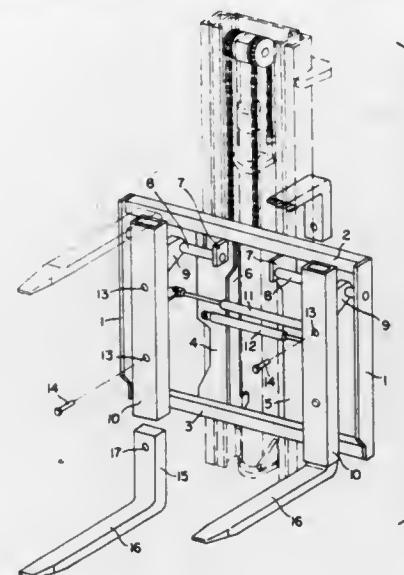
1. A load carrying arrangement for a lift truck having a frame, a mounting element displaceably mounted on said

frame, and carrying means operable for engaging an object to be lifted,

comprising in combination:

two upright elongated members spaced apart from each other and connected at least with relation to said mounting element, wherein each of said upright members defines a passage extending longitudinally of the respective upright member, and

means near an end portion of each upright member for releasably securing said carrying means to said upright



member, wherein said releasably securing means includes two mounting projections on said carrying means each extending through one end into one of said passages, and means for positionally fixing said projections in said passages, and

wherein said carrying means includes a pair of fork prongs each having a load-engaging portion and a mounting portion constituting said projection and adapted to be selectively introduced into the respective passage through one of its lower and upper ends.

4,395,189

DUAL MAST LIFT TRUCK FOR UNBALANCED LOADS AND THE LIKE

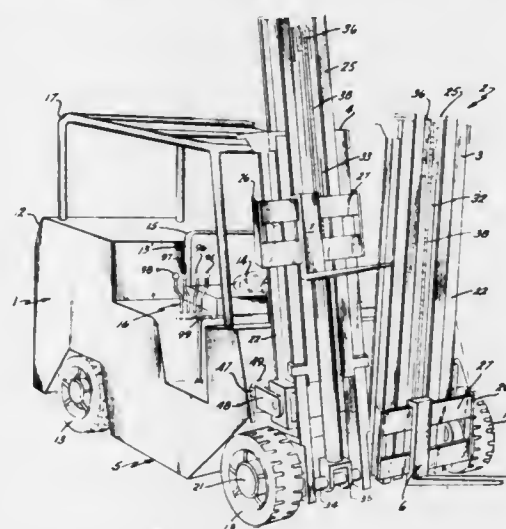
Gerard H. Munten, 4089 Remembrance Rd., Grand Rapids, Mich. 49504

Filed Feb. 2, 1981, Ser. No. 230,611

Int. Cl.³ B66F 9/03, 9/22

U.S. Cl. 414—635

18 Claims



1. In a conventional lift truck having a frame with front and rear ends, and means for propelling said truck, the improvement of a dual mast arrangement for handling unbalanced loads and the like, comprising:

first and second lift masts connected with the front end of

said truck frame in a side-by-side relationship; each lift mast having a fork slideably connected therewith for translating up and down its respective mast; said forks extending generally outwardly from said masts in a generally parallel relationship;
means for independently moving said forks along their respective masts, whereby each fork is individually elevated into abutment with a load, and raised slightly to a position wherein the load is balanced on said forks; and
coupling means for selectively interlocking said forks and moving the same in unison, substantially simultaneously at the same rate and in the same direction, by manipulation of a single control, whereby said forks are raised together to lift the load balanced thereon to a transport position, and are lowered together to set the load down in place.

4,395,190

POWER OPERATED EXTENSIONS FOR FORKS OF A FORK LIFT TRUCK

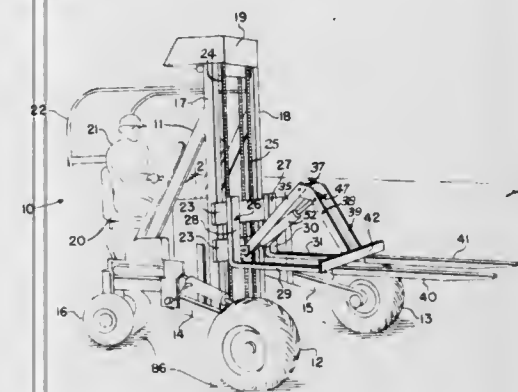
John Barchard, Crystal Lake, Ill., assignor to Spyder Sales & Service, Inc., Needville, Tex.

Filed Mar. 3, 1981, Ser. No. 240,121

Int. Cl.³ B60P 1/46

U.S. Cl. 414—664

1 Claim



1. Power operated fork extensions for a lift truck in which a pair of forwardly projecting regular conventional forks mounted on a carriage are capable of being raised and lowered relative to a vertical mast, comprising a sleeve telescopically engaging each of the regular conventional forks of the lift truck, said sleeves constituting members which convert the conventional load carrying regular conventional forks to extensible load carrying members, a cross member fixedly adjoining the sleeves at their rearward ends, said carriage having a pair of spaced apart lugs, a transverse shaft supported in said spaced apart lugs, a pair of laterally spaced apart links journally supported at their lower ends on said transverse shaft, a cross shaft joining the upper ends of said pair of links, a pair of laterally spaced apart bell-crank lever links pivotally mounted at their upper ends on said cross shaft, said cross member having a pair of spaced apart lugs on its rear surface, said pair of bell-crank lever links pivotally mounted at their lower ends to the spaced apart lugs on the cross member, said bell-crank lever links each having an upper portion and an angularly disposed lower portion, a rod affixed between said bell-crank lever links at the juncture between the upper and lower portions, an extensible and retractable hydraulic cylinder having its upper end pivotally mounted on said rod between said bell-crank lever links and having its lower end pivotally mounted on said transverse shaft, whereby when the hydraulic cylinder is extended the bell-crank lever links act to push or extend the sleeve extensions forwardly and when the hydraulic cylinder is shortened the bell-crank lever links act to retract the sleeve extensions.

4,395,191

EXCAVATOR-HOIST CONSTRUCTION VEHICLE

Josef Kaiser, Heuwies 65, FL-9491 Schaanwald, Liechtenstein

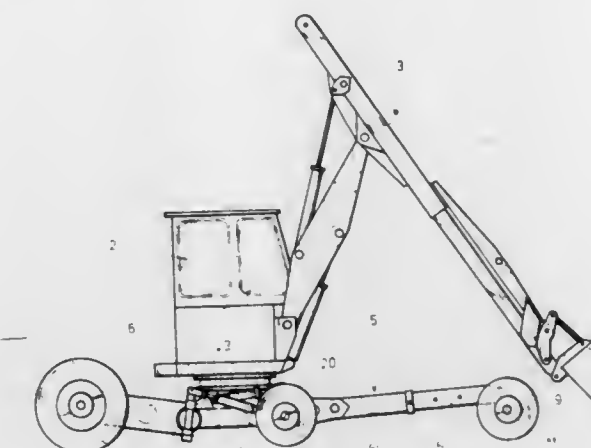
Filed Dec. 11, 1980, Ser. No. 215,403

Claims priority, application Austria, Dec. 24, 1979, 8138/79

Int. Cl.³ B66F 9/00

U.S. Cl. 414—694

13 Claims



1. An excavator-hoist construction vehicle comprising an undercarriage arranged generally horizontally, said undercarriage having a front edge and an oppositely directed rear edge with side edges extending between said front and rear edges, a superstructure mounted on said undercarriage and rotatable relative thereto about a vertical axis, an elongated boom having a first end and a second end with the first end thereof secured to said superstructure and the second end thereof spaced outwardly from said superstructure, the second end of said boom arranged to support a tool such as for use in excavating, hoisting and the like, a pair of first supporting legs each having a first end and a second end with the first end of each leg being hinged to said front edge of said undercarriage with said hinged connections being spaced apart, and the second ends of said first supporting legs spaced outwardly from said undercarriage, a pair of second support legs each having a first end and a second end with the first end of each being hinged to the rear edge of said undercarriage with the hinged connections being spaced apart and the second ends thereof being spaced outwardly from said undercarriage, said first and second supporting legs being movably adjustable in vertical and horizontal planes, means on the second ends of each of said first and second supporting legs for supporting a wheel, means for steering wheels on at least one pair of said first and second supporting legs, and said steerable wheels being detachably mounted on said supporting legs and being replaceable by holding members depending on the type of work to be performed by the construction vehicle, and means for driving at least one of the wheels on said first and second supporting legs.

4,395,192

BOOM CYLINDER

Paul W. Schlafly, New Philadelphia, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed Jan. 19, 1981, Ser. No. 227,020

Int. Cl.³ E02F 3/00

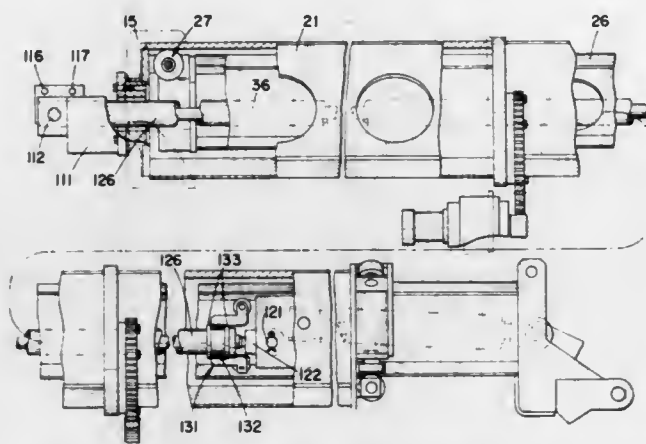
U.S. Cl. 414—718

6 Claims

1. A material handling vehicle comprising:

an upper structure;
an outer boom rotatable about its longitudinal axis;
an inner boom rotatable with said outer boom about their common longitudinal axis and partially disposed for telescopic positioning within said outer boom and said inner boom supporting a material handling device at its exposed end;
a boom cradle, pivotally supported from said upper structure, supporting said outer boom for rotation about its longitudinal axis;

a hydraulic cylinder, not rotatable with said outer boom, having one end connected to said boom cradle and having operating rod means extending from the other end thereof which engages and permits said inner boom to rotate around its longitudinal axis with respect to said hydraulic



cylinder and for telescopic positioning of said inner boom with respect to said outer boom; and, a cylinder support, longitudinally fixed in close proximity to the rod end of said cylinder, providing support for the end of said cylinder from the inside of said inner boom.

4,395,193

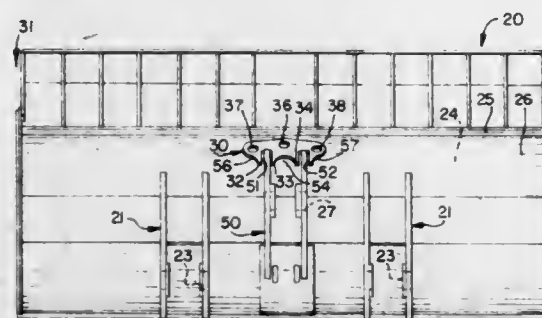
MATERIAL HANDLING BUCKET

Robert B. Christensen, Kenosha, Wis., and Lee F. Kramer, Waukegan, Ill., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 3, 1981, Ser. No. 251,004
Int. Cl.³ B66F 9/06

U.S. Cl. 414—722

11 Claims



1. In a material handling bucket having generally vertical sides end capping a generally hyperbolic shaped bucket bowl, a transverse channel member means externally mounted to an upper forward edge of the bucket bowl for reinforcing the edge, two pairs of symmetrically positioned outboard bucket bowl reinforcement ribs having boom arm pin bearing mounting means for pivotally mounting the bucket to a pair of vertical swingable boom arms, at least one pair of inboard bucket bowl reinforcement ribs having bucket tilting link pin bearing mounting means for pivotally mounting a hydraulic ram powered bucket tilting link to the bucket on a transverse link pin axis parallel to and above the boom pin axis, the three pairs of bucket bowl reinforcement ribs extending on parallel planes and transversely uniformly spaced-apart between the vertical sides of bucket bowl reinforcement ribs having upper terminal end portions mounted to the channel member means; and, wherein the improvement comprises:

an oblong stress distributing plate means having at least one portion of reduced cross-sectional area defining at least one stress concentration point offset toward an upper longer side of the plate means from a predetermined midpoint of the plate means and having a lower longer side symmetrically connected to the upper terminal end portions of the inboard pair of bucket bowl reinforcement ribs and to the channel member means for distributing stresses transversely across the plate means transmitted to the

stress concentration point from the upper terminal end portions acting upon the channel member means in response to operation of the hydraulic ram powered bucket tilting link; said stress distributing plate means is generally elliptical in shape, and said portion of reduced cross-sectional area is a circular hole centered on the ordinate or minor axis of the ellipse and is spaced upwardly toward an upper longer curved side of the generally elliptical shaped stress distributing plate means from the abscissa or major axis of the ellipse; and connecting means are provided in a lower longer curved side of the generally elliptical shaped stress distributing plate means for mounting the terminal end portions thereto.

4,395,194

METHOD OF HANDLING HARVESTED MATERIAL

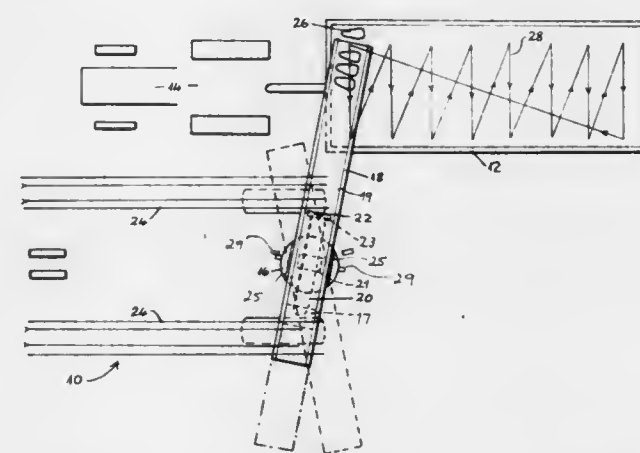
John C. Green, Ely, England, assignor to Hassy Horticultural Development Ltd., Cambridgeshire, England
Division of Ser. No. 111,096, Oct. 1, 1980, abandoned. This application Mar. 12, 1981, Ser. No. 242,993

Claims priority, application United Kingdom, Mar. 5, 1979, 7907585

Int. Cl.³ B65G 67/08, 67/22

U.S. Cl. 414—786

5 Claims



1. A method of handling material harvested by a first vehicle and transferring it to a second vehicle moving alongside the first vehicle comprising the steps of loading the material on a conveyor arranged on the first vehicle with its conveying direction at an oblique angle to a direction of motion of the vehicles, advancing the two vehicles at differential speeds and simultaneously both reciprocating the conveyor along its conveying direction and driving the conveyor to advance the harvested material to the second vehicle.

4,395,195

SHROUD RING FOR USE IN A GAS TURBINE ENGINE
Anthony R. De Cosmo, Wallingford, and John H. Young, South Windsor, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 16, 1980, Ser. No. 150,489

Int. Cl.³ F01D 25/26

U.S. Cl. 415—137

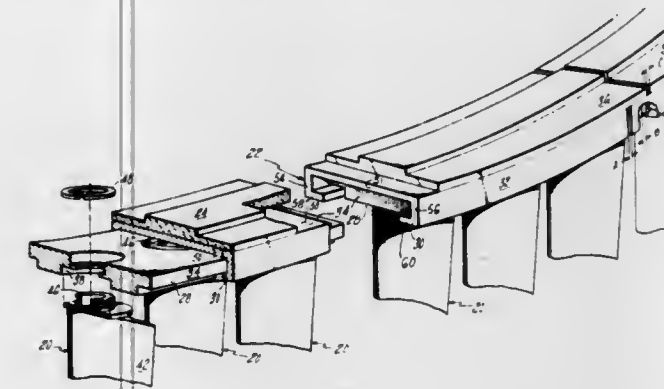
13 Claims

1. For a gas turbine engine of the type having a stator structure outward of a flow path for working medium gases, rotor structure inward of the flow path for working medium gases and an array of stator vanes extending inwardly across the flow path from the outward stator structure into proximity with the inward rotor structure, an improved shroud ring for supporting the inward ends of the vanes and a seal member radially outwardly of the rotor structure, wherein the improvement comprises:

a first ring formed of a plurality of segments extending circumferentially, each segment spaced from an adjacent segment leaving a gap therebetween and each segment

engaging at least two stator vanes at the inward end of the stator vane to support the stator vanes in guided cantilever fashion, each segment being adapted by a hole at each vane to receive the vane;

a second ring inwardly of the first ring, the second ring formed of a plurality of segments, each segment slidably engaging in the circumferential direction a corresponding segment of the first ring and each segment having an inner wall extending inwardly of the corresponding segment of



the first ring to cover at least one of said holes in the corresponding segment which adapt said corresponding segment of the first ring to receive the stator vanes for blocking the leakage of working medium gases between the vanes and the first ring;

wherein the sliding engagement between the first ring and the second ring enables the stator structure to position the second ring radially about the rotor structure in response to inward and outward movement of the stator structure.

4,395,196

TURBINE SHROUD HONEYCOMB MATRIX MECHANICAL LOCKING STRUCTURE AND METHOD

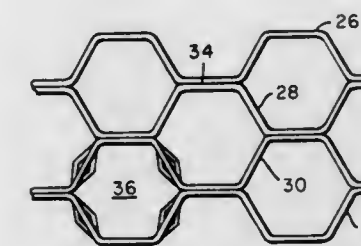
John R. Plautz, 18061 Parke La., Grosse Ile, Mich. 48138

Filed May 5, 1980, Ser. No. 146,389

Int. Cl.³ F01D 11/08

U.S. Cl. 415—174

1 Claim



1. A shroud for a turbine engine or the like comprising an arcuate base member having a convex side with a convex surface and a concave side with a concave surface including means for securing the shroud to a turbine engine casing, a six-walled, two ended cell, honeycomb structure secured to the base on the concave side thereof, a matrix of abrasible material within the honeycomb structure, and mechanical locking means operable between the honeycomb structure and abrasible matrix material for securing the abrasible matrix material within the honeycomb structure including portions of at least some of the walls of the cells being deformed transversely only between and in spaced relation to the ends of the cells so as to extend into the cells and comprising split and deformed portions of walls of the cells extending into the abrasible matrix material wherein the split and deformed portions of the honeycomb structure are deformed in a diamond configuration with the center of the diamond configuration split substantially parallel to the concave surface of the base and the upper and lower portions of the diamond shaped deformed portion of the honeycomb material extend in oppo-

site directions into adjacent cells with their maximum deformation appearing at the split center of the diamond configuration.

4,395,197

CENTRIFUGAL FLUID MACHINE

Yoichi Yoshinaga, Minorimachi; Hideo Nishida, Shimoinayoshi, and Shinjiro Ueda, Kashiwa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

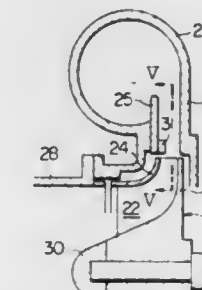
Filed Jul. 22, 1980, Ser. No. 171,268

Claims priority, application Japan, Aug. 1, 1979, 54-97273

Int. Cl.³ F01D 1/02, 9/00; F04D 29/44, 29/54

U.S. Cl. 415—211

4 Claims



1. A centrifugal fluid machine comprising: an impeller having an outlet; a diffuser having performance characteristics of the vaneless diffuser type located around the outlet of said impeller and including a pair of opposed, but spaced annular diffuser plates having respective inner surfaces which define a diffuser channel therebetween, said diffuser channel having an inlet continuous to the outlet of said impeller and an outlet radially remote therefrom; and a plurality of guide vane means, provided in a circular array on at least one of said inner surfaces of said pair of diffuser plates in a manner extending from a position within the inlet of said diffuser channel contiguous with the outlet of the impeller toward the outlet of said diffuser channel to a position which does not exceed about one-half the distance between said inlet and outlet of the diffuser channel in a region of a low flow angle portion of fluid flow introduced into the diffuser channel from the impeller outlet by said impeller, for guiding only said low flow angle portion of the fluid flow from the outlet of the impeller, said guide vane means each having a height, corresponding substantially to that of the low flow angle flow region, $\frac{1}{2}$ to $\frac{1}{5}$ the spacing between said pair of diffuser plates.

4,395,198

CONTINUOUS TWIN-STAY COLUMNS FOR BULB HYDRAULIC TURBINES

Thomas R. Schucker, York, Pa., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 7, 1981, Ser. No. 327,926

Int. Cl.³ F04D 29/40

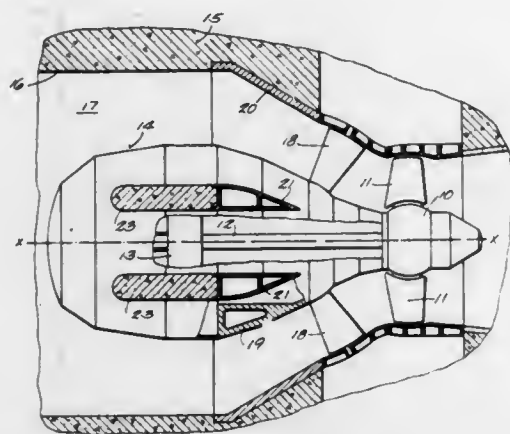
U.S. Cl. 415—219 R

4 Claims

1. A support structure for a hydraulic turbine having a rotatably mounted runner having a generally horizontal axis of rotation with a rotatable drive shaft affixed to one end of said runner and extending axially therefrom; said shaft terminating in a generator unit remote from said runner; a stationary bulb housing adjacent said runner and enclosing said drive shaft and generator unit; a duct wall surrounding said runner and bulb housing and cooperating with said runner and bulb housing to define a hydraulic passage; said bulb housing including an inner stay cone axially disposed along said drive shaft between said generator unit and said runner; said inner stay cone being perpendicular to said shaft; an outer stay cone embedded in said duct wall and coplanar with said inner stay cone; the improvements comprising:

a pair of vertical stay columns extending through said bulb housing with said drive shaft extending between said stay

columns; each of said columns being affixed to said outer stay cone beneath said bulb housing and extending vertically through said inner stay cone in said bulb housing and being affixed to said outer stay cone above said bulb housing; said vertical stay columns being affixed to said inner stay cone where said columns pass through said inner stay cone; and,



a pair of bottom vertical piers adjacent said stay columns remote from said runner; said bottom vertical piers being integral with said duct wall beneath said bulb housing and extending vertically upward into communication with said bulb housing.

4,395,199

CONTROL METHOD OF A SYSTEM OF INTERNAL COMBUSTION ENGINE AND HYDRAULIC PUMP

Eiki Izumi; Hiroshi Watanabe; Yukio Aoyagi, all of Chiyoda; Kazuo Honma, Amimachi, and Kichio Nakajima, Shimoinayoshi, all of Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

PCT No. PCT/JP80/00247, § 371 Date Jun. 15, 1981, § 102(e) Date Jun. 15, 1981, PCT Pub. No. WO81/01031, PCT Pub. Date Apr. 16, 1981

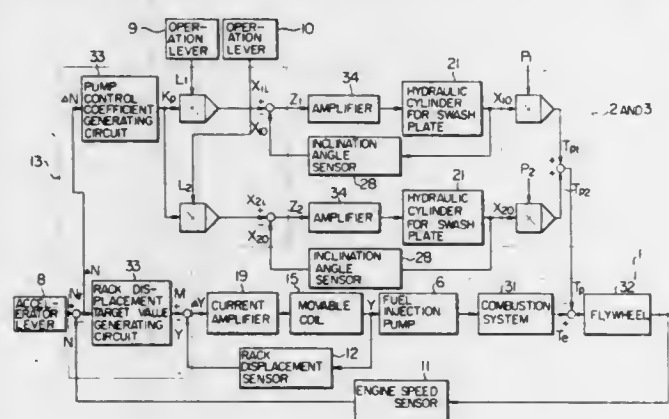
PCT Filed Oct. 14, 1980, Ser. No. 276,367

Claims priority, application Japan, Oct. 15, 1979, 54-131846; Mar. 14, 1980, 55-31584; Mar. 14, 1980, 55-31585; May 13, 1980, 55-62309

Int. Cl.³ F04B 49/00

U.S. Cl. 417-53

12 Claims



1. A method of controlling a system for generating hydraulic power, the system including an internal combustion engine controlled by fuel injection by a fuel injection pump, and a plurality of hydraulic pumps of the variable displacement type driven by the internal combustion engine, the method comprising the steps of calculating a difference between a target engine speed set by a manipulated variable of an accelerator for the internal combustion engine and an output engine speed to obtain an engine speed deviation; converting the engine speed deviation into a pump control coefficient which is in a functional relation with the engine speed deviation, performing a calculation with the converted pump control coefficient and an

externally manipulated variable for inclination of a swash plate of the hydraulic pumps, and inputting the calculated value to a regulator of the hydraulic pump as a target value for inclination of the swash plate thereof to thereby control the inclination angle of the swash plate of the hydraulic pumps; and simultaneously converting said engine speed deviation into a rack displacement value which is in a functional relation with the engine speed deviation, and adjusting rack displacement of the fuel injection pump by the converted value to thereby control the amount of fuel injection.

4,395,200

DOWNHOLE OIL WELL PUMP

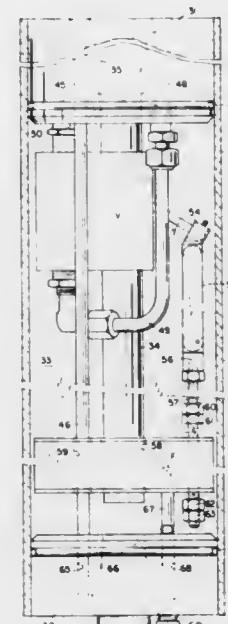
David S. Anthony, and Michael D. Anthony, both of 1235 W. Laurel, San Antonio, Tex. 78201

Filed Dec. 22, 1980, Ser. No. 218,778

Int. Cl.³ F04F 1/06

U.S. Cl. 417-131

1 Claim



1. An automatic gas operated downhole fluid pump, comprising:

an elongated cylindrical chamber for receiving fluid and having a concentrically mounted cylindrical float with a predetermined buoyancy and weight mounted therein for vertical reciprocating movement in said cylindrical chamber responsive to rising and falling of fluid in said cylindrical chamber;

a valve operably connected with the cylindrical float to automatically communicate a source of pressurized gas with the cylindrical chamber for injecting pressurized gas into the cylindrical chamber when fluid in the cylindrical chamber rises and moves the cylindrical float upwardly in the cylindrical chamber to a predetermined height to force the fluid from the cylindrical chamber;

said valve having an actuator biased and retained in either an open or closed position and actuatable to either the open or closed position upon movement of the cylindrical float within the cylindrical chamber as the fluid rises and falls to predetermined levels;

said cylindrical float being connected with the valve actuator by a lost motion connector including a vertically disposed elongated control rod connected at one end with the valve actuator and extending through a passageway through the cylindrical float with spaced adjustable tap means to adjustably connect the control rod with the cylindrical float to apply force to the actuator only when it is desired to actuate the valve;

said elongated cylindrical chamber being formed from a cylindrical housing enclosed by upper and lower cap members;

an air supply line extending between the upper and lower cap members to supply air between pump stages; an oil discharge line being provided within the cylindrical chamber for flowing fluid from the cylindrical chamber during pumping; said cylindrical float including passageways therethrough which are slidably mounted upon the air supply line and the oil discharge line; and said lower cap member including an adjustable stop member to allow the cylindrical float to move to a predetermined lower limit within the cylindrical chamber.

4,395,201

INJECTOR PUMP

Dan Bron, 36 Palmach St., Haifa, Israel

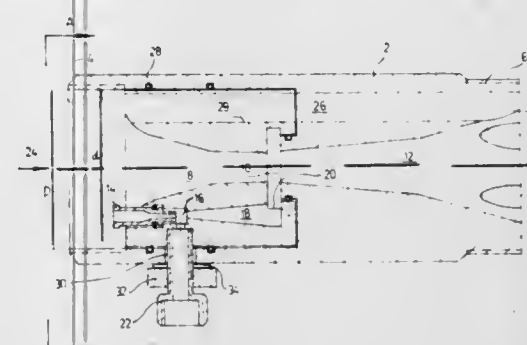
Filed Feb. 2, 1981, Ser. No. 230,750

Claims priority, application Israel, Feb. 21, 1980, 59439

Int. Cl.³ F04F 5/22

U.S. Cl. 417-169

13 Claims



1. An in-line, two-stage, variable-bypass injector pump for controllably admixing a secondary fluid to a main fluid, comprising:

a housing connectable into a pipe line carrying said main fluid;

a main venturi extending along the central axis of said housing and comprising an entrance, throat and exit portion,

a secondary venturi off center but substantially parallel to said central axis, comprising an entrance, throat and exit portion which exit portion leads into the throat portion of said main venturi;

a connector, one end of which leads into the throat portion of said secondary venturi and the other end of which is connectable to a source of said secondary fluid;

at least one passageway located off center with respect to said main venturi and designed to permit a variable proportion of said main fluid to flow from one end of said housing to the other end thereof, while bypassing said main venturi, and

shutter means to control said bypassing flow between a maximum and zero flow,

wherein, by selectively creating a misalignment between at least two different portions of said passage way, a variable constriction is produced in said passage way, which constriction, when maximum, results in zero bypass flow and, when zero, results in maximum bypass flow.

4,395,202

MULTI-EJECTOR

Peter Tell, Österskär, Sweden, assignor to AB Piab, Sweden

Filed May 18, 1981, Ser. No. 264,941

Claims priority, application Sweden, May 21, 1980, 8003819

Int. Cl.³ F04F 5/22

U.S. Cl. 417-169

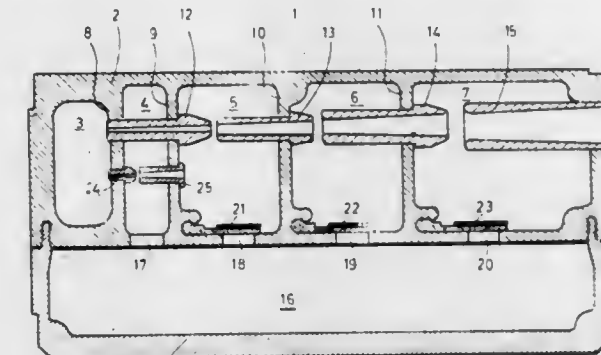
5 Claims

1. An ejector comprising a housing enclosing a plurality of chambers arranged in series and separated from a vacuum collecting compartment by a partition, said plurality of chambers comprising a first chamber, which is a pressure supply chamber, separated from a second chamber by a first wall, and at least one other chamber, said other chamber being separated

from said second chamber by a second wall and having a third wall spaced from said second wall,

at least one first plurality of nozzles arranged in series in a flow direction from said first chamber to said other chamber, including a first nozzle extending through said first and second walls from said first chamber to said other chamber, and a second nozzle extending through said third wall from said other chamber,

at least one second plurality of nozzles arranged in series in a flow direction from said first chamber to said other chamber, said second plurality of nozzles being spaced from said first plurality of nozzles, including a first nozzle



extending through said first wall from said first chamber to said second chamber, and a second nozzle extending through said second wall from said second chamber to said other chamber,

a plurality of ports extending through said partition from said vacuum collecting compartment to selected of said chambers, including a first port extending from said compartment to said second chamber and a second port extending from said compartment to said other chamber, and,

at least one check valve, said check valve positioned in said other chamber and associated with said second port.

4,395,203

VANE COMPRESSOR HAVING A DISCHARGE RATE CONTROL

Haruhiko Takada, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Tokyo, Japan

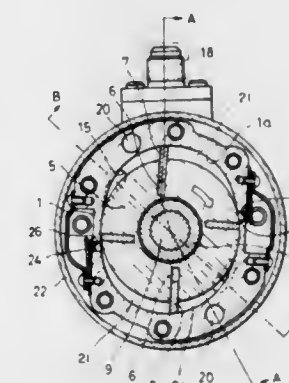
Filed Mar. 26, 1981, Ser. No. 247,780

Claims priority, application Japan, Mar. 29, 1980, 55-41074

Int. Cl.³ F04B 49/06

U.S. Cl. 417-282

6 Claims



1. In a vane compressor including: a rotary shaft; a rotor rotatably fitted on and secured to said rotary shaft, said rotor having an outer peripheral surface thereof formed with a plurality of axial slits; a plurality of vanes radially movably received in said axial slits; a housing within which said rotor and said vanes are accommodated, said rotor, vanes and housing cooperating with each other to define pump working chambers therebetween; and a fluid suction passage communicating with the pump working chambers to guide fluid thereinto from the

outside of said compressor; wherein rotation of said rotor which takes place in unison with rotation of said rotary shaft causes a pumping action of said fluid;

the improvement which comprises:

valve means disposed to close part of said fluid suction passage for controlling the rate at which said fluid is introduced into said pump working chambers;

valve driving means coupled to said valve means for controlling the closing action of said valve means;

a sensor disposed to detect the rotation rate (r.p.m.) of said rotor;

and

electronic control means coupled to said sensor and to said valve driving means and being responsive to an output of said sensor for controlling the operation of said valve driving means, said electronic control means controlling said valve driving means to drive said valve means so as to vary the opening of said part of said fluid suction passage, as a function of a value of the rotation rate (r.p.m.) of said rotor detected by said sensor.

4,395,204

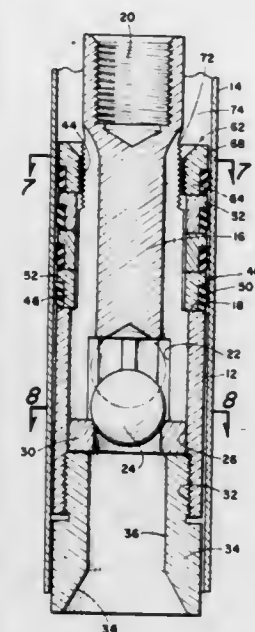
OIL WELL PUMP

Richard L. Turner, Rte. 2, Box 138, Broken Arrow, Okla. 74012

Filed Oct. 7, 1980, Ser. No. 194,781

Int. Cl.³ F04B 21/04

U.S. Cl. 417—554



1. A subsurface well pump for disposition within a working barrel of a well bore and arranged for reciprocal movement therebetween, said pump comprising housing means having a chamber provided in one end thereof in communication with a well fluid reservoir, ball check valve means secured to the housing means and disposed in the chamber to provide alternate open and closed positions for the pump during operation thereof, said chamber having one end thereof closed for limiting the movement of the ball in one direction during opening of the ball check valve means, passageway means provided in said housing means and having one end in communication with the chamber and the opposite end open to an annulus between the housing means and the working barrel for elevation of the well fluid to the surface of the well during operation of the pump, sealing means removably secured to the outer periphery of the housing means above the closed end of the chamber and in sealing engagement with the outer periphery of the housing means and the inner periphery of the working barrel for sealing the annulus from the well fluid reservoir, said sealing means comprising a plurality of substantially identical sealing ring assemblies disposed in stacked relation around the outer periphery of the housing means, each of said sealing ring assemblies comprising a flanged sleeve disposed around the outer periphery of the housing means and having a resilient sealing member secured around the outer periphery thereof for sealing

engagement with the inner periphery of the working barrel, and follower assembly means removably secured to the housing means and engagable with the uppermost sealing ring assembly for securely locking the sealing ring assemblies around the housing means, and wherein the outer periphery of the resilient sealing members is of a stepped configuration for an efficient sealing with reduced wear of the sealing members, and wherein the resilient sealing members are provided with an annular chamber around the inner periphery thereof for receiving fluid therein to enhance the sealing qualities thereof, and wherein the flanged sleeves are provided with a plurality of circumferentially spaced radially extending bores in communication with the chamber of the sealing rings for directing fluid thereto, and said housing means is provided with longitudinally extending passageways cooperating with the radially extending bores to provide fluid inlet passages for the chamber of the sealing rings.

4,395,205

MECHANICALLY ACTUATED TIP SEALS FOR SCROLL APPARATUS AND SCROLL APPARATUS EMBODYING THE SAME

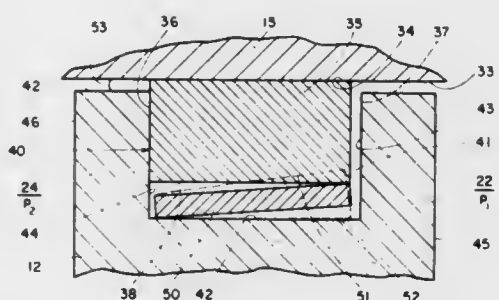
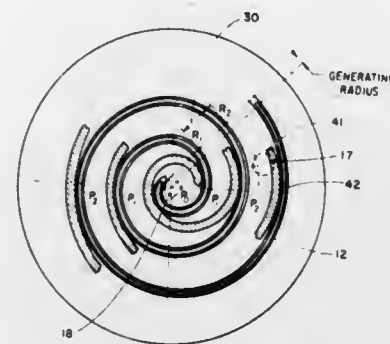
John E. McCullough, Carlisle, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Feb. 12, 1981, Ser. No. 233,915

Int. Cl.³ F01C 19/08; F16F 1/08; F16J 15/16; B23P 15/00

U.S. Cl. 418—55

13 Claims



1. A method of making an axially biasing spring element for a tip seal element in an involute scroll fluid moving apparatus, including a scroll member having an involute curved channel including a bottom wall and at least one side wall extending along the axial end of the scroll member, said tip seal element being of involute configuration and normally disposed at least partially in said channel above said bottom wall for axial movement therein, comprising the steps of:

(a) forming an involute curved sheet metal spring element from spring metal so that the thickness of the sheet metal element all lies in substantially the same plane in its relaxed state, with the pitch of the involute curve of the spring element being greater than that of the channel, the width of the spring element being substantially greater than its thickness and less than the width of the channel;

(b) deforming the spring element by bending it in its own plane so that the pitch of its involute curve matches that of the channel, the deformation not exceeding the elastic

limit of the sheet metal material and causing said spring element to assume a coned angle along its length; and

(c) placing the deformed spring element in the channel adjacent the bottom wall of the channel.

7. A method of making a tip seal in an involute scroll fluid apparatus including a scroll member having an involute curved channel including a bottom wall and at least one side wall extending along the axial end of the scroll member, and a tip seal element normally disposed at least in part in said channel above said bottom wall for axial movement therein, comprising the steps of:

(a) forming the tip seal element so that it has an involute curved configuration substantially matching that of the channel;

(b) forming the length of the tip seal element so that it is shorter at its inner end than said channel and longer at its outer end than said channel; and

(c) placing the seal element in the channel in its normal, relaxed condition and subsequently torqueing it within the channel to force the inner and outer ends into the channel and to therefore provide a circumferential load on the seal element against a side wall of the channel.

4,395,206

SEAL COMPENSATED GEOMETRY ROTARY MOTION DEVICE

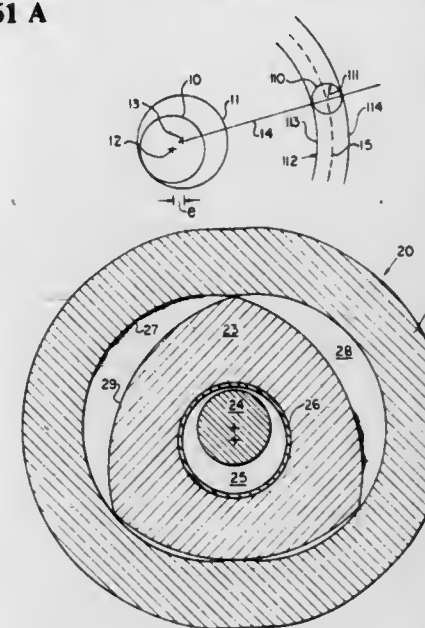
Benjamin Hoffmann, Minneapolis, Minn., assignor to Trochoid Power Corporation, Eden Prairie, Minn.

Filed Apr. 28, 1981, Ser. No. 258,429

Int. Cl.³ F01C 1/10, 1/22; B23P 15/00, 15/10

U.S. Cl. 418—61 A

24 Claims



1. An improved trochoidal rotary device of the type comprising a first working member having a shaped peripheral profile surface derived from a conventional geometrically exact trochoidal curve formed from a predetermined base circle, generating circle, and generating arm length and a second working member having a shaped peripheral profile surface in the form of a conventional envelope curve derived from said conventional trochoidal curve, said second working member profile having a plurality of apices at which are correspondingly mounted radially outward extending apex seals, said apex seals each having a sealing face profile for sealably engaging said profile surface of said first working member and being offset a predetermined distance from said envelope curve, said apex seals defining working chamber spaces between said first and second working members, wherein the improvement comprises:

said first working member profile surface is that of a modified trochoidal curve formed from said predetermined base circle and generating circle and a modified generating arm length comprising said predetermined generating arm length with a tracing disk centered on the tip thereof,

said tracing disk having a radius equal to said predetermined distance, such that said first working member profile surface is radially recessed by said predetermined distance everywhere about the periphery thereof relative to said conventional trochoidal curve, and

said second working member profile surface is that of a modified envelope curve derived from said modified trochoidal curve traced by said tracing disk such that said second working member profile surface is radially enlarged by said predetermined distance everywhere about the periphery thereof relative to said conventional envelope curve.

4,395,207

GEAR PUMP OR MOTOR WITH BEARING PASSAGE FOR SHAFT LUBRICATION

Erkki Mänttari, and Matti Korpinen, both of Jyväskylä, Finland, assignors to Valmet Oy, Finland

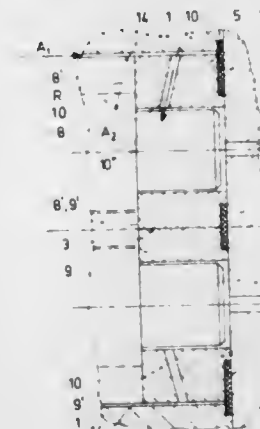
Filed Oct. 16, 1980, Ser. No. 197,471

Claims priority, application Finland, Oct. 22, 1979, 793282

Int. Cl.³ F03C 2/08; F04C 2/18, 15/10

U.S. Cl. 418—102

5 Claims



1. Gear pump and motor apparatus adapted to operate alternatively either as a pump or as a motor, comprising: a housing having a chamber defined therein, said chamber including a pair of superimposed substantially cylindrical portions defined by respective substantially cylindrical inwardly facing surfaces, said chamber portions intercommunicating with each other; a pair of parallel extending toothed gears situated in said housing chamber in meshing engagement with each other, each of said gears having an axial shaft fixed to and extending from at least one of its ends; a pair of bearing sleeves, each bearing sleeve being mounted in a respective chamber portion of said housing chamber and including a body having an inner face surface adapted to normally sealingly engage the end face of a respective gear, an opposed outer face surface, a substantially cylindrical outer peripheral surface having a diameter smaller than the diameter of said inwardly facing cylindrical surface of a respective cylindrical chamber portion and defining a space between it and said inwardly facing surface of the respective cylindrical chamber portion of said housing chamber, and a central opening which receives and supports a shaft of a respective one of said gears for mounting the latter in a respective portion of said housing chamber, and an oil supply bore formed through each bearing sleeve substantially in the plane which passes through the axes of said chamber portions, each bore opening at one end into the space defined by the outer peripheral surface of a respective bearing sleeve and the inwardly facing surface of a respective chamber portion and opening at its other end into the central opening of said bearing sleeve, and wherein the ratio of the length to the diameter of each of said oil supply bores being less than or equal to about 10, whereby oil is directed from said spaces defined between the peripheral surfaces of the bearing sleeves and the inwardly facing surfaces of the respective chamber portions through

said bores into said bearing sleeve openings to lubricate the gear shaft received therein.

4,395,208

ROTARY VANE COMPRESSOR WITH WEDGE-LIKE CLEARANCE BETWEEN ROTOR AND CYLINDER

Teruo Maruyama, Neyagawa; Tatsuhi Taguchi, Shiga, and Tadayuki Onoda, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

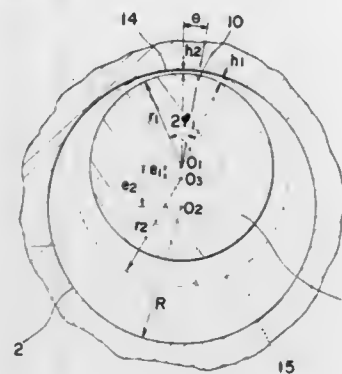
Filed Apr. 7, 1981, Ser. No. 251,943

Claims priority, application Japan, Apr. 7, 1980, 55-45350

Int. Cl.³ F04C 18/00, 27/00, 29/02

U.S. Cl. 418—102

2 Claims



1. A rotary vane compressor comprising:
 - a rotor member;
 - a plurality of vanes slidably mounted in corresponding sliding grooves in said rotor member;
 - a hollow cylinder in which said rotor member and vanes are rotatably mounted at a position eccentric to the cross-sectional center of the hollow interior of said cylinder;
 - end plates secured to opposite ends of said cylinder for closing the hollow interior to define a vane chamber therein;
 - said rotor member having a rotor head portion where the peripheral surface of said rotor member approaches the inner peripheral surface of the hollow interior of said cylinder for dividing the interior of said hollow interior into a fluid discharge side and a fluid suction side;
 - said cylinder having a seal portion at the position opposed to said rotor head portion at which the inner surface of said hollow interior has a cross-sectional shape lying on the arc of a seal circle having a radius of curvature smaller than the radius of curvature of the cross-section of the inner surface of the hollow interior on circumferentially opposite sides of said seal portion, said seal portion having a cross-sectional seal circle center lying between the cross-sectional center of said rotor member and the cross-sectional center of said hollow interior, and at a distance e_1 from said cross-sectional center of said rotor and having a radius $r_2 = r_1 + e_1 + h_2$, where r_1 is the radius of said rotor member and h_2 is the minimum clearance at the seal portion, and e_1 has a value $0 < e_1 < e_2$, where e_2 is the distance between said cross-sectional centers of said hollow interior and said rotor member.

4,395,209

TIRE PRESS

Anand P. Singh, Youngstown, Ohio, and Daniel Shichman, Trumbull, Conn., assignors to NRM Corporation, Akron, Ohio

Division of Ser. No. 255,733, Apr. 20, 1981, Pat. No. 4,338,069, which is a continuation-in-part of Ser. No. 138,658, Apr. 9, 1980, abandoned. This application May 7, 1982, Ser. No. 375,985

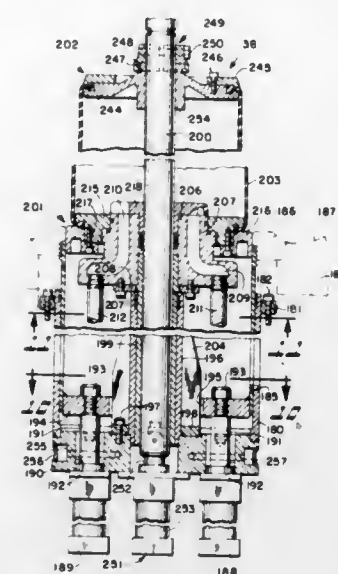
Int. Cl.³ B29H 5/02

U.S. Cl. 425—33

18 Claims

1. A tire curing press assembly comprising mating mold sections, means to open and close said mold sections, a center mechanism including an inflatable shaping and curing bladder, bead grip means for engaging the interior underside of the

upper bead of a green tire, and means for engaging and holding the tread of the green tire away from said bead grip means to



hold open the tire with the upper bead and tread held apart in fixed axial relation to one another to facilitate insertion of said bladder into the green tire.

4,395,210

APPARATUS FOR MANUFACTURE OF TURBULENCE MEMBER MADE OF SYNTHETIC RESIN

Mamoru Hama, Chino, Japan, assignor to Mihama Manufacturing Co., Ltd. and Kato Hatsujo Kaisha, Ltd., both of, Japan

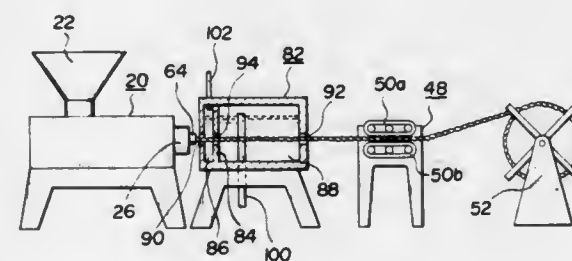
Filed Nov. 20, 1981, Ser. No. 323,704

Claims priority, application Japan, Nov. 21, 1980, 55-164820

Int. Cl.³ B29C 17/00

U.S. Cl. 425—71

1 Claim



1. In an apparatus for the manufacture of turbulence members made of a synthetic resin, which comprises:
 - (a) an extruding machine provided with an extrusion outlet for melting therein a synthetic resin by heat and extruding the molten resin out of said extrusion outlet,
 - (b) a rotary nozzle rotatably attached to the leading end of said extrusion outlet and provided with a slit for allowing the molten resin to be rotated around its axis and simultaneously extruded from said slit in the horizontal direction,
 - (c) a water vessel filled with water and tightly closed on the upper portion thereof for cooling and solidifying therein the molten resin extruded from said slit, and
 - (d) a drawing device for drawing the resin cooled and solidified in said water vessel,
 the improvement wherein said water vessel is divided by a partition wall into a first relatively narrow cooling chamber and a second relatively wide cooling chamber, the lateral wall of said first narrow cooling chamber on the rotary nozzle side, said partition wall and the lateral wall of said second wide cooling chamber on the drawing device side each being provided with an aperture of a diameter slightly larger than the outside diameter of the resin extruded from said slit so as to be aligned with one another, said first narrow cooling chamber being connected to a water-supplying means, and

said second wide cooling chamber being connected to a suction pipe having the upper end thereof opening to the interior of said water vessel so as to be positioned at a higher level than the level of said apertures and having the lower end thereof connected to a suction pump.

4,395,211

METHOD AND DEVICE FOR MANUFACTURING A PLASTIC RECORD CARRIER

Egbert Broeksema, and Arnoldus A. Smeets, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 102,720, Dec. 13, 1979, Pat. No. 4,301,099.

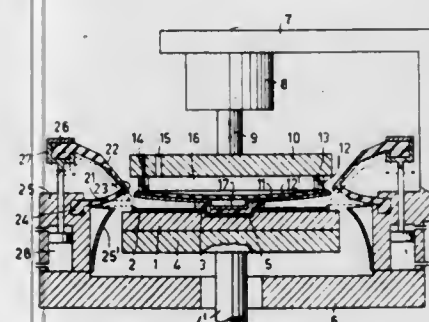
This application Jul. 27, 1981, Ser. No. 286,905

Claims priority, application Netherlands, Aug. 10, 1979, 7906117

Int. Cl.³ B29D 17/00

U.S. Cl. 425—174.4

4 Claims



1. An apparatus for manufacturing a record carrier having a stratified structure and at least one data track, said apparatus comprising a mold having a surface with a pattern formed therein corresponding to the data track to be provided on the record carrier, means for supporting a planar, flexible substrate opposite said mold for movement towards and away from said surface, said mold having a cavity formed in the center of said surface for receiving a curable, fluid resin, said cavity being configured to mate with a central projection on the substrate so that upon movement of the substrate towards said mold, the projection enters said cavity and squeezes the resin in the cavity onto said surface, means for deforming said substrate into a convex form bulging toward said mold and for changing the configuration of said substrate from said convex to a planar form when said substrate contacts the resin on said surface as said substrate is moved towards said mold by said supporting means to thereby roll out the resin over said surface and means for covering the periphery of said substrate during curing of the resin.

4,395,212

SCREEN-CHANGE DEVICE FOR EXTRUDERS

Friedrich Lambertus, Stuttgart, Fed. Rep. of Germany, assignor to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany

Filed Mar. 27, 1981, Ser. No. 248,329

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1980, 3013038

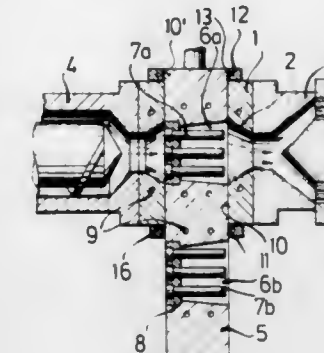
Int. Cl.³ B01B 25/12; B29F 3/02

U.S. Cl. 425—185

9 Claims

1. Screening apparatus for molten plastic flowing from an extruder of plastic material, said screening apparatus comprising a housing adapted for being mounted on the extruder and having a feed channel for flow of plastic material from the extruder through said housing, a slide member, said housing having a borehole in which said slide member is slidably mounted with clearance, replaceable screen elements on said slide member for being discontinuously positioned in the path of the plastic material flowing from said extruder, and means for sealing the clearance between the slide member and said housing to prevent outflow of plastic material therefrom, said means comprising a flange on said housing surrounding said borehole and facing said slide member with a minimal gap

therebetween to permit normal free sliding movement of said slide member, a cooling channel in said flange for flow of a coolant for cooling said flange to minimize said gap and to cool plastic material in said gap for solidifying said plastic material



4,395,213

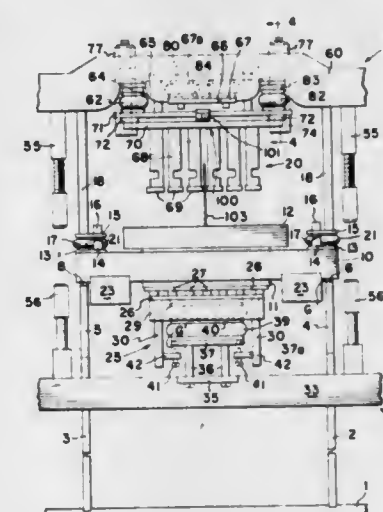
NOISE SUPPRESSING BLOCK MOLDING MACHINERY

Thomas W. Springs, Alpena, and William F. Wallis, Atlanta, both of Mich., assignors to Besser Company, Alpena, Mich. Continuation of Ser. No. 952,634, Oct. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 713,920, Aug. 12, 1976, abandoned. This application Dec. 29, 1980, Ser. No. 220,792

Int. Cl.³ B28B 1/08

U.S. Cl. 425—211

1 Claim



1. In blocking making machinery having a vibratable mold for the reception of moldable material, a head member movable into said mold for compacting moldable material therein, a frame member movable relatively to said mold in a direction toward the latter, and connecting means interposed between said frame member and said head member and connecting said head member to said frame member for movement with and relative to the latter, the improvement comprising first and second yieldable cushioning means forming part of said connecting means and arranged in opposition to one another thereby to apply a yieldable, cushioned force in each of two opposite directions on said head member; and means for increasing or decreasing the force applied on said head member by a selected one of either of said cushioning means and substantially simultaneously decreasing or increasing, respectively, the force applied on said head member by the other of said cushioning means, each of said cushioning means being inflatable and deflatable, and means for inflating and deflating said cushioning means in timed relation to movement of said head member into said mold.

4,395,214

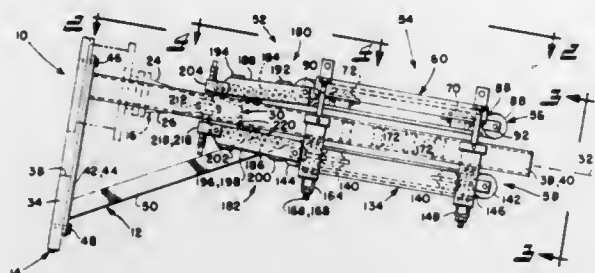
**FOAM EXTRUSION APPARATUS HAVING
DOWNSTREAM UPPER AND LOWER HINGED
SHAPING MEANS AND SIDE RESTRAINING MEANS**
Arthur L. Phipps, Tallmadge, and Ben Stoyanov, Akron, both of
Ohio, assignors to U.C. Industries, Tallmadge, Ohio

Filed Aug. 27, 1981, Ser. No. 297,036

Int. Cl.³ B29D 27/00; B29F 3/04

U.S. Cl. 425—214

37 Claims



1. A foam extrusion apparatus comprising an extrusion die having a die orifice, opposed surface shaping members on respective opposite sides of the extrudate flow path downstream of said die orifice, opposed surface finishing members on respective opposite sides of the extrudate flow path downstream of said surface shaping members, first hinge means pivotally supporting the upstream ends of said shaping members adjacent said die orifice, second hinge means pivotally connecting the downstream ends of said shaping members to said finishing members, respectively, and means adjustably supporting said finishing members for movement toward and away from the extrudate flow path as well as for movement along the extrudate flow path.

4,395,215

**FILM FORMING STRUCTURE FOR UNIFORMLY
DEBOSSING AND SELECTIVELY APERTURING A
RESILIENT PLASTIC WEB AND METHOD FOR ITS
CONSTRUCTION**

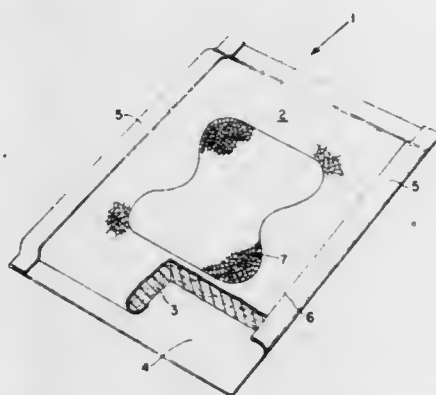
Delmar J. Bishop, Hamilton, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Feb. 2, 1981, Ser. No. 230,919

Int. Cl.³ B29C 17/04

U.S. Cl. 425—290

12 Claims



1. A method for constructing a three-dimensional forming structure for imparting a substantially continuous three-dimensional pattern of debossments, a predetermined portion of said debossments being apertured at preselected points along the surface of a heated plastic web subjected to a fluid pressure differential while in contact with the surface of said forming structure, said method comprising the steps of:

- forming at least one continuously apertured planar sheet exhibiting a first substantially continuous pattern of apertures corresponding to the debossments to be imparted to said web;
- forming a second selectively apertured planar sheet having an overall size and shape generally similar to said continuously apertured planar sheet, said selectively aper-

tured planar sheet exhibiting a second pattern of apertures corresponding to the portions of said web to be debossed and apertured and a third pattern of smaller sized apertures corresponding to those portions of said web to be debossed without aperturing; and

- superposing said continuously apertured planar sheet on said selectively apertured planar sheet so that at least a portion of said apertures in said second and third patterns in said selectively apertured planar sheet are placed in fluid communication with said apertures in said continuously apertured planar sheet, whereby those portions of said selectively apertured planar sheet exhibiting said third pattern of fluid communicating apertures contact and provide support to said heated plastic web when said web is subjected to said fluid pressure differential, thereby preventing rupture of said web at said points of contact, while those portions of said selectively apertured planar sheet exhibiting said second pattern of fluid communicating apertures provide no support to said heated plastic web when said web is subjected to said fluid pressure differential, thereby permitting rupture of said web in areas coinciding with said second pattern of fluid communicating apertures.

9. A three-dimensional forming structure for imparting a substantially continuous three-dimensional pattern of debossments, a predetermined portion of said debossments being apertured at preselected points along the surface of a heated plastic web subjected to a fluid pressure differential while in contact with the surface of said forming structure, said forming structure comprising:

- at least one continuously apertured planar sheet exhibiting a first substantially continuous pattern of apertures corresponding to the debossments to be imparted to said web; and
- a second selectively apertured planar sheet having an overall size and shape generally similar to said continuously apertured planar sheet, said selectively apertured planar sheet exhibiting a second pattern of apertures corresponding to the portions of said web to be debossed and apertured and a third pattern of smaller sized apertures corresponding to those portions of said web to be debossed without aperturing, said continuously apertured planar sheet being superposed on said selectively apertured planar sheet so that at least a portion of said apertures in said second and third patterns in said selectively apertured planar sheet are placed in fluid communication with said apertures in said continuously apertured planar sheet, whereby those portions of said selectively apertured planar sheet exhibiting said third pattern of fluid communicating apertures contact and provide support to said heated plastic web when said web is subjected to said fluid pressure differential, thereby preventing rupture of said web at said points of contact, while those portions of said selectively apertured planar sheet exhibiting said second pattern of fluid communicating apertures provide no support to said heated plastic web when said web is subjected to said fluid pressure differential, thereby permitting rupture of said web in areas corresponding with said second pattern of fluid communicating apertures.

4,395,216

DOUGH PERFORATOR

Richard J. Anetsberger, and John A. Anetsberger, both of Northbrook, Ill., assignors to Anetsberger Brothers, Inc., Northbrook, Ill.

Filed Dec. 2, 1981, Ser. No. 326,608

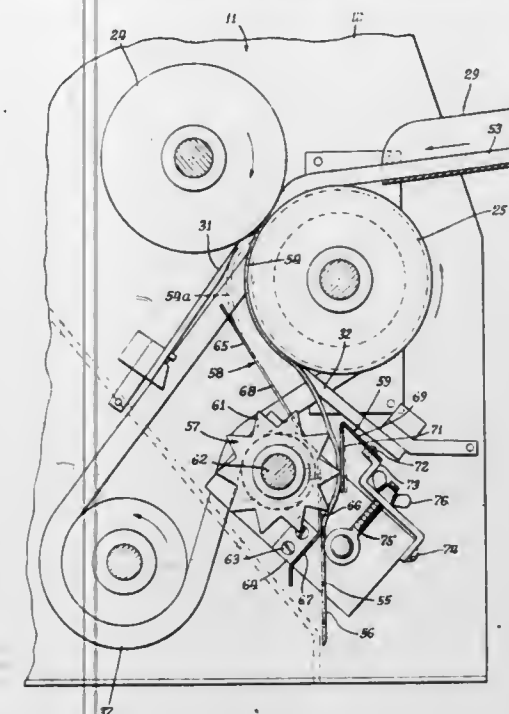
Int. Cl.³ B29C 17/08; A21C 11/10

U.S. Cl. 425—290

8 Claims

4. In a dough sheeting having rollers for sheeting a dough piece, and drive means for rotating said rollers; dough sheet perforator means, comprising an axially aligned and spaced set of dough sheet perforator members rotated by said drive means, means for guiding a dough sheet into contact with said

perforator members, and a backup unit including sheet metal spring members individually cooperating with said perforator members to effect lineal scraping thereagainst of the latter,



whereby spaced apertures are formed completely through a dough sheet to prevent forming of any aperture-closing membranes thereover.

4,395,217

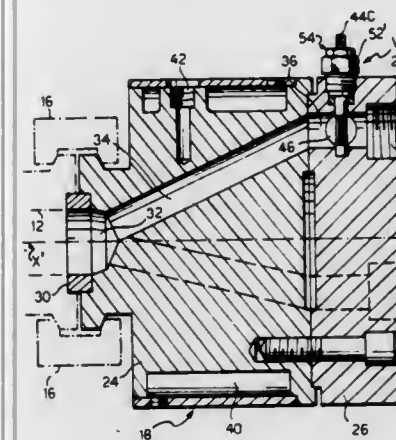
**ADAPTOR FOR EXTRUDING A PLURALITY OF
STREAMS OF SYNTHETIC THERMOPLASTIC FOAM
SIMULTANEOUSLY FROM A SINGLE EXTRUDER**
Alberto Benadi, Turin, Italy, assignor to Lavorazione Materie
Plastiche L.M.P. S.p.A., Turin, Italy

Filed Dec. 10, 1981, Ser. No. 329,472

Claims priority, application Italy, Dec. 19, 1980, 68950 A/80
Int. Cl.³ B29D 27/00; B29F 3/04

U.S. Cl. 425—382 R

3 Claims



1. A synthetic thermoplastic foam extruder comprising a barrel, injection means for injecting a foaming agent into said barrel and an adapter for extruding a plurality of streams of thermoplastic synthetic foam simultaneously from said extruder, comprising: a body having at one end means for attaching said body to said barrel of said extruder in axial alignment therewith; a manifold chamber formed frontally in said one end to receive the thermoplastic mass from said barrel; a plurality of ducts formed in said body, radiating from said manifold chamber and opening on the opposite of said body, each of said ducts terminating with attachment means for a respective extrusion head; a butterfly valve in each of said ducts and means for locking each of the valves individually in a desired angular position, each butterfly valve being comprised of a disc member having a median transverse section in the form of a rhomboid with the two opposing obtuse angles rounded off

and with the two opposing acute angles being not greater than 60° and having a dimension measured along the axis of rotation which is 60–80 percent of the corresponding dimension of the duct whereby in the position of maximum closure said butterfly valve cuts off at least 70 percent but not more than 90 percent of the flow cross section of the respective duct.

4,395,218

**MECHANICAL EXPANSION PLUG FOR THE
INTERNAL CALIBRATION OF PLASTIC MATERIAL
TUBES IN GENERAL, PARTICULARLY FOR
FASHIONING THE SEATS FOR GASKETS**

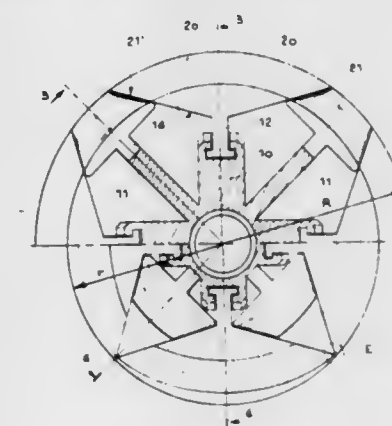
Neri Ermes, Bagnacavallo (RA), Italy, assignor to S.I.C.A. Serrande, Infissi, Carpenteria, Attrezzatura S.p.A., Alfonsine (RA), Italy

Filed Oct. 23, 1981, Ser. No. 314,222

Claims priority, application Italy, Nov. 14, 1980, 3570 A/80
Int. Cl.³ B29C 17/00

U.S. Cl. 425—392

5 Claims



1. Mechanical expansion plug for the internal calibration of plastic material tubes in general, particularly for fashioning the seats for gaskets, comprising a tubular extending body that can be inserted inside the tube to be machined and has a circumferential aperture along its lateral surface, characterized by the fact that it comprises: a movable element of truncated cone conformation, supported and able to slide, in the two directions, inside the said body, coaxially thereto, without the possibility of one rotating with respect to the other, under the action of operating means, the said element being provided, peripherally, at equal angular spacing one from the other, with a first and second set of guides that extend along generatrices of the said element, alternate, and slope with respect to the longitudinal sliding axis; a first plurality of sectors of circular conformation, movable radially inside the said circumferential aperture, virtually triangular when viewed along a radial section of the said body, bent externally to conform to the maximum circumference of the seat to be fashioned in the tube, and provided internally with a first tailpiece that can be coupled to a corresponding guide in the aforementioned first set; and a second plurality of sectors, also movable radially inside the said aperture, virtually trapezoidal when viewed along a radial section, bent externally to conform to the said maximum circumference, placed alternately with respect to the corresponding sectors of the said first plurality with their lateral sloping surfaces mating, and provided internally with a second tailpiece that can be coupled to the corresponding guides of the said second set, the latter having an inclination more pronounced than that of the guides of the said first set, said first and second pluralities of sectors being movable between radially retracted and radially expanded positions and adopting, in the radially expanded position, a conformation identical to the internal conformation of the calibrated material.

4,395,219

APPARATUS FOR FORMING COMPACTIBLE MATERIAL INTO A BODY

Jeffrey J. Franken, Birdsborough; Walter W. Gladney, Kutztown, and William R. Yeich, West Lawn, all of Pa., assignors to Western Electric Co., Inc., New York, N.Y.

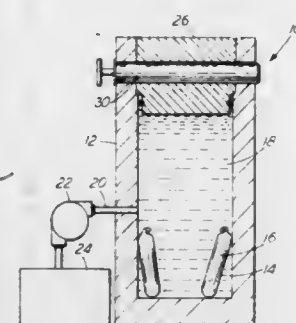
Division of Ser. No. 222,424, Jan. 5, 1981, Pat. No. 4,370,294.

This application Sep. 27, 1982, Ser. No. 424,689

Int. Cl.³ A01J 21/00

U.S. Cl. 425—405 R

5 Claims



1. Apparatus for forming compactible material into a body having a desired size and shape, comprising:

a pouch of a first size, having elastic walls of sufficient strength to at least partially compact the material, such walls being expandable to a second size, larger than the body, said pouch having a necked opening therein at a first end thereof;

a chamber for receiving the pouch, said chamber having inside walls conforming to the desired shape of the body but of the second size, the first end of the pouch being extendable through a necked opening in said chamber and the walls of the first end being sealable to the walls of the opening such that the interior of the pouch is accessible from outside the chamber;

means for forming a sufficient vacuum condition between the pouch and chamber to substantially elastically expand the pouch to the size and shape of the inside walls of the chamber;

means for introducing the material into the pouch to load the same, said material substantially conforming, as it is introduced, to the shape and second size of the expanded pouch; and

means for introducing air into the chamber to break the vacuum condition thereby permitting the pouch to compress the loaded material and maintain the shape for further compacting into the desired body size and shape.

4,395,220

APPARATUS FOR FORMING CONSTRUCTION BLOCKS

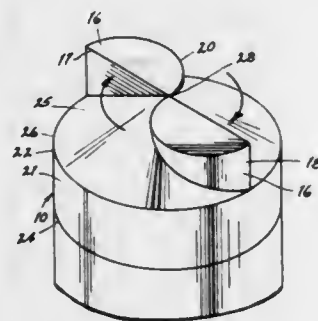
Warren L. Harter, Rte. 3, Box 1038, Newport, Wash. 99156

Filed Jun. 8, 1981, Ser. No. 271,599

Int. Cl.³ B28B 21/92

U.S. Cl. 425—413

10 Claims



1. A rotor for displacing and compacting materials smoothly

and evenly while producing a cylindrical hollow core through a formed block, comprising:

a continuous smooth cylindrical outer surface formed about a center axis;

a curved vane projecting axially outward from one end of the cylindrical surface to an outer edge lying within a plane perpendicular to the axis of the smooth cylindrical surface;

said curve vane having a radial edge that intersects said outer edge and is an extension of said cylindrical surface; the vane presenting a transversely curved convex face in the intended direction of rotation of the rotor;

the face of the vane having a radial orientation at the center axis of the cylindrical surface and constantly receding from the direction of rotation spirally to a tangential orientation at the cylindrical surface.

4,395,221

TUBULAR EXTRUSION APPARATUS

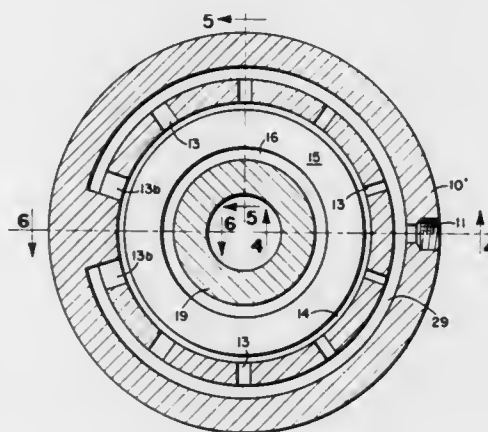
F. John Herrington, Holcomb, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 109,696, Jan. 4, 1980, Pat. No. 4,285,656. This application Aug. 20, 1981, Ser. No. 294,599

Int. Cl.³ B29F 3/04

U.S. Cl. 425—467

12 Claims



1. A side-fed tubular extrusion die comprising:

a sidewall defining the exterior of said die, an inlet orifice in said sidewall for introducing a molten resin into said die, a first chamber located interiorly of said die in communication with said inlet orifice and extending circumferentially of said die so that the longitudinal extent of said chamber forms a C-shape, said inlet orifice communicating with said C-shaped first chamber at a point intermediate the ends thereof, said C-shaped first chamber receiving a molten resin introduced through said inlet orifice, a second toroidal-shaped chamber located interiorly of said die, an annular interior die wall separating said first and second chambers, a plurality of openings provided in and spaced along said interior die wall, said openings interconnecting said first and second chambers to allow said second chamber to receive a molten resin from said first chamber, and an extrusion gap defined by a mandrel positioned coaxially within said die and an interior die sidewall coaxial with said mandrel, said extrusion gap receiving molten resin from said second toroidal-shaped chamber.

7. A side-fed tubular extrusion die comprising:

a sidewall defining the exterior of said die, an inlet orifice in said sidewall for introducing a molten resin into said die, a first at least partly toroidal-shaped chamber located interiorly of said die in communication with said inlet orifice for receiving a molten resin introduced through said inlet orifice, a second toroidal-shaped chamber located interiorly of said die, an interior die wall separating said first and second chambers, a plurality of openings provided in and spaced along said interior die wall, said openings having respective lengths which progressively decrease

from an opening closest to said inlet orifice to an opening farthest removed therefrom, said openings interconnecting said first and second chambers to allow said second chamber to receive a molten resin from said first chamber, and an extrusion gap defined by a mandrel positioned coaxially within said die and an interior die sidewall coaxial with said mandrel, said extrusion gap receiving molten resin from said second toroidal-shaped chamber.

4,395,222

INJECTION MOLDING APPARATUS

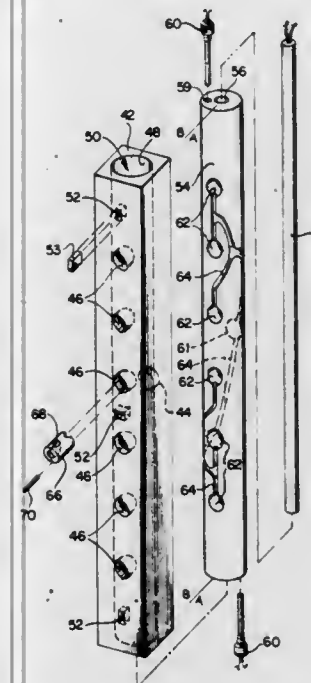
William R. Gaiser, Dayton, Ohio, and John W. Gaiser, Schaumburg, Ill., assignors to The Broadway Companies, Inc., Dayton, Ohio

Filed May 15, 1981, Ser. No. 263,841

Int. Cl.³ B29F 1/00

U.S. Cl. 425—548

14 Claims



1. For use with an injection molding apparatus of the type having an injector portion including a plurality of mold cavities communicating with a source of molten plastic material, a heated manifold comprising:

an elongated shell having an exterior surface defining at least one inlet sprue for communicating with a source of material and a plurality of outlet gates for communicating with mold cavities;

said shell having an interior portion defining a central longitudinal passage therethrough;

heating means positioned within said passage for radiating heat into said interior portion; and

said interior portion having a plurality of discrete spiral runners extending from said inlet sprue to said outlet gates and spiraling about said heating means such that molten plastic material may flow from said inlet sprue through said runners to said outlet gates and receive heat energy from said heating means.

4,395,223

MULTI-STAGE COMBUSTION METHOD FOR INHIBITING FORMATION OF NITROGEN OXIDES

Noboru Okigami; Hiroshi Hayasaka; Yoshitoshi Sekiguchi, and Harushige Tamura, all of Osaka, Japan, assignors to Hitachi Shipbuilding & Engineering Co., Ltd., Osaka, Japan

Division of Ser. No. 914,146, Jun. 9, 1978. This application Dec. 31, 1980, Ser. No. 221,825

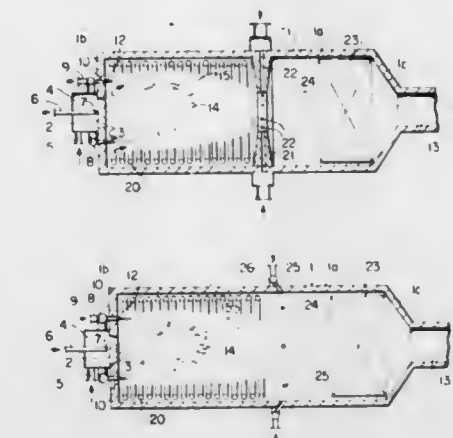
Int. Cl.³ F23M 3/04

U.S. Cl. 431—10

6 Claims

1. A multi-stage combustion method for inhibiting the formation of nitrogen oxides comprising injecting a primary fuel and primary air into a furnace to burn the fuel and form a first-stage combustion zone, the air being supplied at a rate in

excess of the stoichiometric rate required for the combustion of the fuel, injecting only a secondary fuel in the absence of air into the furnace in the vicinity of the first-stage combustion zone at a rate in excess of the stoichiometric rate required for the consumption of the excess oxygen resulting from the combustion in the first-stage zone to form a second-stage combustion in the vicinity of the first-stage zone, the secondary fuel being supplied at the ratio of secondary fuel supply to total fuel



supply of 0.2 to 0.5, the heat produced therein being absorbed by heat absorbing means provided in the wall of the furnace, and supplying secondary air downstream of the second-stage zone, at a rate not less than the stoichiometric rate required for the oxidation of the unburned components resulting from the combustion in the second-stage zone to oxidize the unburned components and form a third-stage combustion zone downstream from the second-stage zone.

4,395,224

BURNER CONTROL SYSTEM

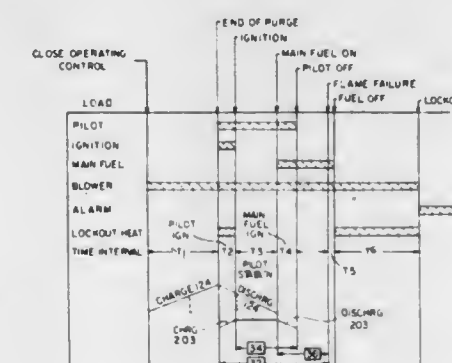
Phillip J. Cade, Winchester, Mass., assignor to Electronics Corporation of America, Cambridge, Mass.

Continuation-in-part of Ser. No. 9,307, Feb. 5, 1979, Pat. No. 4,243,372. This application Sep. 24, 1980, Ser. No. 190,243

Int. Cl.³ F23N 5/00

U.S. Cl. 431—31

5 Claims



1. Burner control apparatus for use with a fuel burner installation having an operating control switch which is actuated to produce an ignition request signal, an air flow switch which provides an air flow signal to indicate the presence of an adequate air flow through the burner, and means responsive to said burner control apparatus for controlling fuel flow, said burner control apparatus comprising:

an electronic timing circuit for providing an ignition cycle having successive timing intervals including in sequence a purge interval, a pilot ignition interval, a pilot stabilization interval and a main fuel ignition interval;

air means for providing an air flow through the burner during said ignition cycle;

lockout means, responsive to a lockout signal applied thereto for a predetermined time, for terminating burner operation and stopping fuel flow to said burner installation;

means, responsive to said operating control switch, for activating said timing circuit, including:

a first photocoupler having a light source connected in parallel with said air flow switch and providing an output signal across its output terminals when said air flow switch is open;

a second photocoupler having a light source connected in series with said air flow switch and providing an output signal across its output terminals when said air flow switch is closed;

means, operative in response to an ignition request signal, for initially applying power to the timing circuit to begin an ignition cycle only if said first photocoupler output signal is present; and

means, operative in response to an ignition request signal, for applying a lockout signal to said lockout means until the occurrence of said second photocoupler output signal;

whereby said timing circuit is disabled to prevent further ignition cycle operation if said air flow switch is closed before said air means is operative and said lockout means is actuated to prevent further ignition cycle operation if said air flow signal is not present within a predetermined time after said air means is operative.

4,395,225

BURNER OPERATED WITH LIQUID FUEL FOR HEATING DEVICES

Bernd Mittmann, Munich, Fed. Rep. of Germany, assignor to Webasto-Werk W. Baier GmbH and Co., Munich, Fed. Rep. of Germany

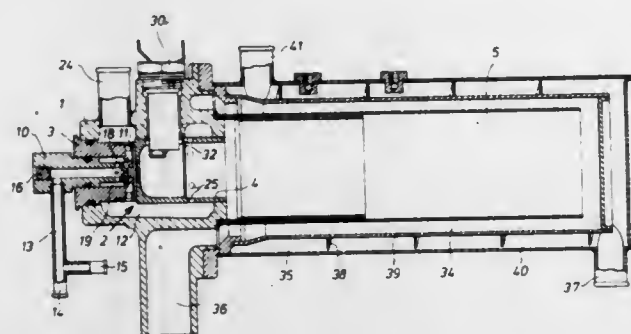
Filed Mar. 6, 1981, Ser. No. 241,369

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 3010078; Jan. 13, 1981, 3100744

Int. Cl.³ F23N 5/00

U.S. Cl. 431—62

27 Claims



1. Burner operated with liquid fuel, for heating devices, especially for vehicle heaters, comprising a low-pressure atomizer arranged at one end of a combustion chamber, said atomizer including a burner insert and a nozzle projecting into an end of the burner insert facing away from the combustion chamber, supply means for feeding a fuel and a primary air stream into said nozzle, and flow control means for automatically controlling at least the quantity of primary air passing through the burner in dependence on the temperature of the burner, further comprising flow control means for automatically controlling the quantity of a second air stream fed to the burner in dependence on the burner temperature.

4,395,226

COMBUSTION SAFETY APPARATUS

Masakatsu Nakanishi, and Toshiyuki Nomura, both of Nagoya, Japan, assignors to Rinnai Kabushiki Kaisha, Nagoya, Japan

Filed Aug. 14, 1980, Ser. No. 178,346

Claims priority, application Japan, Aug. 20, 1979, 54/104995

Int. Cl.³ F23N 5/00

U.S. Cl. 431—76

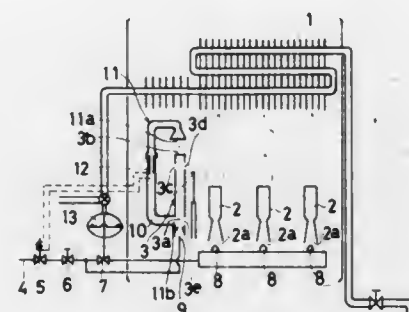
3 Claims

1. A combustion safety apparatus for controlling operation

of a burner by monitoring combustion exhaust gas of said burner comprising:

a detecting tube positioned adjacent said burner receiving exhaust gas into an inlet thereof, said burner having gas supply pipe, and an inlet mixing tube, said detecting tube having an outlet in communication with said mixing tube of said burner,

a tubular oxygen concentration cell element having electrodes on its inner and outer surfaces, said cell element



being interposed in said detecting tube, a difference in oxygen concentrations at each of said electrodes producing a certain output when said cell element is heated to a high temperature,

means for heating said cell element to said high temperature, and safety valve means in said gas supply pipe and connected to said cell element for shutting off gas supply to said burner when said cell element produces less than said certain output.

4,395,227

FLAME THROWER ATTACHMENT

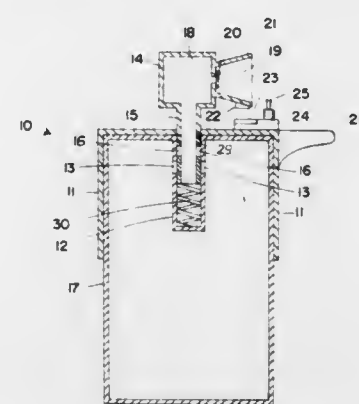
Scotlund Stivers, Box 60, Star Route, Bruno, Minn. 55712

Filed Mar. 20, 1981, Ser. No. 245,966

Int. Cl.³ F23Q 2/00

U.S. Cl. 431—142

7 Claims



1. A flame thrower attachment for use with a container of combustible material comprising:

a housing for mounting to and partially encapsulating an aerosol like container of pressurized combustible material; a nozzle head located on said housing and adapted to connect to an aerosol like container of pressurized combustible material to permit said nozzle head to release a combustible material from an aerosol like container of pressurized combustible material, said nozzle head having an opening for directing a pressurized combustible material along an axis and a diverging section to direct a flame in a first direction;

an ignition means for igniting combustible material as it discharges from an aerosol like container of pressurized combustible material; and

a finger guard attached to said housing, said finger guard having a section extending in the first direction, said finger guard located proximate but off-set from said nozzle head

so that a flame issuing from said nozzle head will pass over said finger guard without burning the user's fingers.

4,395,228

ROTARY BURNER FOR LIQUID FUELS

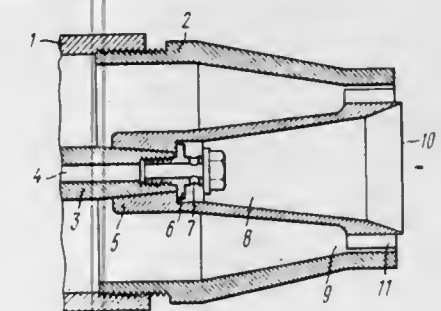
Vladimir G. Bazarov, ulitsa Matveevskaya, 42, korpus 5, kv. 135; Alexei V. Kuzmin, prospekt Vernadskogo, 89, korpus 2, kv. 64; Gennady A. Smaga, ulitsa Akademicheskaya, 71, kv. 79; Zelik F. Kapchits, Oktyabrskaya ulitsa, 69, kv. 51; Sergei J. Dennikov, ulitsa Veshnyakovskaya, 26, kv. 334, all of Moscow, and Peter I. Soosalu, Pyizmyae TEE, 113, kv. 14, Tallin, all of U.S.S.R.

Filed Feb. 6, 1981, Ser. No. 232,113

Int. Cl.³ F23D 11/04

U.S. Cl. 431—168

4 Claims



1. A rotary burner for viscous liquid fuels, comprising a casing; a nozzle mounted on said casing for axial movement; a fuel atomizer rotatably mounted in said nozzle made in the form of a cup which together with an output portion of the nozzle defines an annular convergent channel connected to an air supply means; a circular row of vanes shaped as wedges whose bases face the cup edge, and mounted on an external surface of the cup near to an edge of said cup.

4,395,229

DISCHARGE TYPE IGNITOR FOR OIL STOVE

Shuji Yasuhira, Tondabayashi, and Shinichi Naka, Yao, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

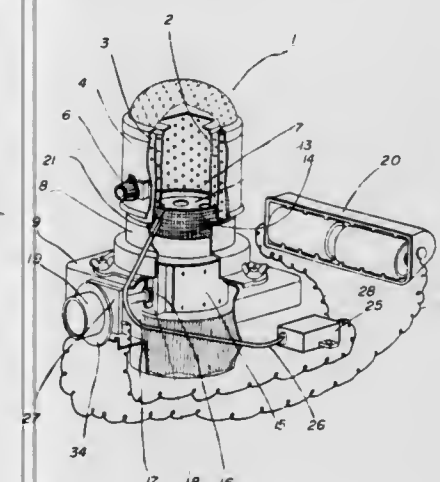
Filed Mar. 25, 1981, Ser. No. 247,250

Claims priority, application Japan, Jul. 22, 1980, 55-104103[U]

Int. Cl.³ F23Q 3/00

U.S. Cl. 431—261

9 Claims



1. An ignitor assembly for oil stoves comprising: an electric power supply;

an ignitor plug held in alignment with an exposed portion of a wick for firing the wick through the utilization of discharge originated from the electric power supply to the ignitor plug; and

a flame sensor disposed at a predetermined distance from the ignitor plug and in alignment with the exposed portion of the wick, said flame sensor element terminating the supply of electric power to said ignitor plug after combustion of

said wick and reestablishing the supply of electric power to the ignitor plug if said wick is inadvertently extinguished while being in a predetermined operative position.

4,395,230

IGNITION CARRY-OVER IN MULTIPLE BURNER HEATING APPARATUS

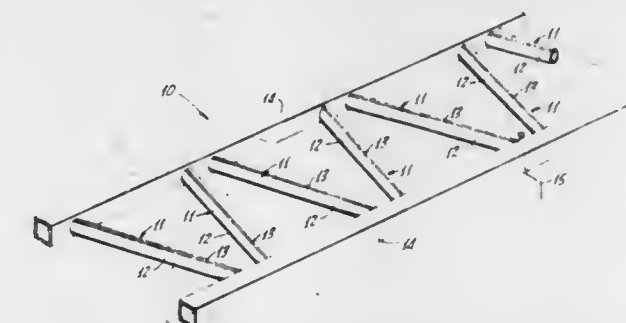
Max A. Berry, Covina, Calif., assignor to Abdul R. Ghafoori, Monterey Park, Calif.

Filed Oct. 24, 1980, Ser. No. 200,416

Int. Cl.³ F23D 13/36

U.S. Cl. 431—286

3 Claims



1. In a heating apparatus of the type including a multiplicity of spaced, separate burners, each burner including an elongate length of pipe along which a flame extends, and at least one manifold connected to said burners for conducting air and gas thereto, the improvement wherein said burners are arranged in a zig-zag pattern with the first end of each burner spaced relatively closely to the first end of the adjacent burner on one side thereof and spaced relatively far from the first end of the adjacent burner on the other side thereof.

4,395,231

METHODS OF AND APPARATUS FOR SINTERING TUBULAR CERAMIC ARTICLES

Gilbert Sands, Northwich, and Ian H. Jennens, Chester, both of England, assignors to Chloride Silent Power Limited, London, England

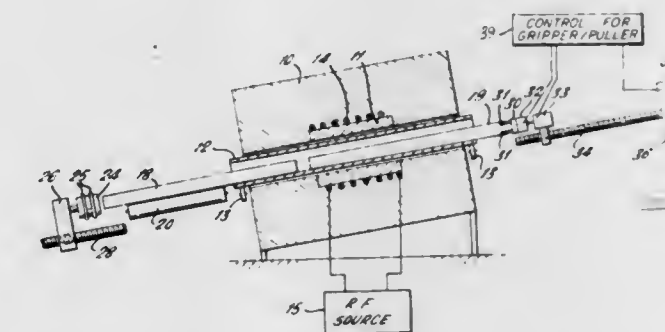
Filed Oct. 30, 1981, Ser. No. 316,715

Claims priority, application United Kingdom, Nov. 6, 1980, 8035728

Int. Cl.³ F27D 3/00

U.S. Cl. 432—11

13 Claims



1. A method of moving ceramic tubes into and through a pass-through sintering furnace comprising pushing a succession of the tubes into the furnace at a uniform speed and, at the exit end of the furnace, gripping each tube as it leaves the furnace and pulling the tube forwardly at a uniform speed which is less than the speed at which the tubes are fed into the furnace but sufficient to hold the pulled tube clear of the next following tube.

4,395,232

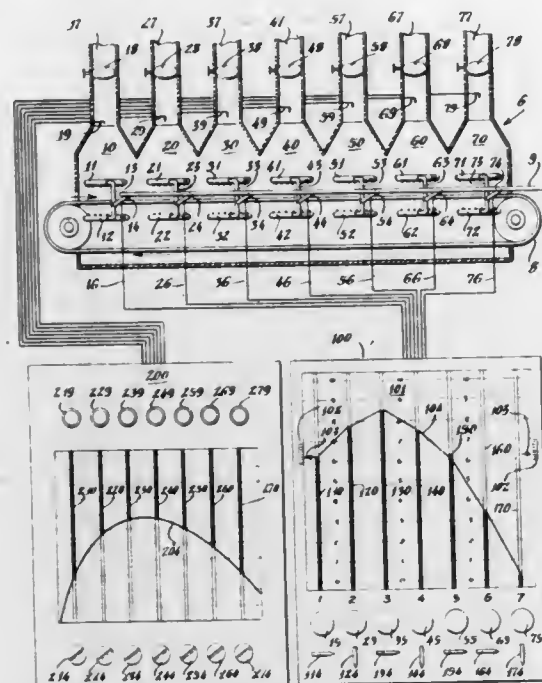
OVEN CONTROL APPARATUS

Albert P. Koch, Kinnelon, N.J., assignor to Nabisco Brands, Inc., Parsippany, N.J.

Filed Dec. 7, 1981, Ser. No. 327,846
Int. Cl.³ F27D 21/00, 19/00

U.S. Cl. 432-32

18 Claims



1. An apparatus for displaying the rate of heat input to a zone of an oven of the type comprising burner means, gas supply means comprising a supply conduit for transporting combustible gas between a pressurized source and the burner means, and valve means operable to vary the flow of combustible gas through the supply conduit, wherein the apparatus comprises:

- (a) a manometer in communication with the supply conduit, having two upwardly-directed legs and containing sufficient fluid to at least partially fill each leg throughout the intended operating range, wherein one of said legs is a display leg and the cross-sectional areas of both legs are proportioned effectively to cause the level of fluid in the display leg to move in direct proportion to the rate of flow of combustible gas to the burner means;
- (b) an adjustable scale juxtaposed with the display leg and linearly calibrated to indicate the rate of heat input to the zone of the oven for a given rate of flow of combustible gas indicated by the level of fluid in the display leg; and
- (c) means for adjusting said adjustable scale to correct for the heating value of the combustible gas, comprising a calibration scale having markings indicating a range of heating values for various combustible gases, a set point indicator, and means for aligning the set point indicator with a marking on the calibration scale corresponding to the heating value of the combustible gas in use.

4,395,233

DUAL FLOW HEATING APPARATUS

Robert C. Smith, Vergennes, and A. Bennis Cox, II, North Ferrisburg, both of Vt., assignors to G. S. Blodgett Co., Inc., Burlington, Vt.

Filed Jun. 22, 1981, Ser. No. 276,182

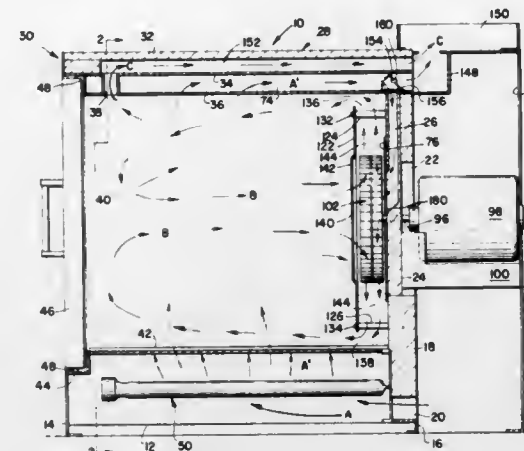
Int. Cl.³ F27B 3/22; A21B 1/00; F24C 15/32

U.S. Cl. 432-176

37 Claims

1. In a forced air heating apparatus having a heating compartment and an associated air conduit means connected thereto; the improvement comprising heater means disposed within said conduit means for heating an intake ambient air stream drawn into said conduit means at a first location, said conduit means enabling transport of a heated air stream from said heater means into said heating compartment at a second location, an air fan means located in said heating compartment and having a first means operable to forcibly draw said heated air stream into contacting therewith at its entry into said heat-

ing compartment and having a second means operable to establish a recirculated forced air flow internally within said heating compartment without entry of said internal forced air flow into said air conduit, said first and second air fan means enabling



mixing of said heated air stream with said internal forced air flow, and vent means formed in said heating compartment to enable the outflow of heated air from said heating compartment.

4,395,234

OPTICAL SCANNING PROBE WITH MULTIPLE OUTPUTS

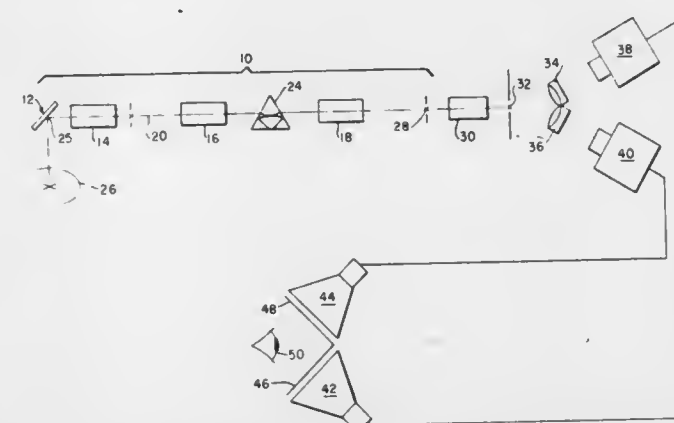
Martin Shenker, Pomona, N.Y., assignor to Farrand Optical Co., Inc., Valhalla, N.Y.

Filed Sep. 16, 1977, Ser. No. 833,842

Int. Cl.³ G09B 9/08

U.S. Cl. 434-33

5 Claims



1. A multiple output scanning probe having an entrance pupil, an exit pupil and an optical axis, the optical elements between said pupils comprising a relatively distortion-free telescope of approximately one power, said telescope including an image collimating element, wherein a collimated output at the exit pupil is divided into a plurality of images by a plurality of imaging systems, each of said imaging systems received a portion of the output field to provide a true angular image of said portion of the output field.

4,395,235

FOUR PIVOT LINKAGE TO SIMULATE HEAD/NECK KINEMATICS

Edward B. Becker, Riverhead, N.Y., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 2, 1982, Ser. No. 344,916

Int. Cl.³ G09B 23/32

U.S. Cl. 434-270

2 Claims



1. An apparatus for simulating head/neck kinematics comprising:

- a roll-pitch link having means for pivotable attachment to the torso of an anthropomorphic dummy;
- a yaw-pitch link having means for pivotable attachment to the head of said anthropomorphic dummy; and
- a neck link having an arcuate form, the upper end of said neck link being pivotally connected to said yaw-pitch link and the lower end of said neck link being pivotally connected to said roll-pitch link such that when said apparatus is attached to said anthropomorphic dummy a four pivot linkage is formed between the torso and the head.

4,395,236

METHOD OF GENERATING PROCESS INSTRUCTIONS

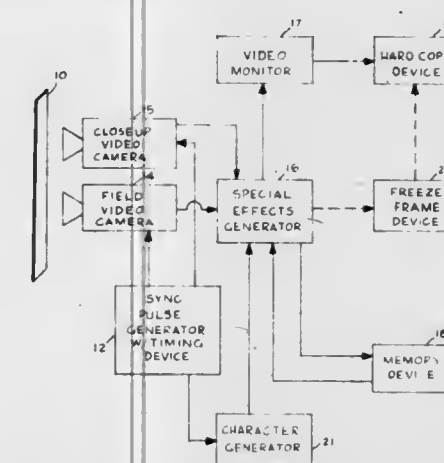
John P. Gotthold, 1258 Mandarin Dr., Sunnyvale, Calif. 94087

Filed Oct. 2, 1981, Ser. No. 307,726

Int. Cl.³ G09B 19/00

U.S. Cl. 434-219

3 Claims



1. The method of generating a set of instructions for conducting a process, comprising the steps of: conducting the process to show the various steps of the process in sequential order; imaging each step of the process with a video camera to generate a video signal; supplying the video signal to a video monitor to allow study of the image for correction and alteration; generating a hard copy of the image by supplying the video

signal to a hard copy device capable of receiving a video signal and generating a hard copy photograph-like record on a paper-like medium; recording the video signal on a video signal recorder for future use in generating subsequent hard copies; and assembling the hard copies in proper sequence to form a set of instructions showing the process.

4,395,237

AMPHIBIOUS BICYCLE

Yaichi Watanabe, 5-11 Kitakasugaoka, 4-Chome, Ibaraki-Shi, Osaka-Fu, Japan

Continuation of Ser. No. 971,885, Dec. 21, 1978, abandoned.

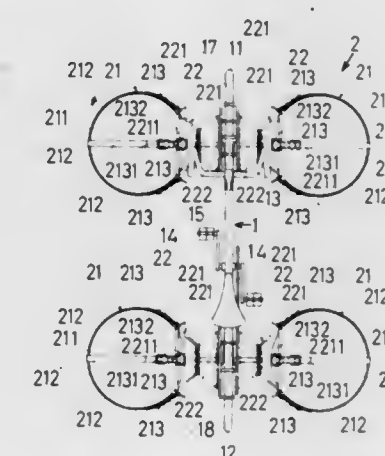
This application Mar. 6, 1981, Ser. No. 241,204

Claims priority, application Japan, Dec. 24, 1977, 52-156205

Int. Cl.³ B60F 3/00

U.S. Cl. 440-27

7 Claims



1. An amphibious vehicle comprising a bicycle having a body and ground engaging front and rear wheels for running on land, front wheel shaft means and rear wheel shaft means respectively on said body, each of said shaft means having opposite end portions projecting transversely outwardly of the body, a float mounting frame freely rotatably mounted on each end of each shaft means, and floats detachably securable one to each float mounting frame, each float being an inflatable airtight bag capable of being inflated into a ball-like shape, each of said float mounting frames comprising a cage within which part of the inflated float may be disposed, and with each of said float mounting frames including a flanged sleeve which surrounds the associated shaft means with said cage connected with said flanged sleeve, and means for mounting each cage on the respective flanged sleeve with the direction of each of the cages reversed so that each cage may be accommodated inwardly of the end of the associated shaft means.

4,395,238

OUTBOARD MOTOR MOUNTING MEANS AFFORDING UPWARD TILTING WITHOUT TRAVEL OF THE MOTOR FORWARDLY OF THE BOAT TRANSOM

Guy D. Payne, Lake Villa, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Feb. 20, 1981, Ser. No. 236,319

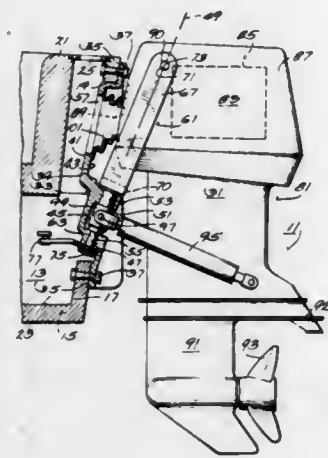
Int. Cl.³ B63H 21/26

U.S. Cl. 440-53

23 Claims

1. A marine propulsion device comprising a bracket adapted to be fixed to the transom of a boat and including a mounting surface engaged with the boat transom when said bracket is boat mounted, said bracket also including a lower part having a lower bearing with a fixed steering axis which extends generally vertically when said bracket is boat mounted, a member including a lower portion extending in said lower bearing, and a pair of laterally spaced arms connected to said lower portion and respectively including upper horizontal bearings having a common axis located in spaced relation above said lower bearing, a steering arm fixed to said member for steerably rotating

said member within said lower bearing about said generally vertical axis, a propulsion unit including a powerhead and a lower unit extending fixedly downwardly from said powerhead and including a rotatably mounted propeller, and means on said powerhead adjacent the top thereof and cooperating with said horizontal bearings for pivotally connecting said



propulsion unit to said member for movement about the horizontal axis between a running position with said propeller submerged in water and with said propulsion unit located wholly aft of said bracket mounting surface and an elevated position with said propeller substantially out of the water and with said propulsion unit located wholly aft of said bracket mounting surface.

4,395,239

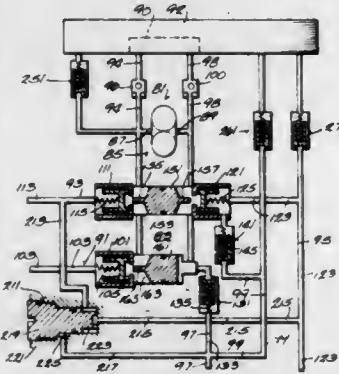
HYDRAULIC SYSTEM FOR MARINE PROPULSION DEVICE WITH SEQUENTIALLY OPERATING TILT AND TRIM MEANS

Charles B. Hall, Ingleside; Edward D. McBride, Waukegan, both of Ill., and Robert F. Young, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Apr. 10, 1981, Ser. No. 252,813
Int. Cl.³ B63H 5/12

U.S. Cl. 440—61

14 Claims



14. A marine propulsion device comprising transom bracket means adapted to be connected to a boat transom, a stern bracket, first pivot means connecting said stern bracket to said transom bracket means for pivotal movement therebetween about a first pivot axis which is horizontal when said transom bracket means is boat mounted, a swivel bracket, second pivot means connecting said swivel bracket to said stern bracket for pivotal movement with said stern bracket and relative to said stern bracket about a second pivot axis parallel to said first pivot axis, a propulsion unit including, at the lower end thereof, a rotatably mounted propulsion element, means pivotally connecting said propulsion unit to said swivel bracket for steering movement relative to said swivel bracket and for common pivotal movement with said swivel bracket, a trim cylinder-piston assembly pivotally connected to said stern bracket and to said swivel bracket, a tilt cylinder-piston assembly pivotally connected to said transom bracket means and to said stern bracket, a reversible pump including first and second

ports, first conduit means communicating between said first pump port and one end of said trim cylinder-piston assembly, second conduit means communicating between said first pump port and one end of said tilt cylinder-piston assembly, third conduit means including first valve means dividing said third conduit means into an upstream portion communicating with said second pump port and a downstream portion communicating with the other end of said trim cylinder-piston assembly, second conduit means including second valve means dividing said fourth conduit means into an upstream portion communicating with said second pump port and a downstream portion communicating with the other end of said tilt cylinder-piston assembly, and third conduit means including third valve means communicating between said downstream portion of said third conduit means and said downstream portion of said fourth conduit means, said third valve means being operable to prevent fluid flow from said downstream portion of said third conduit means to said downstream portion of said fourth conduit means, and to permit fluid flow from said downstream portion of said fourth conduit means to said downstream portion of said third conduit means in response to the presence of fluid under pressure above a predetermined level in said downstream portion of said fourth conduit means.

4,395,240

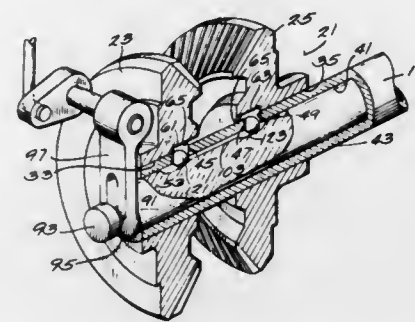
MARINE PROPULSION LOWER UNIT WITH BALL CLUTCH MECHANISM

Clarence E. Blanchard, Kenosha, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Jan. 5, 1981, Ser. No. 222,589
Int. Cl.³ B63H 23/08

U.S. Cl. 440—86

14 Claims



1. A marine propulsion device comprising a lower unit including a propeller shaft supported in said lower unit against axial movement and for rotary movement relative to said lower unit and including an axial bore extending from one end of said shaft, said axial bore defining an annular wall including first and second axially spaced series of circumferentially spaced cylindrical apertures communicating with said bore and having radially extending axes, a propulsion element fixed on said propeller shaft for common rotation therewith, respective balls in each of said apertures, first and second axially spaced facing bevel gears mounted in said lower unit co-axially with said propeller shaft for rotation relative to said lower unit and said propeller shaft, said first and second bevel gears including respective axial bores having therein respective first and second series of circumferentially spaced sockets opening radially inwardly and located in axial alignment with said first and second series of apertures in said propeller shaft, and an actuator extending in said axial bore in said propeller shaft and movable between axially spaced forward drive, neutral, and reverse drive positions, said actuator including means for selectively engaging said balls with said bevel gears to selectively establish said device in forward drive, neutral, and reverse drive conditions, said means comprising a series of circumferentially spaced, axially extending grooves in said actuator, each of said grooves including a raised central portion having first and second ends axially spaced at a distance less than the axial spacing of said first and

second series of apertures and having, intermediate said ends, a concave cross sectional contour with a part thereof having a common radius equal to that of said balls such that engagement of said part with an associated one of said balls forces the associated ball radially outwardly relative to the associated aperture in said propeller shaft, and into engagement with an associated socket in one of said bevel gears, each of said grooves further including first and second end portions extending respectively from said first and second ends of said central portion, each of said end portions having a cross sectional contour of such dimension as to permit receipt therein of an associated ball so as to permit withdrawal of the associated ball from an associated socket, said end portions of said grooves having respective axial extents such that, when said actuator is in said forward drive position, said first series of apertures is axially aligned with said central portions of said grooves and said second series of apertures is axially aligned with said second end portions of said grooves, whereby rotary drive is established between said first bevel gear and said propeller shaft and rotary drive is disengaged between said second bevel gear and said propeller shaft, such that, when said actuator is in said neutral position, said first and second series of apertures are respectively axially aligned with said first and second end portions of said grooves and said central portions of said grooves are located intermediate said first and second series of apertures, whereby both of said bevel gears are disengaged from rotary drive with said propeller shaft, and such that, when said actuator is in said reverse drive position, said second series of apertures is axially aligned with said central portions of said grooves and said first series of apertures is axially aligned with said first end portions of said grooves, whereby rotary drive is established between said second bevel gear and said propeller shaft and rotary drive is disengaged between said first bevel gear and said propeller shaft.

4,395,241

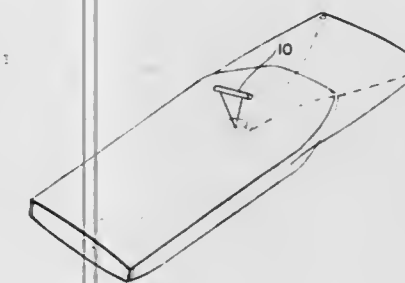
AMPHIBIOUS SLED DEVICE

John E. Comparetto, 108 Cropper St., Chincoteague, Va. 23336
Continuation of Ser. No. 18,207, Mar. 7, 1979, abandoned. This application Nov. 3, 1981, Ser. No. 317,820

Int. Cl.³ A63C 15/00

U.S. Cl. 441—65

9 Claims



1. A sled for use over ice, snow, and water, said sled comprising:
a semi-rigid buoyant member adapted to support a user;
a flexible member attached to said buoyant member and extending beyond one end thereof;
a centrally located opening;
a cord having two ends, each end being attached to said flexible member substantially at a corner thereof,
said cord passing through said opening and enabling said user to form a venturi-like passage with said flexible member.

4,395,242

METHOD OF ELECTRICALLY PROCESSING A CRT MOUNT ASSEMBLY TO REDUCE AFTERGLOW

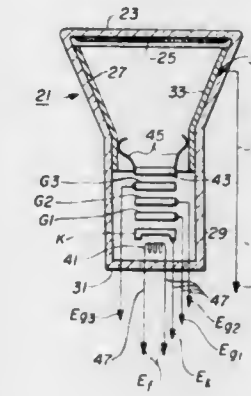
Paul R. Liller, and Donald J. Shahan, both of Lancaster, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 19, 1981, Ser. No. 294,132

Int. Cl.³ H01J 9/20

U.S. Cl. 445—5

6 Claims



1. In a method of electrically processing a completed CRT having an electron gun including a focus electrode and a high-voltage electrode, said high-voltage electrode being closely spaced from said focus electrode, the steps comprising:
(a) heating the portion of said focus electrode that faces said high-voltage electrode at temperatures above about 700° C., (b) and then RF spot-knocking said portions of said focus electrode.

4,395,243

METHOD OF FABRICATING CATHODE-RAY TUBE

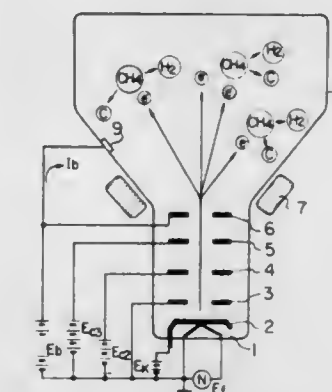
Noboru Toyama, and Yoshinori Oyamada, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 8, 1981, Ser. No. 261,757

Claims priority, application Japan, May 16, 1980, 55-64127
Int. Cl.³ H01J 9/44

U.S. Cl. 445—6

6 Claims



1. A method of fabricating a cathode-ray tube, comprising the sequential steps of:
(a) preparing an evacuated and sealed bulb with a funnel portion thereof having a phosphor screen formed thereon and a neck portion thereof having an electron gun mounted therein including a decomposed and activated oxide cathode and an assembly of grids, a getter being attached to a predetermined portion of the interior of said bulb;
(b) flashing said getter to deposit a film of getter material on the inner surface of said bulb, so that a large part of gas molecules remaining in said bulb are absorbed by said getter material film;
(c) causing said cathode to emit an electron beam while deflecting said electron beam by means of deflecting means arranged around said bulb to scan a region between said cathode and said phosphor screen with said electron

beam, so that gas molecules still remaining in said bulb are decomposed by said electron beam; and
(d) heating said cathode to emit a predetermined electron current therefrom for aging thereof.

4,395,244

METHOD OF MAKING A DISPLAY PANEL

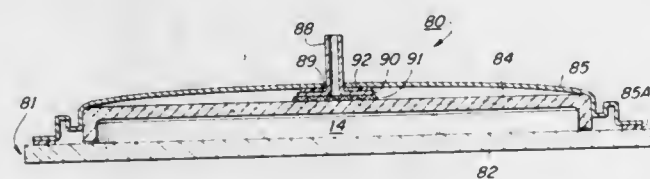
David Glaser, 1112 NE. 23rd Dr., Wilton Manors, Fla. 33305
Division of Ser. No. 51,152, Jun. 22, 1979, Pat. No. 4,303,847.

This application Apr. 13, 1981, Ser. No. 253,993

Int. Cl.³ H01J 9/36, 9/385

U.S. Cl. 445—25

7 Claims



1. A method of manufacturing a display panel, comprising the steps of
positioning an electrode structure against one face of a rigid, glass pane having a window area,
positioning a substantially impervious, flexible sheet over said electrode structure,
sealing said sheet to said pane along a continuous area surrounding said electrode structure, and
reducing the pressure in the space between said sheet and said pane in which said electrode structure is located below the pressure on the external side of said sheet to press said electrode structure against said pane.

4,395,245

CHAIN COUPLING ELASTOMER COVER

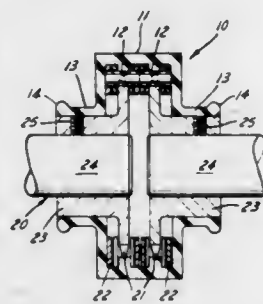
Dennis L. Carlson, Waukesha, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed May 5, 1980, Ser. No. 146,557

Int. Cl.³ F16D 3/54, 3/84

U.S. Cl. 464—49

9 Claims



1. A semi-rigid elastomeric cover for a roller chain coupling of the type including two sprockets connected to two associated hubs for mounting on substantially aligned shafts, said sprockets having a diameter substantially greater than said hubs and being connected by a double strand of roller chain for transmitting torque from one shaft to the other; said cover comprising:

a one-piece elastomeric member having a generally cylindrical center portion, a contour on the radial interior surface of said center portion configured to tightly fit the double strand of roller chain of said coupling, and two opposed axially extending, outwardly directed flanges connected to said center portion, said center portion having an interior diameter that is substantially greater than the interior diameter of said flanges.

4,395,246

UNIVERSAL JOINT

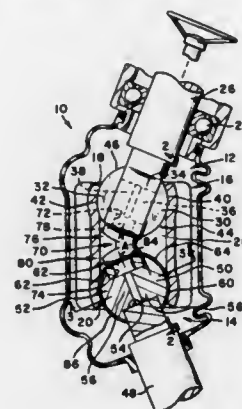
Alistair G. Taig, and David D. Jordan, both of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Sep. 5, 1980, Ser. No. 184,491

Int. Cl.³ F16D 3/20

U.S. Cl. 464—153

5 Claims



1. In a universal joint, a housing having a pair of openings for receiving an input assembly with an input shaft and an output assembly with an output shaft, said input assembly being rotatable to impart rotation to said housing and to said output assembly, a pilot assembly disposed within said housing and cooperating with said input and output assemblies to substantially maintain equal angles between said assemblies and said housing, characterized by said input and output assemblies terminating in cylindrical ends having their longitudinal axis extending substantially normal to said input and output shafts, and said housing defining a first pair of arcuate surfaces engageable with said input cylindrical end and a second pair of arcuate surfaces engageable with said output cylindrical end, said housing rotating with said input and output assemblies to provide for sliding engagement between said cylindrical ends and their respective housing arcuate surfaces when said input assembly is imparting rotation to said housing and said output assembly, and said cylindrical ends remain in spaced relation so that the rotation of said input cylindrical end is transmitted to said output cylindrical end via said housing.

4,395,247

SHAFT COUPLING

Derek A. Roberts, Bristol, England, assignors to Rolls-Royce Limited, London, England

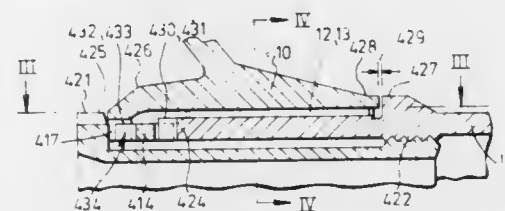
Filed Jul. 21, 1980, Ser. No. 170,924

Claims priority, application United Kingdom, Aug. 31, 1979, 7930366

Int. Cl.³ F16D 3/18

U.S. Cl. 464—158

12 Claims



1. A coupling comprising relatively inner and outer members having a common axis, the members being provided with intermeshing splines that have one or more pairs of circumferentially confronting first surfaces, each of the members additionally provided with one or more circumferentially confronting second surfaces spaced from the said first surfaces and extending at an angle relative to the first surfaces, an axially facing abutment distinct from both the first and second surfaces provided on a first of the members, the abutment being positioned relative to the second member so that the second member can abut against it, displaceable means for allowing

relative radial displacement between the first and second surfaces of at least one of the inner or outer members, and urging means for urging the first member along the common axis relative to the second member, the urging means being operable to move the first member to an initial position where the first and second surfaces are urged into contact with each other and opposing circumferential forces are imposed on the first and second members and being operable to move the first member to a final position where the first member abuts the abutment.

4,395,248

MULTI-SPEED TRANSMISSION

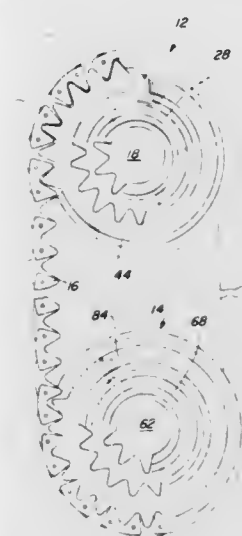
John M. Kern, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 20, 1980, Ser. No. 198,506

Int. Cl.³ F16H 55/56, 55/30, 11/04

U.S. Cl. 474—24

7 Claims



1. A multi-speed drive system comprising:
a multiple part drive means;
a multiple part driven means;
means connecting said drive and driven means;
one part of both said drive and driven means having external teeth;
a second part of both said drive and driven means comprising a pair of axially movable members each having internal teeth meshing with said first-named external teeth;
means for moving one of said pairs of axially movable members to change the speed ratio between said drive and driven means;
said connecting means being a chain;
the radially outermost part of said drive means having external teeth with which said chain meshes in one speed ratio; and
the radially outermost part of said driven means having external teeth with which said chain meshes in another and different speed ratio.

4,395,249

VARIABLE SPEED DRIVE CLUTCH

Keni K. Prasad, and Eugene G. Hayes, both of Beaver Dam, Wis., assignors to Deere & Company, Moline, Ill.

Filed Dec. 22, 1980, Ser. No. 218,854

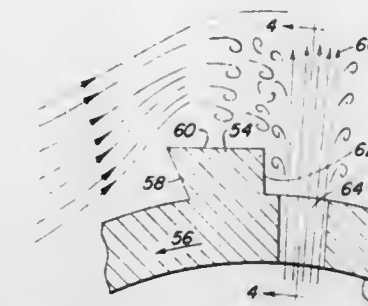
Int. Cl.³ F16H 55/52

U.S. Cl. 474—93

7 Claims

1. In a V-belt drive having a rotating pulley and an annular flange closely adjacent the pulley periphery formed about the pulley axis and extending axially from a side of the pulley; a plurality of vanes extending radially from the radial outer surface of the flange; said flange having means including air

passages extending through the flange for directing air outwardly and toward the center plane of the pulley, said passages



being close to but in trailing relation with respect to respective vanes extending from the flange.

4,395,250

TENSIONING DEVICES

Alan G. King, Bedfordshire, England, assignor to Borg-Warner Limited, Letchworth, England

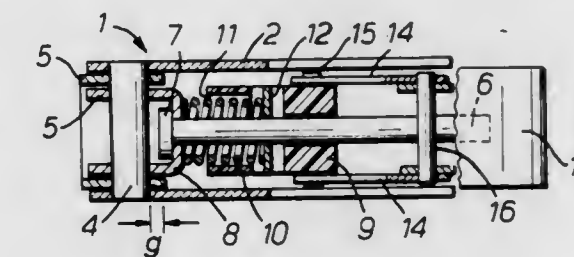
Filed Jan. 30, 1981, Ser. No. 230,028

Claims priority, application United Kingdom, Sep. 29, 1980, 8031352

Int. Cl.³ F16H 7/08

U.S. Cl. 474—111

9 Claims



1. A tensioning device for an endless driving element, comprising a pivoted arm, a rod, an actuator slidably mounted on said rod, compression spring means mounted about said rod and biasing said actuator in one axial direction along said rod, link means coupled between said actuator and said pivoted arm by which to convert axial movement of said actuator into pivotal movement of said arm, and vice versa, said arm being caused to pivot in a tensioning sense in response to spring biased movement of said actuator in said one direction, a catch disc mounted on said rod and tiltable into binding engagement therewith in response to return movement of said arm, by which to inhibit said return movement of said actuator and hence said return pivotal movement of said arm, and a shoe adapted to directly engage the endless driving element and connected to said pivoted arm.

4,395,251

TENSIONING DEVICES

Alan G. King, Biggleswade, and Keith Hunt, Meppershall, both of England, assignors to Borg-Warner Limited, Letchworth, England

Filed Jan. 30, 1981, Ser. No. 229,969

Claims priority, application United Kingdom, Feb. 11, 1980, 8004449

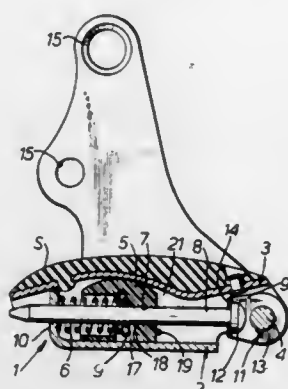
Int. Cl.³ G05G 5/06; F16H 7/08

U.S. Cl. 474—111

12 Claims

1. A tensioning device for an endless driving element, comprising a rod, a pivotal arm, an actuator slidably mounted on said rod, compression spring means biasing said actuator in one direction along said rod, said arm being caused to pivot in a tensioning sense in response to spring biased movement of said actuator in said one direction, a catch disc mounted on said rod and tiltable into binding engagement therewith in response to return movement of said actuator against said spring bias along

said rod, as would be caused upon return pivotal movement of said arm, by which to inhibit said return movement of said



actuator and hence said return pivotal movement of said arm, and means carried by said pivoted arm to engage said endless driving element.

4,395,252

APPARATUS FOR MAKING BAGS OF THIN SYNTHETIC-RESIN FILM

Hans Lehmacher, Im Hummerich, 5216 Niederkassel-Mondorf, Fed. Rep. of Germany

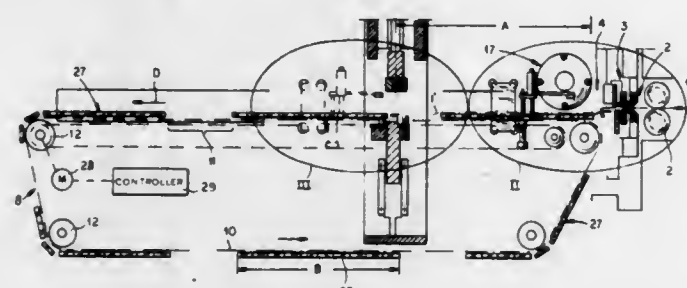
Filed May 20, 1981, Ser. No. 265,547

Claims priority, application Fed. Rep. of Germany, May 24, 1980, 302009

Int. Cl.³ B31B 23/02, 23/14

U.S. Cl. 493—28

6 Claims



1. An apparatus for making bags from an elongated synthetic-resin tube, said apparatus comprising:

an endless conveyor having a stretch defining a transport path extending in a transport direction from an upstream cutting/welding station through a stacking station and a flattening station, to a downstream punching station, said conveyor having an endless support element and a plurality of groups of transverse rigid bars forming along said path a plurality of respective platforms having predetermined lengths in said direction and spaced apart by gaps, the bars of each platform engaging one another in said direction;

means for feeding said tube generally continuously in said direction to said upstream cutting/welding station; cutting/welding means in said cutting/welding station for periodically transversely cutting through said tube and generally simultaneously forming upstream of each cut a transversely throughgoing weld for subdividing said tube into a succession of bag blanks;

stacking means in said stacking station including a transversely reciprocal needle bar provided with a plurality of needles including at least one blocking needle, and a transversely reciprocal stripper bar through which said needles engage;

control means for synchronously operating said conveyor, cutting/welding means, and stacking means for piercing said needles through the upstream edge of each of said bag blanks as same is cut free from said tube while supporting each said bag blanks as same are cut free from said tube on a one of said platforms and for, after a predetermined

number of operations of said cutting/welding means, stripping said bag blanks off said needles with said stripper bar and operating said conveyor to displace the stack of bag blanks stripped from said needles downstream to said punching station;

flattening means in said flattening station having a plurality of flattening elements for engaging each of said bag blanks as same is cut free from said tube and pressing same flatly down against the platform supporting it;

a gripper carriage displaceable in and against said direction and having a holding element displaceable vertically toward and away from said stretch, said control means being connected to said carriage to press said holding element down against said stack of bags blanks as same are stripped from said needle bar and for thereafter displacing said carriage synchronously and codirectionally with the platform supporting said stack downstream to said punching station;

punching means at said punching station for punching said stacks of bag blanks as same arrive, said punching station being spaced in said direction downstream of said welding/cutting station by a distance substantially greater than said predetermined length of said; and

a deflecting plate at said stacking station, said control means being connected to said plate for pivoting said plate by and deflecting a new tube end over a stack when same is engaged by said gripper element.

4,395,253

METHOD OF MAKING CORRUGATED PACKAGES

James A. Goodman, Glencoe, Ill., assignor to Consolidated Foods Corporation, Deerfield, Ill.

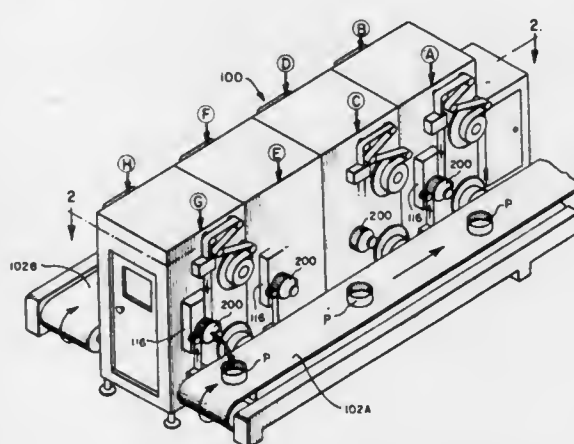
Division of Ser. No. 974,065, Dec. 28, 1978, Pat. No. 4,250,797.

This application Oct. 15, 1980, Ser. No. 197,363

Int. Cl.³ B31C 1/06; B31F 1/20

U.S. Cl. 493—87

21 Claims



1. The method of forming a corrugated package comprising the steps of:

corrugating a first sheet of material having a selected width into fluted corrugations and maintaining the shape of said corrugations by vacuum while forming said sheet into a shape defining a portion of the sidewall of a package;

positioning a bottom wall member having an outer edge adjacent said first sheet so that said outer edge is aligned with said fluted corrugations;

wrapping a second sheet of uncorrugated material having a width greater than the width of said first sheet adjacent said fluted corrugations of said first sheet so that a portion of said second sheet projects over the outer edge of said bottom wall member; and

simultaneously joining said sheet to the fluted corrugations of said first sheet and to said bottom wall member so that said second sheet forms an outer ply of the side wall of said package and joins said bottom wall to said side wall, whereby said corrugated side wall and said package are formed substantially simultaneously.

4,395,254

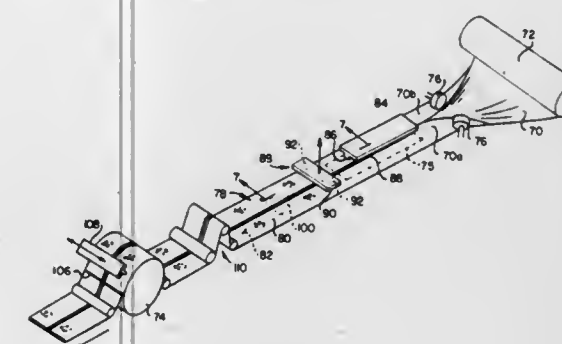
APPARATUS FOR MAKING DISPOSABLE, BREATHABLE RECEPTACLES

Samuel J. Schuster, 617 Vallombrosa, Pasadena, Calif. 91107
Continuation-in-part of Ser. No. 55,159, Jul. 6, 1979, abandoned, which is a division of Ser. No. 955,221, Oct. 27, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,195

Int. Cl.³ B31B 1/64

U.S. Cl. 493—196

10 Claims



1. In an apparatus for making breathable receptacles from continuous, laminated web material drawn from web supply means, the web material comprising a layer of paper, or the like, impermeable to microorganisms but highly permeable to sterilizing vapor and a layer of thermoplastic, polymeric material, the combination including:

means for advancing the web material;

means for superimposing areas of said web material with the polymeric layers of said areas in confronting relation;

a heat sealer, having individual heat seal elements, positioned adjacent the advancing web material and operable to bond together the polymeric layers with a plurality of small heat seals; and

means disposed between the confronting polymeric layers for separating the portions of the polymeric layers bonded together by the heat sealer as the web material advances to cause localized delamination of the paper and polymeric layers and rupturing of the polymeric layers at the positions of the small heat seals.

4,395,255

WEB FOLDING APPARATUS

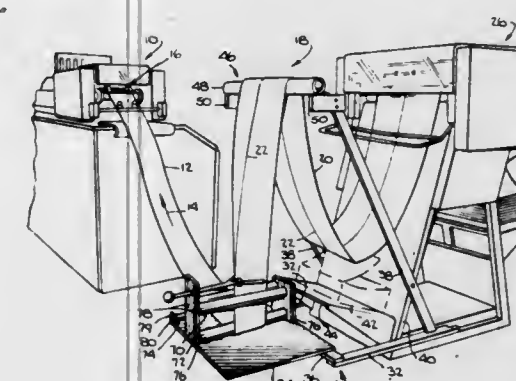
George N. Branecky, Bethel; Frank T. Roetter, Westport, and Frank A. Oeschger, East Norwalk, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 188,174, Sep. 17, 1980, Pat. No. 4,378,223. This application Oct. 15, 1981, Ser. No. 311,719

Int. Cl.³ B65H 45/22

U.S. Cl. 493—439

8 Claims



1. For use in combination with a machine for feeding a web of paper in a downstream path of travel, apparatus for folding an unfolded web of paper along a longitudinally-extending weakened fold line thereof, said apparatus comprising:

(a) a frame;

(b) web drag means including an elongated drag member

fixedly attached to the frame and horizontally extending across the path of travel of an unfolded web for frictional engagement thereby;

(c) an elongate lower roller rotatably attached to the frame below the level of the drag member and extending transverse to the drag member such that the axis of the lower roller extends downwardly and at an angle of 95° plus or minus one degree with respect to a vertical plane extending through the drag member such that an unfolded web may extend downwardly in the path of travel from said drag member to and into engagement with said lower roller and be guided thereby so as to be gradually folded between said drag member and lower roller;

(d) an output roller, said output roller rotatably attached to the frame below the level of the drag member and extending transverse to said drag member such that said folded web may extend in the path of travel from beneath said lower roller to said output roller and into engagement therewith and such that said folded web may extend upwardly in the path of travel from beneath said output roller to said machine; and

(e) web guide means including a pair of drag elements spaced apart from each other and connected to the frame and extending into engagement with the web between the drag member and lower roller such that said elements respectively engage the gradually folding web on opposite sides of the fold line for pre-creasing the web along the fold line as said machine feeds the web in said downstream path of travel.

4,395,256

CENTRIFUGE ROTOR CLOSURE

Gerhard Schröter, Osterode, Fed. Rep. of Germany, assignor to Heraeus-Christ GmbH, Osterode, Fed. Rep. of Germany

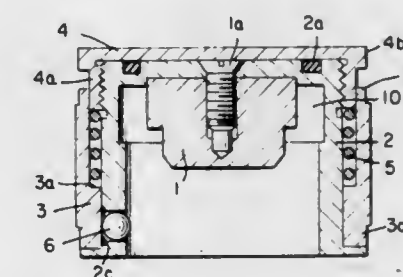
Filed Dec. 2, 1981, Ser. No. 326,503

Claims priority, application Fed. Rep. of Germany, Dec. 13, 1980, 3047118

Int. Cl.³ B04B 1/00

U.S. Cl. 494—38

11 Claims



1. Centrifuge rotor closing structure having

a rotor stub (15);

axially extending ducts (11, 12) passing through said rotor stub (15) and terminating at an end portion thereof; and a cover cap closing off the end portion of said stub and inhibiting communication between the ends of said axially extending ducts and the ambient surrounding thereof, said closure comprising, in accordance with the invention, the combination of

a plug element (1);

means (8, 9) sealingly fitting said plug element against the end portion of the stub (15);

a cover cap fitted over the plug element (1), said cover cap having a depending portion externally surrounding the stub (15);

radially movable rolling engagement elements (6) located in said depending portion of the plug;

an axially movable outer sleeve (3) surrounding said depending portion and, selectively, positioning said rolling elements in engagement with the stub (15) when moved to extend over the rolling elements, and releasing said rolling

elements from engagement with the stub (15) when moved axially out of engagement with the rolling elements.

4,395,257

SEPARATING VESSEL AND A SEPARATING CENTRIFUGE FOR USE IN THE CENTRIFUGAL SEPARATION OF A LIQUID

Paul Manella, Dübendorf, Switzerland, assignor to Doltron AG, Uster, Switzerland

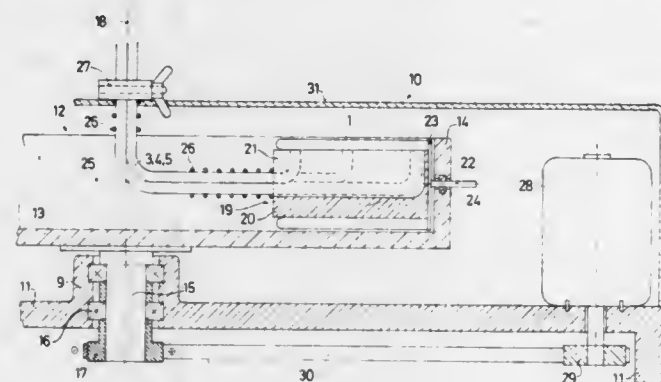
Filed May 28, 1981, Ser. No. 267,715

Claims priority, application Switzerland, Jun. 10, 1980, 4450/80

Int. Cl.³ B04B 5/00, 9/00

U.S. Cl. 494—47

10 Claims



6. A separating centrifuge for the separation of a liquid into fractions of different densities, said centrifuge comprising a separating vessel and control means for controlling the separating process, said separating vessel consisting of a double-walled hollow cylindrical body defining an annular chamber and at least three conduits opening into and integral with said annular chamber, said control means including a centrifuge rotor rotatable about a first vertically extending axis of rotation, supporting means for supporting said separating vessel in said centrifuge rotor and arranged to rotate about a second horizontally extending axis of rotation, and a connection member for receiving connecting conduits of said separating vessel, said connecting conduits being held at one end against rotation and lying generally on said first axis of rotation and being mounted at the other end on said supporting means.

4,395,258

LINEAR INTRA-OCULAR SUCTION DEVICE

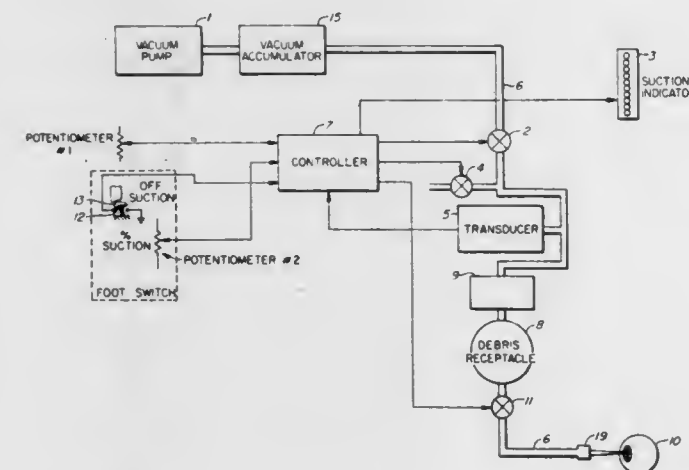
Carl C. T. Wang, Piedmont, Calif.; Steve Charles, Memphis, Tenn., and Joseph T. Buckingham, Moraga, Calif., assignors to Cooper Medical Devices, San Leandro, Calif.

Filed Nov. 3, 1980, Ser. No. 203,143

Int. Cl.³ A61M 31/00

U.S. Cl. 604—65

11 Claims



1. Apparatus for automatically controlling the vacuum along

a conduit for suctioning material from a surgical zone comprising:

a cannula adapted to be inserted into the surgical zone for suctioning material from the surgical zone, receptacle means for receiving the material from the cannula;

a vacuum supply which is maintained at a predetermined level;

vacuum delivery conduit means for providing communication between the vacuum supply and the receptacle means, and between the receptacle means and the cannula; vacuum supply conduit means, including an electrically operated vacuum supply valve, adapted to control communication along said vacuum delivery conduit between said receptacle and said vacuum supply;

a vacuum exhaust control means, including an electrically operated vacuum exhaust valve adapted to be opened to the atmosphere and to control communication along said vacuum delivery conduit means between the atmosphere and said receptacle;

a pressure transducer communicating along said delivery conduit with said receptacle for detecting the vacuum level of said receptacle;

and

control means communicating with said pressure transducer and said vacuum supply conduit means and exhaust control means for automatically opening the vacuum supply conduit means when there is an insufficient vacuum level in said receptacle and for automatically opening the vacuum exhaust conduit means when there is an excessive vacuum level in said receptacle so that said receptacle is maintained at a selected vacuum level and so that the material is suctioned by the cannula from the surgical zone at the selected vacuum level.

4,395,259

DEVICE FOR THE INFUSION OF FLUIDS INTO THE HUMAN OR ANIMAL BODY

Karl Prestele, Erlangen; Manfred Franetzki, Uttenreuth, and Erich Reif, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

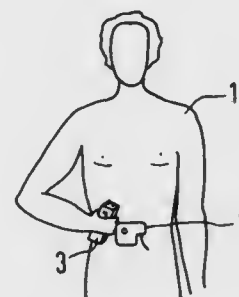
Filed Sep. 14, 1981, Ser. No. 301,780

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1980, 3035670

Int. Cl.³ A61M 37/00

U.S. Cl. 604—67

28 Claims



1. An infusion system for the infusion of fluids into the human or animal body, said system comprising

(a) a metering device to be implanted within the body, having a delivery unit for the dosed delivery of fluid to the body, said delivery unit having operating circuitry for controlling operation of the delivery unit, and said metering device having coupling means for receiving an operational signal transmission and for effecting an operation in accordance therewith,

(b) an external monitor device having coupling means coupled with said metering device for supplying a monitoring signal in accordance with an operation produced at the metering device by an operational signal transmission, and

(c) evaluation means operatively associated with said external monitor device for receiving a transmission signal in accordance with an operational signal transmission transmitted to the metering device, and connected with the coupling means of the external monitor device for receiving a monitoring signal in accordance with an operation at the metering device produced by an operational signal transmission, and operative for supplying an information signal where a received monitoring signal has a predetermined relationship to a received transmission signal, the information signal thereby being indicative of receipt of the operational signal transmission by the metering device,

(d) the delivery unit comprising a roller pump and a stepping motor drive therefor, said coupling means of said metering device comprising an induction coil associated with the roller pump for coupling with the coupling means of the external monitor device, said induction coil being connected with the stepping motor drive and said stepping motor drive being actuated by an operational signal transmission so as to cause the coupling means of the external control device to supply said monitoring signal in a predetermined relationship to the operational signal transmission, and

(e) said evaluation means comprising time sensitive comparison means for receiving the transmission signal to initiate a timing comparison and receiving the monitoring signal upon actuation of the stepping motor drive by the operational signal transmission, and being operative to compare the timing relationship between said transmission signal and said monitoring signal and supplying said information signal only where a received monitoring signal has a predetermined timing relationship to a received transmission signal, said time sensitive comparison means thereby being operative to monitor for an answer back response resulting directly from an actual test operation of said stepping motor drive, as well as to discriminate such

answer back response from incorrectly timed spurious signals.

4,395,260

DRIP CHAMBER

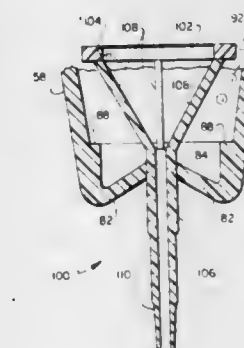
Robert J. Todd, Salt Lake City, and Gordon S. Reynolds, Bountiful, both of Utah, assignors to Sorenson Research Co., Inc., Salt Lake City, Utah

Filed Jun. 1, 1981, Ser. No. 269,937

Int. Cl.³ A61M 5/16

U.S. Cl. 604—122

18 Claims



1. An improved drip chamber comprising: a housing having a fluid inlet, a fluid outlet, and walls defining a chamber; means for deflecting incoming fluid from said outlet so as to reduce turbulence of the incoming fluid; a filter membrane carrier assembly positioned over said fluid outlet, said filter membrane carrier assembly having a means for filtering said fluid; and means for displacing at least a portion of said filter membrane carrier assembly to release entrapped air bubbles from beneath said means for filtering said fluid.

CHEMICAL

4,395,261

VAPOR HYDROGEN PEROXIDE BLEACH DELIVERY
Charles W. Lutz, Princeton, N.J., assignor to FMC Corporation,
Philadelphia, Pa.

Filed Jan. 13, 1982, Ser. No. 339,197
Int. Cl.³ D06L 3/02, 3/14; B05D 1/26

U.S. Cl. 8—111

6 Claims

1. A method for bleaching damp textiles while they are exposed to heated gases in a clothes dryer by means of hydrogen peroxide initially confined as a liquid by the inner surface of a wall of a container, at least part of said wall being a micro-porous, hydrophobic membrane having an effective pore size of approximately 0.01 μm to 0.4 μm in size with the exterior surface thereof accessible to the heated gases of the dryer whereby said liquid hydrogen peroxide is vaporized by the heat of said gases and delivered as a vapor through said membrane into the heated gases of the dryer primarily at a time when the textiles to be bleached are still damp, yet near the end of the drying cycle when the temperature within the dryer is the highest.

4,395,262

HAIR DYEING AGENT

Eugen Konrad, Darmstadt, Fed. Rep. of Germany, and Herbert Mager, Fribourg, Switzerland, assignors to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany

PCT No. PCT/EP79/00060, § 371 Date Apr. 16, 1980, § 102(e)
Date Mar. 6, 1980, PCT Pub. No. WO80/00417, PCT Pub.
Date Mar. 20, 1980

PCT Filed Aug. 2, 1979, Ser. No. 196,551

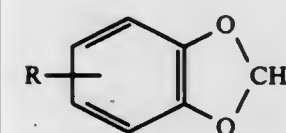
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1980, 2835776

Int. Cl.³ A61K 7/13

U.S. Cl. 8—410

11 Claims

1. Composition for the oxidative dyeing of hair, comprising a combination of at least one developing substance and at least one coupling substance, comprising as coupling substance at least one derivative of 1,2-methylene dioxybenzene of the general formula



in which R signifies an OH—, NH₂—, NHR¹—, or NH¹R²— group wherein R¹ and R² represent, independent of each other, an alkyl or hydroxyalkyl group with 1 to 4 carbon atoms.

4,395,263

**UNITARY LAMINATE WITH PERMANENT INDICIA
PATTERN: TRANSFER PRINTINGS ONTO
PLASTIC-COATED RIGID PANELS**

R. Elbert Davis, 1401 Valley View Rd., #425, Glendale, Calif.
91202

Filed Apr. 21, 1977, Ser. No. 789,488
Int. Cl.³ B32B 27/14; D06P 5/13

U.S. Cl. 8—471

13 Claims



1. In a sublimation transfer dyeing process in which sublimable dyestuff is transferred from an auxiliary carrier web to

a support stratum, the improvement whereby a print can be formed on a non-textile stratum, comprising the steps of:

- laminating together as said support stratum (i) a binder layer comprising polyester resin containing 50–85 weight percent glass fiber and containing pigment and (ii) on said binder layer, a substantially pigment-free transparent layer of thermosettable material receptive to sublimatic dyestuff selected from alkyd resin, melamine formaldehyde resin and combinations thereof;
- curing to form a thermoset, heat resistant laminate; and
- transferring said dyestuff to said transparent layer by heat-induced sublimation from said auxiliary carrier web.

4,395,264

AZO COUPLING PROCESS

George W. Fenwick, Holland, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Nov. 6, 1981, Ser. No. 318,750
Int. Cl.³ C07C 113/00

U.S. Cl. 8—662

8 Claims

- A process for coupling a beta-naphthol with a diazotized amine comprising
 - dissolving a beta-naphthol in water with a strong base
 - precipitating the beta-naphthol with a strong acid and
 - cooling the slurry to about 0° C. to 15° C.
- (a) adding a diazotized amine and
 - increasing the pH to about 1.0 to 4.0 with a strong base and
 - further increasing the pH to about 5.0 to 10.0 with a weak base.

4,395,265

FUEL PELLETS

Charles Reilly, 777 E. 31st St., Brooklyn, N.Y. 11210, and Richard G. Bailey, 4308 W. 82 St., Prairie Village, Kans. 66208

Filed Dec. 16, 1981, Ser. No. 331,044
Int. Cl.³ C10L 5/14; C10F 7/06

U.S. Cl. 44—15 R

10 Claims

- A process for producing a fuel material which may be readily transported comprising the following steps:
 - Make a particulate composition of a peat binder material of combustible properties,
 - Dry the ground binder material to remove excessive moisture,
 - Mix a particulate coal or dry sludge fuel material with the said particulate binder material,
 - Pelletize this mixture in a pelletizer type machine so as to produce pellets,
 - Dry the pellets to further reduce the moisture content of the pellets.
- The process as recited in claim 1 in which coal fines are employed as the particulate fuel material in step c.

4,395,266

STABILIZED WATER-IN-MINERAL OIL EMULSION

Kong W. Han, Oosterhout, Netherlands, assignor to Internationale Octrooi Maatschappij "Octropa" B.V., Rotterdam, Netherlands

Filed May 19, 1980, Ser. No. 150,827

Claims priority, application Netherlands, May 21, 1979, 7903961

Int. Cl.³ C10C 1/32

U.S. Cl. 44—51

15 Claims

- Water-in-mineral oil emulsion comprising:
 - 1–50 vol.% of water,
 - 99–50 vol.% of a mineral oil selected from the group consisting of gasoline, kerosene, diesel oil, heavy gasoline and fuel oil,
 - an effective proportion of a surfactant, and
 - a finely divided stabilizer which is substantially undissolved in the constituent phases of the emulsion and forms

an interface between said phases, said stabilizer being a compound comprising at least one polar group having a dipole or being capable of forming a hydrogen bridge and at least 2 non-polar hydrocarbon groups containing at least 8 carbon atoms, said compound being selected from the group consisting of (i) a di- or tri-amide obtained by reacting a fatty acid with a compound containing 2 or 3 amino groups, (ii) the product obtained by reacting a mono-, di- and/or tri-alkanolamine soap derived from a natural or synthetic fatty acid and a quaternary ammonium salt comprising at least one substituent containing at least 8 carbon atoms, whereby the remaining substituents may consist of alkyl groups containing 1-3 carbon atoms, and (iii) a polymer obtained by reacting a polyalkyl anhydride with a compound containing at least 2 amino groups.

2. Water-in-mineral oil emulsion according to claim 1, which comprises a stabilizer which has been formed in situ.

4,395,267

NOVEL METHOD OF EXTENDING A HYDROCARBON FUEL HEAVIER THAN GASOLINE

William M. Sweeney, Wappingers Falls, N.Y., assignor to Texaco, Inc., White Plains, N.Y.

Filed Mar. 26, 1980, Ser. No. 134,036
Int. Cl.³ C10L 1/18

U.S. Cl. 44-56

2 Claims

1. A novel hydrocarbon fuel composition heavier than gasoline comprising a hydrocarbon fuel heavier than gasoline; a water-miscible alcohol, ethanol or methanol which is substantially immiscible with said fuel; and as a cosolvent an ortho-ester.

4,395,268

HOT GAS COOLER FOR A COAL GASIFICATION PLANT

Jaroslav Zabelka, Mylhenstrasse 46, CH 84 00 Winterthur, Switzerland

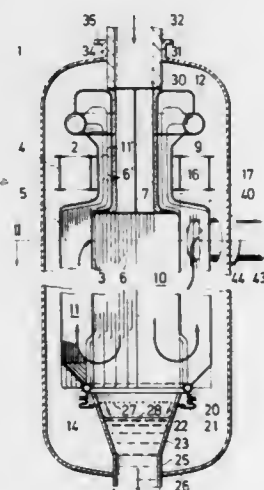
Filed Sep. 18, 1981, Ser. No. 303,571

Claims priority, application Switzerland, Sep. 19, 1980, 7051/80

Int. Cl.³ C10J 3/84, 3/86

U.S. Cl. 48-67

6 Claims



1. A hot gas cooler for a coal gasification plant comprising a pressure vessel having a vertically disposed casing with an inlet spigot at an upper end for receiving an exit of a reaction vessel; an insert of polygonal cross-section of n-sides in said pressure vessel including a plurality of pipes for conducting cooling medium therethrough, said pipes being in secured relation to each other to define a fall chamber for conducting a hot gas therethrough, said insert having an inlet to said fall chamber at an upper end in sealed relation to said inlet spigot to receive a flow of hot gas, an outlet from said fall chamber at a lower end to discharge slag particles and

a plurality of peripherally disposed openings to exhaust the hot gas flow from said fall chamber; a jacket of polygonal cross-section of n-sides including a plurality of pipes for conducting a cooling medium therethrough, said pipes being secured together to form a gas-tight wall, said jacket being circumferentially offset from said insert by an angle equal to $360^\circ/2n$ and spaced about said insert to define a first annular chamber therebetween communicating with said peripheral openings of said insert and sealed from said casing, said jacket being spaced from said casing to define a second annular chamber therebetween;

at least one gas exhaust passage connected to said jacket and communicating an upper end of said first annular chamber with the exterior of said casing for exhausting the cooled gas therethrough; and means for discharging slag from said outlet of said insert, said means including a funnel passing through said pressure vessel.

4,395,269

COMPACT DUST FILTER ASSEMBLY

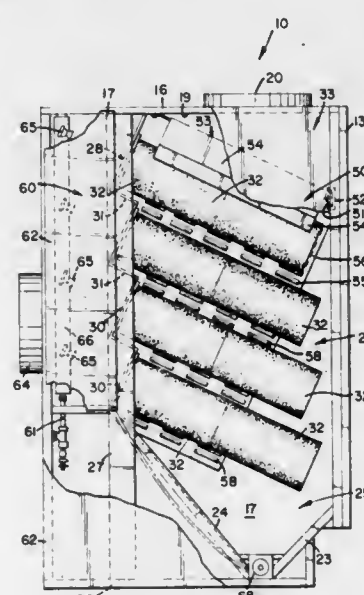
Frederick E. Schuler, St. Paul, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Sep. 30, 1981, Ser. No. 307,166

Int. Cl.³ B01D 46/04, 46/48, 50/00

U.S. Cl. 55-302

14 Claims



5. An air filter assembly for filtering air laden with particulate matter, said assembly comprising:

a housing having a clean air chamber and a filtering chamber, said housing having an upper wall, a substantially closed bottom, and a plurality of side walls;

a clean air outlet from said clean air chamber in one of said side walls;

means separating said clean air chamber from said filtering chamber including means mounting a plurality of spaced apart, filter elements within said filtering chamber, said elements including an uppermost filter element, with each of said elements being in fluid communication with said air outlet, said mounting means positioning each of said filter elements in a generally downward, inclined direction with respect to said upper wall;

said upper wall, a portion of said side walls, and said uppermost filter element defining an airflow distribution space in said filtering chamber above said filter elements;

a dirty air inlet in a wall opening into said distribution space, whereby the velocity of the air entering said filtering chamber and passing through said distribution space is reduced;

pulse-jet cleaning means intermediate said outlet and said mounting means for removing particulate matter accumulated on said filter elements;

and a lowermost portion in said filtering chamber arranged and constructed for the collection of particulate matter, said portion including at least one sloping surface constructed from a material which is movably responsive in a flexing motion to the pressure differentials created by said cleaning means;

whereby the filtered particulate matter is caused to move downwardly for collection by the flexing of said sloping surface in response to the increases in pressure within said filtering chamber caused by the operation of said pulse-jet cleaning means.

4,395,270

METHOD OF FABRICATING A POLARIZATION RETAINING SINGLE-MODE OPTICAL WAVEGUIDE

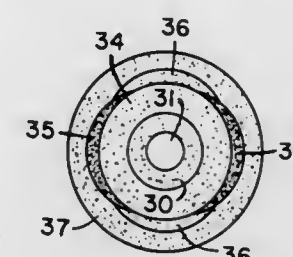
Michael G. Blankenship, Corning, and Donald B. Keck, Big Flats, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 13, 1981, Ser. No. 253,224

Int. Cl.³ C03B 19/00, 37/075

U.S. Cl. 65-3.12

6 Claims



1. The method of forming an optical waveguide comprising the steps of

providing a substantially cylindrical mandrel, providing burner means for emitting a stream of glass soot, rotating said mandrel,

reciprocatingly moving said burner means longitudinally along said rotating mandrel to deposit on said mandrel a first coating of glass soot,

reciprocatingly moving said burner means longitudinally along said rotating mandrel to deposit on the outer surface of said first coating a second coating of glass soot having a refractive index lower than that of said first coating,

halting rotation of said mandrel, moving said burner means longitudinally with respect to said mandrel while depositing on said second coating a first crescent-shaped longitudinally extending region of glass soot having a thermal coefficient of expansion different from that of said second coating,

rotating said mandrel 180° and thereafter again halting mandrel rotation,

moving said burner means longitudinally with respect to said mandrel while depositing a second crescent-shaped longitudinally extending region of glass soot that is of the same composition as said first region, said second region being azimuthally spaced from and diametrically opposed to said first region,

depositing on the outer surface of the resultant soot body a coating of cladding soot having a thermal coefficient of expansion similar to that of said second coating and having a refractive index equal to or lower than that of said second coating,

removing said mandrel, and forming an optical waveguide fiber from the resultant soot preform.

5. A method of forming an optical waveguide preform comprising the steps of

providing a tube of cladding glass, disposing centrally within said tube a first glass rod having an axially disposed core region surrounded by a layer of cladding glass,

disposing a first pair of glass rods diametrically with respect

to the central rod within said tube, said first pair of rods being formed of a glass having a temperature coefficient of expansion different from that of said cladding glass, and disposing a plurality of rods of cladding glass in at least some of the interstices between said centrally disposed rod, said first pair of rods and said tube.

4,395,271

METHOD FOR MAKING POROUS MAGNETIC GLASS AND CRYSTAL-CONTAINING STRUCTURES

George H. Beall, Big Flats; Gerald R. Mansfield, Painted Post, and Jan W. H. Schreurs, Corning, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Division of Ser. No. 29,577, Apr. 13, 1979, Pat. No. 4,233,169.

This application May 9, 1980, Ser. No. 148,260

Int. Cl.³ C03C 3/22, 15/00

U.S. Cl. 65-31

40 Claims



1. A method for making porous bodies of magnetic glass with interconnected pores less than 10,000 Å in diameter and having iron-containing, magnetic crystals enveloped therein with dimensions less than about 1000 Å which method comprises the steps of:

(a) melting a batch for a glass which, upon cooling and/or subsequent reheating, separates into at least three phases, viz., iron-containing magnetic crystals and two co-connected, chemically-distinct, vitreous phases of different solubility;

(b) simultaneously forming the melt into a glass body and cooling to a temperature at least within the range beginning in the vicinity of the transformation range of the glass but below the miscibility temperature of said two vitreous phases, whereby separation of said two vitreous phases and development of said iron-containing magnetic crystals can be initiated;

(c) exposing said glass body to a temperature within the range beginning in the vicinity of the transformation range of the glass but below the miscibility temperature of said two vitreous phases for a period of time sufficient to induce separation of said two vitreous phases and to develop said iron-containing crystals and/or to coarsen the structure of said vitreous phases and to modify the magnetic properties of said body; and then

(d) contacting said glass body with an etchant for a period of time sufficient to remove one of said vitreous phases and thereby produce a porous glass body with interconnected pores, wherein said glass consists essentially of a vitreous silica skeleton.

4,395,272

PRESSURE SIZING OF FLOAT GLASS

Gerald E. Kunkle, New Kensington; John E. Sensi, Arnold, and Joseph A. Gulotta, New Kensington, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 2, 1981, Ser. No. 326,890

Int. Cl.³ C03B 18/08

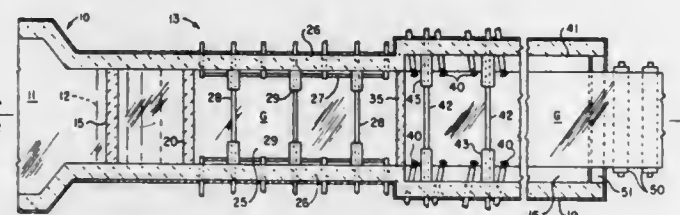
U.S. Cl. 65-99.5

8 Claims

1. A method of producing float glass of less than equilibrium thickness comprising: continuously metering a stream of molten glass through an opening having a width not substantially

less than the final product glass width, and depositing the stream of glass onto a molten metal pool within a pressure chamber including side basin walls for containing the molten metal, and maintaining the molten glass in the pressure chamber in contact with the side basin walls so as to cover the entire surface of the molten metal pool within the pressure chamber and to separate the molten metal from a gas space above and essentially coextensive with the molten metal pool in the pressure chamber; imposing a pressure greater than atmospheric on the molten glass in the pressure chamber by pressurizing the gas space, so as to reduce the thickness of the glass as it passes through the pressure chamber to a thickness less than the equilibrium thickness; withdrawing the glass as a thinned ribbon from the pressure chamber to a cooling chamber where the pressure is lower than in the pressure chamber, and in the cooling chamber supporting the glass ribbon on molten metal while restraining the ribbon against lateral shrinkage until the ribbon has cooled to a dimensionally stable condition; and withdrawing the dimensionally stable glass ribbon from the cooling chamber.

8. Apparatus for producing float glass of less than equilibrium thickness comprising a forming chamber having a basin adapted to hold a pool of molten metal, the forming chamber



including a pressure chamber encompassing an upstream portion of the molten metal pool, and a cooling chamber encompassing a downstream portion of the molten metal pool, the downstream end of the pressure chamber being closed by a vertically extending seal wall spaced slightly above the elevation of the molten metal only a sufficient distance to permit passage of a ribbon of glass therebetween but insufficient to permit substantial escape of pressurized gas from the pressure chamber, at least a portion of the cooling chamber basin having a width greater than the maximum width of the pressure chamber basin, an entrance opening between a source of molten glass and the pressure chamber adapted to admit molten glass into the pressure chamber and prevent escape of pressurized gas from the pressure chamber, the entrance opening having a width substantially as great as the width of the pressure chamber, an essentially enclosed gas space overlying and essentially coextensive with the portion of the basin in the pressure chamber, means to impose a pressure in the pressure chamber gas space greater than in the cooling chamber, means in the cooling chamber for engaging edge portions of a glass ribbon emerging from the pressure chamber and for restricting lateral shrinking of the glass ribbon, and an exit opening in the cooling chamber through which the glass ribbon may be withdrawn from the pool of molten metal.

4,395,273

PREPARATION OF MULTI-TRACE ELEMENT FERTILIZERS

Bernd Leutner, Frankenthal; Bernhard Purucker; Eberhard Rother, both of Ludwigshafen; Geerd F. Juergens, and Dieter Wagner, both of Schifferstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 18, 1981, Ser. No. 322,672

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1980, 3044903

Int. Cl.³ C05D 5/00

U.S. Cl. 71-11

6 Claims

1. A process for the preparation of a multi-trace nutrient fertilizer which contains magnesium as a further nutrient and in which the complexforming trace elements are present in the form of anionic chelates with one or more N-carboxyalk-

ylaminoacids, which comprises: reacting the N-carboxyalkylaminoacids, in the presence of water, with the trace elements or trace element compounds in a molar ratio of N-carboxyalkylaminoacids to trace elements or trace element compounds of not less than 0.8:1, at least 20% by weight of the trace element compounds being oxides, hydroxides and/or carbonates to form an anionic trace element chelate, and at the same time, or subsequently, raising the pH of the solution to 3.5-6 by adding a magnesium compound selected from the group consisting of magnesium oxide, hydroxide and carbonate, whereby said magnesium compound reacts with said anionic trace element chelate.

4,395,274

MICROBICIDAL AGENT AND ITS USE

Wilfried Paulus, and Hermann Genth, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 52,872

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1979, 2909550

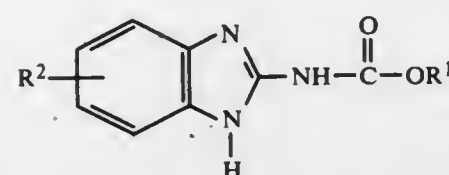
Int. Cl.³ A01N 25/00, 31/08, 43/50, 43/52

U.S. Cl. 71-67

14 Claims

1. A composition for killing bacteria, algae, fungi and yeast which comprises a bacteriologically, fungicidally, algacidally or yeasidically effective amount of;

(a) a benzimidazolyl-alkyl-carbamate of the formula



in which

R¹ denotes an alkyl with 1 to 4 carbon atoms, and

R² denotes hydrogen or an alkyl with 1 to 4 carbon atoms and

(b) a phenolic compound selected from the group consisting of (2,2'-dihydroxy-5,5'-dichloro) diphenylmethane and 2 hydroxy diphenyl which is present in an amount of 0.5 to 20 parts by weight per part by weight of said carbamate.

4,395,275

MONO AND DIESTERS OF N-PHOSPHONOMETHYLGLYCINATES AS HERBICIDES

William R. Purdum, Maryland Heights, Mo., assignor to Monsanto Company, St. Louis, Mo.

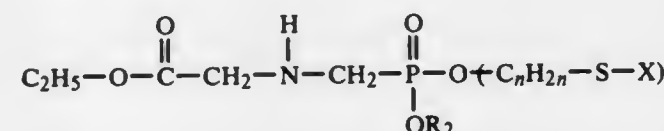
Filed Jun. 19, 1981, Ser. No. 275,486

Int. Cl.³ A01N 57/28; C07F 9/40

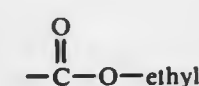
U.S. Cl. 71-87

12 Claims

1. Alkylphosphonate diesters of N-phosphono-methylglycinate of the formula



wherein X is ethyl or



and R₂ is hydrogen or -C_nH_{2n}-S-X, n is an integer of 1 to 4.

9. A herbicidal method which comprises contacting a plant with a herbicidally effective amount of a compound of claim 1.

4,395,276 THIOSULFENAMIDE DERIVATIVES OF N-PHOSPHONOMETHYLGLYCINONITRILES AS HERBICIDES

James A. Sikorski, West Lafayette, Ind., and Tommie G. Curtis, University City, Mo., assignors to Monsanto Company, St. Louis, Mo.

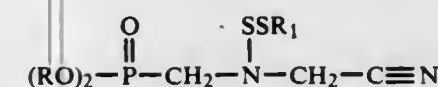
Continuation-in-part of Ser. No. 160,677, Jun. 18, 1980, Pat. No. 4,344,572. This application Oct. 5, 1981, Ser. No. 309,323

Int. Cl.³ A01N 57/22; C07F 9/40

U.S. Cl. 71-87

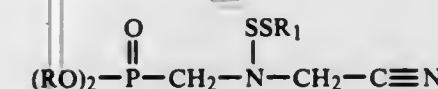
39 Claims

1. A method of controlling undesired plants which comprises applying to said plants or plant growth medium a herbicidally effective amount of a compound of the formula



wherein R is selected from the group consisting of phenyl, naphthyl or biphenyl; or phenyl, naphthyl or biphenyl substituted with from 1 to 3 substituents independently selected from the group consisting of lower alkyl, lower alkoxy, lower alkylthio, alkoxycarbonyl, methylenedioxy, trifluoromethyl, cyano, nitro and halogen; and R₁ is alkyl, aryl, lower alkyl, cycloalkyl, naphthyl or phenyl or phenyl or naphthyl or aryl lower alkyl substituted with from 1 to 3 substituents independently selected from the group consisting of lower alkyl, lower alkoxy, halogen, and trifluoromethyl.

14. A compound of the formula



wherein R is selected from the group consisting of phenyl, naphthyl or biphenyl; or phenyl, naphthyl or biphenyl substituted with from 1 to 3 substituents independently selected from the group consisting of lower alkyl, lower alkoxy, lower alkylthio, alkoxycarbonyl, methylenedioxy, trifluoromethyl, cyano, nitro and halogen; and R₁ is independently alkyl, aryl, lower alkyl, cycloalkyl, phenyl, naphthyl or phenyl or naphthyl or aryl lower alkyl substituted with from 1 to 3 substituents independently selected from the group consisting of lower alkyl, lower alkoxy, halogen, and trifluoromethyl.

4,395,277

[4-(5'-TRIFLUOROMETHYLPYRIDYL-2'-OXY)-PHENOXY]-PROPIONIC ACID ESTERS WITH α-HYDROXY OR α-MERCAPTO GAMMA-BUTYROLACTONE AND THEIR USE AS HERBICIDES

Beat Böhner, Binningen, and Hermann Rempfler, Ettingen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 31, 1980, Ser. No. 288,860

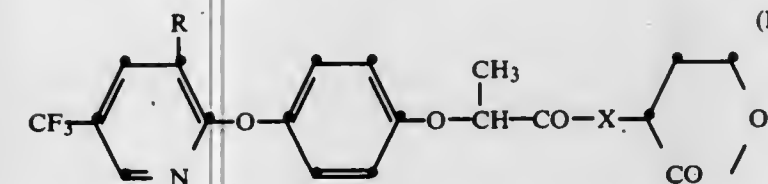
Claims priority, application Switzerland, Aug. 11, 1980, 6060/80

Int. Cl.³ A01N 43/40; C07D 413/12

U.S. Cl. 71-94

8 Claims

1. α-[4-(5'-Trifluoromethylpyridyl-2'-oxy)-phenoxy]-propionic acid-γ-butyrolactone ester and -thioester of the formula I



wherein R is hydrogen or chlorine, and X is oxygen or sulfur.

7. A method for selectively combating gramineous weeds in

dicotyledonous cultivated crops as well as in cereals and maize, which method comprises applying thereto or to the locus thereof a herbicidally effective amount of an α-[4-(5'-trifluoromethylpyridyl-2'-oxy)-phenoxy]-propionic acid-γ-butyrolactone ester of the formula I, claim 1.

4,395,278

METHOD FOR PRODUCING COBALT METAL POWDER Clarence D. Vanderpool; Richard A. Scheithauer, and Richard G. W. Gingerich, all of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Sep. 29, 1980, Ser. No. 191,882

Int. Cl.³ C22B 23/04

U.S. Cl. 75-0.5 AA

11 Claims

1. A process for producing a fine cobalt metal powder from an aqueous cobaltic ammine chloride solution comprising treating said aqueous cobaltic ammine chloride solution with an alkali metal hydroxide to form a wet cobaltic hydrated precipitate, contacting said wet cobaltic hydrated precipitate with steam at a temperature greater than about 800° C. for sufficient period of time to convert said cobaltic hydrated precipitate to cobaltous oxide and reducing said cobaltous oxide to produce a fine cobalt metal powder.

4,395,279

PLASMA SPRAY POWDER

David L. Houck, Towanda, Pa., assignor to Gte Products Corporation, Stamford, Conn.

Filed Nov. 27, 1981, Ser. No. 325,267

Int. Cl.³ B22F 1/00

U.S. Cl. 75-0.5 BB

6 Claims

1. A plasma spray powder consisting essentially of metals selected from the group consisting of nickel, iron or cobalt, or mixtures and alloys thereof, with the balance being from about 50 to about 90 percent by weight tungsten and carbon, said tungsten and carbon being present in a one to one molar ratio and said iron and nickel being present in a weight ratio of at least about 4 parts by weight iron and nickel combined to 1 part by weight cobalt, said powder having a particle size distribution of about 60 to 90 percent minus 20 microns, and less than about 15 percent minus 5 microns and consisting essentially of homogeneous plasma densified and melt alloyed particles having a substantially uniform composition.

4. A process for producing a plasma spray powder comprising preparing a uniform powder blend consisting essentially of metals selected from the group consisting of iron, nickel or cobalt being present in a weight ratio of at least 4 parts iron or nickel to 1 part cobalt with the balance of said powder being from about 50 to about 90 percent by weight tungsten and carbon, said tungsten and said carbon being present in a one to one molar ratio, said powder blend having an average particle size less than about 10 microns, agglomerating the powder to produce agglomerated particles, sintering the agglomerated particles, entraining the sintered agglomerated powder in a carrier gas, feeding the entrained agglomerated powder through a high temperature reactor having a temperature above the melting point of the highest melting component of the powder material to densify said particles, wherein said densified particles consist essentially of particles having substantially uniform composition, and comminuting and classifying said densified particles to produce a powder having a particle size distribution of about 60 to 90 percent minus 20 microns, and less than about 15 percent minus 5 microns.

4,395,280

PREHEATING PROCESS FOR STEEL-MAKING MATERIALS

Akira Takenouchi, Aichi, and Yukio Niwa, Kounan, both of Japan, assignors to Daidotokushuko Kabushiki Kaisha, Nagoya, Japan

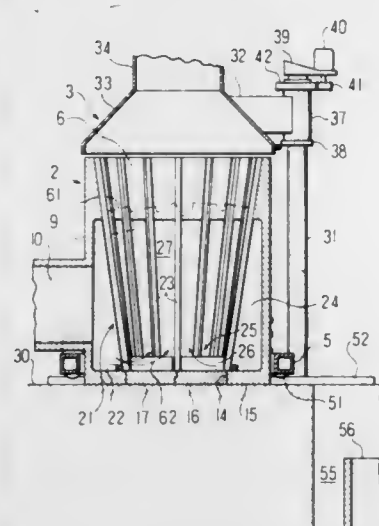
Filed Feb. 24, 1981, Ser. No. 237,768

Claims priority, application Japan, Feb. 29, 1980, 55-25836; Aug. 5, 1980, 55-107979

Int. Cl.³ C22B 1/00

U.S. Cl. 75—28

3 Claims



1. A preheating process for steel-making materials, which comprises the steps of:

- preheating steel making materials by contacting said materials with waste gas fluid containing dust from a steel-making furnace in a preheating furnace, some of said dust sticking to said materials;
- scattering any dust sticking to the heated steel-making materials by impact of dumping the materials;
- collecting the scattered dust; and
- charging the steel-making materials into the steel-making furnace after collecting the dust.

4,395,281

TREATING MOLTEN PIG IRON IN A TORPEDO
Goran Grimfjard, Västerås, Sweden, assignor to Asea AB, Västerås, Sweden

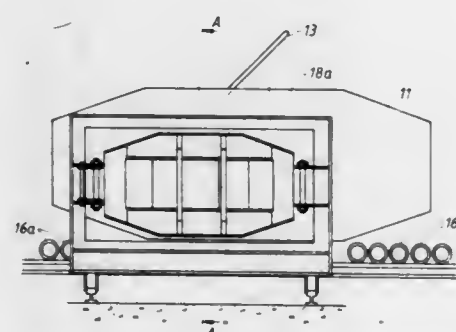
Filed Dec. 22, 1981, Ser. No. 333,335

Claims priority, application Sweden, Dec. 23, 1980, 8009116

Int. Cl.³ C21C 7/02

U.S. Cl. 75—53

7 Claims



1. A method for treating molten pig iron containing sulfur, in the torpedo of a torpedo car, the torpedo comprising a horizontal generally cylindrical body having tapered ends extending horizontally from both ends thereof and the body having a substantially central opening in its top and through which a lance is inserted into the iron and a desulfurizing agent is blown through the lance into the iron by compressed gas for reaction with the sulfur in the iron; wherein the improvement comprising providing the torpedo with at least one longitudinally extending magnetically permeable window and positioning at

least one straight electromagnetic stirrer longitudinally on the outside of the window so as to project a traveling multi-phase AC field into the iron causing stirring of the iron longitudinally in the torpedo.

4,395,282

DESULFURIZATION MIXTURE AND PROCESS FOR MAKING IT

Albert Braun, Hürth; Willi Portz; Georg Strauss, both of Erftstadt, and Hans-Martin Delhey, Duisburg, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 18, 1982, Ser. No. 359,228

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1981, 3111510

Int. Cl.³ C22C 7/02

U.S. Cl. 75—58

9 Claims

1. A mixture for the desulfurization of steel and crude iron melts comprising

- a CaC_2/CaO -crystalline blend containing 40 to 80 weight % CaO and having crystallized out of a fused mass of CaO and CaC_2 ;
- 1 to 6 weight % of chemically combined water having hydrated CaO in the CaC_2/CaO -crystalline blend to form $\text{Ca}(\text{OH})_2$;
- 0.5 to 8 weight % free carbon; and
- 0.5 to 20 weight % carbonates of a substance selected from calcium, magnesium and sodium.

4,395,283

METHOD OF SWITCHING BOTTOM-BLOWN GASES AND APPARATUS THEREFOR

Shozo Murakami; Hukuyosi Isomura, and Yoshihiro Koga, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

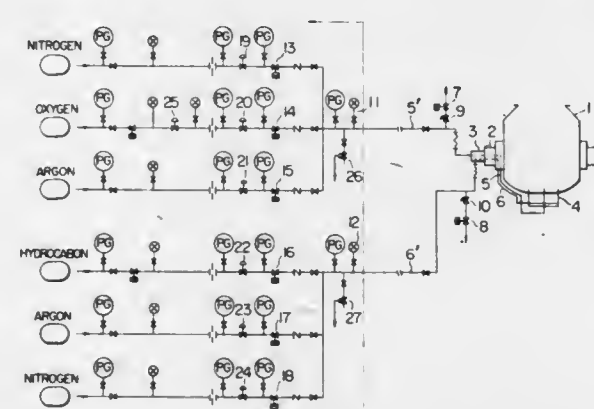
Filed Feb. 23, 1982, Ser. No. 351,094

Claims priority, application Japan, Feb. 27, 1981, 56-26978

Int. Cl.³ C21C 5/34

U.S. Cl. 75—60

8 Claims



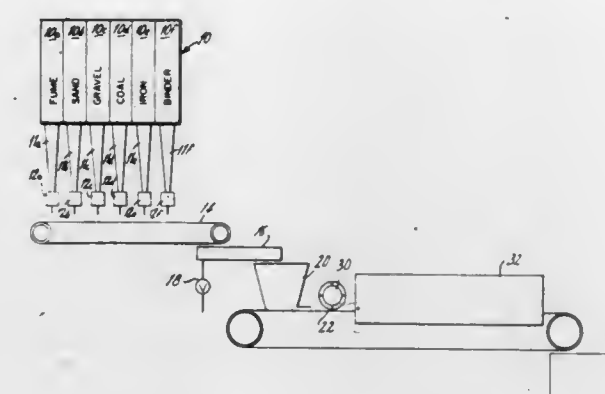
1. A method of switching bottom blown gases successively from a first gas to a second gas without interruption immediately after the blowing of said first gas into a molten metal in a steel making furnace, which blowing is effected from tuyeres or porous plugs through piping means connecting the tuyeres or porous plugs to gas sources, said tuyeres or porous plugs being disposed at a part of the steel making furnace below the surface of the molten metal, comprising the steps of:

increasing the pressure of gas in the piping means to a higher level than a steady state gas pressure flow condition which occurs when switching from the first gas to the second gas is completed;

releasing into the atmosphere at least a portion of the gas in the piping means from a predetermined position in the piping means between the gas sources and said furnace when the pressure of the gas is increased to exceed said predetermined level higher than the gas pressure in the

steadystate flow condition whereby gas in said piping means is diverted from said furnace into the atmosphere; and

inhibiting the release of the gas into the atmosphere after a lapse of a predetermined period of time from the initiation of the release of the gas, or when the pressure of the gas flowing through the piping drops below a predetermined level.



4,395,284

ABRASION RESISTANT MACHINABLE WHITE CAST IRON

Robert J. Dawson, Newmarket, Canada, assignor to Falconbridge Limited, Toronto, Canada

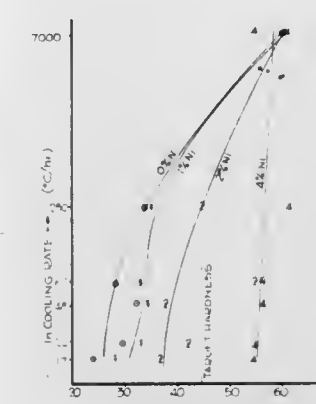
Filed Jan. 18, 1982, Ser. No. 340,053

Claims priority, application Canada, Feb. 20, 1981, 371420

Int. Cl.³ C22C 38/56

U.S. Cl. 75—123 CB

8 Claims



1. A cast iron alloy consisting essentially of about 2.5–3.5% carbon, 0.5–1.0% manganese, 0.25–1.5% silicon, 13–19% chromium, 0.8–3.0% nickel, balance iron and incidental impurities; which is abrasion resistant in the hardened condition and machinable in the annealed condition.

5. A method of heat treating a cast iron alloy consisting essentially of about:

- 2.5–3.5% carbon
 - 0.5–1.0% manganese
 - 0.25–1.5% silicon
 - 13–19% chromium
 - 0.8–3.0% nickel
- balance iron and incidental impurities, comprising cooling said alloy at a rate between 100° C. and 350° C. per hour from a temperature above the austenitizing temperature so as to produce an annealed machinable alloy having a hardness of less than about 45 Rc.

4,395,285

LOW DENSITY COMPACTS OF PREPARED MIX FOR USE IN THE PRODUCTION OF SILICON AND FERROSILICON

Rodney F. Merkert, Buffalo, N.Y., assignor to Elkem Metals Company, Pittsburgh, Pa.

Division of Ser. No. 134,205, Mar. 26, 1980, Pat. No. 4,309,216.

This application Sep. 23, 1981, Ser. No. 304,652

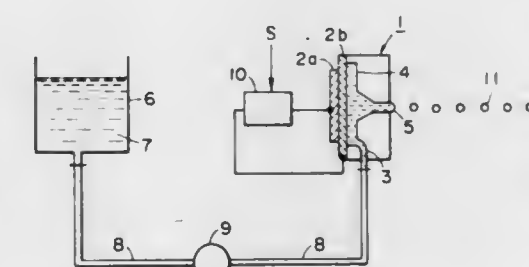
Int. Cl.³ C22B 9/10

U.S. Cl. 75—256

8 Claims

1. Pieces of a low density, porous compact for use as the feed to an electric furnace in the production of silicon and ferrosilicon comprising finely-divided silica-containing material including at least about 25 parts by weight of silica fume per 100 parts by weight of total silica, and a finely-divided carbonaceous reducing agent in an amount such that the total carbon ranges from about 35 to 50 parts by weight carbon per 100 parts by weight of total silica; the compact having an apparent

density of between about 0.8 and 1.2 grams per cubic centimeter, a bulk density of between about 25 and 40 pounds per cubic foot and an internal porosity of between about 50 and 60% voids.



4,395,286

WATER-BASED COATING OIL

Robert J. Sturwald, Cincinnati, Ohio, assignor to The Cincinnati-Vulcan Company, Cincinnati, Ohio

Filed Jun. 30, 1982, Ser. No. 393,718

Int. Cl.³ C09D 5/08

U.S. Cl. 106—14.13

13 Claims

1. An aqueous coating composition for providing corrosion and rust protection for metal surfaces comprising a compatible mixture of the following components:

- a sulfonate selected from the group consisting of monovalent metal and amine salts of sulfonic acids;
- a polybasic fatty acid;
- an alkanolamide; and
- a water soluble ether wherein said components are provided in an effective amount to provide rust and corrosion protection for a metal surface and to provide a compatible solution.

4,395,287

LIQUID RECORDING MATERIAL

Masatsune Kobayashi, Yokohama; Seiko Matsumoto, Atsugi; Masahiro Haruta, Funabashi, and Tokuya Ohta, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 23, 1981, Ser. No. 323,881

Claims priority, application Japan, Dec. 1, 1980, 55-169862; Dec. 1, 1980, 55-169863; Dec. 1, 1980, 55-169864

Int. Cl.³ C09D 11/02

U.S. Cl. 106—20

13 Claims

1. A liquid recording material comprising a recording agent for forming a recording image and a liquid vehicle for dissolving or dispersing said recording agent therein, characterized in that a polyalkylene glycol having an average molecular weight of 150 to 350 (A component) and a polyalkylene glycol having an average molecular weight of 400 to 750 (B component) are incorporated in combination in said material, wherein the weight ratio of said A component to said B component is in the range of from 10:1 to 1:10.

4,395,288

LIQUID RECORDING MEDIUM

Tsuyoshi Elda, Chiba; Yasuhiro Yano, Tokyo; Masahiro Haruta, Funabashi; Yohji Matsufuji, Tokyo, and Tokuya Ohta, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 54,489, Jul. 3, 1979, abandoned. This application Apr. 5, 1982, Ser. No. 365,731

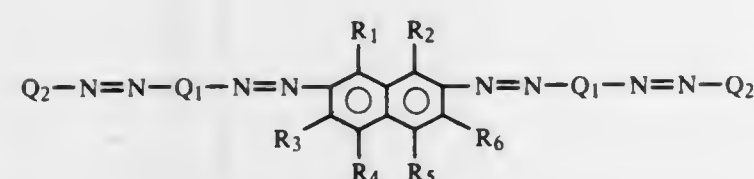
Claims priority, application Japan, Jul. 4, 1978, 53-81122
Int. Cl.³ C09D 11/02

U.S. Cl. 106—22

18 Claims

1. In an ink jet recording process for discharging a liquid recording medium in the form of droplets for recording from a discharge orifice in a recording head, the improvement which comprises employing a liquid recording medium comprising:

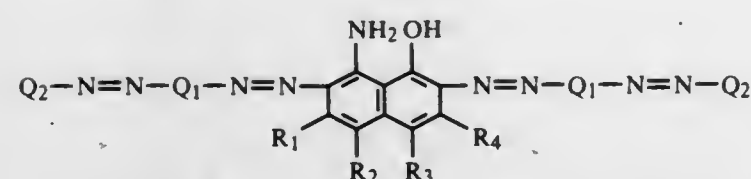
- (a) a carrier liquid selected from the group consisting of water and a mixture of water and a water-soluble organic solvent; and
(b) a recording agent having the formula



wherein said recording agent has 2-8 sulfo groups per molecule, each in the form of a sodium salt or quaternary ammonium salt and wherein the Q_1 radicals are similar or dissimilar members selected from the group consisting of phenylene and naphthalene, the Q_2 radicals are similar or dissimilar members selected from the group consisting of phenyl and naphthyl, the Q_1 radicals and the Q_2 radicals may be unsubstituted or amino substituted, hydroxyl substituted or sulfo substituted, and R_1 - R_6 are similar or dissimilar members selected from the group consisting of hydrogen, amino, hydroxyl and sulfo.

10. In an ink jet recording process for discharging a liquid recording medium in the form of droplets for recording from a discharge orifice in a recording head, the improvement which comprises employing a liquid recording medium comprising:

- (a) a carrier liquid selected from the group consisting of water and a mixture of water and a water-soluble organic solvent; and
(b) a recording agent having the formula



wherein said recording agent has 2-8 sulfo groups per molecule, each in the form of a sodium salt or quaternary ammonium salt and wherein the Q_1 radicals are similar or dissimilar members selected from the group consisting of phenylene and naphthalene, the Q_2 radicals are similar or dissimilar members selected from the group consisting of phenyl and naphthyl, the Q_1 radicals and the Q_2 radicals may be unsubstituted or amino substituted, hydroxyl substituted or sulfo substituted, and R_1 - R_4 are similar or dissimilar members selected from the group consisting of hydrogen and sulfo.

4,395,289

PROCESS FOR PRODUCING CONCRETE

Anatoly A. Balakirev, and Boris A. Balakirev, both of Chimkent, U.S.S.R., assignors to Kazakhsky Khimiko-Tekhnologicheskyy Institut, Chimkent, U.S.S.R.

Filed Dec. 3, 1981, Ser. No. 327,055
Int. Cl.³ C04B 7/02

U.S. Cl. 106—98

15 Claims

1. A process for producing concrete comprising mixing barkhan sand with a fuel selected from the group consisting of a liquid fuel and a solid fuel, and with a plastic binder selected from the group consisting of clay, loess, loam and surfactant which liquifies and reduces water-consumption of the composition, said plastic binder being present in an amount sufficient to provide for granulation of said sand and said fuel and, the components of the mixture being in the following proportions in percent by weight:

barkhan sand: 95 to 30
fuel: 3 to 20
plastic binder: 2 to 60;

granulating the resulting charge; calcining the granules at a temperature ranging from 1,000° to 1,600° C.; crushing the calcined material; mixing the crushed material with cement and water, cement being used in an amount of from 10 to 100% by means of the calcined material and water in an amount of from 10 to 60% by mass of the total of the calcined material and cement.

4,395,290

METHOD OF MANUFACTURING CEMENT RAW MIX

Osvaldo A. Oller, Cape Girardeau, Mo.; Eric R. Hansen, Omaha, Neb.; and Gerard L. Eaker, Cape Girardeau, Mo., assignors to Gulf & Western Industries, Inc., New York, N.Y.

Filed Jan. 13, 1982, Ser. No. 339,089
Int. Cl.³ C04B 7/02

U.S. Cl. 106—100

21 Claims

1. A method for regulating the mixture of limestone with other raw materials to produce a cement raw mix of desired composition, said method comprising the steps of:

- (1) estimating the chemical composition of the limestone and the several other raw materials;
- (2) selecting the desired characteristics (Ch) of the overall raw mix composition;
- (3) determining the relative proportions (W_i) of raw material to produce raw mix of the desired characteristics (Ch_D);
- (4) producing raw mix for a time interval by mixing raw materials in relative proportions (W_i);
- (5) after producing the raw mix for the time interval, directly analyzing the chemical composition of the raw mix and calculating the actual characteristics (Ch_A) of the raw mix;
- (6) determining the theoretical relative proportions (T_i) of the raw materials that could have theoretically produced the actual characteristics of the raw mix;
- (7) adjusting the estimated chemical compositions of the limestone and the several other raw materials by adjusting estimated components in response to the degree of divergence between T_i and W_i in the limestone and for the several other raw materials;
- (8) reselecting the desired characteristics of the raw mix composition (Ch_D) over the next subsequent time interval to adjust the overall raw mix towards the overall desired characteristics (Ch); and
- (9) repeating steps three through eight.

4,395,291

PROCESS FOR MAKING NON-DUSTING HIGH LEAD OXIDE-LOW SILICA ADDITIVE

Armand Limare, Bouillet; Bernard Razumowski, Plaisir, and Claude Sindezingue, Senlis, all of France, assignors to Societe Anonyme Societe Miniere et Metallurgique de Penarroya, Paris, France

Continuation of Ser. No. 128,259, Mar. 7, 1980, abandoned. This application Mar. 19, 1982, Ser. No. 359,781

Claims priority, application France, Mar. 9, 1979, 79 06049
Int. Cl.³ C09C 1/14

U.S. Cl. 106—297

9 Claims

1. A process for producing a lead additive which contains a lead oxide and an alkaline silicate having a weight ratio of lead, calculated as PbO , to alkaline silicate, calculated as SiO_2 , between about 18:1-32:1, a moisture content of less than or equal to about 2%, and a density of less than about 5 g/cm³, the process comprising the steps of:

- (a) mixing the lead oxide with all or a portion of a predetermined amount of a water-soluble alkaline silicate to obtain a mixture comprising a malleable paste;
- (b) conditioning the mixture obtained in step (a) to produce granules having a predetermined size;
- (c) subjecting the mixture obtained in step (a) to a heat treatment of drying or drying and fritting, comprising a first phase conducted at a temperature of between about 50° and 200° C. for a period from several minutes to about one hour and a second phase conducted at a substantially higher temperature than the first phase of between about 80° and 700° C. for a period of from several minutes to about one hour; and
- (d) adding any remaining portion of the water-soluble alkaline silicate to the mixture obtained in step (a).

4,395,292

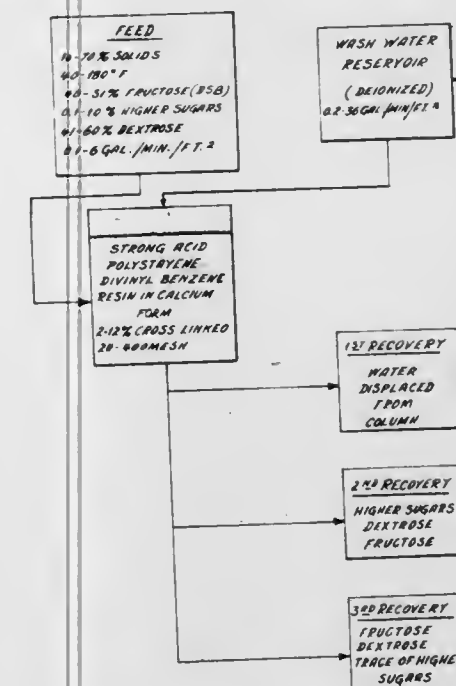
HIGH FRUCTOSE SYRUP AND PROCESS FOR MAKING SAME

Edward Katz, St. Louis County; Henry S. Davis, St. Louis, and Barrett L. Scallet, Clayton, all of Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

Filed Apr. 10, 1974, Ser. No. 459,788
Int. Cl.³ C13K 1/00, 11/00

U.S. Cl. 127—29

20 Claims



14. A non-crystallizing syrup derived from a syrup having a D.E. of over 90 and a fructose content of less than 49%, said non-crystallizing syrup consisting essentially of, on a dry solids basis, from about 52% to about 95% fructose, less than about 48% dextrose and from about 0.5% to about 2% higher molecular weight sugars.

16. A process for producing a fructose rich non-crystallizing syrup derived from starch comprising the steps of:

- (a) passing a starch conversion syrup feed having on a dry solids basis more than 49% dextrose, about 25 to 51% fructose and about 0.1 to about 8% higher saccharides through a molecular exclusion column;
- (b) removing dextrose and higher saccharides from the syrup; and
- (c) recovering a product containing more than about 52% fructose, less than about 48% dextrose and less than about 2% higher saccharides.

4,395,293

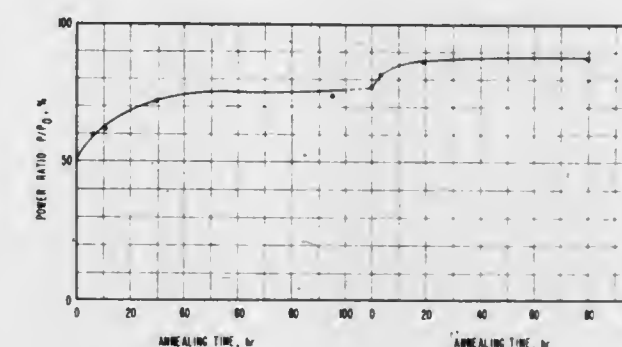
ACCELERATED ANNEALING OF GALLIUM ARSENIDE SOLAR CELLS

Ronald C. Knechtli, Woodland Hills; Robert Y. Loo, Los Angeles, and G. Sanjiv Kamath, Malibu, all of Calif., assignors to Hughes Aircraft Company, El Segundo, Calif.

Filed Mar. 23, 1981, Ser. No. 246,360
Int. Cl.³ H01L 21/263; C03C 3/04

U.S. Cl. 148—1.5

7 Claims



1. A method of repairing GaAs solar cell damaged by radiation which comprises:

- (a) thermally annealing the damaged solar cell by maintaining the solar cell at a temperature substantially above the temperature at which the solar cell operates most efficiently for a predetermined period of time, while substantially simultaneously;
- (b) injecting minority carriers into the damaged solar cell at an energy level of the order of circuit potentials.

4,395,294

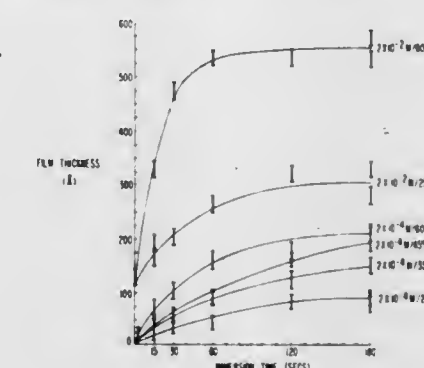
COPPER CORROSION INHIBITOR

Norris D. Hobbins, North Plainfield, and Ronald F. Roberts, Somerset, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 17, 1981, Ser. No. 293,446
Int. Cl.³ C23F 5/02

U.S. Cl. 148—6.14 R

13 Claims



1. A product formed by the process of contacting a metal comprising copper with an oxidation inhibitor to form a protective coating CHARACTERIZED IN THAT said oxidation inhibitor comprises 5-methyl benzimidazole and where said protective coating has a thickness of at least 5 nm.

4,395,295

PROCESS FOR TREATING COPPER-ALUMINUM-SILICON ALLOYS TO IMPROVE FATIGUE STRENGTH

Eugene Shapiro, Hamden, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed May 28, 1982, Ser. No. 382,865

Int. Cl.³ C22F 1/08

U.S. Cl. 148—11.5 C

8 Claims

1. A process for providing a substantially single phase copper alloy having a fatigue strength in a longitudinal direction substantially in excess of about 31 ksi and in a transverse direction substantially in excess of about 46 ksi and having a fatigue life of at least about 10 million cycles, said process comprising: providing a copper alloy consisting essentially of from about 1% to about 5% silicon, from about 2% to about 12% aluminum and the balance essentially copper; cold working said alloy from about 80% to about 90%; and heating said alloy at a temperature of about 250° C. to about 300° C. for a time period of about 30 minutes to about 24 hours.

8. A flexible contact member for an ink jet printer, said contact member comprising:

a member formed from a copper alloy, said copper alloy consisting essentially of from about 1% to about 5% silicon, from about 2% to about 12% aluminum and the balance essentially copper and having a fatigue strength in a longitudinal direction substantially in excess of about 31 ksi and in a transverse direction substantially in excess of about 46 ksi and a fatigue life of at least about 10 million cycles from being cold worked from about 80% to about 90% and being subjected to a final heat treatment at a temperature of about 250° C. to about 300° C. for a time period of about 30 minutes to about 24 hours.

4,395,296

THERMAL MECHANICAL PROCESS FOR STEEL SLABS AND THE PRODUCT THEREOF

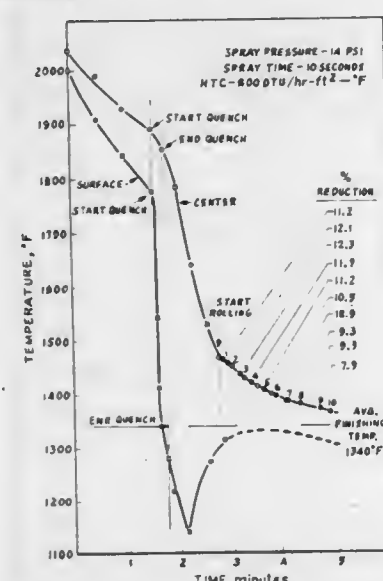
Halle Abrams, Allentown, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Jun. 22, 1981, Ser. No. 276,103

Int. Cl.³ C21D 8/02

U.S. Cl. 148—12.4

4 Claims



1. In a thermal-mechanical process for treating a carbon or low alloy steel slab by a modified controlled rolling schedule to improve the strength and toughness properties of said steel slab, where such schedule includes a high temperature reduction of the steel slab, and quenching the steel slab to reduce the time for initiating a second low temperature reduction of the steel slab to final thickness, the improvement comprising in combination therewith the steps of

- subjecting said steel slab to a high temperature reduction step at a temperature above 2000° F. (1053° C.),
- quenching said steel slab from a temperature above about

1900° F. (1038° C.) by the application of low pressure water uniformly to the surfaces thereof, where the rate and time of application of said water is such as to achieve a heat transfer coefficient within the range of 200 to 600 BTU/HR-ft²-°F.,

- ceasing said quenching prior to the surfaces of said steel slab reaching a temperature of about 1000° F. (539° C.) to avoid transformation of said steel slab to martensite,
- holding said steel slab for a period of time to reduce the thermal gradient from surface to center thereof to a range of 50° to 150° F. (28° to 83° C.),
- subjecting the steel slab to said second reduction at an average temperature of 1450° to 1750° F. (739° to 954° C.) to form a steel plate, and
- cooling said steel plate to ambient temperature, whereby such plate is characterized by a fine-grained microstructure that is essentially grain size symmetrical from the center to the surface of the plate.

4,395,297

BONDING PROCESS FOR SECURING OBJECTS TO A SMOOTH SURFACE

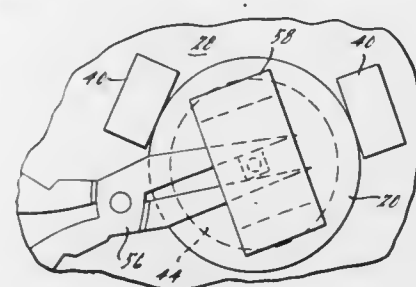
Howard F. Patterson, 1840 1/2 W. High St., Springfield, Ohio 45504

Filed Aug. 25, 1982, Ser. No. 411,262

Int. Cl.³ G01B 5/00; C09J 5/02

U.S. Cl. 156—64

10 Claims



- The method of securing an object to a smooth surface comprising the steps of contacting a thermally activated adhesive substrate with a solvent rendering said adhesive substrate tacky, said adhesive substrate, until so contacted, being in a non tacky state at ambient atmospheric temperature, affixing said tacky adhesive substrate to said surface, supplying heat to said object apart from said surface and said adhesive substrate thereon, pressing a surface of said heated object against said adhesive substrate, and allowing the object of cool under pressure so as to make contact with the adhesive substrate.

4,395,298

METHOD AND APPARATUS FOR MAKING TOOTHED BELTS AND BELT MADE EMPLOYING SAME

Robert E. Wetzel, Springfield, Mo.; Wayne C. Fieler, Orangeburg, S.C., and Gerald C. Hollaway, Springfield, Mo., assignors to Dayco Corporation, Dayton, Ohio

Continuation of Ser. No. 205,832, Nov. 10, 1980, abandoned.

This application Apr. 28, 1982, Ser. No. 372,585

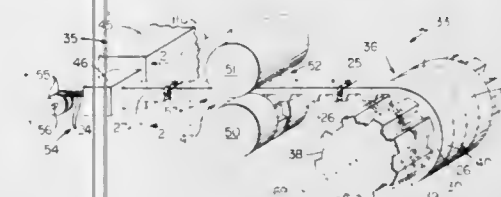
Int. Cl.³ B29D 17/00; B29H 7/22

U.S. Cl. 156—137

26 Claims

- In a method of making toothed endless power transmission belts each having a particular thickness and comprising the steps of, forming a polymeric material to define an elongate toothed belt element, helically wrapping said toothed belt element on cylinder means with successive helical turns in adjoining side-by-side relation and with each tooth of each turn in substantial axial alignment with associated teeth of other helical turns, bonding said adjoining helical turns together to define a toothed belt sleeve, and cutting said sleeve to

define a plurality of said toothed belts, the improvement wherein said forming step comprises the steps of defining hot strip means of said polymeric material with said strip means having an overall substantially self-supporting quadrilateral cross-sectional configuration throughout the length thereof and a thickness throughout the length thereof roughly equal to said particular thickness, disposing load-carrying means in said hot strip means with said load-carrying means comprising at least one elongate flexible member that forms a corresponding helically wound load-carrying means in said endless belts, and thereafter working said self-supporting quadrilateral cross-sectional configured strip means to define said toothed belt ele-



ment with a thickness at the teeth thereof roughly equal to said particular thickness and prior to said step of helically wrapping said toothed belt element on said cylinder means, said disposing step comprising the step of disposing said flexible member axially along and within said hot strip means prior to said working step so that said hot strip means engages said flexible member substantially completely around the same throughout substantially the entire length thereof that is disposed within said hot strip means, said working step comprising the step of working a portion of said hot strip means along its entire length while keeping said flexible member substantially intact to define said toothed belt element having said flexible member extending in a rectilinear path along its full length.

4,395,299

BONDED BULK GRAPHITE AND PROCESS FOR BONDING

Dennis M. Riggs, Simpsonville, S.C., and Edward L. Harvey, Watertown, Mass., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 21, 1981, Ser. No. 295,167

Int. Cl.³ C09J 3/30

U.S. Cl. 156—285

5 Claims

- A process for bonding graphite pieces together wherein a graphitizable binder consisting essentially of a liquid crystalline component of pitch obtained by extracting an isotropic pitch with a hydrocarbon solvent to yield a solvent insoluble fraction which softens at about 240° C. and becomes very fluid at about 300° C. to about 500° C. is spread uniformly over at least one of the two graphite surfaces to be bonded together, the pieces are then joined and held in intimate contact and the entire assemblage is heated under vacuum or in an inert atmosphere to a temperature in the range of from about 700° C. to about 3000° C. under a pressure of from about 20 psi to about 1000 psi applied in a direction normal to the bond interface until bonding is effected.

4,395,300

BASE CUP APPLYING APPARATUS AND METHOD

Wolfgang Hoffmann, Turlock, Calif., assignor to B & H Manufacturing Company, Inc., Ceres, Calif.

Continuation of Ser. No. 84,594, Oct. 15, 1979, Pat. No.

4,300,966. This application Oct. 14, 1981, Ser. No. 311,420

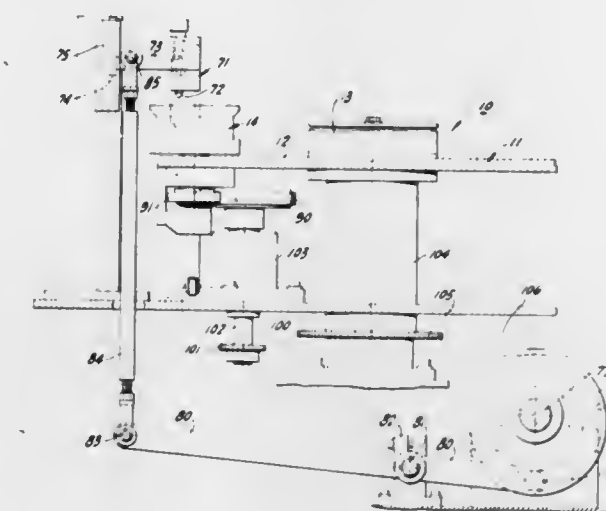
Int. Cl.³ B29C 27/10

U.S. Cl. 156—294

2 Claims

- Apparatus for applying flat bottom cups to the bottoms of round bottom containers comprising:
 - a cup holder adapted to hold a cup in upright position and capable of spinning about the common axis of the cup and the holder,

- means at a cup delivery station for delivering a cup to the holder in such position,
- means for transporting the holder and cup to an adhesive applying station,
- means for spinning the holder and cup in upright position at such adhesive applying station and for applying adhesive to the interior of the spinning cup,
- means for then transporting the holder and the cup to a container delivery station,



- means for transporting a container to such delivery station and for depositing the container within the cup to adhere it to the cup,
- means for separating the container and adhering cup from the holder, and
- means for transporting the empty holder back to the said cup delivery station.

4,395,301

ADHESIVE COMPOSITIONS AND METHOD

Herbert Bauer, Lutry, Switzerland; Gerhard Piester, Schwetzingen, and Heinz G. Gilch, Bad Homburg-Kirdorf, both of Fed. Rep. of Germany; assignors to USM Corporation, Farmington, Conn.

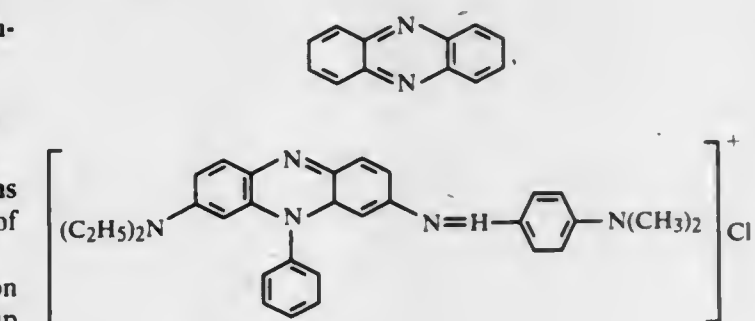
Filed Nov. 24, 1980, Ser. No. 199,348

Int. Cl.³ C09J 5/02; C08F 20/10

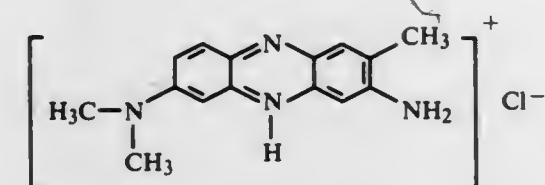
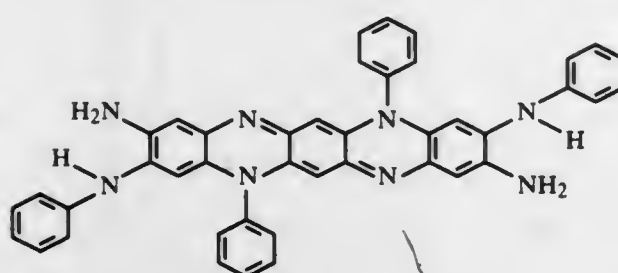
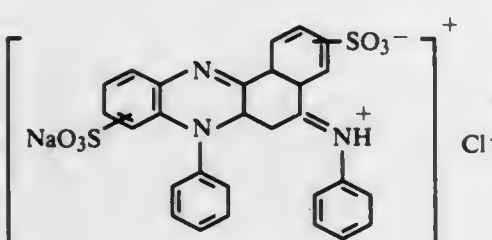
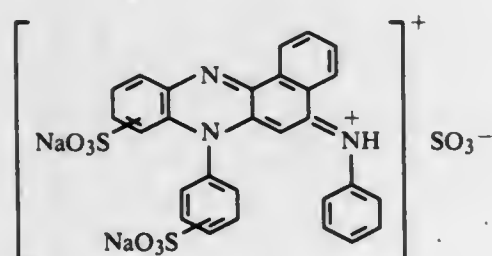
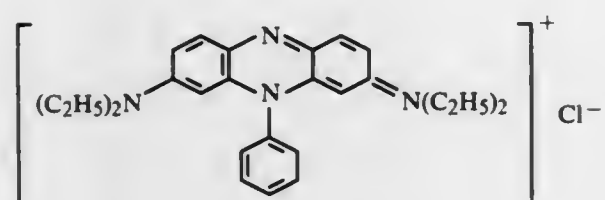
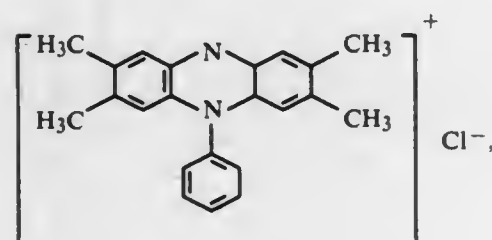
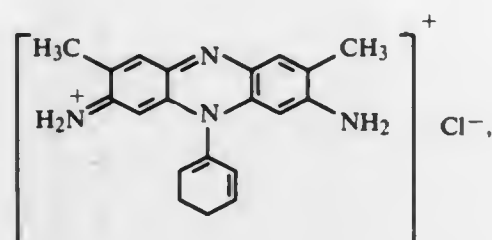
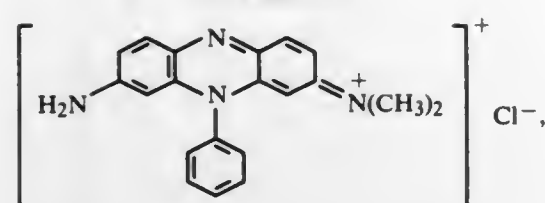
U.S. Cl. 156—307.5

12 Claims

- A two part adhesive composition curable on combination at room temperature to provide a cured adhesive composition, one part of the composition being a polymerizable adhesive part comprising a source of free radicals and an ethylenically unsaturated monomer selected from the group consisting of diacrylates or dimethacrylates of mono, di, tri or tetraethylene glycol, trimethacrylates from trihydric alcohols, hydroxy and glycidyl terminated esters of acrylic and methacrylic acid and reaction products of these having two or more acrylate or methacrylate terminal groups, acrylates and methacrylates derived from epoxy resins and, mixtures of these monomers, the other part being an activator part comprising an azine dye material which can be reacted with a reducing agent to provide a product capable of initiating curing of the first part and where said azine dye material is selected from the group consisting of:



-continued



or mixtures of these and where said activator further includes a promoter selected from the group consisting of sulfur containing compounds, transition metal compounds and mixtures of these.

12. A method of adhesively bonding two air-impervious substrates at ambient temperature which comprises the steps of

- applying an activator part of claim 1 to a surface of one or both of the substrates,
- allowing the applied activator part to dry,
- applying the polymerizable adhesive part of claim 1 to one of the surfaces carrying the applied activator,
- pressing the substrates together with the polymerizable and activator compositions in intimate contact with exclusion of air and
- allowing polymerization of the monomer to form and adhesive bond between the surfaces.

4,395,302

METAL DISSOLUTION PROCESS USING H₂O₂—H₂SO₄ ETCHANT

Constantine I. Courduvelis, Orange, Conn., assignor to Enthone Incorporated, West Haven, Conn.

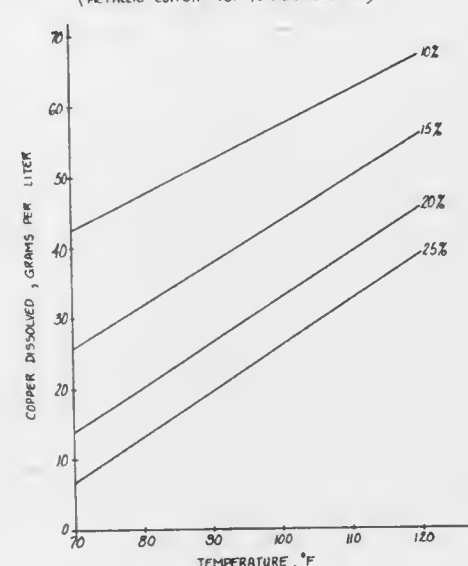
Filed Dec. 10, 1981, Ser. No. 329,650

Int. Cl.³ C23F 1/00; B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—642

8 Claims

SATURATION CURVES OF COPPER SULFATE IN AQUEOUS SOLUTIONS OF SULFURIC ACID (METALLIC COPPER VS. TEMPERATURE PLOTS)



- In a process for dissolving a metal by etching with an aqueous solution, wherein the aqueous etching solution includes initial predetermined high levels of H₂O₂ and H₂SO₄ in water, the improvement comprising:

etching the metal from work pieces with the etching solution while permitting the concentration of H₂SO₄ in the etching solution to decrease from its high level to a predetermined low level which is not more than about one-half of the predetermined high level, and until the concentration of etched metal dissolved in the etching solution reaches a predetermined level;

removing the etching solution from use; adding H₂SO₄ to the etching solution to increase the H₂SO₄ concentration to the predetermined high level; allowing the metal dissolved in the etching solution to precipitate out of the etching solution, and recycling the metal-depleted etching solution to the etching step.

4,395,303

METHOD OF MANUFACTURING THIN-WALLED CORROSION RESISTANT METALLIC OBJECTS

Charles R. Weir, Bloomfield Hills, Mich., assignor to Masco Corporation, Taylor, Mich.

Filed Apr. 22, 1981, Ser. No. 256,003

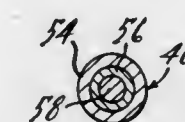
Int. Cl.³ C23F 1/02

U.S. Cl. 156—656

31 Claims

- A method of making a thin-walled corrosion resistant end product from a workpiece comprised of a starting metal not resistant to an etchant and from an alloying metal which is selectively soluble in said starting metal to produce an alloy

metal impervious to said etchant, the method comprising the consecutive steps of forming said workpiece into the shape of said end product, forming an alloy case of said alloy metal on



a surface of said workpiece, and exposing said workpiece to said etchant to remove the portion of said workpiece which is not alloyed.

4,395,304

SELECTIVE ETCHING OF PHOSPHOSILICATE GLASS

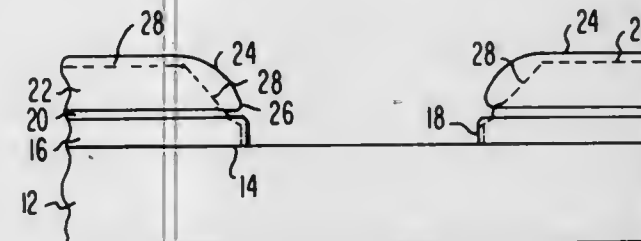
Werner Kern, Hightstown, N.J., and George L. Schnable, Lansdale, Pa., assignors to RCA Corporation, New York, N.Y.

Filed May 11, 1982, Ser. No. 377,001

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—657

8 Claims



- An acidic etchant solution for the preferential etching of phosphosilicate glass in the presence of silicon dioxide consisting essentially of at least about 80 weight percent of a carboxylic acid, and between about 1 and 10 weight percent of both hydrogen fluoride and water.

4,395,305

CHEMICAL ETCHING OF ALUMINUM CAPACITOR FOIL

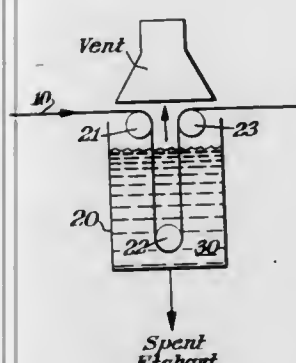
Alfred Whitman, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Aug. 23, 1982, Ser. No. 410,271

Int. Cl.³ C23F 1/00

U.S. Cl. 156—665

6 Claims



- A process for the chemical etching of aluminum capacitor foil to produce a fine tunnel etch structure comprising passing said foil through an aqueous etchant bath containing sodium chloride and sulfuric acid, the weight percentage of said sulfuric acid being at least equal to the weight percentage of said sodium chloride.

4,395,306

METHOD FOR PREPARING FIBROUS MATS FROM A FIBROUS SUSPENSION

George R. Killat, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 117,166, Jan. 31, 1980, abandoned. This application Jan. 8, 1982, Ser. No. 337,923

Int. Cl.³ C04B 43/02

U.S. Cl. 162—156

16 Claims

- An improved method for preparing a fibrous mat or sheet by depositing a layer of a thickened fibrous suspension of synthetic fibers and an aqueous suspending medium thickened by a carboxamide synthetic addition polymer on a support, removing substantially all of said suspending medium to leave a fibrous mat with a residuum of a minor amount of said carboxamide polymer on the fibers, the improvement wherein said carboxamide polymer is reacted with a hypohalite to form a reaction product in said suspending medium, which as said residuum will cross-link to provide a fibrous mat of improved strength.

4,395,307

THERMOTROPIC LIQUID CRYSTAL POLYMER PULP AND METHOD OF PREPARATION THEREOF WHEREIN SAID POLYMER COMPRISES RECURRING UNITS WHICH CONTAIN A

2,6-DIOXYANTHRAQUINONE MOIETY

John R. Kastelic, Rockaway; Larry F. Charbonneau, Chatham, and Thomas P. Carter, Jr., Parsippany, all of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Nov. 9, 1981, Ser. No. 319,521

Int. Cl.³ D21F 11/00

U.S. Cl. 162—157.3

18 Claims

- An improved method of providing a pulp comprised of fibrils of a polymer which exhibits desirable thermal stability and chemical and solvent resistance comprising the steps of: providing a shaped article comprised of a polyester capable of forming an anisotropic melt phase which comprises not less than about 5 mole percent of recurring units which units comprise a 2,6-dioxyanthraquinone moiety; and masticating said shaped article to form a pulp comprised of fibrils of said polyester.

- A pulp comprised of fibrils of a polyester which is capable of forming an anisotropic melt phase and which comprises not less than about 5 mole percent of recurring units which units comprise a 2,6-dioxyanthraquinone moiety.

4,395,308

SPIRAL FABRIC PAPERMAKERS FELT AND METHOD OF MAKING

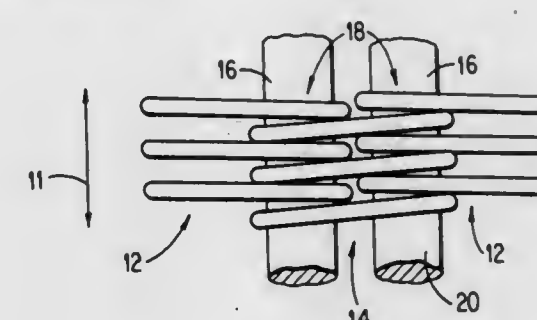
Donald Dawes, Waycross, Ga., assignor to Scapa Dyers Inc., Waycross, Ga.

Filed Jun. 12, 1981, Ser. No. 273,031

Int. Cl.³ D21F 1/10; D04H 3/02

U.S. Cl. 162—232

36 Claims



- A papermakers fabric comprising: a plurality of hinge yarns, all of said hinge yarns extending in a common direction; and a plurality of spiral coils disposed in a common plane in a

side-by-side relationship, each of said coils extending in said common direction, adjacent coils of said spiral intermeshed and joined together in a hinged relationship by at least one of said hinge yarns, said hinge yarns having non-circular cross sections.

23. A dryer fabric comprising:

a plurality of spiral coils arranged side-by-side in a common plane with adjacent coils being joined together by a hinge yarn in a hinged relationship, said coils providing a flat paper receiving surface and a flat machine roll contacting surface, two of said hinge yarns occupying substantially the entire interior of any given spiral coil.

24. The method of making a dryer fabric comprising the steps of:

positioning a plurality of spiral coils in a common plane in a side-by-side relationship;
intermeshing adjacent coils;
joining said intermeshed coils through the introduction of a hinge yarn of non-circular cross section to create a hinged relationship between the adjacent coils; and
subjecting the fabric to heat treatment while under controlled tension in order to cause said spiral yarns to flatten and press up against the long surfaces of said non-circular yarns.

28. A papermakers fabric comprising:

a plurality of hinge yarns, all of said hinge yarns extending in a common direction; and

a plurality of spiral coils disposed in a common plane in a side-by-side relationship, each of said coils extending in a common direction, adjacent of said spiral coils being intermeshed and joined together in a hinged relationship by at least one of said hinge yarns, each of said spiral coils formed from yarns having a non-circular cross section.

4,395,309

FRACTIONAL DISTILLATION OF HYDROCARBONS FROM COAL

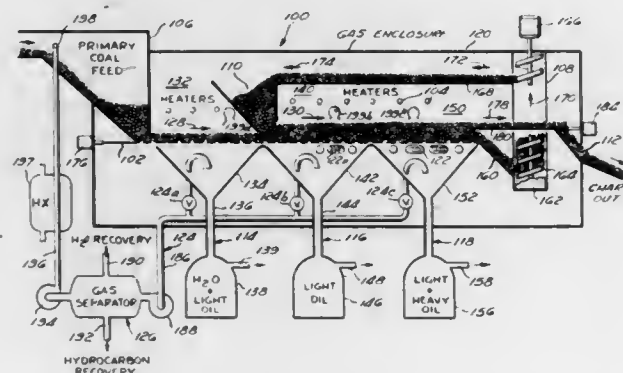
Ernest P. Esztergar, 6308 Avenida Cresta, La Jolla, Calif. 92037

Filed Nov. 3, 1980, Ser. No. 203,255

Int. Cl.³ C10B 49/06, 49/18, 57/02

U.S. Cl. 201—22

16 Claims



1. The process for recovering liquid fuel from coal comprising continuously forming a bilayer coal bed on a foraminous conveyor, passing the coal bed through a substantially oxygen free processing zone, heating the bed in said zone to a temperature of higher than about 550° F., while maintaining the bottom of the bed at a temperature of not higher than about 450° F., removing the top of the coal bed bilayer from the processing zone as product char, recycling the bottom of the coal bed bilayer to the processing zone to form the top of a coal bed bilayer in another pass through the processing zone, and removing liquid through the foraminous conveyor as product liquid fuel.

4,395,310

FRACTIONATION SYSTEM

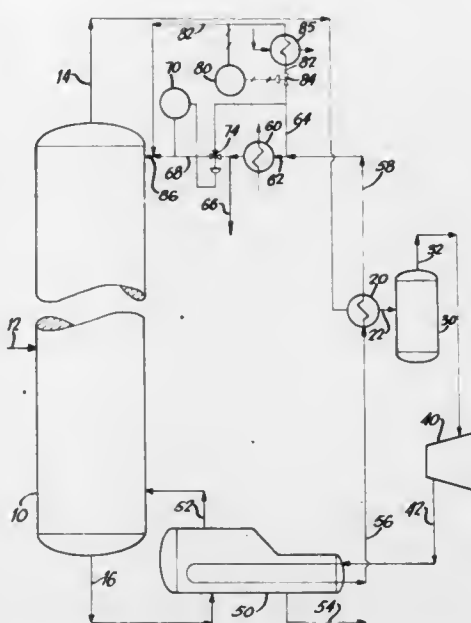
John E. Idenden, Belleville, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jul. 14, 1981, Ser. No. 283,231

Int. Cl.³ B01D 3/42

U.S. Cl. 203—2

4 Claims



1. A method for reducing the energy input to a fractionation system comprising a fractionation zone, a reboiler zone communicating with the fractionation zone, and a compression zone communicating with the fractionation zone and the reboiler zone, said method comprising:

- introducing a hydrocarbon feed into the fractionation zone, the fractionation zone adapted to separate the feed into an overhead fraction and a bottoms fraction;
- passing at least a portion of the bottoms fraction from the fractionation zone through a reboiler zone for reheating prior to returning bottoms fraction to the fractionation zone;
- passing overhead fraction through a compression zone wherein the overhead fraction is compressed;
- passing substantially all the overhead fraction from the compression zone through the reboiler zone, the compressed overhead fraction transferring heat to the bottoms fraction;
- returning an overhead fraction consisting of a liquid phase quantity and a vapor phase quantity to the fractionation zone;
- monitoring the composition of at least one of the fractions separated in the fractionation zone; and,
- regulating the rate of said liquid phase quantity of the overhead fraction returned to the fractionation zone sufficient to thereby reduce the energy input to the fractionation system as compared to a fractionation system having no compression zone.

4,395,311

PREPARATION OF AMINOMETHANOLS

Charles J. McDonald, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

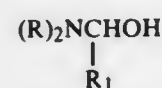
Filed Nov. 30, 1981, Ser. No. 325,946

Int. Cl.³ B01D 3/10, 3/34

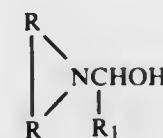
U.S. Cl. 203—34

8 Claims

1. A process for the purification of a reaction mixture containing an acid-soluble aminomethanol, and an unreacted aldehyde having 1 to 3 carbon atoms, said aminomethanol being represented by the general formula:



wherein R₁ is hydrogen or an alkyl group having 1 or 2 carbon atoms and each R is independently hydrocarbyl or inertly substituted hydrocarbyl or both R groups are collectively a divalent hydrocarbon or ether radical which combine with the nitrogen of the aminomethanol to form a heterocyclic ring represented by the formula:



said process comprising the steps of:

- contacting the reaction mixture with an acid of sufficient strength and quantity to effect protonation of the aminomethanol under conditions such that essentially all of the aminomethanol is protonated, and
- distilling the acidified reaction mixture under reduced pressure under conditions including a temperature at or below 85° C. such that the amount of said unreacted aldehyde in the reaction mixture is reduced.

4,395,312

METHOD AND APPARATUS FOR THE ANALYSIS OF SOLUTION ADJACENT AN ELECTRODE

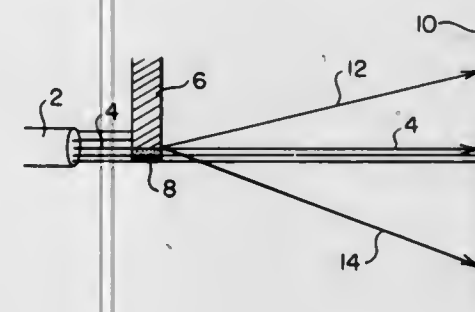
Richard L. McCreery, Clyde W. McCurdy, and Paula J. Rossi, all of Columbus, Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ohio

Filed Apr. 2, 1981, Ser. No. 250,168

Int. Cl.³ G01N 27/46

U.S. Cl. 204—1 T

25 Claims



1. A method for the analysis of a layer of solution adjacent a surface of an electrode, said solution being capable of undergoing an electrochemical oxidation or reduction which alters its absorbance of electromagnetic radiation of at least one wavelength, said method comprising:

- passing a beam of electromagnetic radiation at least part of which is of said wavelength across and substantially parallel to said surface;
- measuring the radiation diffracted at an angle to said beam by means of radiation measuring means lying outside said beam;
- altering the potential of said electrode, thereby causing at least part of said solution to undergo said electrochemical oxidation or reduction;
- again passing said beam across and substantially parallel to said surface; and
- again measuring said radiation diffracted at an angle to said beam by means of radiation measuring means lying outside said beam.

4,395,313

VACUUM PRETREATMENT PROCESS FOR DURABLE ELECTROPLATED COATINGS ON ABS AND PPO PLASTICS

James H. Lindsay, Fenton; Joseph La Sala, St. Clair Shores, both of Mich., and Hamid M. Ghorashi, Midlothian, Va., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 29, 1982, Ser. No. 402,899

Int. Cl.³ C25D 5/54

U.S. Cl. 204—30

6 Claims

1. A method of forming adherent electrodeposited coatings onto a surface of a thermoplastic polymer selected from the class consisting of ABS and PPO comprising the steps of exposing the polymer surface to an RF oxidizing glow discharge equivalent to at least about 3 minutes at a power setting of at least about 50 watts, vacuum depositing onto the so-exposed surface a first thin film of a metal selected from the class consisting of nickel, chromium, titanium, molybdenum, silicon, zirconium, aluminum and alloys thereof to form a blanket metal layer strongly bonded to the so-exposed surface, vacuum depositing a blanket thin film of a readily electroplatable metal strongly bonded to the first thin film, and then electrodepositing an overlayer onto the last-mentioned vacuum deposited thin film, without producing peeling or blistering of the films or the overlayer on them.

4,395,314

PROCESS FOR THE PRODUCING CONCENTRATED SOLUTION OF SODIUM HYDROXIDE AND CHLORINE

Sergei V. Golubkov, ulitsa Menzhinskogo, 21, kv. 420; Ernest A. Druzhinin, ulitsa Gvardeiskaya, 4, kv. 32; Vladimir M. Zimin, 8-ya ulitsa Textilshchikov, 10, kv. 18; Vladimir L. Kubasov, Kirovogradskaya ulitsa, 4, korpus 2, kv. 135; Florenty I. Lvovich, 1. Nizhne Mikhailovsky proezd, 16, kv. 55, and Anatoly F. Mazanko, Stavropolskaya ulitsa, 56, korpus 1, kv. 73, all of Moscow, U.S.S.R.

Filed May 3, 1982, Ser. No. 374,205

Claims priority, application U.S.S.R., May 7, 1981, 3291365

Int. Cl.³ C25B 1/34

U.S. Cl. 204—98

2 Claims

1. A process for producing a concentrated solution of sodium hydroxide and chlorine comprising an electrochemical decomposition at a temperature within the range of from 90° to 108° C. of a concentrated solution of sodium chloride with a concentration of from 4.3 to 5.3 mol/l with a degree of decomposition of sodium chloride of 0.9–1.0 and at a rate of flow of the solution of sodium chloride through a filtering diaphragm of from 3 to 5 ml/hr per 1 A of the electrolysis current and the electrolysis products are withdrawn from the process.

4,395,315

RECOVERY OF NICKEL FROM WASTE MATERIALS

Adolfo R. Zambrano, Hibbing, Minn., assignor to The Hanna Mining Company, Cleveland, Ohio

Continuation of Ser. No. 143,781, Apr. 25, 1980, abandoned, which is a continuation-in-part of Ser. No. 44,558, Jun. 1, 1979, abandoned. This application Nov. 18, 1981, Ser. No. 322,631

Int. Cl.³ C25C 1/06

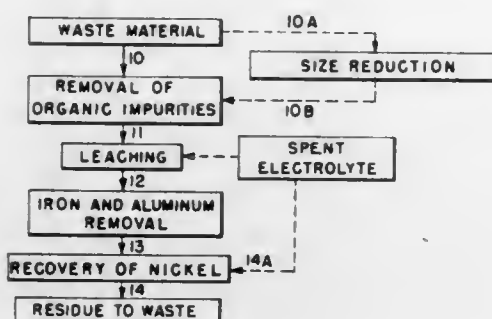
U.S. Cl. 204—112

6 Claims

1. A method for recovering nickel from a waste material consisting essentially of nickel, small amounts of iron and aluminum and organic impurities consisting essentially of the steps of:

- removing the organic impurities from the waste material by calcining said waste material at a temperature in the range of about 400° C. to about 500° C.;
- leaching the calcined material from step (a) with an acid to provide an acid solution, in which the acid concentration initially is in stoichiometric excess relative to nickel, the leaching being continued in a single step until no significant nickel concentration remains in the residue of the waste material;

- (c) precipitating said iron and aluminum from the acid solution by adjusting the pH of said acid solution to about 2.5 to 3.5; and



- (d) recovering nickel from the acid solution by electrowinning.

4,395,316

HYDROGEN PRODUCTION BY BIOMASS PRODUCT DEPOLARIZED WATER ELECTROLYSIS

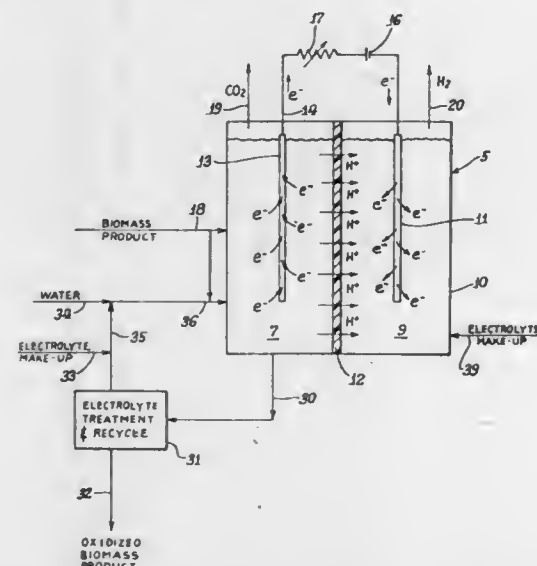
Michael R. St. John, Chicago, Ill., assignor to Institute of Gas Technology, Chicago, Ill.

Continuation-in-part of Ser. No. 234,692, Feb. 17, 1981, Pat. No. 4,341,608. This application Apr. 19, 1982, Ser. No. 369,534. The portion of the term of this patent subsequent to Jul. 27, 1999, has been disclaimed.

Int. Cl.³ C25B 1/04

U.S. Cl. 204—129

52 Claims



1. A process for hydrogen production by biomass product depolarized water electrolysis comprising: maintaining an electrical potential across an anode comprising metal selected from the group consisting of nickel and lead-rich ruthenium polychloro compounds having a formula $Pb_2[Ru_{2-x}Pb_x]O_{7-y}$ wherein x is greater than 0 and less than or equal to about 1.2 and y is greater than or equal to 0 and less than or equal to about 1.0 in a metallic anode zone and a metallic cathode in a cathode zone of an electrolytic cell; oxidizing, in an aqueous electrolyte in said electrolytic cell anode zone, oxidizable biomass product selected from the group consisting of monosaccharides, lignins and mixtures thereof with water producing oxidized biomass product, hydrogen ions and electrons; transporting said hydrogen ions through said electrolyte to said cathode zone; forming molecular hydrogen in said cathode zone.

4,395,317

WETTING TENSION TREATING APPARATUS AND METHOD

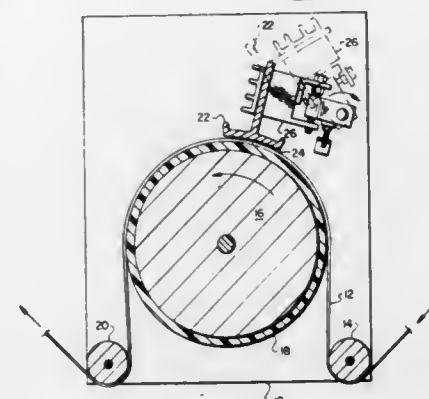
Darwin L. Whiteside, Rte. 2, Box 85 N., Royse City, Tex. 75089

Filed Jan. 15, 1982, Ser. No. 339,403

Int. Cl.³ B01K 1/00; H01T 19/04

U.S. Cl. 204—165

8 Claims



1. An apparatus for the treatment of thin sheeting by subjecting said sheeting to a corona discharge, said apparatus comprising:

A first elongated electrode;
A second elongated electrode;
means supporting said first and second elongated electrodes in a relationship defining a gap therebetween; and
means for passing said sheeting through said gap, said first elongated electrode including an exterior surface disposed near said second elongated electrode, said exterior surface including a plurality of intersecting furrows defining a plurality of mesa structures each having at least one acute angle corner.

4,395,318

PITTING CORROSION METER

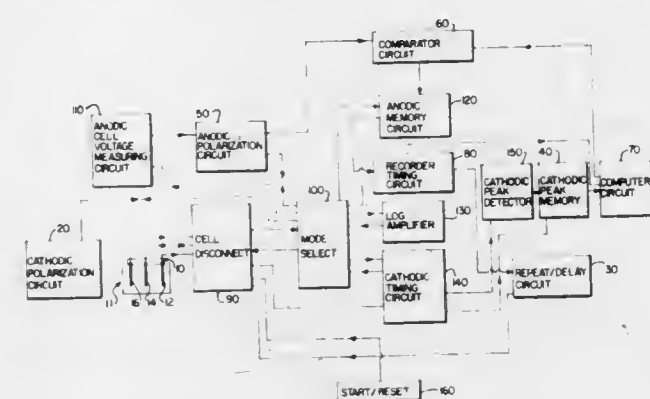
William S. Tait, Racine, Wis.; Richard L. Martin, and Richard A. Rodgers, both of St. Louis, Mo., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Jan. 15, 1982, Ser. No. 339,527

Int. Cl.³ G01N 27/30, 27/46

U.S. Cl. 204—404

29 Claims



1. A pitting corrosion meter comprising:
test electrode means for immersion in a corrodant fluid;
reference electrode means for immersion in said corrodant fluid;
auxiliary electrode means for immersion in said corrodant fluid;
cathodic circuit means for cathodically polarizing said test electrode means with respect to said reference electrode means thereby causing current flow in said auxiliary electrode means;
first monitoring means for monitoring said current flow and storing a peak value of said current flows;
computer circuit means for producing a cathodic polarization curve and its extrapolation containing said peak value;

- tion curve and its extrapolation containing said peak value;
anodic circuit means for increasingly anodically polarizing said test electrode means with respect to said reference electrode means to a first predetermined value, and thereafter decreasingly anodically polarizing said test electrode means with respect to said reference electrode means;
second monitoring means for monitoring the anodic current and corresponding potentials of said test electrode means with respect to said reference electrode means during said decreasing anodic polarization of said test electrode means, thereby generating a reverse anodic polarization curve; and
comparator means for determining the point of intersection between said reverse anodic curve and said cathodic curve or its extrapolation.

4,395,319

LEAN SENSOR

Yoshio Torisu; Shigenori Sakurai; Takashi Kamo, and Toshinobu Furutani, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 11, 1982, Ser. No. 377,017

Claims priority, application Japan, May 11, 1981, 56-70440

Int. Cl.³ G01N 27/58

U.S. Cl. 204—426

11 Claims

1. A lean sensor comprising:
a sensor element consisting of a tubular solid electrolyte having opposed sides provided with respective electrodes and at least one electrode thereof coated with a porous coating layer;
an element-fixing plate having a receiving hole to which said sensor element is fitted; and
a pair of heat-resistant and insulating support plates having opposing windows, said element-fixing plate to which said element is fixed being clamped between said support plates such that said sensor element is disposed in said windows.

4,395,320

APPARATUS FOR PRODUCING ELECTRODEPOSITED WIRES

Tatsuji Kasashima, Toyonaka; Shuji Morita, Kobe; Hiroyuki Hayami, Itami; Seiroku Ose, Higashiosaka; Yoshinori Takada, Amagasaki, and Fumihiko Nozaki, Nishinomiya, all of Japan, assignors to Dainichi-Nippon Cables, Ltd., Amagasaki, Japan

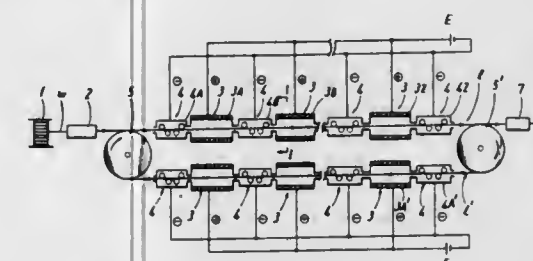
Filed Feb. 5, 1981, Ser. No. 231,610

Claims priority, application Japan, Feb. 12, 1980, 55-16293

Int. Cl.³ C25D 17/00

U.S. Cl. 204—206

5 Claims



1. An apparatus for electroplating a wire to provide the wire with an electrolytic plating layer, comprising: a plurality of electroplating stations arranged in a row, each electroplating station comprising an electrolytic bath (3) for coating the wire with an electrolytic plating layer, drive means (5, 5') for passing the wire through the electrolytic baths (3) in a given travel direction, and a plurality of smoothing stations (4) each comprising means (411, 412, 413, 414) for smoothing the surface of the wire substantially over the entire periphery thereof, said smoothing stations being arranged so that at least one smoothing station is located downstream of each electroplating station

- (3) as viewed in said travel direction, whereby said smoothing stations and said electroplating stations are arranged in alternate sequence with each other for achieving a smooth-surfaced compact electrolytic plating layer, said surface smoothing means (411, 412, 413, 414) comprising at least four rotatable rollers arranged along and adjacent to the wire in each smoothing station, said rollers being spaced apart from one another and so positioned that substantially the entire periphery of the wire is contacted as it passes through each smoothing station, each of said rollers having a circumferential groove with a rounded groove bottom in its peripheral surface to abut on the outer peripheral surface of the wire in a compressive manner so that the surface of the wire is brought into compressing contact with the rollers each of said rotatable rollers having a rotational axis extending substantially perpendicularly to the travel direction of the wire.

4,395,321

SEPARATOR ELECTROLYTIC CELL

Tokuo Iijima, Kobe; Yasushi Samejima, Kakogawa; Kazuo Kishimoto, Takasago, and Kimihiko Kono, Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

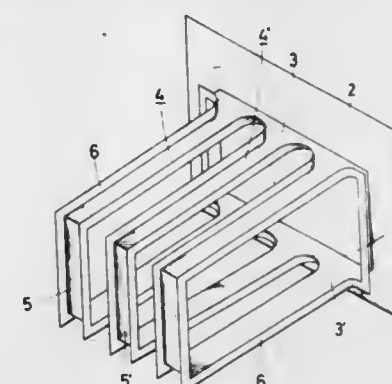
Filed Jul. 17, 1981, Ser. No. 284,517

Claims priority, application Japan, Jul. 17, 1980, 55-98453

Int. Cl.³ C25B 9/00

U.S. Cl. 204—252

11 Claims



1. An electrolytic cell for the production of an aqueous alkali metal hydroxide liquor by the electrolysis of an aqueous alkali metal halide solution, wherein the cell is partitioned by a glove-shaped finger comprising two finger-shaped supports having fingers and extending parallel toward the inside of the cell from the opposite inner peripheries of a releasable plate secured to an inner wall of the cell by one releasable wall plate and a separator positioned adjacent to the fingers, said glove-shaped finger separating the cell into a first electrode compartment including said wall plate and a second electrode compartment including remainder walls of the cell, the first electrode compartment comprising at least one anode or cathode inserted in the glove-shaped finger and mounted on the releasable wall plate, and the second electrode compartment comprising opposite polar electrodes arranged along the outer surface of the separator of the glove-shaped finger.

4,395,322

CATALYTIC ELECTRODE

Lawrence A. Harris, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 18, 1981, Ser. No. 322,482

Int. Cl.³ C25B 11/00

U.S. Cl. 204—290 F

12 Claims

1. A catalytic electrode consisting essentially of a supporting electrical conductor carrying an adherent catalytic metal in a thickness of at least about 10 Angstroms and in at least a catalytic amount on a predetermined surface thereof, said electrical conductor being selected from the group consisting of silicon, titanium, tantalum, and niobium, and said catalytic metal being

selected from the group consisting of platinum, palladium, nickel, rhodium, and iridium.

4,395,323

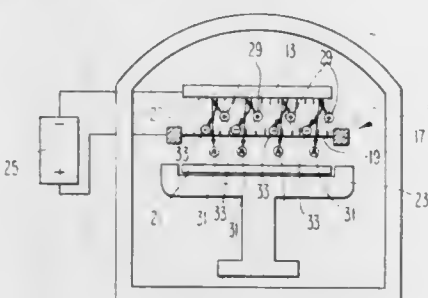
APPARATUS FOR IMPROVING A SPUTTERING PROCESS

Richard A. Denton, Marlton, and Bawa Singh, Cherry Hill, both of N.J., assignors to Denton Vacuum Inc., Cherry Hill, N.J.
Filed Apr. 17, 1981, Ser. No. 257,314

Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

6 Claims



1. In a sputtering device, the combination of: vacuum chamber means adapted to be in a substantial state of vacuum; planar cathode means disposed within said vacuum chamber means and comprising a material to be deposited on a substrate; electrical conducting means formed into a mesh like structure whereby said mesh like structure forms a mesh anode means; said mesh anode means disposed within said vacuum chamber means in close proximity to said cathode means; electrical voltage generating means connected to both said cathode means and mesh anode means to provide a sufficient voltage difference therebetween to cause a gaseous glow discharge between said cathode means and said anode means; and substrate holding means characterized by being electrically floating and located in said vacuum chamber means on the side of said mesh anode means away from said cathode means and out of the gaseous glow discharge between said cathode and anode, whereby when said gaseous glow discharge is in effect, particles of cathode material are dislodged therefrom and pass through said mesh anode means to be deposited on said substrate means and whereby a majority of the electrons resulting from said gaseous glow discharge are intercepted by said mesh anode means.

4,395,324

THERMAL CRACKING WITH HYDROGEN DONOR DILUENT

Francis J. Derbyshire, Ewing; Philip Varghese, Trenton, and Darrell D. Whitehurst, Titusville, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 2, 1981, Ser. No. 317,036

Int. Cl.³ C10G 47/34

U.S. Cl. 208—56

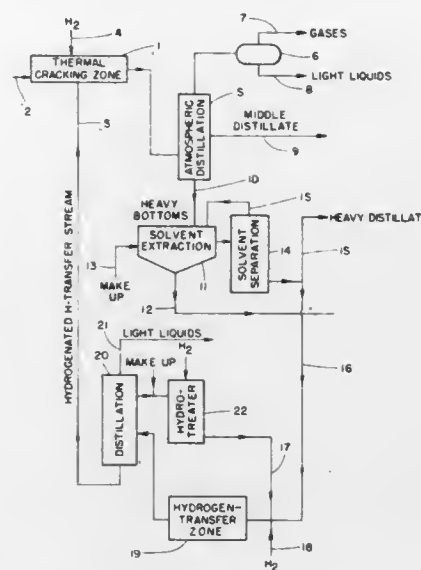
13 Claims

8. An improved hydrogen donor diluent cracking process for hydro-treating heavy hydrocarbon charge stock comprising the steps of

- contacting the hydrocarbon charge stock in the substantial absence of cracking catalyst with a hydrogen donor containing hydrogenated condensed ring aromatic compounds under hydrogen pressure and thermal cracking conditions at a temperature of about 650° F. to 900° F.;
- distilling the cracking product of step (a) to separate a fraction boiling above about 600° F.;
- extracting from said fraction a heavy aromatic portion by contacting said fraction with liquid hydrocarbon naphtha containing about 10 percent to 50 percent by weight of aromatic compounds, wherein said naphtha comprises a mixture of hydrocarbon boiling between about 85° F. and 430° F.;
- reacting extracted heavy aromatic portion from step (c) with at least one lower boiling hydrogenated condensed

ring aromatic compound under hydrogen transfer conditions;

- separating hydrogenated heavy aromatic portion from the reaction product of step (d); and



- recycling hydrogenated heavy aromatic portion from separation step (e) to cracking step (a).

4,395,325

REDUCING SULFUR TRIOXIDE CONCENTRATION IN REGENERATION ZONE FLUE GAS

Stephen J. McGovern, Deptford; Peter J. Owens, West Deptford, and Michael J. Dolan, Laurel Springs, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Sep. 1, 1981, Ser. No. 298,404

Int. Cl.³ C10G 11/18; B01J 37/14

U.S. Cl. 208—113

9 Claims

- In a catalytic cracking process comprising: contacting a hydrocarbonaceous feed with a cracking catalyst to produce cracked hydrocarbon vapors and deactivated catalyst containing carbonaceous deposits; separating the deactivated catalyst from the hydrocarbon vapors and conducting the deactivated catalyst to a regeneration vessel; at least partially removing the carbonaceous deposits from the deactivated catalyst in the regeneration vessel by means of an oxygen-containing gas introduced into the regeneration vessel, thereby forming a flue gas comprising oxygen, sulfur dioxide, sulfur trioxide, carbon monoxide and carbon dioxide; the improvement which comprises monitoring the sulfur trioxide and the oxygen concentration in the flue gas from the regeneration vessel; and adjusting the amount of the oxygen-containing gas in the regeneration vessel in relation to the concentration of the sulfur trioxide to maintain the concentration by volume of the sulfur trioxide in the flue gas such that the ratio SO_3/SO_x in the flue gas is less than 5%, thereby preventing the appearance of a visible condensation plume in the flue gas.

4,395,326

TREATMENT OF COAL TAR EMULSIONS

Samuel Cukier, 27 Newgate Rd., Toronto, Ontario, Canada (M6B 3G5)

Continuation-in-part of Ser. No. 202,363, Oct. 29, 1980, abandoned. This application Jan. 25, 1982, Ser. No. 342,210

Int. Cl.³ C10G 33/04

U.S. Cl. 208—188

12 Claims

- A process for treating a stable emulsion of coal tar material containing water and quinoline insolubles, comprising mixing a surface active composition with said material, so as to facilitate the segregation of at least a portion of at least one of said water and said quinoline insolubles from said mixture,

where said surface active composition is chosen from the class of compounds having the general formula $CH_3(CH_2)_xCH_2(OCH_2CH_2)_yOSO_3^-M^+$ where the average value of x is in the range 6.5 to 13, y is at least 1.5, and M^+ represents one of sodium and ammonium ions.

4,395,327

HYDROTREATING PROCESS

Bruce P. Pelrine, Lawrenceville, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Aug. 17, 1982, Ser. No. 408,953

Int. Cl.³ C10G 45/12

U.S. Cl. 208—216 R

6 Claims

- A process for producing a lubricating oil of improved properties which comprises hydrotreating a lubricating oil base stock in the presence of a hydrotreating catalyst comprising zeolite ZSM-39.

4,395,328

CATALYST AND SUPPORT, THEIR METHODS OF PREPARATION, AND PROCESSES EMPLOYING SAME

Albert L. Hensley, Jr., Munster, Ind., and Leonard M. Quick, Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jun. 17, 1981, Ser. No. 274,553

Int. Cl.³ C10G 45/04, 45/08, 45/26; B01J 27/18

U.S. Cl. 208—251 H

13 Claims

- A process for the conversion of a hydrocarbon stream, which process comprises contacting said stream under suitable conditions and in the presence of hydrogen with a catalyst comprising a hydrogenating component comprising at least one hydrogenating metal and a large-pore, high-surface area support comprising an alumina and one or more oxides of phosphorus, said at least one hydrogenating metal being present in the elemental form, as the oxide, as the sulfide, or mixtures thereof, said catalyst having been prepared by forming a composite comprising alumina and one or more oxides of phosphorus into a shaped catalyst support material having a selected shape and at least 0.8 cc/gm of its pore volume in pores having diameters of 0 nm (0 Å) to 120 nm (1,200 Å) and at least 0.1 cc/gm of its pore volume in pores having diameters of 120 nm (1,200 Å) to 5,000 nm (50,000 Å), heating said shaped catalyst support material in the presence of steam at sufficient elevated temperature, steam pressure, and time period to increase the average pore diameter of said shaped catalyst support material in the absence of any appreciable reduction in pore volume so as to provide a steam-treated support material having an average pore diameter of at least 18 nm (180 Å) and a surface area below 200 m²/gm, and subsequently impregnating said steam-treated support material with said at least one hydrogenating metal.

4,395,329

CATALYST AND PROCESS FOR HYDROREFINING HYDROCARBON CHARGES WITH HIGH CONTENTS OF METALS, RESINS AND/OR ASPHALTENES

Jean-François Le Page, Rueil Malmaison; Alain Billon, Orlienas, and Yves Jacquin, Sevres, all of France, assignors to Societe Francaise des Produits pour Catalyse, Rueil-Malmaison, France

Filed Jul. 2, 1981, Ser. No. 279,637

Claims priority, application France, Jul. 2, 1980, 80 14787

Int. Cl.³ C10G 45/08, 45/60; B01J 21/10, 27/18

U.S. Cl. 208—251 H

26 Claims

- A process for hydrometallizing a hydrocarbon charge of high metal content, comprising passing said charge, in the presence of hydrogen, in contact with a catalyst comprising (a) alumina, (b) at least one metal from group VI and (c) at least one metal from the iron group; wherein said catalyst has all of the following characteristics:
specific surface: 120 to 200 m²/g
total pore volume (V_T): 0.8 to 1.2 cc/g

% of V_T in pores of a diameter lower than 100 Å: 0–10
% of V_T in pores of a diameter from 100 to 600 Å: 35–60
% of V_T in pores of a diameter greater than 600 Å: 35–55
% of V_T in pores of a diameter greater than 10,000 Å: 10–25.

4,395,330

PROCESS FOR SOLVENT DEASPHALTING OF RESIDUAL HYDROCARBON OILS

Pierre Auboir; Pierre Bonnefond, both of Rueil-Malmaison, and Larry Mank, Orgeval, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Nov. 27, 1981, Ser. No. 325,254

Claims priority, application France, Nov. 28, 1980, 80 25405

Int. Cl.³ C10C 3/00, 3/08

U.S. Cl. 208—309

8 Claims

- In a process for solvent deasphalting an asphaltene-containing residual hydrocarbon oil, wherein the residual oil is contacted with a light hydrocarbon solvent, in an extraction zone, deasphalting conditions are maintained to allow the formation of a liquid solvent-deasphalted oil phase and a fluid solvent-asphalt phase, the two resultant phases are separated and the solvent is separately vaporized from each of the two phases, so as to separately obtain a deasphalted oil and an asphaltic residue, the improvement comprising:

- passing a portion of the deasphalted oil, substantially freed of solvent, through a zone of indirect heating by flame, so as to raise its temperature;
- contacting the reheated deasphalted oil from step (a), in indirect heat exchange relation, with the fluid solvent-asphalt phase, so as to deliver to said phase at least a part of the heat necessary to vaporize the solvent therein; and
- admixing the deasphalted oil, after the heat exchanger of step (b), with the liquid solvent-deasphalted oil phase recovered from the extraction zone.

4,395,331

APPARATUS FOR PRESSING LIQUID OUT OF MATERIAL CONTAINING LIQUID

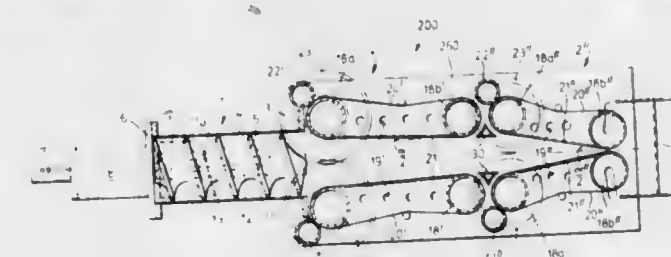
Harald Andersson, Saffle, Sweden, assignor to AB Saffle Gjuteri and Mekaniska Verkstad, Saffle, Sweden

Continuation of Ser. No. 154,400, Jul. 9, 1979, abandoned. This application Feb. 26, 1982, Ser. No. 352,866

Int. Cl.³ B01D 33/04

U.S. Cl. 210—329

12 Claims



- Apparatus for pressing liquid out of liquid-containing material, said apparatus comprising
- dewatering means for dewatering said material, said dewatering means including at least one pair of converging, endless, vertically disposed filter members each including
- a back and a front braking roller each roller having a vertical axis,
 - a perforated support base,
 - a filter supported on said support base,
 - drive means for driving said filter at a variable speed around said braking rollers, and
 - adjustment means for rendering at least one of said filter members variably adjustable to vary the pressing angle between that filter member and the other filter member of the pair,
- a horizontally disposed screw feeder means for feeding

said material in an axial, horizontal direction towards said dewatering means, and

- (c) toothed worm wheel means for preventing material from retreating into the thread of said screw feeder means as a result of high flow resistance in the dewatering means by maintaining at least one tooth of said toothed worm wheel means in sealing engagement with said screw feeder means in the thread thereof.

4,395,332

ADSORPTION AND FILTRATION MAT FOR LIQUIDS
Max Klein, 257 Riveredge Rd., Tinton Falls, N.J. 07724, assignor to Max Klein and Frederick G. Crane, Jr., both of Dalton, Mass.

Continuation of Ser. No. 66,085, Aug. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 922,656, Jul. 7, 1978, abandoned. This application Apr. 28, 1981, Ser. No. 258,443
Int. Cl.³ B01D 39/08

U.S. Cl. 210—496

18 Claims

1. A filter mat for removing particulate, colloidal or dissolved substances from a liquid containing same, said mat being in the form of a non-woven matrix consisting essentially of

- (i) from 10 to 95 weight percent of randomly arranged, irregularly intersecting and overlapping cellulose fibers,
- (ii) from 2 to 90 weight percent of polymer micro-bits produced from an expanded, thermoplastic polymer selected from the group of (a) a styrene-polymer, (b) a lower polyolefin, which is the polymer of an ethylenically unsaturated hydrocarbon monomer having from 2 to 6 carbon atoms, (c) a melt alloy of polyethylene with up to about 10 percent by weight of polystyrene, (d) a copolymer of propylene with from about 20 to about 30 percent by weight of ethylene, (e) a melt alloy composed of at least 50 percent by weight of polypropylene and the balance being a copolymer of ethylene with up to about 30 percent of said copolymer being vinyl acetate, and (f) a flexible foamed polyurethane, each said polymer being non-brittle in expanded form, said polymer micro-bits being substantially completely free of intact cells of the expanded polymer from which they are produced; and at least one of the following:
- (iii) from about 1 to 10 weight percent of polyethylene terephthalate fibers; or
- (iv) an adsorbing agent selected from the group of:
 - (a'') finely divided activated carbon in an amount of 70 weight percent or less;
 - (b'') diatomaceous earth in an amount below that at which undesirable dusting of diatomaceous earth from the mat can occur; and
 - (c'') colloidal alumina monohydrate in an amount sufficient for removing from an aqueous medium a significant portion of any chromic acid, dissolved dichromates and chromic salts contained in said medium, or a combination of two or more of said adsorbing agents.

4,395,333

PRE-WET AND REINFORCED MOLTEN METAL FILTER
Daniel E. Groteke, 1228 Ridge Cliff Rd., Cincinnati, Ohio 45215

Filed Apr. 14, 1982, Ser. No. 368,107
Int. Cl.³ B01D 39/14, 37/02

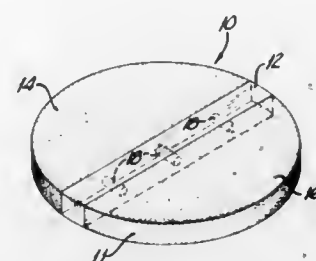
U.S. Cl. 210—510

13 Claims

1. A filter element for insertion into a filtering vessel for filtering molten metal the filter element having reduced start-up time and reduced damage caused as a result of thermal shock, the filter element, comprising:

- a porous ceramic body with interconnected pores throughout, said body having a central region bounded by a peripheral edge region;

a refractory cement filling said pores in said peripheral edge region; and



a metal alloy filling the pores of said central region of said porous ceramic body to thereby reduce start-up time and damage to the filter element.

4,395,334

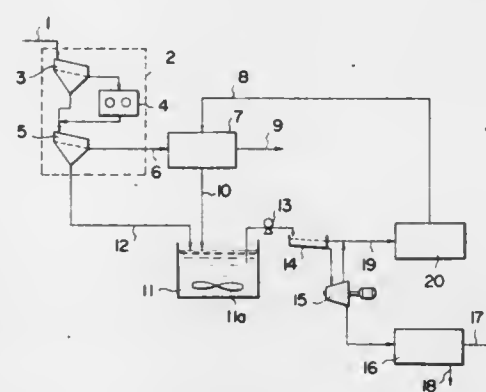
TREATMENT OF WASTE WATER IN NON-EVAPORATING DEHYDRATION OF LOW GRADE COAL

Yasuyuki Nakabayashi, Yokohama; Yoshio Matsuura, Funabashi; Michio Kurihara, Mitaka; Takao Kamei, Ashiya; Akira Nakamura, Akashi; Keiichi Komai, Akashi; Akira Shimotamari, Akashi, and Takeshi Wakabayashi, Kobe, all of Japan, assignors to Electric Power Development Co. Ltd. and Kawasaki Jukogyo Kabushiki Kaisha, both of Tokyo, Japan
Filed Mar. 29, 1982, Ser. No. 362,605

Claims priority, application Japan, Mar. 31, 1981, 56-48951
Int. Cl.³ B01D 15/00; F26B 7/00

U.S. Cl. 210—631

10 Claims



1. A method for dehydrating porous low grade coal comprising the steps of: classifying the coal into lumps and fine particles, subjecting the lumps of coal to a non-evaporating dehydration under steam and hot water to produce dehydrated coal and waste water, bringing the waste water into contact with the fine particles of coal so that such components in the waste water that cause an increase in COD value of the waste water are absorbed by the coal particles, then subjecting the waste water to a solid-liquid separation to thereby remove fine particles of coal contained in the waste water, and burning the fine particles of coal to produce steam for carrying out the non-evaporating dehydration, and recycling said steam to the non-evaporating dehydration step.

4,395,335

REPRODUCTION METHOD OF FILTER DEMINERALIZER IN CONDENSATE CLEANUP SYSTEM OF REACTOR

Toru Saito, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 28, 1979, Ser. No. 16,162

Claims priority, application Japan, Mar. 8, 1978, 53-25403

Int. Cl.³ B01D 15/04

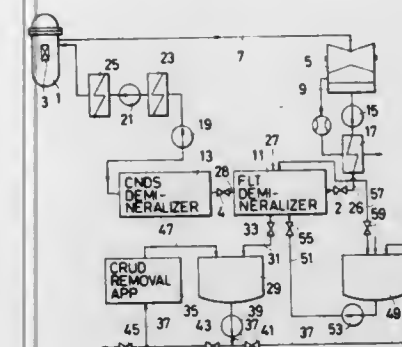
U.S. Cl. 210—675

3 Claims

1. A method of reproduction of a filter demineralizer in a

nuclear reactor condensation cleanup system, comprising the steps of

- backwashing the filter demineralizer to separate therefrom ion-exchange resin precoated on the filter demineralizer contaminated with crud;
- removing the crud from the ion-exchange resin thereby to reproduce the ion-exchange resin; and
- precoating new ion-exchange resin to form a new ion-ex-



change resin layer on the filter demineralizer and depositing at least a part of the reproduced ion-exchange resin on the new ion-exchange resin layer to form a reproduced ion-exchange resin layer so that a condensate to be treated will flow from the reproduced ion-exchange resin layer to the new ion-exchange resin layer on the filter demineralizer; the amount of the new ion-exchange resin precoated being nearly equal to the reproduced ion-exchange resin precoated by weight.

4,395,336

METHOD OF ABSORBING LIQUIDS

Kjell Eng, Mullsjö, Sweden, assignor to AB Eiser, Borås, Sweden

Division of Ser. No. 117,977, Feb. 4, 1980, abandoned. This application Sep. 2, 1982, Ser. No. 414,316

Claims priority, application Sweden, Feb. 16, 1979, 7901400
Int. Cl.³ B01D 15/00

U.S. Cl. 210—693

12 Claims



1. The method of picking up petroleum spills comprising the steps of placing a blanket made of an improved liquid-absorbing textile product of a double-layer fabric comprising pile threads of a hydrophobic and oleophilic synthetic material, said pile threads interconnecting the two layers of said double-layer fabric in contact with the spill for absorption of the petroleum into said blanket and removing the blanket and adsorbed petroleum.

4,395,337

TREATMENT OF BRACKISH WATER

Edmund J. Clepiela, Willowdale, Canada, assignor to Francis Hankin & Co. Limited, Scarborough, Canada

Filed Jun. 26, 1981, Ser. No. 277,648

Claims priority, application United Kingdom, Jul. 1, 1980, 8021481

Int. Cl.³ C02F 1/46

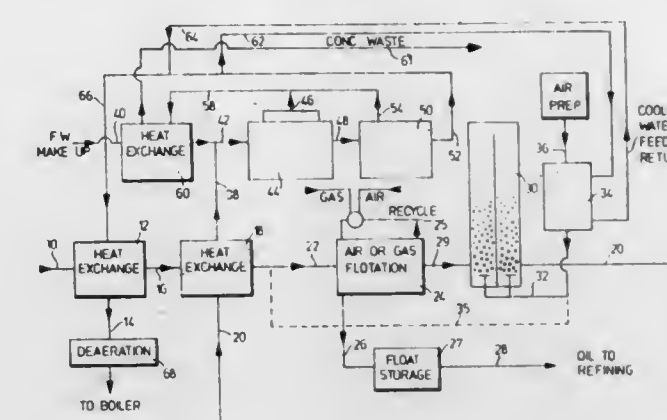
U.S. Cl. 210—703

8 Claims

1. A method of treating hydrocarbon- and mineral-contaminated brackish water from the steam extraction of a heavy oil from a subterranean deposit thereof to render the same susceptible of reuse in steam regeneration, which comprises:

(a) removing hydrocarbon contamination from the brackish water by:

- (i) causing a substantial proportion of said hydrocarbon contamination to separate from the brackish water as a substantially continuous phase,
- (ii) separating the continuous phase from the hydrocarbon contamination-depleted brackish water, and
- (iii) oxidizing any residual hydrocarbon contamination in



the hydrocarbon contamination-depleted brackish water; and

- (b) subsequently removing mineral contamination from the brackish water by subjecting hydrocarbon contamination-free brackish water to reverse electrolysis to remove all mineral contaminants therefrom except for silica and removing silica from the electrolyzed aqueous phase, thereby to form decontaminated water suitable for boiling to form steam.

4,395,338

METHOD AND SYSTEM FOR DEWATERING RESERVE PITS

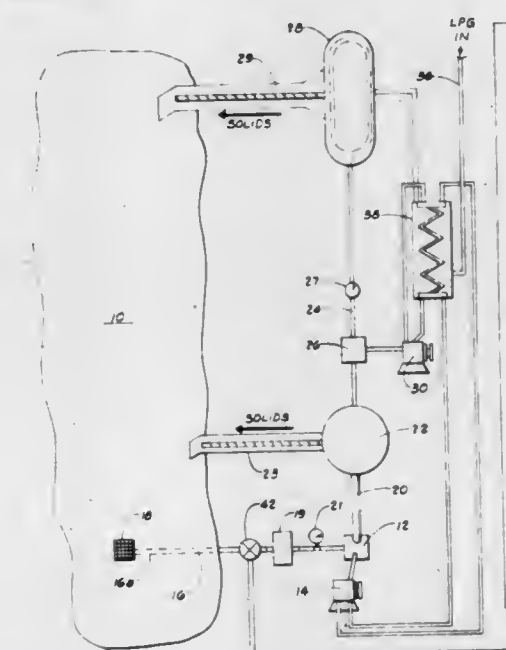
Billy L. Rowton, Rte. 3, Box 65, Marlow, Okla. 73055

Filed Apr. 12, 1982, Ser. No. 367,415

Int. Cl.³ C02F 1/04; E21B 21/06

U.S. Cl. 210—747

3 Claims



1. A method of dewatering a reserve pit of the type used in drilling oil and gas wells comprising: pumping water and entrained solids from the pit to a holding tank; straining solid particles from the material pumped from the pit before the material reaches the holding tank; settling out solids from the liquid and solids pumped into the holding tank; pumping liquid from the holding tank to a boiler;

boiling away liquid pumped into the boiler from the holding tank; returning to the reserve pit all solids separated from the material pumped from the reserve pit; and then filling the reserve pit with earth.

4,395,339

METHOD OF OPERATING PURE OXYGEN WET OXIDATION SYSTEMS

Ajit K. Chowdhury, Schofield; Gerald L. Bauer, Rothschild, and Richard W. Lehmann, Rib Mountain, all of Wis., assignors to Sterling Drug Inc., New York, N.Y.

Filed Apr. 1, 1982, Ser. No. 364,536

Int. Cl.³ C02F 1/74, 11/08

U.S. Cl. 210—761

8 Claims

1. A method for startup, operation and shutdown of a wet oxidation apparatus which uses a flow of pure oxygen for oxidizing combustible substances, said apparatus including a reactor, valved means for introducing water and combustible substance into said reactor, valved means for introducing a flow of pure oxygen into said reactor, valved means for passing gaseous and liquid combustion products from said reactor, valved means for introducing a stream of purge water into oxygen introducing means, valved means for introducing cleaning solution into said oxygen introducing means, and valved means for purging said reactor with an inert diluent gas, said method comprising the steps of:

initiating a potential for oxidation in said reactor prior to starting the flow of oxygen to said reactor, and maintaining the potential for oxidation until the flow of oxygen is stopped; starting a continuous purge of inert diluent gas into said reactor prior to starting the flow of oxygen, and continuing the addition or in situ generation of inert gas in the reactor until after the flow of oxygen is stopped; and cleaning the portion of the oxygen introducing means within said reactor with a cleaning solution and subsequently introducing a stream of purge water into oxygen introduction means prior to starting the flow of oxygen to said reactor, and continuing the flow of said purge water until after said flow of oxygen is stopped.

4,395,340

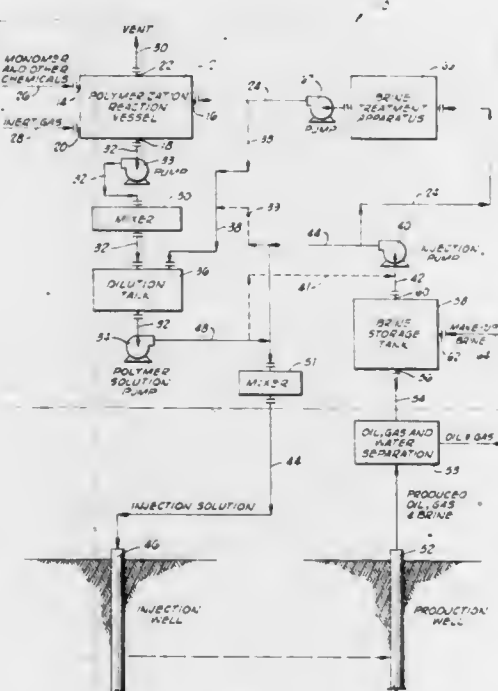
ENHANCED OIL RECOVERY METHODS AND SYSTEMS
Homer C. McLaughlin, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Jul. 14, 1981, Ser. No. 282,989

Int. Cl.³ C09K 3/00

U.S. Cl. 252—8.55 D

10 Claims



1. A method of enhancing the recovery of oil from a subter-

anean oil-containing formation comprising injecting a viscous aqueous solution containing one or more water-soluble organic polymers into the formation by way of at least one injection well penetrating the formation and forced through the formation towards at least one production well penetrating the formation, and further comprising

combining water-soluble polymerizable vinyl monomers and a water-soluble ionizing sulfite with an aqueous inorganic salt solution at the site of said injection and production wells whereby said monomers are rapidly polymerized to form a concentrated high viscosity polymer solution, said water-soluble polymerizable vinyl monomers being selected from the group consisting of acrylamide monomers alone, and acrylamide monomers and one or more other vinyl monomers which are copolymerizable therewith; diluting said concentrated high viscosity polymer solution with additional aqueous fluid at the site of said injection and production wells to form an injection solution having a desired viscosity; and injecting said injection solution into said formation.

4,395,341

USE OF METRONIDAZOLE IN OIL RECOVERY

Robert D. Muir, Glenview, Ill., assignor to G. D. Searle & Co., Skokie, Ill.

Continuation of Ser. No. 814,969, Jul. 21, 1977, abandoned. This application Sep. 8, 1981, Ser. No. 300,092

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D

5 Claims

1. In a process of oil recovery characterized by the steps of injecting flooding water into oil-bearing subterranean formations to displace portions of the residual oil therein the improvement comprising using flooding water containing an effective antibacterial amount of metronidazole.

4,395,342

GRANULAR FABRIC SOFTENING COMPOSITION

Daniel L. Strauss, Mason, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 156,995, Jun. 6, 1980, abandoned. This application May 21, 1981, Ser. No. 265,757

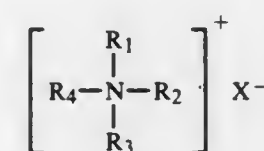
Int. Cl.³ D06M 13/46

U.S. Cl. 252—8.75

11 Claims

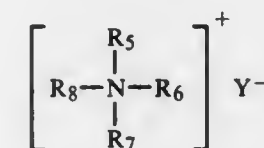
1. A comelted, solid, granular fabric softening composition comprising:

A. 60% to 85% of a first compound having the formula:



wherein R₁ and R₂ are lower alkyl moieties, R₃ and R₄ are each higher alkyl or alkenyl moieties having from about 14 to about 22 carbon atoms, and X is an anion; and

B. 15% to 40% of a second compound having the formula:



wherein R₅, R₆ and R₇ are each lower alkyl moieties, R₈ is an alkyl or alkenyl moiety having from about 10 to about 14 carbon atoms, and Y is an anion;

wherein the softening effect of said solid, granular composition is improved with, improved rinse water dispersibility.

4,395,343

ANTIOXIDANT COMBINATIONS OF SULFUR CONTAINING MOLYBDENUM COMPLEXES AND ORGANIC SULFUR COMPOUNDS

Louis de Vries, Greenbrae, and John M. King, San Rafael, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Aug. 7, 1981, Ser. No. 290,915

The portion of the term of this patent subsequent to Jan. 18, 2000, has been disclaimed.

Int. Cl.³ C10M 1/20, 1/32, 1/38, 1/54

U.S. Cl. 252—32.7 E

16 Claims

1. A lubricating oil additive comprising a combination of (a) an oil soluble sulfur containing molybdenum complex prepared by (1) reacting an acidic molybdenum compound and a basic nitrogen compound selected from the group consisting of a succinimide, carboxylic acid amide, Mannich base, phosphoramidate, thiophosphonamide, phosphonamide, dispersant viscosity index improvers, or mixtures thereof to form a molybdenum complex wherein from 0.01 to 2 atoms of molybdenum are present per basic nitrogen atom, and (2) reacting said complex with carbon disulfide in an amount to provide 0.1 to 4 atoms of sulfur per atom of molybdenum, and

(b) an oil soluble organic sulfur compound or mixtures thereof wherein the organic sulfur compound of component (b) is present in an amount of from 0.02 to 10 parts by weight per part by weight of the sulfur containing molybdenum complex of component (a).

4,395,344

DRAIN OPENER COMPOSITION

Lodric L. Maddox, Oakland, Calif., assignor to The Clorox Company, Oakland, Calif.

Continuation of Ser. No. 361,882, May 21, 1973, abandoned.

This application Jul. 29, 1976, Ser. No. 709,652

Int. Cl.³ C11D 7/54

U.S. Cl. 252—99

17 Claims

1. A drain opener composition that provides improved mixing with liquids trapped within a plugged drain, comprising a strong caustic in an amount of greater than about 50% by weight of the composition, aluminum metal in an effective amount for producing hydrogen gas in the presence of said caustic and for causing a mixing action, said effective amount of aluminum metal comprising less than about 5% by weight of the composition, a peroxy compound suitable for the process of generating oxygen gas over an extended period of time in an effective amount for generating oxygen gas to produce a strong mixing action, said amount of said peroxy compound comprising less than about 10% by weight of composition, a heavy metal salt catalyst in an amount sufficient for promoting the evolution of oxygen from said peroxy compound in the presence of water and the strong caustic, a surfactant which is stable in a highly caustic environment, and a water soluble potassium salt other than said surfactant, said potassium salt producing potassium ions in water solution, said ions upon contact with saponified fats and greases in said drain producing soft, highly soluble soaps which easily dissolve in drain water.

4,395,345

FREE-FLOWING PHOSPHATE/SILICATE COGRANULATES CONTAINING HYDROPHOBING SUBSTANCE(S)

Kurt Walz, Glinde; Peter Dittmann, Oftersheim, and Hartmut Höhne, Pfungstadt, all of Fed. Rep. of Germany, assignors to Lever Brothers Company, New York, N.Y.

Filed Oct. 8, 1981, Ser. No. 309,757

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1980, 3038413

Int. Cl.³ C11D 3/04, 3/08

U.S. Cl. 252—135

4 Claims

1. Cogranulates of alkalimetal tripolyphosphates and alkalimetal silicates with improved dispensability, said cogranulates

comprising from 5 to 60 percent by weight of the alkalimetal tripolyphosphates, from 95 to 40 percent by weight of the alkalimetal silicates, and from 0.05 to 5 percent by weight of a hydrophobing substance, selected from the group consisting of paraffins, silicones, insoluble fatty acid salts and zeolites.

4,395,346

METHOD FOR CLEANING CONTACT LENSES

Frederick D. Kleist, Laguna Hills, Calif., assignor to Allergan Pharmaceuticals, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 176,077, Aug. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 3,294, Jan. 15, 1979, abandoned. This application Nov. 18, 1981, Ser. No. 322,616

Int. Cl.³ C11D 3/06, 7/16

U.S. Cl. 252—135

12 Claims

1. A method for the treatment of contact lenses to remove inorganic deposits on the lenses comprising contacting a contact lens having inorganic deposits with an aqueous solution containing an amount effective for removing inorganic deposits of a sequestering agent selected from the group consisting of hexametaphosphate, gluconic acid and salts thereof for a period of time sufficient to remove inorganic deposits.

4,395,347

POWDERED CARPET CLEANER CONTAINING ETHER ALCOHOL SOLVENTS

James H. McLaughlin, Vero Beach, Fla.; Stephen V. Dente, Lodi, N.J.; Robert Carmello, Dumont, N.J., and James A. Smith, Old Tappan, N.J., assignors to Airwick Industries, Inc., Carlstadt, N.J.

Continuation of Ser. No. 100,175, Dec. 4, 1979, abandoned. This application Apr. 28, 1981, Ser. No. 258,481

Int. Cl.³ C11D 3/02, 7/04

U.S. Cl. 252—139

26 Claims

1. A powdered carpet cleaning composition comprising a blend of from about 40.0 to 98.5%, by weight, of a borax carrier and a primary cleaning system comprising from about 1.0 to 10.0%, by weight, of an ether alcohol cleaning solvent and from about 0.5 to 10.0%, by weight, of a surfactant, substantially all of the particles of said composition being between 0.06 to 0.44 millimeters, all percentages based on the total composition weight.

4,395,348

PHOTORESIST STRIPPING COMPOSITION AND METHOD

Wai M. Lee, Milpitas, Calif., assignor to EKC Technology, Inc., Hayward, Calif.

Filed Nov. 23, 1981, Ser. No. 323,724

Int. Cl.³ C11D 7/26, 7/34

U.S. Cl. 252—143

10 Claims

1. A composition for the removal of an organic photoresist from a substrate, which consists essentially of:
an organic sulfonic acid and
1,2 dihydroxybenzene in sufficient amounts to remove the photoresist from the substrate.

4,395,349

VULCANIZATION ACCELERATOR FOR CHLOROPRENE RUBBER

Koji Kinoshita, Takarazuka, Japan, assignor to Osaka Yuki Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 18, 1981, Ser. No. 264,549

Claims priority, application Japan, Jun. 11, 1980, 55/77880; Jan. 27, 1981, 56/9582

Int. Cl.³ C09K 3/00; C08K 9/12; C07C 149/22

U.S. Cl. 252—182

10 Claims

1. A vulcanization accelerator composition for chloroprene rubber comprising an inorganic powder impregnated with a thioglycolic acid ester.

4,395,350

LIQUID CRYSTAL MIXTURES

Arthur Boller, Binningen; Alfred Germann, Basel; Martin Schadt, Seltisberg, and Alois Villiger, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jul. 1, 1981, Ser. No. 279,493

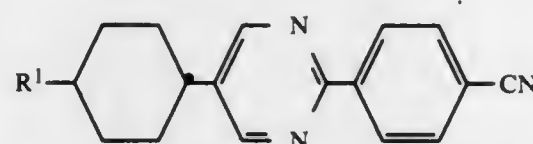
Claims priority, application Switzerland, Jul. 10, 1980, 5299/80; May 7, 1981, 2966/81

Int. Cl.³ C09K 3/34; G02F 1/13

U.S. Cl. 252—299.1

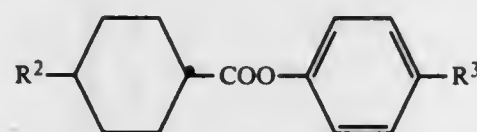
20 Claims

1. A coloring substance-containing liquid crystal mixture which comprises about 5 to about 40 weight % of one or more trans-p-[5-(4-alkylcyclohexyl)-2-pyrimidinyl]benzonitriles of the formula



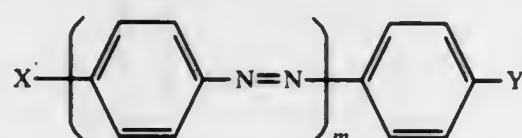
wherein R¹ is a straight-chain alkyl group containing 2 to 7 carbon atoms,

about 10 to about 60 weight % of one or more trans-4-alkylcyclohexane carboxylic acid phenyl ester of the formula



wherein R² is a straight-chain alkyl group containing 2 to 6 carbon atoms and R³ is cyano or a straight-chain alkoxy group containing 1 to 6 carbons atoms,

and about 0.1 to about 15 weight % of one or more coloring substances of the formula



wherein m is the integer 1 and X is alkoxy and Y is nitro, or m is the integer 1 or 2, and X is p-alkoxyphenyl and Y is nitro or dialkylamino, or X is alkoxy and Y is p-nitrophenyl or p-(dialkylamino)phenyl; or m is the integer 2, and X is alkoxy and Y is alkoxy, nitro or dialkylamino, or both X and Y are dialkylamino groups; and wherein the alkoxy denotes a straight-chain alkoxy group containing 1 to 12 carbon atoms and the alkyl groups in the dialkylamino each denote a straight-chain alkyl group containing 1 to 4 carbon atoms.

4,395,351

POLYETHER-BASED THICKENERS WITH ADDITIVES FOR INCREASED EFFICIENCY IN AQUEOUS SYSTEMS

Ronald L. Camp, 14029 Cranbrook, Riverview, Mich. 48192

Continuation of Ser. No. 86,836, Oct. 22, 1979, Pat. No.

4,310,436. This application Apr. 8, 1981, Ser. No. 252,165

The portion of the term of this patent subsequent to Jan. 12, 1999, has been disclaimed.

Int. Cl.³ B01J 13/00

U.S. Cl. 252—315.1

20 Claims

10. The process of thickening an aqueous system comprising the addition of an effective thickening amount of a polyether-based thickening agent to said aqueous system, said polyether-based thickening agent comprising in admixture:

A. a polyether having a molecular weight of about 1000 to

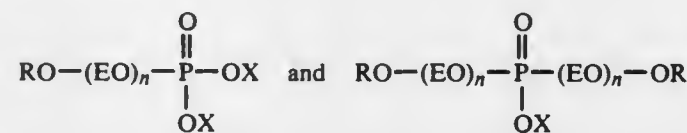
about 25,000, which is selected from the group consisting of

(1) polyethers prepared by reacting a mixture of ethylene oxide and at least one lower alkylene oxide having 3 to 4 carbon atoms with at least one active hydrogen-containing aliphatic or alkylaromatic compound containing no more than one active hydrogen and about 12 to about 18 carbon atoms and at least one glycidyl ether having a carbon chain length of about 12 to about 18 aliphatic carbon atoms and wherein said glycidyl ether is present in the amount of about 1 to about 20 percent by weight based upon the total weight of said polyether,

(2) polyethers prepared by reacting ethylene oxide and at least one lower alkylene oxide having 3 to 4 carbon atoms with at least one active hydrogen compound containing no more than one active hydrogen to prepare a heteric or block copolymer and further reacting said copolymer with at least one glycidyl ether having a carbon chain length of about 12 to about 18 aliphatic carbon atoms and wherein said glycidyl ether is present in the amount of about 1 to about 20 percent by weight based on the total weight of said thickener,

and about 10 to about 35 percent by weight based upon the total weight of said polyether-based thickener of:

B. a mixture of a water-soluble amine and an ethoxylated phosphate ester, or an ethoxylated phosphate ester, wherein said phosphate ester is selected from the group consisting of



and mixtures thereof, wherein EO is ethylene oxide; R is selected from the group consisting of linear or branched chain alkyl groups having about 6 to about 30 carbon atoms, and aryl or alkylaryl groups wherein said arylalkyl groups have about 6 to about 30 carbon atoms; X is selected from the group consisting of the residue of hydrogen, ammonia, an amine, an alkali or alkaline earth metal and mixtures thereof; and n is a number from 1 to 50.

4,395,352

HIGH EFFICIENCY ANTIFOAM COMPOSITIONS AND PROCESS FOR REDUCING FOAMING

Ravindra D. Kulkarni, Pomona; Bernard Kanner, West Nyack, both of N.Y., and Errol D. Goddard, Haworth, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 920,459, Jun. 29, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,138

Int. Cl.³ B01D 19/04; C09K 3/00

U.S. Cl. 252—321

12 Claims

1. An antifoam composition which comprises a polydimethylsiloxane oil, 1–20 parts by weight per 100 parts by weight of the oil of a finely divided hydrophobic silica having a surface area of at least 50 square meters per gram, and 1–20 parts by weight per 100 parts by weight of the oil and solid together of

a siloxane-oxyalkylene block copolymer surfactant having a hydrophilic-lipophilic balance in the range of 4 to 14 wherein the improvement comprises the polydimethylsiloxane oil having a viscosity in the range of 5,000 to 30,000 centistokes at 25° C.

10. A process for reducing foaming in aqueous liquids having a tendency to foam which comprises forming a mixture of said liquid and a composition as defined in claim 1.

4,395,353

POLYANIONIC HETEROPOLYSACCHARIDE BIOPOLYMERS

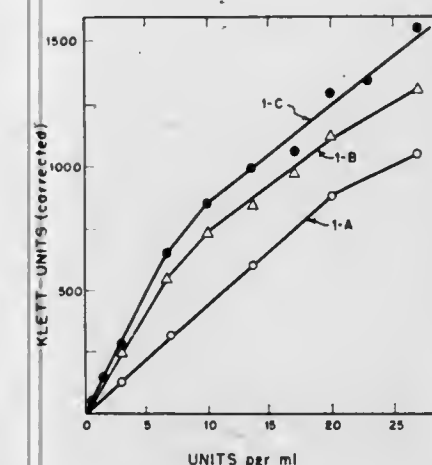
David L. Gutnick, Ramat Aviv; Eugene Rosenberg, Raanana; Igal Belsky, Ramat Aviv, and Zinaida Zosim, Kefar Sava, all of Israel, assignors to Petroleum Fermentations N.V., Antilles, Netherlands

Division of Ser. No. 12,971, Feb. 22, 1979, abandoned. This application May 14, 1980, Ser. No. 146,056

Int. Cl.³ B01F 17/30, 17/34, 17/52

U.S. Cl. 252—356

10 Claims



1. Polyanionic heteropolysaccharide biopolymers in which (a) substantially all of the sugar moieties are N-acylated amino-sugars, a portion of which is N-acylated-D-galactosamine and another portion of which is N-acylated aminouronic acid, a part of the N-acyl groups of such heteropolysaccharide being N-3-hydroxydodecanoyl groups; and (b) at least 0.2 micromoles per milligram of such heteropolysaccharide consisting of fatty acid esters in which (1) the fatty acids contain about 10 to about 18 carbon atoms and (2) about 50 percent by weight or higher of such fatty acids are composed of 2-hydroxydodecanoic acid and 3-hydroxydodecanoic acid.

4,395,354

EMULSANS

David L. Gutnick, Ramat Aviv; Eugene Rosenberg, Raanana; Igal Belsky, Ramat Aviv, and Zinaida Zosim, Kefar Sava, all of Israel, assignors to Petroleum Fermentations N.V., Antilles, Netherlands

Continuation of Ser. No. 12,971, Feb. 22, 1979, abandoned. This application Jul. 17, 1980, Ser. No. 166,981

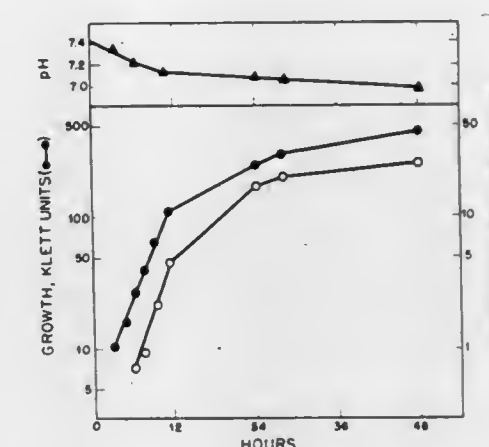
Int. Cl.³ B01F 17/30, 17/34, 17/52

U.S. Cl. 252—356

28 Claims

1. Extracellular microbial protein-associated lipopolysaccharides (herein collectively called "α-emulsans") produced by *Acinetobacter* Sp. ATCC 31012 and its mutants, in which the lipopolysaccharide components (herein collectively called "apo-α-emulsans") are completely N-acylated and partially O-acylated heteropolysaccharides made up of major amounts of D-galactosamine and an aminouronic acid, such apo-α-emulsans containing at least 5 percent by weight of fatty acid esters (1) in which the fatty acids contain from about 10 to about 18 carbon atoms; and (2) about 50 percent by weight or more of such fatty acids are composed of 2-hydroxydodecanoic acid and 3-hydroxydodecanoic acid, the α-emulsans being characterized by a Specific Emulsification Activity of about 200 units per milligram or higher, where one unit per

milligram of Specific Emulsification Activity is defined as that amount of emulsifying activity per milligram of bioemulsifier



which yields 100 Klett absorption units using a standard hydrocarbon mixture consisting of 0.1 ml of 1:1 (v/v) hexadecane/2-methylnaphthalene and 7.5 ml of Tris-Mg buffer.

4,395,355

PROCESS AND APPARATUS FOR TREATING A PRESSURIZED FEED STREAM CAPABLE OF UNDERGOING AN ENDOTHERMIC REACTION

Manfred Lembeck, Buch; Patrick W. Kinsella, Wolfratshausen, and Allan M. Watson, Otobrunn, all of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Fed. Rep. of Germany

Filed May 15, 1981, Ser. No. 264,000

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1980, 3023170

Int. Cl.³ C01B 3/32, 3/48

U.S. Cl. 252—373

1 Claim

1. A process for reforming a pressurized hydrocarbon feed stream comprising dividing said hydrocarbon feed stream into a first hydrocarbon feed stream and a second hydrocarbon feed stream, heating said first hydrocarbon feed stream in a reforming reaction zone so as to cause said reforming reaction to occur and to produce a reforming reaction product, expanding said second hydrocarbon feed stream so as to produce an expanded second hydrocarbon feed stream of reduced pressure and temperature, indirectly contacting said expanded second hydrocarbon feed stream with said reforming reaction product so as to reduce the temperature of said reforming reaction product and increase the temperature of said expanded second hydrocarbon feed stream, and utilizing said expanded second hydrocarbon feed stream having an increased temperature as a fuel for supplying heat to said first hydrocarbon feed stream in said reforming reaction zone.

4,395,356

METHOD FOR REMOVING CATALYST RESIDUES FROM SOLUTIONS OF POLY-1-BUTENE

Lynn H. Slauch, and Carl L. Willis, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 210,907, Nov. 28, 1980, abandoned.

This application Dec. 22, 1981, Ser. No. 333,492

Int. Cl.³ B01D 15/06; B01J 37/00

U.S. Cl. 252—413

6 Claims

1. A process for removing catalyst residues from poly-1-butene which comprises contacting an organic phase containing poly-1-butene dissolved in an inert hydrocarbon solvent with an aqueous phase containing an alpha-hydroxysulfonic acid prepared by reacting a carbonyl compound of the general formula R₁R₂CO wherein R₁ and R₂ are individually hydrogen or hydrocarbyl of up to about 7 carbon atoms with sulfur dioxide and water and subsequently separating the poly-1-butene-containing organic phase from the aqueous phase.

4,395,357

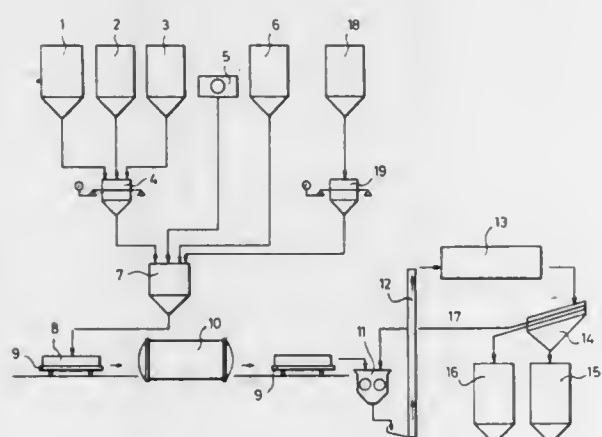
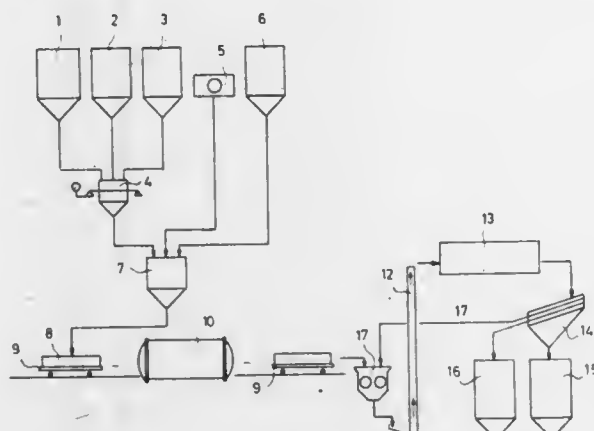
CALCIUM SILICATE GRANULES FORMING A MICROPOROUS STRUCTURE

Walter Krämer, Soltau-Friedrichseck, and Rainer Follmann, Minden, both of Fed. Rep. of Germany, assignors to Mars Inc., McLean, Va.

Continuation of Ser. No. 114,140, Jan. 21, 1980, abandoned. This application Jun. 12, 1981, Ser. No. 273,224

Claims priority, application Fed. Rep. of Germany, Jan. 19, 1979, 2902108

Int. Cl.³ B01J 20/22, 20/10; A01K 1/015; C01B 33/24
U.S. Cl. 252—428 9 Claims



1. Calcium silicate granules with a fatty amine addition produced by a process comprising the steps of:

- dispersing crystalline and optionally amorphous silicon dioxide or a material containing the same, calcium oxide or a material containing the same, and fatty amine in water, and mixing with a microporous stable foam produced from an anionic surface active substance and water, wherein the molar ratio of calcium oxide to silicon dioxide is 0.8:1 to 1.1:1,
- shaping the foam mixture prepared in step (a),
- autoclave hardening,
- comminuting,
- drying, and
- grading and recovering particle sizes.

3. Calcium silicate granules having a polyamide wax addition, produced by a process comprising the steps of:

- dispersing crystalline and optionally amorphous silicon dioxide, or a material containing the same, and calcium oxide, or a material containing the same, the molar ratio of calcium oxide to silicon dioxide being 0.1:1 to 1.1:1 and a polyamide wax, and mixing with a microporous, stable foam produced in water by means of an anionic, surface-active substance, accompanied by the formation of a foam,
- shaping the foam mixture prepared in step (a),
- autoclave hardening,
- comminuting,
- drying, and
- grading into particles.

7. Calcium silicate granules having a fatty amine salt addition, produced by the steps comprising:

- dispersing crystalline and optionally amorphous silicon dioxide, or a material containing the same, and calcium oxide, or a material containing the same, the molar ratio of calcium oxide to silicon dioxide being 0.8:1 to 1.1:1, and fatty amine salt, mixing in a microporous, stable foam produced in water by means of an anionic, surface-active substance, accompanied by the formation of a foam comprising calcium silicate,
- shaping the foam mixture prepared in step (a),
- autoclave hardening,
- comminuting,
- drying, and
- grading into particles.

8. Calcium silicate granules having a saponification-resistant alkoxy silane addition, produced by the steps comprising:

- dispersing crystalline and optionally amorphous silicon dioxide or a material containing the same, and calcium oxide, or a material containing the same, the molar ratio of calcium oxide to silicon dioxide being 0.8:1 to 1.1:1 and mixing with a microporous, stable foam produced in water by means of an anionic, surface-active substance, accompanied by the formation of a foam,
- shaping the foam mixture prepared in step (a),
- autoclave hardening,
- drying,
- adding saponification-resistant alkoxy silane selected from the group consisting of alkyl alkoxy silanes, whose branched or straight chain alkyl radicals has 1 to 6 carbon atoms and whose branched or straight chain alkoxy radicals have 1 to 3 carbon atoms and phenyl alkoxy silanes, whose alkoxy radical has 1 to 3 carbon atoms or mixtures thereof,
- classifying.

4,395,358

TITANIUM TRICHLORIDE CATALYST COMPLEX AND PROCESS FOR THE PRODUCTION THEREOF

Harry J. Wristers, Baytown, Tex., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 11,340, Feb. 12, 1979, Pat. No. 4,262,104, which is a division of Ser. No. 811,507, Jun. 30, 1977, Pat. No. 4,151,112. This application Nov. 19, 1980, Ser. No. 208,212

The portion of the term of this patent subsequent to Apr. 24, 1996, has been disclaimed.

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

10 Claims

1. An improved catalyst composition adaptable for use in a stereopolymerization of alpha-olefins comprising:

- an organometal compound co-catalyst, in contact with;
- a titanium trichloride composition catalyst, said titanium trichloride catalyst being produced by a process comprising:
 - in a reduction step, contacting titanium tetrachloride with an organo metal compound of the formula R_nAlX_{3-n} , wherein R is a group having 1 to 18 carbon atoms selected from alkyl or aryl, X is a halogen and n is a numeral within the range of $1 \leq n \leq 3$ at about -50°C . to about 100°C . in an inert diluent to obtain a reduced solids product;
 - in an activation step, contacting the reduced solids of (a) with a chlorinated hydrocarbon and a titanium tetrachloride in the presence of a Lewis base complexing agent, said chlorinated hydrocarbon, titanium tetrachloride and Lewis base complexing agent, respectively, being present in amounts of about 0.1 to about 10 mols chlorinated hydrocarbon, about 0.1 to about 2.0 mols titanium tetrachloride and about 0.1 to about 2.0 mols Lewis base complexing agent per one mol of titanium trichloride in such reduced solids of (a), and said titanium tetrachloride being in a concentration of about 2 to about 15 volume percent at an elevated temperature

within the range of from about 50°C . to about 150°C . for about 5 minutes to about 10 hours until a crystal conversion of the reduced solids product of (a) is obtained; and

- in a recovery step, recovering the resulting activated reduced solids product as said titanium trichloride catalyst complex in high yield.

4,395,359

POLYMERIZATION CATALYST, PROCESS FOR PREPARING, AND USE FOR ETHYLENE HOMOPOLYMERIZATION

Burkhard E. Wagner, Highland Park; Frederick J. Karol; George L. Goeke, both of Belle Mead, all of N.J.; Robert J. Jorgensen, Dunbar, W. Va., and Nils Friis, Macungia, Pa., assignors to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 14,412, Feb. 27, 1979, which is a continuation-in-part of Ser. No. 892,037, Mar. 31, 1978, abandoned. This application Mar. 31, 1981, Ser. No. 249,447

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

7 Claims

1. A process for preparing a catalyst composition which comprises

- forming, a precursor composition of the formula



wherein

R is C_1 to C_{14} aliphatic or aromatic hydrocarbon radical, or COR' wherein R' is a C_1 to C_{14} aliphatic or aromatic hydrocarbon radical,

X is selected from the group consisting of Cl, Br, I, or mixtures thereof,

ED is an electron donor compound,

m is ≥ 0.5 to ≤ 56

n is 0 or 1

p is ≥ 6 to ≤ 116 and

q is ≥ 2 to ≤ 85 and

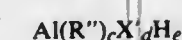
by dissolving at least one magnesium compound and at least one titanium compound in at least one electron donor compound so as to thereby form a solution of said precursor composition in said electron donor compound, and recovering said precursor composition from said solution,

said magnesium compound having the structure MgX_2 , said titanium compound having the structure $\text{Ti}(\text{OR})_n\text{X}_b$ wherein a is 0 or 1, b is 2 to 4 inclusive and $a+b=3$ or 4 said electron donor compound being a liquid organic compound in which said magnesium compound and said titanium compound are soluble and which is selected from the group consisting of alkyl esters of aliphatic and aromatic carboxylic acids, aliphatic ethers, cyclic ethers and aliphatic ketones,

and said magnesium compound, said titanium compound and said electron donor compound being employed in such amounts as to satisfy the values of m, n, p and q.

- diluting said precursor composition with about 1 to 10 parts by weight, per part by weight of said precursor composition, of at least one inert carrier material,

- partially activating the precursor composition outside the polymerization zone in a hydrocarbon slurry with >0 to <10 mols of activator compound per mol of titanium in said precursor composition, said activator compound having the structure



wherein X' is Cl or OR''' , R'' and R''' are the same or different and are C_1 to C_{14} saturated hydrocarbon radicals, d is 0 to 1.5, e is 1 or 0 and $c+d+e=3$, and

- completely activating the precursor composition in a fluid bed polymerization zone with ≥ 10 to about 400 mols of said activator compound in the absence of a solvent so

as to avoid the need for drying the fully active catalyst to remove the solvent therefrom.

4,395,360

CATALYST COMPONENTS AND CATALYSTS FOR THE POLYMERIZATION OF ALPHA-OLEFINS

Enrico Albizzati, Arona; Enzo Giannetti, Novara, and Umberto Scata, Ferrara, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Apr. 21, 1981, Ser. No. 256,235

Claims priority, application Italy, Apr. 22, 1980, 21535 A/80
Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

6 Claims

1. Components of catalysts for polymerizing olefins comprising the solid product of the reaction of:

- a halogenated Ti compound containing at least a Ti-halogen bond, and
- an electron-donor compound not containing active hydrogen atoms (ED) reacted as such or as a complex with product (c), said complex being obtained without cogrinding, and employing in such amount, that from 0.2 to 4 moles of compound (ED) per gram atom of Ti of component (a) are present in the catalytic component with
- the solid product, prepared without cogrinding, of the reaction between at least an electron-donor compound containing active hydrogen atoms (HED), selected from aliphatic, cycloaliphatic and aromatic alcohols and thioalcohols having 1 to 20 C, phenols and thiophenols having 6 to 20 C and the silanols having 1 to 20 C, and a Mg dihalide, or complexes thereof with an (ED) compound, said Mg dihalide being obtained by decomposition, with halogenating agents other than the Ti compounds of (a), of reaction product (d) of an organometallic Mg compound of general formula R_mMgX_n , in which R is an alkyl, aryl, cycloalkyl or alkenyl radical having 1 to 20 C, or a group OR, and X is a halogen, R, OR in which R has the meaning as specified or COX' in which X' is a halogen, m is $0 < m \leq 2$, n is $0 < n < 2$ and $m+n=2$; with a silicium compound selected from polysiloxanes, hydropolysiloxanes, silanols and polysilanols, product (c) being reacted as such without any intermediate pretreatment with an Al-alkyl compound.

4,395,361

CATALYSTS FOR OXYGEN-INITIATED FREE-RADICAL POLYMERIZATION REACTIONS

David J. Eickhoff, Crescent Park, Ky., and Medford D. Robbins, Whitewater Township, Franklin County, Ind., assignors to The Procter & Gamble Company, Cincinnati, Ohio

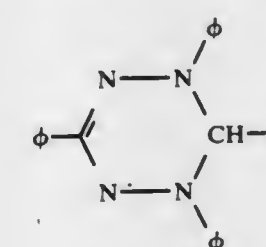
Filed Aug. 7, 1981, Ser. No. 290,908

Int. Cl.³ C08L 67/06, 67/00; C08F 4/32; B01J 31/12

U.S. Cl. 252—431 C

12 Claims

1. A stabilized oxidation catalyst comprising a mixture of (a) a storage stabilizer having the formula



and (b) an oxidation catalyst consisting essentially of: (1) an autoxidizable component having the formula

4,395,362
ELECTROCONDUCTIVE RESIN COMPOSITE
MATERIAL FOR MOLDING

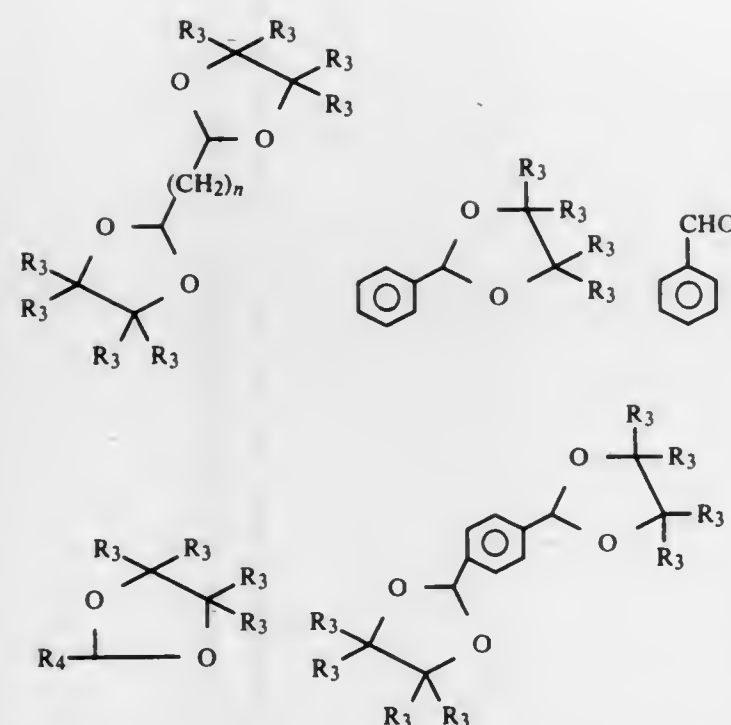
Hiroaki Satoh, Tokyo, and Masaru Hiruta, Iwaki, both of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 26, 1981, Ser. No. 296,523

Int. Cl.³ H01B 1/06

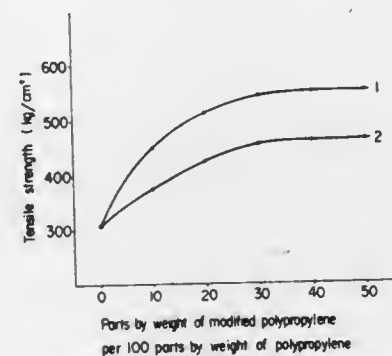
U.S. Cl. 252-511

7 Claims



and mixtures thereof, wherein each R₃ is hydrogen, methyl, phenyl or COOH; R₄ is C₁-C₂₀ alkyl or alkenyl; and n is from about 1 to 10; and (2) a peroxide-decomposing transition metal catalyst.

8. An oxidation catalyst for oxygen-initiated free-radical polymerization reactions consisting essentially of: (1) an autoxidizable component having the formula



1. A resin composite material consisting essentially of 100 parts by weight of polypropylene, from 10 to 50 parts by weight of a modified polypropylene, said modified polypropylene being polypropylene chemically modified with an organic unsaturated carboxylic acid of 3 to 10 carbon atoms or a copolymer of propylene and an organic unsaturated carboxylic acid of 3 to 10 carbon atoms, said modified polypropylene containing 0.5 to 8.0 mol% of said organic unsaturated carboxylic acid as carboxylic acid units, from 5 to 65 parts by weight of carbon fiber having a diameter of from 5 to 20 micrometers and a ratio of length to diameter of not less than 10 and from 5 to 65 parts by weight of electroconductive carbon black having a specific surface area of not less than 800 m²/g.

4,395,363
ALPHA-SULFOXIDE AND ALPHA-SULFONE
CARBOXYL COMPOUNDS

Robert J. Crawford, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 180,213, Aug. 21, 1980, Pat. No. 4,317,779.

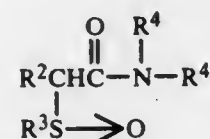
This application Dec. 1, 1981, Ser. No. 326,316

Int. Cl.³ C11D 1/52, 1/755, 1/83, 1/94

U.S. Cl. 252-526

14 Claims

1. A detergent composition comprising:
(a) from about 0.005% to about 99% by weight of an alpha-substituted compound having the formula:

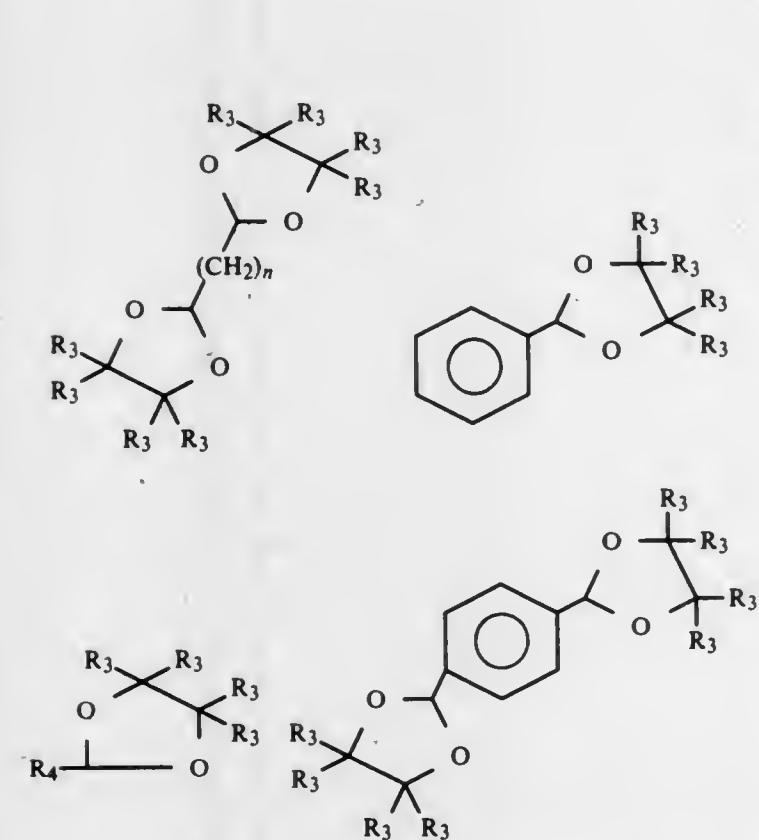


wherein R² is a C₆-C₁₈ hydrocarbyl group; R³ is a C₁-C₄ hydrocarbyl group; each R⁴ is hydrogen, a C₁-C₄ hydrocarbyl group, or a C₂-C₃ alkylene oxide group, or mixtures thereof, containing from about 1 to about 10 alkylene oxide units; and

(b) from about 1% to about 50% by weight of an organic surfactant selected from the group consisting of anionic, cationic, nonionic, amphoteric, and zwitterionic surfactants, and mixtures thereof.

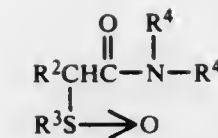
9. A detergent composition comprising:

(a) from about 0.005% to about 99% by weight of an alpha-substituted compound having the formula:



and mixtures thereof, wherein each R₃ is hydrogen, methyl, or COOH; R₄ is C₁-C₂₀ alkyl; and n is from about 1 to 10; and (2) a peroxide-decomposing transition metal catalyst.

9. An oxidation catalyst according to claim 8 wherein the transition metal catalyst is a cobalt(II) compound.



wherein R² is a C₆-C₁₈ hydrocarbyl group; R³ is a C₁-C₄ hydrocarbyl group; each R⁴ is hydrogen, a C₁-C₄ hydrocarbyl group, or a C₂-C₃ alkylene oxide group, or mixtures thereof, containing from about 1 to about 10 alkylene oxide units; and
(b) from about 1% to about 95% of a detergent builder material.

4,395,364
DETERGENT COMPOSITION CONTAINING
SULFONATE SURFACTANT AND POLYOXYALKYLENE
ALKYL OR ALKENYL SULFURIC ACID ESTER SALT
Moriyasu Murata, Chiba, and Kenji Okahashi, Funabashi, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 205,220, Nov. 10, 1980, abandoned.

This application Apr. 14, 1982, Ser. No. 368,483

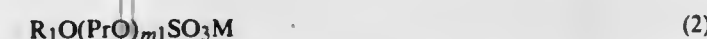
Claims priority, application Japan, Nov. 16, 1979, 54-148462

Int. Cl.³ C11D 1/37, 3/065

U.S. Cl. 252-526

9 Claims

1. A powder detergent composition, consisting essentially of (A) from 8 to 30% by weight of anionic surface active agent selected from the group consisting of linear or branched, alkyl benzene-sulfonic acid salts in which the alkyl group has an average carbon atom number of from 10 to 16, olefin-sulfonic acid salts having an average carbon atom number of from 10 to 20 and alkane-sulfonic acid salts having an average carbon atom number of from 10 to 20, wherein the counter ion of said salts is selected from the group consisting of sodium, potassium, ammonium or alkanolamine having 1 to 3 alkanol groups having 2 or 3 carbon atoms, (B) from 1.5 to 15% by weight of polyoxyalkylene alkyl or alkenyl sulfuric acid ester salt selected from the group consisting of compounds having the formula



wherein R₁O is a residue obtained by removal of a hydrogen from coconut oil-derived higher alcohol, beef tallow-derived higher alcohol, synthetic secondary higher alcohol having 8 to 22 carbon atoms, or synthetic primary alcohol having 8 to 22 carbon atoms and having an iso ratio of 20 to 80%, PrO is oxypropylene, m₁ is a number of from 1 to 10, and M is an alkali metal, an alkaline earth metal or an alkanolamine having 1 to 3 alkanol groups having 2 or 3 carbon atoms,

compounds having the formula



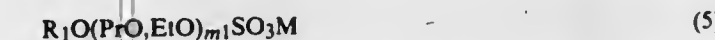
wherein each of m₂ and m₃ is a positive number with the proviso that the sum of m₂ and m₃ is from 1 to 10 and the m₂/m₃ ratio is in the range of from 4/1 to 1/4, EtO is oxyethylene, and the other symbols have the same meaning as defined above,

compounds having the formula



wherein BuO is oxybutylene, and the other symbols have the same meanings as defined above,

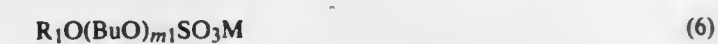
compounds having the formula



wherein (PrO,EtO) is oxypropylene and oxyethylene arranged

in random order, and the other symbols have the same meanings as defined above,

compounds having the formula



wherein the symbols have the same meanings as defined above, and compounds having the formula



wherein the symbols have the same meanings as defined above, (C) 1 to 20% by weight of detergent builder suitable for use in powder clothes washing detergent compositions, and (D) from 1 to 50% by weight of at least one alkali metal salt selected from the group consisting of alkali metal silicates, alkali metal carbonates and alkali metal sulfates.

4,395,365
METAL CLEANING COMPOSITION CONTAINING A
FATTY ACID SUCCROSE ESTER AND OTHER
DETERGENT COMPONENTS

Masami Hasegawa, Fuji, and Koji Kato, Uozu, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Aug. 19, 1981, Ser. No. 294,149

Claims priority, application Japan, Sep. 8, 1980, 55-124198

Int. Cl.³ C11D 1/14, 1/66, 1/72

U.S. Cl. 252-545

14 Claims

1. An industrial detergent useful for degreasing and cleansing of metal parts, the detergent being in the form of an aqueous solution and comprising:

- 3 to 20 parts by weight of a fatty acid succrose ester having an HLB value within the range of from about 12 to 18;
- 3 to 15 parts by weight of a polyoxyethylene alkyl ether having an HLB value within the range of from about 12 to 20;
- 1 to 10 parts by weight of a chelating agent for metal ions;
- 1 to 5 parts by weight of a petroleum sulfonic acid salt; and
- 3 to 10 parts by weight of propylene glycol.

4,395,366
CARBOMETHOXY METHYL NORBORNANES,
ORGANOLEPTIC USES THEREOF AND PROCESS FOR
PREPARING SAME

Philip T. Klemarczyk, Old Bridge; James M. Sanders, Eatontown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank; Frederick L. Schmitt, Holmdel, and Edward J. Granda, Englishtown, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

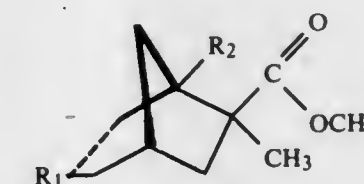
Division of Ser. No. 284,107, Jul. 16, 1981, Pat. No. 4,350,823, which is a continuation-in-part of Ser. No. 133,870, Mar. 25, 1980, Pat. No. 4,319,036. This application May 20, 1982, Ser. No. 380,423

Int. Cl.³ C11D 3/50

U.S. Cl. 252-545

4 Claims

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base an aroma augmenting or enhancing quantity of at least one norbornyl compound defined according to the structure:



wherein the dashed line represents a carbon-carbon single

bond or a carbon-carbon double bond and one of R₁ or R₂ is methyl and the other of R₁ and R₂ is hydrogen.

4. The process of claim 1 wherein the detergent is a liquid detergent containing lysine salts of n-dodecyl benzene sulfonic acid.

4,395,367

PROCESS FOR TREATING FISSION WASTE

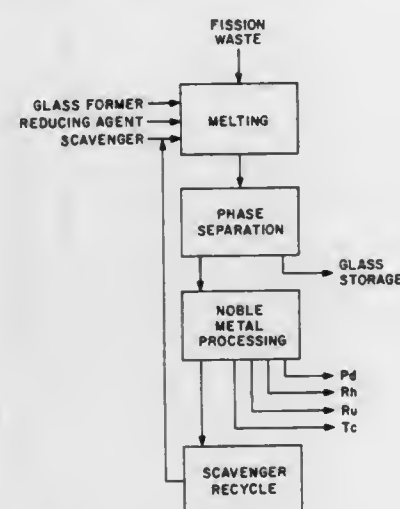
Charles A. Rohrmann, Kennewick, and Oswald J. Wick, Richland, both of Wash. (granted to U.S. Department of Energy under the provisions of 42 U.S.C. 2182)

Filed Nov. 17, 1981, Ser. No. 322,144

Int. Cl.³ G21F 9/16

U.S. Cl. 252-629

6 Claims



1. A process for the treatment of fission waste comprising:
 - (a) mixing a glass forming agent, a scavenging metal oxide, and a reducing agent with said fission waste;
 - (b) melting said mixture and thereby forming a glass phase and a metal phase;
 - (c) separating the two phases; and
 - (d) cooling said glass phase and thereby forming a stable leach-resistant solid suitable for long-term storage of radioactive materials.

4,395,368

AZO DYES FROM

2-AMINO-5-ORGANTHIO-1,3,4-THIADIAZOLES AND N-CYANOETHYL-M-ACYLAMIDOANILINES

Max A. Weaver, and Clarence A. Coates, Jr., both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

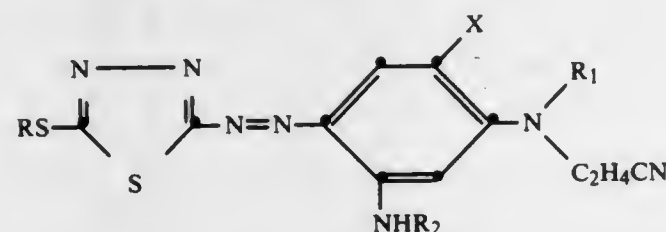
Filed Oct. 26, 1981, Ser. No. 315,108

Int. Cl.³ C09B 29/02, 29/36

U.S. Cl. 260-158

6 Claims

1. A compound having the formula:



wherein R is alkyl, aryl or cycloalkyl; X is hydrogen, or alkyl; R₁ is hydrogen, alkyl or aralkyl; and R₂ is formyl or alkanoyl; and wherein the alkyl, aryl, and cycloalkyl moieties of R and R₂ may be substituted where appropriate with 1-3 groups independently selected from alkyl, aryl, cycloalkyl, -OH, OOC-alkyl, -COO-alkyl, succinimido, phthalimido, alkoxy, carbamoyl, alkylcarbamoyl, dialkylcarbamoyl, alkanoylamino, halogen, phenoxy and benzoyloxy.

4,395,369

MANUFACTURE OF ISOCYANATE

William A. Henderson, Jr., and Balwant Singh, both of Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 331,696, Dec. 17, 1981, Pat. No.

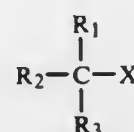
4,361,518. This application Mar. 8, 1982, Ser. No. 355,945

Int. Cl.³ C07C 118/00

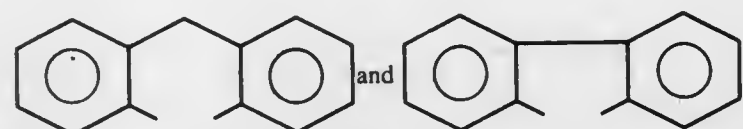
U.S. Cl. 260-453 P

12 Claims

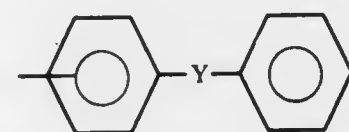
1. A process for the production of tertiary aralkyl isocyanates which comprises reacting a halide of the formula



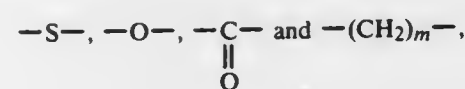
in which X represents a halogen atom, R₁ and R₂ represent the same or different hydrocarbon radicals selected from normal, branched and cyclic alkyl groups, and phenyl, naphthyl and higher aryl groups, and can be joined to form substituents forming cyclic compounds, such bivalent substituents being selected from -(CH₂)_n- where n is an integer from 3 to 5,



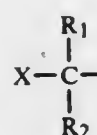
and R₃ represents an aromatic hydrocarbon groups selected from phenyl, naphthyl, higher fused ring aryl and biphenyl groups, polycyclic aromatic hydrocarbon groups of the formula



in which Y represents a bivalent radical selected from



wherein m is an integer from 1 to 3, and such aromatic groups having halogen, methyl, methoxy substituents or substituents of the formula



with a stoichiometric excess of isocyanic acid in a solution in a solvent for said halide and isocyanic acid.

4,395,370

BRANCHED CHAIN ALKENYL METHYL CARBONATES, USES THEREOF IN AUGMENTING OR ENHANCING THE AROMA OF PERFUME COMPOSITIONS, COLOGNES AND PERFUMED ARTICLES AND FORMATE INTERMEDIATES USEFUL IN PREPARING

SAME

Richard M. Boden, Monmouth Beach; Theodore J. Tyszkiewicz, Sayreville, and Michael Licciardello, Farmingdale, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

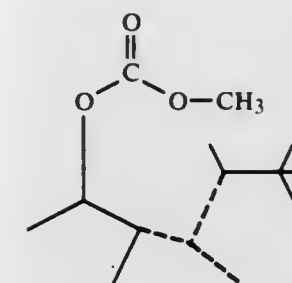
Filed Dec. 10, 1981, Ser. No. 329,222

Int. Cl.³ C07C 69/96; A61K 7/46

U.S. Cl. 260-463

2 Claims

1. An ester defined according to the structure:



wherein one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,395,371

PROCESS FOR THE PREPARATION OF

2-HALOGENO-3-SULPHONYL-ACRYLONITRILES

Siegfried Oeckl, Gero Zahl, both of Cologne, and Walter Radt, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 13, 1981, Ser. No. 310,701

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1980, 3041154

Int. Cl.³ C07C 120/00, 121/30, 121/48, 121/70

U.S. Cl. 260-464

3 Claims

1. A process for the preparation of a 2-halogeno-3-sulphonyl-acrylonitrile of the formula



wherein

R¹ denotes C₆ to C₁₈ aryl, aralkyl where the aromatic portion has up to 10 carbon atoms and the alkyl portion has up to 6 carbon atoms, C₁ to C₁₂ alkyl

or C₆ to C₁₇ cycloalkyl, any of which radicals can optionally be substituted by a radical which does not change during the process and

X¹ denotes halogen, which comprises contacting a 2,2-dihalogeno-3-sulphonyl propionitrile of the formula



wherein

R¹ and X¹ have the meaning given above with a composition consisting essentially of water in a stoichiometric excess at a temperature of 20°-130° C., employing a molar ratio of 2,2-dihalogeno-3-sulphonyl-propionitrile to water of 1:5-550 at pressure of at least 0.5 bar whereby a halogen halide is formed additionally.

4,395,372

ALKYLATION PROCESS

Robert Q. Kluttz, Houston, and Lynn H. Slaugh, Cypress, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Aug. 9, 1982, Ser. No. 406,665

Int. Cl.³ C07C 121/52; C07B 27/00; C07C 2/66

U.S. Cl. 260-465 R

6 Claims

1. A process for alkylating benzene and substituted benzenes with olefins having carbon numbers ranging from 3 to about 6 which process comprises contacting said benzene or substituted benzene with said olefin at a temperature ranging from about 50° C. to about 300° C. and a pressure ranging from about 1 to about 200 atmospheres with a rare-earth-exchanged zeolite in the presence of sulfur dioxide.

4,395,373

PHOSPHATED AMINE OXIDES

Robert B. Login, Media, Pa., assignor to Jordan Chemical Company, Folcroft, Pa.

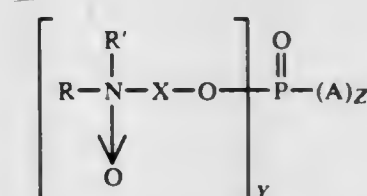
Filed Apr. 7, 1981, Ser. No. 251,851

Int. Cl.³ C07F 9/09

U.S. Cl. 260-928

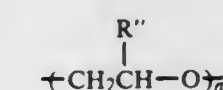
15 Claims

1. Phosphated Amine Oxides Compounds of the formula



Wherein R and R', which may be the same or different are alkyl, alkenyl, or alkoxy groups containing from 5 to 24 carbon atoms, R and R' may also form a cyclic structure and be attached together, R' may be further selected from the same group as X with the requirement that said group terminate in a hydroxyl or phosphate ester,

X is a polyalkoxide of the formula



Wherein

R'' is hydrogen, C₁-C₂₀ alkyl, C₁-C₂₀ alkoxy, phenyl, n is an integer from 1 to 50

Y and Z are integers from

1 to 2 such that when Y is

2, Z is 1 and vice versa,

A is -OM wherein M is hydrogen, alkali metals, alkaline earth metals or quaternary ammonium counterions.

4,395,374

ALKYL

N-ARYLSULFENYL-N-DIARYLOXY-PHOSPHINYLME-THYLGlycinateS

Gerard A. Dutra, Ladue, Mo., and James A. Sikorski, West Lafayette, Ind., assignors to Monsanto Company, St. Louis, Mo.

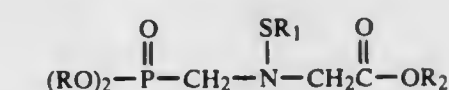
Filed Jan. 2, 1981, Ser. No. 222,213

Int. Cl.³ C07F 9/40; A01N 57/22

U.S. Cl. 260-941

12 Claims

1. A compound of the formula



wherein R is phenyl, naphthyl, biphenyl, benzyl or naphthyl, biphenyl, benzyl or phenyl substituted with from one or two

substituents independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, lower alkylthio, trifluoromethyl, alkoxy carbonyl, methylenedioxy, cyano, nitro and halogen; R_1 is phenyl, naphthyl or phenyl substituted with from one or two substituents independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and nitro; and R_2 is selected from the group consisting of lower alkyl and lower aralkyl.

4,395,375

METHOD OF ELECTRICALLY TESTING MOLDED CORD-SETS DURING THE MOLDING OPERATION

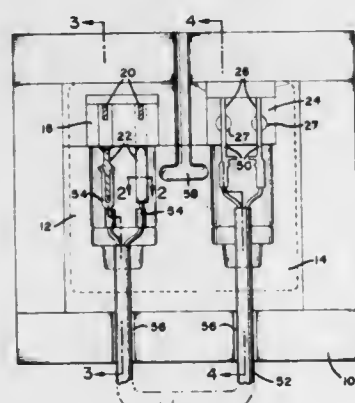
William E. Ferris, deceased, late of Stamford, Conn.; Gail Hennessy, executrix, New Fairfield, Conn.; John Doumas, Wilton, and Harry McCarter, Old Greenwich, both of Conn., assignors to Electrolux Corporation, Old Greenwich, Conn.

Filed Oct. 15, 1974, Ser. No. 514,391

Int. Cl.³ B29C 6/04

U.S. Cl. 264—40.1

4 Claims



1. The method of molding and electrically testing a cord-set while the female contacts and male contacts of said set are in a metallic mold having first and second portions comprising the steps of securing female contacts to one end of an insulated cord and securing male contacts to the other end thereof, positioning said female contacts in a first cavity of said first mold portion for molding a female receptacle, positioning said male contacts in a second cavity of said first mold portion for molding a male plug, removably securing said female and male contacts to electrically conductive locating means mounted in fixed positions on said first portion of said mold and electrically insulated therefrom, connecting a plurality of electrical test circuits to connectors carried by said second mold portion in positions to engage said locating means when said first and second mold portions are closed, moving said first and second mold portions into engagement with each other thereby simultaneously electrically connecting said test circuit connectors to said locating means while closing said first and second cavities, introducing thermoplastic molding compound into said first and second cavities to mold a receptacle and a plug on opposite ends of said cord and around at least portions of said contacts, electrically testing said cord-sets by applying test voltages through said test circuits while said first and second mold portions are closed, separating said first and second mold portions and automatically disconnecting said test circuit connectors from said locating means as a result of such separation, and removing said receptacle and said plug from said first mold portion while removing said female and male contacts from said locating means.

4,395,376

INJECTION MOLDING MACHINES

John Matthews, Tadworth, England, assignor to Crayonne Limited, Middlesex, England

Filed Jul. 29, 1981, Ser. No. 288,047

Claims priority, application United Kingdom, Aug. 12, 1980, 8026165

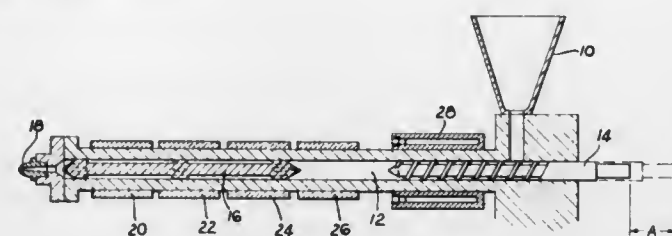
Int. Cl.³ B29F 1/02

U.S. Cl. 264—73

3 Claims

1. An injection moulding machine for producing vari-coloured articles, comprising a barrel housing a reciprocable

screw, means for heating the barrel to promote the flow of plastic material in contact with the inner surface of the barrel and a spreader fixed in the discharge end of the barrel for conducting heat from the barrel into the material to fuse the material passing through the spreader, the screw having an internal passage for conducting a cooling fluid to inhibit fusing and mixing of vari-coloured material carried between the flights of the screw.



3. A method of moulding vari-coloured articles in an injection molding machine having a barrel housing a reciprocable screw, comprising the steps of heating the barrel to promote the flow of plastic material in contact with the inner surface of the barrel, cooling the screw internally to inhibit fusing and mixing of vari-coloured material carried between the flights of the screw, and passing the material through a spreader fixed in the discharge end of the barrel to conduct heat from the barrel into the material to fuse the material without mixing it.

4,395,377

POROUS ACRYLIC SYNTHETIC FIBERS COMPRISING CELLULOSE ACETATE IN AN ACRYLIC MATRIX AND METHOD FOR PRODUCING SAID FIBERS

Yoshikazu Kondo; Toshihiro Yamamoto, and Takaji Yamamoto, all of Hofu, Japan, assignors to Kanebo, Ltd., Tokyo and Kanebo Synthetic Fibers, Ltd., Osaka, both of Japan

Division of Ser. No. 156,993, Jun. 6, 1980, Pat. No. 4,351,879.

This application Jul. 12, 1982, Ser. No. 397,282

Claims priority, application Japan, Jun. 18, 1979, 54/77046; Jun. 18, 1979, 54/77049; Oct. 1, 1979, 54/127065; Oct. 1, 1979, 54/127066

Int. Cl.³ B32B 27/02; D01F 8/02, 8/10; D02G 3/00

U.S. Cl. 264—46.1

21 Claims



1. A method for producing porous acrylic synthetic fibers having substantially no microvoids but having mainly macrovoids wherein a surface area A of the voids is not greater than $15 \text{ m}^2/\text{g}$, a porosity V is $0.05 \sim 0.75 \text{ cm}^3/\text{g}$ and V/A is $1/30$ or more, which comprises spinning an organic solvent solution containing $15 \sim 35\%$ by weight of a polymer consisting of $2 \sim 30$ parts by weight of cellulose acetate and $70 \sim 98$ parts by weight of an acrylic polymer into a coagulation bath at a temperature of no higher than 30°C . to form fibers

wherein the formation of microvoids is restrained, primarily drawing the spun fibers at a draw ratio of $2.5 \sim 8.0$ times to form water swelled fibers wherein macrovoids are distributed, drying the water swelled fibers at a temperature of $100^\circ \sim 180^\circ \text{C}$. to a water content of no greater than 1.0% by weight to substantially eliminate microvoids and secondarily drawing the dried fibers under wet heat at a draw ratio of no greater than 3 times to promote the macrovoid structure.

4,395,378

METHOD FOR MAKING AN INJECTION STRETCH-BLOW MOLDED CONTAINER WITH AN INTEGRAL TAB

Alfred C. Alberghini, Dunwoody, and Gerhard E. B. Nickel, Kennesaw, both of Ga., assignors to Sewell Plastics, Inc., Atlanta, Ga.

Filed May 14, 1981, Ser. No. 263,765

Int. Cl.³ B29C 17/07

U.S. Cl. 264—532

3 Claims



1. The method of forming a container having a finish end and an integral appendage opposite the finish end of the container comprising the steps of:

- molding a parison having a finish end and an integral appendage formed at an end of the parison opposite the finish end,
- situating the parison in a blow mold having a finish-receiving portion, a wall defining a cavity and having a pocket in the wall at a base of the mold opposite the finish-receiving portion and adjacent an axis of the mold,
- stretching the parison to a point that the pocket receives the appendage, one surface of the appendage contacting the pocket portion of the wall, another surface of the appendage facing into the mold cavity, and
- blowing the parison to form a container, said another surface of the appendage acting as a part of the mold wall for a portion of the blown part of the container, the appendage remaining substantially undeformed during the blowing operation.

4,395,379

METHOD AND DEVICE FOR FORMING AN INTERNAL ANNULAR GROOVE IN A PLASTIC TUBE PART

Kornelis Herder, and Wilhelmus F. T. C. Olderaan, both of Hardenberg, Netherlands, assignors to Wavin B.V., Zwolle, Netherlands

Continuation of Ser. No. 865,134, Dec. 28, 1977, abandoned,

which is a continuation of Ser. No. 70,353, Aug. 28, 1977,

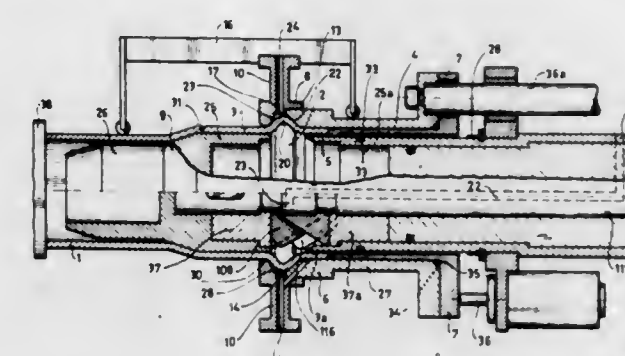
abandoned. This application Mar. 27, 1981, Ser. No. 248,487

Claims priority, application Netherlands, Jun. 30, 1977, 7707299

Int. Cl.³ B29C 17/07

U.S. Cl. 264—573

1 Claim



1. A method for forming an internal annular groove in a plastic tube part by sliding the part onto a core and surrounding same with a mold having an annular recess, heating the tube part and forming the groove by applying an expandable and retractable segmented rigid groove forming a ring in a recess in the interior of the tube part which ring is removed by a retracting action after forming the final groove and cooling down the plastic tube part, subjecting first the plastic tube part to the action of an internal medium overpressure in order to form a groove with a bottom having an inner circumference which is greater than the periphery of the completely expanded groove forming ring, performing an upsetting action simultaneously with the action of said internal medium overpressure and after having formed the groove by means of the internal medium overpressure moving the groove forming ring to its completely expanded position, whereafter the inner side of the groove which was formed by the internal medium overpressure is shrunk onto the completely expanded groove forming ring and the recess for expanding the groove forming ring is closed by a sleeve which is pushed away during sliding of the plastic tube part onto the core.

4,395,380

METHOD OF TESTING FLUID FLOW CONDITION IN EXTENSION OF A PIPE

Donald M. Rosh, 83 Orchrdr Rd., Briarcliff Manor, N.Y. 10510

Continuation of Ser. No. 29,648, Apr. 13, 1979, abandoned. This

application May 11, 1981, Ser. No. 262,623

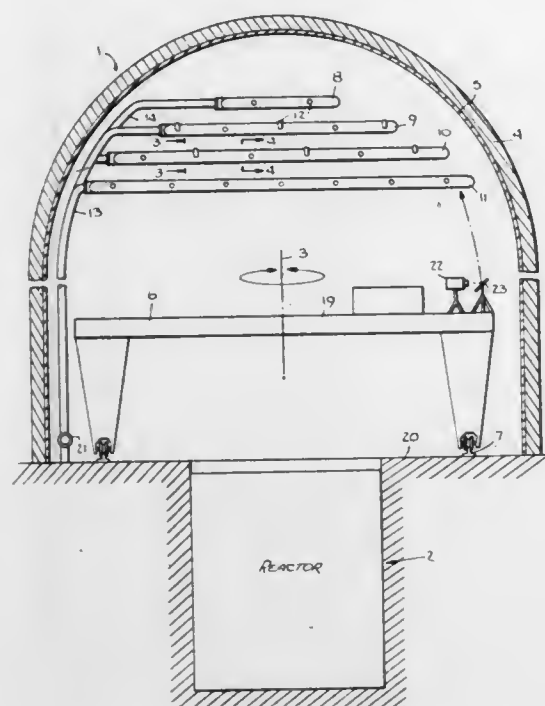
Int. Cl.³ G21C 17/00

U.S. Cl. 376—247

6 Claims

5. A method for remotely testing the fluid flow condition of a plurality of metal spray nozzles mounted in spaced relation on a ring-shaped, metal header within the containment building for a nuclear reactor, said nozzles having fluid communication with said header and extending outwardly from said header for delivering fluid supplied to the header to the interior of said building, said method comprising: supplying air under a pressure above atmospheric pressure to said nozzles by way of said header, said air having a temperature such that the temperature of the air passing through the nozzles is in the range from 5°F . above the temperature of the ambient for the nozzles to 200°F ., and continuing the supply of said air to said nozzles for a time sufficient to raise the temperature of an unblocked nozzle to a temperature at least one-half degree F . above the

ambient temperature and above the temperature thereof prior to the supply of air thereto; and scanning said header and said nozzles while said air is supplied thereto with an infrared camera located remotely from the header and having a thermogram display to



obtain a thermogram of the header and each nozzle, an unblocked nozzle appearing as an image of the nozzle and a blocked nozzle not providing a significant image, whereby the fluid-flow condition of the nozzle is indicated by the image of the extension on the thermogram.

4,395,381

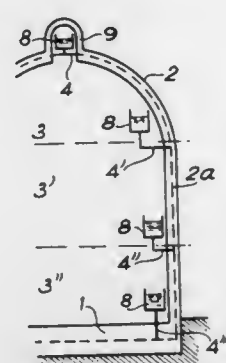
CONFINEMENT ENCLOSURE, NOTABLY FOR A NUCLEAR REACTOR

Didier Costes, Meudon, France, assignor to Commissariat à l'Energie Atomique, Paris, France
Continuation of Ser. No. 4,338, Jan. 18, 1979, abandoned. This application Mar. 4, 1981, Ser. No. 240,548

Claims priority, application France, Jan. 30, 1978, 78 02498
Int. Cl.³ G21C 9/00

U.S. Cl. 376-293

3 Claims



2. A confinement enclosure for a nuclear reactor, comprising:
a housing in which a nuclear reactor is located, said housing consisting of a single wall formed of reinforced concrete; containment means in said single wall for preventing flow of gas through said wall in the event of an accident involving the nuclear reactor, said containment means including a network of channels defined in said wall;
pressurizing means fluidly connected to said channels and at all times maintaining a pressure on fluid inside said channels at a level which is higher than the pressure inside said housing and higher than any fluid passing through a crack in said wall, said channels being located in a plurality of zones with each zone corresponding to a section of wall

height, said channels being grouped according to said zones, and the channels of each zone being filled with water in communication with said pressurizing means constituted by a free level water reservoir located inside the enclosure at a higher level than the corresponding height section;
whereby any fluid passing through a crack in said wall is prevented from entering any channel and only fluid passing into said channels is permitted to reach the outside of said housing.

4,395,382

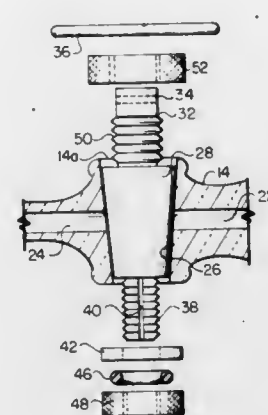
GLASSWARE STOPCOCK WITH FREEZE EXTRACTOR

Robert J. Miskinis, 9758 Airport Vista Rd., Santee, Calif. 92071
Filed Sep. 25, 1981, Ser. No. 305,619

Int. Cl.³ B01L 11/00

U.S. Cl. 422-103

4 Claims



1. A glassware stopcock comprising the combination of:
a glass body member having an inlet and an outlet and a through passage communicating between the inlet and the outlet.
said body member having a tapered transverse bore intersecting said passage,
a smooth, reusable, substantially rigid polymeric, tapered stopcock plug member complementary to and rotatably mounted in and capable of sealing engagement in said bore, and rotatable between open and closed positions of said passage,
resilient retaining means mounted at the smaller (one) end of said plug for securing said plug in said bore,
said plug member having a threaded stem portion extending from the larger diameter end of said tapered plug and beyond said body member, means for rotating said plug member between said open and closed positions, and
a finger operable one piece retractor nut having a textured outer surface and mounted on said threaded stem (at the other end of said plug) and engageable with the glass body member for applying an axial force to break the sealing engagement of said plug for at least partially retracting said stem from said bore to enable the plug to be rotated between positions against said means and being smaller in length than said threaded stem portion.

4,395,383

APPARATUS FOR CONTROLLING TEMPERATURE BELOW 212 DEGREES FAHRENHEIT IN A STERILIZER CHAMBER

Edward M. Kackos, Belmar, N.J., assignor to Vernitron Corporation, Lake Success, N.Y.

Filed Sep. 19, 1980, Ser. No. 188,973

Int. Cl.³ A61L 2/06, 2/24

U.S. Cl. 422-112

4 Claims

1. Apparatus for sterilizing media in a chamber from a predetermined sub-atmospheric pressure correlation point below 212° F. comprising:
a closed sterilizing chamber for containing said media during sterilization;

4,395,385

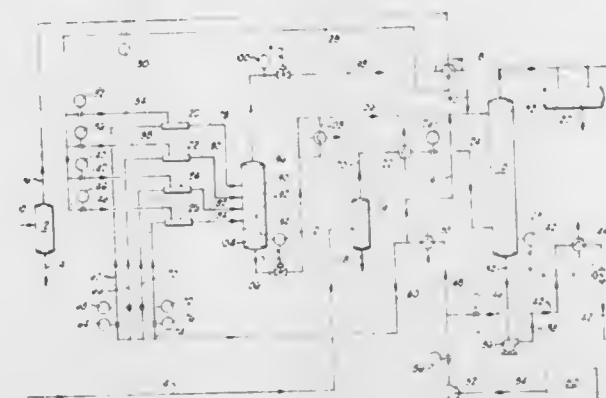
PROCESS FOR REMOVING HYDROGEN SULFIDE FROM SOUR GAS STREAMS

Charles J. Welsh, Oklahoma City, Okla., assignor to Kerr-McGee Refining Corporation, Oklahoma City, Okla.
Filed Nov. 24, 1980, Ser. No. 209,836

Int. Cl.³ B01D 53/34

U.S. Cl. 423-234

18 Claims



1. An improved process for removing hydrogen sulfide from sour gas streams to provide a sweet gas stream substantially free of hydrogen sulfide and an aqueous sodium hydrosulfide solution, the process comprising:

contacting a first sour gas stream containing hydrogen sulfide and carbon dioxide with an aqueous alkali metal hydroxide solution containing a stoichiometric excess of alkali metal hydroxide, based on the amount of hydrogen sulfide present in the first sour gas stream, at conditions preferential to the reaction between the alkali metal hydroxide and the hydrogen sulfide to form a mixed phase effluent;
separating the mixed phase effluent into a gas phase and a partially spent aqueous alkali metal hydroxide solution containing alkali metal hydrosulfide;
recovering the gas phase as a carbon dioxide-containing first sweet gas stream substantially free of hydrogen sulfide;
reactively contacting the partially spent alkali metal hydroxide solution with a substantially carbon dioxide-free, non-process-derived second sour gas stream containing hydrogen sulfide; and
recovering a second sweet gas stream and a substantially alkali metal hydroxide-free aqueous solution of alkali metal hydrosulfide.

4,395,386

APPARATUS FOR ISOTOPE EXCHANGE REACTION

Yamato Asakura; Teiji Suzuki, and Fumio Kawamura, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 12, 1980, Ser. No. 129,753

Claims priority, application Japan, Mar. 13, 1979, 54-29082

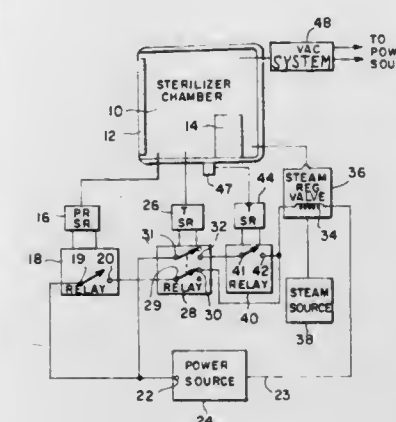
Int. Cl.³ B01D 59/33; G21C 19/32

U.S. Cl. 423-249

6 Claims

1. An apparatus for isotopic exchange reaction, which comprises a plurality of units arranged in succession, each unit comprising a mist-forming means for forming water containing hydrogen isotopes into a mist of fine water particles containing hydrogen isotopes, said mist having a fine particle size of from 0.1 μm to 50 μm, a catalyst bed for promoting isotope exchange reaction between at least one of hydrogen gas and deuterium gas, and the hydrogen isotopes in the mist of fine water particles supplied in a mixed state from the mist-forming means, means for removing the mist from the gas passed through the catalyst bed, a first conduit leading the water containing hydrogen isotopes to the mist-forming means, a second conduit for discharging the gas freed from the mist by the mist-forming means, and a third conduit for discharging the mist collected by the mist-forming means as a liquid

vacuum system means connected to said chamber for evacuating air and vapor therefrom, said vacuum system being operable continuously;
a source of steam operatively connected to said chamber for supplying steam thereto;
a steam regulator valve having electrically operable means and connected between said chamber and said source of steam for selectively injecting steam into said chamber and for cutting off steam supplied to said chamber;
a pressure sensor operatively disposed to sense a sub-atmospheric pressure in said chamber;
a temperature sensor operatively disposed to sense temperature in said chamber;
a first relay operable by said pressure sensor at a preset sub-atmospheric pressure and having normally open first switch contacts;



a second relay operable by said temperature sensor at a preset temperature and having second normally closed switch contacts; and
circuit means connecting said first and second switch contacts in series with said electrically operable means for activating said valve to pass steam into said chamber when the pressure in said chamber reaches said preset sub-atmospheric pressure, whereat said first switch contacts are closed, and wherein said valve is deactivated by opening said first switch contacts to cut off steam from said chamber when the pressure in said chamber, as sensed by said pressure sensor, rises above said preset sub-atmospheric pressure, and wherein the aforesaid cycle is continued until the temperature in said chamber has reached said preset temperature whereupon said temperature sensor operates said second relay to open said second switch contacts to prevent any further activation of said valve by said pressure sensor.

4,395,384

PROCESS FOR TREATING ZIRCON

Corbett J. Poynton, Perth, Australia, assignor to Allied Eneabba Limited, Perth, Australia

Continuation of Ser. No. 142,369, Apr. 17, 1980, abandoned.

This application Apr. 6, 1982, Ser. No. 365,884

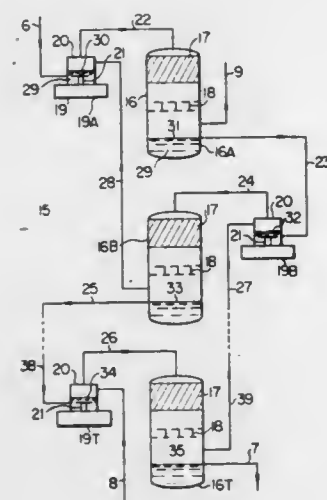
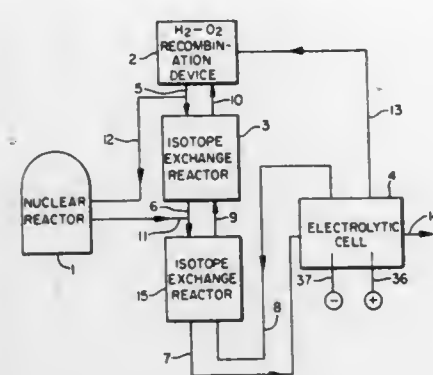
Int. Cl.³ C01G 25/02; C22B 34/14; C03C 23/00; C09C 1/28

U.S. Cl. 423-1

10 Claims

1. A process for the removal of surface impurities from zircon grains which comprises coating the zircon grains with a strong basic reagent, the coating being of an amount of 2 to 4% by weight of the zircon grains, calcining the coated grains at a temperature of at least 600° C. for a retention time of more than about 10 minutes and no more than about 20 minutes, and removing the calcinated surface impurities from the calcined grains.

containing hydrogen isotopes; the mist-forming means of a preceding unit being connected to the second conduit of a



succeeding unit and the third conduit of the preceding unit being connected to the first conduit of the succeeding unit.

4,395,387

METHOD FOR MANUFACTURING WATER GLASS CEMENT HARDENERS

Kurt Goltz, Exton, and William T. West, Strafford, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Oct. 13, 1981, Ser. No. 310,559

Int. Cl.³ C01B 25/36

U.S. Cl. 423—305

12 Claims

1. A method of making a condensed aluminum phosphate comprising dry mixing aluminum hydroxide with an ammonium phosphate and heating the mixture at an initial temperature which is sufficient to decompose the ammonium phosphate but below about 250° C. for longer than about two hours and then raising the temperature in stages so as to form by a solid state reaction a condensed aluminum phosphate which is useful as a hardener for water glass cements the X-ray diffraction pattern of said condensed aluminum phosphate showing a high peak at $2\theta = 61.1^\circ$, but not showing a peak at $2\theta = 11.2^\circ$.

4,395,388

SYNTHETIC CRISTOBALITE

James A. Kaduk, Naperville, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Nov. 16, 1981, Ser. No. 321,531

Int. Cl.³ C01B 33/12, 33/00

U.S. Cl. 423—339

7 Claims

1. A method for preparing cristobalite, which comprises: (1) preparing a mixture containing sources for an oxide of silicon and for an oxide of boron, a base or precursor of such base, a polyhydric alcohol, and water, wherein the composition of the mixture of initial reactants in terms of mole ratios of oxides is: $\text{SiO}_2/\text{B}_2\text{O}_3$: 0.5–200 $\text{R}(\text{OH})_n/\text{B}_2\text{O}_3$: 0.01–20 $\text{M}_{2n}\text{O}/\text{B}_2\text{O}_3$: 0.05–10

$\text{H}_2\text{O}/\text{SiO}_2$: 2–5000

wherein R is a polyvalent hydrocarbyl radical of 2 to about 5 carbon atoms, n is an interger of 2 to about 4, and M is at least one alkali or alkaline earth metal cation having a valence of v, or ammonium; and (2) maintaining the mixture at suitable reaction conditions to effect formulation of the cristobalite, said reaction conditions comprise a pH of the slurry prior to crystallization that falls within the range of about 9.0 to about 13.5, a reaction temperature within the range of about 30° C. to about 300° C. and a pressure of at least the vapor pressure of water at the reaction temperature.

4,395,389

CHLOROSILANE DISPROPORTIONATION PROCESS

Kishankumar K. Seth, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Mar. 1, 1982, Ser. No. 353,491

Int. Cl.³ C01B 33/04, 33/107

U.S. Cl. 423—341

14 Claims

1. A process for the redistribution of one or more of trichlorosilane, dichlorosilane, and monochlorosilane, said process comprising the steps of:

- passing such chlorosilane over a catalyst bed of polyvinyl cyclic, tertiary amine hydrocarbons having nitrogen in the ring, said hydrocarbons being selected from polyvinylpyrrolidone, polyvinylpyrrolidine, polyvinylpyridine, and substituted analogs thereof where the substituent groups do not interfere with catalyst activity and which are essentially homopolymers, for a period of time sufficient to produce a silane containing less chlorine than is contained in the chlorosilane fed to the catalyst bed and a silane containing more chlorine than is contained in the chlorosilane fed to the catalyst bed; and
- separately recovering the silanes produced by redistribution.

4,395,390

PROCESS TO PRODUCE SULPHUR FROM TWO ACID GASES, BOTH CONTAINING HYDROGEN SULPHIDE AND ONE OF WHICH CONTAINS AMMONIA

Guy Desgrandchamps, Pau; Georges Kvasnikoff, Monein, and Claude Blanc, Pau, all of France, assignors to Scoiete Nationale Elf Aquitaine, Paris, France

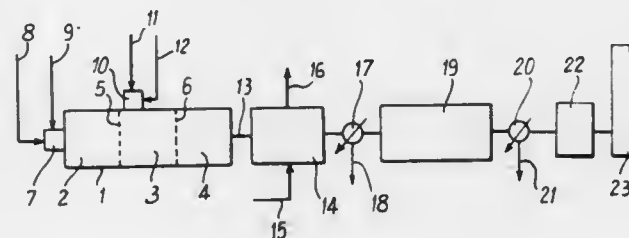
Continuation of Ser. No. 33,169, Apr. 25, 1979. This application Jul. 15, 1981, Ser. No. 283,614

Claims priority, application France, May 2, 1978, 78 12899

Int. Cl.³ B01D 17/04

U.S. Cl. 423—573 G

8 Claims



1. In a process for producing sulfur from two hydrogen sulfide containing gas streams, one of said gas streams containing ammonia, wherein said gas streams are subjected to a heat-reaction step followed by a gas-cooling step and at least one catalytic reaction step, the improvement which comprises, a heat reaction which comprises:

- burning the ammonia containing gas stream to form a first combustion mixture in a first heat-reaction chamber, with air introduced into the first heat-reaction chamber wherein the quantity of air is such that the ratio p, of the quantity of air injected into the first heat-reaction chamber to the quantity of air theoretically required for the total

combustion of the hydrogen sulfide and ammonia to sulfur dioxide and nitrogen, respectively, in said first heat-reaction chamber is between 0.4 and 1 and the temperature of the gases in said first heat-reaction chamber is maintained from 1350° to 1550° C.,

- passing said first combustion mixture to a second heat-reaction chamber;
- burning the gas stream free of ammonia in said second heat-reaction chamber with a quantity of air sufficient to provide a molar ratio of $\text{H}_2\text{S}/\text{SO}_2$ in the gas mixture leaving said second heat-reaction chamber of about 2/1 and maintaining the temperature of the gases in the second heat-reaction chamber at from 1000° to 1500° C.

4,395,391

UNSYMMETRICALLY SUBSTITUTED DICARBOXYLIC-ACID-BIS-(2,4,6-TRIHODO-ANILIDES), THEIR PREPARATION, AND X-RAY CONTRAST MEDIA CONTAINING SAME

Heinrich Pfeiffer, Wolfgang Mützel, and Ulrich Speck, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed Nov. 24, 1981, Ser. No. 324,368

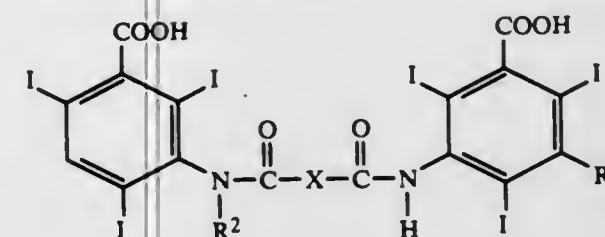
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1980, 3044814

Int. Cl.³ A61K 49/04; C07C 101/68

U.S. Cl. 424—5

14 Claims

1. A compound of the formula



wherein

X is C_{1-12} -alkylene optionally interrupted by 1–4 oxygen atoms;

R^1 is $-\text{NH}-\text{C}_{2-4}$ -alkanoyl, $-\text{CH}_2\text{NH}-\text{C}_{2-4}$ -alkanoyl, in both of which alkanoyl can optionally be substituted by 1 or 2 hydroxy or C_{1-4} alkoxy groups, or $-\text{CONHR}^3$, wherein R^3 is hydrogen, C_{1-4} alkyl or C_{1-5} alkyl substituted by 1–4 hydroxy or C_{1-4} -alkoxy groups;

R^2 is hydrogen or C_{1-4} alkyl; or a physiologically compatible salt thereof with an inorganic or organic base.

10. An x-ray contrast medium comprising an amount of a compound of claim 1 effective as an x-ray contrast agent and a pharmaceutically acceptable carrier.

4,395,392

METHOD FOR TREATING KIDNEY STONES

Laboratory L. Wolgemuth, Plain City, Ohio, assignor to Adria Laboratories Inc., Columbus, Ohio

Continuation-in-part of Ser. No. 162,477, Jun. 24, 1980, abandoned. This application Jun. 29, 1981, Ser. No. 278,014

Int. Cl.³ A61K 31/795

U.S. Cl. 424—78

2 Claims

1. A treatment for decreasing urinary calcium content which comprises orally administering to a host in need of such treatment, a therapeutically effective amount of an agent selected from water-soluble vinylbenzenesulfonic acid polymers having a viscosity average molecular weight in the range of from about 50,000 to about 500,000 and containing less than 5% by weight of polymers having a molecular weight of less than 20,000, wherein the polymers have from about 70 to over 90% molar monosulfonation and the nontoxic pharmaceutically acceptable salts thereof.

4,395,393

ARTIFICIAL BLOOD EMULSIFIERS

Irving R. Schmolka, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Aug. 10, 1981, Ser. No. 291,264

Int. Cl.³ A61K 31/74, 31/02

U.S. Cl. 424—78

6 Claims

1. An artificial blood comprising from 10 to 40 percent by weight of a perfluoro chemical, from 40 to 80 percent by weight physiological saline and from 2 to 8 percent by weight of a polyoxybutylene-polyoxyethylene block copolymer emulsifier, said emulsifier being a cogenetic mixture of conjugated polyoxybutylene-polyoxyethylene compounds containing in their structure oxybutylene groups, oxyethylene groups and an organic radical derived from a water-soluble organic compound containing a plurality of reactive hydrogen atoms and 2 to 12 carbon atoms; the compounds being characterized in that all of the oxybutylene groups are present in polyoxybutylene chains that are attached to the organic radical at the site of a reactive hydrogen atom thereby constituting a polyoxybutylene polymer; the oxyethylene groups being attached to the polyoxybutylene polymer in polyoxyethylene chains; the average molecular weight of the polyoxybutylene polymers in the mixture being between about 1200 and 3000, as determined by hydroxyl number, and the oxyethylene groups present constituting 60 to 85 percent by weight of the mixture.

4,395,394

USE OF LIPID AMINES FORMULATED WITH FAT OR LIPID EMULSIONS AS VACCINE ADJUVANTS

John S. Wolff, III, River Vale; George R. Hemsworth, Sparta, both of N.J., and Keith E. Jensen, Waterford, Conn., assignors to Pfizer Inc., New York, N.Y.

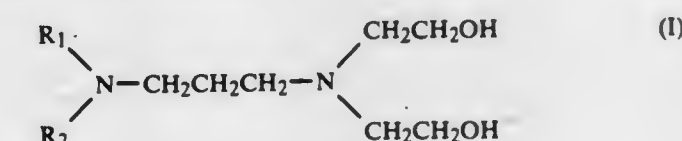
Division of Ser. No. 88,638, Oct. 26, 1979, Pat. No. 4,310,550. This application Oct. 23, 1981, Ser. No. 314,240

Int. Cl.³ A61K 39/00, 39/12

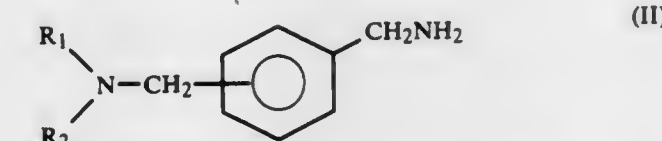
U.S. Cl. 424—88

12 Claims

1. A method of inducing or enhancing the immunogenic response of an antigen in man or an animal which comprises parenteral co-administration to said man or animal of said antigen and a pharmaceutical composition which comprises a compound of the formula



or



or a pharmaceutically acceptable acid addition salt thereof wherein R_1 and R_2 are each alkyl of 12 to 20 carbon atoms; and a lipid or fat emulsion comprising about 10% vegetable oil and about 1.2% phospholipids; in an amount to effectively induce or enhance the immunogenic response of said antigen.

4,395,395

DETECTION OF NON-A, NON-B HEPATITIS ASSOCIATED ANTIGEN

Edward Tabor, Rockville, and Robert J. Gerety, Potomac, both of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 192,291, Sep. 30, 1980, abandoned, which is a continuation-in-part of Ser. No. 40,921, May 21, 1979, Pat. No. 4,356,146. This application Nov. 10, 1981, Ser. No. 319,995

Int. Cl.³ A61K 39/12; C07G 7/00; A61K 37/00

U.S. Cl. 424-89 4 Claims

1. A vaccine effective against non-A, non-B hepatitis infection in mammals comprising an antigen isolated from a specimen of blood serum or liver tissue which has been shown to transmit non-A, non-B hepatitis.

4,395,396

BLOOD-COAGULATION-PROMOTING PREPARATION BASED ON HUMAN PROTEINS AND A METHOD OF PRODUCING THE SAME

Johann Eibl; Otto Schwarz; Fritz Elsinger, all of Vienna, and Anton Philipitsch, Ebenfurt, all of Austria, assignors to Immuno Aktiengesellschaft für Chemisch-medizinische Produkte, Vienna, Austria

Filed Jul. 14, 1981, Ser. No. 283,143

Claims priority, application Austria, Jul. 22, 1980, 3781/80

Int. Cl.³ A61K 35/14

U.S. Cl. 424-101 14 Claims

1. A blood-coagulation-promoting preparation based on human proteins, having a content of coagulation factors II, VII, IX and X and factor-VIII-inhibitor-by-passing-activity (FEIBA), which preparation is characterized in that it is free of thrombogenic activity up to at least 2 units of FEIBA per kg rabbit in the thrombosis inducing activity test according to Wessler, it is free of kallikrein activity and free of prekallikrein activator activity, measured in an aqueous solution of said preparation with a FEIBA concentration of up to at least 10 units per ml, it is affinity-chromatographically separable on dextran sulphate agarose by means of an NaCl gradient so as to obtain an eluate containing a protein with factor IX activity and an eluate containing a protein with FEIB-activity, said protein with factor IX activity eluting at a lower NaCl concentration than said protein with FEIB-activity, said eluate containing said protein with factor IX activity and said eluate containing said protein with FEIB-activity contain α - and β -globulins when electrophoretically separated thus obtaining a separation curve having a main peak in the α -globulin region corresponding to a content of 60 to 80% of the total protein, a shoulder of 10 to 20% of the total protein following thereupon, and a slightly pronounced peak in the β -globulin region corresponding to a content of 10 to 20% of the total protein following upon the shoulder-like course of said separation curve.

4,395,397

APPARATUS AND METHOD FOR KILLING UNWANTED CELLS

Howard M. Shapiro, West Newton, Mass., assignor to Sidney Farber Cancer Institute, Inc., Boston, Mass.

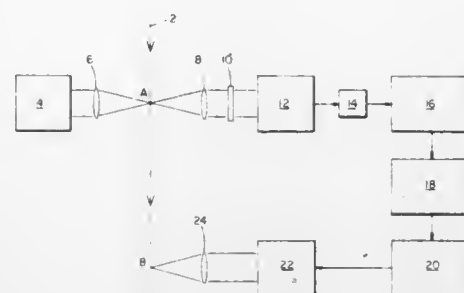
Filed Sep. 17, 1981, Ser. No. 303,141

Int. Cl.³ A61K 35/14; A61L 2/08; G21K 5/00

U.S. Cl. 424-101 4 Claims

2. A method for killing, in a flowing liquid stream containing a suspension of living cells, a subpopulation of unwanted cells having one or more characteristics distinguishing them from the rest of said living cells, said method comprising detecting the presence of unwanted cells in a flowing stream containing a suspension of living cells,

generating signals in response to the presence of said unwanted cells in said flowing stream, and



in response to said signals, providing pulses of laser light focused on said flowing stream to impinge on and kill said unwanted cells in said flowing stream.

4,395,398

DENTAL HEMOSTATIC COMPOSITION

Hiroji Yamamoto, Kawabe, Japan, assignor to Bee Brand Medico Dental Co., Ltd., Osaka, Japan

Filed Mar. 31, 1981, Ser. No. 249,726

Claims priority, application Japan, Apr. 2, 1980, 55-43973

Int. Cl.³ A61K 33/30, 33/26, 7/16, 33/06

U.S. Cl. 424-145 8 Claims

1. A liquid dental hemostatic composition consisting essentially of astringent, surfactant and carrier or diluent, said astringent being a member selected from the group consisting of aluminum chloride, tannic acid, ferric chloride, zinc chloride and potassium aluminum sulfate and the amount of aluminum chloride being from 5 to 30 w/v%, the amount of tannic acid being 10 to 35 w/v%, the amount of ferric chloride being 5 to 25 w/v%, the amount of zinc chloride being 10 to 45 w/v% and the amount of potassium aluminum sulfate being 1 to 10 w/v%, said surfactant being a member selected from the group consisting of cetyl pyridinium chloride, benzalkonium chloride, benzethonium chloride, sodium lauryl sulfate and a polyoxyethylene sorbitan fatty acid ester and the amount thereof being 0.01 to 2.0 w/v%, and said carrier or diluent being a member selected from the group consisting of water and a mixture of water with ethanol, propylene glycol, glycerin or a polyoxyethylene glycol having polymerization degree of 200 to 400, all percentages being based on the total composition.

4,395,399

GLYCOPEPTIDES AND METHOD FOR PREPARING SAME

Jury A. Ovchinnikov; Vadim T. Ivanov; Larisa I. Rostovtseva; Tatyana M. Andronova; Irina B. Sorokina, and Veronika P. Malkova, all of Moscow, U.S.S.R., assignors to Institut Bioorganicheskoi Khimii Imeni M.M. Shemyakina Akademii Nauk SSSR, Moscow, U.S.S.R.

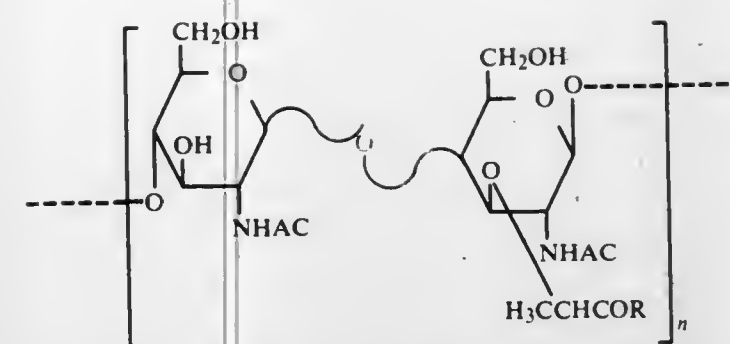
Filed Nov. 1, 1978, Ser. No. 956,538

Claims priority, application U.S.S.R., Nov. 2, 1977, 2543268

Int. Cl.³ A61K 37/02; C07C 103/52; C07G 7/00

U.S. Cl. 424-177 9 Claims

1. Glycopeptides of the general formula:

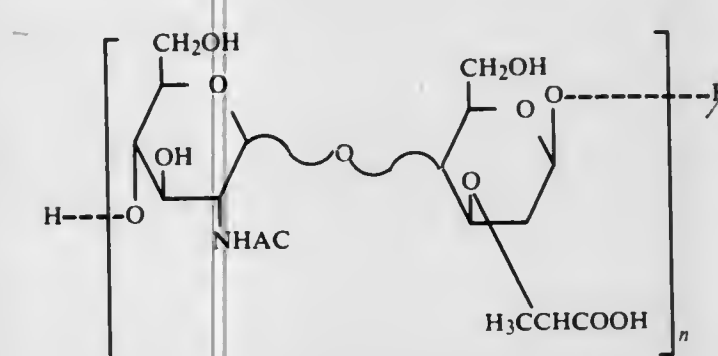
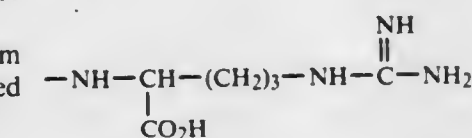


where $n=1$ or 2 ; R is a residue of a linear peptide of 2 to 5 amino acids and Ac is acetyl.

8. A method of inhibiting the growth of tumors in mammals which comprises administering thereto an effective amount of a compound as claimed in claim 1.

9. A method for preparing glycopeptides as claimed in claim 1, 2, 3, 4, 5, 6 or 7 comprising condensation of non-blocked muramyl-containing N-acetyl aminosugars of the formula:

in which:
R is



wherein $n=1$ or 2 and Ac is acetyl with protected linear peptides as defined in, said reaction proceeding by activation of the moiety of said unprotected aminosugars of formula II and participation of these activated aminosugars in the coupling reaction.

4,395,400

NONAPEPTIDE, A PROCESS FOR ITS PREPARATION, AN AGENT CONTAINING IT AND ITS USE

Wolfgang König, Hofheim am Taunus; Rolf Geiger, Frankfurt am Main, and Jürgen K. Sandow, Königstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

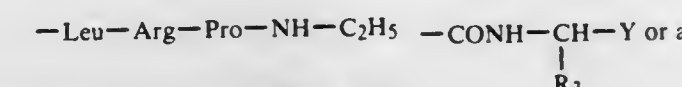
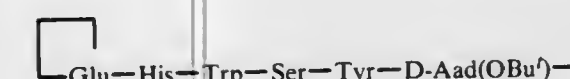
Filed Jun. 1, 1981, Ser. No. 268,677

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1980, 3020941

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424-177 4 Claims

1. The peptide of the formula



in which -D-Aad(OBu^t)- represents D- α -aminoadipic acid δ -tert.-butyl ester.

4,395,401

RENALLY ACTIVE DIPEPTIDES

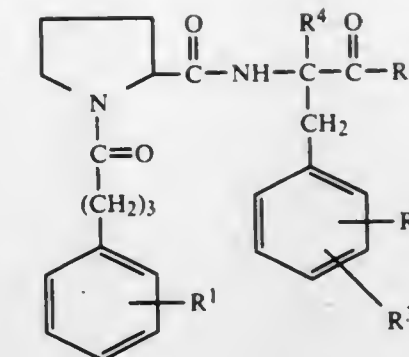
Francis R. Pfeiffer, Cinnaminson, N.J., assignor to SmithKline Beckman Corporation, Philadelphia, Pa.

Filed Sep. 9, 1981, Ser. No. 300,546

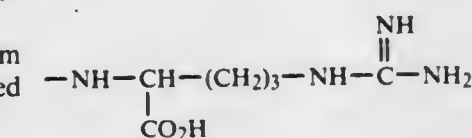
Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424-177 11 Claims

1. A chemical compound of the structural formula:



in which:
R is



wherein $n=1$ or 2 and Ac is acetyl with protected linear peptides as defined in, said reaction proceeding by activation of the moiety of said unprotected aminosugars of formula II and participation of these activated aminosugars in the coupling reaction.

4,395,402

ANALGESIC AGENT

Hamao Umezawa; Tomio Takeuchi, both of Tokyo; Takaaki Aoyagi, Fujisawa; Mitsugu Hachisu, Tokyo; Kenji Kawamura, Ohiso; Shunzo Fukatsu, and Yasuharu Sekizawa, both of Tokyo, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kankyu Kai, Japan

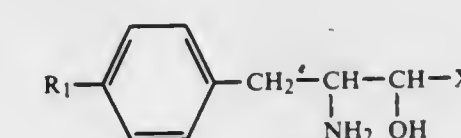
Filed Sep. 21, 1981, Ser. No. 303,938

Claims priority, application Japan, Sep. 24, 1980, 55-131583

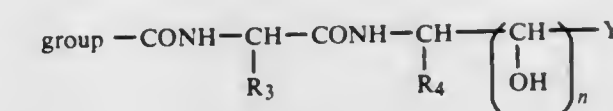
Int. Cl.³ A61K 37/00

U.S. Cl. 424-177 6 Claims

1. A method of therapeutically treating an animal feeling pain which comprises administering to the animal a compound of the formula (I):



wherein R_1 denotes a hydrogen atom or a hydroxyl group, X denotes a group -COR₂ where R_2 is a hydroxyl group, a lower alkoxy group, a benzyloxy group, an amino group or a lower alkyl mono- or di-substituted amino group, or X denotes a group -CH₂OH, a group



where R_3 and R_4 are equal to each other or are different from each other and are each a hydrogen atom, an alkyl group of 1 to 7 carbon atoms, a hydroxyalkyl group containing 1 to 7 carbon atoms, a mercaptoalkyl group containing 1 to 7 carbon atoms, a carboxyalkyl group containing 2

to 8 carbon atoms, an aminoalkyl group containing 1 to 7 carbon atoms, a guanidyl-N-alkyl group containing 2 to 4 carbon atoms, an alkylmercaptoalkyl group containing 2 to 8 carbon atoms, a carboxylalkyl group containing 2 to 8 carbon atoms, an aryl group, especially phenyl, an aralkyl group, especially phenyl-(C₁-C₄)alkyl, or a substituted aralkyl group, and Y is a group —CH₂OH, a group —COR₂ or a group —CH₂COR₂ where R₂ is as defined above, n is zero or 1, and the asymmetric carbon atoms present in the compound may take the R-configuration or the S-configuration or a combination thereof in a non-toxic amount sufficient to reduce or eliminate the pain.

4,395,403

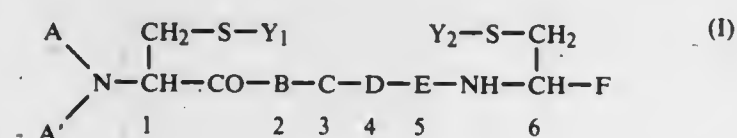
NOVEL POLYPEPTIDES, PROCESSES FOR THEIR PRODUCTION, PHARMACEUTICAL COMPOSITIONS COMPRISING SAID POLYPEPTIDES AND THEIR USE
Wilfried Bauer, Lampenberg, and Janos Pless, Basel, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
Continuation-in-part of Ser. No. 208,888, Nov. 21, 1980, abandoned. This application Nov. 16, 1981, Ser. No. 321,663
Claims priority, application Switzerland, Nov. 27, 1979, 10524/79; Jun. 13, 1980, 4574/80

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

21 Claims

1. A polypeptide of formula (I)



wherein

A is C₁-12 alkyl, C₇-10 phenylalkyl or a group of formula RCO—, whereby

(i) R is hydrogen, C₁-11 alkyl, phenyl or

C₇-10 phenylalkyl, or

(ii) RCO— is

(a) an L- or D-phenylalanine residue optionally ring-substituted by halogen, NO₂, NH₂, OH, C₁-3 alkyl and/or C₁-3 alkoxy

(b) —Asn— or the residue of a natural α-amino acid having a hydrocarbyl side chain other than defined under (a) above or of a corresponding D-amino acid, or

(c) a dipeptide residue in which the individual amino acid residues are the same or different and are selected from those defined under (a) and/or (b) above, the α-amino group of amino acid residues (a) and (b) and the N-terminal amino group of dipeptide residues (c) being optionally mono- or di-C₁-12 alkylated,

A' is hydrogen or, when A is C₁-12 alkyl or C₇-10 phenylalkyl, also C₁-12 alkyl or C₇-10 phenylalkyl,

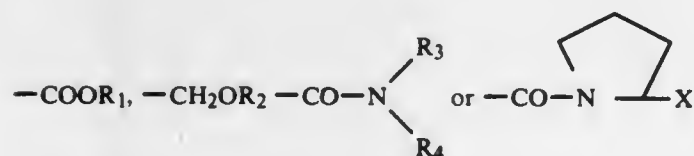
B is —Phe— optionally ring-substituted by halogen, NO₂, NH₂, OH, C₁-3 alkyl and/or C₁-3 alkoxy,

C is —(L)— or —(D)—Trp— optionally α-N-methylated and optionally benzene-ring-substituted by halogen, NO₂, NH₂, OH, C₁-3 alkyl and/or C₁-3 alkoxy,

D is —Lys— optionally α-N-methylated and optionally ε-N-C₁-3 alkylated,

E is —Thr— or —Ala— each in (D)- or (L)- form and each being optionally α-N-methylated,

F is a group of formula



wherein

R₁ is hydrogen or C₁-3 alkyl,

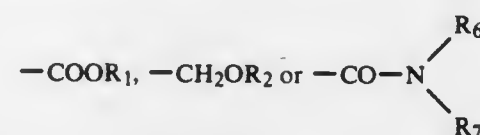
R₂ is hydrogen or the residue of a physiologically acceptable, physiologically hydrolysable ester,

R₃ is hydrogen, C₁-3 alkyl, phenyl, benzyl or C₉-10 phenylalkyl,

R₄ is hydrogen, C₁-3 alkyl or, when R₃ is hydrogen or methyl, also a group of formula —CH(R₅)—X wherein

R₅ is hydrogen, —(CH₂)₂—OH, —(CH₂)₃—OH, —CH₂—OH, —CH(CH₃)—OH, isobutyl or benzyl and

X is a group of formula



wherein

R₁ and R₂ have the meanings given above,

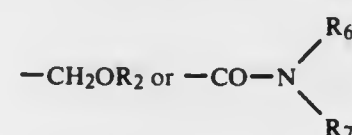
R₆ is hydrogen or C₁-3 alkyl and

R₇ is hydrogen, C₁-3 alkyl, phenyl or C₇-10 phenylalkyl, the group —CH(R₅)—X having the D- or L-configuration, and

Y₁ and Y₂ are each hydrogen or together represent a direct bond,

whereby the residues in the 1- and 6-position each independently have the L- or D-configuration,

with the proviso (i) that D- and/or L-cysteine residues are present at the 1- and 6-positions only, and (ii) that when R₅ is benzyl, X is a group of formula



or a group of formula —COOR₁, wherein R₁ is C₁-3 alkyl, or a pharmaceutically acceptable acid addition salt or complex thereof.

4,395,404

SYNTHETIC THYMOSIN β₃ AND β₄ ANALOGUES
Teresa L. K. Low, Annandale, Va., and Allan L. Goldstein, Washington, D.C., assignors to George Washington University, Washington, D.C.

Filed May 14, 1982, Ser. No. 378,463

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

13 Claims

1. A peptide of the formula



wherein R represents H-Q, Q-Ala-, Q-Gln-Ala-, Q-Glu-Lys-Gln-Ala-, Q-Gln-Glu-Lys-Gln-Ala-, Q-Glu-Gln-Glu-Lys-Gly-Ala-, Q-Ile-Glu-Gln-Glu-Lys-Gln-Ala-, Q-Thr-Ile-Glu-Gln-Glu-Lys-Gln-Ala-, Q-Glu-Thr-Ile-Glu-Gln-Glu-Lys-Gln-Ala-, or Q-Gln-Sar-wherein Q represents H or acyl; and R₁ represents —OH, —A-C or —A-B-C wherein A represents Asp or Asn, B represents —Glu-Ile-Thr- and C represents —Ala-Lys-Thr-OH.

and the pharmaceutically acceptable acid or base addition salts thereof.

4,395,405

ALKYL-KETOHEXOPYRANOSIDE DERIVATIVES AND METHOD OF USE

Kanji Noda, Chikushino; Akira Nakagawa, Tosu; Yasushi Haraguchi, Kamimine; Koichiro Ueda; Munehiko Hirano, both of Tosu; Itsuo Nishioka, Fukuoka; Akira Yagi, Kasuya; Akihiko Koda, Gifu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co., Inc., Tosu, Japan
Filed May 15, 1980, Ser. No. 150,129

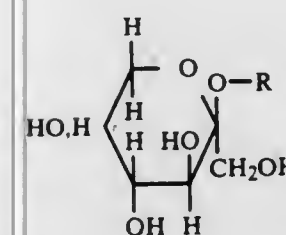
Claims priority, application Japan, May 23, 1979, 54-64769

Int. Cl.³ A61K 31/70; C07H 15/04

U.S. Cl. 424—180

5 Claims

3. The method of selectively treating the production of antibody immune globulins causing allergic diseases without inhibiting the production of immune globulins governing immune reaction by administering an antiallergic effective amount of a compound represented by the following general formula



wherein R is an alkyl group having 3-6 carbon atoms, the compounds excluding the D-fructose derivative wherein R is n-propyl group.

4,395,406

5-HALOPYRIMID-2-ONES

Mikkel J. Gacek; Reidar Oftebro; Soren Laland, and Kjell Undheim, all of Oslo, Norway, assignors to Nyegaard & Co. A/S, Norway

Continuation of Ser. No. 61,269, Jul. 27, 1979, abandoned, which is a continuation of Ser. No. 937,579, Aug. 29, 1978, abandoned, which is a continuation of Ser. No. 732,189, Oct. 13, 1976, abandoned. This application Jul. 7, 1980, Ser. No. 166,600

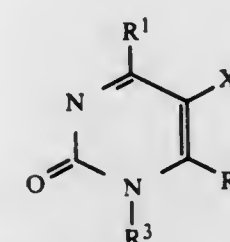
Claims priority, application United Kingdom, Oct. 16, 1975, 42509/75

Int. Cl.³ A61K 31/505; C07D 239/36, 239/56

U.S. Cl. 424—180

9 Claims

1. A compound of the formula:



wherein X represents a fluorine, chlorine or bromine atom; R¹ and R², which may be the same or different, each represent hydrogen or a group Alk or SAlk; and R³ represents a group Alk; Alk being an alkyl, alkenyl or alkynyl group having up to 4 carbon atoms, which group may carry one or more halogen atoms or oxo groups or optionally substituted hydroxy, mercapto, carboxyl, carboxamido or amino groups, wherein the optional substituent is a C₁-4 alkyl, alkenyl, or alkynyl group, with the proviso that R³ is other than a methyl or ethyl group; or salts thereof.

7. A pharmaceutical composition for the inhibition of the metaphase in the growth of malignant tumors and leukaemia, comprising in association with a pharmaceutical carrier or excipient, at least one compound as claimed in claim 1.

4,395,407

NOVEL PARASITICIDAL POUR-ON COMPOSITIONS
John M. Ballany, Cumberland, and Andrew R. Galbraith, Glasgow, both of Scotland, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

Filed Apr. 5, 1982, Ser. No. 365,700

Claims priority, application United Kingdom, May 8, 1981, 8114169; Nov. 16, 1981, 8134406

Int. Cl.³ A61K 31/675, 31/425

U.S. Cl. 424—200

19 Claims

1. A pour-on or spot-on composition for eradicating or controlling parasites in non-human animals, said compositions comprising

- (a) from 1 to 30% by weight of tetramisole and/or levamisole;
(b) from 2 to 15% by weight of phosmet; and
(c) one or more optionally substituted aliphatic carboxylic acids, having each a pK_a-value comprised between 0.6 and 6 in a molar excess of 1.5:1 to 12:1 over tetramisole and/or levamisole
(I) in a suitable solvent and/or carrier.

4,395,408

NOVEL STEROIDS

Vesperto Torelli, Maisons-Alfort; Roger Deraedt, Pavillons-sous-Bois, and Lucien Nedelec, Le Raincy, all of France, assignors to Roussel Uclaf, Paris, France

Filed Aug. 14, 1981, Ser. No. 292,794

Claims priority, application France, Nov. 21, 1980, 80 24749

Int. Cl.³ C07J 5/00; A01N 45/00; C07C 117/00

U.S. Cl. 424—238

13 Claims

1. A compound selected from the group consisting of (Z) 3α-amino-Δ¹⁷⁽²⁰⁾-5α-pregnene, (20S) 3α-amino-19-nor-5α-pregnane-20-ol and (20S) 3β-amino-19-nor-5α-pregnane-20-ol and their non-toxic, pharmaceutically acceptable acid addition salts.

6. A composition for the treatment of auto immuno maladies resulting from a deficiency of lymphocytes or malady of an organ comprising an amount of at least one compound of claim 1 in an amount sufficient to treat autoimmuno maladies and an inert carrier.

4,395,409

CARBAMOYLOXYAMINO-1,4-BENZODIAZEPINES AND MEDICAMENTS CONTAINING THESE COMPOUNDS

(I) Manfred Försch, Nauheim, and Hermann Gerhards, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 2, 1981, Ser. No. 269,689

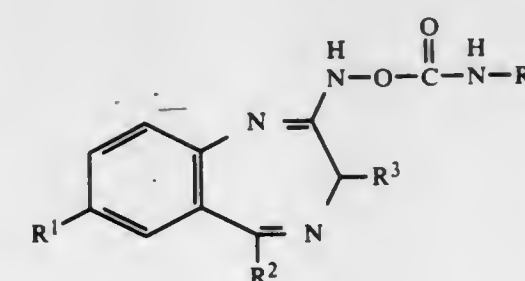
Claims priority, application Fed. Rep. of Germany, Jun. 4, 1980, 3021107

Int. Cl.³ C07D 243/20; A61K 31/55

U.S. Cl. 424—244

9 Claims

1. A carbamoyloxyamino-1,4-benzodiazepine of the formula



or of the formula

4,395,415

N-OXO-PYRIDIN-2-YL-DITHIO-(4-NITRO-2-TRICHLOROMETHYLBENZENE) AND A FUNGICIDAL FORMULATION CONTAINING SAME

Helmut Hagen, Frankenthal; Hans Ziegler, Mutterstadt; Celia J. Mappes, Westheim, and Ernst-Heinrich Pommer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 21, 1981, Ser. No. 256,128

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018716

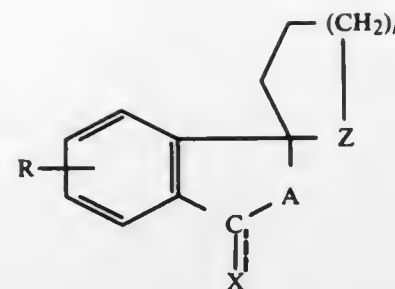
Int. Cl.³ C07D 213/71; A61K 31/44

U.S. Cl. 424-263

2 Claims

1. N-Oxo-pyridin-2-yl-dithio-(4-nitro-2-trichloromethylbenzene).

2. A fungicidal formulation comprising a carrier and/or diluent and from 0.1 to 95 weight percent of the compound of claim 1.



in which Z is $>N-R_1$ or $-CH_2-$, wherein R_1 is alkyl having 1 to 5 carbon atoms, phenyl or chlorophenyl, and in which

1. when Z is $>N-R_1$, n is 1, or 2,

the pair (A, $>C=X$) is selected from the group consisting of (S, C=O), (S, CH₂), (O, CH₂) and (O, CH-C₆H₅), and

R is hydrogen, halogen, one or two methoxy groups or $-CH=CH-CH=CH-$ connected to the 5 and 6 positions of the phenyl nucleus whereby to form a naphthyl nucleus, and

2. when Z is $-CH_2-$, n is 1 or 2,

A is oxygen,

$>C=X$ is $>C=O$ or $>C=S$, and

R is the same as defined above,

and the pharmacologically acceptable acid addition salts thereof when Z is $>N-R_1$, in combination with a pharmaceutically acceptable vehicle.

4,395,416

1-SPIRO ISOBENZOFURANIC AND 1-SPIRO ISOBENZOTHIOPHENIC DERIVATIVES THE PROCESS FOR PREPARING THE SAME AND THEIR USE IN THERAPEUTICS

Michel Langlois, Buc; Bernard P. Bucher, Marnes la Coquette; Philippe L. Dostert, Paris; Alain P. Lacour, La Varenne, and Gerard H. Moinet, Orsay, all of France, assignors to Delalande S.A., Courbevoie, France

Filed Jan. 21, 1982, Ser. No. 341,415

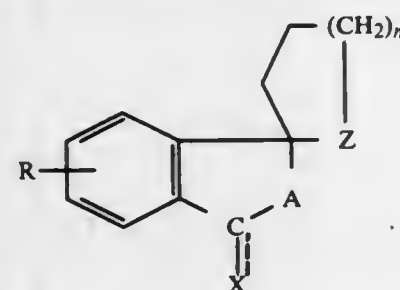
Claims priority, application France, Jan. 29, 1981, 81 01692; Jan. 14, 1982, 81 00518

Int. Cl.³ A61K 31/395; C07D 491/07

U.S. Cl. 424-267

13 Claims

1. A compound of the formula



in which Z is $>N-R_1$ or $-CH_2-$, wherein R_1 is alkyl having 1 to 5 carbon atoms, phenyl or chlorophenyl, and in which

1. when Z is $>N-R_1$, n is 1 or 2,

the pair (A, $>C=X$) is selected from the group consisting of (S, C=O), (S, CH₂), (O, CH₂) and (O, CH-C₆H₅), and

R is hydrogen, halogen, one or two methoxy groups or $-CH=CH-CH=CH-$ connected to the 5 and 6 positions of the phenyl nucleus whereby to form a naphthyl nucleus, and

2. when Z is $-CH_2-$, n is 1 or 2,

A is oxygen,

$>C=X$ is $>C=O$ or $>C=S$, and

R is the same as defined above, with the provisos that

(a) when $>C=X$ is $>C=O$, R is not hydrogen, and

(b) when the pair ($>C=X$, n) is ($>C=O$, 2), R is not 5-Br,

and the pharmacologically acceptable acid addition salts thereof when Z is $>N-R_1$.

13. An analgesic or anticonvulsant composition comprising a therapeutically effective amount of a compound of the formula

4,395,417

ANTIHYPERLIPIDEMIC COMPOSITIONS

Iris Hall; George Cocolas, both of Chapel Hill, and James M. Chapman, Jr., Ashville, all of N.C., assignors to Research Corporation, New York, N.Y.

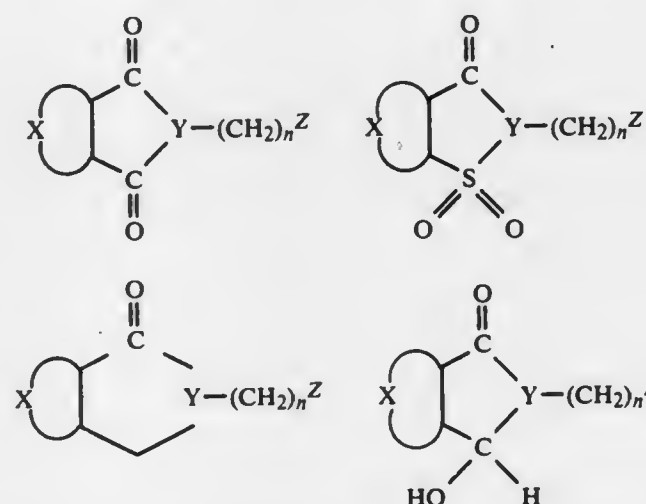
Filed Apr. 22, 1980, Ser. No. 142,678

Int. Cl.³ A61K 31/045, 31/19, 31/12

U.S. Cl. 424-270

14 Claims

1. Antihyperlipidemic compositions comprising a pharmaceutically acceptable carrier and, as the principal active ingredient, a compound of the group represented by the formulas:



wherein X is aryl, cycloalkyl, or cycloalkylene containing up to ten carbon atoms; Y is CH or N; Z is alkyl containing up to five carbon atoms, carboxyl, carboalkoxyl wherein the alkyl group contains up to four carbon atoms, acyl containing up to four carbon atoms, alkylene, aryl, aralkyl or aralkylene; n is 1 to 10; and further compounds wherein the group represented by X is replaced with at least one hydrogen on each of the carbon atoms adjacent the oxygen bearing functional groups and pharmaceutically acceptable acid; and alkali metal addition salts thereof.

4,395,418

PENEM-3-CARBOXYLIC ACID DERIVATIVES

Eiji Ohki; Sadao Oida; Akira Yoshida; Teruo Hayashi, and Shinichi Sugawara, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Filed Jun. 5, 1981, Ser. No. 271,010

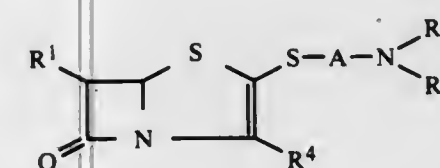
Claims priority, application Japan, Jun. 6, 1980, 55-76128; Jun. 23, 1980, 55-84981

Int. Cl.³ A61K 31/425; C07D 499/00

U.S. Cl. 424-270

8 Claims

1. Compounds of formula (I):



wherein:

R^1 represents a 1-hydroxyethyl group;

R^2 represents a hydrogen atom or a C_1-C_2 alkyl group;

R^3 represents a hydrogen atom, a formimidoyl group, or an acetimidoyl group;

A represents an ethylene or trimethylene group having one methyl group in the α -position in its carbon chain; and

R^4 represents a carboxy group or a pivaloyloxymethoxycarbonyl group; and pharmaceutically acceptable salts thereof.

4,395,419

PHARMACOLOGICALLY ACTIVE COMPOUNDS

Graham J. Durant; Charon R. Ganellin, both of Welwyn Garden City, and Rodney C. Young, Bengoe, all of England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Division of Ser. No. 65,478, Aug. 10, 1979, Pat. No. 4,308,275, which is a division of Ser. No. 914,329, Jun. 12, 1978, Pat. No. 4,189,488, which is a division of Ser. No. 773,590, Mar. 2, 1977, Pat. No. 4,118,502. This application Aug. 10, 1981, Ser. No. 291,196

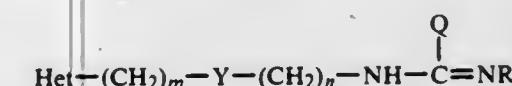
Claims priority, application United Kingdom, Mar. 11, 1976, 9750/76

Int. Cl.³ A61K 31/425; C07D 285/10, 285/12

U.S. Cl. 424-270

10 Claims

1. A compound of the formula



wherein Het is a thiadiazole ring, which ring is optionally substituted by lower alkyl, halogen, lower alkoxy, hydroxy, trifluoromethyl, hydroxymethyl or amino; m is 0, 1 or 2 and n is 2 or 3 provided that the sum of m and n is 3 or 4; Y is sulphur, methylene or oxygen; R is hydrogen, lower alkyl or Het-(CH₂)_m-Y-(CH₂)_n where Het, m, n and Y are as defined above; Q is $-CO_2H$ or $-SO_2H$; or a pharmaceutically acceptable acid addition salt thereof.

9. A method of blocking histamine H₂-receptors which comprises administering to an animal in need thereof in an effective amount to block said receptors a compound of claim 1.

4,395,420

METHOD AND COMPOSITION FOR TREATING PRURITIS

Joel E. Bernstein, 615 Brierhill Rd., Deerfield, Ill. 60015

Filed Dec. 9, 1981, Ser. No. 328,955

Int. Cl.³ A61K 31/02, 31/33, 31/135, 31/335

U.S. Cl. 424-278

16 Claims

1. A method of treating pruritis in humans in need of such treatment comprising topically applying a therapeutically

effective amount of doxepin or a physiologically acceptable acid addition salt thereof.

4,395,421

DISODIUM CROMOGLYCATE FORMULATIONS

James E. Taylor, Loughborough, and Neil A. Stevenson, Nantant, both of England, assignors to Fisons Limited, Ipswich, England

Continuation of Ser. No. 830,617, Sep. 6, 1977, abandoned. This application Aug. 16, 1979, Ser. No. 67,104

Claims priority, application United Kingdom, Oct. 16, 1976, 43054/76

Int. Cl.³ A61K 31/35

U.S. Cl. 424-283

14 Claims

1. Disodium cromoglycate produced by wet granulation in a form having a bulk density of from 0.34 to 0.7 g per ml. and containing less than 5% by weight of any other compound, with the exception of water.

4,395,422

SPRAY DRIED VITAMIN E POWDER

Douglass N. Schmidt, Grosse Ile, Mich., and Frank Fischetti, Jr., Flushing, N.Y., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Apr. 6, 1981, Ser. No. 251,076

Int. Cl.³ A01N 43/16

U.S. Cl. 424-284

8 Claims

1. A vitamin E powder suitable for the preparation of direct compression vitamin tablets comprising 20 to 60 percent by weight Vitamin E, 0.5 to 2.0 percent by weight silicon dioxide having a particle size of 1 millimicron to 1 micron, 1 to 25 percent by weight hydrolyzed gelatin, and about 20 to 30 percent by weight caseinate, with the proviso that the weight ratio of caseinate to gelatin be greater than 1:1 all weight based on the total weight of powder.

4,395,423

POLYCYCLIC CYANOKETONES

Helmut C. Neumann, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

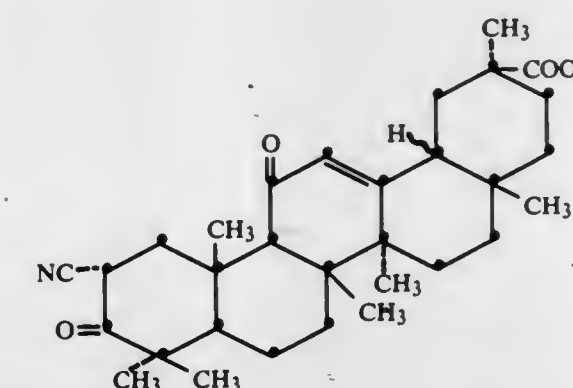
Continuation of Ser. No. 950,254, Oct. 10, 1978, abandoned. This application Dec. 6, 1979, Ser. No. 100,983

Int. Cl.³ C07C 121/48; A61K 31/275

U.S. Cl. 424-304

2 Claims

1. A composition for the prevention and/or healing of gastric or intestinal ulcers in a mammal which comprises a therapeutically effective amount of a compound having the formula



wherein R is hydrogen or lower-alkyl of one to three carbon atoms; a 3-lower-alkanoyl enol ester thereof wherein lower-alkanoyl has from two to four carbon atoms; or an alkali metal salt thereof incorporated in a pharmaceutical carrier suitable for oral administration.

4,395,424

COSMETIC COMPOSITION AND METHOD OF MAKING THE SAME

Ruby G. Veney, 4520 Pine St., Philadelphia, Pa. 19143
Continuation-in-part of Ser. No. 21,551, Mar. 19, 1979, Pat. No. 4,255,452. This application Feb. 23, 1981, Ser. No. 236,989
The portion of the term of this patent subsequent to Mar. 10, 1998, has been disclaimed.
Int. Cl.³ A61K 47/00

U.S. Cl. 424—359

3 Claims

1. A composition for topical application to the body consisting essentially of a mixture of about 25 to 35 parts by weight, non-fat dry milk solids, about 15 to 25 parts by weight witch hazel, about 35 to 45 parts by weight olive oil, about 150 to 200 parts by weight water and about 1 to 2 parts by weight polyoxyethylene having a hydroxyl number of from about 40 to about 60.

4,395,425

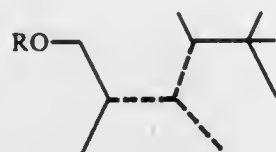
USE OF PRINS REACTION PRODUCTS OF DIISOAMYLENE DERIVATIVES TO AUGMENT OR ENHANCE THE AROMA OR TASTE OF FOODSTUFFS

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 267,850, May 28, 1981, Pat. No. 4,359,412.
This application Jun. 24, 1982, Ser. No. 391,588
Int. Cl.³ A23L 1/226

U.S. Cl. 426—3

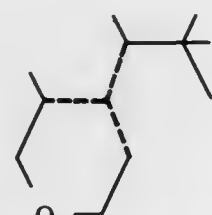
8 Claims

1. A process for augmenting or enhancing the aroma or taste of a foodstuff or chewing gum comprising the step of adding to said foodstuff or chewing gum from about 0.2 parts per million up to about 150 parts per million based on total foodstuff composition or chewing gum composition of a mixture of compounds defined according to the structure:



wherein R represents hydrogen or C₂-C₄ acyl and wherein in each of the compounds of the mixture, one of the dashed lines is a carbon-carbon double bond and each of the other of the dashed lines are carbon-carbon single bonds.

6. A process for augmenting or enhancing the aroma or taste of a foodstuff or chewing gum composition comprising the step of adding to said foodstuff or chewing gum composition from about 0.2 parts per million up to about 150 parts per million based on total food composition or a chewing gum composition of a mixture of compounds defined according to the structure:



wherein in the mixture in each of the molecules one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,395,426

DRY MIX FOR BREAD

Steve T. Fan, Maple Grove, Minn., assignor to General Mills, Inc., Minneapolis, Minn.
Filed Jul. 27, 1981, Ser. No. 287,457
Int. Cl.³ A21D 10/00

U.S. Cl. 426—62

7 Claims

1. A dry mix for preparing bread without requiring a kneading step, said mix comprising:
A. flour having an average vital gluten content of at least about 8% by weight;
B. about 2 parts to 10 parts by weight of active dry yeast per 100 parts flour;
C. about 1 part to 10 parts by weight of a chemical leavening agent per 100 parts flour;
D. 0.5 to 1.5 parts by weight per 100 parts of flour of a propylene glycol alginate; and
E. about 2 parts to 10 parts of a gum member by weight per 100 parts flour selected from the group consisting of karaya gum, guar gum, xanthan gum, high viscosity carboxymethyl cellulose, high viscosity carrageenan gum, and mixtures thereof.

4,395,427

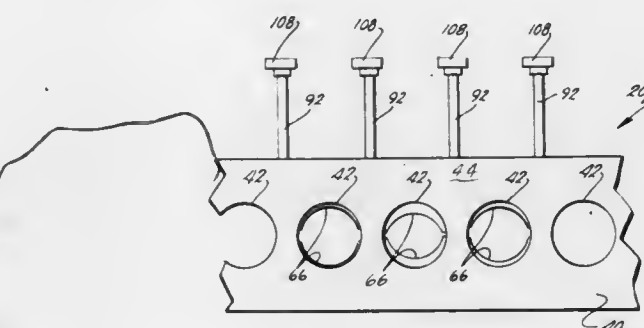
METHOD AND APPARATUS FOR DEPOSITING DOUGH ON A CONVEYOR

Harry A. Fischer, Ada; Paul J. Koepnick, Grand Rapids; Thomas A. Dennis, Nunica, and Joseph R. Anderson, Ada, all of Mich., assignors to Werner Lehara, Inc., Grand Rapids, Mich.

Filed May 12, 1981, Ser. No. 262,999
Int. Cl.³ A23P 1/00; B29F 3/04

U.S. Cl. 426—231

23 Claims



1. A method of dispensing food product mix onto a conveyor or the like to make shaped food products, said method comprising the steps of:
depositing a quantity of mix into a hopper, said hopper being of the type having a plurality of discharge apertures and a plurality of dies, each supported at one of said apertures; forcing the mix through said apertures and into said dies; severing the mix to form a shaped product which is deposited on the conveyor;
monitoring the flow of mix through said dies and the food product shapes; and
varying the flow area at selected ones of said apertures in a balanced, uniform fashion from complementary portions of the periphery of said selected ones of said apertures so that the weight of the food product shapes deposited onto the conveyor is maintained substantially the same from each of said dies.

4,395,428

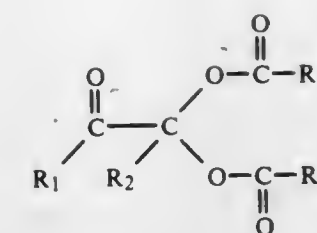
PROCESS FOR PREPARING COOKED MEAT HAVING REDUCED LEVELS OF N-NITROSAMINES

Richard F. Theiler, Scottsdale, Ariz., assignor to Armour and Company, Phoenix, Ariz.
Filed Jul. 27, 1981, Ser. No. 286,743
Int. Cl.³ A23B 4/02, 4/14

U.S. Cl. 426—266

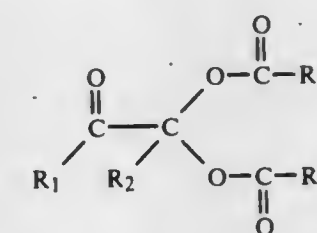
17 Claims

1. A process for preparing a cured meat product which, when cooked for consumption, contains substantially reduced levels of N-nitrosamines, comprising the steps of introducing into uncured meat a nitrite-containing curing composition, a tocopherol, and an inhibitor substance selected from the group consisting of preneutralized liquid smoke, buffered liquid smoke, reducing sugar, and mixtures thereof, and processing said meat to effect curing.



wherein R₁ and R₂ are methyl radicals or one of them is a methyl radical and the other is an ethyl radical and R₃ and R₄ are the same or different C₁ to C₁₈ alkyl radicals.

6. A method of imparting or enhancing the effect of a vicinal diketone in a foodstuff of which said vicinal diketone forms an essential element of the flavor or aroma, which method comprises incorporating into said foodstuff, prior to cooking, about 1 to 2000 ppm by weight of an alpha-keto diacyloxy compound having the structural formula



wherein R₁ and R₂ are methyl radicals or one of them is a methyl radical and the other is an ethyl radical and R₃ and R₄ are the same or different C₁ to C₁₈ alkyl radicals, whereby said vicinal diketone is generated substantially continuously during the cooking cycle.

4,395,429

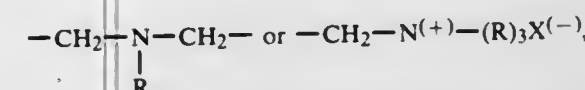
EXPANDABLE FOOD COMPOSITION

Jean-Claude Campagne, and Guy Frappier, both of Melle, France, assignors to Rhone-Poulenc Industries, Paris, France
Filed Mar. 23, 1981, Ser. No. 246,158
Claims priority, application France, Mar. 21, 1980, 80 06305
Int. Cl.³ A23J 3/02; A23G 9/04; A23C 9/154

U.S. Cl. 426—271

29 Claims

1. A storage-stable composition of matter comprising: (i) a purified, undenatured lactoserum protein fraction obtained by extracting lactoserum first with at least one anion exchange resin and then with silica, or by extracting lactoserum first with silica and then with at least one anion exchange resin, the lactoserum being contacted with said anion exchange resin at a pH between about 4 and about 7.5 and at a temperature between about 0° and about 50° C., whereby protein becomes fixed to said anion exchange resin and to the silica, and then eluting the fixed protein from the anion exchange resin and from the silica, said anion exchange resin comprising a support of alumina or silica, coated with less than 20 mg/m² of a cross-linked polymer film bearing tertiary amine functional groups or quaternary ammonium salts having the general formulae



wherein each R, which may be identical or different, represents an alkyl or hydroxyalkyl radical having 1 to 4 carbon atoms and X is a mineral or organic anion, said silica and said support having a grain size between about 4 μm and 5 mm, a specific surface of about 5 to 150 m²/g, a pore volume of about 0.4 to 2 cm³/g and a pore diameter between about 250 and 2500 Å; and (ii) a Xanthomonas hydrophilic colloid; sufficient amounts of (i) and (ii) being present such that said composition is capable of being whipped to form a stable edible food substrate.

4,395,430

DIKETONE GENERATORS

Brian Byrne, Hamburg, and Robert S. DeSimone, Oakland, both of N.J., assignors to Hercules Incorporated, Wilmington, Del.
Filed Jun. 24, 1981, Ser. No. 276,630

Int. Cl.³ C07C 69/76, 67/02; C09F 5/08; A23L 1/226

U.S. Cl. 426—534

15 Claims

1. An alpha-keto diacyloxy compound having the structural formula

4,395,431

PROCESSING OF HOP RESINS AND SIMILAR MATERIALS

David G. Lance, St. Andrews, and Raymond N. Skinner, Greensborough, both of Australia, assignors to Carlton and United Breweries Limited, Carlton, Australia

Filed May 14, 1980, Ser. No. 149,566

Claims priority, application Australia, May 15, 1979, PD8792; Jan. 22, 1980, PE2085

Int. Cl.³ C12C 9/02

U.S. Cl. 426—600

7 Claims

1. A method for producing a hop resin product comprising the steps of:
contacting an inert hydrophobic support with a solvent-free two phase system comprising a hop resin extract and an aqueous phase to effect coating of said resin onto said support; and
separating the resin-coated support from said system.

4,395,432

β-ALUMINA COATING

Frank D. Rizzelli, and Kimon Papadopoulos, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Dec. 16, 1981, Ser. No. 331,107

Int. Cl.³ B05D 1/08, 5/12

U.S. Cl. 427—34

10 Claims

1. A method of coating a substrate with β-alumina, a compound of alumina and an alkali metal oxide, comprising:
(1) forming a powdered mixture of about 80 to about 95% by weight β-alumina and about 5 to about 20% by weight of a carbonate of an alkali metal; and
(2) spraying said powdered mixture through a source of heat sufficient to melt it, and onto said substrate.

4,395,433

METHOD FOR MANUFACTURING A SEMICONDUCTOR DEVICE HAVING REGIONS OF DIFFERENT THERMAL CONDUCTIVITY

Yoshihide Nagakubo, and Susumu Kohyama, both of Kawasaki, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 18, 1980, Ser. No. 207,934

Claims priority, application Japan, Nov. 22, 1979, 54-150731
Int. Cl.³ H01L 21/26, 21/268

U.S. Cl. 427—35

10 Claims



1. In a method for manufacturing a semiconductor device, the process comprising the steps of:

- forming an insulating film on selected portions of a semiconductor substrate; and
- tending to accumulate polysilicon on the entire surface of the insulating film and the exposed portions of the semiconductor substrate simultaneously with or followed by exposing said polysilicon to an energy beam, whereby the polysilicon tending to accumulate on the exposed portions of the semiconductor substrate is crystallized to silicon and the polysilicon tending to accumulate on the surface of the insulating film is not crystallized but scattered by the energy beam.

4,395,434

METHOD FOR IMPROVING SURFACE PROPERTIES OF SHAPED ARTICLES OF SYNTHETIC RESINS

Kiyoshi Imada, Omiya, Susumu Ueno, and Hirokazu Nomura, both of Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 14, 1981, Ser. No. 301,536

Claims priority, application Japan, Sep. 16, 1980, 55-128093; Sep. 16, 1980, 55-128094

Int. Cl.³ B05D 3/04; B08B 17/02

U.S. Cl. 427—38

10 Claims

1. A method for modifying the surface properties of a shaped article of a synthetic resin which comprises exposing the surface of the shaped article to a low temperature plasma generated in a gaseous atmosphere containing a nitrogen-containing organic compound selected from the group consisting of organic amine compounds represented by the general formula $R^1-NR^2_2$, in which R^1 is a monovalent hydrocarbon group and R^2 is a hydrogen atom or a monovalent hydrocarbon group, organic acid amide compounds represented by the general formula $R^3-CO-NR^4_2$, in which R^3 is a monovalent hydrocarbon group and R^4 is a hydrogen atom or a monovalent hydrocarbon group, organic diamine compounds represented by the general formula $R^5-N-R^6-NR^7_2$, in which R^5 and R^7 are each a hydrogen atom or a monovalent hydrocarbon group and R^6 is a divalent hydrocarbon group and heterocyclic organic compounds having at least one nitrogen atom in a molecule as the ring member, at a pressure in the range from 0.001 to 10 Torr, and then contacting the compound with a halogen or a halogen-containing compound.

4,395,435

METHOD FOR MANUFACTURING INFORMATION RECORDING MEDIUM

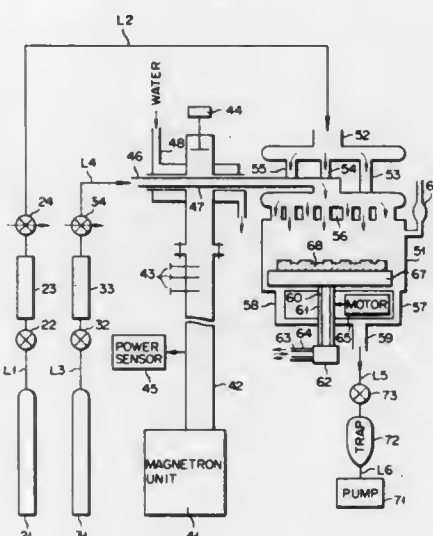
Hideo Sanpei, Hiratsuka; Kunio Matsuno, Yokosuka; Shoyo Hirano, and Katuya Kumagai, both of Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 5, 1982, Ser. No. 355,114

Claims priority, application Japan, Mar. 11, 1981, 56-34837
Int. Cl.³ C11B 23/00

U.S. Cl. 427—38

12 Claims



1. A method for manufacturing an information recording medium, comprising:

- placing, in a reaction region, a target on a surface of which is recorded information in a form of an indented pattern and the surface of which exhibits electrical conductivity;
- introducing a plasma generating gas into a plasma generating region isolated from said reaction region, activating the plasma generating gas by microwaves to generate a plasma; and
- introducing the plasma from said plasma generating region and an organic monomer into said reaction region independently of each other to initiate polymerization of the organic monomer, thereby forming a dielectric layer of a polymer of the monomer and of a uniform, small thickness along the indented pattern of said target.

4,395,436

PROCESS FOR PREPARING ELECTROCHEMICAL MATERIAL

Giuseppe Bianchi; Antonio Nidola, and Gian N. Martelli, all of Milan, Italy, assignors to Oronzio de Nora Impianti Elettrochimici S.p.A., Milan, Italy

Filed Nov. 14, 1980, Ser. No. 206,746

Claims priority, application Italy, Dec. 20, 1979, 28250 A/79
Int. Cl.³ B05D 5/12

U.S. Cl. 427—53.1

51 Claims



1. In a process of preparing an electrode comprising a valve metal substrate and an electroconductive metal coating by applying a compound of said metal capable of decomposing to said substrate and decomposing said coating by heating to form said electroconductive coating, the improvement which com-

prises subjecting said coating to localized high intensive heat sufficient to decompose said compound while maintaining at least a portion of the substrate at a lower temperature than that of said coating to quench cool the coating and wherein the bulk of the substrate and the atmosphere surrounding the coating are maintained at a lower temperature than that of said coating during the localized high intensive heat.

20. A process for preparing homogeneous phases of oxides of at least two different metals wherein a mixture of thermally reducible salts of said metals is subjected to localized heating in an oxidizing atmosphere to a temperature above the decomposition temperature of the reducible salts by means of a scanning laser beam and the oxides are cooled to below 350° C. within 100 seconds or less from the instant of the application of the heat.

4,395,437

METHOD OF FORMING A SECONDARY EMISSIVE COATING ON A DYNODE

Alan G. Knapp, Crawley, England, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 135,965, Mar. 31, 1980, abandoned.

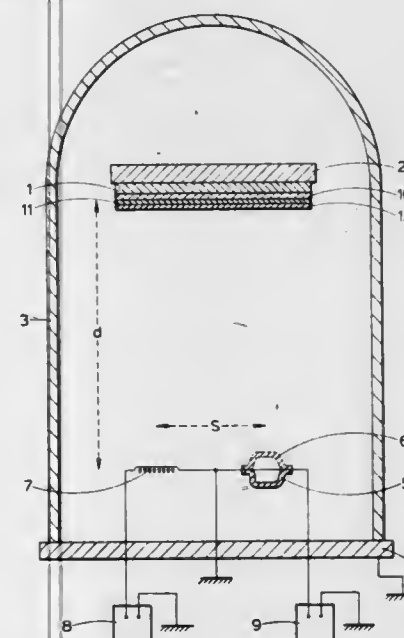
This application Jul. 27, 1981, Ser. No. 286,906

Claims priority, application United Kingdom, Apr. 2, 1979, 7911400; Mar. 13, 1980, 8008511

Int. Cl.³ B05D 5/12

U.S. Cl. 427—78

13 Claims



6. A method of forming a secondary emissive coating on a dynode, said method comprising the steps of: vapor depositing a composite coating of magnesium and aluminum onto the dynode; vapor depositing a coating of aluminum over the composite coating; oxidizing the exposed aluminum layer; and activating the coated dynode by heating it in an oxygen atmosphere until at least part of the magnesium diffuses through the oxidized aluminum coating and becomes oxidized.

4,395,438

LOW PRESSURE CHEMICAL VAPOR DEPOSITION OF SILICON NITRIDE FILMS

Ping-Wang Chiang, Los Gatos, Calif., assignor to Amdahl Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 185,294, Sep. 8, 1980, abandoned. This application Dec. 6, 1982, Ser. No. 447,464

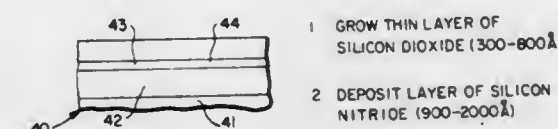
Int. Cl.³ B05D 5/12; H01L 7/44; B44C 1/22; C03C 15/00
U.S. Cl. 427—94

1. In a process for forming on a semiconductor wafer a high quality layer of silicon nitride adapted to be patterned and to

serve as a mask for diffusion or implantation of selected impurities into selected regions of said wafer, the steps of:

disposing said wafer in a closed reaction chamber evacuated to a pressure less than about 1 Torr and heated to an elevated temperature in the range of about 650 to 900 degrees Centigrade;

supplying to the interior of said chamber a gaseous mixture comprising primarily ammonia and a silicon compound



adapted to react together with said ammonia at said elevated temperature gradually to deposit said layer of silicon nitride on said wafer at a deposition rate greater than approximately 50 Angstroms per minute, said silicon compound having a flow rate of greater than approximately 12 cubic centimeters per minute, said ammonia and said selected silicon compound having a ratio of relative concentrations in said mixture preselected to be in the range of 4:1 and 20:1.

4,395,439

METHOD OF MANUFACTURING MAGNETIC RECORDING MEDIUM

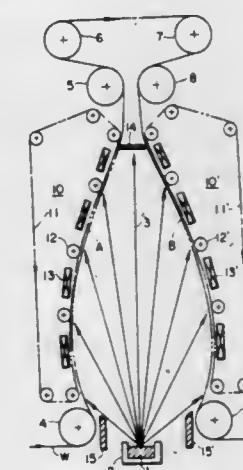
Tatsuji Kitamoto, and Ryuji Shihata, both of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 19, 1981, Ser. No. 265,123

Claims priority, application Japan, May 20, 1980, 55-66877
Int. Cl.³ H01F 10/02

U.S. Cl. 427—132

13 Claims



1. A method of manufacturing a magnetic recording medium comprising the steps of: evaporating molten metal from a metal evaporating source; and transporting a flexible belt-shaped support above said evaporating source at a substantially constant speed along a curved path forward such that evaporated metal flow lines connecting a central point on an evaporation surface of said molten metal to said support from a substantially constant angle of incidence with respect to a longitudinal direction of said support throughout an area where said evaporated metal flow lines contact said support.

4,395,440

METHOD OF AND APPARATUS FOR MANUFACTURING ULTRAFINE PARTICLE FILM
Atsushi Abe, Ikoma; Hisahito Ogawa, Nara, and Masahiro Nishikawa, Amagasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

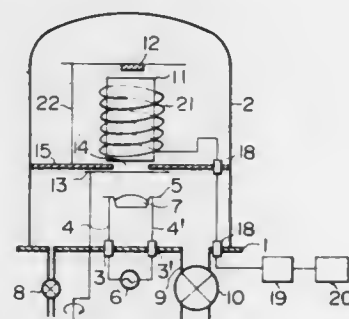
Filed Oct. 6, 1981, Ser. No. 309,088

Claims priority, application Japan, Oct. 9, 1980, 55-141218; Oct. 9, 1980, 55-141219

Int. Cl.³ B05D 1/12; C23C 11/00

U.S. Cl. 427—180

6 Claims



1. A method of manufacturing an ultrafine particle film comprising the steps of:

continuously supplying a gas into a vessel containing a cylinder, an evaporation source and a substrate;
arranging said substrate and said evaporation source so that they oppose each other through said cylinder in the axial direction of said cylinder;
continuously discharging the supplied gas from said vessel, thereby forming an atmospheric system within said vessel, said atmospheric system having a reduced gas pressure in the range of greater than approximately 10^{-1} Torr to approximately 10 Torr and a forced unidirectional flow of the gas from said evaporation source towards said substrate;

said evaporation source producing evaporated matter; conveying said evaporated matter from said evaporation source to said substrate, after a steady evaporation rate is obtained, by means of said forced flow of gas; and
said evaporated matter and said gas interacting to form ultrafine particles, whereby said ultrafine particles are deposited on said substrate to form said ultrafine particle film.

4,395,441

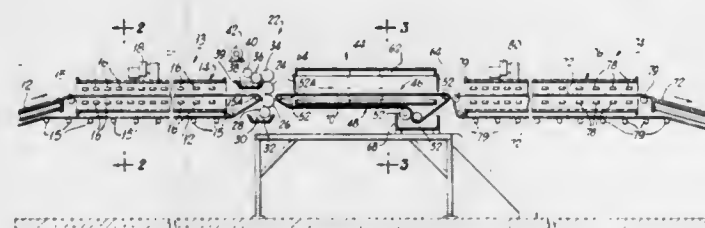
METHOD OF COATING LIQUID PENETRABLE ARTICLES WITH POLYMERIC DISPERSIONS
Robert G. Farnam, 1230 N. Western Ave., Lake Forest, Ill. 60045

Continuation of Ser. No. 14,991, Feb. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 933,893, Aug. 15, 1978, abandoned. This application Jul. 22, 1981, Ser. No. 285,860

Int. Cl.³ B05D 3/06

U.S. Cl. 427—211

38 Claims



1. A method of coating a liquid-penetrable material with a liquid dispersion of a polymer, comprising:

preheating said liquid-penetrable material to a temperature sufficient to prevent any substantial penetration of liquid into said material when said material, at said preheated

temperature, is contacted with a liquid dispersion of a polymer;

coating a major surface of said preheated material while at said temperature with a liquid dispersion of a curable polymer;

supporting the coated, liquid-penetrable material on a plurality of elastomeric elongated support members while said coating is dried to a substantially tack-free condition; and curing said coating to form a polymer-coated article.

4,395,442

METHOD OF COATING THE WORKING SURFACES OF PISTON OPERATING DEVICES

Gunther Meise, Hanover, and Herbert Unger, Springe, both of Fed. Rep. of Germany, assignors to Wabco Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed Dec. 4, 1981, Ser. No. 327,338

Claims priority, application Fed. Rep. of Germany, Dec. 19, 1980, 3047978

Int. Cl.³ B05D 7/22

U.S. Cl. 427—236

5 Claims

1. A process of protecting the mating surfaces of a piston type of machine including the steps of: coating at least one of the mating surfaces of the piston-cylinder members by spraying under pressure a varnish having an epoxy-resin base in which is mixed a ceramic oxide material which contains sintered aluminum oxide and zirconium oxide, placing the varnish coated member in an oven, and heating the varnish coated member at a given temperature for a given period of time to result in a hardened wear-resistant surface finish.

4,395,443

METHOD OF FORMING SILICONE FILMS
Chiyuki Shimizu, and Kiyoshi Hosokawa, both of Ohta, Japan, assignors to Toshiba Silicones, Ltd., Japan

Filed May 7, 1981, Ser. No. 262,272

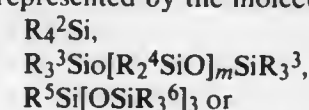
Claims priority, application Japan, May 9, 1980, 55-61502

Int. Cl.³ A23F 3/00

U.S. Cl. 427—387

16 Claims

1. A method of forming dust-resistant films which comprises coating on the surface of a silicone elastomer a composition formed by dissolving (1) a condensation reaction product between (A) 100 parts by weight of a benzene-soluble polyorganosiloxane consisting essentially of SiO_2 units and R_3SiO_2 units, in which groups R^1 , which may be the same or different, stand for a substituted or unsubstituted monovalent hydrocarbon group, wherein the amount of the R_3SiO_2 units is 0.4 to 1.0 mole per mole of the SiO_2 units and a reactive group selected from hydroxyl and alkoxy groups is bonded to the silicon atom in an amount of 0.0004 to 1 per silicon atom; and (B) 20 to 200 parts by weight of a silanol-terminated polydiorganosiloxane having a viscosity of 10,000 to 2,000,000 cSt as measured at 25° C., in (2) a mixed solvent comprising (a) a volatile organosilicon compound having a boiling point of 70° to 250° C. as measured under atmospheric pressure and being represented by the molecular formula:



in which R^2 through R^7 , which may be the same or different, stand for a hydrogen atom or an alkyl group, m is 0 or a positive number and n is a positive number, and (b) a hydrocarbon solvent, the amount of the volatile organosilicon compound (a) being at least 5% by weight based on the total amount of the organosilicon compound (a) and the hydrocarbon solvent (b); and drying and curing the coated composition.

4,395,444

THERMOSETTING CATIONIC ACRYLIC LATEX COMPOSITIONS CONTAINING BLOCKED ISOCYANATES

Suryya K. Das, Pittsburgh, and Charles M. Kania, Tarentum, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

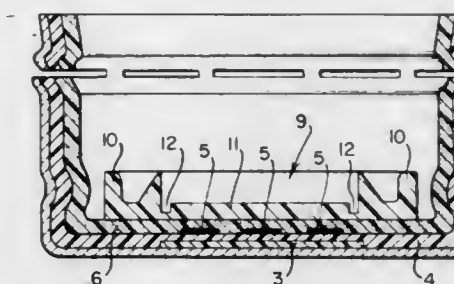
Filed Sep. 25, 1981, Ser. No. 305,566

Int. Cl.³ B05D 3/02

U.S. Cl. 427—388.4

7 Claims

1. A stable thermosetting cationic acrylic latex composition, comprising a blocked isocyanate curing agent and a cationic acrylic latex; the cationic acrylic latex is prepared by a process which comprises copolymerizing in an acidic medium, in the presence of a cationic surfactant, ethylenically unsaturated monomers, at least one of which contains an active hydrogen group; the cationic surfactant comprises a gegen-ion derived from an aliphatic or aromatic sulfonic acid selected from the group consisting of methanesulfonic acid, ethanesulfonic acid, propanesulfonic acid, benzenesulfonic acid, toluenesulfonic acid, phenolsulfonic acid and cresolsulfonic acid.



from the group consisting of (i) petroleum resins which are obtained by polymerization of cyclopentadiene or C_9 to C_{11} olefin hydrocarbons, (ii) cumarone-indene resins and (iii) terpene resins, and (B) an ethylenically unsaturated carboxylic acid or its anhydride.

4,395,445

COATING AND PRIMER FORMULATION ON THE BASIS OF A COPOLYMER OF TETRAFLUOROETHYLENE AND A PERFLUORO-(ALKYL VINYL) ETHER, AND USE THEREOF

Gerhard Gebauer, and Franz Mayer, both of Burgkirchen, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 122,591, Feb. 19, 1980, abandoned.

This application Sep. 10, 1981, Ser. No. 300,900

Int. Cl.³ B05D 1/36

U.S. Cl. 427—407.1

4 Claims

1. A method for improving the coating of a substrate with a fluoropolymer which comprises applying a primer composition and subsequently without an intermediate heat treatment for sintering applying a topcoat of a tetrafluoroethylene homopolymer or copolymer wherein the improvement comprises applying a primer composition consisting essentially of

- from 100 to 20 weight %, relative to the total polymer solids of the components (a) and (b), of a copolymer of copolymerized tetrafluoroethylene units; from 0.5 to 11 weight % of copolymerized units of a perfluoro(alkyl vinyl) ether of the formula $\text{CF}_2=\text{CF}-\text{OR}$, in which R is a perfluoroalkyl radical having from 1 to 10 carbon atoms; and from 0 to 12 weight % of copolymerized units of hexafluoropropylene or vinylidene fluoride, each relative to the total weight of the copolymer;
- from 0 to 80 weight %, relative to the total polymer solids of components (a) and (b), of dispersed polytetrafluoroethylene particles having a mean grain size of from 0.05 to 30 μm ;
- from 10 to 70 weight % of the weight sum of (a) plus (b) plus (c) of lithium hydroxide and suspended, fine-particle SiO_2 produced by thermal treatment; the molar ratio $\text{LiOH}:\text{SiO}_2$ being from 1:0.5 to 1:30; and
- water as liquid carrier.

4,395,446

PEELABLE ADHESIVE STRUCTURE

Go Kunimoto, Chigasaki; Isao Ichinose, Hiratsuka; Noboru Suzuki, Fujisawa, and Fumio Mori, Yokohama, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Continuation of Ser. No. 94,570, Nov. 15, 1979, abandoned. This application Mar. 22, 1982, Ser. No. 360,368

Claims priority, application Japan, Nov. 17, 1978, 53-141065

Int. Cl.³ B32B 15/08

U.S. Cl. 428—35

10 Claims

1. A peelable adhesive structure comprising a plurality of parts, at least one of which is made of metal, adhering together by means of a coating, characterized in that said coating has a peelable surface formed between a first layer of an acid-

4,395,447

MEDIUM FOR RECORDING

Yoshiro Nakamatsu, 1-10-309, Minami Aoyama 5-chome, Minato-ku, Tokyo, Japan

Filed Apr. 22, 1981, Ser. No. 256,316

Claims priority, application Japan, May 8, 1980, 55-59984

Int. Cl.³ B32B 3/02

U.S. Cl. 428—66

3 Claims



1. A recording medium comprising:

- a recording disc,
- a magnetic coating on said disc and with said coating having a thickness which decreases from a maximum to a minimum radially inwardly from the outer periphery toward the center of said disc to provide correspondingly increasing recording density from the outer periphery toward the center of said disc, said coating containing magnetic particles,
- said magnetic particles being oriented relative to the surface of said disc generally inversely to the change in thickness of said coating and being essentially non-oriented at the periphery of said disc in the area of maximum coating thickness and increasing in orientation radially inwardly toward the center of said disc to a maximum uniform orientation in the area of minimum coating thickness, to thereby provide an essentially constant output for the recording medium from the disc periphery radially inwardly to the inner termination of said magnetic coating.

4,395,448

FILLING SHEET ATTACHING MEANS FOR GAS AND LIQUID CONTACT APPARATUS AND METHOD OF ASSEMBLY OF PLURAL PARALLEL FILLING SHEETS
Marcel R. Lefevre, Branchburg, and Anthony M. DePalma, South Plainfield, N.J., assignors to Research-Cottrell, Inc., Somerville, N.J.

Filed Dec. 22, 1981, Ser. No. 333,409

Int. Cl.³ B32B 3/06

U.S. Cl. 428—99

3 Claims

1. Filling sheets for a gas and liquid contact apparatus comprising a plurality of identical sheet members, each of said sheet members having a plurality of male type and female type locking tabs, said tabs being positioned in rows and columns

the basis of the weight of the substrate; and a tinctorial amount of a direct dye

wherein the bioactive material and the hydrophilic coupling agent and the dye are substantively attached to the fibers of the cellulosic substrate, such that the bioactive compound, the hydrophilic coupling agent and the dye are substantially non-leachable from the substrate.

4,395,455

POLYESTER FIBERFILL BATTING HAVING IMPROVED THERMAL INSULATING PROPERTIES

Michael S. Frankosky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 28, 1982, Ser. No. 343,499

Int. Cl.³ B32B 5/24, 15/14, 27/02

U.S. Cl. 428—299

2 Claims

1. An improved insulating material for use in thermally insulated textile articles which material consists essentially of a plurality of substantially parallel layers of high-loft polyester fiberfill consisting essentially of intermingled hollow fibers having a denier per fiber of 4 to 6 and a void content of from 8 to 30 percent with adjacent layers being separated from one another by a thin flexible sheet of metal foil or metalized polymeric film with the layered structure having an average density within the range of from about 0.35 to about 0.6 lb./ft.³ and the thickness of each fiberfill layer is within the range of about 0.25 to 0.6 in. so that compared to an all fiber sample of the same weight and density the increase in CLO units due to the separating sheets corresponds to an increase of at least 15 percent.

4,395,456

INORGANIC FOAM

Graham V. Jackson, Vicars Cross; Terence Goulding, Garswood, and John A. A. Bradbury, Runcorn, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 5, 1981, Ser. No. 222,683

Claims priority, application United Kingdom, Jan. 10, 1980, 8000881

Int. Cl.³ B32B 19/02, 19/04; C04B 21/00

U.S. Cl. 428—304.4

38 Claims

1. A rigid inorganic foam product consisting essentially of prills of foam of one or more layer minerals, each prill being of cellular structure.

4,395,457

THERMAL INSULATING AND WATERPROOFING OF MASONRY STRUCTURES BY ENTRAPMENT OF MULTILAYERED DEAD AIR SPACES WITH USE OF HIGH SPEED INJECTED LIQUID-AIR STREAM

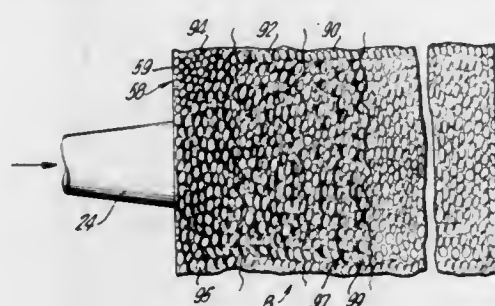
Jay S. Wyner, Sands Point, N.Y., assignor to Therma-Plex Corporation, Long Island City, N.Y.

Continuation-in-part of Ser. No. 126,194, Mar. 3, 1980, abandoned. This application Jan. 30, 1981, Ser. No. 230,257

Int. Cl.³ B32B 3/26

U.S. Cl. 428—312.4

7 Claims



1. The method of insulating an existing masonry granular structure without substantially altering the outward appearance of the structure, comprising the steps of injecting an insulating liquid within the structure, in situ, to form a first

barrier layer at a relatively deep penetration with respect to an exposed accessible surface of the structure, and subsequently injecting an insulating liquid within the structure, in situ, to form a second barrier layer at a relatively shallow penetration with respect to the surface of the structure, the barrier layers being in juxtaposition with one another, thereby entrapping dead air between the granules of the masonry structure, wherein the insulating liquid is injected into the structure by means of a liquid-air stream, wherein the first relatively-deep layer is applied under given parameters of viscosity and temperature of the insulating liquid, velocity of the liquid-air stream, and time of application, and wherein any of said given parameters may be varied to apply the second relatively-shallow layer.

2. A masonry structure made in accordance with the method of claim 1.

4,395,458

GRAPHITE IMPREGNATED POLYAMIDE TENNIS STRINGS

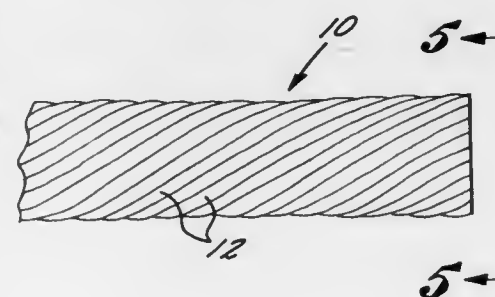
Ben T. Huang, 16652 Gemini La., Huntington Beach, Calif. 92647

Filed Aug. 17, 1981, Ser. No. 293,529

Int. Cl.³ B32B 9/00; D02G 3/04, 3/36

U.S. Cl. 428—367

14 Claims



1. A filament comprising a polymer having an amount of graphite particles present throughout the entire volume of the filament sufficient to introduce significant polymer cross-linking substantially in the absence of polymer cleavage.

9. A tennis racket string having a cross-sectional diameter of about 0.054 inch, said string comprising about 79 entwined, fused filaments, wherein said filaments consist essentially of substantially linear nylon having 0.9 weight percent graphite particles having a diameter ranging from about 0.1 to about 2.0 microns, said particles being present throughout the entire volume of the filament, and said string has a tensile strength of about 63,900 psi, an elongation of about 17.1% at the tension of the breaking point, modulus of elasticity of about 0.268×10^6 psi and loss coefficients of about 7.5% at 50 lbs., about 9.8% at 60 lbs., about 11% at 70 lbs., and about 11.5% to 80 lbs. applied force.

4,395,459

REINFORCED LAMINATES PRODUCED FROM CROSSLINKABLE THERMOPLASTIC OLEFIN POLYMER MATERIAL

C. George Herschdorfer, 336 Betsy Brown Rd., Port Chester, N.Y. 10573, and Dennis J. Vaughan, Rte. 10 Longview Dr., Anderson, S.C. 29621

Division of Ser. No. 51,837, Jun. 25, 1979, Pat. No. 4,292,106, which is a continuation-in-part of Ser. No. 923,654, Jul. 11, 1978, abandoned. This application Oct. 27, 1980, Ser. No. 200,894

Int. Cl.³ B29D 7/14, 7/16, 9/04, 23/04

U.S. Cl. 428—391

37 Claims

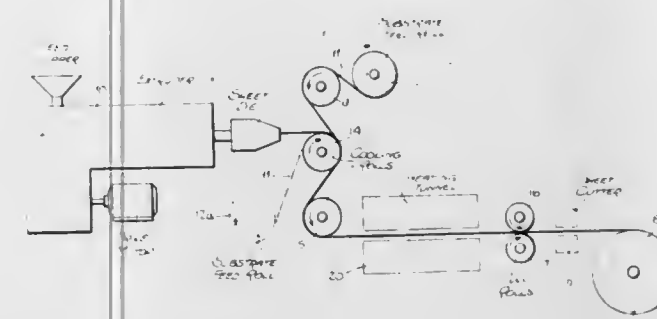
1. Reinforced laminates of crosslinkable thermoplastic olefin polymer material, produced by the process of

(a) heating a normally solid, high molecular weight cross-linkable thermoplastic olefin polymer selected from the group consisting of ethylene homopolymers, copolymers

of ethylene and at least one acyclic mono-1 olefin hydrocarbon having 2 to 8 carbon atoms per molecule, and mixtures thereof, having a melt index of at least about 10, and a density in the range of 0.910 to 0.970 and containing an acetylenic diperoxy catalyst which reacts with and effects crosslinking of said polymer and which has a decomposition temperature between about 310° F. and about 525° F., to a molten state at a melting temperature between about 270° F. and 300° F.,

(b) forming a continuous non-reinforced sheet from said molten polymer at a temperature below said decomposition temperature,

(c) cooling said continuous sheet to a temperature below said melting temperature to a self-supporting, two-dimensional molecular state,



(d) combining said sheet in said self-supporting state with a glass fibrous substrate treated with an unsaturated organosilanol coupling agent which reacts with said polymer and said glass fibrous substrate and effects bonding of said polymer to said substrate to form a laminate,

(e) heating said laminate under pressure to a temperature between about 310° F. and about 525° F. to react said catalyst with said polymer and effect at least 80% crosslinking of said polymer to a three-dimensional molecular state, and

(f) cooling said laminate to a temperature below said melting temperature to a self-supporting state,

(g) said laminate having a dielectric constant in Condition A at 1 MC/Sec. of about 2.40 to about 3.43.

4,395,460

PREPARATION OF POLYSILAZANE POLYMERS AND THE POLYMERS THEREFROM

John H. Gaul, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Sep. 21, 1981, Ser. No. 304,446

Int. Cl.³ B05D 3/02; C04B 35/52; B32B 9/00; C09K 3/00

U.S. Cl. 428—408

31 Claims

1. A process of preparing a polysilazane polymer which consists of contacting and reacting in an inert, essentially anhydrous, atmosphere, at a temperature in the range of 25° C. to 370° C.

(A) ammonia and

(B) chlorine-containing disilanes selected from the group consisting of

(i) a chlorine-containing disilane having the general formula



and

(ii) a mixture of chlorine-containing disilanes having the general formula



wherein

a has a value of 1.5–2.0;

b has a value of 1.0–1.5;

the ratio of c to d is in the range of 1:1 to 2:1, the sum of a+b is equal to three; the sum of c+d is equal to three; and R in each case is selected from the group consisting of the vinyl group, alkyl radicals of 1–3 carbon atoms and the phenyl group.

4,395,461

METHOD FOR MAKING SILICON COATED POLYCARBONATES AND ARTICLE OBTAINED THEREFROM

Ta-Yen Ching, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 23, 1981, Ser. No. 314,165

Int. Cl.³ C08L 83/12; C09K 9/00; B32B 27/36; B05D 3/02

U.S. Cl. 428—412

5 Claims

1. A method for making a composite of a polycarbonate substrate and a silicon hardcoat having improved weatherability which comprises,

(1) treating a polycarbonate substrate with a solution of the hydrolysis product of a silylated organic UV screen which has been allowed to hydrolyze for a period not exceeding about three days and curing the applied hydrolyzate on the treated substrate at a temperature of from 75° C. to 150° C. and

(2) applying onto the treated polycarbonate substrate a silicone hardcoat composition and thereafter heating the resulting composite to a temperature in the range of from 75° C. to 150° C. until the applied hardcoat composition is cured.

5. A polycarbonate silicone hardcoat composite made in accordance with claim 1.

4,395,462

FLUOROELASTOMER COATED SILICONE RUBBER

Keith E. Polmanteer, Weidman, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Sep. 13, 1982, Ser. No. 416,805

Int. Cl.³ B32B 25/20

U.S. Cl. 428—420

21 Claims

1. An article of manufacture comprising a silicone rubber substrate having a cured coating on at least one surface thereof, said coating being cohesively bonded to the substrate and comprising in the uncured state (a) a peroxide-curable fluoroelastomer gum wherein the repeating units are derived from the polymerization of at least one fluorine-containing ethylenically unsaturated organic compound, (b) an amount of an organic peroxide sufficient to achieve curing of said fluoroelastomer gum at a temperature of from 100° to 200° C. and (c) an amount of an epoxide compound sufficient to react with the acidic by-products evolved during curing of said fluoroelastomer gum.

4,395,463

ARTICLE COMPRISING SILICONE RESIN COATED, METHACRYLATE-PRIMED SUBSTRATE

William D. Kray, Burnt Hills, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Jun. 3, 1980, Ser. No. 156,268

Int. Cl.³ B32B 27/36, 27/30

U.S. Cl. 428—447

22 Claims

1. An article comprising a solid substrate having at least one surface on which is deposited:

(i) a layer of a primer composition; and, (ii) a layer of a cured top coat containing a colloidal silica filled thermoset organopolysiloxane, said primer composition comprising

(a) from about 2 to about 10 parts by weight of a high molecular weight thermoplastic methacrylic ester polymer or copolymer selected from

(1) polymers and copolymers comprising C₁–C₆ alkyl methacrylate;

- (2) copolymers comprising C₁-C₆ alkyl methacrylates and a reaction product of glycidyl methacrylate and a hydroxy-benzophenone ultraviolet light screening agent;
- (3) copolymers comprising C₁-C₆ alkyl methacrylates and (A) a reaction product comprising units of methacrylic acid and γ -chloropropyltrimethoxysilane (B) acrylic or methacrylic acid, or (C), a mixture of (A) and (B); or
- (4) a mixture of any of the foregoing;
- (b) from about 60 to about 90 parts by weight of 2-ethoxyethanol;
- (c) from about 10 to about 30 parts by weight of 4-hydroxy-4-methyl-2-pentanone; and
- (d) from about 0 to about 20 parts by weight of glacial acetic acid, per 100 parts by weight of (a), (b), (c) and (d) combined.

18. A process for producing a coated article which comprises the steps of:

- (i) applying onto at least a surface of a substrate a layer of a primer composition of claim 1;
- (ii) air drying and evaporating the volatile solvents from said primer composition at a temperature of from about 15° to about 30° C.;
- (iii) applying into said air dried primer layer a silica filled curable organopolysiloxane top coat solvent-containing composition;
- (iv) evaporating the volatile solvents from said top coat composition; and
- (v) applying heat to said top coat composition to cure to same.

4,395,464

COPPER BASE ALLOYS MADE USING RAPIDLY SOLIDIFIED POWDERS AND METHOD

Viswanathan Panchanathan, Billerica; Ranjan Ray, Waltham, and Bill C. Giessen, Cambridge, all of Mass., assignors to Marko Materials, Inc., No. Billerica, Mass.

Filed Apr. 1, 1981, Ser. No. 249,926
Int. Cl.³ C22C 9/06; B22F 7/00, 9/00

U.S. Cl. 428-546

5 Claims

1. Fine grained Copper-Nickel alloys containing borides in bulk form having composition Cu_aNi_bAl_cCr_dM_eB_f, wherein Cu, Ni, Al, Cr, and B are copper, nickel, aluminum, chromium and boron respectively, and M represents one or more of iron (Fe), cobalt (Co), vanadium (V), and manganese (Mn) and wherein a, b, c, d, e and f represent weight percent of Cu, Ni, Al, Cr, M and B respectively and having the following values: a=40-87, b=10.5-44, c=0-10, d=0-18, e=0-8, f=1.5-4 wherein the maximum value of b+c+d+e may not exceed 56, the maximum value of c+d may not exceed 22.5 and the sum of a+b+c+d+e+f=100, made by subjecting the powders of the said alloy by application of pressure and heat, said powders being made by the method comprising the following steps:

- (a) forming a melt of said alloy
- (b) depositing said melt against a rapidly moving quench surface adapted to quench said melt at a rate in the range of approximately 10³ to 10⁷° C./second and form thereby a rapidly solidified brittle strip of said alloys characterized by predominantly a single solid solution structure,
- (c) comminuting said strip into powders.

4,395,465

MAGNETIC RECORDING MEDIUM AND PROCESS FOR PRODUCTION THEREOF

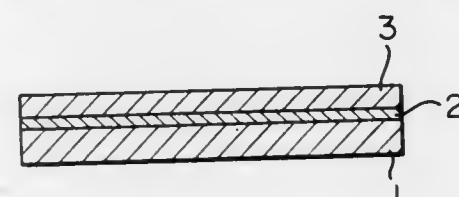
Toshinori Takagi, Nagaokakyo; Shinsaku Nakata, Toyooka; Yoichi Mikami, Kyoto; Masahiro Hotta, and Yoshiyuki Fukumoto, both of Osaka, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 7, 1981, Ser. No. 290,966

Claims priority, application Japan, Aug. 13, 1980, 55/112121
Int. Cl.³ C23C 15/00

U.S. Cl. 428-626

4 Claims



1. A process for producing a magnetic recording medium, which comprises imparting a kinetic energy in a range of 100 eV to 10 KeV to an ionized cluster composed of ferromagnetic metal atoms in a high vacuum corresponding to a pressure of 8×10^{-4} to 1×10^{-10} torr and impinging the resulting ionized cluster beam against a flexible substrate of polymeric material to deposit a first magnetic layer of the ferromagnetic metal on said substrate, and then, imparting a kinetic energy in a range of 1 eV to 10 KeV to atom ions of a ferromagnetic metal by an ion plating method in a high vacuum corresponding to a pressure of 8×10^{-4} to 1×10^{-10} torr and impinging the resulting atom ion beam against said first magnetic layer to deposit a second magnetic layer of the ferromagnetic metal on said first magnetic layer, wherein in forming the above first magnetic layer, a plate-like accelerating electrode is disposed on the side of the flexible substrate opposite its surface facing the ionized cluster source to field-accelerate the ionized cluster, and, in forming the said second magnetic layer, a plate-like accelerating electrode is disposed on the side of the substrate opposite its surface facing the atom ion source to field-accelerate the atom ions.

4,395,466

MAGNETIC RECORDING MEDIUM

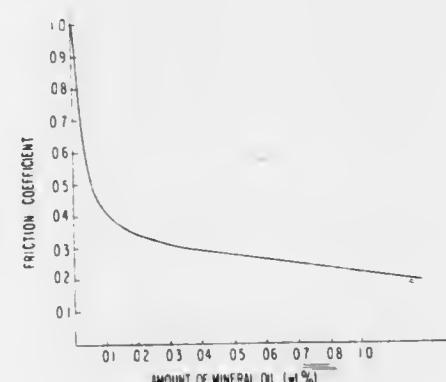
Hiroshi Ogawa, and Yasuo Tamai, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Odawara, Japan

Filed May 20, 1981, Ser. No. 265,492

Claims priority, application Japan, May 21, 1980, 55-67558
Int. Cl.³ G11B 5/70

U.S. Cl. 428-695

3 Claims



1. A magnetic recording medium, comprising: a non-magnetic base;
- a magnetic layer formed on said base; said magnetic layer consisting essentially of a binder and fine ferromagnetic particles dispersed within said binder, a mineral oil having

a viscosity of 300 cs or less at 37.8° C. contained in said magnetic layer an amount of 0.05 weight percent to 1 weight percent, and an aliphatic acid having 12 to 22 carbon atoms contained in said magnetic layer in an amount of about 0.2 weight percent to 5.0 weight percent, based on the weight of the fine ferromagnetic powder.

4,395,467

TRANSPARENT CONDUCTIVE FILM HAVING AREAS OF HIGH AND LOW RESISTIVITY

John L. Vossen, Jr., Bridgewater, N.J., and Joseph Zelez, Tannersville, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 30, 1981, Ser. No. 335,707

Int. Cl.³ C23C 15/00; B05D 3/06

U.S. Cl. 428-697

8 Claims

7. A method of forming a transparent conductive layer having areas of high and low resistivity on a substrate comprising depositing a film of indium oxide and zirconium oxide on said substrate, ion implanting protons into a portion of said film and annealing the film in reducing gas at a temperature above about 700° C. thereby substantially lowering the resistivity of that portion of the film not ion implanted.

8. A structure produced in accordance with the method of claim 7.

4,395,468

FUEL CELL GENERATOR

Arnold O. Isenberg, Forest Hills, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

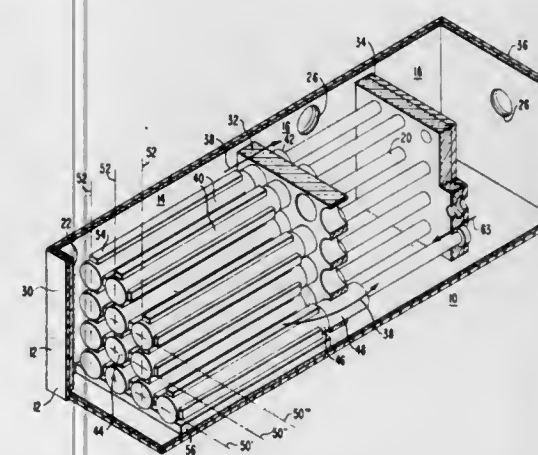
Continuation of Ser. No. 219,185, Dec. 22, 1980, abandoned.

This application Nov. 13, 1981, Ser. No. 321,137

Int. Cl.³ H01M 8/12

U.S. Cl. 429-31

18 Claims



1. A high temperature solid electrolyte fuel cell generator, comprising:
- a housing means defining a plurality of chambers including a generator chamber and a combustion product chamber;
- a porous barrier separating said generator and combustion product chambers;
- a plurality of elongated annular fuel cells, each having an electrochemically active length disposed within said generator chamber;
- means for flowing a first gaseous reactant through said annular fuel cells and through said porous barrier into said combustion product chamber;
- means for flowing a second gaseous reactant into said generator chamber, about said fuel cells, and through said porous barrier into said combustion product chamber; and
- means for segregating said first and second gaseous reactants from direct contact with one another prior to entry of each into said combustion product chamber.

4,395,469

LOW PRESSURE NICKEL HYDROGEN BATTERY

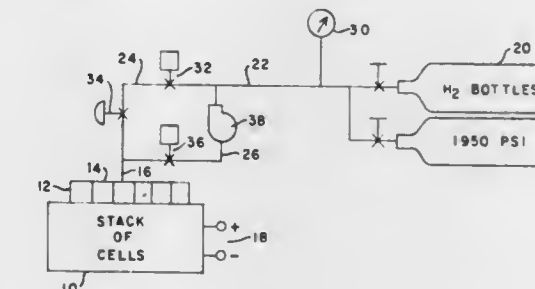
David H. Fritts, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jul. 14, 1981, Ser. No. 283,245

Int. Cl.³ H01M 2/00, 2/04, 4/36, 8/18

U.S. Cl. 429-34

3 Claims



1. A nickel-hydrogen battery system comprising: at least one nickel-hydrogen cell which includes a plurality of positive and negative electrodes with separators in a starved electrolyte condition enclosed in a low pressure casing, with positive and negative terminals and a cell gas line sealed into said casing;
- storage means for storing only hydrogen outside of said cell; gas lines comprising parallel discharge and charge paths between said cell gas line and said storage means, with the discharge path comprising a first valve means with a pressure regulator, and the charge path comprising a second valve means in series with a pump;
- the first valve means being open and the second valve means being closed during discharge, so that hydrogen is supplied via the regulator at a controlled low pressure to said cell;
- the first valve means being closed and the second valve means being open during charge, and power being applied to the pump, so that hydrogen evolved by said cell is supplied to the storage means;
- so that said cell is at a relatively low pressure at all times during discharge, charge, and standby.

4,395,470

PROCESS OF FORMING MAGNETIC LATENT IMAGES

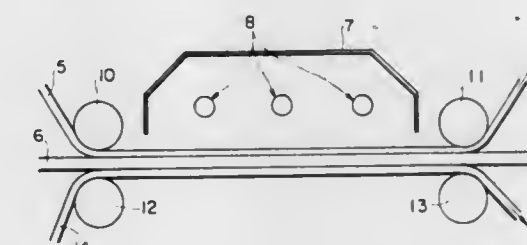
Koichi Saitoh, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jul. 31, 1981, Ser. No. 288,876

Claims priority, application Japan, Aug. 1, 1980, 55/106192
Int. Cl.³ G03C 19/00

U.S. Cl. 430-39

10 Claims



1. A process of forming magnetic latent images using a magnetizable magnetic recording body, thermal pattern input means for heating the magnetic recording body in accordance with a picture image to be recorded, and a master magnetic body uniformly magnetized in advance, said process comprising the steps of:
- (a) heating said magnetic recording body to a temperature at least equal to its Curie point in a pattern of a picture image to be recorded with said thermal pattern input means; and

(b) bringing the heated magnetic recording body and said master magnetic body into contact with each other wherein said uniformly magnetized master magnetic body causes a thermomagnetic transfer onto said magnetic recording body to form a magnetic latent image on said magnetic recording body corresponding to said pattern of said picture image by thermal residual magnetization.

4,395,471

BLENDED TONERS OF FUNCTIONAL COLOR

Oscar G. Hauser, Rochester, and Frederick R. Ruckdeschel, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Continuation of Ser. No. 212,789, Dec. 4, 1980, abandoned, which is a continuation of Ser. No. 80,625, Oct. 1, 1979, abandoned. This application Apr. 9, 1982, Ser. No. 366,946
Int. Cl.³ G03G 9/10, 13/08

U.S. Cl. 430—45

11 Claims

1. A developer composition comprised of a blend of toner particles containing a styrene/n-butyl methacrylate copolymer resin, and the cyan colorant copper tetra-4-(octadecylsulfonamido)phthalocyanine, a styrene/n-butyl methacrylate copolymer resin and the magenta colorant 2,9-dimethyl substituted quinacridone, a styrene/n-butyl methacrylate copolymer resin and the yellow colorant diarylide 3,3-dichlorobenzidene acetoacetanilide, and an uncoated single steel carrier material.

4,395,472

PLAIN PAPER REPRODUCTION PROCESS

Jan J. Robillard, 46 Arnold Rd., Pelham, Mass. 01002
Filed Jun. 19, 1981, Ser. No. 275,207
Int. Cl.³ G03G 9/14, 9/08

U.S. Cl. 430—47

10 Claims

1. A light sensitive photographic process for producing a permanent record on plain paper of a light image which comprises: (a) exposing to said image the surface of a photodielectric recording medium supported on a plastic belt, said photodielectric medium comprising a layer of a homogeneous intimate mixture of photodielectric pigments dispersed in a binder which exhibits a change of dielectric constant and dielectric loss factor in those areas of said photodielectric recording medium exposed to said light image in terms of local variations of dielectric constant and dielectric loss factor in said photodielectric recording medium; (b) contacting the surface of said exposed photodielectric recording medium with the surface of a plain paper image receiving sheet backed with a plastic substrate coated with an image forming medium comprising a dispersion of sublimable dyes in a binder, the surface of said image forming medium being in contact with said plain paper image receiving sheet; (c) impressing a high frequency electric field through said photodielectric recording medium, plain paper image receiving sheet and image forming medium to provide the sublimation of the sublimable dyes of said image forming medium in selected areas corresponding to said light image onto said plain paper receiving sheet by selective generation of heat due to dielectric losses in said photodielectric recording medium, said heat generation in said photodielectric recording medium being substantially proportional to the change in dielectric constant and dielectric loss factor in said photodielectric recording medium according to the previous exposure of said medium to said radiation image, thereby producing a photographic record of the image made of sublimed dyes from said image forming medium onto said plain paper image receiving sheet.

4,395,473
ELECTROPHOTOGRAPHIC SENSITIVE MATERIALS
CONTAINING BARBITURIC ACID OR
THIOBARBITURIC ACID DERIVATIVES

Seiji Horie; Masayoshi Nagata; Junji Nakano, and Hideo Sato, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

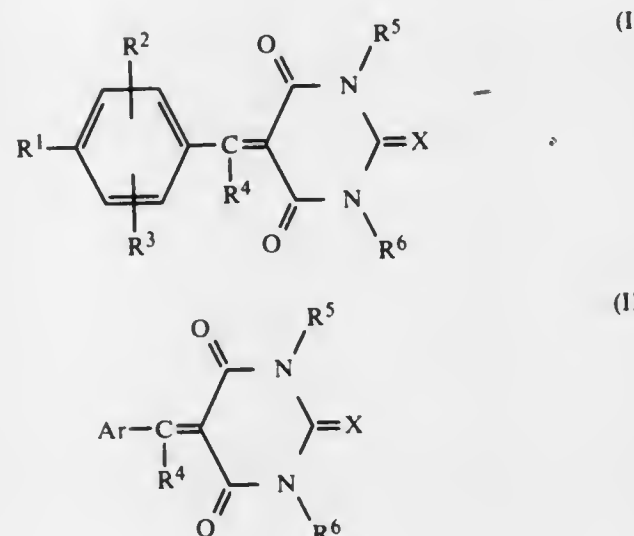
Filed Dec. 17, 1981, Ser. No. 331,745

Claims priority, application Japan, Jan. 16, 1981, 56-4734
Int. Cl.³ G03G 5/00

U.S. Cl. 430—58

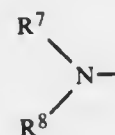
11 Claims

1. An electrophotographic sensitive material having an electrophotographic sensitive layer containing a charge generating material and a charge transfer material, wherein said charge generating material comprises a barbituric acid derivative or thiobarbituric acid derivative represented by formula (I) or (II)



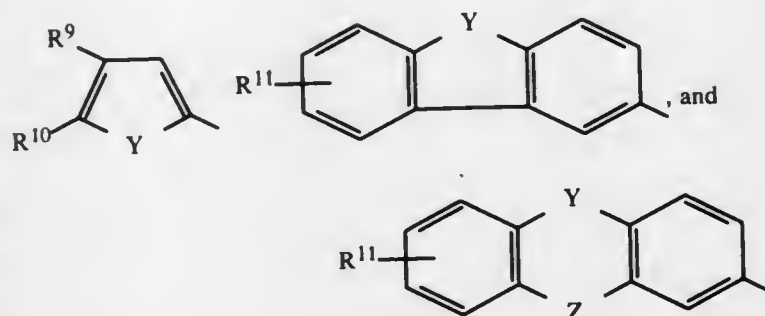
wherein

- (i) X represents an oxygen atom or a sulfur atom,
(ii) R¹ represents an alkoxy group, an aralkyl group or a substituted amino group represented by



wherein R⁷ and R⁸ each represents an unsubstituted or substituted alkyl group or phenyl group, or R⁷ and R⁸ together represents a group forming a nitrogen atom-containing heterocyclic ring,

- (iii) R² and R³ each represents a hydrogen atom, a halogen atom, an alkyl group, or a lower alkoxy group,
(iv) R⁴ represents a hydrogen atom, an alkyl group, or an unsubstituted or substituted phenyl group,
(v) R⁵ and R⁶ each represents an alkyl group, an aralkyl group, or an unsubstituted or substituted phenyl group, and
(vi) Ar represents a group selected from those represented by the formulas



wherein Y and Z each represents S, O, or N-R¹², wherein R¹²

represents an alkyl group having from 1 to 4 carbon atoms, R⁹ and R¹⁰ each represents a hydrogen atom, an alkyl group or an alkoxy group, or R⁹ and R¹⁰ together represent a group forming a benzene ring or a naphthalene ring, and R¹¹ represents a hydrogen atom, an alkyl group, an aralkyl group, an alkoxy group, an aryloxy group, an acyl group, an alkoxy carbonyl group, an aryloxy carbonyl group, a halogen atom, a monoalkylamino group, a dialkylamino group, an amido group, or a nitro group.

4,395,474

ELECTROPHOTOGRAPHIC PHOTOSENSITIVE
MEMBER WITH CURED CYCLIZED RUBBER BINDER
Hideyo Kondo, Toride, and Naoto Fujimura, Abiko, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 950,728, Oct. 12, 1978, abandoned.

This application Oct. 22, 1980, Ser. No. 199,531

Claims priority, application Japan, Oct. 15, 1977, 52-123683
Int. Cl.³ G03G 5/087

U.S. Cl. 430—67

2 Claims

1. In an electrophotographic photosensitive member having a coated photoconductive layer comprising a photoconductive material dispersed in a binder, the improvement which comprises a curable cyclized rubber selected from the group consisting of cyclized butadiene rubber and cyclized isoprene rubber as said binder and said curable cyclized rubber is cured after coating to form said photoconductive layer.

2. The electrophotographic photoconductive member according to claim 1 further including an insulating layer on said photoconductive layer.

4,395,475

CONDENSATION POLYMERIC PHOTOCONDUCTORS
CONTAINING PENDANT ARYLAMINES

John M. Noonan, and Jerome H. Perlstein, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 20, 1981, Ser. No. 285,235

Int. Cl.³ G03G 5/07

U.S. Cl. 430—69

13 Claims

1. An electrophotographic element comprising an electrically conducting support and a photoconductive layer in electrical contact with said support, said photoconductive layer comprising a condensation polymer containing, as repeating units, the condensation residues of:

- (a) a diacid, and
(b) an organic difunctional compound capable of undergoing condensation polymerization with said diacid, wherein at least one of said residues contains an appended arylamine photoconductor group.

4,395,476

DEVELOPING METHOD FOR DEVELOPER TRANSFER
UNDER A.C. ELECTRICAL BIAS AND APPARATUS
THEREFOR

Junichiro Kanbe; Tsutomu Toyono, both of Tokyo; Nagao Hosono, Chofu, and Tohru Takahashi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 58,434, Jul. 18, 1979, abandoned. This application May 18, 1981, Ser. No. 264,516

Claims priority, application Japan, Jul. 28, 1978, 53-92105; Jul. 28, 1978, 53-92106; Jul. 28, 1978, 53-92107; Apr. 28, 1979, 54-52641; Jun. 1, 1979, 54-68562
Int. Cl.³ G03G 13/09, 15/09

U.S. Cl. 430—102

32 Claims

1. A method of developing an electrostatic latent image on an image bearing member comprising bringing a layer of one-component dry developer on a carrier to a developing zone in which the gap between the image bearing member and the carrier is greater than the thickness of the layer and creating in the gap an alternating electric field which, in a first stage, causes transition of developer from the carrier to the image bearing member and back transition of developer from the member to the carrier and which, in a second stage, is of lower

intensity than in the first stage, to leave a developed image on said image bearing member.

4,395,477

NEUTRALIZING-TIMING LAYER FOR COLOR
TRANSFER ASSEMBLAGES CONTAINING LACTONE
POLYMER

Edward P. Abel, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 21, 1982, Ser. No. 341,412

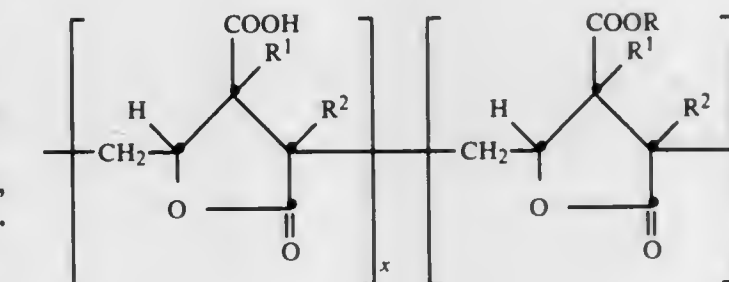
Int. Cl.³ G03C 1/40, 1/10

U.S. Cl. 430—216

29 Claims

1. In a photographic assemblage comprising:

- (a) a photographic element comprising a support having thereon at least one photosensitive silver halide emulsion layer having associated therewith a dye image-providing material;
(b) a dye image-receiving layer;
(c) neutralizing means for neutralizing an alkaline processing composition; and
(d) timing means located between said neutralizing means and said dye image-receiving layer;
the improvement wherein said neutralizing means and said timing means are provided by a single layer which functions as a combined neutralizing-timing layer and consists essentially of a carboxy-ester-lactone polymer having recurring units of the formula



wherein

R is alkyl having from 1 to about 12 carbon atoms or aralkyl having from 7 to about 12 carbon atoms;
R¹ and R² are each independently hydrogen or methyl;
x is about 1 to about 15 mole %; and
y is about 85 to about 99 mole %.

4,395,478

DIRECT-POSITIVE CORE-SHELL EMULSIONS AND
PHOTOGRAPHIC ELEMENTS AND PROCESSES FOR
THEIR USE

Harry A. Hoyen, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 12, 1981, Ser. No. 320,902

Int. Cl.³ G03C 1/34

U.S. Cl. 430—217

24 Claims

1. A radiation-sensitive emulsion particularly adapted to forming a direct-positive image comprised of a dispersing medium and silver halide grains capable of forming an internal latent image, said silver halide grains being comprised of a sensitized core and a shell, and said shell incorporating in an amount sufficient to reduce rereversal one or more polyvalent metal ions chosen from the group consisting of manganese, copper, zinc, cadmium, lead, bismuth, and lanthanides, said emulsion when coated on a transparent film support at a silver coverage of 4 grams per square meter, exposed to a 500 watt tungsten lamp for times ranging from 0.01 to 1 second at a distance of 0.6 meter, developed for 5 minutes at 20° C. in Developer Y below, fixed, washed, and dried, having a maximum density at least five times the maximum density

of an identical test portion which has been exposed in the same way and developed for 6 minutes at 20° C. in Developer X below, fixed, washed, and dried:

	Grams
Developer X	
N-methyl-p-aminophenol sulfate	2.5
Ascorbic acid	10.0
Potassium metaborate	35.0
Potassium bromide	1.0
Water to 1 liter	
Developer Y	
N-methyl-p-aminophenol sulfate	2.0
Sodium sulfite, desiccated	90.0
Hydroquinone	8.0
Sodium carbonate, monohydrate	52.5
Potassium bromide	5.0
Potassium iodide	0.5
Water to 1 liter.	

4,395,479

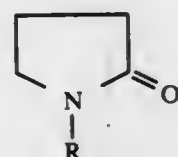
STRIPPING COMPOSITIONS AND METHODS OF STRIPPING RESISTS

Irl E. Ward; Lisa G. Hallquist, and Thomas J. Hurley, all of Easton, Pa., assignors to J. T. Baker Chemical Company, Phillipsburg, N.J.

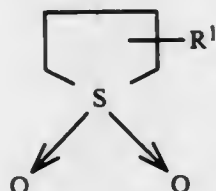
Continuation-in-part of Ser. No. 304,787, Sep. 23, 1981, abandoned. This application Aug. 17, 1982, Ser. No. 408,051
Int. Cl.³ B01F 1/00; B08B 7/00; G03C 5/00

U.S. Cl. 430—258 32 Claims

1. A stripping composition comprising from about 30 to about 90 weight percent of a 2-pyrrolidinone compound of the formula



wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms and hydroxyalkyl of 1 to 3 carbon atoms, and from about 10 to about 70 weight percent of a tetrahydrothiophene-1,1-dioxide compound of the formula



wherein R¹ is selected from the group consisting of hydrogen, methyl or ethyl.

4,395,480

DEVELOPER MIXTURE AND PROCESS FOR DEVELOPING EXPOSED NEGATIVE-WORKING DIAZONIUM SALT LAYERS

Gerhard Sprintschnik, Hofheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany
Filed Jan. 6, 1982, Ser. No. 337,396

Claims priority, application Fed. Rep. of Germany, Jan. 8, 1981, 3100259

Int. Cl.³ G03C 1/58, 5/30

U.S. Cl. 430—309

4 Claims

1. A process for developing negative-working reproduction layers containing a diazonium salt polycondensation product, which comprises treating an exposed reproduction layer and dissolving away the unexposed areas of the layer with an

aqueous developer mixture containing about 0.5 to 15 percent by weight of at least one salt of an alkanic acid having 8 to 13 carbon atoms and having an Na⁺, NH₄⁺ or K⁺ ion as the cation, and about 0.5 to 20 percent by weight of at least one low-foaming, nonionic surfactant.

4,395,481

METHOD FOR THE MANUFACTURE OF RESIST STRUCTURES

Siegfried Birkle, Höchststadt; Roland Rubner, Röttenbach; Hans Hauschildt, Erlangen, and Eva-Maria Rissel, Forchheim, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 25, 1981, Ser. No. 305,798

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1980, 3036615

Int. Cl.³ G03C 5/00

U.S. Cl. 430—326

3 Claims

1. In a method for the manufacture of resist structures on the basis of positive resists wherein a polymer material in the form of a layer or film is exposed with a predetermined pattern to short-wave UV rays and the exposed portions of the layer or film thereafter removed, the improvement wherein the polymer material comprises a copolymer of:

- 1 to 70 mol percent alkylmethacrylate with an alkyl radical having 1 to 4 C atoms; and
- 30 to 99 mol percent of an ethylenically unsaturated monomer having chlorine and/or cyan substituents.

4,395,482

METHOD FOR THE PREPARATION OF HEAT-RESISTANT RELIEF STRUCTURES USING POSITIVE RESISTS

Hellmut Ahne, Röttenbach; Eberhard Kühn, Hemhofen, and Roland Rubner, Röttenbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Division of Ser. No. 170,935, Jul. 18, 1980, Pat. No. 4,339,521. This application Apr. 28, 1982, Ser. No. 372,540

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 2931297

Int. Cl.³ G03C 5/00

U.S. Cl. 430—326

7 Claims

1. A method for the preparation of heat-resistant relief structures, comprising:

- applying to a substrate, in the form of a layer or foil, a heat-resistant positive resist comprised of (1) a precursor of a highly heat-resistant polymer and (2) a light-sensitive diazoquinone, said precursor comprising an oligomeric and/or polymeric precursor of a polyoxazole in the form of a polycondensation product of an aromatic and/or heterocyclic dihydroxydiamino compound and a dicarboxylic acid chloride or a dicarboxylic acid ester;
- generating exposed or irradiated portions on said resist by treating said resist by a method selected from the group consisting of (1) exposing said resist through a mask with actinic light and (2) irradiating said resist by deflection of a light, electron or ion beam;
- removing the exposed or irradiated portions from said layer or foil; and
- annealing the relief structure so obtained.

4,395,483

DIRECT POSITIVE TYPE SILVER HALIDE PHOTSENSITIVE MATERIAL

Terumi Matsuda; Shoji Ishiguro; Shigenori Moriuchi, and Yoshiaki Suzuki, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 142,954, Apr. 23, 1980, abandoned.

This application Feb. 26, 1982, Ser. No. 352,928

Claims priority, application Japan, Apr. 27, 1979, 54-52115
Int. Cl.³ G03C 5/24, 1/36

U.S. Cl. 430—411

17 Claims

1. A direct positive type silver halide photosensitive material for obtaining a high contrast image in the highlight portions thereof, said image comprised substantially of only silver prepared by:

- chemically fogging silver halide grains, and
- subsequent to said fogging, adding at least one metal ammine complex salt in an amount of 10⁻⁵ to 10⁻² mol per mol of silver wherein the metal component is selected from the group consisting of cobalt, nickel, ruthenium and chromium.

4,395,484

ROOMLIGHT-STABLE ULTRAVIOLET-RESPONSE PHOTOTHERMOGRAPHIC IMAGING MATERIAL

Greg J. McCarney, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 25, 1982, Ser. No. 392,324

Int. Cl.³ G03C 1/02, 1/84

U.S. Cl. 430—620

8 Claims

1. A thermographic layered construction comprising:
- a transparent or opaque substrate
 - coated upon one surface of said substrate, a continuous layer of a dry silver dispersion coating, said coating comprising:
 - a blend of organic silver full soap and half soap to provide in said layer a weight ratio of total silver in the coating to silver soap in the range of 1:7 to 1:4.2,
 - a polyvinyl acetal resin, said resin to silver soap weight ratio being in the range of 0.6:1 to 2:1, and
 - a protective/reaction topcoat layer comprising a cellulose acetate resin admixed with an effective amount of a development accelerator, and construction further comprising
 - 0.5 to 20 mole percent of halide ion compared to silver in said silver coating layer or said topcoat layer, at least 96 mole percent of said halide ion being chloride ion, and
 - an effective amount of at least one antihalation agent incorporated in any of layers, a, b, c, or d, or in a separate layer between said substrate and said silver coating layer,
- said construction being intrinsically ultraviolet light-responsive and roomlight stable for at least one minute, and capable of forming graphic arts images having a contrast of at least 2.5.

4,395,485

DRY ELECTROPHOTOGRAPHIC TONER COMPRISING SMALL, POLYMER COATED PARTICLES AS FLOW AGENT

Michio Kashiwagi, and Kiichi Nakajima, both of Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

PCT No. PCT/JP81/00073, § 371 Date Nov. 9, 1981, § 102(e) Date Nov. 9, 1981, PCT Pub. No. WO81/02935, PCT Pub. Date Oct. 15, 1981

PCT Filed Apr. 2, 1981, Ser. No. 321,178

Claims priority, application Japan, Apr. 3, 1980, 55-43860

Int. Cl.³ G03G 9/08, 13/09

U.S. Cl. 430—903

18 Claims

1. A one-component type dry toner, comprising a resin powder having a particle size of between 5 and 50 microns, and from 0.01 weight % to 20 weight % of a flow agent powder having a particle size of no greater than one micron and

comprising a core covered with a film no greater than 1,000 angstroms thick of a non-hydrophilic synthetic resin selected from the group consisting of epoxy resin, polyester resin, polystyrene resin, polyvinyl chloride resin, polyethylene resin, polypropylene resin, acrylic resin, xylene resin and silicone resin, the core being consisted of one member selected from the group consisting of carbon black, silica, alumina, magnesia, titania, calcia, zirconia, molybdenum disulfide, tungsten disulfide, boron nitride, silicon nitride, aluminum nitride, metallic soap, higher fatty acid, fatty acid amide, higher alcohol, higher alcohol ester, iron, copper, tin, nickel, cobalt, zinc, silver, iron alloy, copper alloy, tin alloy, nickel alloy, cobalt alloy, zinc alloy, and silver alloy.

4,395,486

METHOD FOR THE DIRECT ANALYSIS OF SICKLE CELL ANEMIA

Lois B. Wilson; John T. Wilson, both of Richmond County, Ga., and Robert F. Geever, Aiken County, S.C., assignors to Medical College of Ga. Research Inst., Inc., Augusta, Ga.

Filed Aug. 19, 1981, Ser. No. 294,227

Int. Cl.³ C12Q 1/68; G01N 33/50; C12P 19/34; C12N 15/00
U.S. Cl. 435—6 27 Claims

1. A method for the direct analysis of sickle cell anemia in the human β gene, comprising the steps of:

- obtaining an effective amount of amniotic fluid cells from a human;
- isolating DNA from said cells;
- digesting said DNA with restriction enzyme Dde I to form DNA fragments;
- separating said DNA fragments according to their respective molecular weights to form a pattern for said fragments on filter paper; and
- detecting the absence of an approximate 175 base pair fragment and the presence of an approximate 376 base pair fragment on said pattern, thereby indicating the sickle cell genotype.

4,395,487

METHOD FOR ASSAY OF α -AMYLASE ACTIVITY

Narimasa Saito, and Tatsuo Horiuchi, both of Noda, Japan, assignors to Noda Institute for Scientific Research, Noda, Japan

Filed Apr. 21, 1981, Ser. No. 256,194

Claims priority, application Japan, May 8, 1980, 55-59980

Int. Cl.³ C12Q 1/40

U.S. Cl. 435—22

6 Claims

1. A method for the assay of α -amylase activity, which comprises adding an α -amylase-containing sample to maltotetraose or maltotetraonic acid used as substrate, reacting, at the same time or subsequent to the addition, α -glucosidase with the resulting mixture, and determining the reaction product to assay the α -amylase activity.

4,395,488

DRIVE-THROUGH PIT PRODUCTION OF ETHANOL

Delton J. Rowe, 1740 Speyer La., Redondo Beach, Calif. 90278
Filed Sep. 14, 1981, Ser. No. 301,718

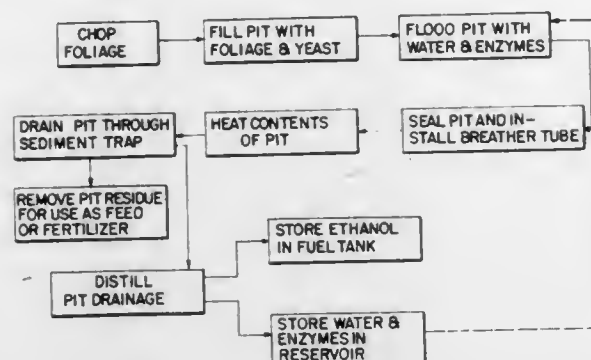
Int. Cl.³ C12P 7/06

U.S. Cl. 435—161

8 Claims

1. A method for producing ethanol, comprising the steps of: depositing carbohydrate-containing material into a pit having a bottom with one end lower than the other and heating pipes within grooves in the bottom below the surface of the bottom; driving a vehicle into the pit and using it to spread said carbohydrate-containing material; flooding the pit with a mixture of water and hydrolyzing agents until the material is covered with at least six inches of liquid; fermenting the contents of the pit;

draining the liquid contents of the pit from the lower end of the pit;
separating the drained liquid into concentrated ethanol and a mixture of water and hydrolyzing agents;



removing the mixture of water and hydrolyzing agents for later use in flooding the pit; and
driving a vehicle into the pit and removing the solid residue from the pit with the vehicle.

4,395,489

PROCESS FOR THE RECOVERY OF GLYCEROL DEHYDROGENASE

Peter Stahl, Bernried; Hans Seidel, Tutzing, and Herwig Brunner, Weilheim, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Dec. 19, 1980, Ser. No. 218,138

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1979, 2952410

Int. Cl.³ C12N 9/04; C12R 1/01

U.S. Cl. 435—190

14 Claims

1. Process for obtaining glycerol dehydrogenase from micro-organisms, which process comprises culturing a glycerol dehydrogenase-forming *Aerobacter aerogenes* micro-organism in a glycerol-containing nutrient medium, culturing the micro-organism first under aerobic conditions, up to the end of the log phase, thereafter under anaerobic conditions, during which more glycerol is added to the nutrient medium than is used up by the micro-organism, and then isolating the glycerol dehydrogenase formed from the biomass or from the nutrient medium.

4,395,490

PROCESS FOR PRODUCTION OF IMPROVED MALTASE

Charles L. Cooney, Brookline, and Eugene J. Schaefer, Somerville, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 177,709, Aug. 13, 1980, Pat. No. 4,332,899. This application Dec. 10, 1981, Ser. No. 329,449

Int. Cl.³ C12N 9/26, 1/16

U.S. Cl. 435—201

8 Claims

1. In a process for forming maltase utilizing *Saccharomyces italicus* in a growth medium, said *Saccharomyces italicus* being obtained by mutation of *Saccharomyces italicus* and having the property of producing maltase while grown on a carbon source selected from the group consisting of maltose, glycerol, acetate, fructose, glucose and sucrose, the improvement which comprises utilizing in the growth medium yeast extract at a concentration of between about 1 and 15 g/L.

4,395,491 METHOD FOR ISOLATING SOLID MATTER FROM A SALINOMYCIN CULTURE BROTH

Rolf Höhl, Hofheim, and Helmut Heine, Kronberg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 13, 1981, Ser. No. 234,318

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1980, 3005642

Int. Cl.³ C07G 17/00

U.S. Cl. 435—262

4 Claims

1. A method for isolating the solid matter from a broth in which salinomycin has been produced by fermentation, which method consisting essentially of fermenting said broth to reduce its content of fats and fat-like substances to a value of less than 2 percent, which fats and fat-like substances are present in said broth as a carbon source and defoaming agent, and spray drying said broth while adding thereto a physiologically acceptable finely powdered material as an anti-agglomeration agent in a manner so that the particles of said anti-agglomeration agent strike those portions of the culture broth solids which have already been largely dried, said anti-agglomeration agent being present in an amount sufficient to suppress agglomeration of said solid matter.

4,395,492

PERFUSION CHAMBER

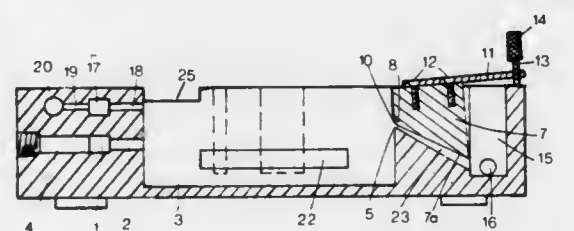
Douglas Rees, Wellington, New Zealand, assignor to Res-Del Group Ltd., Wellington, New Zealand

Filed Jun. 3, 1981, Ser. No. 270,139

Int. Cl.³ A01N 1/02; E03C 1/24

U.S. Cl. 435—283

10 Claims



1. A bath for use in the study of in vitro maintained human or animal tissue, comprising a body having a bath cavity, means to allow fluid entry into said bath cavity, and means to allow fluid exit from said bath cavity, wherein the means to allow fluid exit from said bath cavity comprises a spillway formed into a wall of the bath, said spillway having an upper horizontal edge defining the maximum level for fluid in said bath cavity and having a spillway surface sloping downwardly from said edge, said spillway being provided with means to regulate the fluid flow from the bath cavity, said means to regulate comprising a choke having a surface cooperating with said spillway surface and adjustably separated therefrom to be maintained in a predetermined contiguous relationship with said spillway.

4,395,493

MONOLAYER DEVICE USING FILTER TECHNIQUES

David J. Zahniser, Wellesley, and Gerardo L. Garcia, Harvard, both of Mass., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed May 14, 1981, Ser. No. 263,712

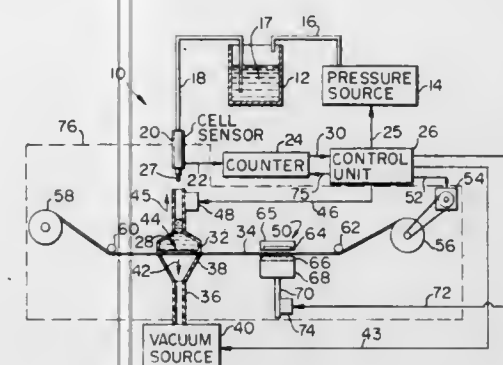
Int. Cl.³ C12M 1/36, 1/00, 1/34; G01N 1/00

U.S. Cl. 435—289

9 Claims

1. A monolayering device for applying cells from a liquid suspension to a slide to be examined, comprising: measuring means for obtaining a quantity of the liquid suspension having therein a desired number of said cells; application vessel means located at a first station for receiving said quantity of liquid; a filter tape for receiving at said first station the liquid suspension from said application vessel means, said filter tape being capa-

ble of passing the liquid of the liquid suspension, while retaining said cells; vacuum means coupled to said application vessel means for sucking the liquid of the liquid suspension through said tape, thereby to deposit the cells on a tape portion of said



filter tape; moving means for moving said tape portion having said cells from said first station to a second station; and biasing means for biasing said tape portion having the cells against the slide at said second station and thereby causing the cells to adhere to the slide.

4,395,494

REAGENT AND METHOD FOR THE DETERMINATION OF HYDRAZINE

Detlef Bodart, Darmstadt, and Roland Bitsch, Pfungstadt, both of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit Beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Oct. 24, 1980, Ser. No. 200,249

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1979, 2942960

Int. Cl.³ G01N 33/00

U.S. Cl. 436—111

9 Claims

1. A reagent for use in the colorimetric determination of hydrazine in an aqueous solution comprising 4-dimethylaminocinnamaldehyde and an ethylene glycol mono-C₁₋₄ alkylether.

4,395,495

PRODUCTION OF METHANOL

Donald R. Cummings, Cheltenham, England, assignor to D.U.T. Pty Ltd., Sydney, Australia

Filed Jul. 24, 1980, Ser. No. 171,962

Claims priority, application United Kingdom, Aug. 2, 1979, 7926932

Int. Cl.³ C07C 29/15

U.S. Cl. 518—704

12 Claims

1. In a method of producing methanol from a methane-containing gas by (a) steam reforming said gas at elevated temperature and superatmospheric pressure in a reaction vessel and in the presence of a catalyst to form a reformat containing hydrogen, oxides of carbon and unreacted methane and (b) subjecting a reaction stream comprising said reformat to conditions of elevated temperature and superatmospheric pressure for the formation of methanol by partial reaction of the oxides of carbon with the hydrogen in said reaction stream, the improvement comprising (c) separating the product of step (b) above into a methanol-containing stream and a recycle stream comprising unreacted hydrogen, unreacted oxides of carbon and methane; (d) recycling a first part of said recycle stream, which first part contains hydrogen and oxides of carbon, to step (b); (e) recycling a second part of said recycle stream, which second part contains methane, to step (a); (f) immersing, at least partially and for deriving the heat for the steam reforming step, said reaction vessel in a fluidized bed of finely divided solid which is heated at least in part by the combustion of a solid fossil based fuel; and (g) incorporating into said reaction stream for step (b) carbon dioxide provided from flue gas formed by the combustion of said solid, fossil based fuel.

4,395,496

CURED CELLULOSE ESTER, METHOD OF CURING SAME, AND USE THEREOF

Joseph W. Wittmann, and John M. Evans, both of Rochester, N.Y., assignors to UCO Optics, Inc., Rochester, N.Y.

Filed Nov. 16, 1981, Ser. No. 321,506

Int. Cl.³ C08G 77/20, 77/04; C08L 1/02; G03B 21/46

U.S. Cl. 523—107

28 Claims

1. A shaped transparent contact lens of concavo-convex shape with the concave surface substantially conforming to the cornea of the eye, said lens being formed of a composition from the polymerization of a composition comprising an organic cellulose ester selected from the group of cellulose acetate, cellulose acetate butyrate, cellulose acetate propionate or mixtures thereof; and a polymerizable ethylenically unsaturated silicone ester.

4,395,497

PREPARATION OF ELECTRICALLY CONDUCTIVE SOLUBLE HETEROPOLYPHENYLENES

Herbert Naarmann, Wattenheim; Dieter Naegle, Worms; Klaus Penzien, Frankenthal, and Johannes Schlag, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 15, 1981, Ser. No. 273,688

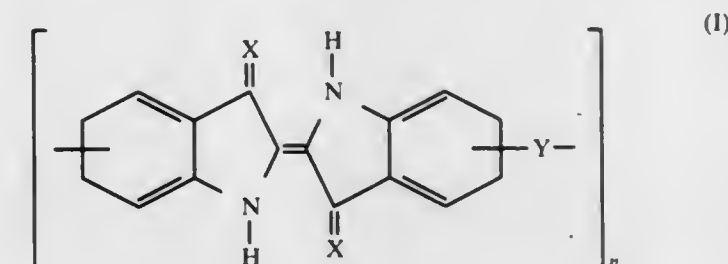
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1980, 3025771

Int. Cl.³ C08L 77/02

U.S. Cl. 523—135

7 Claims

1. A process for the preparation of an electrically conductive heteropolyphenylene having a conductivity greater than 10⁻² S/cm, wherein from 0.5 to 5 percent by weight, based on heteropolyphenylene employed, of an activating additive is introduced, in the absence of moisture and of oxygen, into a heteropolyphenylene of the formula



where X is O, S or Se, Y has one of the meanings given for X or is SO, SO₂ NH, CH₂, CO or phenylene and n is from 2 to 250.

4,395,498

HIGH TEMPERATURE PHENOLIC RESINS AND FRICTION ELEMENTS PREPARED THEREFROM

Judith L. Benham, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

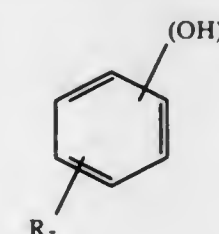
Filed Sep. 18, 1981, Ser. No. 303,554

Int. Cl.³ C08G 14/04

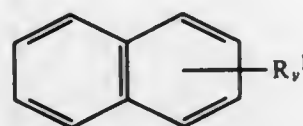
U.S. Cl. 523—158

18 Claims

1. A composition of matter heat stable to at least 371° C. comprising a physical blend of
a. 10 to 95 weight percent, based on resin solids, of a curable resin which is the acid-catalyzed reaction product of
(1) at least one phenolic compound having the formula



wherein each R independently represents an aliphatic group of 1 to 20 carbon atoms, or an aryl group having 6 to 12 carbon atoms, g is 1, 2, or 3, and z is 0, 1, or 2; (2) at least one naphthalenic compound having the formula



wherein each R¹ independently is a halo or an aliphatic group of 1 to 15 carbon atoms, and v is 0, 1, 2, and 3; and (3) formaldehyde; the mole ratio of naphthalenic compound:phenolic compound:formaldehyde in said composition being in the range of 1:0.8-5:1-10, b. 5 to 90 weight percent, based on curable binder resin solids, of prior art resins selected from bodied cashew nut shell liquid resin, bodied linseed oil resin, oil-modified phenolic resins, and mixtures thereof.

4,395,499

HIGH STRENGTH PIGMENT BINDERS FOR PAPER COATINGS CONTAINING CARBOXYLATED VINYL ESTER ALKYL ACRYLIC INTERPOLYMERS

Josephine M. Rosenski, North Plainfield, and Joseph M. Fernandez, Plainsboro, both of N.J., assignors to National Starch And Chemical Corporation, Bridgewater, N.J.

Filed Sep. 13, 1982, Ser. No. 417,291

Int. Cl.³ B32B 23/08, 27/10

U.S. Cl. 523—206

11 Claims

1. A pigmented paper coating composition comprising an aqueous synthetic polymer latex binder, pigment and sufficient alkali to achieve a pH of 6 to 10, the latex comprising dispersed therein an interpolymer having a T_g value of +30° to -40° C. which consists essentially of:

- a vinyl ester of an alkanolic acid having one to 13 carbon atoms interpolymerized with the following comonomers: (b) from 0 to 75% by weight of an alkyl acrylate; (c) from 0.01 to 1 parts per 100 parts (a) and (b) of a polyethylenically unsaturated comonomer selected from the group consisting of triallyl cyanurate, triallyl isocyanurate, diallyl maleate, diallyl fumarate, divinyl benzene and diallyl phthalate; and (d) from 0.5 to 15 parts per 100 parts (a) and (b) of an ethylenically unsaturated mono- or dicarboxylic acid or the half esters thereof.

4,395,500

PROTECTIVE COLLOID-FREE PLASTICS DISPERSION HAVING A BIMODAL PARTICLE SIZE DISTRIBUTION

Gernot Löhr, Mainz, and Rolf Reinecke, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 29, 1981, Ser. No. 306,875

Claims priority, application Fed. Rep. of Germany, Oct. 1, 1980, 3036969

Int. Cl.³ C08L 25/14

U.S. Cl. 523—221

3 Claims

1. A protective colloid free plastics aqueous dispersion having a bimodal particle size distribution, wherein the plastics portion consists of from 60 to 80 weight % of a coarse-grain polymer having an average particle size of more than 0.25 μm and from 40 to 20 weight % of a fine-grain polymer having an average particle size of below 0.2 μm, the average particle size ratio of said coarse-grain polymer to said fine-grain polymer being at least 2:1, and wherein the coarse-grain polymer and the fine-grain polymer are copolymers consisting essentially of styrene and/or esters of acrylic acid or esters of methacrylic acid and, optionally, unsaturated acids or amides of unsaturated acids in an amount of below 10 weight percent (relative to the total monomers) and, optionally, monomers capable of

being cross-linked in an amount of up to 5 weight percent (relative to the total of monomers).

4,395,501

POLYMER-CARBON BLACK MIXING

George J. Briggs, and Yung-Kang Wei, both of Sarnia, Canada, assignors to Polysar Limited, Sarnia, Canada

Filed Aug. 4, 1981, Ser. No. 289,993

Claims priority, application Canada, Oct. 31, 1980, 363667

Int. Cl.³ C08K 3/04

U.S. Cl. 523—351

16 Claims

1. A process for producing a vulcanizate having improved properties, said process comprising the steps of:

- mixing in at least two separate steps two or more C₄ or C₅ conjugated diolefin containing polymers with carbon black and other compounding ingredients except cure active agents, followed by resting of the compounds so produced,
- mixing the compounds from (a) with other compounding ingredients including sulphur and sulphur-containing or peroxidic cure active agents,
- shaping the mixture from (b), and
- vulcanizing the shaped mixture by heating at a temperature of from about 145° C. to about 225° C. for a time of from about 3 to about 60 minutes,

characterized in that in step (a), the polymers are mixed in at least two separate steps wherein:

- about 33 to about 60 weight percent of one or more of the polymers is mixed with from about 60 to 100 weight percent of the carbon black and with other compounding ingredients except cure active agents, said polymers being selected from C₄ or C₅ conjugated diolefin containing synthetic polymers,
- about 67 to about 40 weight percent of one or more of the polymers is mixed with from 0 to about 40 weight percent of the carbon black and with other compounding ingredients except cure active agents, said polymers being selected from C₄ or C₅ conjugated diolefin containing synthetic polymers and natural rubber, such mixing of polymers, carbon black and other compounding ingredients being in a single mix or in separate mixes containing only a single polymer,
- the compounds from (i) and (ii) are supplied to step (b).

4,395,502

CATHODICALLY DEPOSITABLE COATING COMPOSITIONS FOR ELECTRODEPOSITION (II)

Helmuth Hönig, and Georgios Pampouchidis, both of Graz, Austria, assignors to Vianova Kunstharz, A. G., Vienna, Austria

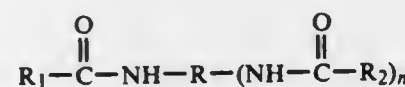
Filed Dec. 1, 1977, Ser. No. 854,628

Int. Cl.³ C08L 63/02

U.S. Cl. 523—415

7 Claims

1. A coating composition which is cathodically deposited when used in an electrodeposition process comprising as the coating binder, an aqueous emulsion of 98 to 50 percent by weight of at least one self-crosslinking cationic binder based on a modified epoxy compound, water-dilutable upon partial or total neutralization with inorganic and/or organic acids, and 2 to 50 percent by weight of a urethane of the general formula



wherein R represents an aromatic, cycloaliphatic, or aliphatic hydrocarbon radical; R₁ stands for a hydroxyethyl(meth)acrylate or a hydroxypropyl(meth)acrylate radical; R₂ is the radical of a member of the group consisting of an aliphatic monoalcohol with at least 6 carbon atoms, an alkyl radical with at least 6 carbon atoms, and an alkylene radical with at least 6 carbon atoms; and n is an integer of 1 to 2.

4,395,503

ANTENNA GROUT REPLACEMENT SYSTEM

Charles E. McClung, Kettering, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 10, 1981, Ser. No. 233,271

Int. Cl.³ C08L 63/00

U.S. Cl. 523—440

9 Claims

1. A fast-curing, non-sagging, oil-compatible, support grout consisting essentially of between 10–20% by weight of epoxy resin; 80–90% by weight of inert, inorganic filler having a mesh size below 10, less than 5% by weight of colloidal silica thickening agent and a fast curing agent for said epoxy resin in an amount effective to cure said epoxy resin in less than one minute to a rigid, cured state which is dimensionally stable under high loads and high pressures.

4,395,504

ADHESIVE SYSTEM FOR PARTICLEBOARD MANUFACTURE

Theodore Sulzberg, Highland Park, and Chi Ma, Parsippany, both of N.J., assignors to Sun Chemical Corporation, New York, N.Y.

Filed Sep. 7, 1982, Ser. No. 415,143

Int. Cl.³ B32B 21/02; C08G 12/12; C08L 1/00

U.S. Cl. 524—114

5 Claims

1. In a particleboard that comprises particles of wood and a formaldehyde-free resin adhesive system, the improvement wherein the resin adhesive system comprises the product of the reaction of a cyclic urea and glyoxal in the equivalent ratio of about 1.1–1.5:1.

4,395,505

ASCENSION PIPE AND ASCENSION PIPE CAP SEALERS FOR BY-PRODUCT COKE OVENS

Ronald S. Doles, Oak Lawn, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Filed Jun. 14, 1982, Ser. No. 387,914

Int. Cl.³ C03C 5/02; C04B 35/00

U.S. Cl. 524—55

10 Claims

1. A curable composition useful in oven sealers comprising an aqueous solution of a composition which is a combination of silica and from about 44–75% by weight of a water-soluble borate having a curing temperature in the range of about 400°–775° C. and each having a particle size in the range of 44–210 microns.

3. The composition according to claim 1 having the following weight percent analysis which, when heated to 750° C. forms a viscous glass with a composition of 52.3% B₂O₃ and 37.7% SiO₂:

- 62.00% Boric acid
- 21.00% Silica
- 2.85% Vinyl acetate/acrylic emulsion polymer
- 14.00% Water
- 0.15% Xanthan gum.

4,395,506

ADDITION OF MINERAL RUBBER TO HALOBUTYL BLENDS

Hayao Nagano, Yokohama, Japan, and Bernard J. Costemalle, Rhode-Saint-Genese, Belgium, assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jun. 15, 1981, Ser. No. 273,314

Claims priority, application Japan, Jun. 13, 1980, 55-80088

Int. Cl.³ C08L 95/00

U.S. Cl. 524—68

5 Claims

1. A rubber composition having high cured adhesion to high unsaturation rubber compounds comprising chlorobutyl and bromobutyl rubbers and up to about 20 parts by weight per 100 parts of the total amount of chlorobutyl and bromobutyl rubbers of a mineral rubber.

4,395,507

SELF-BONDING ONE-COMPONENT DIMEDONE RTV SILICONE RUBBER COMPOSITIONS

John J. Dziark, Ballston Spa, N.Y., and Kazuto Shinohara, Ohta, Japan, assignors to General Electric Silicones, Waterford, N.Y.

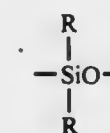
Filed Dec. 16, 1981, Ser. No. 331,232

Int. Cl.³ C08K 5/34

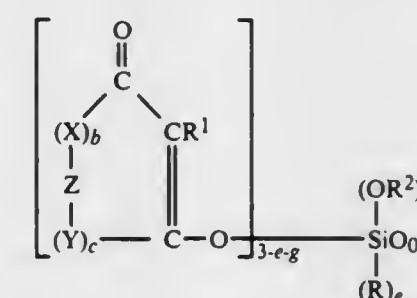
U.S. Cl. 524—101

110 Claims

1. A self-bonding one-component RTV silicone rubber composition comprising (A) 100 parts by weight of an organopolysiloxane consisting essentially of chemically combined units of the formula,



and having terminal alkoxy units of the formula,



where R is a C₍₁₋₁₃₎ monovalent organic radical, R¹ is selected from hydrogen, halogen and R, R² is a C₍₁₋₈₎ alkyl radical, X and Y are divalent radicals selected from —O—, —S—, and



Z is a divalent C₍₁₋₁₃₎ organic radical selected from alkylene, cycloalkylene, arylene and a fused ring structure, b and c are equal to 0 or 1, R³ is selected from hydrogen and R, e is a whole number having a value of 0 or 1, g is equal to 1 or 2, and the sum of e+g is equal to 1 or 2; (B) from 3 to 8 parts by weight of an adhesion promoter which is selected from the class consisting of silyl maleates, silyl fumarates, silyl succinates, silyl isocyanurates and mixtures thereof.

4,395,508

POLYCONDENSATES OF SUBSTITUTED PIPERIDINES AND USE THEREOF AS STABILIZERS FOR POLYMERS

Giuseppe Nelli, and Roberto Oriani, both of Milan, Italy, assignors to Montedison S.p.A., Milan, Italy

Continuation of Ser. No. 163,085, Jun. 26, 1980, abandoned.

This application Jul. 29, 1981, Ser. No. 287,908

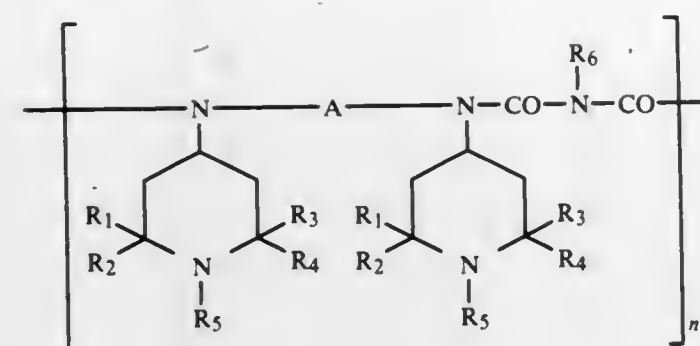
Claims priority, application Italy, Jun. 28, 1979, 23947 A/79

Int. Cl.³ C08K 5/34, 5/16; C08G 73/00; C07D 211/30

U.S. Cl. 524—103

15 Claims

1. Polyamides having the general formula (II):



wherein: each of R_1 , R_2 , R_3 and R_4 , which may be the same or different, is an alkyl radical having 1 to 4 carbon atoms; R_5 is hydrogen or an alkyl radical having 1 to 4 carbon atoms; R_6 is hydrogen, an alkyl radical having 1 to 20 carbon atoms, a cycloalkyl radical having 3 to 10 carbon atoms, an aryl radical or an alkyl-aryl radical having from 6 to 20 carbon atoms; A is an alkylene radical having 3 to 10 carbon atoms or a cycloalkylene radical having 3 to 10 carbon atoms, and n is an integer from 2 to 100.

4,395,509

POLY(ARYLENE SULFIDE) COMPOSITION SUITABLE FOR MOLDING

Jennings P. Blackwell; Dale O. Tieszen, both of Bartlesville, Okla., and Jack G. Scruggs, Greenville, S.C., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 2, 1982, Ser. No. 354,129

Int. Cl.³ C08L 81/04

U.S. Cl. 524—127

11 Claims

1. A composition suitable for molding comprising:
 - (a) from about 30 to about 50 weight percent poly(arylene sulfide),
 - (b) from about 10 to about 30 weight percent glass fibers,
 - (c) from about 30 to about 60 weight percent of a component chosen from glass beads, fused silica and mixtures thereof, and
 - (d) from about 0.5 to about 2 weight percent of a processing aid chosen from N,N' -alkylenesulfide(alkanamides), glycerides and phosphated glycerides of saturated fatty acids, containing from 10 to 30 carbon atoms, mono- and dialkanolamides derived from saturated fatty acids and esters derived from a saturated long-chain fatty acid and long-chain saturated aliphatic alcohol.

4,395,510

NOVEL OLEFIN POLYMER COMPOSITIONS AND FOAMED ARTICLES PREPARED THEREFROM HAVING IMPROVED ELEVATED TEMPERATURE DIMENSIONAL STABILITY

Chung P. Park, Pickerington, Ohio, assignor to The Dow Chemical Co., Midland, Mich.

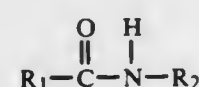
Division of Ser. No. 375,606, May 6, 1982, Pat. No. 4,368,276, which is a continuation-in-part of Ser. No. 267,207, May 26, 1981, abandoned, which is a continuation-in-part of Ser. No. 154,333, May 29, 1980, abandoned. This application Sep. 24, 1982, Ser. No. 422,768

Int. Cl.³ C08K 5/20; C08J 9/14

U.S. Cl. 524—230

9 Claims

1. An olefin polymer composition consisting essentially of an olefin polymer and from about 0.15 to about 10 weight percent based upon the weight of said olefin polymer of an N -substituted fatty acid amide of the Formula:



wherein R_1 represents an alkyl group of from about 11 to about 17 carbon atoms and R_2 represents an alkyl group of from about 12 to about 18 carbon atoms, said N -substituted fatty

acid amide being selected from the group consisting of N -lauryl lauric acid amide, N -lauryl myristamide, N -myristyl myristamide, N -palmityl myristamide, N -lauryl palmitamide, N -myristyl palmitamide, N -palmityl palmitamide, N -palmityl stearamide and N -stearyl stearamide; said N -substituted fatty acid amide being employed in an amount such that if said olefin polymer composition is foamed by extrusion using a volatile organic blowing agent, the presence of said fatty acid amide prevents the freshly prepared foam from shrinking by more than 10% from its initially foamed volume when subjected to prolonged exposure to atmospheric pressure air at 150° F.

4,395,511

HEAT SEALABLE, FLAME AND ABRASION RESISTANT COATED FABRIC

Richard P. Tschirch, Westwood, and Kenneth R. Sidman, Wayland, both of Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 145,107, Apr. 30, 1980, Pat. No. 4,284,682.

This application Mar. 6, 1981, Ser. No. 241,155

Int. Cl.³ C08K 5/06

U.S. Cl. 524—371

3 Claims

1. A flame retardant elastomeric composition for coating fabrics made from synthetic or natural fibers, the coating being flexible, abrasion resistant, and heat sealable, which elastomeric composition comprises from about 30 to about 60 percent by weight of a soluble, thermoplastic polyurethane and from about 70 to about 40 weight percent of a flame retardant additive selected from the group consisting of decabromodiphenyloxide and antimony oxide in a weight ratio of 3:1, respectively, and decabromodiphenyloxide, antimony oxide, and ammonium polyphosphate in a weight ratio of 3:1:3, respectively.

4,395,512

POLYPHENYLENESULFIDE RESIN COMPOSITION

Yoshihiro Kubota, Takasaki, and Osamu Kuriyama, Annaka, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed May 24, 1982, Ser. No. 381,563

Claims priority, application Japan, Jun. 8, 1981, 56-87945

Int. Cl.³ C08K 3/10

U.S. Cl. 524—413

2 Claims

1. A polyphenylenesulfide resin composition which comprises
 - (a) 100 parts by weight of a polyphenylenesulfide resin,
 - (b) from 10 to 300 parts by weight of an inorganic filler, and
 - (c) from 1 to 100 parts by weight of a fluorine-containing rubber having a Mooney viscosity as specified by ASTM D 1646 in the range from 5—ML1+10 (100° C.) to 300—ML1+10 (121° C.)

4,395,513

HIGH PERFORMANCE THERMALLY STABLE POLY(6-OXY-2-NAPHTHOATE)

Gordon W. Calundann, Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Apr. 8, 1982, Ser. No. 366,679

Int. Cl.³ C08G 63/06

U.S. Cl. 524—599

11 Claims

1. A high performance thermally stable polymer consisting of recurring 6-oxy-2-naphthoyl moieties and 0 to approximately 3 mole percent of other ester-forming and/or amide-forming moieties which include at least one aromatic ring.

4,395,514

PROCESS FOR PREPARING A CARBON FIBER REINFORCED COMPOSITE ARTICLE WHICH UTILIZES A POLYIMIDE MATRIX

Robert Edelman, Staten Island, N.Y., assignor to Celanese Corporation, New York, N.Y.

Division of Ser. No. 141,701, Apr. 18, 1980, Pat. No. 4,338,430.

This application Jan. 29, 1982, Ser. No. 343,868

Int. Cl.³ C08L 67/02

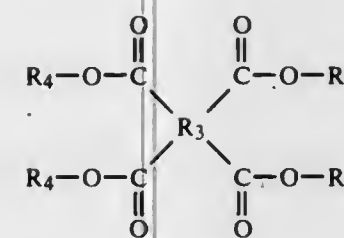
U.S. Cl. 524—600

7 Claims

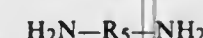
1. A process for preparing a carbon fiber reinforced composite article wherein a polyimide constitutes the continuous phase which comprises:

- (1) providing a polyimide forming catalyst-monomer mixture comprising:

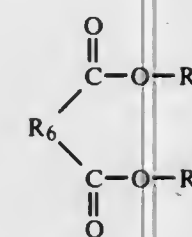
- (a) at least one ester of the formula:



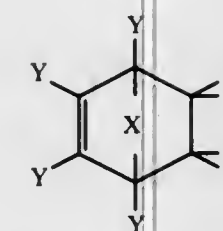
- wherein R_3 is a tetravalent aryl radical, and R_4 is selected from the group consisting of a lower alkyl radical having 1 to 4 carbon atoms, and hydrogen, with two R_4 groups being alkyl and two R_4 groups being hydrogen;
- (b) at least one amine of the formula:



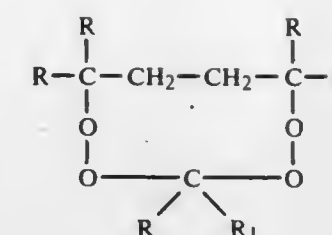
- wherein R_5 is a divalent aryl radical; and
- (c) at least one ester of the formula:



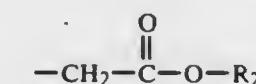
- wherein R_4 is selected from the group consisting of a lower alkyl radical having 1 to 4 carbon atoms, and hydrogen with one R_4 group being alkyl and one R_4 group being hydrogen, and R_6 is a divalent radical of the formula:



- wherein Y , which is the same or different, is selected from the group consisting of hydrogen, and methyl and X is an alkylidene radical of from 1 to 6 carbon atoms; wherein monomers (a), (b) and (c) are present in said mixture at a molar ratio of $n:(n+x):y$ respectively, wherein n is an integer of from about 1 to about 20, x is an integer of from about 0.5 to about 1, and y is an integer of from about 1.5 to about 2, and from about 0.5 to about 15%, by weight, based on the weight of the monomer mixture, of at least one peroxide catalyst represented by the structural formula:



- wherein R , which is the same or different, is a lower alkyl group having from 1 to about 3 carbon atoms, and R_1 is an alkyl acetate group of the formula:



- wherein R_2 is an alkyl group having from 1 to about 4 carbon atoms;

- (2) impregnating at least one carbon fiber lamina with said polyimide forming catalyst-monomer mixture of step (1);
- (3) reacting said polyimide forming catalyst-monomer mixture in the presence of the at least one carbon fiber lamina at a temperature of from about 250° to about 350° F. for a period of from about 0.5 to about 3 hours and at a pressure of from about 2 to about 30 in.Hg to form a prepolymer; and
- (4) curing the prepolymer to form a carbon fiber reinforced composite article while employing a short cure procedure which comprises the steps of heating the prepolymer to a temperature of from about 375° to about 425° F. at a continuous or intermittent pressure of from about 175 to about 225 psi; raising the temperature of the prepolymer to a temperature of from about 450° to about 625° F. while under a continuous or intermittent pressure of from about 175 to about 225 psi; and maintaining the temperature of the prepolymer thereat for a period of about 10 to about 120 minutes.

4,395,515

RESIN DISPERSIONS HAVING HIGH PIGMENT BINDING CAPACITY

Horst Dinklage, Dieburg; Herbert Fink, Bickenbach; Peter Frank, Seeheim-Jugenheim; Hubert Rauch, Weiterstadt, and Werner Siel, Pfungstadt, all of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Dec. 24, 1981, Ser. No. 334,228

Claims priority, application Fed. Rep. of Germany, Jan. 22, 1981, 3101892

Int. Cl.³ C08L 33/02

U.S. Cl. 524—832

10 Claims

1. A method for making an aqueous dispersion of a synthetic resin copolymer by the free radical copolymerization of from 92 to 97 percent, by weight of the copolymer, of water insoluble ethylenically unsaturated monomers and from 3 to 8 percent, by weight of the copolymer, of an acid component selected from the group consisting essentially of α,β -ethylenically unsaturated mono- and di-carboxylic acids and the water soluble salts thereof, the weight of salt in each instance being calculated as the weight of the corresponding free acid, said dispersion having high pigment binding capacity, which method comprises gradually adding said water insoluble monomers, under free radical copolymerization conditions, together with a portion of said acid component which is at least 2 percent by weight of the copolymer, to an aqueous medium comprising from 1 to 4 percent, by weight of the copolymer, of at least one water soluble salt of a mono- or di-carboxylic acid forming the remainder of said acid component.

4,395,516

**THERMOPLASTIC RESIN COMPOSITIONS
COMPRISING COPOLYMER OF UNSATURATED
DICARBOXYLIC ACID ANHYDRIDE AND VINYL
AROMATIC MONOMER, ABS, AND
METHYLMETHACRYLATE POLYMER**

Tatuhiko Imai, and Akira Ohi, both of Sakai, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Dec. 21, 1981, Ser. No. 332,892

Claims priority, application Japan, Dec. 26, 1980, 55/186163

Int. Cl.³ C08L 55/02, 25/08, 33/12

U.S. Cl. 525—71

10 Claims

1. A thermoplastic molding composition which consists essentially of a blend of

(A) from 5 to 95 wt. % of a copolymer consisting essentially of

(1) from 5 to 50 wt. % of an unsaturated dicarboxylic acid anhydride,

(2) from 50 to 95 wt. % of a vinyl aromatic monomer,

(3) from 0 to 30 wt. % of a vinyl cyanide monomer, alkyl acrylate monomer or alkyl methacrylate monomer, and

(4) from 0 to 50 wt. % of a rubber

(B) from 5 to 95 wt. % of an ABS resin containing from 2 to 70 wt. %, based on said ABS resin, of a butadiene rubber, and

(C) from 0.1 to 20 wt. %, per 80 to 99.9 wt. % of the sum of the amounts of (A) plus (B), of thermoplastic acrylic resin different from (A) and (B) and which is a copolymer or multi-stage polymer containing at least 20 wt. % of methyl methacrylate, based on said acrylic resin.

4,395,517

MODIFIED OLEFINE POLYMERS

Helmut Waniczek, Cologne; Carlhans Siling, Odenthal; Christian Lindner, Cologne, and Herbert Bartl, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 17, 1981, Ser. No. 274,545

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023822

Int. Cl.³ C08L 75/06, 67/00, 69/00

U.S. Cl. 525—168

3 Claims

1. A process for the preparation of modified olefine polymers, wherein 20 to 98 parts by weight of an olefine homopolymer or copolymer, 0.5 to 80 parts by weight of a polymer containing saturated aliphatic polyester blocks and 0.5 to 40 parts by weight of a monomer containing olefinic double bonds are polymerized in the presence of a radical initiator at 50° to 250° C. in the absence of a solvent.

4,395,518

POLYETHERIMIDE-ACRYLATE COPOLYMER BLENDS

Harold F. Giles, Jr., Cheshire, Mass., and Dwain M. White, Schenectady, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Mar. 18, 1982, Ser. No. 359,509

Int. Cl.³ C08L 79/08

U.S. Cl. 525—180

9 Claims

1. A composition comprising a blend of (a) a minor proportion of an acrylate copolymer and (b) a polyetherimide.

4,395,519

**PHYSICALLY BLENDED PROPYLENE POLYMER
COMPOSITION**

Syuzi Minami, Ohtake; Norio Kashiwa, Iwakuni; Akifumi Kato, and Junichi Watanabe, both of Ohtake, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Continuation of Ser. No. 31,298, Apr. 18, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,550

Int. Cl.³ C08L 23/16, 23/12, 23/06

U.S. Cl. 525—240

5 Claims

1. A physically blended propylene polymer composition comprising

(A) 100 parts by weight of crystalline polypropylene containing 0 to 10 mole% of a member selected from the group consisting of ethylene, another α -olefin, and a mixture thereof,

(B) 1 to 30 parts by weight of a propylene/ethylene random copolymer composed of 30 to 85 mole% of propylene, said copolymer containing 0 to 10 mole% of a diene component and having (i) a micro-isotacticity of at least 0.8 and (ii) a boiling n-cyclohexane insolubles content of 0 to 10% by weight, said random copolymer being prepared by using a catalyst comprising a carrier-supported solid titanium catalyst component containing magnesium, halogen, titanium and an electron donor, and an organoaluminum compound catalyst component, and

(C) 0 to 30 parts by weight of polyethylene containing 0 to 15 mole% of an α -olefin, said components (A) and (B) having been physically mixed with each other.

4,395,520

**PROCESS FOR CURING THERMOSETTING RESINS
USING SULFUR DIOXIDE CONTAINING COMPOUNDS
AS LATENT CATALYSTS**

Sui-Wu Chow, and George L. Brode, both of Bridgewater Township, Somerville County, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jan. 20, 1982, Ser. No. 340,852

Int. Cl.³ C08G 8/28, 8/30, 8/32, 12/40

U.S. Cl. 525—502

16 Claims

1. In a process for the curing of a thermosetting resin which is curable using an acid catalyst, the improvement being the use of a sulfur dioxide containing compound as a latent catalyst, said compound being stable at a temperature less than about 60° C. and dissociable into sulfur dioxide at a temperature greater than about 100° C.

4,395,521

**PROCESS FOR CURING THERMOSET RESINS USING
PHENYL ESTERS OF CARBOXYLIC ACIDS AS LATENT
CATALYSTS**

Sui-Wu Chow, and George L. Brode, both of Bridgewater Township, Somerset County, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jan. 20, 1982, Ser. No. 340,854

Int. Cl.³ C08G 8/30, 8/32, 12/40, 12/44

U.S. Cl. 525—502

10 Claims

1. In a process for the curing of a thermosetting resin which

is curable using an acid catalyst, the improvement being the use of a phenyl ester of a carboxylic acid as a latent catalyst, said phenyl ester being hydrolyzable at a temperature greater than 100° C. and in the presence of water to form a carboxylic acid having a pK_a of about 2 or less.

4,395,522

Patent Not Issued For This Number

4,395,523

**METHOD OF MAKING AND RECOVERING OLEFIN
POLYMER PARTICLES**

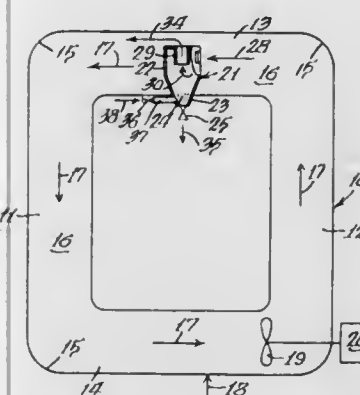
William Kirch, Clinton, Iowa, assignor to Chemplex Company, Rolling Meadows, Ill.

Continuation of Ser. No. 257,222, Apr. 23, 1981, abandoned, which is a continuation-in-part of Ser. No. 71,129, Aug. 30, 1979, abandoned, which is a division of Ser. No. 887,668, Mar. 16, 1978, Pat. No. 4,199,546. This application May 27, 1982, Ser. No. 382,488

Int. Cl.³ C08F 2/14

U.S. Cl. 526—64

3 Claims



1. A method for producing and recovering solid polyolefin particles in a particle form olefin polymerization process, comprising:

directing a flowing liquid stream comprising liquid diluent, olefin monomer and catalyst for the polymerization and the resulting polyolefin particles under polymerizing heat and pressure conditions in the flow path through a continuous loop comprising a polymerization zone;

directing a portion of said flowing liquid stream from said loop through a liquid cyclone separator for producing a concentrated slurry of a portion of said particles and a separate relatively clear liquid, while exchanging heat between said flowing liquid stream in said loop and said flowing liquid stream in said separator by immersing said cyclone separator in said flowing liquid stream in said loop at said polymerization zone for maintaining said flowing liquid stream within said separator at substantially the same temperature as said flowing liquid stream in said loop at said polymerization zone to continue said polymerizing conditions while said portion of said flowing liquid stream is passing through said separator;

returning said relatively clear liquid to said polymerization zone; and directing said concentrated slurry to a place of recovery of said particles.

4,395,524

**ACRYLAMIDE COPOLYMER THICKENER FOR
AQUEOUS SYSTEMS**

William D. Emmons, Huntingdon Valley, and Travis E. Stevens, Ambler, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Apr. 10, 1981, Ser. No. 252,721

Int. Cl.³ C08F 220/54, 220/56, 220/58

U.S. Cl. 526—307.2

17 Claims

1. A nonionic or anionic water-soluble addition copolymer of monomers comprising, by weight,

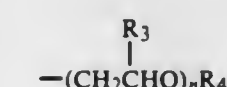
(A) at least 50% of acrylamide;

(B) 0.01 to 50% of a compound having the formula

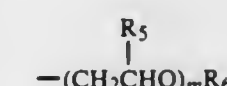


wherein

R_1 is



R_2 is H or



R_3 and R_5 are H or methyl, independently, R_4 and R_6 are hydrocarbyl having 6 or more carbons, independently, and m and n are zero or a positive integer, independently; and (C) 0 to 49.99% one or more other olefinically unsaturated monomers;

the copolymer having a weight average molecular weight greater than 30,000.

4,395,525

HOT MELT ADHESIVES

Hannes Fischer, Taunusstein, and Rolf Zimmermann, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,013

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1979, 2940649

Int. Cl.³ C08F 220/06, 220/56

U.S. Cl. 526—307.6

7 Claims

1. A hot melt adhesive having a good heat stability comprising a copolymer of

(a) from 85 to 95% by weight of an alkylester of at least one carboxylic acid selected from the group consisting of acrylic and methacrylic acid each having 1 to 12 carbon atoms in the alkyl radical,

(b) from 3 to 10% by weight of at least one acrylic or methacrylic amide or mixture thereof,

(c) from 0.2 to 3% by weight of at least one olefinically unsaturated carboxylic acid having at most 2 carboxylic groups and having up to 5 carbon atoms wherein the total of the percentages is always 100 and wherein the copolymer has a melt viscosity of 20 to 80 Pa.s/180° C.

4,395,526

ONE PACKAGE, STABLE, MOISTURE CURABLE, POLYALKOXY-TERMINATED ORGANOPOLYSILOXANE COMPOSITIONS AND METHOD FOR MAKING

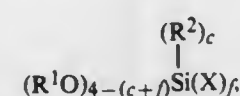
Mary A. White; Melvin D. Beers, both of Schenectady; Gary M. Lucas, Scotia; Robert A. Smith, and Roger T. Swiger, both of Schenectady, all of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Jun. 26, 1981, Ser. No. 277,524
Int. Cl.³ C08G 77/06

U.S. Cl. 528-18

36 Claims

1. A stable, one-package, substantially anhydrous and substantially acid-free, room temperature vulcanizable organopolysiloxane composition stable under ambient conditions in the substantial absence of moisture over an extended period of time and convertible to a tack-free elastomer comprising: (1) an organopolysiloxane wherein the silicon atom at each polymer chain end is terminated with at least 2 alkoxy radicals; (2) an effective amount of a condensation catalyst; (3) a stabilizing amount of silane scavenger for hydroxy functional groups having the formula



where R^1 is a $C_{(1-8)}$ aliphatic organic radical selected from the group consisting of alkyl, alkylether, alkylester, alkylketone, and alkylcyano radicals, or a $C_{(7-13)}$ aralkyl radical, R^2 is a $C_{(1-13)}$ monovalent substituted or unsubstituted hydrocarbon radical, X is a hydrolyzable leaving group selected from the group consisting of amido, amino, carbamato, enoxy, imidato, isocyanato, oximato, thioisocyanato and ureido radicals and, c is a whole number equal to 0 to 3 inclusive, f is an integer equal to 1 to 4 inclusive and the sum of c + f is equal to 1 to 4 inclusive; and where X is enoxy or amido, (4) an effective amount of a curing accelerator selected from the group consisting of substituted guanidines, amines and mixtures thereof.

4,395,527

SILOXANE-CONTAINING POLYMERS

Ade Berger, Summit, N.J., assignor to M & T Chemicals Inc., Woodbridge, N.J.

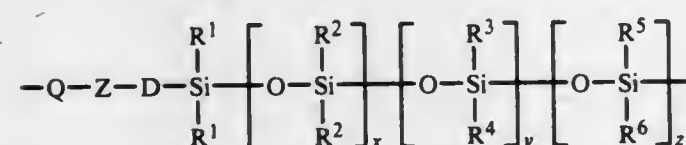
Continuation-in-part of Ser. No. 158,056, Jun. 9, 1980, abandoned, Ser. No. 174,400, Aug. 1, 1980, abandoned, Ser. No. 51,840, Jun. 25, 1979, Ser. No. 126,666, Mar. 3, 1980, abandoned, Ser. No. 205,120, Nov. 10, 1980, abandoned, and Ser. No. 51,699, Jun. 25, 1979, abandoned, said Ser. No. 158,056, which is a continuation-in-part of Ser. No. 958,358, Nov. 6, 1978, abandoned, said Ser. No. 51,840, and Ser. No. 126,666, each is a continuation-in-part of Ser. No. 11,901, Feb. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 906,877, May 17, 1978, Pat. No. 4,139,547, said Ser. No. 205,120, which is a continuation-in-part of Ser. No. 16,412, Mar. 1, 1979, abandoned, said Ser. No. 174,400, Ser. No. 16,412, and Ser. No. 51,699, each is a continuation-in-part of Ser. No. 907,155, May 17, 1978, abandoned. This application Dec. 15, 1980, Ser. No. 216,599

Int. Cl.³ C08G 77/04

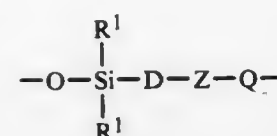
U.S. Cl. 528-26

31 Claims

1. A polymeric composition comprising a polyimide, poly(amide-imide) or a poly(half-amide) polymer containing a thermally stable siloxane unit of formula



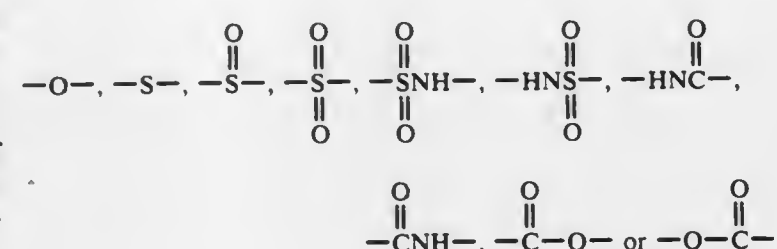
-continued



where

Q is a substituted or unsubstituted aromatic group

Z is



D is unsubstituted or substituted hydrocarbylene;

R^1, R^2, R^3, R^4, R^5 and R^6 each independently is unsubstituted or substituted hydrocarbyl;

x, y and z each independently has a value from 0 to 100.

4,395,528

CATALYST COMPOSITION AND CURABLE POLYMER COMPOSITIONS CONTAINING SAME

Howard H. Leiner, Cranbury, and Emily C. Bossert, Westfield, both of N.J., assignors to M&T Chemicals Inc., Woodbridge, N.J.

Filed Mar. 2, 1981, Ser. No. 239,874

Int. Cl.³ C08G 18/80; B01J 31/12

U.S. Cl. 528-45

31 Claims

1. A composition for catalyzing the curing reaction between a blocked organic polyisocyanate and a polymer having hydroxyl groups capable of reacting with polyisocyanates said catalyst composition comprising:

- (1) a divalent metal compound selected from the group consisting of salts and chelated coordination complexes of copper^{II}, zinc^{II}, nickel^{II}, iron^{II}, cobalt^{II} and vanadium^{II} and
- (2) an amount of a tin-containing urethane catalyst sufficient to increase the catalytic effectiveness of said divalent metal compound wherein said tin-containing catalyst is present in an amount from about 10% by weight of the combined weight of said divalent metal compound and tin-containing urethane catalyst in said composition.

11. A curable polymeric composition comprising

- (a) a polymeric component containing pendant hydroxyl groups capable of reacting with polyisocyanates and an organic polyisocyanate component containing at least two blocked isocyanate groups or a polymeric component containing both pendant hydroxyl groups and blocked isocyanate groups, and
- (b) a catalytically effective amount of a catalyst composition comprising a divalent metal compound selected from the group consisting of salts and chelated coordination complexes of copper^{II}, zinc^{II}, nickel^{II}, iron^{II}, cobalt^{II}, and vanadium^{II} and a tin-containing urethane catalyst in an amount sufficient to increase the catalytic effectiveness of said divalent metal compound and wherein said tin-containing catalyst constitutes from about 10% by weight of the combined weight of divalent metal and tin-containing catalyst.

4,395,529

COATING POWDERS FOR PROTECTIVE FILMS BASED ON EPSILON-CAPROLACTAM BLOCKED ISOCYANATES

K. A. Pai Panandiker, Maple Grove, and Charles Danick, Plymouth, both of Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Filed Jul. 20, 1981, Ser. No. 285,353

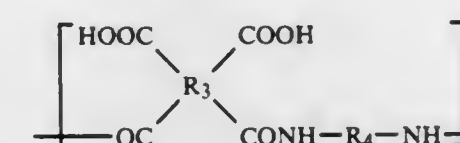
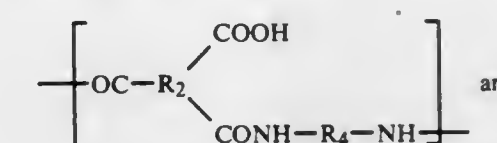
Int. Cl.³ C08G 18/80, 18/75

U.S. Cl. 528-45

8 Claims

1. A coating composition which comprises a molar mixture of E-caprolactam blocked polyisocyanate and E-caprolactam blocked diisocyanate in a ratio in a range of about 1:0 to about 1:1.5, said blocked polyisocyanate comprising the reaction product of a polyhydric compound and a diisocyanate, said diisocyanate being selected from the group consisting of 1,4-bis(isocyanatomethyl)cyclohexane, 1,3-bis(isocyanatomethyl)cyclohexane and mixtures thereof, said polyhydric compound being selected from the group consisting of trimethylol propane, trimethylol ethane, glycerine, E-caprolactone, and mixtures thereof; and a film forming hydroxy-containing polyester.

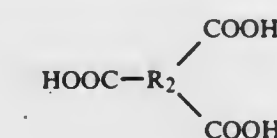
consisting essentially of repeating units of the general formulas



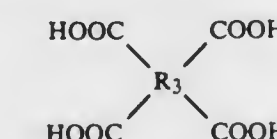
by reacting at least one polycarboxylic acid selected from the group consisting of dicarboxylic acids of the general formula



tricarboxylic acids of the general formula



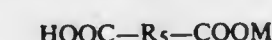
and tetracarboxylic acids of the general formula



with at least one diisocyanate of the general formula



where R_1 is a divalent radical containing at least two carbon atoms or such a radical additionally having one or more substituents comprising radicals or atoms that are unreactive or scarcely reactive with carboxyl or isocyanate groups, the two carbonyl groups adjacent to the R_1 radical being attached to two different carbon atoms contained in the R_1 radical, R_2 is a trivalent radical containing at least three carbon atoms or such a radical additionally having one or more substituents comprising radicals or atoms that are unreactive or scarcely reactive with carboxyl or isocyanate groups, two of the three carbonyl groups adjacent to the R_2 radical being attached to two adjacent carbon atoms contained in the R_2 radical and the remaining one being attached to another carbon atom contained in the R_2 radical, R_3 is a tetravalent radical containing at least four carbon atoms or such a radical additionally having one or more substituents comprising radicals or atoms that are unreactive or scarcely reactive with carboxyl or isocyanate groups, the four carbonyl groups adjacent to the R_3 radical being attached to four different carbon atoms contained in the R_3 radical and constituting two different pairs of adjacent carbon atoms, and R_4 is a divalent radical containing at least two carbon atoms or such a radical additionally having one or more substituents comprising radicals or atoms that are unreactive or scarcely reactive with carboxyl or isocyanate groups, the two nitrogen atoms adjacent to the R_4 radical being attached to two different carbon atoms contained in the R_4 radical, the improvement which comprises effecting the reaction in the presence of at least one mono-alkali metal salt of dicarboxylic acid of the general formula



where R_5 is a divalent radical defined similarly to R_1 but may

4,395,531

PROCESS FOR THE PREPARATION OF POLYAMIDE COMPOUNDS BY THE REACTION OF POLYCARBOXYLIC ACIDS WITH DIISOCYANATES IN THE PRESENCE OF AT LEAST ONE MONO-ALKALI METAL SALT OF DICARBOXYLIC ACID

Toshihiro Toyoda; Motoo Kawamata; Masanori Osawa; Masayoshi Itoh; Kazumi Mizutani, all of Yokohama, and Masahiro Kono, Kanagawa, all of Japan, assignors to Mitsui Toatsu Chemical Incorporated, Japan

Filed Feb. 23, 1982, Ser. No. 351,602

Claims priority, application Japan, Mar. 14, 1981, 56/37132; Apr. 28, 1981, 56/63328

Int. Cl.³ C08G 18/34

U.S. Cl. 528-49

13 Claims

1. In a process for the preparation of a polyamide compound having one or more repeating units selected from the group

be the same as or different from R_1 , and M is an alkali metal belonging to the group I_A in the periodic table.

4,395,532

COATING COMPOSITION

Herman A. Bruson, deceased, late of Woodbridge, Conn., and by Virginia H. Bruson, executrix, 98 Ansonia Rd., Woodbridge, Conn. 06525

Filed Mar. 25, 1982, Ser. No. 361,366

Int. Cl.³ C08G 18/30

U.S. Cl. 528—75

4 Claims

1. A low cost resistant coating composition which comprises the reaction product of at least one polyurethane-forming reagent containing a plurality of isocyanate groups and dicyclopentenyl alcohol.

4,395,533

POLYURETHANES PREPARED FROM HYDROXY BENZAMIDES OR POLYOLS PREPARED FROM HYDROXY BENZAMIDES AND POLYISOCYANATES OR POLYISOTHIOCYANATES

James L. Bertram, Lake Jackson, Tex., and Edmund P. Woo, Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich.

Division of Ser. No. 240,742, Mar. 5, 1981, Pat. No. 4,367,328. This application May 13, 1982, Ser. No. 377,658

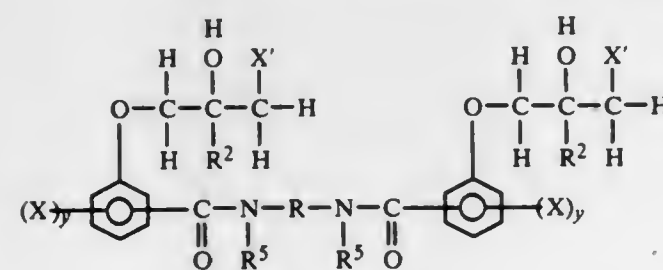
Int. Cl.³ C08G 18/28

U.S. Cl. 528—77

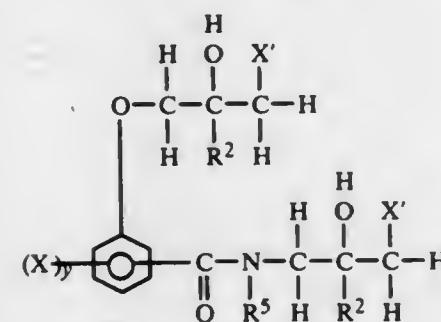
4 Claims

1. A product resulting from reacting (I) a vicinal dihydroxyl-containing material or mixture of such materials represented by the following formulas VIII, IX or X.

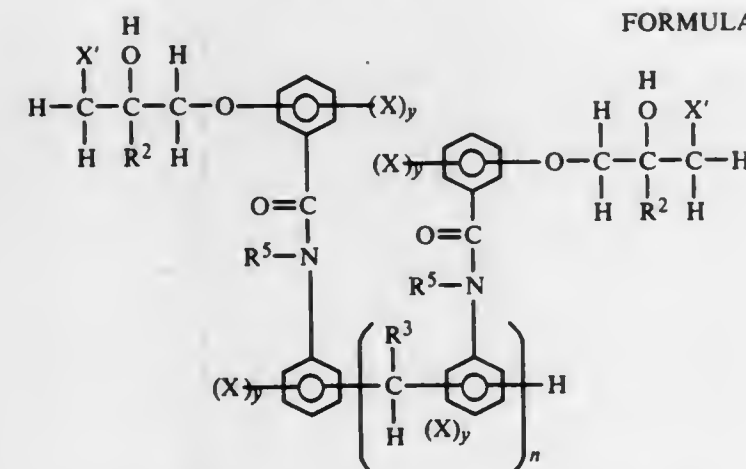
FORMULA VIII



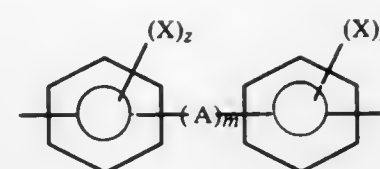
FORMULA IX



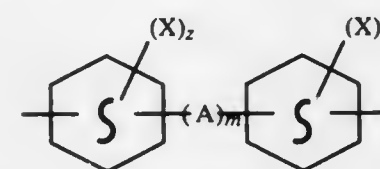
FORMULA X



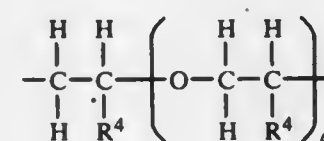
wherein each R is a divalent hydrocarbyl group having from 1 to about 18 carbon atoms, a group represented by the following formulas IV, V, VI or VII



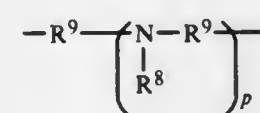
FORMULA IV



FORMULA V

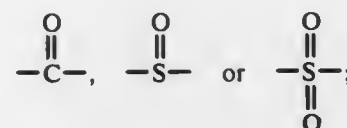


FORMULA VI



FORMULA VII

or R can be combined with R^5 so as to form a stable heterocyclic ring with the nitrogen atoms; each A is independently a divalent hydrocarbyl group having from 1 to about 10 carbon atoms, —O—, —S—, —S—S—,



FORMULA XV

each R^2 and R^3 is independently hydrogen or an alkyl group having from 1 to about 4 carbon atoms; each R^4 is independently hydrogen, a hydrocarbyl or a halogen substituted hydrocarbyl group having from 1 to about 8 carbon atoms; each R^5 is independently hydrogen, a 2-hydroxy-3-halopropyl group, a 2-alkyl-2-hydroxy-3-halopropyl group, a monovalent hydrocarbyl group or a hydroxyl substituted monovalent hydrocarbyl group, said hydrocarbyl groups having from 1 to about 9 carbon atoms, said alkyl group having from 1 to about 4 carbon atoms; each R^8 is independently selected from the group represented by the following formula XV

or the groups represented by R^5 , except that R^8 cannot be hydrogen; each R^9 is a divalent hydrocarbyl group having from 2 to about 4 carbon atoms; each X is independently hydrogen, chlorine, bromine or a hydrocarbyl or hydrocarbyloxy group having from 1 to about 9 carbon atoms; each X' is a hydroxyl group; each m independently has a value of zero or 1; n has an average value of from about 0.01 to about 6; p has an average value of from 1 to about 10; q has an average value of at least 1 and each y and z independently has a value of 1 or 2 with (2) a polyisocyanate, polyisothiocyanate or mixture thereof.

4,395,534

PROCESS FOR PRODUCING AROMATIC POLYESTER CARBONATE RESIN

Senzo Shimizu, Odawara; Isao Nomura; Masahiro Harada, both of Hiratsuka; Motohachi Usui, Odawara; Susumu Taniyama, Toyonaka, and Shigeo Yanada, Osaka, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Nov. 17, 1981, Ser. No. 322,244

Int. Cl.³ C08G 63/64

U.S. Cl. 528—126

10 Claims

1. A process for producing an aromatic polyester carbonate resin in which the molar ratio of dihydric phenolic compound residue to aromatic dicarboxylic acid residue to carbonate bond is in the range of 2:0.5:1.5–2:1.4:0.6 and said constituent components form a substantially completely regular alternating configuration, said process comprising a first step wherein, in producing a hydroxyl-terminated aromatic oligocarbonate by reacting a dihydric phenolic compound with a halogenated carbonyl compound in a reaction medium consisting of water and a water-immiscible solvent in the presence of a basic inorganic compound, the reaction is carried out by using the basic inorganic compound in an amount of 0.6–1.6 moles per mole of the dihydric phenolic compound and the halogenated carbonyl compound in an amount of 0.3–0.8 mole per mole of the dihydric phenolic compound to form a reaction product mixture consisting predominantly of a phenolic hydroxyl-terminated oligocarbonate having a degree of polymerization of 1–3, and a second step in which an esterification reaction is carried out by reacting the reaction product mixture obtained in the first step with an aromatic dicarboxylic acid dichloride in the presence of a basic inorganic compound in an amount at least sufficient to neutralize the free phenolic hydroxyl groups that remain in the reaction product mixture.

esterification reaction mixture of (i) under polyester polymerization conditions.

4,395,537

POLYETHER RESIN AND METHOD OF MANUFACTURING THE SAME

Kazuya Yonezawa; Masahiro Asada, both of Kobe, and Miyuki Matsuura, Nishinomiya, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 25, 1981, Ser. No. 296,209

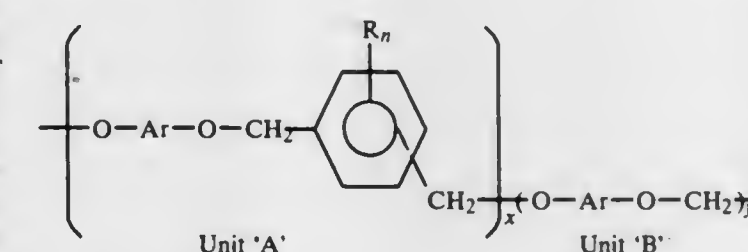
Claims priority, application Japan, Sep. 5, 1980, 55-123659

Int. Cl.³ C08G 65/40

U.S. Cl. 528—219

9 Claims

1. A polyether comprising recurring units of the general formula:



in which Ar stands for a divalent organic group of the aromatic series, R stands for a group selected from the group consisting of CH_3 , CH_3CH_2 , Cl and Br, and n is an integer of 0 to 4, said polyether containing at least 1 mol % of said unit 'B'.

4,395,535

PROCESS FOR THE MANUFACTURE OF PHENOL-ISOBUTYRALDEHYDE CONDENSATION PRODUCTS

Juergen Nieberle, Ludwigshafen; Karl-Clemens Peters, Bad Durkheim; Wolfgang Reuther, Heidelberg-Ziegelhausen, and Heinz-Hilmar Bankowsky, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 6, 1981, Ser. No. 308,981

Int. Cl.³ C08G 8/04

U.S. Cl. 528—137

7 Claims

1. Process for the manufacture of condensation products of phenols and isobutyraldehyde wherein problems presented by odor are eliminated or substantially reduced, by reacting the phenol and isobutyraldehyde at an elevated temperature in a mole ratio of 0.5:1 to 1.5:1 in the presence of acid or compounds hydrolyzable to acids as catalysts, subsequent neutralization and removal of the resultant reaction water by a first distillation followed by subjection of the reaction products obtained in this manner to a second distillation, which second distillation is a steam distillation and the only steam distillation.

4,395,536

PREPARATION OF AROMATIC COPOLYESTERS VIA IN SITU ESTERIFICATION WITH ISOPROPENYL ESTERS OF AN ALKYL ACID

Larry F. Charbonneau, Chatham, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Nov. 17, 1981, Ser. No. 322,147

Int. Cl.³ C08G 63/06, 63/60

U.S. Cl. 528—206

39 Claims

1. A process for preparing an aromatic polyester comprising: (i) reacting at least one aromatic hydroxy moiety containing compound with an isopropenyl ester of an alkyl acid under esterification, reaction conditions, and (ii) reacting the esterified compounds with at least one aromatic acid moiety containing compound in the resultant



groups, contained in the main or side chain, of 10 to 1400 meq/100 g of the resin.

4,395,539

AMORPHOUS AROMATIC POLYESTER MODIFIED WITH AMINE AND UV CURABLE COMPOSITION CONTAINING THE SAME

James G. Pacifici, Batesville, Ark.; Gordon C. Newland, and Howard G. Moore, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 290,460, Aug. 6, 1981, Pat. No. 4,374,716.

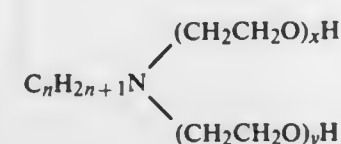
This application Jul. 26, 1982, Ser. No. 401,756

Int. Cl.³ C08G 69/44

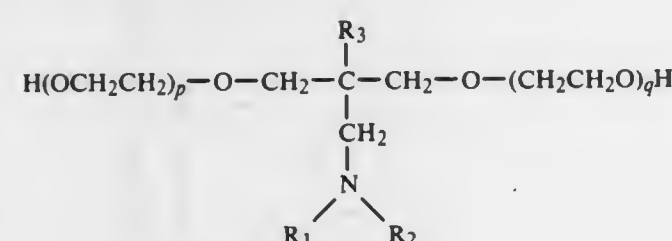
U.S. Cl. 528—291

2 Claims

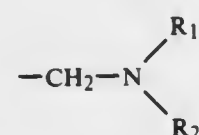
1. A novel linear amorphous aromatic polyester comprising units derived from (i) terephthalic acid, (ii) 1,2-propanediol or mixtures of 1,2-propanediol with up to 20 mole percent of ethylene glycol, based upon the total of 1,2-propanediol and ethylene glycol, and (iii) about 5 to 30 mole percent, based upon the total of (i), (ii), and (iii), of a glycol which contains a tertiary amine group, said glycol having the general formula



where n is an integer within the range of 1 to 20 and each of x and y is independently an integer within the range of 1 to 30 with the sum of x + y being less than or equal to 60, or the general formula,



where each of p and q is independently 0 or a positive integer not greater than 10, and where R₁ and R₂ are lower alkyl groups and can be the same or different and R₃ is a lower alkyl group or a group of the formula



said polyester having an inherent viscosity of about 0.05 to 0.5 dl/g when measured in 60:40 phenol:tetrachloroethane at a concentration of 0.5 g/100 ml at 25° C.

4,395,540

THERMOSET-THERMOPLASTIC AROMATIC POLYAMIDE CONTAINING N-PROPARGYL GROUPS

Terry L. St. Clair, Poquoson; James F. Wolfe, Blacksburg, both of Va., and Thomas D. Greenwood, Bristol, Tenn., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

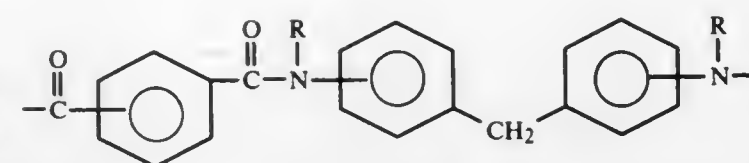
Filed Oct. 23, 1980, Ser. No. 199,768

Int. Cl.³ C08G 69/26

U.S. Cl. 528—345

7 Claims

1. A solvent stable thermosetting polyamide having improved heat distortion temperature characteristics and comprising repeating units of the formula:



wherein R represents a mixture of —CH₃ and —CH₂—C≡CH in varying percentages.

4,395,541

IONENE POLYMER AND PREPARATION THEREOF

Bernard Jacquet, Antony; Gérard Lang, Epinay sur Seine; Alain Malaval, Aulnay sous Bois; Serge Forestier, Claye Souilly, and Do Le Trung, Drancy, all of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France

Filed Dec. 17, 1980, Ser. No. 217,402

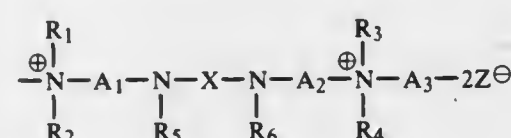
Claims priority, application France, Dec. 21, 1979, 79 31430

Int. Cl.³ C08G 73/00

U.S. Cl. 528—367

19 Claims

1. A polymer having units of the formula



wherein

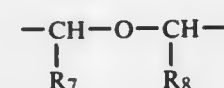
R₁, R₂, R₃ and R₄, each independently represent a hydrocarbon group containing up to 20 carbon atoms, or at least one pair selected from the group consisting of R₁, R₂ and R₃, R₄, together with the nitrogen atom to which it is attached, forms a heterocycle selected from the group consisting of a heterocycle wherein the heteroatom is nitrogen and a heterocycle containing nitrogen as a first heteroatom and a second heteroatom selected from the group consisting of oxygen and sulfur;

A₁ and A₂ each independently represents a linear or branched alkylene, or aryl, containing up to 20 carbon atoms;

X represents —SO₂— or —CO—;

R₅ and R₆ represent hydrogen or lower alkyl when X represents —SO₂—;

or R₅ and R₆, together, represent

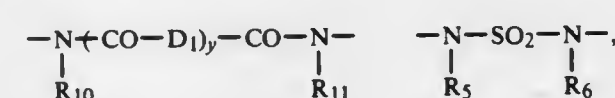


when X represents —CO—;

R₇ and R₈ represent hydrogen or lower alkyl;

A₃ represents alkylene, cycloalkylene, alkenylene or cycloalkenylene, containing 2 to 20 carbon atoms, or at least one or said alkylene, cycloalkylene, alkenylene and cycloalkenylene, interrupted by at least one heteroatom or by at least one of an arylene or cycloalkylene group, or

A₃ represents polyoxyalkylene or —B₁—D—B₂— wherein B₁ and B₂ represent alkylene having from 1 to 12 carbon atoms, or arylene, and D represents a member selected from the group consisting of

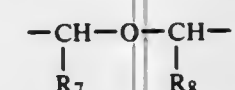


—CONH—, —CO—O—, —O—CONH—, —CO—D₂—CO— and —O—CO—D₃—CO—O—,

wherein

D₁ represents alkylene, alkylene interrupted by a —S—S—

group, alkenylene, arylene, diaminoalkylene, diaminoarylene, dioxyalkylene, polyoxyalkylene or dioxyarylene, or D₁ represents a direct covalent bond, y is a number equal to 0 or 1, R₁₀ and R₁₁ represent hydrogen or lower alkyl, or when y is 0, R₁₀ and R₁₁, together, represent



D₂ represents diaminoalkylene, dioxyalkylene, polyoxyalkylene or dithioalkylene,

D₃ represents alkylene, arylene, diaminoalkylene, diaminocycloalkylene or diaminoarylene, or

A₃, together with the two nitrogens to which it is attached and with at least one of the pairs R₁, R₃ and R₂, R₄, represents a cyclic or polycyclic group having from 4 to 6 carbon atoms; and

Z[−] represents an anion.

4,395,542

PROCESS FOR REMOVING TRACE AMOUNTS OF EPICHLOROHYDRIN FROM HEAT SENSITIVE GLYCIDYL PRODUCTS

Yel S. Sury, Warwick, R.I., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 19, 1982, Ser. No. 340,674

Int. Cl.³ C08G 59/00, 59/02

U.S. Cl. 528—481

10 Claims

1. A method of preparing an epoxy resin or product containing glycidyl groups, essentially free of residual epichlorohydrin and associated volatile material, which comprises heating an epoxy resin or product containing glycidyl groups, which still contains excessive amounts of residual epichlorohydrin and associated volatile materials, to a temperature of 60° to 250° C., a temperature sufficient to allow said resin or said product to flow easily, but insufficient to cause thermal decomposition thereof, and passing the heated resin or product one or more times through a packed column or multistage evaporation stripper, to effect multistage stripping of said resin or product, at a temperature of 60° to 250° C. and at a pressure of 1 to 500 mm Hg, to reduce the level of epichlorohydrin and associated volatile materials in the heated resin or product to less than 10 ppm.

4,395,543

SELECTIVE SOLVENT EXTRACTION OF CELLULOSIC MATERIAL

Daniel I. C. Wang, Belmont, and George C. Avgerinos, Newton Center, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

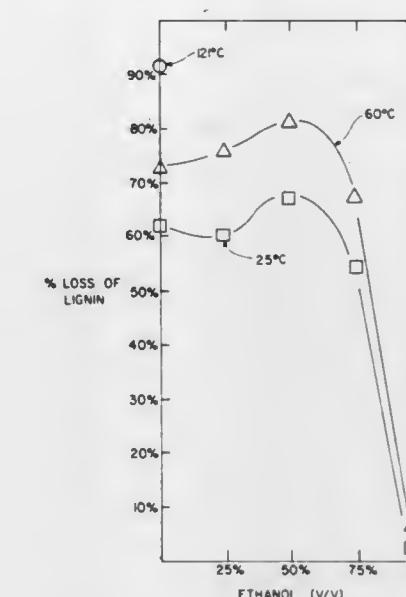
Filed Aug. 12, 1981, Ser. No. 292,314

Int. Cl.³ C08B 1/00

U.S. Cl. 536—56

10 Claims

1. The process for selectively extracting lignin from a cellulosic material containing cellulose, hemicellulose and lignin in order to obtain a cellulose composition wherein the weight ratio of pentosan to lignin is at least about 5:1 and the weight ratio of cellulose and hemicellulose to lignin is at least about 10:1 and greater than 90% of the initial cellulose and pentosan is retained, which comprises contacting said material with a solvent composition comprising water, between about 40 and about 75 volume % ethanol and a base, said solvent composition having a pH between about 11 and about 14, said extraction being conducted at a temperature between about 15° C.



and about 70° C. for a period of time of between about 2 and about 80 hours.

4,395,544

4-HALO-5-FORMYL THIAZOLES

Robert Egli, Rheinfelden, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Continuation-in-part of Ser. No. 144,383, Apr. 28, 1980, abandoned. This application May 15, 1981, Ser. No. 264,019

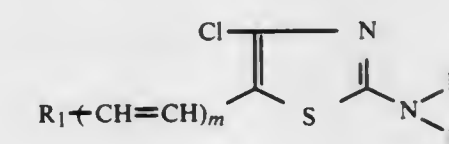
Claims priority, application Switzerland, May 3, 1979, 4142/79

Int. Cl.³ C07D 277/28

U.S. Cl. 542—413

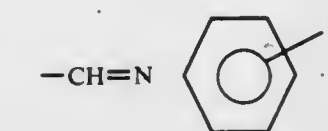
29 Claims

1. A compound of the formula,



in which

R₁ is —CHO, —CH=CR₄R₅, —CN, —CH=NOH, —CH₂OR₆, —CH=N—NHR₇,

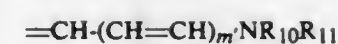


or —CH(OH)CN,

R₂ is hydrogen; C₁₋₁₀alkyl; C₂₋₃alkyl substituted by hydroxy, cyano, chlorine, bromine, alkyl-C₁₋₂carbonyl, alkoxy-C₁₋₄carbonyloxy, alkyl-C₁₋₄carbonyloxy, alkylaminocarbonyloxy, dialkylaminocarbonyloxy, alkoxy-C₁₋₄carbonyl, phenylaminocarbonyloxy or N-alkyl-N-phenylaminocarbonyloxy with the proviso that such substituted alkyl radicals are free from acetal groups; phenyl optionally substituted by 1 or 2 substituents selected from chlorine, bromine, methyl and nitro; alkenyl; dicyanoalkenyl; cyclohexyl; or naphthyl,

and R₃ has one of the significances of R₂ with the proviso that when one of R₂ and R₃ is naphthyl the other has a significance other than naphthyl or phenyl, and when one of R₂ and R₃ is dicyanoalkenyl the other is hydrogen, or, R₂ and R₃ together with the nitrogen atom form a piperidine, piperazine or morpholine ring,

or R₂ and R₃ together form a group of formula

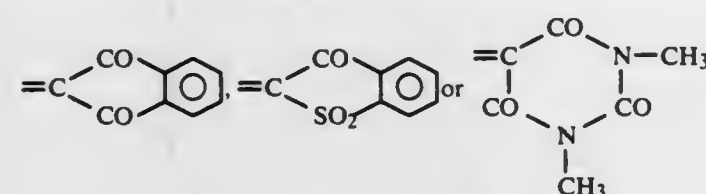


in which either,

R_{10} is hydrogen or alkyl, and R_{11} is hydrogen, alkyl or phenyl, or, R_{10} and R_{11} together with the N-atom form piperidine, with the proviso that R_2 and R_3 are both hydrogen when R_1 is other than $-CHO$ or $-CH=CR_4R_5$ and at least one of R_2 and R_3 is other than hydrogen when R_1 is $-CH=CR_4R_5$,

either R_4 is hydrogen, cyano, alkylcarbonyl benzoyl, alkylsulphonyl, phenylsulphonyl, alkylaminocarbonyl, dialkylaminocarbonyl, phenylaminocarbonyl, N-alkyl-N-phenylaminocarbonyl, aminocarbonyl, aminocarbonylaminocarbonyl, piperidylcarbonyl, aminothiocarbonyl, benzimidazolyl-2 or $-COOB$, in which B is hydrogen; C_{1-10} alkyl; C_{5-7} cycloalkyl; C_{1-6} alkyl substituted by up to three substituents selected from the group consisting of chlorine and bromine; C_{1-6} alkyl substituted by up to two substituents selected from the group consisting of chlorine, bromine, hydroxyl, cyano, phenoxy, alkoxy, carboxy, alkoxy carbonyloxy, alkylcarbonyloxy, alkoxy carbonyloxy, alkylaminocarbonyloxy, aminocarbonyl, alkylaminocarbonyl, phenylaminocarbonyl, benzyloxy carbonyl, and phenyl, in which the phenyl ring is optionally substituted by 1 or 2 substituents selected from chlorine, bromine and nitro, with the proviso that when such alkyl is substituted by a group containing a benzene ring it is monosubstituted and any substituted alkyl is free from acetal groups or B is C_{3-6} alkenyl optionally substituted by chlorine or bromine; or is alkynyl,

and R_5 is hydrogen, cyano, alkoxy carbonyl, nitro or 3-dicyanomethylene-5,5-dimethylcyclohexene-1-yl with the proviso that when R_5 is the latter R_4 is hydrogen and when R_5 is nitro R_4 is hydrogen, methyl or ethyl, or R_4 and R_5 together form a ring system of the formula



R_6 is hydrogen, alkyl, alkylcarbonyl or benzyl in which the benzene ring is optionally substituted by up to two substituents selected from chlorine, bromine and nitro,

R_7 is hydrogen, alkyl, aminocarbonyl, amino thiocarbonyl or phenyl which is optionally substituted by 1 or 2 substituents selected from the group consisting of chlorine, bromine and nitro,

R_8 is hydrogen, chlorine, bromine, methyl, C_{1-2} alkoxy, carboxyl, alkoxy carbonyl, cyano or nitro, m is 0 or 1, m' is 0 or 1,

and any alkyl and alkoxy groups or moieties in such compounds contain 1 to 4 carbon atoms and any alkenyl or alkynyl groups or moieties 3 to 4 carbon atoms, except when otherwise stated.

4,395,545

BASIC DIOXAZINE COMPOUNDS

Jean-Marie Adam, 3, Rue de Montreux, 68300 Saint-Louis, and Pierre Galafassi, 12, Rue des Sapins, 68170 Rixheim, both of France

Continuation of Ser. No. 115,641, Jan. 28, 1980, abandoned. This application Aug. 14, 1981, Ser. No. 292,970

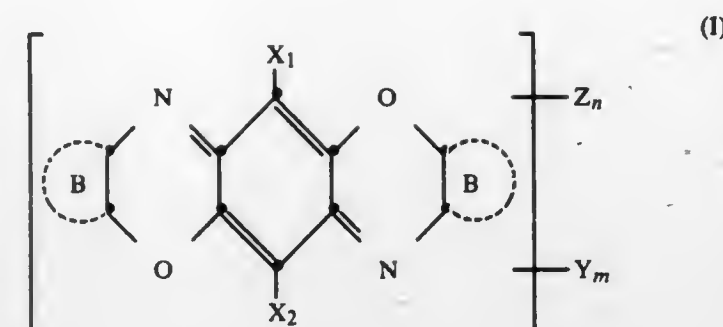
Claims priority, application Switzerland, Feb. 2, 1979, 1042/79

Int. Cl.³ C07D 498/22

U.S. Cl. 544-74

10 Claims

1. A dioxazine compound of the formula I



wherein

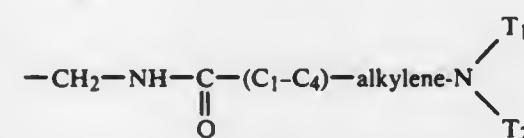
each of X_1 and X_2 is chlorine;

each B independently is a fused ring system selected from the group consisting of naphthalene, fluorene, diphenylene oxide, diphenylene sulfide, diphenylene dioxide, phenanthrene, anthracene, fluorenone, xanthone, thioxanthone, pyrene, chrysene, carbazole and anthraquinone, each of which, in addition to the substituents Z and Y, can be further substituted by 1 or more unbranched or branched alkyl of 1-4 carbons or acyl selected from the group consisting of $CO-C_{1-4}$ alkyl, CO -phenyl, SO_2-C_{1-4} alkyl and SO_2 -phenyl;

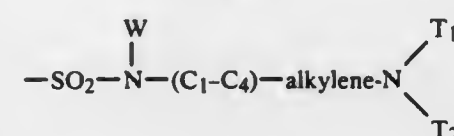
Y is a phosphoric acid group, carboxylic acid group or sulfonic acid group, or a salt thereof;

Z is

(1) a non-quaternised basic group selected from the group consisting of



and



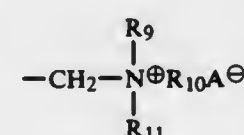
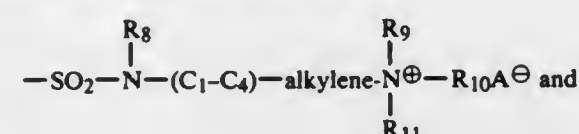
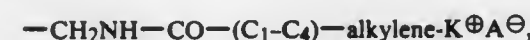
wherein

T_1 is hydrogen, low molecular alkyl which is unsubstituted or substituted by hydroxyl, cyclohexyl which is unsubstituted or substituted by 1-3 methyl groups or phenyl,

T_2 is low molecular alkyl which is unsubstituted or substituted by hydroxyl, or T_1 or T_2 together with the nitrogen atom to which they are attached form a pyrrolidine, piperidine, morpholine or piperazine ring,

W is hydrogen or alkyl or 1 to 4 carbons which is unsubstituted or substituted by hydroxyl or C_{1-4} alkoxy; or

(2) a quaternised basic group selected from the group consisting of



wherein K^{\oplus} is

4,395,547

PROCESS FOR PREPARING 1-SUBSTITUTED-6-N-PROPYL-8-METHYLMIDAZO[1,5-d]-AS-TRIAZIN-4(3H)-ONES

Sivaraman Raghu, Norwalk, Conn.; James S. Farina, Champlain, N.Y., and Steven L. Peake, New Canaan, Conn., assignors to American Cyanamid Co., Stamford, Conn.

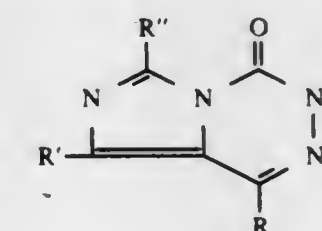
Filed Feb. 10, 1982, Ser. No. 347,653

Int. Cl.³ C07D 487/04

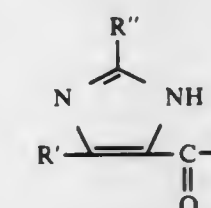
U.S. Cl. 544-184

1 Claim

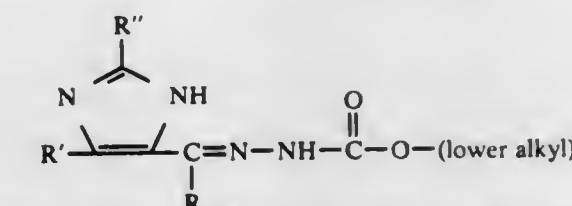
1. The process of preparing compounds of the formula:



wherein R is methyl, ethyl or n-propyl, R' is methyl, ethyl or phenyl, R'' is alkyl, aromatic or heterocyclic which comprises condensing a ketone of the formula:



wherein R, R' and R'' are as hereinabove defined with a lower alkyl carbazate ester in an inert solvent at 80°-135° for several hours whereby a lower alkyl 3-[1-(2-n-propyl-4-methyl-5-imidazolyl)alkylidene]carbazate of the formula:



is obtained; and cyclizing the so obtained imidazolylalkylidene carbazate ester in diphenyl ether at 150°-250° C. for 15-45 minutes.

4,395,548

PROCESS FOR PRODUCTION OF AN ALKALI METAL DICHLOROISOCYANURATE AND TRICHLOROISOCYANURIC ACID

John F. Start, Trenton, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Apr. 2, 1982, Ser. No. 365,060

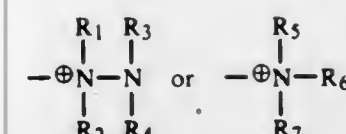
Int. Cl.³ C07D 251/36

U.S. Cl. 544-190

15 Claims

1. A process for producing both an alkali metal dichloroisocyanurate and trichloroisocyanuric acid by a two-stage chlorination comprising:

- chlorinating an aqueous solution of a trialkali metal salt of cyanuric acid maintained at a temperature between 10° C. and 30° C. and at a pH between 5 and 9 thereby forming a slurry of alkali metal dichloroisocyanurate,
- separating the undissolved alkali metal dichloroisocyanurate from the aqueous medium constituting the mother liquor,
- whenever the mol ratio in the mother liquor of available alkalinity to chlorine required to convert any triazine compounds which are present to trichloroisocyanuric acid falls outside the range of 1.0 to 1.3, adding sufficient



each of R_1 and R_2 independently is an alkyl group of 1 to 4 carbons, cycloalkyl or together with the nitrogen atom to which they are attached form a heterocyclic ring selected from the group of pyridine and triethylenediamine, each of R_3 and R_4 independently is hydrogen, an alkyl group of 1 to 4 carbons, cycloalkyl or an acyl group of the formula $CO-C_{1-4}$ alkyl, CO -phenyl, SO_2-C_{1-4} alkyl or SO_2 -phenyl, R_5 is (1) hydrogen, (2) an alkyl group of 1 to 4 carbons which is unsubstituted or substituted by OH or NH_2 , (3) cycloalkyl or (4) phenyl, each of R_6 and R_7 independently is hydrogen, an alkyl group of 1 to 4 carbons, cycloalkyl, an alkoxy group of 1 to 4 carbons or phenyl, or together with the nitrogen atom to which they are attached, R_1 and R_3 , R_2 and R_4 , R_5 and R_6 , R_6 and R_7 , form a heterocyclic ring selected from the group of pyridine and triethylenediamine; R_8 is hydrogen or an alkyl group of 1 to 4 carbons, each of R_9 and R_{10} independently is an alkyl group of 1 to 4 carbons or cycloalkyl, and R_{11} is an alkyl group of 1 to 4 carbons, cycloalkyl, an alkoxy group of 1 to 4 carbons or NH_2 , or 2 or 3 members selected from R_9 , R_{10} and R_{11} together with the nitrogen atom to which they are attached form a heterocyclic ring selected from the group of pyridine and triethylenediamine;

A^{\ominus} is an anion;

m is 0 to 2; and

n is 1 to 4 with the proviso that m is not greater than n .

4,395,546

N-METHYLOLCARBOXAMIDE COMPOUNDS

Jeroslav Haase, Basel; Peter Liechti, Arisdorf; Hans Wegmüller, Riehen; Rudolf F. Wurster, Pfeffingen, and Quentin Bowes, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 11,579, Feb. 9, 1979, Pat. No. 4,306,080, which is a continuation of Ser. No. 941,823, Sep. 11, 1978, abandoned, which is a continuation of Ser. No. 740,586, Nov. 10, 1976, abandoned. This application Aug. 31, 1981, Ser. No. 298,214

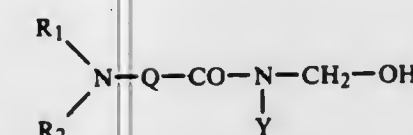
Claims priority, application Switzerland, Nov. 14, 1975, 14798/75

Int. Cl.³ C07D 295/14

U.S. Cl. 544-168

5 Claims

1. A basic methylolamide compound of the formula



or a salt thereof, in which

R_1 and R_2 , together with the nitrogen atom which links them, denote a pyrrolidiny, piperidino, morpholino or piperaziny radical,

Q denotes an alkylene- or alkyl-substituted alkylene chain with 2 to 8 carbon atoms and Y denotes hydrogen, lower alkyl or $-CH_2OH$.

- alkali metal salt of carbonic acid to the mother liquor to bring the mol ratio within the said range,
 (d) chlorinating the mother liquor from step (c) while maintaining the temperature between 10° C. and 30° C. and the pH between 2.5 and 3.5, and
 (e) recovering the resulting trichloroisocyanuric acid so produced.

4,395,549

6-HYDRAZO-PYRIDO[2,1-b]QUINAZOLINE-11 ONES

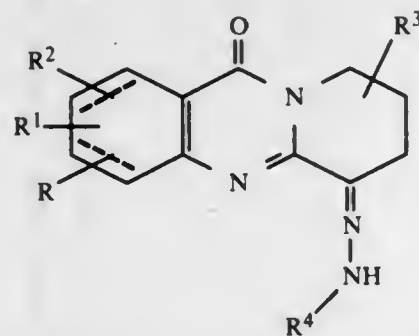
Istvan Hermecz, Budapest; Jozsef Kökosi, Budaörs; Agnes Horvath, Budapest; Zoltan Meszaros, Budapest; György Szasz, Budapest; Tibor Breining, Budapest, and Lelle Vasvari nee Debreczy, Budapest, all of Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termek Gyara Rt., Budapest, Hungary

Filed Oct. 2, 1981, Ser. No. 308,038
 Int. Cl.³ C07D 487/04, 487/14

U.S. Cl. 544—252

9 Claims

1. A compound of the formula



or a pharmaceutically acceptable acid addition or quaternary ammonium salt thereof
 wherein

- R, R¹ and R² are the same or different and stand for hydrogen, halogen, nitro, carboxy, nitrile, alkoxy containing 1 to 4 carbon atoms, alkyl containing 1 to 4 carbon atoms, amino or hydroxy, or R and R¹ together stand for methylenedioxy and R² stands for hydrogen;
 R³ stands for hydrogen or alkyl containing 1 to 4 carbon atoms;
 R⁴ stands for phenyl, phenyl substituted by 1 to 3 of the same or different substituents selected from the group consisting of halogen, alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 4 carbon atoms, phenyloxy, hydroxy, nitro, amino, cyano, carboxy, alkoxy carbonyl having 1 to 4 carbon atoms, alkanoyl having 1 to 4 carbon atoms, methylenedioxy, trifluoromethyl, phenyl and dialkylamino having 1 to 4 carbon atoms in the alkyl group, or R⁴ is naphthyl, and the dotted line indicates an optional double bond.

4,395,550

TETRAHYDRO-2(1H)-QUINAZOLINONES AND CYCLOHEXENE NITRILES

Peter Fünfschilling, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Continuation of Ser. No. 164,048, Jun. 30, 1980, abandoned.

This application Nov. 5, 1981, Ser. No. 318,480

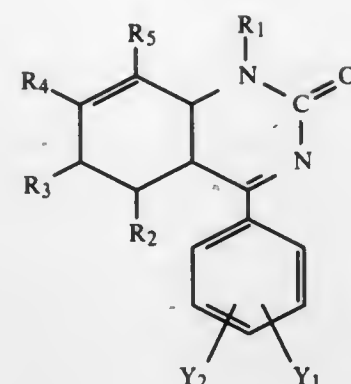
Claims priority, application Switzerland, Jul. 5, 1979, 6298/79

Int. Cl.³ C07D 239/82, 239/96; C07C 125/065

U.S. Cl. 544—253

9 Claims

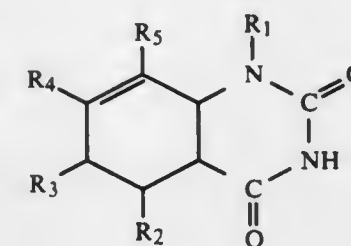
1. A compound of the formula:



wherein

- R₁ is C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-(C₁-C₄)-alkyl, C₁-C₅-haloalkyl, allyl or propargyl, R₂, R₃, R₄ and R₅ are independently of each other hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, nitro or trifluoromethyl, whereby at least two of R₂, R₃, R₄ and R₅ are hydrogen, and Y₁ and Y₂ are independently of each other hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-alkoxy or trifluoromethyl.

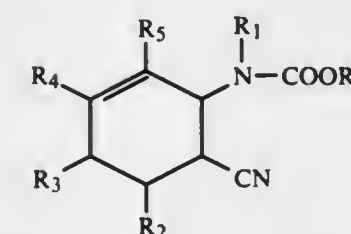
4. A compound of the formula:



wherein

- R₁ is C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-(C₁-C₄)-alkyl, C₁-C₅-haloalkyl, allyl or propargyl, and R₂, R₃, R₄ and R₅ are independently of each other hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, nitro or trifluoromethyl, whereby at least two of R₂, R₃, R₄ and R₅ are hydrogen.

7. A compound of the formula:



wherein

- R is C₁-C₄-alkyl, R₁ is C₁-C₅-alkyl, C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-(C₁-C₄)-alkyl, C₁-C₅-haloalkyl, allyl or propargyl, and R₂, R₃, R₄ and R₅ are independently of each other hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, nitro or trifluoromethyl, whereby at least two of R₂, R₃, R₄ and R₅ are hydrogen.

4,395,551

PYRIDOPYRIMIDINONE COMPOUNDS

Mark A. Dekeyser, Waterloo; Benjamin J. Pierce, Guelph, both of Canada; Richard C. Moore, Wallingford, and Winchester L. Hubbard, Woodbridge, both of Conn., assignors to Uniroyal, Inc., New York, N.Y.

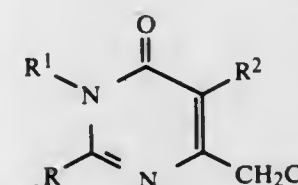
Filed Dec. 10, 1981, Ser. No. 329,157

Int. Cl.³ C07D 487/04, 513/04; C07F 9/65; A01N 57/16

U.S. Cl. 544—282

2 Claims

1. A compound of the formula



wherein R and R¹ together form a 1,3-butadien-1,4-diyl group optionally substituted with a methyl or chloro group and R² is halogen.

4,395,552

ANTIMICROBIAL BIS-IMIDAZOLO-PYRIDINE COMPOUND

Bola V. Shetty, Stamford, Conn., and John E. Airey, Mt. Kisco, N.Y., assignors to The Purdue Frederick Company, Norwalk, Conn.

Division of Ser. No. 92,279, Nov. 8, 1979, Pat. No. 4,281,138.

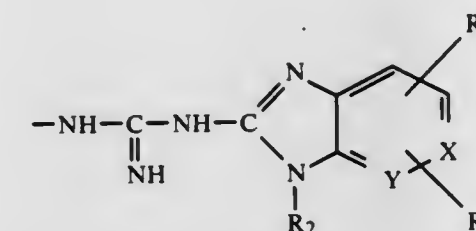
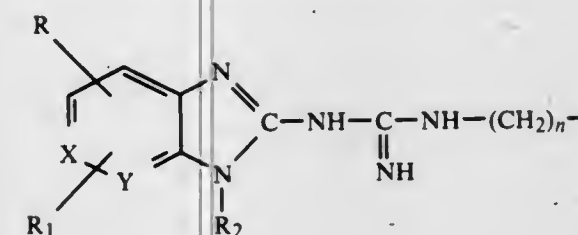
This application Nov. 3, 1980, Ser. No. 203,480

Int. Cl.³ C07D 471/04

U.S. Cl. 546—118

2 Claims

1. A compound of the formula:



wherein R and R₁=H, lower alkyl, halogen, methoxy, hydroxy, nitro, carboxy, phenyl, phenyl substituted by lower alkyl or sufamyl, where R₂=H, lower alkyl, phenyl or phenyl substituted by lower alkyl, where n is an integer from 2-20, and where x=carbon when y=nitrogen and x=nitrogen when y=carbon.

4,395,553

CHEMICAL COMPOUNDS

Aldo A. Algieri, Fayetteville, and Ronnie R. Crenshaw, Dewitt, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 264,533, May 18, 1981. This application

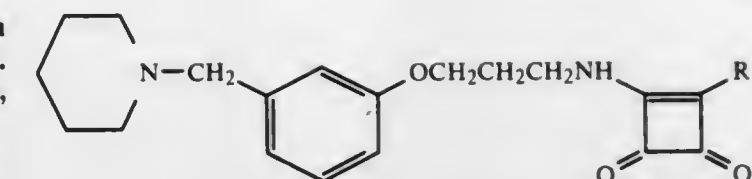
Feb. 8, 1982, Ser. No. 346,455

Int. Cl.³ C07D 295/12

U.S. Cl. 546—235

2 Claims

1. A compound of the formula



wherein R¹² is a conventional leaving group selected from halogen, phenoxy, substituted phenoxy and (lower)alkoxy.

4,395,554

PROCESS FOR PRODUCING ALPHA-PICOLINE

Clarence D. Chang, Princeton, and Patrick D. Perkins, Titusville, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 326,258, Dec. 1, 1981,

abandoned. This application Apr. 16, 1982, Ser. No. 369,296

Int. Cl.³ C07D 213/16

U.S. Cl. 546—250

13 Claims

1. A method of making alpha-picoline or a substituted alpha picoline by contacting aniline or a substituted aniline with a crystalline zeolite catalyst.

4,395,555

PREPARATION OF 2-AMINOPYRIDINE DERIVATIVES

Rolf-Dieter Acker, Leimen, and Gerhard Hamprecht, Weinheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 8, 1982, Ser. No. 338,112

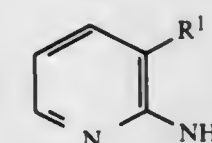
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1981, 3103065

Int. Cl.³ C07D 213/55, 213/57

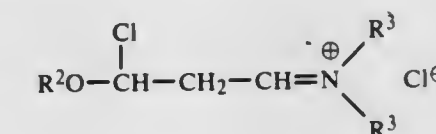
U.S. Cl. 546—289

10 Claims

1. A process for the preparation of 2-aminopyridine derivatives of the formula



where R¹ is cyano or carboxyl, wherein a quaternary ammonium compound of the formula



- where the individual radicals R² and R³ can be identical or different and each is an alkyl radical having 1-7 carbon atoms,
 (a) is reacted with malodinitrile in the presence of an alkanol,
 (b) the resulting reaction mixture is then reacted with ammonia in the presence of an alkanol, water and/or an ether and, if desired,
 (c) the aminonitronitrile thus obtained is reacted with an alkali metal compound.

4,395,556

NITROBENZOFURAN DERIVATIVES

Callixtus E. Ita, South River, N.J.; Anthony F. Heald, Glen Mills, Pa., and Peter Egli, Titusville, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

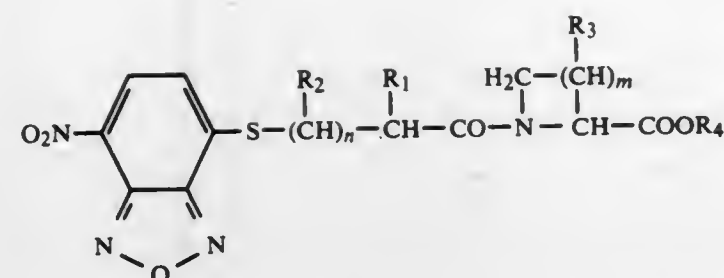
Filed Feb. 4, 1982, Ser. No. 345,883

Int. Cl.³ C07D 271/12

U.S. Cl. 548—126

4 Claims

1. A compound having the formula



or a salt thereof, wherein R_1 and R_2 each is hydrogen, lower alkyl or phenyl-lower alkyl; R_3 is hydrogen, hydroxy or lower alkyl; R_4 is hydrogen or lower alkyl; m is 2 or 3; and n is 0, 1 or 2.

4,395,557

PHOSPHORUS-CONTAINING IMIDE RESINS

Indra K. Varma, New Delhi, India; George M. Fohlen, Millbrae, and John A. Parker, Los Altos, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

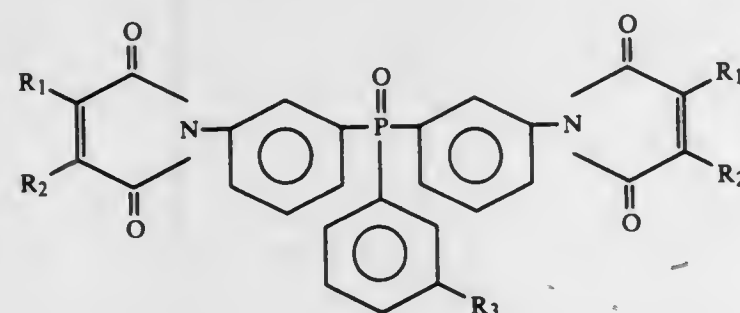
Continuation-in-part of Ser. No. 175,452, Aug. 5, 1980, Pat. No. 4,276,344. This application Jul. 30, 1981, Ser. No. 288,267

Int. Cl.³ C07D 207/26, 209/34

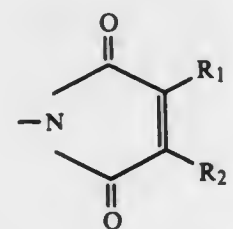
U.S. Cl. 548-413

8 Claims

1. Imides having the structure



wherein R_1 and R_2 are selected from the class consisting of chloro, lower alkyls and hydrogen and R_3 is the amino group or an imide group



4,395,558

9-EPI-MITOMYCIN B AND D COMPOUNDS

Masaji Kasai, Rockville, Md.; Kunikatsu Shirahata, and Motomichi Kono, both of Machida, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 180,553, Aug. 22, 1980, abandoned. This application Nov. 23, 1981, Ser. No. 323,847

Claims priority, application Japan, Aug. 24, 1979, 54-107069

Int. Cl.³ A61K 31/40; C07D 487/04

U.S. Cl. 548-422

1. 9-epi mitomycin B.
3. 9-epi mitomycin D.

4,395,559
2,3-INDOLEDIONE DERIVATIVES
Graham A. Fothergill, Knebworth, and John M. Osbond, Hatfield, both of England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Dec. 1, 1980, Ser. No. 211,883

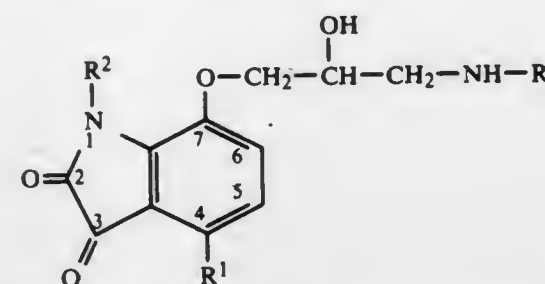
Claims priority, application United Kingdom, Dec. 12, 1979, 7942324

Int. Cl.³ A61K 31/40; C07D 209/38

U.S. Cl. 548-485

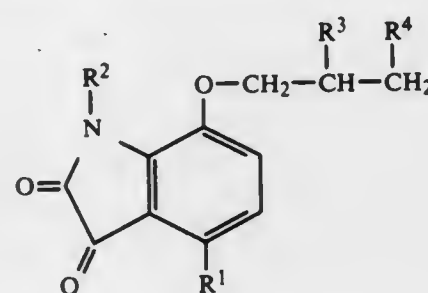
7 Claims

1. A compound of the formula



wherein R is isopropyl or tert-butyl, R^1 is hydrogen or lower alkyl, and R^2 is lower alkyl, benzyl or β -phenethyl, or a pharmaceutically acceptable acid addition salt thereof.

7. A compound of the formula



wherein R^1 is hydrogen or lower alkyl, R^2 is lower alkyl, benzyl or β -phenethyl, R^3 is hydroxy, and R^4 is chlorine or bromine, or R^3 and R^4 , taken together, are oxygen.

4,395,560

PREPARATION OF

6a,10a-TRANS-HEXAHYDRODIBENZOPYRANONES
Charles W. Ryan, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

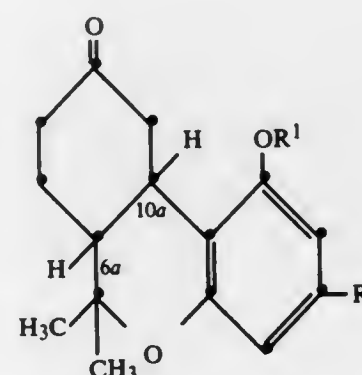
Filed May 24, 1982, Ser. No. 381,111

Int. Cl.³ C07D 311/78

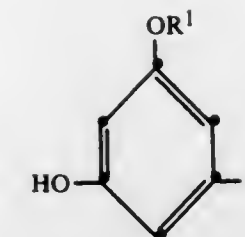
U.S. Cl. 549-391

15 Claims

1. A process for preparing a 6a,10a-trans compound of the formula



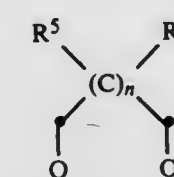
wherein R is C_5 - C_{10} alkyl, C_5 - C_{10} alkenyl, C_5 - C_8 cycloalkyl or C_5 - C_{10} cycloalkenyl, and R^1 is methyl or ethyl; comprising reacting a 5-substituted resorcinol of the formula



with a cyclohexene carbinol compound of the formula



wherein R^2 is C_1 - C_4 alkoxy and R^3 and R^4 together are a double bond, or R^4 is hydrogen and R^2 and R^3 together are oxo or a group of the formula



in which R^5 and R^6 independently are hydrogen, methyl or ethyl, and n is 0 or 1; in the presence of a catalyst selected from boron trifluoride, boron tribromide or stannic chloride.

4,395,561

SYNTHESIS OF 3-HYDROXYOXETANE

Kurt Baum, Pasadena; Vytautas Grakauskas, Arcadia, both of Calif., and Phillip T. Berkowitz, Woodbridge, Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 14, 1982, Ser. No. 378,167

Int. Cl.³ C07D 305/08

U.S. Cl. 549-510

15 Claims

1. A process for preparing 3-hydroxyoxetane comprising the following steps in order:

(1) reacting a carboxylic acid of the formula $CH_3(CH_2)_nCOOH$ with epichlorohydrin in the presence of a catalytic amount of anhydrous ferric chloride to produce an ester of the formula



wherein n is an integer of from 0 to 3;

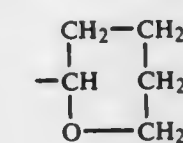
(2) reacting the ester formed in step (1) with a blocking agent selected from the group consisting of

- dihydropyran,
- ethyl vinyl ether,
- propyl vinyl ether,
- n-butyl vinyl ether, and
- isopentyl vinyl ether

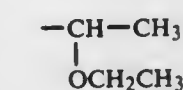
in the presence of a catalyst selected from the group consisting of pyridinium p-toluenesulfonate and toluenesulfonic acid to form a blocked ester of the formula



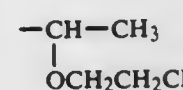
wherein n is an integer of from 0 to 3 and Z is selected from the group consisting of



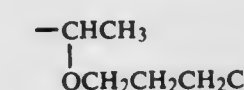
(a)



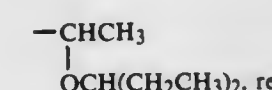
(b)



(c)

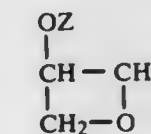


(d)

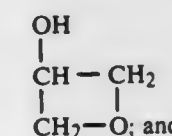


(e)

(3) hydrolyzing the blocked ester formed in step (2) with an aqueous base to remove the carboxylic acid and form a 3-hydroxyoxetane derivative of the formula



wherein Z is defined in step (2);
(4) removing the blocking group from the 3-hydroxyoxetane derivative by heating it with an alcohol and an acid to form the product 3-hydroxyoxetane,



(5) isolating the product 3-hydroxyoxetane.

4,395,562

VINYLIDENE-SILICON-COMPOUND AND A PROCESS FOR ITS PRODUCTION

Terui Yohji, Chibashi; Koga Isao, Sakurashi, and Ohtake Nobumasa, Yokohamashi, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Apr. 7, 1982, Ser. No. 366,421

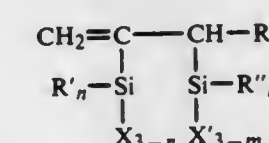
Claims priority, application Japan, Apr. 15, 1981, 56-56507

Int. Cl.³ C07F 7/08, 7/18

U.S. Cl. 556-431

4 Claims

1. A vinylidene silicon compound represented by the general formula



where R is an alkyl group of 1 to 7 carbon atoms or a hydrogen atom; each of R' and R'' is an alkyl of 1 to 7 carbon atoms; each

of X and X' is a chlorine atom or an alkoxy group of 1 to 4 carbon atoms; and each of n and m is an integer of 0 to 3.

4,395,563

HYDROLYSIS OF ALKOXYSILANES

Susan E. Hayes, Schenectady, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Oct. 29, 1981, Ser. No. 316,241

Int. Cl.³ C07F 7/08, 7/18

U.S. Cl. 556—459

81 Claims

1. A process for hydrolyzing alkoxy silanes comprising:
(a) mixing an alkoxy silane having the general formula:



wherein R is selected from the group consisting of alkyl, cycloalkyl, aryl, arylalkyl, haloalkyl, alkaryl, alkenyl, hydrogen and mixtures thereof; R' is alkyl; and a is an integer from 1 to 4; a stoichiometric excess of water and an effective catalytic amount of solid hydrolysis catalyst selected from the group consisting of a solid oxide of a Group IIA metal and solid acid catalyst to form a hydrolysis mixture of hydrolyzed product, reaction byproducts, hydrolysis catalyst and unreacted water;

- (b) separating volatile by-products and unreacted reagents from the hydrolyzed product in the presence of the solid hydrolysis catalyst to form a devolatilized hydrolysis mixture, said separation being one which reduces the alkoxy content of the alkoxy silane;
(c) neutralizing the devolatilized hydrolysis mixture with a sufficient amount of neutralizing agent when the catalyst is a solid acid catalyst and optionally adding a suitable amount of condensation catalyst to increase the molecular weight of the hydrolysis product; and
(d) separating the hydrolysis catalyst from the product.

4,395,564

PROCESS FOR THE PREPARATION OF ALKOXYHYDRIDOSILANES

Bernard Kanner, West Nyack, and Steven P. Hopper, Mahopac, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jul. 13, 1982, Ser. No. 397,815

Int. Cl.³ C07F 7/08, 7/10, 7/18

U.S. Cl. 556—470

14 Claims

1. A process for the preparation of alkoxyhydridosilanes which comprises reacting a silane of the general formula



wherein R, R' and R'' are independently an aliphatic or aromatic, substituted or unsubstituted, saturated or unsaturated hydrocarbon radicals having from one to eight carbon atoms inclusive and where R and R' may also be hydrogen and where R'' may also be alkoxy and where x has a value of from one to three with alcohols of the general formula



where R''' is an aliphatic or aromatic, saturated or unsaturated, substituted or unsubstituted hydrocarbon radical having from one to twenty carbon atoms inclusive in the presence of a catalyst at a temperature between -50° C. to 150° C. where approximately one equivalent of alcohol is employed per mole of the silicon-nitrogen bond and where the catalyst concentration is equal to about 0.01 to 10 mole percent of the silicon-nitrogen bonds.

4,395,565

PREPARING AROMATIC URETHANS

Ugo Romano, Vimercate; Giancarlo Fornasari, Milan, and Sandro Di Gioacchino, Rome, all of Italy, assignors to Anic S.p.A., Palermo, Italy

Filed Jan. 15, 1982, Ser. No. 339,465

Claims priority, application Italy, Jan. 28, 1981, 19368 A/81 Int. Cl.³ C07C 125/065

U.S. Cl. 560—24

9 Claims

1. A process for the preparation of aromatic urethans comprising the step of reacting, at a temperature between about 50° C. and about 150° C., an aromatic amine with an alkyl carbonate in the presence of a catalyst selected from among the alcohols of alkali metals or alkaline earth metals.

4,395,566

SOLVENT-FREE ESTERIFICATION OF CARBOXYAROMATICS

James H. Covill, Pineville, N.C.; Michael G. Kelly, Coventry, and Thomas F. Leahy, E. Greenwich, both of R.I., assignors to American Hoechst Corporation, Somerville, N.J.

Filed Mar. 8, 1982, Ser. No. 355,812

Int. Cl.³ C07C 67/08

U.S. Cl. 560—87

9 Claims

7. A process comprising intimately mixing pyromellitic dianhydride, a fluorinated alcohol consisting of a mixture of 2-(n-perfluoroalkyl) ethanols having six to twelve carbon atoms in the perfluoroalkyl groups, and epichlorohydrin, and heating said mixtures to form the tetraester of said pyromellitic dianhydride.

4,395,567

1R,CIS-3-(2-HALO-3,3,3-TRIFLUORO-1-PROPENYL)-2,2-DIMETHYLCYCLOPROPANECARBOXYLIC ACID DERIVATIVES

John F. Engel, Washington Crossing, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 221,656, Dec. 31, 1980, Pat. No. 4,333,950. This application Dec. 7, 1981, Ser. No. 327,839

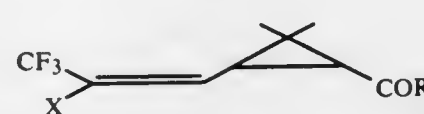
The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

Int. Cl.³ C07C 69/743

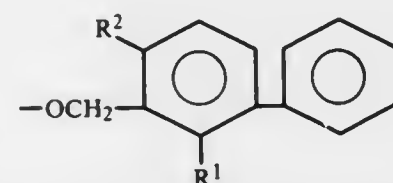
U.S. Cl. 560—124

3 Claims

1. A 1R,cis-trifluoromethylethenylcyclopropanecarboxylic compound of the formula



in which X is halogen, R is an alcohol residue of the formula



in which R¹ and R² are independently hydrogen, lower alkyl or halogen.

4,395,568

ANIONIC SURFACE ACTIVE AGENTS

Attila Molnar; György Csermely, and György Lanyi, all of Budapest, Hungary, assignors to Chinoin Gyógyszer és Vegyszeti Termékek Gyára Rt., Budapest, Hungary

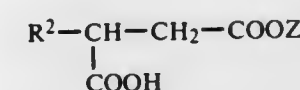
Filed Oct. 21, 1980, Ser. No. 199,315

Claims priority, application Hungary, Oct. 26, 1979, CI 1980 Int. Cl.³ C07C 69/34, 69/52

U.S. Cl. 560—198

2 Claims

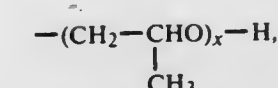
1. Anionic surface active agents of the formula



where

R² is C₈₋₁₂ alkyl or alkenyl; and

Z is —(CH₂—CH₂—O)_x—H or



wherein x is an integer of 3 to 35 and the salts with inorganic and organic bases.

4,395,569

METHOD OF PREPARING SULFONIC ACID SALTS OF ACYLOXYALKYLAMINES AND POLYMERS AND COMPOUNDS THEREFROM

Sheldon N. Lewis, Willow Grove, and Jerome F. Levy, Dresher, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 821,068, May 1, 1969, Pat. No. 4,194,052, which is a continuation-in-part of Ser. No. 740,480, Jun. 27, 1968, Pat. No. 4,176,232. This application Dec. 17, 1979, Ser. No. 104,256

The portion of the term of this patent subsequent to Mar. 18, 1997, has been disclaimed.

Int. Cl.³ C07C 67/08, 101/00

U.S. Cl. 560—222

2 Claims

1. Process for the production of an ester of an organic acid which comprises reacting:

- (a) at least one alkanolamine sulfonic acid salt said alkanolamine having from two to eight carbon atoms, one primary amino group and either a primary or secondary hydroxyl group, with
(b) at least one organic acid or salt thereof selected from the group consisting of:
(1) aliphatic and aromatic dicarboxylic acids and
(2) acrylic, methacrylic, fumaric, maleic and
(3) a sulfonic acid salt of an amino acid selected from the group consisting of monoamino-monocarboxylic, monoamino-dicarboxylic, diamino-monocarboxylic, and diamino-dicarboxylic acids,

at a temperature of at least 40° C. while removing water as the reaction proceeds.

4,395,570

PREPARATION OF

5-(2-HALO-4-TRIFLUOROMETHYLPHENOXY)-2-NITROBENZOIC ACID AND SALTS AND ESTERS AND AMIDES

Colin Swithenbank, Perkasi, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

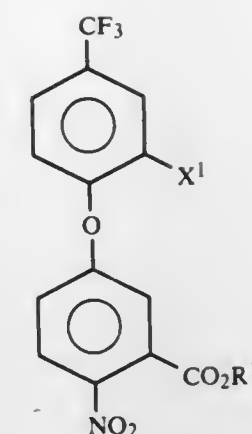
Filed Nov. 16, 1981, Ser. No. 321,658

Int. Cl.³ C07C 99/00

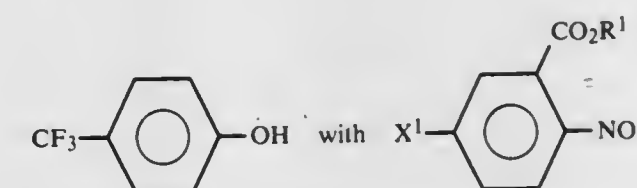
U.S. Cl. 562—435

5 Claims

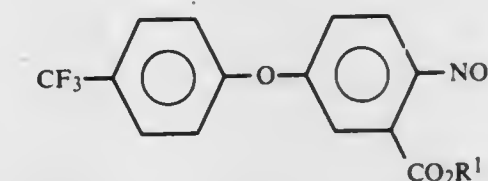
1. A process for preparing substantially pure and isomer free compound of the formula:



wherein X¹ is halo and R¹ is hydrogen, alkyl, alkenyl, alkynyl, hydroxyalkyl, carboxyalkyl, carbalkoxyalkyl, cyanoalkyl, alkoxyalkyl, haloalkyl, alkali metal or alkaline earth metal cations, quaternary ammonium cations, amino, mono- R¹ or di- R¹ amino wherein R¹ is as defined above which comprises reacting



in the presence of an inorganic base in a polar solvent at a temperature in the range of from about 25° to 90° C. for from 1 to 18 hours to afford a substantially isomer free product of the formula:



followed by treating said product with a halogenating agent in the presence of a Friedel-Crafts catalyst at a temperature in the range of from 50° to 130° C. for from 0.5 to 10 hours.

4,395,571

PROCESS FOR THE PREPARATION OF

D,1,2-(6-METHOXY-2-NAPHTHYL)PROPIONIC ACID

Charles A. Dvorak, Palo Alto, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jun. 3, 1982, Ser. No. 384,445

Int. Cl.³ C07C 65/105

U.S. Cl. 562—466

17 Claims

1. A process for isolating a condensation product of d-2-(6-methoxy-2-naphthyl)propanal comprising crystallizing the condensation product of d-2-(6-methoxy-2-naphthyl)propanal with N-R-D-glucamine or a salt thereof wherein R is hydrogen, alkyl of 1 to 36 carbon atoms or cycloalkyl of 3 to 8 carbon atoms from a mixture containing a first condensation product of d-2-(6-methoxy-2-naphthyl)propanal with N-R-D-glucamine or a salt thereof and a second condensation product of 1-2-(6-methoxy-2-naphthyl)propanal with N-R-D-glucamine or a salt thereof in an inert solvent, the first condensation product being significantly less soluble in the inert solvent than the second condensation product at the crystallization temperature of the first condensation product.

4,395,572

PROCESS FOR PREPARING N-ALKYL-NITROANILINES
John K. Chan, Charleston, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 107,537, Dec. 27, 1979, Pat. No. 4,289,907. This application Apr. 20, 1981, Ser. No. 255,425

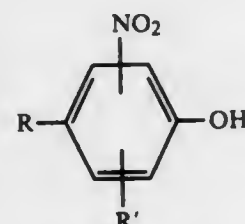
The portion of the term of this patent subsequent to Sep. 15, 1998, has been disclaimed.

Int. Cl.³ C07C 89/02, 85/06

U.S. Cl. 564—399

7 Claims

1. A process for producing N-alkyl-nitroaniline comprising:
(a) reacting a nitrophenol of the formula:



wherein R is CF₃, and wherein R' is selected from the group consisting of hydrogen, nitro and CF₃, with an alkylating compound selected from the group consisting of ethylene oxide, propylene oxide, styrene oxide, and mixtures thereof, to form an intermediate product and

(b) reacting said intermediate product with an amine selected from the group consisting of methylamine, ethylamine, isopropylamine, propylamine, butylamine, and mixtures thereof, to produce said N-alkyl-nitroaniline.

4,395,573

PRODUCTION AND SEPARATION OF AMINES

Charles E. Cutchens; Marion J. Mathews, III, and Mark S. Sowell, III, all of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 23, 1981, Ser. No. 324,189

Int. Cl.³ C07C 87/14, 87/16

U.S. Cl. 564—492

6 Claims

1. In a process for the production of an amine from a nitrile where the nitrile is hydrogenated under pressure in the presence of a Raney nickel catalyst continuously in a reactor thereby to produce the amine which is discharged in a stream from which is recovered both the amine and the Raney nickel catalyst, where the Raney nickel catalyst is passivated by charging to the process discharge stream comprising the product amine and the Raney nickel catalyst an inorganic base, and where the product amine is subsequently separated from the Raney nickel catalyst and the inorganic base, the improvement wherein the separation is characterized by mixing the inorganic base with the process discharge stream to form a separable mixture, decanting the separable mixture so as to remove the upper layer comprising substantially catalyst-free amine from the lower layer comprising the aqueous solution of the inorganic base, and intermittently purging Raney nickel catalyst at the interface of the amine phase and the inorganic base phase.

4,395,574

PHOSPHONIUM PHENOXIDE CATALYSTS FOR PROMOTING REACTION OF EPOXIDES WITH PHENOLS AND/OR CARBOXYLIC ACIDS

George A. Doorakian, Bedford, Mass., and James L. Bertram, Lake Jackson, Tex., assignors to The Dow Chemical Co., Midland, Mich.

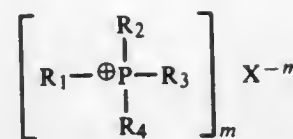
Division of Ser. No. 148,875, May 12, 1980, Pat. No. 4,302,574, which is a continuation-in-part of Ser. No. 41,567, May 23, 1979, abandoned. This application Jul. 30, 1981, Ser. No. 288,613

Int. Cl.³ C07F 9/54

U.S. Cl. 568—11

11 Claims

1. A compound represented by the formula



or a complex of the compound represented by Formula I with one or more equivalents of a phenol, H_mX, wherein

- (1) R₁-R₄ each independently is a hydrocarbyl or inertly-substituted hydrocarbyl;
(2) X is a phenoxide anion, said anion being a conjugate base of a polyhydric phenol bearing from 2 to 6 nuclear hydroxyl groups and having from about 12 to about 30 carbon atoms; and
(3) m is the valence of the anion X.

4,395,575

(HALOPHENYL)-2-FLUORO-PENTADIENALS

Ka-Kong Chan, Hopatcong, and Beverly A. Pawson, Verona, both of N.J., assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

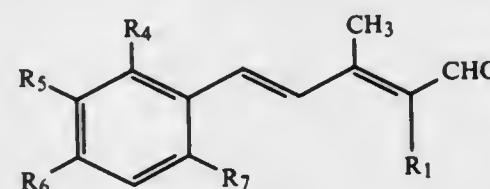
Division of Ser. No. 278,224, Jun. 29, 1981, Pat. No. 4,335,248, which is a division of Ser. No. 149,389, May 13, 1980, Pat. No. 4,299,995, which is a division of Ser. No. 37,803, May 10, 1979, Pat. No. 4,231,944, which is a division of Ser. No. 936,466, Aug. 24, 1978, Pat. No. 4,171,318, which is a continuation-in-part of Ser. No. 809,738, Jun. 24, 1972, Pat. No. 4,137,246, which is a continuation-in-part of Ser. No. 722,939, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 632,028, Nov. 14, 1975, abandoned. This application Mar. 3, 1982, Ser. No. 354,331

Int. Cl.³ C07C 47/238

U.S. Cl. 568—442

2 Claims

1. A compound of the formula:



wherein R₁ is fluorine; at least one of R₄, R₅ and R₇ is halogen and the others are hydrogen or lower alkyl; and R₆ is lower alkyl or lower alkoxy.

2. The compound of claim 1 wherein the compound is 2Z,4E-2-fluoro-3-methyl-5-(2,6-dichloro-3-methyl-4-methoxyphenyl)-pentadien-1-al.

4,395,576

PROCESS FOR THE PREPARATION OF ETHANOL
Arien Kwantes, Amsterdam, and Cornelis W. J. De Goederen, The Hague, both of Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 11, 1981, Ser. No. 272,617

Claims priority, application Netherlands, Jun. 12, 1980, 8003405

Int. Cl.³ C07C 29/04, 29/80

U.S. Cl. 568—913

12 Claims

1. A process for the preparation of ethanol by catalytic hydration of ethylene in a reaction section, in which process aqueous crude ethanol containing both higher- and lower-boiling impurities is obtained by condensing and scrubbing the gaseous reaction mixture and in a purifying section the aqueous crude ethanol is passed into a first distillation column, a top fraction containing the greater portion of the impurities is discharged from said column, the bottom product of the first distillation column is passed to a second distillation column, ethanol-water azeotrope is recovered as a side stream from the upper part of the second distillation column, one or more side streams containing high-boiling impurities are passed from a

lower part of the second distillation column to a third distillation column, a top fraction containing lower-boiling impurities is removed from the third column, an ethanol-containing side stream is discharged from the upper part of the third column and one or more side streams containing higher-boiling impurities are removed from a lower part, characterized in that the top fraction of the first distillation column is wholly or partly hydrogenated at a pressure between 10 and 50 bar abs. and a temperature between 60° C. and 140° C., the hydrogenated product is fractionated in the third distillation column, and that the top fraction obtained by fractionation in the third column is recycled completely or partly into the reaction section.

4,395,577

PREPARATION OF 3-CHLOROMETHYL-4-ALKYL-NITROBENZENE BY CHLOROMETHYLATION

Donald R. Maulding, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

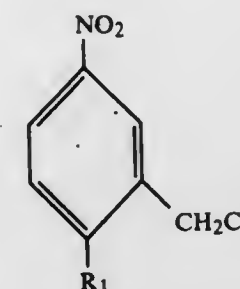
Filed Oct. 22, 1981, Ser. No. 313,855

Int. Cl.³ C07C 79/12

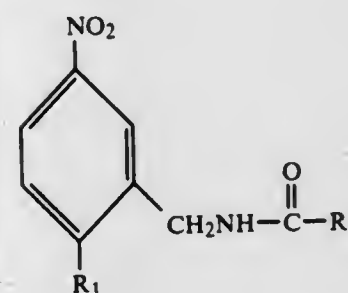
U.S. Cl. 568—936

3 Claims

1. A process for the preparation of a compound of structural formula:



wherein R₁ is C₁-C₄ alkyl, comprising reacting an amide of structural formula:



wherein R₁ is C₁-C₄ alkyl, R₅ is C₁-C₄ alkyl, C₂-C₄ alkenyl, or phenyl, with phosphorus oxychloride alone or with phosphorus oxychloride in the presence of a solvent methylene chloride, chloroform, ethylene dichloride, benzene, toluene, xylene, chlorobenzene, dimethylformamide or mixtures thereof, at elevated temperatures up to and including the boiling point of the solvent or solvent mixture, for a period of time sufficient to essentially complete the reaction, and wherein the amide to phosphorus oxychloride molar ratio is in the range of from 1:1 to 1:4; with the condition that when one of the components of the solvent mixture is dimethylformamide, then it is present in the solvent mixture in amounts of one to three molar equivalents per mole of amide.

4,395,578

OLIGOMERIZATION OF OLEFINS OVER BORON TRIFLUORIDE IN THE PRESENCE OF A TRANSITION METAL CATION-CONTAINING PROMOTER

John M. Larkin, Austin, Tex., assignor to Texaco, Inc., White Plains, N.Y.

Filed Jun. 18, 1982, Ser. No. 389,738

Int. Cl.³ C07C 1/16, 2/02

U.S. Cl. 585—10

47 Claims

1. A process for oligomerizing mono olefins comprising

contacting a mixture of alpha mono olefins having between 3 and 18 carbon atoms, inclusive, with a catalyst comprising boron trifluoride in the presence of an inorganic promoter containing a transition metal cation, under oligomerization conditions.

38. A synthetic lubricant component having a viscosity at 210° F. of between 3.5 and 5.0 centistokes being produced by oligomerizing a mixture of alpha mono olefins which consists essentially of low molecular weight alpha olefins having 3 to 5 carbon atoms and higher molecular weight alpha olefins having 8 to 18 carbon atoms, by means of contacting the alpha olefins with boron trifluoride in the presence of an inorganic promoter containing a transition metal cation, under oligomerization conditions, and subsequently hydrogenating the oligomerized olefins.

4,395,579

LI-SPINEL CATALYST FOR NON-OXIDATIVE DEHYDROGENATION PROCESS

Gilbert R. Germaine, and Jean P. Darnanville, both of Grand Couronne, France, assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 333,007, Dec. 21, 1981, Pat. No. 4,372,879.

This application Nov. 4, 1982, Ser. No. 439,150

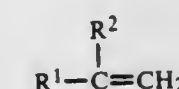
Claims priority, application France, Dec. 29, 1980, 80 27673

Int. Cl.³ C07C 2/64, 5/09, 5/333

U.S. Cl. 585—444

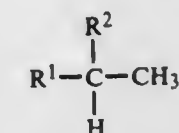
19 Claims

1. A process for the preparation of a compound having the general formula:



(I)

wherein R¹ and R² each represent an alkyl, an alkenyl or a phenyl group or a hydrogen atom, by non-oxidative dehydrogenation of a compound having the general formula:



(II)

wherein R¹ and R² have the same meaning as in formula I, in which process a mixture comprising a compound of formula II and superheated steam is contacted at elevated temperature with a catalyst comprising a composition having a spinel structure with lithium coordinated in the spinel structure, an alkali metal oxide not forming a part of the spinel structure and a vanadium oxide not forming part of the spinel structure.

4,395,580

PROCESS FOR PRODUCING AN OLEFIN BY DECOMPOSITION OF THE CORRESPONDING ETHER

Bernard Juguin, Rueil-Malmaison; Jean Miquel, Paris; Michel Hellin, Andresy, and Bernard Torck, Boulogne sur Seine, all of France, assignors to Institut Francais Du Petrole, Rueil-Malmaison, France

Filed Oct. 29, 1981, Ser. No. 316,376

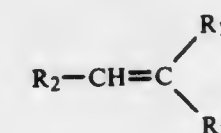
Claims priority, application France, Oct. 29, 1980, 80 23183

Int. Cl.³ C07C 1/00, 1/24

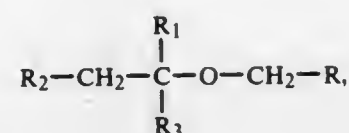
U.S. Cl. 585—639

22 Claims

1. A process for producing a tertiary olefin of the formula:



by decomposition of the corresponding tertiary ether of the formula:



wherein R_1 and R_3 are each independently an alkyl, arylalkyl, aryl or alkylaryl radical; and R_2 and R are each independently a hydrogen atom or an alkyl, arylalkyl, aryl or alkylaryl radical, said process comprising the step of contacting said ether, in the presence of steam, the molar ratio H_2O /tertiary ether being

from 2 to 8, with a catalyst consisting essentially of alumina having deposited thereon at least one modifying agent, said agent being titanium, zirconium or hafnium, as the elemental metal or a metal compound, the content of said metal or metal compound, expressed as the elemental metal, being 0.01-5% by weight with respect to the alumina, said alumina, after incorporation of the metal or metal compound, having a specific surface of 80-300 m^2/g ; whereby the tertiary olefin is produced in high purity, and parasitic side-reactions which decrease the yields of tertiary olefin and of recovered alcohol are minimized.

ELECTRICAL

4,395,581

CONCAVE MIRROR CONSTITUTED BY A PLURALITY OF PLANE FACETS AND SOLAR GENERATOR COMPRISING SUCH A MIRROR

Alain Girard, Cros de Cagnes, France, assignor to Societa Nazionale Industriale Aerospaziale, Paris, France

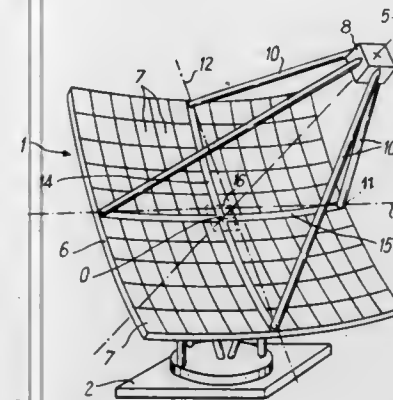
Filed Feb. 11, 1982, Ser. No. 347,899

Claims priority, application France, Feb. 20, 1981, 81 03409

Int. Cl.³ G02B 5/08; H01L 31/04

U.S. Cl. 136-246

11 Claims



1. In a concave mirror which is adapted to provide when aimed towards a remote light source such as the sun, a useful focal or quasi-focal spot of at least approximately square or rectangular form and of predetermined dimensions, said useful spot being centred on the axis of said mirror, the reflecting surface of said mirror being constituted by a plurality of identical planar facets whose shape and dimensions correspond to those of said useful spot and which are disposed in rows and in columns, so that the section of the reflected beam coming from each planar facet totally covers said useful spot, the two dimensions of said facets being such that the square root of their product is at least approximately equal to the ratio of the focal distance of the mirror and of the square root of the concentration factor of said mirror.

8. A solar generator comprising a solar concentrator and an arrangement of photovoltaic cells, wherein said solar concentrator is constituted by the mirror of claim 1, and the sensitive face of said arrangement of photovoltaic cells corresponds at least approximately in shape and in dimensions to said useful focal or quasi-focal spot and is superposed thereon.

4,395,582

COMBINED SOLAR CONVERSION

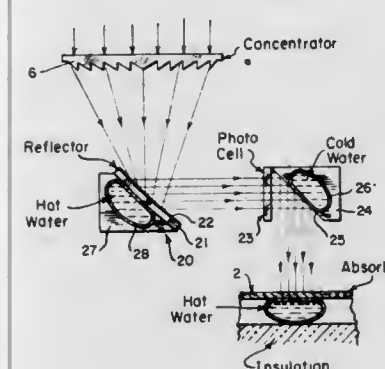
Dorel J. Damsker, New York, N.Y., assignor to Gibbs & Hill, Inc., New York, N.Y.

Filed Mar. 28, 1979, Ser. No. 24,791

Int. Cl.³ H01L 31/04; F24J 3/02

U.S. Cl. 136-248

5 Claims



3. A combined solar converter adapted to be exposed to a source of solar radiation, comprising a photovoltaic cell sensitive to solar radiation of a particular range of wavelengths so as to convert the energy of part of said radiation of particular range to electricity, wherein said cell is transparent and thus insensitive to solar radiation of shorter and longer wavelengths

than said particular range, an energy absorber positioned to receive radiation of said longer wavelengths passing through said cell for converting the energy of the same to heat, a first optical wavelength shifting means positioned between the radiation source and said cell for shifting radiation of said shorter wavelengths to longer wavelengths to come within said particular range, and a second optical shifting means positioned on the opposite side of said cell from said first optical shifting means for shifting radiation passing through said cell into longer wavelengths and for reflecting the shifted radiation of longer wavelengths back towards said cell.

5. A combined solar converter adapted to be exposed to a source of solar radiation, comprising a photovoltaic cell sensitive to solar radiation of a particular range of wavelengths so as to convert the energy of part of said radiation of particular range to electricity, wherein said cell is transparent and thus insensitive to solar radiation of shorter and longer wavelengths than said particular range, an energy absorber spaced from said cell and positioned to receive radiation of shorter and longer wavelengths passing through said cell for converting the energy of the same to heat, and optical wavelength shifting means comprising a glass surface coated with doped indium oxide positioned between the radiation source and the cell for shifting radiation of shorter wavelengths to longer wavelengths to come within said particular range.

4,395,583

OPTIMIZED BACK CONTACT FOR SOLAR CELLS

Andrew Meulenberg, Jr., Gaithersburg, Md., assignor to Communications Satellite Corporation, Washington, D.C.

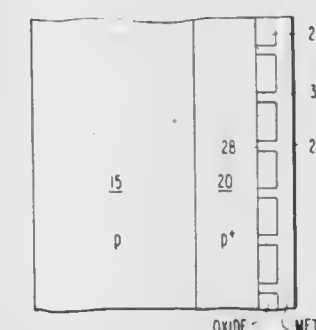
Continuation-in-part of Ser. No. 145,104, Apr. 30, 1980,

abandoned. This application Oct. 20, 1981, Ser. No. 313,081

Int. Cl.³ H01L 31/06

U.S. Cl. 136-256

28 Claims



1. A solar cell having a first extrinsic semiconductor layer providing majority carriers of a first electrical charge, a second semiconductor layer adjacent to said first layer, and a back contact optimized to reduce effective surface recombination, said optimized back contact comprising:

- (a) a third extrinsic semiconductor layer having a thickness (W) substantially less than its minority carrier diffusion length (L), adjacent to said second layer to form a first interface having a low effective surface recombination velocity, said third layer providing a number of majority carriers of a second electrical charge opposite to said first electrical charge;
- (b) a non-metallic coating deposited on said third layer to form a second interface having a low surface recombination velocity, said non-metallic coating having a plurality of micro holes provided therethrough, the total area of said micro holes being small relative to the total area of said non-metallic coating; and
- (c) a metal coating deposited on said non-metallic coating to thereby provide electrical contacts from said metal coating to said third layer through said micro holes to form a third interface at said electrical contacts,

wherein the ratio (W/L) of the width (W) of said third layer to the minority carrier diffusion length (L) in said third layer is chosen so as to reduce the quantity:

$$\frac{A_D(x/y)(W \cdot D/L^2) + A_M(x/y)(D/W)}{A_{total}}$$

below $(x/y)(D/L)$ where x and y are the minority carrier concentrations in said third and second layers, respectively; D is the minority carrier diffusion coefficient of said third layer; and A_D , A_M and A_{total} are the relative areas of said second, third and first interfaces, respectively.

4,395,584

CABLE SHAPED CRYOGENICALLY COOLED STABILIZED SUPERCONDUCTOR

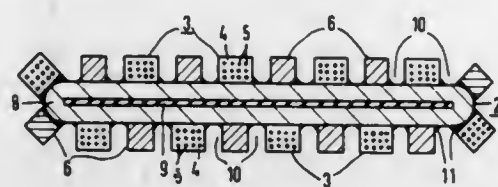
Günter Ries, Weingarten, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Jun. 17, 1981, Ser. No. 274,441

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023856

Int. Cl.³ H01B 12/00; H01F 7/22

U.S. Cl. 174—15 S

8 Claims



1. In a cable shaped cryogenically stabilized heavy current superconductor structure including several superconducting elements which contain wires of superconductive material embedded in a matrix material of predetermined electric conductivity; stabilizing elements of a thermally and electrically highly conductive material which is normally conducting at the operating temperature of the superconductor structure extending parallel thereto, the electric conductivity of said stabilizing elements being substantially higher in the normally conducting state of the heavy current superconductor than that of the matrix material of the superconducting elements; and a support body of a material of relatively low thermal and electric conductivity, on which said stabilizing elements and said superconducting elements are fastened, the improvement comprising: the stabilizing elements being arranged physically separated at a predetermined spacing from the respective adjacent superconducting elements so that only a poorly heat conducting connection and moderate ohmic coupling is provided between said stabilizing elements and superconducting elements, and the spacings so formed between adjacent superconducting elements and the stabilizing elements being, at least largely, filled with a cryogenic coolant.

4,395,585

MULTIPLE USE COMPONENT SPACER AND METHODS FOR PREPARING A SPACER FOR MOUNTING ON AND AFFIXING A SPACER TO A CIRCUIT BOARD

Erwin R. Polcyn, Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Nov. 19, 1981, Ser. No. 322,969

Int. Cl.³ H05K 7/08, 3/30

U.S. Cl. 174—138 G

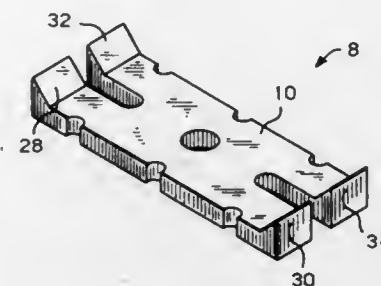
5 Claims

1. A multiple use component spacer, having a circumference and a plurality of surfaces for use in conjunction with a circuit board and components to be mounted on said board, said spacer comprising:

- a central portion having a component platform surrounding a lead receiving aperture suitable for passing a lead to be soldered to the circuit board;
- a first lead grasping portion affixed to said central portion, directed outwardly therefrom in a first direction and

having a resilient forked portion defining a lead receiving slot;

a second lead grasping portion having a resilient forked portion defining a lead receiving slot affixed to said central portion and directed outwardly therefrom in a direction different from that of said first lead grasping portion;



a plurality of lead abutment portions distributed about the circumference of the spacer; and means for providing elevation of said component platform above a circuit board, said means for providing elevation being located on at least one of the surfaces of the spacer.

4,395,586

HOLDING DEVICE FOR ELECTRICAL THIN LAYER RESISTANCE

Kurt Eiermann, Pfungstadt; Eberhard Horlebein, Mainaschaff, and Wolfgang Schäfer, Frankfurt, all of Fed. Rep. of Germany, assignors to Degussa AG, Frankfurt, Fed. Rep. of Germany

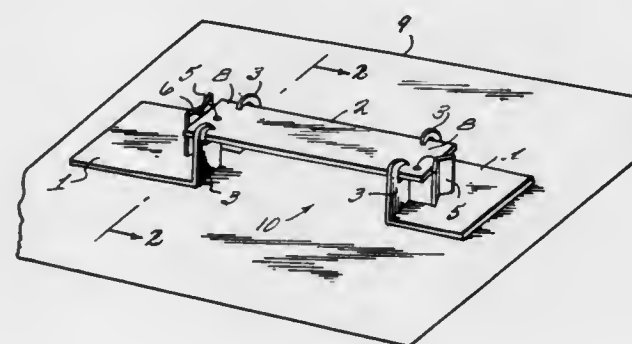
Filed Jun. 28, 1982, Ser. No. 392,478

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1981, 3127097

Int. Cl.³ H01B 17/56

U.S. Cl. 174—138 J

6 Claims



1. A device for holding a plate-shaped thin layer electrical resistance of the type where a thin metal layer is carried on an electrically insulating carrier, said device comprising holding clamp means, said holding clamp means including at least three pointed support means and at least two clip means each provided with spikes being arranged to press a thin layer resistance located between said spikes and said support means toward said support means.

4,395,587

METHOD AND APPARATUS FOR REPRESENTING CHARACTERS

Karl Hans, Munich, and Helmut Hackstein, Calw-Altburg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Oct. 26, 1981, Ser. No. 315,036

Claims priority, application Fed. Rep. of Germany, Dec. 8, 1980, 3046216

Int. Cl.³ H04L 13/08

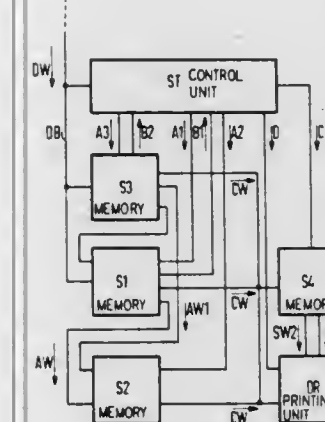
U.S. Cl. 178—30

13 Claims

1. A method for representing characters on a recording medium in a printing station either as an individual symbol, a

sequence of symbols, or a plurality of overstruck symbols, said characters received in the form of encoded data words from an input means, said data words having at least one code word associated therewith for actuating printing of a selected symbol at said printing station, comprising the steps of:

- supplying a data word to a first memory containing code words and address words for a second memory stored at respective addresses corresponding to said data words;
- releasing a code word corresponding to said data word which was supplied to said first memory to said printing station if said data word corresponds to a character representable by an individual symbol for printing said individual symbol;
- releasing an address word corresponding to said data words supplied to said first memory to said second memory if said data word corresponds to a character representable by a plurality of overstruck symbols,
- said second memory containing groups of code words and associated position words stored at respective groups of consecutive addresses beginning with said address word, said groups of code words and associated position words respectively corresponding to the symbols and the positions therefor for said characters representable by overstruck symbols;



- releasing a selected group of code words and associated position words from said second memory to said printing station for printing the overstruck symbols comprising said character;
- supplying a selected plurality of data words to a third memory corresponding to said characters representable by a sequence of symbols,
- said third memory containing code words and address words for said second memory at respective addresses corresponding to selected ones of said data words;
- releasing a sequence of code words to said printing station from said third memory for printing a sequence of symbols corresponding thereto if addresses corresponding to the data words supplied to said third memory are stored in said third memory;
- releasing said data words supplied to said third memory consecutively from said third memory to said first memory if the addresses corresponding to the data words are not stored in said third memory for processing in said first memory and subsequent printing of symbols corresponding thereto;
- releasing said address words corresponding to said data words supplied to said third memory from said third memory to said second memory for processing therein if necessary and subsequent printing of symbols corresponding thereto.

4,395,588

MFB SYSTEM WITH A BY-PASS NETWORK

Nico V. Franssen, deceased, late of Kneegsel, Netherlands; Friedrich J. de Haan, administrator, Dommelen, Netherlands; Adrianus J. M. Kaizer, and Cornelis A. M. Wesche, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

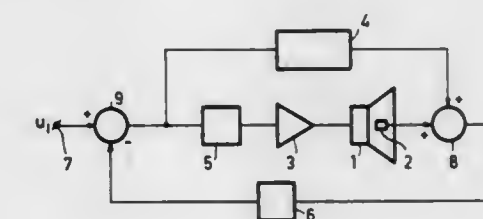
Filed Mar. 9, 1981, Ser. No. 241,992

Claims priority, application Netherlands, Mar. 18, 1980, 8001592

Int. Cl.³ H04R 9/06

U.S. Cl. 179—1 F

16 Claims



1. A device for converting an electric signal into an acoustic signal comprising, an electroacoustic transducer, means for driving said electroacoustic transducer, a pick-up element for supplying an electric output signal which is a measure of the acoustic output signal of the transducer, a by-pass network which electrically bypasses at least the transducer and the pick-up element, a combination unit for combining the output signal of the pick-up element and the output signal of the by-pass network, and a feedback circuit for feeding back to the transducer driving means the output signal of the combination unit as a negative feedback signal, characterized in that the by-pass network is adapted to produce an output signal which for frequencies within the operating frequency range of the transducer is small and for frequencies above and below the operating frequency range of the transducer is large relative to the output signal of the pickup element.

4,395,589

ELECTRO-ACOUSTICAL STRUCTURE

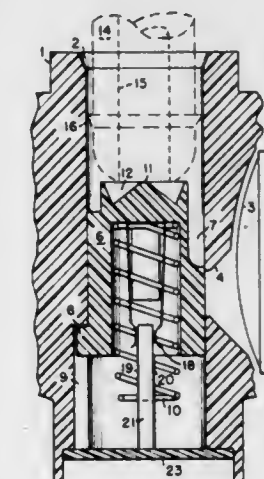
Douglas J. Williams, Huntington Beach, Calif., assignor to EECO Incorporated, Santa Ana, Calif.

Filed Jul. 6, 1981, Ser. No. 280,650

Int. Cl.³ H04R 1/10

U.S. Cl. 179—1 SW

9 Claims



- 1. An electro-acoustical structure comprising;
 - (a) a body (1) having at least one aperture (2) for receiving an acoustic-use plug (14),
 - (b) a hollow piston valve (6) within said aperture,
 - (c) a coiled spring (10) within said aperture and bearing outwardly against said piston valve with respect to said aperture,
 - (d) a port (4) having an electro-acoustical transducer (3)

- within said body and acoustically communicating with said aperture,
- (e) a companion port (7) within said piston valve so related to said port (4) that when an acoustic-use plug is inserted into said aperture an acoustic channel exists from said transducer, through said port, through said companion port, and into the acoustic-use plug,
- (f) a bifurcated electrically conductive switch member (18) disposed within said piston valve, and
- (g) linear stationary contacts (19,20) to close an electrical circuit in coaction with said bifurcated switch member, when said piston valve is depressed within said aperture.

4,395,590

LINE POWERED MODEM

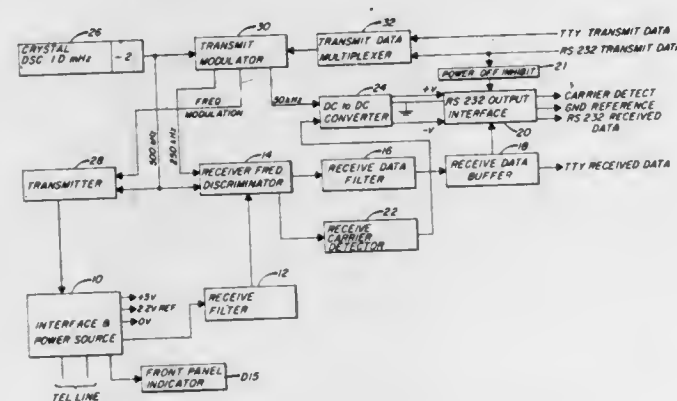
O. Leon Pierce, Mark C. Smith, and R. Byron Driver, all of Huntsville, Ala., assignors to Universal Data Systems, Inc., Huntsville, Ala.

Filed Nov. 3, 1980, Ser. No. 203,108

Int. Cl.³ H04M 19/00

U.S. Cl. 179—2 DP

20 Claims



1. A telephone line powered modem comprising: a first circuit for coupling to a telephone line and operative wholly in response to telephone line power to provide operating power for all modem circuits; said first circuit including a solid state shunt regulator circuit providing a voltage which is substantially constant irrespective of variations in current from the telephone line, and a current source operating as a constant current source for AC and self adjusting for DC current and operative to provide a low DC resistance and high AC impedance such that audio frequency variations in line voltage cause no appreciable current change through the load; a modem receiver subsystem powered by the first circuit and operative to provide data signals derived from signals received on the telephone line; and a modem transmitter subsystem powered by the first circuit and operative in response to data from a source to provide modulated data signals to the telephone line.

4,395,591

ARRANGEMENT FOR SUPPORTING A TELEPHONE HANDSET OR THE LIKE

John E. Kaczko, Elk Grove Village, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Oct. 5, 1981, Ser. No. 308,863

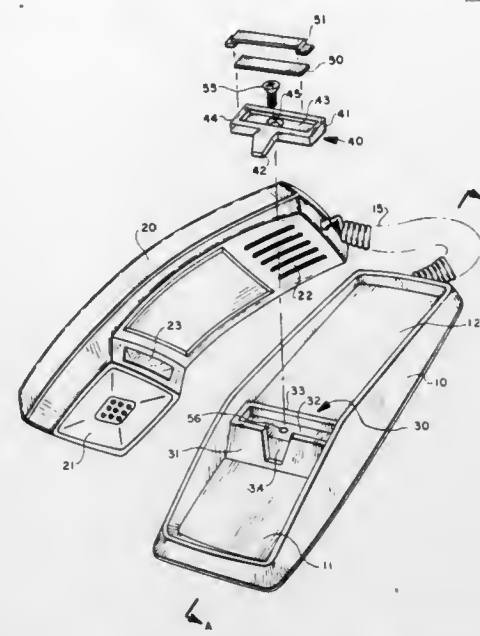
Int. Cl.³ H04M 1/02

U.S. Cl. 179—100 R

4 Claims

3. A telephone base arranged to accept a telephone handset on a face thereof, said handset including an orifice and said face including a support structure transversely oriented along said face, said support structure including a T-shaped cavity arranged to substantially accept therein a similarly shaped handset retainer, said handset retainer including a body portion and a hook portion each substantially accepted within said cavity in a first stored position and said handset retainer alternatively positionable into a second position having said body portion

substantially accepted within said T-shaped cavity with said hook portion extending outwardly of said cavity, whereby said



hook is accommodated by said handset orifice retaining said handset to said base.

4,395,592

RIBBON LOUDSPEAKER

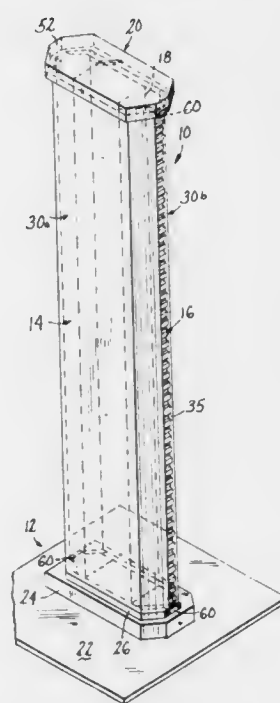
Thomas P. Colangelo, Hamden, Conn., assignor to Mark Levinson Audio Systems Ltd., Middletown, Conn.

Filed Mar. 6, 1981, Ser. No. 241,401

Int. Cl.³ H04R 7/02

U.S. Cl. 179—115 V

12 Claims



1. A ribbon loudspeaker comprising: an elongated permanent magnet of substantially rectilinear structure having two pairs of opposite faces; a pair of pole pieces, each contacting against opposite faces and extending outwardly from said faces to form a pair of magnetic gaps, said gaps being parallel to and spaced apart from said second pair of faces and extending the length of said faces; and a ribbon for sound reproduction continuously wound around said magnet and received in and extending the length of said gaps.

4,395,593

ACOUSTIC DIFFERENTIAL DIGITAL CODER

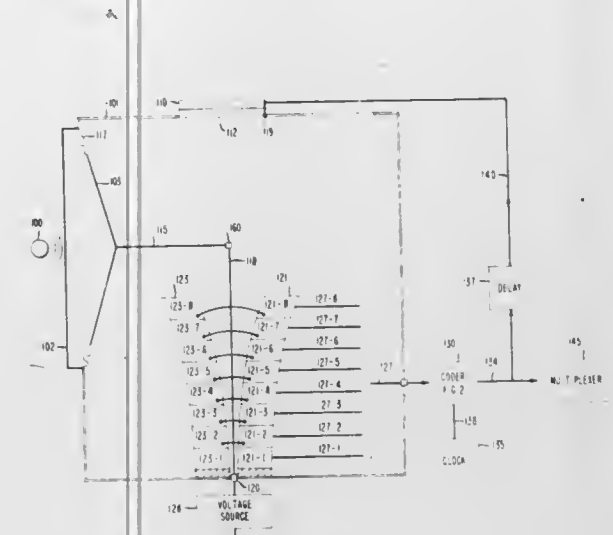
James L. Flanagan, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 97,808, Nov. 27, 1979, abandoned. This application Jul. 31, 1981, Ser. No. 288,790

Int. Cl.³ H04M 1/00; H04R 3/00, 19/00, 23/00

U.S. Cl. 179—1 F

23 Claims U.S. Cl. 179—2 EB



1. Apparatus for converting sounds into coded digital signals comprising a closed chamber having at least first and second apertures therein;

a vibratory diaphragm having its periphery fastened to the periphery of said first aperture;

means for applying a first sound wave to said diaphragm from outside said chamber;

means responsive to the motion of said diaphragm for generating a quantized signal representative of the diaphragm motion;

and means responsive to the quantized signal for producing a coded digital signal;

CHARACTERIZED IN THAT

means (110) connected to said chamber (101) at the second aperture (119) are adapted to convert said coded digital signal into a second sound wave and to direct said second sound wave into said chamber to modify the motion of said diaphragm (103); said produced digital signal corresponding to the difference between said first and second sound waves.

22. Apparatus for converting coded digital signals into sound comprising

a cylindrical electret,

at least one insulative cylindrical wall, the first insulative cylindrical wall being concentric with and surrounding the cylindrical electret,

at least one ring electret, the first ring electret being concentric with and surrounding the first insulative cylindrical wall, the successive ring electrets each being concentric with and surrounding one of the insulative cylindrical walls,

said electrets and insulative walls forming an assembly having a sound emitting end with each electret being acoustically isolated from the other electrets,

means for selectively applying coded digital signal elements to said acoustically isolated electrets,

a first cavity extending from said sound emitting end adapted to acoustically sum sound waves from the acoustically isolated electrets,

and a second cavity extending from said first cavity adapted to restrict the frequency range of the summed sound waves.

4,395,594

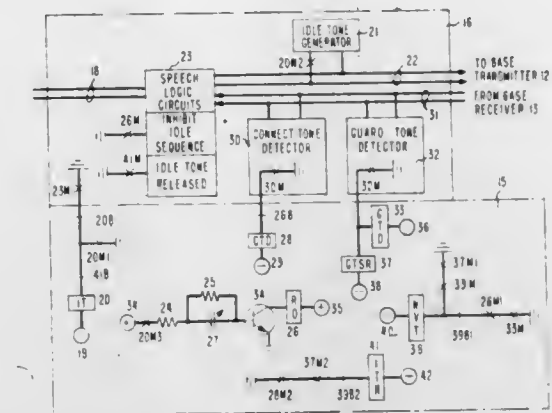
METHOD AND APPARATUS FOR FORCING RANDOMIZATION OF IDLE CHANNEL SEIZURES

John A. Meyerle, Manassas, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 24, 1981, Ser. No. 295,858

Int. Cl.³ H04M 11/00

6 Claims



2. In a communication system including at least one user-shared-access communication channel and a first station for controlling the access of multiple, remotely located users to that channel by applying to said channel a signal indicating the availability thereof for access by a user, and wherein user station equipment seeking access initiates a predetermined program of access-requesting signals, and, if thereafter the availability signal is still present on the channel, said equipment reinitiates said program at least once, said first station comprising

means for receiving from said channel an access-request signal indicating that a user is requesting access to said channel,

means, responsive to said access-request signal, for removing from said channel said availability signal, and

means for inhibiting the response of said removing means to an access-request signal for a time interval of randomly selectable duration, at least as long as said program, after initial application of said availability signal.

4,395,595

DIGITAL PUSHBUTTON SIGNALLING RECEIVER

Takao Nishitani, and Tadaharu Kato, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

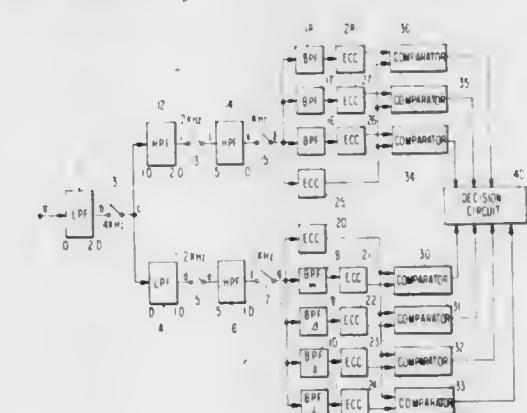
Filed Apr. 7, 1981, Ser. No. 251,829

Claims priority, application Japan, Apr. 23, 1980, 55-53893

Int. Cl.³ H04M 1/50

U.S. Cl. 179—84 VF

5 Claims



1. A digital pushbutton signalling receiver responsive to an input pushbutton (PB) telephone signal digitized at a first sampling frequency and containing two frequency components, one component consisting of one frequency signal selected out of a predetermined plurality of a lower group of frequencies and a second component consisting of one frequency

quency signal selected out of a predetermined plurality of a higher group of frequencies, comprising:

- first means responsive to said input signal for successively digitally filtering and resampling said input signal at selected filtering bands and successively reducing sampling frequencies by $\frac{1}{2}$ to produce a first means output digital signal containing all of said lower group of frequencies frequency transposed to first corresponding lower group of frequencies;
- second means responsive to said input signal for successively digitally filtering and resampling said input signal at selected filtering bands and successively reducing sampling frequencies by $\frac{1}{2}$ to produce a second means output digital signal containing all of said higher group of frequencies frequency transposed to second corresponding lower group of frequencies;
- a first group of digital band pass filters, each centered at different ones of said frequencies of said first corresponding lower group of frequencies, connected to receive said first means output digital signal;
- first energy calculating means for calculating the energy content of said first means output digital signal and the outputs from each of said first group of digital band pass filters;
- first comparison means responsive to the outputs from said first energy calculating means for providing an output indicating the presence and identity of any of said predetermined plurality of lower frequencies in said input in-band audio frequency signal;
- a second group of digital band pass filters, each centered at different ones of said frequencies of said second corresponding lower group of frequencies, connected to receive said second means output digital signal;
- second energy calculating means for calculating the energy content of said second means output digital signal and the outputs from each of said second group of digital band pass filters, and
- second comparison means responsive to the outputs from said second energy calculating means for providing an output indicating the presence and identity of any of said predetermined plurality of higher frequencies in said input-in-band audio frequency signal.

4,395,596

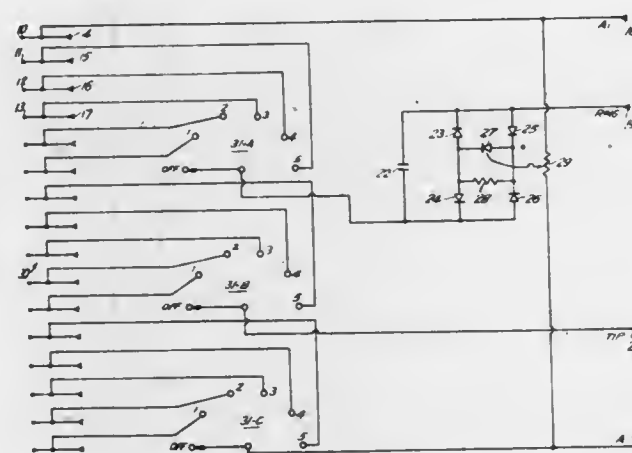
MULTI-LINE CONTROLLER

Harold N. Leitman, 58 Talcot Rd., Portchester, N.Y. 10573, and
Walter J. Lange, 115 Columbia Ave., Jersey City, N.J. 07307
Filed Nov. 2, 1981, Ser. No. 313,541

Int. Cl.³ H04M 1/00

U.S. Cl. 179—99 LC

3 Claims



1. A multi-line controller for connecting single line telephone accessory equipment to a multi-line telephone system, comprising:

- means for selectively connecting said single line telephone accessory equipment to a particular incoming line of said multi-line telephone system, and
- means operative when said single line telephone accessory

equipment is connected to said particular line, and responsive to said single line equipment going off hook, for providing an A and A1 closure signal to the multi-line telephone system.

4,395,597

SPEAKER DIAPHRAGM ASSEMBLY AND A METHOD OF MANUFACTURING THE SAME

Kiyoaki Suzuki; Masaru Watanabe; Hisashi Yamamoto; Tomoharu Hayashi, and Takuji Miura, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

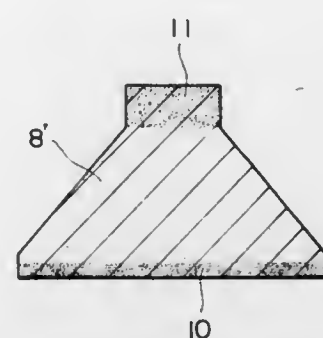
Filed Sep. 24, 1980, Ser. No. 191,089

Claims priority, application Japan, Sep. 25, 1979, 54-131402[U]; Sep. 25, 1979, 54-131406[U]; Sep. 25, 1979, 54-131407[U]; Sep. 29, 1979, 54-133938[U]

Int. Cl.³ H04R 7/02, 9/06, 31/00

U.S. Cl. 179—115.5 R

30 Claims



7. A speaker diaphragm assembly comprising:

- a foam resin body having front and rear end portions, said foam resin having uniform density throughout the inside of said body as is obtained by heating a first raw material having a relatively great foam magnification; and
- a sound radiating surface portion of the same sort of resin as said foam resin and integrally formed with said front end portion of said body, said foam resin of said sound radiating surface portion having a density greater than that at the inside of said body as formed by heating a second raw material having a relatively small foam magnification.

4,395,598

ELECTRO-ACOUSTIC TRANSDUCER CAUSING SOUND WAVES TO BE IN PHASE AT ANY POINT BY PREVENTING REFLECTION FROM THE BACK END OF THE DIAPHRAGM TO STRESS APPLYING MEANS

Philippe M. Lesage, Nogent-sur-Marne, France, assignor to Societe Audax, Montreuil, France

PCT No. PCT/FR79/00109, § 371 Date Jul. 16, 1980, § 102(e)
Date Jul. 15, 1980, PCT Pub. No. WO80/01128, PCT Pub. Date May 29, 1980

PCT Filed Nov. 16, 1979, Ser. No. 212,089

Claims priority, application France, Nov. 16, 1978, 78 32386

Int. Cl.³ H04R 9/04

U.S. Cl. 179—115.5 R

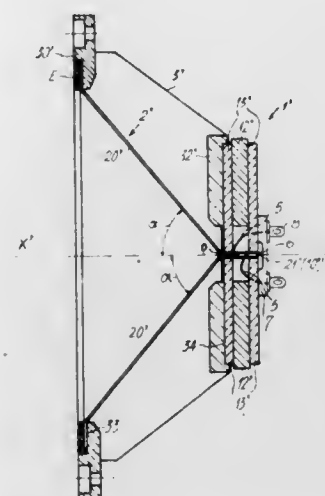
6 Claims

1. An electro-acoustical transducer comprising:

- a motor for imparting vibrations to a shaped membrane;
- a shaped membrane in the form of a dihedron constituting the site of vibrations responsible for sound transmission, said dihedron having a predetermined half angle α to transmit said vibrations from said membrane at a velocity V_m being approximately equal to $V_0/\cos \alpha$ where V_0 is a velocity of sound in air;
- said membrane having two side edges, a front end and a rear end, the front end constituting the two front surfaces of the dihedron, the rear end constituting the rear surfaces of the dihedron, and the side edges adapted for secure attachment to the chassis at the rear of the membrane;

a chassis having front and rear portions constituting the supporting structure for said motor and said membrane; an air gap defined between the intersecting planar surface of the dihedron which constitutes the rear end of said membrane and the moving portion of said motor, and the stationary portion of said motor which is spaced from said membrane which is fixed by said chassis with the membrane centered in said air gap;

said chassis centering said air gap which is located at the center of said membrane along a plane of symmetry passing through the vertex of the dihedron along the fold of the dihedron and adjacent said motor whereby the plane of symmetry bisects the angle of the dihedron to provide the predetermined angle α and permits the placement of a stress tensioning means to apply stress to the front of the membrane from a position behind the membrane and attached to the rear portion of said chassis;



securing means on the front portion of said chassis between the front end of said membrane and the rear portion of said chassis for securing the membrane to the chassis;

said securing means including a stress-tensioning means connected between the front part of said membrane and the rear portion of said chassis to apply a tensile stress to the front of said membrane whereby after said membrane is inserted into said chassis with the bolt of the dihedron in proper relation to said air gap and motor, said stress-tensioning means lies along the plane of symmetry extending through the vertex of the dihedron through to the back portion of said chassis and the tensile stress provides membrane vibrations in the form of bending transverse waves having the velocity V_m , said tensile stress applying means also preventing reflection of sound waves from the back end of the membrane.

4,395,599

DRIVING POINT IMPEDANCE DERIVED FROM A TRANSFER IMPEDANCE

Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 28, 1980, Ser. No. 211,355

Int. Cl.³ H04B 1/58

U.S. Cl. 179—170 NC

11 Claims

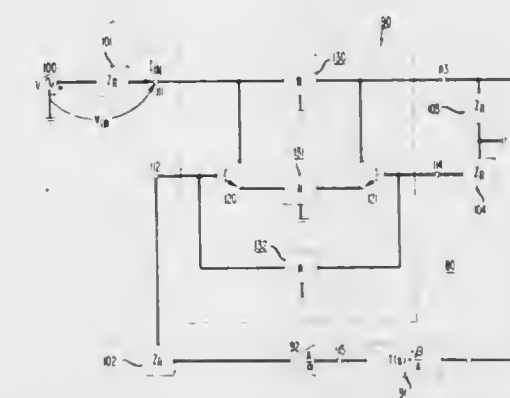
1. Circuitry including a directional coupler (90) comprising two active members (120,121) each having an emitting element, a control element and a collecting element, and first, second and third two-port networks (130-132) connected, respectively, between said emitting element, said control element and said collecting element of said members, said networks arranged so that the symmetric mode transfer gain and the antisymmetric mode transfer gain measured between said control elements and said collecting elements, are equal,

CHARACTERIZED BY

circuit means (91,92,102), external to said coupler, comprising a transfer signal circuit (91,92) having a transfer ratio

of $-\beta$ for coupling said collecting element of one of said members to said control element of the other of said members, and

impedance networks, each designated Z_R , terminating each said collecting element and each said control element,



said circuitry providing a driving point impedance between said collecting element of said other of said members and the circuitry reference point in the form $Z_{in} = (1 + \beta)Z_R / (1 - \beta)$ whenever $\beta = (Z_{in} - Z_R) / (Z_{in} + Z_R)$.

4,395,600

AUDITORY SUBLIMINAL MESSAGE SYSTEM AND METHOD

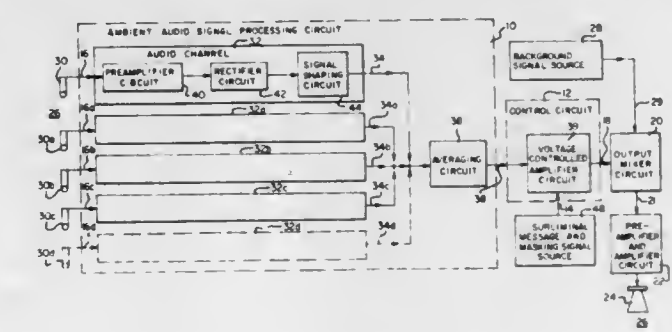
Rene R. Lundy, 3016 SE. 39th, and David L. Tyler, 2939 SE. Taylor, both of Portland, Ore. 97214

Filed Nov. 26, 1980, Ser. No. 210,645

Int. Cl.³ H04M 15/00; H04K 1/02

U.S. Cl. 179—1.5 M

29 Claims



19. An auditory subliminal message system for an area comprising:

- at least one audio sensor means for sensing ambient audio signals in the area and for producing an ambient audio output signal representing the amplitude of the sensed ambient audio signals;
- subliminal message source means for providing an auditory subliminal message output signal;
- masking signal source means for providing and combining a masking signal having frequency characteristics and an amplitude such that when the masking signal is combined with the amplitude adjusted subliminal message output signal it renders the adjusted subliminal message output signal outside of the conscious recognition range;
- ambient audio signal processing circuit means coupled to the output of said audio sensor means for producing a control signal which varies with variations in the amplitude of the sensed ambient audio signals;
- amplitude control circuit means coupled to said subliminal message source means, to said masking signal source means and to said ambient audio signal processing circuit means for controlling the amplitude of said auditory subliminal message and the amplitude of said masking signal in response to the control signal from said ambient audio signal processing circuit means such that the amplitudes of

said auditory subliminal signal and of said masking signal increase with increasing amplitudes of the sensed ambient audio signals and decrease with decreasing amplitudes of the sensed ambient audio signals; and output circuit means including speaker means for transmitting the amplitude controlled auditory subliminal message output signal and the amplitude controlled masking signal to the area.

4,395,601

MODULAR HEARING AID

Wolfgang Köpke; Manfred Müller; Wolfgang Schmidt; Albert Eggert; Erwin Gahleitner, and Gerhard Raupach, all of Berlin, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

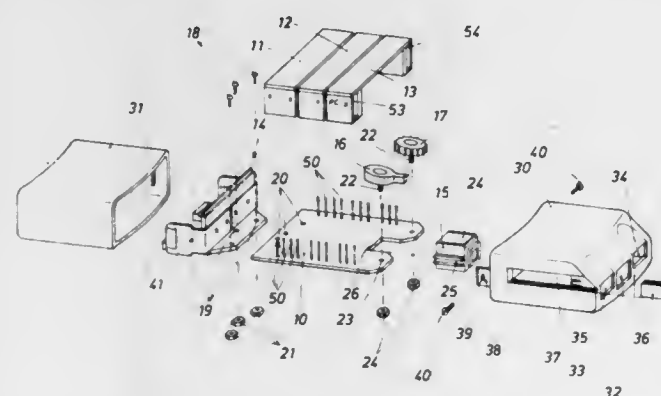
Filed Sep. 30, 1980, Ser. No. 192,256

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1979, 2941951

Int. Cl.³ H04R 25/04; H05K 1/00

U.S. Cl. 179—179

8 Claims



1. A hearing aid comprising in combination
 - (a) a circuit board having conductor strips thereon, a first side and an opposite second side and an edge zone along said first side; said second side including a cutout bounded by border edges;
 - (b) first plug-in elements mounted on said circuit board externally of said edge zone and being electrically connected to selective conductor strips;
 - (c) a plurality of circuit board-supported modular structural units;
 - (d) second plug-in elements mounted on each said circuit board-supported modular structural unit; said first plug-in elements cooperating with respective second plug-in elements for securing selected said circuit board-supported modular structural units on said circuit board;
 - (e) a battery holder mounted on said edge zone for receiving a battery for the hearing aid; and
 - (f) a microphone unit having opposite side faces and means defining a groove on each said side face; said microphone unit being received in said cutout and supported by said circuit board by an interengagement between each said groove and a respective said border edge.

4,395,602

ISOLATION SHIELD FOR CIRCUIT BREAKER COMPARTMENT SECONDARY DISCONNECTS

Roger N. Castonguay, Terryville, Conn., assignor to General Electric Company

Filed Feb. 16, 1982, Ser. No. 349,333

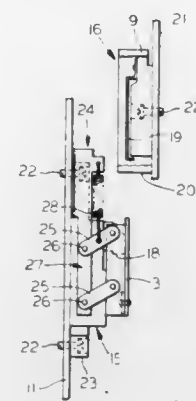
Int. Cl.³ H01H 9/00

U.S. Cl. 200—50 AA

9 Claims

1. An insulation shield assembly in combination with circuit breaker compartment secondary disconnects within a circuit breaker compartment which contains a primary and a secondary source of current comprising:
 - an electrically insulating shield in superposed relation to a plurality of circuit breaker compartment secondary disconnect terminals connected with said secondary current

source for isolating said compartment terminals when a circuit breaker is removed from said compartment; and means for moving said shield out of superposed relation to said compartment terminals for exposing said compart-



4,395,603

REAR "STOP" LIGHT CONTACTOR FOR A VEHICLE SUCH AS A MOTORCYCLE OR MOTOR BICYCLE

Rene Lauzier, Ruy, France, assignor to Angenieux-Cib S.A., Saint-Etienne, France

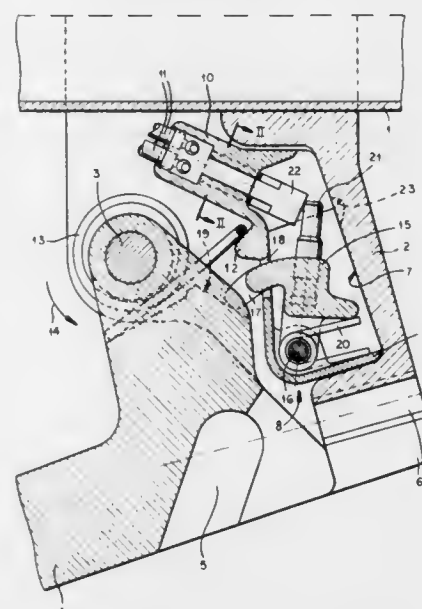
Filed Oct. 14, 1981, Ser. No. 311,453

Claims priority, application France, Oct. 14, 1980, 80 22198

Int. Cl.³ H01H 9/06

U.S. Cl. 200—61.87

4 Claims



1. A brake actuator and contactor assembly for a brake light energized upon brake actuation, comprising:
 - a support;
 - a brake lever pivotally mounted on said support, said support having a recess opened toward said lever; and
 - a contactor at least partly received in said recess, said contactor comprising:
 - a hollow body formed with at least one stationary contact within said body,
 - a rocker pivotally mounted in said body in a portion thereof extending into said recess and having a formation projecting from said body through an opening formed therein and engageable with said lever,
 - a spring in said body urging said rocker toward said lever, and
 - a movable contact on said rocker engageable with said stationary contact to energize the brake light upon

actuation of said rocker by said spring to cause said formation to follow said lever.

4,395,604

PULSE SWITCH

Shinobu Tominaga, Miyagi, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

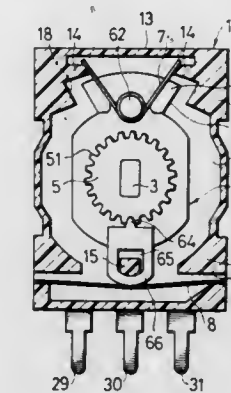
Filed Jun. 18, 1981, Ser. No. 275,123

Claims priority, application Japan, Jun. 18, 1980, 55-85353[U]

Int. Cl.³ H01H 19/24, 5/16

U.S. Cl. 200—74

10 Claims



1. A switch capable of producing a plurality of pulses during rotation of an operation shaft of said switch, comprising:
 - a toothed gear wheel connected to said shaft for rotation therewith and having a plurality of spaced teeth defining valley portions therebetween on the periphery of said gear;
 - an operation member disposed over said gear and adapted to rotate independently of said gear, said operation member having a cam portion formed integrally therewith and adapted to fit within said valley portions, said operation member further carrying a slidable contact having a contact portion on respective end portions of said operation member with one of said contact portions adapted to engage a common stationary contact of said switch and the other of said contact portions being movable between a first state out of engagement with at least one other stationary contact of said switch and a second state into engagement with said at least one other stationary contact upon rotation of said operation member;
 - means for supporting said operation member for rotation about an axis near said one contact; and
 - pulse means connected with said operation member for normally holding it in one of said states and, upon rotation of said operation shaft, moving it between said two states each time said cam portion is moved into and out of engagement with respective valley portions.

4,395,605

FLOAT OPERATED REED SWITCHES

William A. Weston, "The Barn", Portkil Bay, Kilcreggan, Helensburgh, Dunbartonshire, Scotland

Continuation of Ser. No. 136,756, Apr. 3, 1980, abandoned. This application Mar. 5, 1982, Ser. No. 353,168

Claims priority, application United Kingdom, Apr. 5, 1979, 7912014

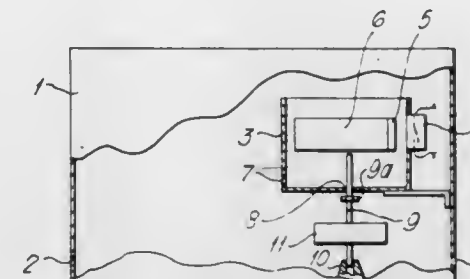
Int. Cl.³ H01H 35/18

U.S. Cl. 200—84 C

3 Claims

1. A switch device responsive to the level of liquid in a vessel, comprising a reed switch, a first float, a magnet carried by said first float for activating said reed switch in accordance with the level of the first float and magnet relative to the reed switch; a second float vertically spaced from the first float, a container within said vessel, wherein the first float is located within the container and into which container liquid contained in the vessel can flow to a first predetermined level at which the switch is required to be activated and from which container liquid can flow when the level of the liquid falls to a

second predetermined level; and in which the second float is secured to an upstanding rod which has an end portion for projecting slideably into the container to a predetermined limit; the arrangement being such that when the liquid level in the vessel rises, the liquid raises the second float so that the rod also rises and raises the first float, but not sufficiently to cause the reed switch to be activated; and upon a further predetermined rise in the level of the liquid, the liquid enters the con-



4,395,606

DISCONNECT SWITCH WITH LINE-SIDE CONTACT MODULE

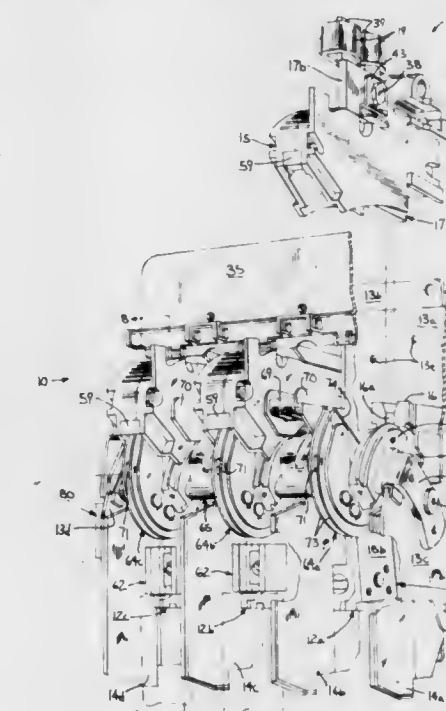
Albert A. Zaffrann, Milwaukee; Robert E. Borchardt, Brown Deer, and Grant W. Nelson, Milwaukee, all of Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed Mar. 11, 1981, Ser. No. 242,429

Int. Cl.³ H01H 9/30, 33/04

U.S. Cl. 200—144 R

4 Claims



1. A disconnect switch of a type having a frame with a back support and with two upright spaced sidewalls extending forward from said back support to define at least one compartment, having a crossbar disposed across said compartment with arms at opposite ends that extend inwardly along respective sidewalls to respective pivotal connections, having a load-side stationary contact and a line-side stationary contact that are vertically spaced apart, and having a movable contact

blade carried on said crossbar in continuous sliding contact with said load-side stationary contact and for sliding engagement with said line-side stationary contact as said crossbar is pivoted from an open position to a closed position, wherein the improvement comprises:

- a load-side contact module with an insulating base mounted to a lower portion of said back support and with a conductor on said insulating base that forms said load-side stationary contact; and
- a line-side contact module with a housing of insulating material that is removably mounted from its front side to an upper portion of said back support above the insulating base of said load-side contact module, said housing having an insulating base portion and having an arc chute hood portion projecting forward from said insulating base portion and defining a downwardly opening cavity, said line-side contact module also having a bar-shaped conductor mounted on its insulating base portion in an upright position generally perpendicular to said back support, said bar-shaped conductor extending downwardly into said cavity to provide said load-side stationary contact, and said bar-shaped conductor extending upwardly through said arc chute hood and forward of said insulating base to provide a terminal portion.

4,395,607

GAS BLAST SWITCH

Adrian W. Roth, Aarau, Switzerland, assignor to Sprecher & Schuh AG, Aarau, Switzerland

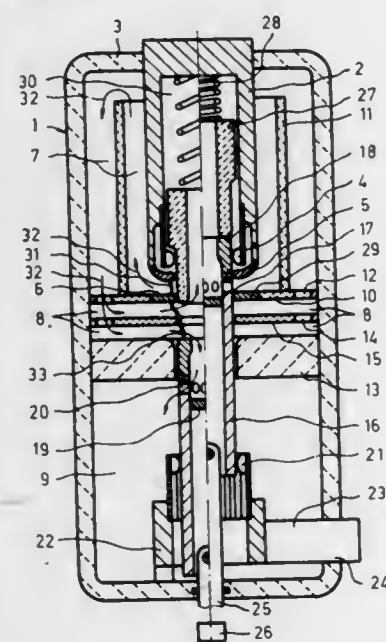
Filed Aug. 31, 1981, Ser. No. 298,045

Claims priority, application Switzerland, Sep. 1, 1980, 6564/80

Int. Cl.³ H01H 33/72

U.S. Cl. 200—148 R

5 Claims



1. Gas blast switch with a resting contact piece and a rodlike movable contact piece which can be axially engaged with the resting contact piece, and with a housing, the interior of which is divided into

- an arcing enclosure which extends between a consumable electrode situated in front of the resting contact piece and a separation wall fitted into the housing, remote from said consumable electrode in the switching-off direction and having an aperture for the passage of the movable contact piece,
- a quenching enclosure which extends between said separation wall and an intermediate partition fitted into the housing on the far side of said separation wall, again as seen in the switching-off direction, and
- an expansion enclosure, which lies on the side of the partition opposite to the quenching enclosure to which it becomes connected by a gas-path through a channel which

is freed from the movable contact piece during the switching movement,

where the arcing enclosure and the quenching enclosure are connected by way of a storage enclosure which has a larger capacity than the arcing enclosure and exhibits at least one flow-diverter, characterized in that the resting contact piece cooperates with an insulating follower piston which it surrounds, and which is urged into its resting position by the action of the movable contact piece and against the force of a spring during the switching-on movement, and where during the switching-off movement the follower piston will follow the movable contact piece until it leaves the partitioning wall, and will thereafter close the aperture of the same, which aperture lies between the arcing enclosure and the quenching enclosure, and where the border zones of the partitioning wall aperture facing the arcing enclosure and the quenching enclosure, respectively, are electrically connected.

4,395,608

SAFETY SWITCH ASSEMBLIES

Karl-Georg Eicker, Remscheid; Siegfried Schulz, Hückeswagen, and Burkhard Seim, Radevormwald, all of Fed. Rep. of Germany, assignors to K. A. Schmersal GmbH & Co., Wuppertal, Fed. Rep. of Germany

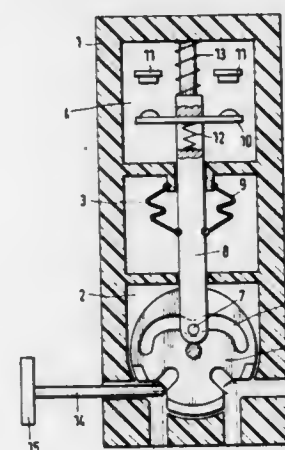
Filed Jan. 13, 1982, Ser. No. 339,175

Claims priority, application Fed. Rep. of Germany, Jan. 14, 1981, 3100862

Int. Cl.³ H01H 21/84

U.S. Cl. 200—153 L

15 Claims



9. An electrical switch comprising:

- housing means, said housing means defining three serially arranged chambers;
- a slide member movably supported in said housing means and extending into all three chambers;
- at least a first stationary electrical contact positioned in a first of said housing means chambers;
- a movable electrical contact mounted on said slide member and located in said first chamber for cooperation with said stationary contact;
- means located in the intermediate of said chambers for establishing a flexible seal between said slide member and said housing means whereby said first chamber is rendered hermetic;
- cam means supported for rotation in the third of said housing means chambers;
- a cam follower affixed to said slide member and cooperating with said cam means whereby rotation of said cam means will impart longitudinal movement to said slide member to establish relative motion between said stationary and movable contacts whereby said switch may be selectively opened and closed; and
- actuator means, said actuator means in part extending into

said housing means third chamber and imparting rotation to said cam means.

4,395,609

CAM OPERATED DUAL SWITCH ASSEMBLY

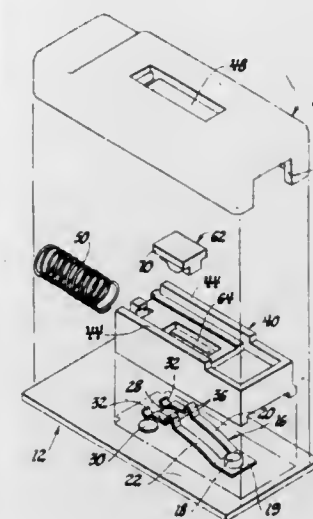
Thomas R. Sowash, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 24, 1981, Ser. No. 286,454

Int. Cl.³ H01H 13/66

U.S. Cl. 200—153 LA

4 Claims



1. A switch assembly having two switches alternately operated by a reciprocable actuator comprising first and second cam operated switches, each switch being actuatable between open and closed states, a reciprocable actuator for sequentially changing the state of the first switch and then the state of the second switch upon movement in one direction and for sequentially changing the state of the first switch and then the state of the second switch upon movement in the return direction, and the actuator having a first cam fixed thereto for movement therewith for operating the first switch and a second cam for operating the second switch, the second cam slidably supported by the actuator between first and second limits so as to form a lost motion connection between the actuator and the second cam, the second cam being shifted relative to the second switch for switch operation by engagement with the first limit during actuator movement in one direction and being shifted again relative to the second switch for switch operation by engagement with the second limit during actuator movement in the other direction, the switches being so positioned relative to the cams that upon movement of the actuator in either direction the cams operate their respective switches in the same order.

4,395,610

PIVOTABLE MULTIPOLE SWITCH

Robert F. Downs, Santa Ana, and Salvatore C. Santillan, Whittier, both of Calif., assignors to Technology Management, Inc., Santa Ana, Calif.

Filed Jul. 20, 1981, Ser. No. 287,942

Int. Cl.³ H01H 21/54

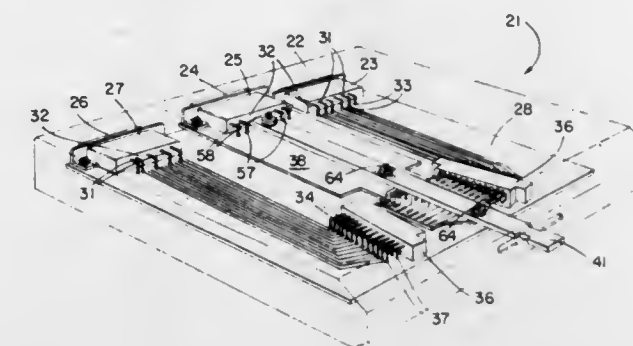
U.S. Cl. 200—292

20 Claims

1. An electrical switch for connecting and disconnecting a plurality of isolated electrical conductors comprising:
 - (a) an insulating base panel,
 - (b) a thin substantially flat insulating sheet,
 - (c) means for pivotably supporting said sheet on said base panel,
 - (d) a plurality of parallel planar conductors mounted substantially flush with at least one side of said sheet and extending to at least one edge of said sheet,
 - (e) at least one connector mounted on said base panel and

having an array of parallel elastically deformable conductors forcibly engageable with the parallel planar conductors on said sheet,

(f) means for forcibly engaging and disengaging said sheet with said connector,



(g) means for making electrical connections to said parallel planar conductors, and

(h) means for making electrical connections to said elastically deformable conductors.

4,395,611

ILLUMINATED PUSH-BUTTON SWITCH

Shiro Kondo, and Yasuo Takii, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

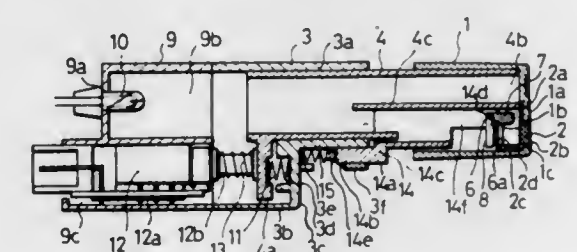
Filed Sep. 24, 1981, Ser. No. 305,197

Claims priority, application Japan, Sep. 25, 1980, 55-133307; Oct. 24, 1980, 55-151987[U]

Int. Cl.³ H01H 9/16

U.S. Cl. 200—314

4 Claims



1. An illuminated push-button switch, comprising a housing member receiving a switch actuated by axial movement of an operation portion; a push-button member disposed slidably within said housing member and having an arm portion engaging said operation portion of said switch for actuation thereof during movement of said push-button within said housing member; a light source mounted within said housing member; said push-button member having at its outer end portion a display formed by a plurality of illuminable display elements; and shutter means including a rotatable plate member movable from a position blocking light from one of said display elements during depression of said push-button member to actuate said switch, said shutter means including a tongue portion carried by said push-button member, an opaque plate member, and means including an arm mounted slidably to said push button-member for carrying said shutter means.

4,395,612

POWER SOURCE CIRCUIT FOR ELECTRIC DISCHARGE MACHINE

Syunzo Izumiya, Hachioji, Japan, assignor to Fujitsu Fanuc Limited, Tokyo, Japan

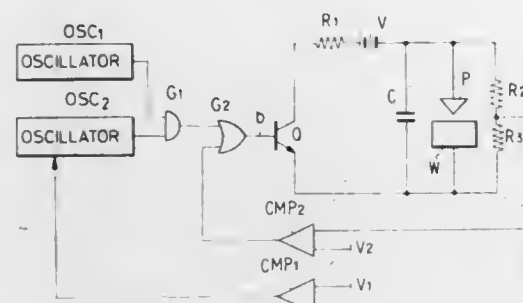
Filed Feb. 11, 1981, Ser. No. 233,501

Claims priority, application Japan, Feb. 16, 1980, 55-18049

Int. Cl.³ B23P 1/02

U.S. Cl. 219—69 P

7 Claims



1. An improved power source for electric discharge machines of the type wherein a first digital oscillator drives a switching element in the charging circuit of a capacitor which repeatedly produces machining discharges through a gap between an electrode and a workpiece in order to machine the workpiece, the machining discharges occurring at a first voltage which is higher than the breakdown voltage of the gap following a machining discharge, wherein the improvement comprises:

first means for detecting the voltage across the gap;
second means responsive to the first means for turning the switching element OFF at least once, for a duration longer than that determined by the first oscillator, before the gap voltage has risen to a second voltage following a machining discharge, the second voltage being higher than the breakdown voltage of the gap following a machining discharge but lower than the first voltage at which a machining discharge occurs, said second means including a second digital oscillator having a frequency lower than the first digital oscillator, a first gate having a first input responsive to the output of the first oscillator and a second input responsive to the output of the second oscillator, and third means for communicating the output of the first gate to the switching element; and
additional means for keeping the switching element ON, following a machining discharge, as the gap voltage rises from a level above the breakdown voltage of the gap following a machining discharge to the first voltage at which a machining discharge occurs.

4,395,613

UNIVERSAL ELECTRODE HOLDER

James L. Barr, and Donald R. Johnson, both of Jamestown, N.Y., assignors to Barr Mold & Die, Inc., Ashville, N.Y.

Filed May 12, 1981, Ser. No. 260,087

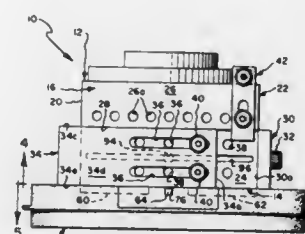
Int. Cl.³ B23K 9/28; B23P 1/04

U.S. Cl. 219—69 E

22 Claims

1. An electrode holder, comprising:
a holder body having at least one sidewall stepped to define vertically disposed upper and lower surface portions connected by a horizontally disposed connecting surface portion;
reference means mounted on said holder body and having a reference surface arranged to extend transversely of said lower and connecting surface portions relatively adjacent one end thereof;
indexing means having an indexing surface, said indexing means being mounted on said holder body in surface engagement with said lower and connecting surface portions and for sliding movements lengthwise thereof to

selectively vary the distance between said reference and indexing surfaces;
clamping means mounted on said holder body for clamping an electrode of rectangular cross-section in a mounted position, wherein opposite edge surfaces of said electrode engage with said reference and indexing surfaces, rear side



and upper surfaces of said electrode engage with said lower and connection surfaces and a front side surface of said electrode engages with said clamping means; and
conduit means defined by said holder body and by cooperation of said lower surface portion and said indexing means for supplying fluid to said electrode when in said mounted position.

4,395,614

APPARATUS TO SUPPRESS OXIDATION DURING RESISTANCE WELDING

Wolfgang Weil, Heitersheim, Fed. Rep. of Germany; Andres Lanz, Mutschellen, Switzerland; Max Vogt, Singapore, Singapore; Paul Meier, Widen, Switzerland; Martin Kaul, Bellikon, Switzerland, and Hanspeter Fankhauser, Irvington, N.Y., assignors to Paul Opprecht, Bergdietikon, Switzerland

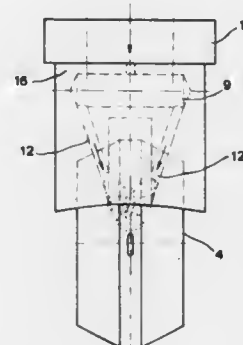
Filed Dec. 3, 1980, Ser. No. 212,593

Claims priority, application Switzerland, Dec. 19, 1979, 11286/79

Int. Cl.³ B23K 35/38

U.S. Cl. 219—72

1 Claim



1. In a resistance roller welding machine for seam welding two can components movable in a predetermined direction, including oxidation suppression means operable for at least partially suppressing oxidation of the hot welding seam, the improvement comprising
gas supply means forming part of said oxidation suppression means having an opening operative for discharging an agitated inert gas therethrough to a location downstream of and near said welding seam, as seen along said predetermined direction, and
an expansion chamber for agitating and cooling said inert gas prior to discharging it through said opening.

4,395,615

APPARATUS FOR WELDING METAL TRUSSES

Joseph M. Tanenbaum, 4 Dewbourne Ave., Toronto, Ontario, Canada MSP 1Z2

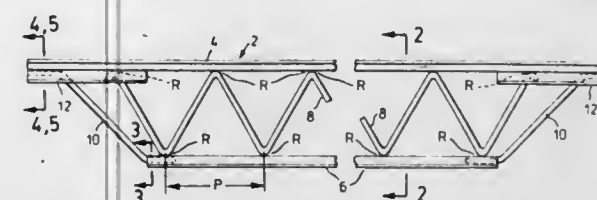
Division of Ser. No. 179,634, Aug. 20, 1980, abandoned. This application Jul. 21, 1981, Ser. No. 285,496

Claims priority, application Canada, Aug. 15, 1980, 358388

Int. Cl.³ B23K 11/32

U.S. Cl. 219—79

4 Claims



1. Apparatus for fabricating an open web metal truss derived from substantially uniformly spaced-apart chord members of selected suitable configuration joined by electrical resistance welding to a web member of a substantially uniformly undulating selected suitable configuration along substantially uniformly separated regions of contact established by the apices of said undulating web member, and wherein the cross-section of the web member at the regions of contact exceed the cross-sections of the respective chord members including,

- (a) means for forming chord members from lengths of metal stripping into a selected suitable configuration;
- (b) means for forming web members from lengths of metal wires into a selected suitable configuration;
- (c) treating means for removing scale and surface coatings from each chord and web member so formed;
- (d) means for assembling treated chord and web members into truss defining relation and supporting same in such disposition;
- (e) means for delivering such assembled and supported chord and web members in truss defining relation along a linear path to a welding station;
- (f) at least four electrical resistance welding means located at said welding station in spaced relation to said linear path and to each other, each said welding means including opposed first and second electrode means of selected unequal resistance, each said welding means being operable to simultaneously grip, weld and release such assembled and supported chord members and web members in truss defining relation at one of four juxtaposed regions of contact therebetween, the electrode of higher resistance of each said welding means being disposed so as to contact the chord member and the electrode of lower resistance being disposed so as to contact the web member;
- (g) means for supplying said electrode means while in gripping contact with the chords and web member respectively with a series of time controlled intermittent impulse of heat generating electrical energy sufficient to incrementally raise the members to fusion temperature along the regions of contact; and,
- (h) means for indexing said delivery means such that at least four juxtaposed regions of contact between the chord members and web member are successively presented to said welding means.

4,395,616

CONTINUOUS-WAVE PLASMA-ASSISTED RADIATION TREATMENT OF REFLECTIVE SOLIDS

David C. Smith, and Russell G. Meyerand, Jr., both of Glastonbury, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 17, 1980, Ser. No. 217,475

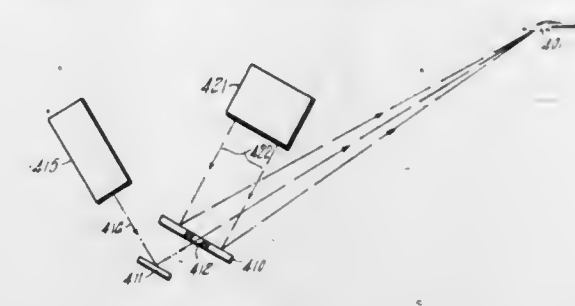
Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 L

3 Claims

1. An apparatus for irradiating a moving target having a surface exposed to the atmosphere comprising:
guiding means for tracking said target and for directing

optical radiation through the atmosphere at said target along a nonconductive optical path;
laser means, transmitting laser radiation through said guiding means, for igniting a plasma adjacent a portion of said



surface, said laser means further comprising a continuous-wave laser for maintaining said plasma, said plasma being confined adjacent said surface by the motion of said target relative to the atmosphere which motion maintains said nonconductive optical path in a nonconductive state.

4,395,617

SUCCESSIVELY JOINABLE CARBON ELECTRODE FOR GOUGING METALS

Masanori Maeda, Katano; Koji Ishihara, and Yoshio Kino, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

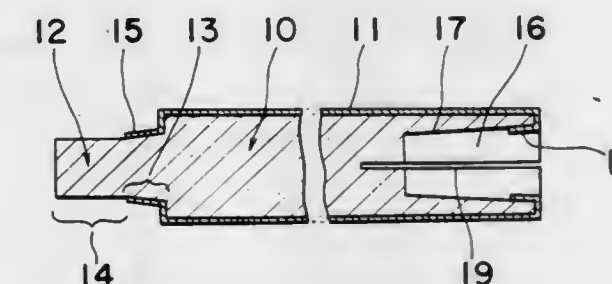
Filed Apr. 17, 1981, Ser. No. 255,264

Claims priority, application Japan, Apr. 18, 1980, 55-53833

Int. Cl.³ B23K 35/04

U.S. Cl. 219—145.1

5 Claims



1. A successively joinable carbon electrode for gouging metallic articles, which comprises:

- an elongated electrode body coated on its outer periphery with a copper layer;
- a connecting projection formed at and integral with one end of the electrode body and protruding coaxially outwardly therefrom, said projection consisting of a continuous combination of a frustoconical stem portion adjacent and continuous to the electrode body and a cylindrical portion continuous to and on one side of the stem portion opposite to the electrode body, said stem portion being coated on its periphery with a copper layer which is continuous to the copper layer on the electrode body;
- said electrode body having a socket defined therein and extending from the other end thereof in a direction coaxially inwardly thereof in a tapered fashion, a wall defining the socket having an annular portion adjacent the opening of said socket coated with a copper layer which is continuous to the copper layer on the electrode body; and
- said electrode body also having a split cut from said other end of the electrode body in a direction inwardly thereof over a distance larger than the depth of the socket whereby, when the carbon electrodes of identical construction are coaxially connected together with the connecting projection of one carbon electrode inserted into the socket of the other carbon electrode, the free end of the projection tightly contacts the wall defining the socket

and the copper layer on the stem portion contacts the copper layer on said annular portion of the wall defining the socket.

4,395,618

ELECTRIC CIRCULATION HEATER FOR HEATING FLUIDS SUCH AS OIL

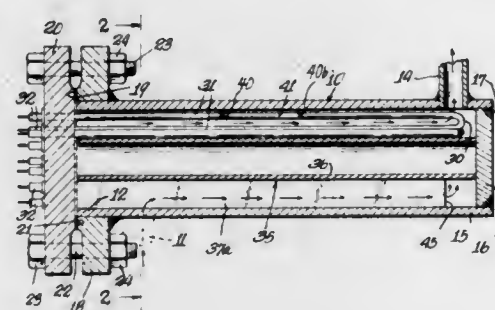
Donald M. Cunningham, Pittsburgh, Pa., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Mar. 3, 1980, Ser. No. 126,673

Int. Cl.³ H05B 3/82; F24H 1/10; F28F 9/22

U.S. Cl. 219—298

4 Claims



1. A circulation heater for heating a fluid, comprising: an imperforate tubular body having one end closed and the other end open, a head connected to said body to close and seal said open end, a baffle member longitudinally within said body and extending from the inner surface of said closed end to the inner surface of said head, said baffle member having a plurality of radially-extending vanes engaging the interior surface of said body and establishing therewith a plurality of separated longitudinally extending chambers of equal transverse cross sectional area, a plurality of elongated metal-sheathed electric heating elements carried by said head, said heating elements being of equal transverse cross section and having their terminal portions extending in sealed relation through openings in said head, said heating elements being disposed longitudinally within said chambers, said body having an inlet for fluid to be heated and an outlet for the exhaust of the heated fluid, said inlet communicating with one body chamber and said outlet communicating with another body chamber, said vanes being ported to establish fluid flow from said inlet, serially through said chambers and outwardly of said outlet, a certain number of said heating elements being disposed longitudinally within a certain of said body chambers and a different number of said heating elements being disposed in a certain other of said body chambers, whereby the effective transverse cross sectional area of the flow-through space in said certain and said certain other of said body chambers is different to accordingly cause variation of the velocity of the fluid flowing through such chambers.



4,395,619 HAND HELD HAIR DRYER WITH SHOCK MOUNTED QUARTZ TUBE HEATER

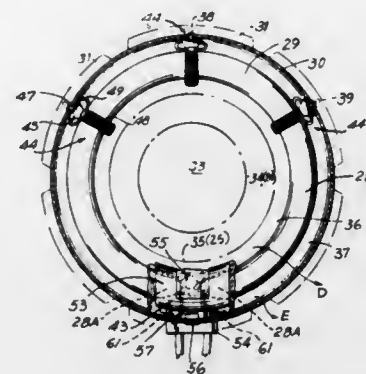
Hiroshi Harigai, Tokyo, Japan, assignor to Yamada Electric Industries, Co. Ltd., Chiba, Japan

Filed May 6, 1981, Ser. No. 260,603

Int. Cl.³ F24H 3/00; H05B 1/00

U.S. Cl. 219—377

9 Claims



2. In a hair dryer including a housing defining air inlet and outlet means, an electric motor mounted in said housing, a fan driven by said motor for creating an air flow through said housing from said inlet to said outlet, a heater assembly mounted in said housing, a reflector secured in said housing, and circuit means for operating said motor and heater assembly, the improvement wherein said heater assembly comprises: a quartz glass heating tube for providing a radiant heat source, said tube having a generally annular shape about a central axis therethrough thereby defining axial and radial directions, the tube having opposite ends adjacent but circumferentially spaced apart, said tube being situated in said housing axially intermediate said inlet and outlet means at least partially in the path of said air flow, and support means for securing said tube to said housing intermediate said reflector and outlet means comprising a primary support engaging said ends of said quartz tube and at least two secondary supports, the location of the primary support with respect to the clock face reference being at 6 o'clock and the locations of said secondary supports being at approximately 10 and 2 o'clock respectively, each of said supports having a first part at least partially encircling and resiliently holding the tube and a second part mounted in said housing, each of said supports permitting at least a small amount of motion of said tube in said axial direction relative to said housing, said supports also providing resilient cushioning support for said tube in said radial direction.

4,395,620 ELECTRIC STORAGE HEATING APPARATUS

Robert A. Clyde, and William B. Crandall, both of Ashville Ter. Apt. 43, Ashville, N.C. 28805

Filed Feb. 23, 1981, Ser. No. 237,573

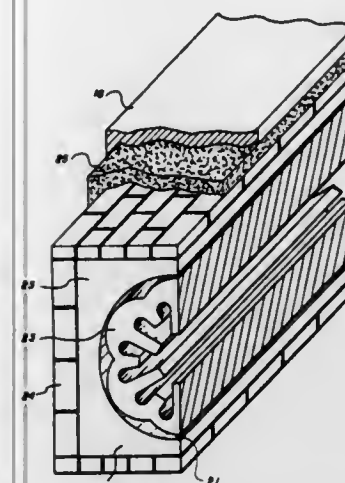
Int. Cl.³ F24H 7/00; H05B 3/00

U.S. Cl. 219—378

18 Claims

1. In an electric heat storage apparatus having (1) an electric heating element, (2) a heat storage core, (3) an air passageway in communication with the core, and (4) thermostatically controlled air circulation means, the improvement wherein said heat storage core comprises a ceramic pipe having a scallop-

shaped outer surface providing a plurality of crests and troughs and a series of parallel grooves cut in at least some of the crests,



and said heating element is located in said grooves in contact with said pipe.

4,395,621

TIMING CONTROL APPARATUS AND CIRCUIT

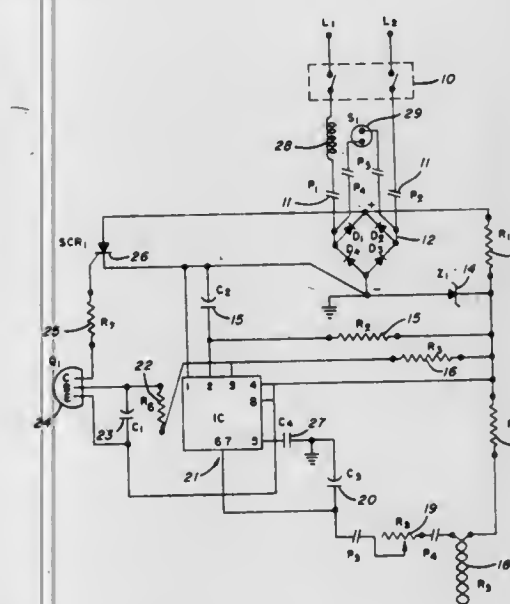
Randall W. Parker, 3165 Oser Rd., Norton, Ohio 44203

Filed Apr. 10, 1980, Ser. No. 127,334

Int. Cl.³ H05B 1/02

U.S. Cl. 219—492

6 Claims



1. An electric toaster comprising:

- (A) a frame;
- (B) at least one spring loaded rack for reception of bread to be toasted and being movable from an unloaded position to a loaded position against the force of a spring;
- (C) a solid state control mounted on said frame and including
 - (1) means for mechanically engaging said rack and holding said rack in loaded position including a normally inert AC solenoid with a spring loaded plunger normally urged to an extended position and movable to a retracted position upon activation of said timing means,
 - (2) sensing and heat compensating means disposed on said frame,
 - (3) timing means connected to said sensing and heat compensating means and adapted to release said means for mechanically holding said rack in loaded position upon attainment of a predetermined heat build up, and
 - (4) trigger circuit means carried by said solid state control for recycling said timing means in response to failure of said means for holding said rack in loaded position.

4,395,622

TRANSPARENT HEATING PANE

Maurice Dran, Paris, and Bernard Jamet, Sully sur Loire, both of France, assignors to Saint Gobain Vitrage, Courbevoie, France

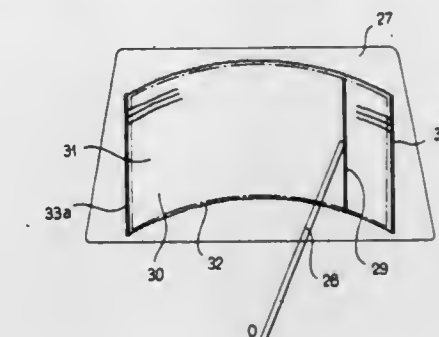
Filed Jan. 7, 1981, Ser. No. 223,107

Claims priority, application France, Jan. 8, 1980, 80 00278

Int. Cl.³ H05B 3/06

U.S. Cl. 219—522

4 Claims



1. A laminated glass pane comprising a transparent thermo-plastic layer interposed between two glass plates including a heating network of fine metallic wires inlaid in said thermo-plastic layer between two collector strips, characterized in that the metallic wires have a diameter of approximately 15 μm to be substantially invisible to the naked eye, are undulated along directrices forming arcs of circles are separated from each other and do not impair vision through the laminated glass pane.

4,395,623

SELF-REGULATING ELECTRIC HEATER

Minoru Shimada, and Kiyofumi Torii, both of Yokaiichi, Japan, assignors to Murata Manufacturing Co., Ltd., Japan

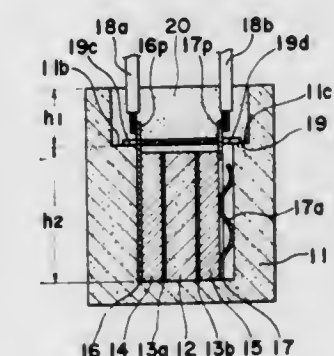
Filed Mar. 2, 1981, Ser. No. 239,682

Claims priority, application Japan, Mar. 4, 1980, 55/28455[U]; Mar. 4, 1980, 55/28456[U]

Int. Cl.³ H05B 3/02

U.S. Cl. 219—544

7 Claims



1. A self-regulating electric heater, comprising:
 - (A) a casing made of electrically non-conductive and thermally high conductive ceramic, said casing having a cylindrical outer configuration and a chamber formed therein, said chamber having a rectangular cross-section and being opened at one end of the cylindrical casing and closed at the other end opposing the open end;
 - (B) a heating unit housed in said casing in such a manner as to establish a thermal contact with said casing, said heating unit comprising:
 - (1) a PTC body for generating heat when an electric current is supplied therethrough, said PTC body having first and second substantially parallel planar surfaces spaced from one another, said first and second surfaces having first and second generally planar electrodes,

respectively, located thereon for forming ohmic contact surfaces;

- (2) first and second heat dissipating plates each made primarily of brass and having first and second flat surfaces, said first and second heat dissipating plates sandwiching said PTC body such that said first flat surfaces of said first heat dissipating plate is flush with said first electrode and said first flat surface of said second heat dissipating plate is flush with said second electrode; and
- (3) first and second terminal plates sandwiching the combination of said PTC body and said heat dissipating plates such that said first terminal plate is in electrical contact with said second flat surface of said first heat dissipating plate and said second terminal plate is in electrical contact with said second flat surface of said second heat dissipating plate;
- (C) a biasing means provided in said casing for biasing said heating unit to hold said heating unit in contact with an inner wall of said casing;
- (D) a lid member formed of an electrically insulating material mounted on said casing for closing said open end of said chamber, said lid member having two removed sections for allowing said first and second terminal means to pass therethrough for the external electric connection; and
- (E) a sealing member formed of an electrically insulated material deposited around said lid member for sealing said casing hermetically.

4,395,624

MOVING VEHICLE MONITORING SYSTEM

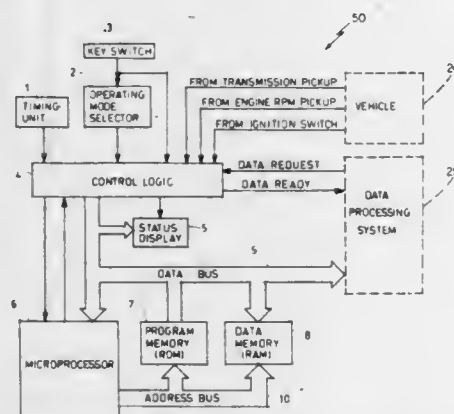
Heinz Wartski, Brookline, Mass., assignor to Fleet Tech, Inc., Watertown, Mass.

Filed Nov. 3, 1980, Ser. No. 203,329

Int. Cl.³ G01P 3/48

U.S. Cl. 377-15

17 Claims



- I. A system for recording data concerning machine operation, comprising:
 - a sensing means for generating machine pulses the number of which per a pre-selected timing period is related to the machine parameter or parameters to be measured,
 - selecting means for choosing a number of quanta, each selected quantum corresponding to a different pre-selected operational level or range of the machine, and at least some of which quanta corresponding to more than one number of machine pulses per said timing period,
 - means for counting the machine pulses for said pre-selected timing period and selecting the actual quantum into which the number of counted pulses falls,
 - means for comparing the actual quantum with some previous quantum or quanta, and
 - means for recording the actual quantum if the comparison of the actual quantum with the previous quantum or quanta indicates a non-uniform change in the machine parameter.

4,395,625

CONTAINER COUNTER

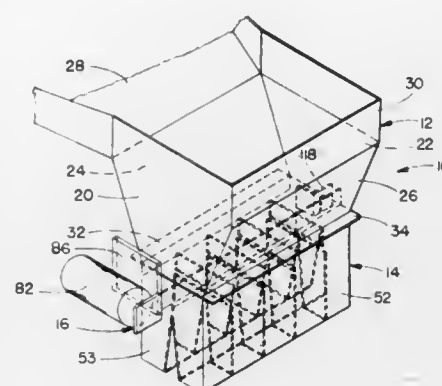
Donald W. Schutt, 2440 Orchard Ave., Holland, Mich. 49423

Filed Feb. 9, 1981, Ser. No. 232,736

Int. Cl.³ G06M 7/02; B65G 27/00

U.S. Cl. 235-98 C

16 Claims



1. A container counter for counting elongated objects such as empty beverage cans, each of which has generally the same width and is longer than it is wide, comprising:
 - a hopper for receiving objects to be counted;
 - a plurality of generally vertical chutes located below said hopper for conveying objects out of said hopper, each of said chutes having an upper, open end communicating with said hopper and a lower, open end, each of said chutes shaped to permit objects to pass therethrough and to prohibit two objects from passing side-by-side there-through;
 - means operably mounted between said hopper and said chutes for assisting in orienting said objects into a generally lengthwise, vertical position as said objects pass from said hopper into said chutes; and
 - counting means operably connected to said chutes for counting objects passing through said chutes.

4,395,626

GASOLINE STATION SYSTEM FOR ENABLEMENT OF SELECTED PUMPS BY A CREDIT CARD CONSOLE LOCATED AT THE PUMP ISLAND

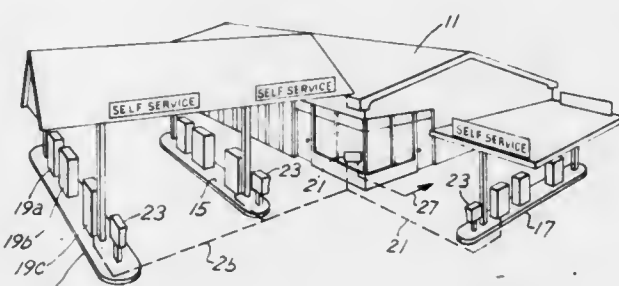
Thomas H. Barker, South Holland, Ill., and Thomas L. Roach, Dyer, Ind., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Dec. 28, 1981, Ser. No. 334,630

Int. Cl.³ G07F 7/08

U.S. Cl. 235-381

7 Claims



1. A system for use in a gasoline station, or the like, for automatic enablement of fuel dispensing means from the fuel island by a customer credit card, comprising:
 - a plurality of fuel dispensing means for dispensement of fuel, said plurality grouped to form at least one fuel island of the gas station, each said fuel dispensing means for generating first coded data signals representative of the fuel dispensed;
 - customer control means located at a fuel island, including:
 - i. credit card reader means operable for reading indicia

carried by a credit card and for generating card coded data indicative of said indicia;

- ii. customer-operable keyboard means including key means for operator generation of keyboard data indicative of a selected one of said fuel dispensing means;
 - iii. display means responsive to display signals for visually displaying information for communicating with the customer;
 - iv. output channel means for transmitting and receiving control data signals away from and to said customer control means; and
 - v. first processor control means connected to said credit card reader means, said keyboard means, said display means and said output channel means, said processor control means being responsive to operation of said card reader means for transmitting control data signals carrying signals representing said card coded data via said output channel means and responsive to operation of said keyboard means for transmitting control data signals carrying signals representing said keyboard data via said output channel means and responsive to control data signals received via said output channel means for displaying visual information on said display means for instructing the customer's operation of said customer control means; and
- attendant control means for use by the attendant of the gas station, said attendant control means being manually operable by the attendant for enabling a selected one of said fuel dispensing means, said attendant control means including:
- i. data transmission means connectable to a data bank and capable of transmitting control data signals thereto and capable of receiving second coded data signals from the data bank representative of credit authorization, said second coded data signals having a valid credit state or a non-valid credit state;
 - ii. input channel means connected to said output channel means of said customer control means, for transmitting and receiving said control data signals from and to said customer control means;
 - iii. indicator means for indicating to the attendant the value of dispensed fuel of one of said dispensing means; and
 - iv. second processor control means connected to said fuel dispensing means, said data transmission means, said input channel means and said fuel indicator means, said processor control means responsive to certain of said control data signals received from said customer control means, for instructing said data transmission means to transmit credit card coded data to said data bank and responsive to said second coded data signals from the data bank for transmitting control data signals to said customer control means via said input channel means and responsive to certain of said control data signals from said customer control means for instructing enablement of a selected one of said fuel dispensing means and responsive to said first coded data signals for activating said indicator means, for providing an indication to the attendant of the value of dispensed fuel.

4,395,627

GASOLINE STATION SYSTEM FOR ENABLEMENT OF SELECTED PUMPS BY A CREDIT CARD CONSOLE LOCATED AT THE PUMP ISLAND

Thomas H. Barker, South Holland, Ill.; Thomas L. Roach, Dyer, Ind.; Richard H. Kruse, Deerfield, Ill.; Jay A. Fayer, Glenview, Ill., and Eric O. Bohlman, Wilmette, Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Dec. 28, 1981, Ser. No. 334,692

Int. Cl.³ G07F 7/08

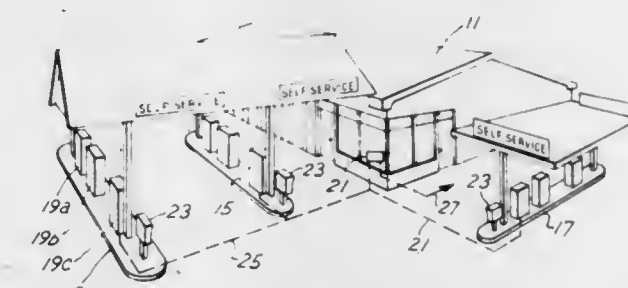
U.S. Cl. 235-381

9 Claims

1. A system for use in a gasoline station, or the like, for

automatic enablement of fuel dispensing means from the fuel island by a customer credit card, comprising:

- a plurality of fuel dispensing means for dispensement of fuel, said plurality grouped to form at least one fuel island of the gas station, each said fuel dispensing means for generating first coded data signals representative of the fuel dispensed;
- customer control means located at a fuel island, including:
 - i. credit card reader means operable for reading indicia carried by a credit card and for generating card coded data indicative of said indicia;
 - ii. customer-operable keyboard means including key means for operator generation of keyboard data indicative of a selected one of said fuel dispensing means;
 - iii. display means responsive to display signals for visually displaying information for communicating with the customer;
 - iv. output channel means for transmitting and receiving control data signals away from and to said customer control means, said output channel means transmitting and receiving said data signals in a synchronous serial data protocol, said output channel means having a plurality of conductors for permitting transmissions of serial data signals in two directions;
 - v. first processor control means connected to said credit card reader means, said keyboard means, said display means and said output channel means, said processor control means being responsive to operation of said card reader means for transmitting control data signals carrying signals representing said card coded data via



said output channel means and responsive to operation of said keyboard means for transmitting control data signals carrying signals representing said keyboard data via said output channel means and responsive to control data signals received via said output channel means for displaying visual information on said display means for instructing the customer's operation of said customer control means; and

attendant control means for use by the attendant of the gas station, said attendant control means being manually operable by the attendant for enabling a selected one of said fuel dispensing means, said attendant control means including:

- i. data transmission means connectable to a data bank and capable of transmitting control data signals thereto and capable of receiving second coded data signals from the data bank representative of credit authorization, said second coded data signals having a valid credit state or a non-valid credit state;
- ii. input channel means connected to said output channel means of said customer control means, for transmitting and receiving said control data signals from and to said customer control means said input channel means transmitting and receiving said data signals in a synchronous serial data protocol, said input channel means having a plurality of conductors for permitting transmission of serial data signals in two directions;
- iii. indicator means for indicating to the attendant the value of dispensed fuel of one of said dispensing means; and
- iv. second processor control means connected to said fuel

dispensing means, said data transmission means, said input channel means and said fuel indicator means, said processor control means responsive to certain of said control data signals received from said customer control means, for instructing said data transmission means to transmit credit card coded data to said data bank and responsive to said second coded data signals from the data bank for transmitting control data signals to said customer control means via said input channel means and responsive to certain of said control data signals from said customer control means for instructing enablement of a selected one of said fuel dispensing means and responsive to said first coded data signals for activating said indicator means, for providing an indication to the attendant of the value of dispensed fuel.

4,395,628

ACCESS SECURITY CONTROL

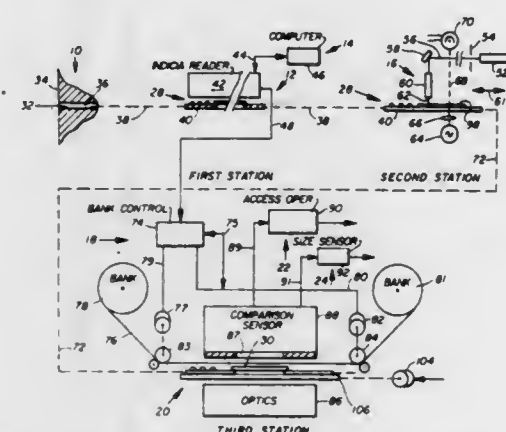
Daniel Silverman, 5969 S. Birmingham Ave., Tulsa, Okla. 74105, and Everett A. Johnson, 15 S. Prospect Ave., Park Ridge, Ill. 60068

Division of Ser. No. 32,404, Apr. 23, 1979, which is a continuation-in-part of Ser. No. 752,912, Dec. 21, 1976, Pat. No. 4,150,781, which is a continuation-in-part of Ser. No. 495,632, Aug. 8, 1974, Pat. No. 3,999,042, which is a continuation-in-part of Ser. No. 272,739, Jul. 18, 1972, Pat. No. 3,829,661, which is a continuation-in-part of Ser. No. 74,066, Sep. 21, 1970, Pat. No. 3,677,465. This application Feb. 12, 1981, Ser. No. 233,885

Int. Cl.³ G06K 5/00

U.S. Cl. 235—382

8 Claims



1. A system for access control, for selectively granting access on presentation and authentication of a control token, said system comprising

- A. storage means for a plurality of unique authenticating master coded bit patterns, each in different address locations; a plurality of such address locations in said storage means, each address being an index of a corresponding coded pattern stored therein;
- B. a plurality of control tokens, each control token comprising an unique object; means on said object for storing in machine readable form an index to one of said coded bit patterns; means on said object for storing in machine readable and writeable form an unique bit pattern comprising an alterable memory access means; each of said control tokens having one of said address locations thereon to index the corresponding stored authenticating master coded bit pattern;
- C. reading means to which such a control token can be presented, said reading means including means to read said index and to read said coded bit pattern on said token;
- D. means responsive to said reading means to select from said storage means said coded bit pattern corresponding to said index; and
- E. means to compare the unique bit pattern read from said token with the stored bit pattern in said storage means corresponding to the read index.

4,395,629 SOLID-STATE COLOR IMAGER AND METHOD OF MANUFACTURING THE SAME

Akira Sasano; Toshio Nakano, both of Hinodemachi; Ken Tsutsui, Hachioji; Michiaki Hashimoto, Yono; Tadao Kaneko, Hinodemachi; Yoshio Taniguchi, Hino; Haruo Matsumaru, Hinodemachi, and Akiya Izumi, Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

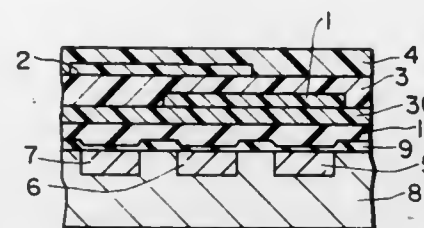
Filed Dec. 10, 1980, Ser. No. 215,073

Claims priority, application Japan, Dec. 10, 1979, 54-169848[U]

Int. Cl.³ G01J 3/34

U.S. Cl. 250—226

17 Claims



1. A solid-state color imager having at least a semiconductor body which includes a plurality of sets of photosensitive regions therein, and color filter members which are arranged on the semiconductor body in correspondence with the photosensitive regions, said color filter members being formed by exposing desired areas of photosensitive films for color filter members to light and then developing said films into a layer in a desired shape for the colored filter members, the color filter members having at least two sorts of spectral transmittances different from each other, a third spectral transmittance to correspond to one of the photosensitive regions in each set being produced by combining the spectral transmittances of the first and second filter members; characterized in that the first and second filter members with respective first and second spectral transmittances are disposed at different levels above said semiconductor body, and the filter member exhibiting the spectral transmittance which substantially transmits the light to which the photosensitive films are exposed is arranged as a lower layer of the first and second filter members.

4,395,630

PHOTOELECTRIC MEASURING RULER INCLUDING FAULT DETECTION APPARATUS

Paul N. Ramsden, Leamington Spa, and Michael H. Groves, Warwick, both of England, assignors to Stanley Tools Limited, Woodside, England

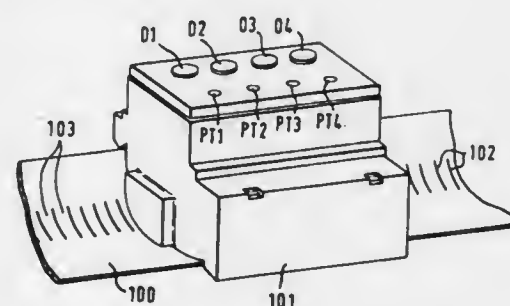
Filed Jan. 19, 1981, Ser. No. 226,388

Claims priority, application United Kingdom, Jan. 18, 1980, 8001734

Int. Cl.³ G01B 3/02, 11/02; H01J 3/14

U.S. Cl. 250—237 G

9 Claims



1. A displacement measuring system comprising a pair of sensors arranged in fixed relationship to each other; a member which is relatively movable in relation to each sensor and which is arranged to be sensed by each sensor so that relative movement of the member in a given direction produces a

number of cyclical variations of a signal output from each sensor, the number being proportional to the magnitude of the relative movement; the sensors being substantially 180° out of phase with each other so that when the signal from each sensor is at its high value the signal from the other sensor is at its low value and vice versa; difference measuring means connected to the sensors for producing a difference signal in dependence on the signals of the sensors; counting means connected to the difference measuring means and responsive to the difference signal for counting its cycles to determine the magnitude of relative movement of said member; and sampling means for sampling the signals from the two sensors during the time that one is at its high value and the other is at its low value and vice versa and for generating a fault signal if the ratio of the magnitudes of the two signals at a sample lies outside a predetermined range.

4,395,631

HIGH DENSITY ION SOURCE

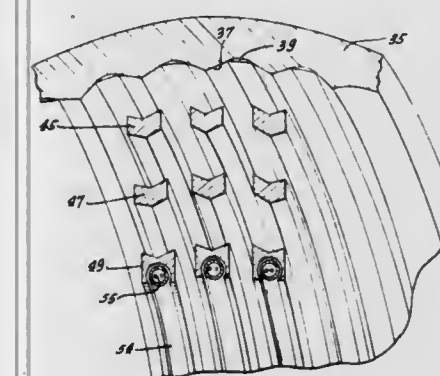
Winfield W. Salisbury, Scottsdale, Ariz., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Oct. 16, 1979, Ser. No. 85,261

Int. Cl.³ H01S 9/00

U.S. Cl. 250—251

24 Claims



1. A source for a focussed high density electrically substantially neutral beam of combined positive and negative particles, including in combination:

- a housing;
- a substrate mounted in said housing and having a generally spherical surface;
- a plurality of strips of positive ion emitter material at said surface for emitting positive particles in beams;
- a first positive ion extractor grid mounted in said housing spaced downstream from said surface;
- a second positive ion accelerator grid mounted in said housing spaced downstream from said first grid;
- a plurality of electron emitter strips mounted in said housing spaced downstream from said second grid; and
- a third electron accelerator grid mounted in said housing between said second grid and said electron emitter strips; with said strips of positive ion emitter material aligned between said first and second grids for defining fan shaped ion beams, and
- with said third grid and electron emitter strips aligned with said first and second grids for introducing electrons with said ion beams with the electrons and positive ions mixed and traveling in a single direction at substantially the same velocity to produce substantially neutral beams adjacent said electron emitter strips and ballistically focussed to a target.

4,395,632

CUVETTE FOR OPTICAL GAS-ANALYSIS APPARATUS

Rudi Röss, Bruchköbel, and Helmut Heilmel, Ronneburg, both of Fed. Rep. of Germany, assignors to Leybold Heraeus GmbH, Cologne, Fed. Rep. of Germany

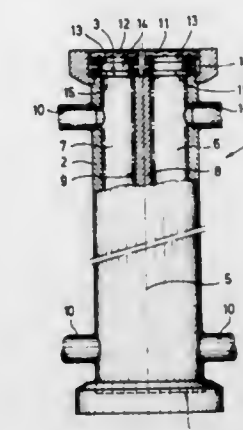
Filed Mar. 9, 1981, Ser. No. 241,905

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1980, 3010516

Int. Cl.³ G01N 21/26

U.S. Cl. 250—343

2 Claims



1. In a cuvette for optical gas-analysis apparatus, having an elongated metallic housing with two end-faces, two chambers which are parallel to the longitudinal axis and have radiation-reflecting wall surfaces and which are separated from each other by a partition, wherein one of the chambers is for holding a gas under investigation and the other is for holding a reference gas, and means for closing off the chambers at the end-faces of the housing including radiation-penetrable windows made of a material from the group consisting of calcium fluoride and barium fluoride and which are each initially connected by glass solder to an intermediate frame, which is connected to the housing, the improvement wherein:

- (a) the intermediate frame has a U-shaped cross-section and is composed of a metal from the group consisting of gold, silver and aluminum, and
- (b) the intermediate frame is connected to the window and to the housing by glass solder.

4,395,633

LEVEL GAUGE USING NEUTRON IRRADIATION

Plackottu J. Mathew, Parkville, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, Campbell, Australia

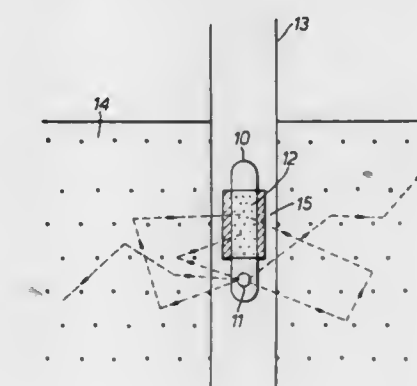
Filed Aug. 28, 1980, Ser. No. 182,183

Claims priority, application Australia, Sep. 11, 1979, PE0418

Int. Cl.³ G01F 23/00

U.S. Cl. 250—357.1

8 Claims



1. Apparatus for determining the level of a material in a container, said apparatus comprising;

- (a) generally vertical guide means extending between the base and the top of the container;

- (b) a sensor positioned within said guide means;
 (c) means for moving said sensor along said guide means;
 and
 (d) means for monitoring the position of the sensor within the guide means; said sensor comprising
 (i) a source of fast neutrons;
 (ii) a detector for thermal neutrons, and
 (iii) a sheath of a moderator-containing material surrounding said detector; whereby thermal neutrons produced by irradiation of the material by said fast neutrons and thermal neutrons produced by irradiation of said moderator-containing material by neutrons reflected by the said material are detected by said detector when said sensor is positioned within said guide means at a level which is not substantially higher than the level of the material in the container.

4,395,634

RADIOMETRIC METHODS AND MEANS

Rolf C. Böhme, Kyalami, South Africa, assignor to General Mining Union Corporation Limited

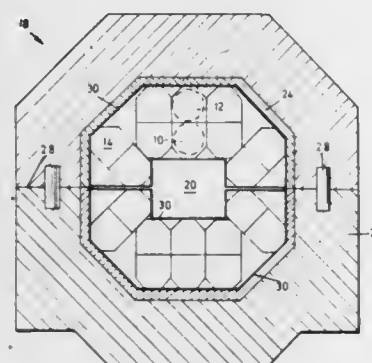
Filed Dec. 1, 1980, Ser. No. 211,919

Claims priority, application South Africa, Dec. 21, 1979, 79/6989

Int. Cl.³ G01N 23/00; G01V 5/00; G01T 1/20

U.S. Cl. 250—359.1

10 Claims



1. Apparatus for measuring the radio-active emission from a particle including a housing, a plurality of elongated scintillation crystal radiation detectors in the housing with their axes parallel to each other to define between them a passage for the particle to be measured with the passage extending in a direction which is parallel to the axes of the detectors, an elongated photomultiplier attached to each detector with its axis parallel to that of the detector, light transmitting means joining the multipliers to their detectors and means for connecting electronic measuring means to the multipliers.

4,395,635

GAMMA RAY COINCIDENCE ANALYSIS SYSTEM

Walter S. Friauf; Rodney A. Brooks, both of Bethesda; Victor J. Sank, Wheaton, and Horace E. Cascio, Olney, all of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Jan. 26, 1981, Ser. No. 228,681

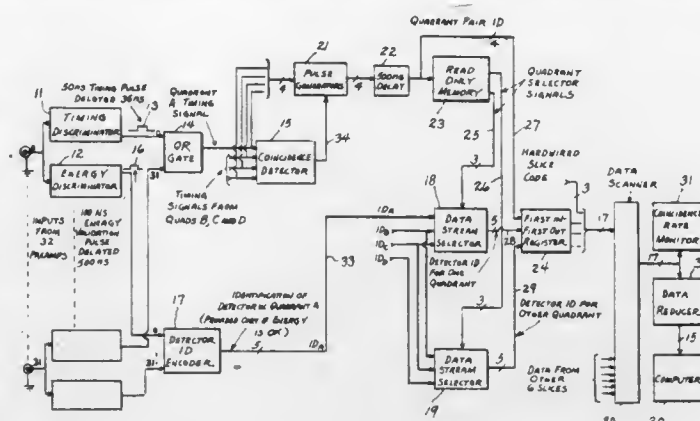
Int. Cl.³ G01T 1/20

U.S. Cl. 250—366

12 Claims

1. A coincidence analysis system for a multichannel nuclear emission tomograph of the type employing scintillation detectors arranged in a plurality of groups, each said group comprising a plurality of spaced respective detectors defining scintillation detector channels, each of said detector channels producing output pulses having sharp leading edges, respective discriminator means associated with each of said channels, means for connecting the detectors to the respective discriminator means, said discriminator means being each provided with means generating a timing pulse and an energy verification pulse delayed by a predetermined validation period relative to said timing pulse, each said timing pulse being produced in

response to each said sharp leading edge of a detector pulse, coincidence detector means to generate a resultant coincidence signal responsive to the coincidence of timing pulses from the detector channels of any two of the groups, means to delay said



resultant coincidence signal for a time substantially equal to said energy validation period, and means to generate a data output signal responsive to the concurrence of the delayed resultant coincidence signal and the delayed energy verification pulses.

4,395,636

RADIATION IMAGING APPARATUS

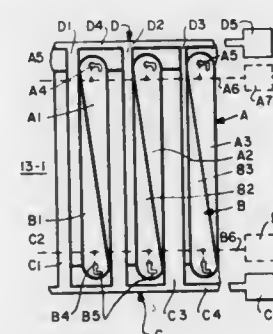
Hal O. Anger, Donn C. Martin, and Michael L. Lampton, all of Berkeley, Calif., assignors to Regents of the University of California, Berkeley, Calif.

Filed Dec. 24, 1980, Ser. No. 219,983

Int. Cl.³ G01T 1/24

U.S. Cl. 250—366

19 Claims



1. Apparatus for imaging incident photons, ions, electrons or nuclear particles, comprising:

event detecting means, including at least one charge multiplying means, for detecting an incident event and supplying at least one free charged particle to said charge multiplying means, an output surface of said charge multiplying means thereby emitting a multiplied charge spatially correlated to the position of said detected event; and position sensitive anode means mounted substantially parallel to said output surface and at a moderate distance therefrom to permit said emitted charge to expand to a charge cloud before striking said anode means, the centroid of said charge cloud being spatially correlated to the position of said detected event, said anode means comprising a repetitive pattern of charge collecting regions geometrically arranged and connected to encode said charge cloud incident thereon into a plurality of electrical signals indicating the coordinate position of said centroid in a preselected system.

4,395,637

OPTICALLY TOGGLED LATCH-FREE NORMALLY OFF SWITCH

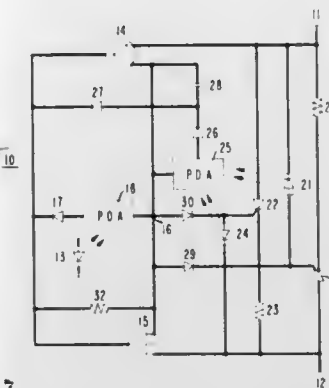
Mahmoud A. E. Hamamsy, Watchung, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 7, 1981, Ser. No. 328,367

Int. Cl.³ G02B 27/00

U.S. Cl. 250—551

6 Claims



1. A switch comprising a transistor branch and at least one thyristor branch and in which the conducting state of the transistor branch is adapted to be controlled optically CHARACTERIZED IN THAT the thyristor branch includes a light source which is actuated by excess current through the thyristor branch and which is coupled to light sensitive means capable of controlling the conducting state of the transistor branch whereby excess current through the thyristor makes the transistor branch conductive.

4,395,638

SELF-CHECKING FLAME FAILURE CONTROL

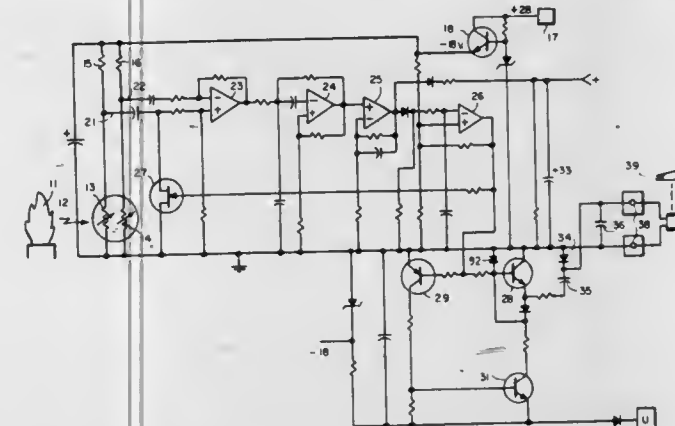
Phillip J. Cade, Winchester, Mass., assignor to Electronics Corporation of America, Cambridge, Mass.

Filed Sep. 18, 1981, Ser. No. 303,616

Int. Cl.³ G01J 1/00

U.S. Cl. 250—554

6 Claims



1. A solid state self-checking system comprising first and second sensor means for sensing the same event and generating signals which are comparable upon sensing the same event; signal comparing means responsive to said signals from said first and second sensor means for generating a negation response in the absence of comparable signals and responsive to the presence of said comparable signals for generating a comparison response; switching means coupled to the output of said signal comparing means for alternately interrupting comparison of said signals in said comparison means in response to said comparison response and restoring comparison in response to said negation response; and utilization means operable in response to the alternating operation of said switching means.

4,395,639

UNINTERRUPTIBLE POWER SUPPLY WITH BATTERY BACK-UP

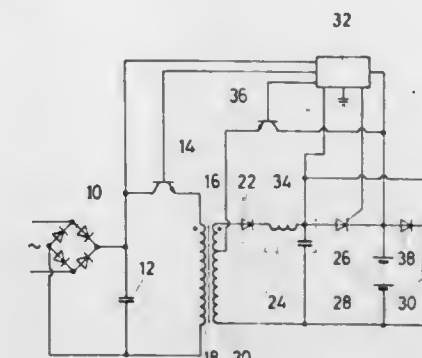
Karl-Birger Bring, Oskarshamn, Sweden, assignor to SAB.NIFE Aktiebolag, Landskrona, Sweden

Continuation-in-part of Ser. No. 198,362, Oct. 20, 1980, abandoned. This application May 6, 1982, Ser. No. 375,568

Claims priority, application Sweden, Oct. 30, 1979, 7909064 Int. Cl.³ H02J 7/00

U.S. Cl. 307—66

5 Claims



1. A method of uninterruptedly maintaining a current supply to a load normally supplied from a main source comprising the steps of providing a battery, charging said battery via a charger comprising a primary switched rectifier and a charging transformer through which said main source is supplied when the voltage from the main source is available to a sufficient extent to provide on the secondary winding of said charging transformer an operating voltage for said load and a charging voltage for said battery and automatically disconnecting the battery from the charging voltage of the secondary winding upon a voltage drop or voltage interruption from the main source and supplying the load with voltage from the battery, the battery voltage being chopped into square wave form and transformed up via the secondary winding of the charging transformer to the voltage required for the load.

4,395,640

SPECIAL ELECTRIC CONVENIENCE OUTLET (SECO)

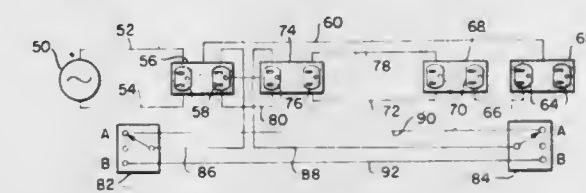
Keith A. Bone, 19315 Annalee Ave., Carson, Calif. 90746

Filed May 4, 1982, Ser. No. 374,876

Int. Cl.³ H01H 19/14

U.S. Cl. 307—115

10 Claims



1. A controlled electricity distribution unit comprising:
 (a) a conduit member having adjustable mounting means at proximal and distal ends thereof;
 (b) a first plurality of electrical outlets distributively positioned at the proximal and distal ends of said conduit member;
 (c) a second plurality of electrical outlets distributively positioned adjacent said proximal and distal ends of said conduit member;
 (d) switching means distributively positioned near the proximal and distal ends of said conduit member, said switching means including first and second switches electrically connected to each other; and
 (e) circuit means having an input line adapted to be connected to a source of external power and three separate circuits comprising:
 (i) a first circuit connecting a first part of said input line to all of said plurality of outlets;

- (ii) a second circuit connecting a second part of said input line to said first plurality of outlets to establish a first unique electrical operating condition for said first plurality of outlets; and
- (iii) a third circuit connecting said second part of said input line to said second plurality of outlets via said first and second switches to establish a second unique electrical operating condition for said second plurality of outlets controlled by said first and second switches.

4,395,641

POINT OF OPERATION SAFETY DEVICE

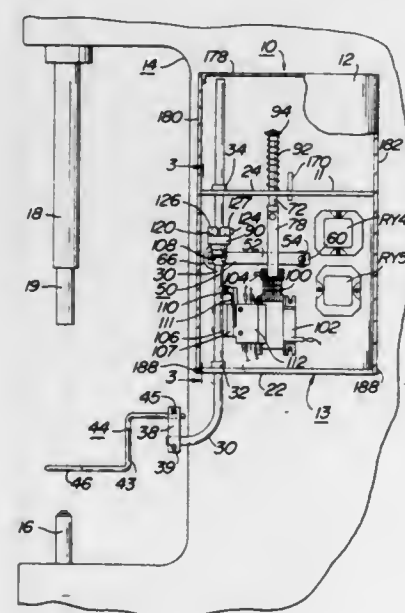
Ronald S. Dise, Dublin, Pa., assignor to Penn Engineering & Manufacturing Corp., Danboro, Pa.

Filed Aug. 5, 1981, Ser. No. 290,397

Int. Cl.³ H01H 3/16; F16D 9/00; B30B 15/14

U.S. Cl. 307—116

10 Claims



5. In a safety device for a press or the like the combination of
- probe means for testing the work area and movable from an upper position to a lower position by gravity,
- switch actuating means carried by said probe means,
- a switch actuated by said switch actuating means in said lower position,
- holding means for restraining said probe means in said lower position,
- said switch actuating means deactuating said switch when said probe means is moved above or below said lower position.

4,395,642

SINE-SHAPING CIRCUIT

Stefan Traub, Boeblingen, Fed. Rep. of Germany, assignor to Hewlett-Packard GmbH, Boeblingen, Fed. Rep. of Germany

Continuation of Ser. No. 204,678, Nov. 5, 1980. This application Dec. 11, 1980, Ser. No. 215,296

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2945093; European Pat. Off., Oct. 24, 1980, 80106510.3

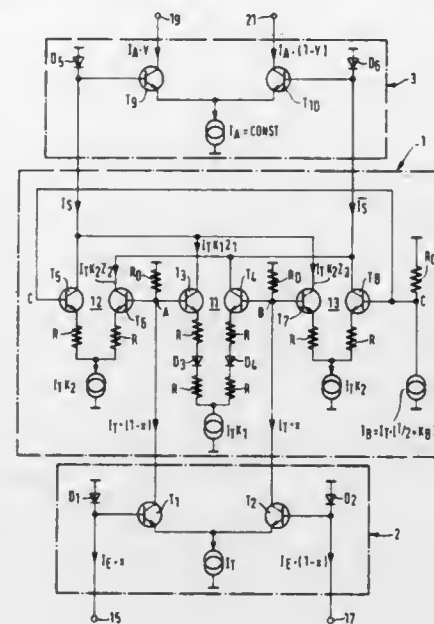
Int. Cl.³ H03K 5/00; G06G 7/16

U.S. Cl. 307—261

3 Claims

1. A circuit for converting a triangular waveform into a sinusoidal waveform comprising:
- a first transistor differential amplifier having a first non-linear transfer characteristic with a first slope;
- input means for supplying said first differential amplifier with a triangular input signal symmetrical to the operating point of said first differential amplifier said operating point being located in the center of said first non-linear characteristic;
- output means for deriving an approximately sinusoidal signal from said first differential amplifier; and
- second and third transistor differential amplifiers parallel-

connected to said first differential amplifier, said second and third differential amplifiers having second and third non-linear characteristics with second and third slopes opposite to said first slope and having their operating points shifted on said second and third characteristics in



opposite directions with regard to each other and symmetrically to the operation point of said first differential amplifier, the resulting overall characteristic of said first, second and third differential amplifiers having zero slope at the extremal amplitudes of said triangular input signal.

4,395,643

BROADBAND CIRCUIT WITH RAPIDLY VARIABLE RESISTOR

Klaus Lehmann, Mühlthal, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

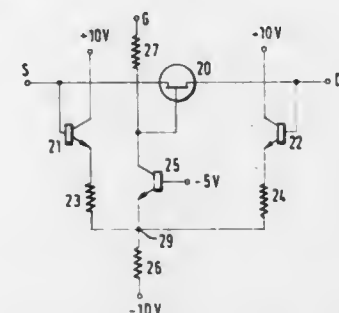
Filed Dec. 4, 1980, Ser. No. 212,935

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950584

Int. Cl.³ H03L 5/00; H03G 3/20

U.S. Cl. 307—264

8 Claims



1. Variable resistance electrical circuit comprising:
- a first field effect transistor (20; 30; 40) having a source electrode, a drain electrode, and a single gate electrode;
- a first resistor (27; 34; 50) which is connected to said gate electrode;
- first transistor (25; 33; 44) connected to said gate electrode;
- a second transistor (21; 22; 31; 43; 44) in a first emitter follower circuit having its input connected to a first electrode, which is either said source electrode or said drain electrode, and furnishing an output to said gate electrode by way of a connection through an electrode of said first transistor other than the electrode thereof most directly connected to said gate electrode,
- said first transistor (25; 33; 44) being connected for common-base mode of operation between said connection through which said second transistor acts and said gate electrode, whereby, by means of a variable voltage applied to said

resistor (27; 34; 50), the resistance of the source-drain path of said first field effect transistor (20; 30; 40) is variable.

4,395,644

DRIVE CIRCUIT

Tetsuo Misaizu, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

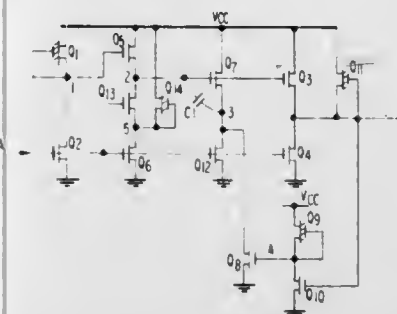
Filed Aug. 13, 1980, Ser. No. 177,552

Claims priority, application Japan, Aug. 15, 1979, 54-104230; May 26, 1980, 55-69745

Int. Cl.³ H03K 5/01

U.S. Cl. 307—270

26 Claims



1. A circuit comprising a first insulated gate field effect transistor, a drain node of said first transistor being connectable to a drain voltage, a second insulated gate field effect transistor, a source node of said first transistor and a drain node of said second transistor being electrically common, the source node of said second transistor being connectable to a source voltage, a gate node of said first transistor being capacitively coupled to the source node thereof by a capacitance, a signal node, and a control circuit responsive to signal levels at said signal node for making said first transistor and said second transistor conducting and non-conducting, respectively, thereby producing a voltage larger than said drain voltage in absolute value at the gate node of said first transistor, said control circuit including a third insulated gate field effect transistor, having a gate for receiving a signal of substantially the same phase as a signal at said signal node and having a drain connected to the gate node of said first transistor, a fourth insulated gate field effect transistor having a gate for receiving a signal of substantially the same phase as a signal at said signal node and having a drain coupled to a source of said third transistor and a source connectable to the source voltage, a fifth insulated gate field effect transistor having a gate for receiving a signal having a phase opposite that of a signal at said signal node and having a drain connectable to the drain voltage, whereby said fifth transistor is conducting for a first level at the signal node, and is non-conducting for the second level at the signal node, said fourth transistor is conducting in response to a second level at said signal node said third transistor is conducting after said fourth transistor becomes conducting.

4,395,645

MOSFET LOGIC INVERTER BUFFER CIRCUIT FOR INTEGRATED CIRCUITS

Joseph Pernyeszi, Fairfield, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 5, 1980, Ser. No. 213,533

Int. Cl.³ H03K 19/094, 19/20, 17/687, 3/353

U.S. Cl. 307—450

22 Claims

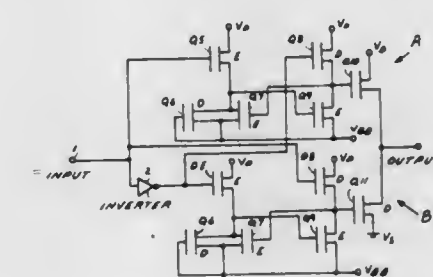
1. A buffer circuit for an integrated circuit comprising:
- two transistorized circuits each including
- a first enhancement field effect transistor having a gate electrode, a source electrode, and a drain electrode coupled to a drain voltage source,
- a first depletion field effect transistor having a gate electrode coupled to a back bias source, a source electrode coupled to said back bias source, and a drain electrode

coupled to said source electrode of said first enhancement transistor,

a second enhancement field effect transistor having a gate electrode, a drain electrode coupled to said drain electrode of said first depletion transistor and said source electrode of said first enhancement transistor, and a source electrode coupled to said source electrode of said first depletion transistor and said back bias source,

a second depletion field effect transistor having a gate electrode, a drain electrode coupled to said drain voltage source, and a source electrode coupled to said gate electrode of said second enhancement transistor, and

a third enhancement field effect transistor having a drain electrode coupled to said source electrode of said second depletion transistor and said gate electrode of said second enhancement transistor, a source electrode coupled to said back bias source, and a gate electrode cou-



- pled to said drain electrode of said second enhancement transistor and said source electrode of said first enhancement transistor;
- an output circuit coupled to said source electrode of said second depletion transistor, said drain electrode of said third enhancement transistor and said gate electrode of said second enhancement transistor of each of said two circuits, said drain voltage source and a source voltage source; and
- an input circuit coupled to at least a selected one of said gate electrode of said first enhancement transistor of one of said two circuits and said gate electrode of said second depletion transistor of the other of said two circuits and a selected one of said gate electrode of said first enhancement transistor of said other of said two circuits and said gate electrode of said second depletion transistor of said one of said two circuits.

4,395,646

LOGIC PERFORMING CELL FOR USE IN ARRAY STRUCTURES

Moises Cases, Delray Beach; Wayne R. Kraft, Coral Springs; Victor S. Moore, Deerfield Beach; William L. Stahl, Jr., Coral Springs, and Nandor G. Thoma, Boca Raton, all of Fla., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Nov. 3, 1980, Ser. No. 203,170

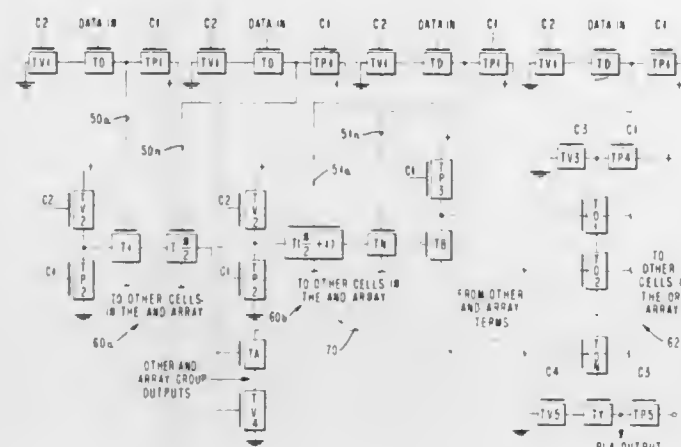
Int. Cl.³ H03K 19/017, 19/094, 19/177

U.S. Cl. 307—468

6 Claims

1. A logic performing cell for use in array structures comprising:
- a plurality of parallel connected logic circuits;
- an output circuit line in each parallel connected logic circuit;
- a plurality of field effect transistors including at least a first and last field effect transistor connected in series in said output circuit line in each parallel connected logic circuit;
- a plurality of input data circuit lines intersecting said output circuit line and adapted to receive input control signals;
- a gate terminal formed in each of said field effect transistors at said intersecting of a respective one of said input data circuit lines with said output circuit line for introducing control signals establishing a logic function for each of said parallel connected logic circuits;

a recombining circuit for recombining the logic functions for each of said parallel connected logic circuits;
an output circuit for said recombining circuit;
coupling means for coupling each of said parallel connected logic circuits to said recombining output circuit;
a charge means for each of said parallel connected logic circuits;
a drain and a source terminal formed in each of said field effect transistors;



connecting means connecting said drain and source terminal of adjacent field effect transistors in each of said parallel connected logic circuits together and for connecting the drain terminal of said first field effect transistor in each of said parallel connected logic circuits to said charge means and the source terminal of said last field effect transistor in each of said parallel connected logic circuits to said coupling means.

4,395,647

HALF-WAVE SIGNAL ISOLATOR WITH MEANS FOR CONTROLLING FLUX IN THE COUPLING TRANSFORMER

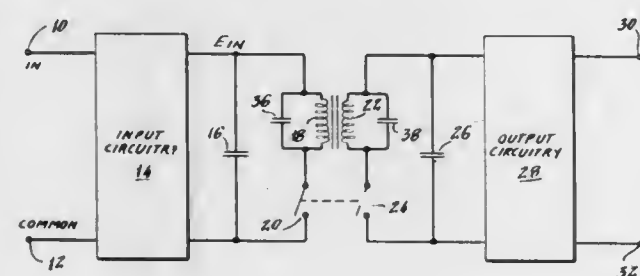
William H. Morong, III, Newton, Mass., assignor to Analog Devices, Incorporated, Norwood, Mass.

Filed Nov. 3, 1980, Ser. No. 203,451

Int. Cl.³ H03K 5/08

U.S. Cl. 307-540

6 Claims



1. In a signal isolator of the half-wave type comprising a coupling transformer having primary and secondary windings; first and second switches connected to said transformer windings, respectively, one of said switches serving to modulate a signal applied to the transformer primary and the other serving to demodulate the signal developed at the secondary of said transformer; and means for driving said switches in synchronism between closed and open states at a relatively high frequency;

that improvement in such signal isolator comprising: resonating capacitor means coupled to said transformer during the open switch state to form therewith a resonant circuit tuned at least approximately to said frequency and providing controlled transformer current variations during the open switch state with relatively smooth transitions between the open and closed switch states.

4,395,648 ELECTROTHERMODYNAMIC (ETD) POWER CONVERTER

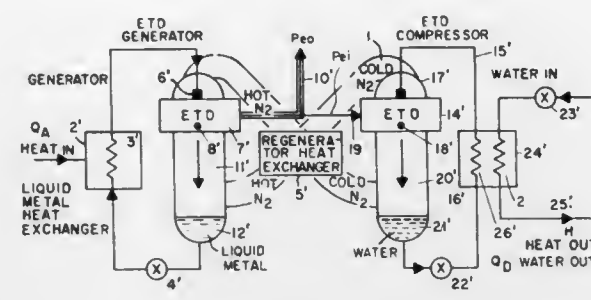
Alvin M. Marks, 153-16 Tenth Ave., Whitestone, N.Y. 11357

Filed Feb. 23, 1981, Ser. No. 237,290

Int. Cl.³ H02N 1/00

U.S. Cl. 310-10

7 Claims



1. In a heat/electric power converter using an electrothermodynamic Ericsson cycle, a source of heat power at temperature T_1 , a first heat exchanger, a first fluid, a gas circulating in said cycle, a first pump for said first fluid, an electrothermodynamic heat/electric power generator, an external electrical load, a second heat exchanger, said second heat exchanger functioning as a heat regenerator, a second fluid, a second pump for said second fluid, a third heat exchanger functioning as a sink for heat power at temperature T_2 , an electrothermodynamic compressor, a first charged aerosol comprising said first fluid forming charged liquid droplets in said gas in said generator at a temperature T_1 , and a charged aerosol comprising said second fluid forming charged liquid droplets in said gas in said compressor at a temperature T_2 , said gas entering said generator at a pressure P_1 and temperature T_1 , after passing through said heat exchanger from the said compressor output at a temperature T_2 , being heated in the said second heat exchanger-regenerator from said temperature T_2 to said temperature T_1 , and being heated from said temperature T_1 to said temperature T_1 in which $T_1 > T_2$, by contact with the said first fluid during the formation of said first charged aerosol at a pressure P_1 , the heat-kinetic power of said gas at the said temperature T_1 and pressure P_1 being converted to an electric power output at said electrical load, said first charged aerosol being discharged and said first fluid being pumped by said first pump to said first heat exchanger, and thence back to said generator, said gas exiting from said generator at Pressure P_2 and temperature T_1 , in which $P_2 < P_1$, said gas entering said second heat exchanger-regenerator where it is cooled to said temperature T_2 at the same pressure P_2 as it enters said compressor, a small proportion of said output electrical power being supplied to said compressor to compress the said gas from pressure P_2 to pressure P_1 at temperature T_2 ; whereby said Ericsson electrothermodynamic cycle operates at a theoretical efficiency of $100[(T_1 - T_2)/T_1]\%$.

4,395,649

LINEAR ELECTROMAGNETIC VIBRATOR

Ludwig Thome; Karl Wanner, both of Leinfelden-Echterdingen, and Karlheinz Bretthauer, Clausthal, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 20, 1979, Ser. No. 22,158

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812067

Int. Cl.³ H02K 33/00

U.S. Cl. 310-15

31 Claims

1. A linear electromagnetic vibrator comprising a stator having a pair of spaced poles having parallel planar end faces, said stator being composed of a stack of laminations extending parallel to each other and normal to said end faces of said poles; a winding for said stator producing an energizing magnetic field extending in a first direction normal to said end faces; an armature guided for linear movement in a direction

transverse to said first direction to be moved upon excitation of said winding towards a rest position, said armature having opposite parallel faces extending parallel to the direction of movement of said armature and parallel to said end faces of said poles, said armature being composed of a stack of laminations extending parallel to each other and normal to said oppo-

sing positions so that said diaphragm remains engaged with said third and fourth gear teeth systems.

4,395,651

LOW ENERGY RELAY USING PIEZOELECTRIC BENDER ELEMENTS

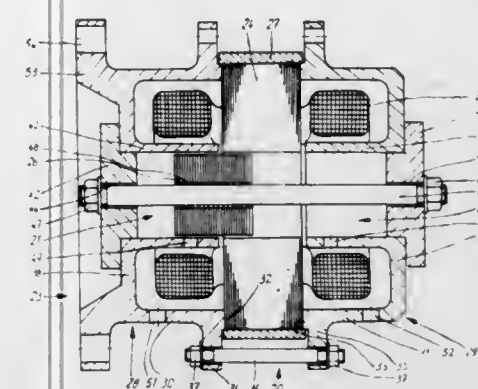
Yujiro Yamamoto, 1201 Via La Jolla, San Clemente, Calif. 92672

Filed Apr. 10, 1981, Ser. No. 253,119

Int. Cl.³ H01L 41/08

U.S. Cl. 310-317

29 Claims



site faces of said armature and normal to the direction of movement of said armature whereas said stator laminations extend parallel to said direction of movement; and a pair of return spring means acting in opposite direction on said armature for exerting at least in the end regions of the movement of the armature a force to said armature in a direction towards the rest position.

4,395,650

ELECTROMAGNETIC DIAPHRAGM DISK ACTUATOR

Günther Kettenring, Freising, Fed. Rep. of Germany, assignor to Max-Planck-Gesellschaft zur Förderung, Göttingen, Fed. Rep. of Germany

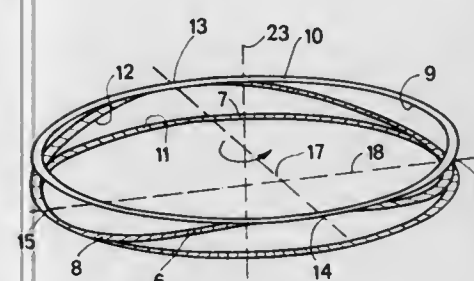
Filed Apr. 9, 1981, Ser. No. 252,610

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1980, 3016126

Int. Cl.³ H02K 7/10

U.S. Cl. 310-82

23 Claims



1. An electromagnetic diaphragm actuator comprising of stator means for providing a driving force mounted in an outer housing, said stator means including a plurality of pairs of opposed electromagnets, an outer cover spaced outwardly from said stator means, a rotating shaft operatively connected to a deformable magnetic actuator diaphragm rotatably positioned between said stator and said outer cover, said diaphragm including first and second gear teeth systems respectively positioned on opposite sides and extending about the periphery thereof, corresponding third and fourth gear teeth systems substantially opposing one another, respectively positioned about said stator and electromagnets and about the interior periphery of said outer cover, the spacing between said third and fourth gear teeth systems being such that said diaphragm is tensioned therebetween and formed to develop a cylindrical surface therein, said first and second gear teeth systems each respectively engaging said third and fourth gear teeth systems, each at two diametrically opposed positions, with said first and third engaging positions being radially displaced about 90° with respect to said second and fourth engag-

4,395,652

ULTRASONIC TRANSDUCER ELEMENT

Toshiharu Nakanishi, Kamakura; Miyo Suzuki, Fujisawa, and Hiroji Ohigashi, Zushi, all of Japan, assignors to Toray Industries, Inc., Japan

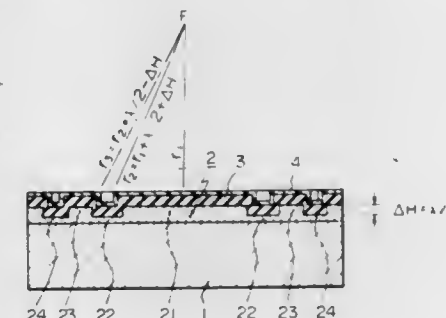
Filed Sep. 11, 1980, Ser. No. 186,258

Claims priority, application Japan, Sep. 13, 1979, 54-116654; Sep. 13, 1979, 54-116656

Int. Cl.³ H01L 41/02

U.S. Cl. 310-334

6 Claims



1. An ultrasonic transducer element, comprising: a polymer piezoelectric film divided into a plurality of sections corresponding generally to adjacent fresnel zones, said plurality of sections being concentrically arranged annular sections; electrodes arranged on opposing surfaces of said piezoelectric film for exciting said sections to emit ultrasonic waves of the same frequency and phase in response to an electrical signal supplied to said electrodes; and said sections being sized, shaped and positioned so that said ultrasonic waves from said plurality of sections arrive at a focal point removed from said piezoelectric film, substantially in phase; said sections being alternately arranged as salient and hollow sections, the distance between the surface of said salient and hollow sections facing said focal point being approximately equal to one-half wavelength of said ultrasonic waves.

4,395,653

**ELECTRIC LAMP WITH NEODYMIUM OXIDE
VITREOUS COATING**

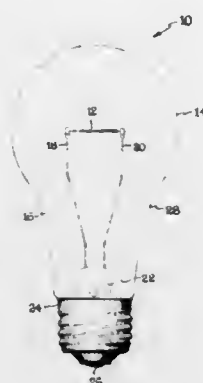
William A. Graff, Willoughby, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 24, 1981, Ser. No. 276,976

Int. Cl.³ H01K 1/32

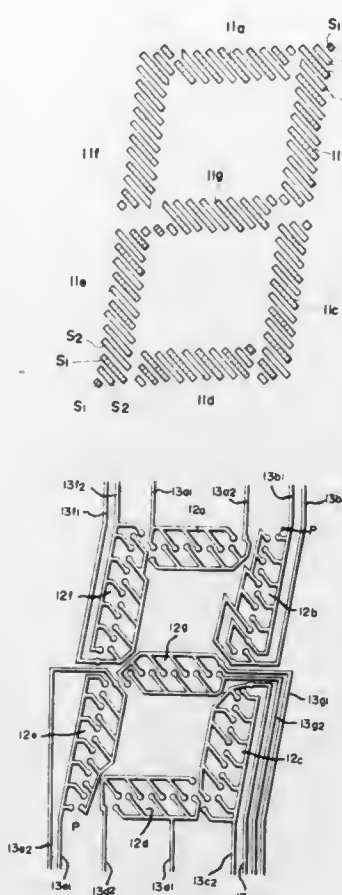
U.S. Cl. 313—112

13 Claims



1. An electric lamp which includes a light transparent glass envelope, a visible light source located within said envelope, and a coating which contains neodymium oxide melted into a transparent vitreous frit which is deposited on the surface of said envelope to absorb light emitted by said light source selectively in the green and yellow wavelength region of the visible spectrum.

the sub-segments of each group having maximum dimensions substantially smaller than the maximum dimension of



the respective compositely shaped and sized anode segment.

4,395,655

**HIGH POWER GYROTRON (OSC) OR GYROTRON TYPE
AMPLIFIER USING LIGHT WEIGHT FOCUSING FOR
MILLIMETER WAVE TUBES**

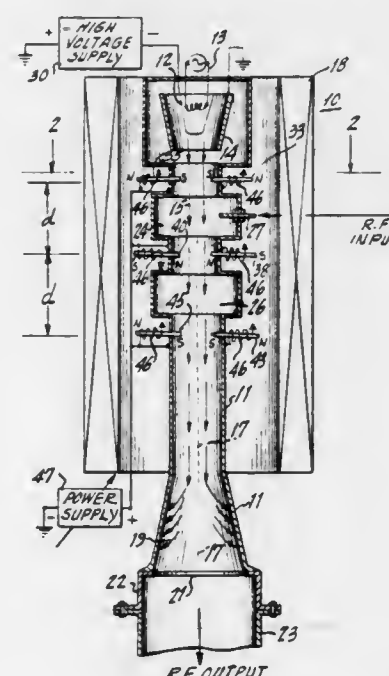
Gunther E. Wurthman, Lincroft, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 20, 1980, Ser. No. 198,395

Int. Cl.³ H01J 25/00

U.S. Cl. 315—4

2 Claims



1. A microwave gyrotron tube comprising:
an evacuated elongated chamber;
a cathode located at one end of said chamber;

4,395,654

FLUORESCENT DISPLAY APPARATUS

Takashi Hattori, and Satoru Makita, both of Mobara, Japan, assignors to Futaba Denshi Kogyo Kabushiki Kaisha, Chiba, Japan

Filed Sep. 24, 1980, Ser. No. 190,218

Claims priority, application Japan, Oct. 4, 1979, 54-137534[U]

Int. Cl.³ H01J 63/06, 63/02

U.S. Cl. 313—496

4 Claims

1. In a segment type fluorescent display apparatus for effecting luminous display of numerals or characters by a combination of bar-shaped segmented anodes defining a maximum dimension and having phosphor layers deposited thereon which are excited to illuminate by selectively impinging electrons emitted from a cathode upon said segmented anodes, the improvement comprising:

each anode segment comprising plural groups of sub-segments, each group including plural respective of said sub-segments electrically connected in common and extended to a respective external terminal;

the sub-segments of each group of each anode segment being intermixedly arranged and compositely defining a common predetermined anode segment shape and size; and

4,395,657

**MAGNETRON UNIT WITH A MAGNETIC FIELD
COMPENSATING MEANS**

Isao Tada; Toshio Okamura; Akira Kousaka, and Kaichiro Nakai, all of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

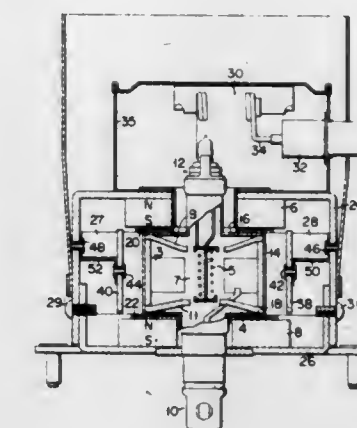
Filed Dec. 15, 1980, Ser. No. 216,677

Claims priority, application Japan, Dec. 21, 1979, 54-177559[U]

Int. Cl.³ H01J 25/50

U.S. Cl. 315—39.71

7 Claims



1. A magnetron unit comprising:
an anode cylinder having a number of resonant cavities;
a cathode disposed within the anode cylinder and extending along the axis of the anode cylinder with an interaction space defined between the resonant cavities and the cathode;
a pair of pole pieces for generating a magnetic field in the interaction space;
cover means for hermetically sealing the anode cylinder;
a pair of permanent magnet members made of ferrite, disposed outside the anode cylinder and magnetically coupled with the pole pieces, thereby defining a main magnetic flux path in the interaction space; and
at least one magnetic member made of magnetic compensating alloy, disposed between the permanent magnet members and magnetically coupled with the permanent magnet members, thereby defining a magnetic flux bypath parallel to the main magnetic flux path, the magnetic permeability of the magnetic member being reduced as the magnetic member is heated by heat generated in the anode cylinder.

4,395,656

GYROTRON TRANSMITTING TUBE

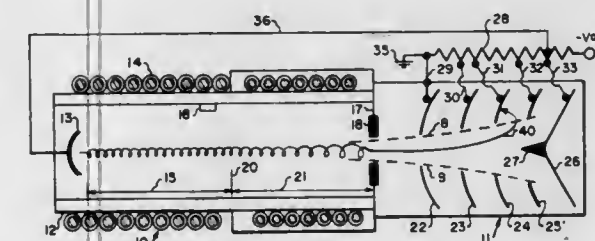
Henry G. Kosmahl, Olmsted Falls, Ohio, assignor to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 24, 1980, Ser. No. 220,212

Int. Cl.³ H01J 25/00

U.S. Cl. 315—4

8 Claims



1. An electromagnetic wave generator operating in the 20 GHz to 500 GHz range and comprising:
a gyrotron tube having an electron emitting cathode at one end;
an electron collector disposed at the other end of said gyrotron tube, said other end having disposed thereat a focusing ring through which electrons are injected into said collector;
a solenoid disposed around said gyrotron tube establishing a first magnetic field which causes electrons emitted by said cathode to follow helical paths; and
means for establishing a second magnetic field between said first magnetic field and said focusing ring, said second magnetic field being characterized by decreasing from the B value of said first magnetic field to substantially zero over an axial distance of from $1\lambda_c$ to $3\lambda_c$ in a direction away from said cathode, and at such a rate as to establish optimum conversion of spiral energy of the spent electrons into forward motion.

4,395,658

**PROPER LIGHT EMISSION INDICATING DEVICE FOR
COMPUTER FLASH DEVICE**

Tadashi Okino, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 27, 1980, Ser. No. 181,675

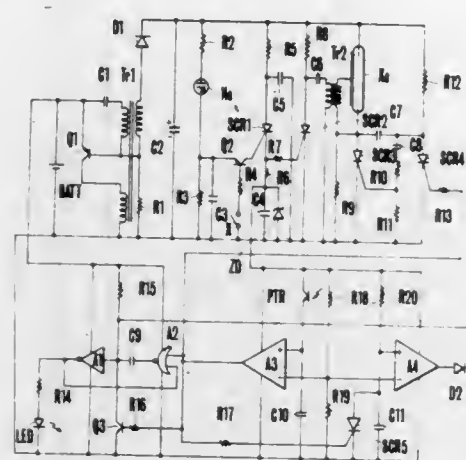
Claims priority, application Japan, Aug. 31, 1979, 54-111538 Int. Cl.³ H05B 41/32; G01J 1/16

U.S. Cl. 315—134

2 Claims

1. An indicating device for a computer flash unit comprising:
sensing means for producing a confirmation signal when a flash causing a proper exposure has been emitted;
indicating means for producing a signal;
timing means for energizing the indicating means for a predetermined time interval in response to a confirmation signal;
reset means for resetting the timing means when a confirma-

tion signal occurs during energization of the indicating means by said timing means; and



overriding means connected to said timing means to nullify the operation of the timing means when a predetermined time has elapsed after initiation of a flash.

4,395,659

POWER SUPPLY DEVICE

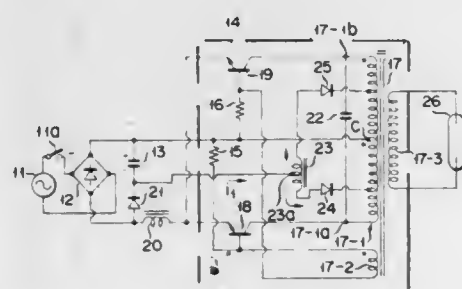
Nanjou Aoiike; Kenichi Inui, both of Yokohama, and Yasunobu Koshimura, Tokyo, all of Japan, assignors to Toshiba Electric Equipment Corporation, Tokyo, Japan

Filed Mar. 5, 1981, Ser. No. 240,943

Claims priority, application Japan, Mar. 10, 1980, 55-29875
Int. Cl.³ H05B 37/02

U.S. Cl. 315—209 R

5 Claims



1. A power supply device comprising:
 - an AC source;
 - rectifying means for rectifying a voltage from the AC power source and producing a pulsating output voltage;
 - a high frequency wave generator connected to receive said pulsating output of the rectifying means to produce a high frequency output; and
 - an auxiliary DC power source connected to rectify part of said high frequency AC output generated from the high frequency wave generator and store it and, when the pulsating output voltage of the rectifying means is at a low level, to discharge it so that an auxiliary voltage is supplied to the high frequency wave generator,
- in which said auxiliary DC power source comprises a feedback winding for generating a high frequency AC voltage which is part of an output of the high frequency wave generator, a capacitor connected at one terminal to a first intermediate tap of the feedback winding, a first series circuit of a first current limiting inductor and first rectifying diode connected between the other terminal of the capacitor and a second intermediate tap of the feedback winding, and a second series circuit of a second current limiting inductor and second rectifying diode connected between the other terminal of the capacitor and a third intermediate tap of the feedback winding, and discharge control means connected in series with said capacitor and provided, together with said capacitor, at the input side of the high frequency wave generator, and wherein said the

first and second current limiting inductors are wound on a common core.

4,395,660

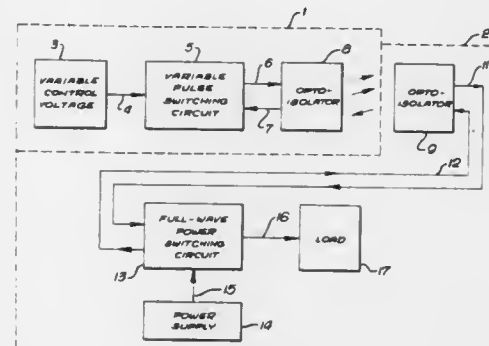
LAMP DIMMER CIRCUIT UTILIZING OPTO-ISOLATORS

E. Paul Waszkiewicz, 2826 Channel Dr., Ventura, Calif. 93003
Filed Dec. 31, 1980, Ser. No. 221,708

Int. Cl.³ H05B 37/02

U.S. Cl. 315—291

24 Claims



1. An electrical load control circuit for selectively varying the effective power to be supplied to a load, comprising means for generating a selectively variable control signal proportional to the power to be supplied to the load, means responsive to said control signal generating means and to the occurrence of initiating signals for producing cyclical light output pulses, means optically coupled to said light pulse producing means and adapted for electrical connection to a power source, and responsive to such pulses, for switching power from such power source to the electrical load, and means responsive to said power switching means for generating such initiating signals.

4,395,661

TIME-VARIABLE CONTROL FOR LAMP INTENSITY

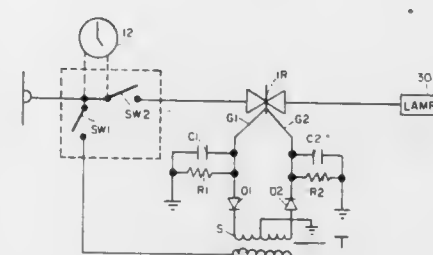
William A. Becker, c/o Andrew S. Viger, 900 Milam Bldg., San Antonio, Tex. 78205

Filed Jul. 6, 1981, Ser. No. 280,704

Int. Cl.³ H05B 37/02

U.S. Cl. 315—360

2 Claims



1. A time-variable illumination control apparatus for gradually increasing light intensity prior to awakening to avoid eye discomfort from a sudden increase in light intensity, comprising:
 - a light;
 - timing means for providing switch control signals;
 - a switch network responsive to said switch control signals to supply alternating current signals during preselected times; and
 - a variable power supply including:
 - (i) a triac coupled between said switch network and said light; said triac having positive and negative gate control leads;

- (ii) positive and negative charging means responsive to switch control signals from said switch network to provide, respectively, positive and negative voltages during preselected times;
 - (iii) a positive gate control network consisting of parallel connected capacitor and resistor coupled to said positive gate control lead and to said positive charging means; and
 - (iv) a negative gate control network consisting of a parallel connected capacitor and resistor coupled to said negative gate control lead and to said negative charging means;
- e. said positive and negative gate control networks being responsive to, respectively, positive and negative voltages from said respective charging means such that respective capacitors are charged during preselected times;
- f. said positive and negative gate control network providing gating voltages gradually decreasing in amplitude to, respectively, said positive and negative gate leads to said triac, such that the alternating current through said triac to said light gradually increases;
- such that the illumination from said light is gradually increased prior to awakening to avoid the need for eye adjustment to sudden increases in light intensity, thereby avoid resulting eye discomfort.

4,395,662

CORRECTION CIRCUITS FOR PROJECTION TELEVISION

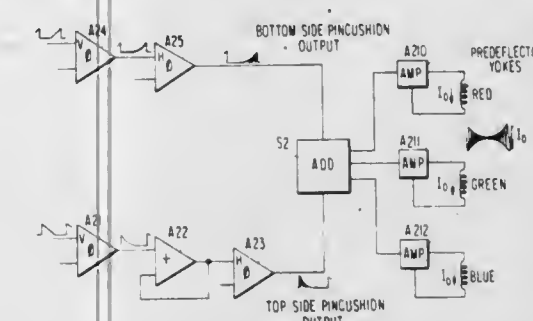
Charles W. Sexton, Jr., Suffolk, Va., assignor to General Electric Company, Portsmouth, Va.

Filed May 27, 1981, Ser. No. 267,602

Int. Cl.³ H01J 29/56

U.S. Cl. 315—371

16 Claims



1. In a projection television of the type having three picture tubes arranged side by side on a horizontal axis, said picture tubes separately displaying red, green and blue information of a color television picture, a separate projection lens adjacent the face plate of each picture tube, and a remote screen on which are projected the superposed images generated on the face plates of said picture tubes, each of said picture tube being provided with a main deflection yoke for deflecting the generated cathode ray beam to produce picture images, the improvement wherein each of said picture tubes is additionally provided with a pre-deflection yoke and correction circuits for driving the pre-deflection yokes of said picture tubes, said correction circuits comprising a trapezoidal correction circuit, a top and bottom pin cushion correction circuit, a side pin cushion correction circuit, and a horizontal width and linearity correction circuit.

4,395,663

CIRCUIT AND METHOD OF LINEARITY CORRECTION FOR CRT DEFLECTION CIRCUITS

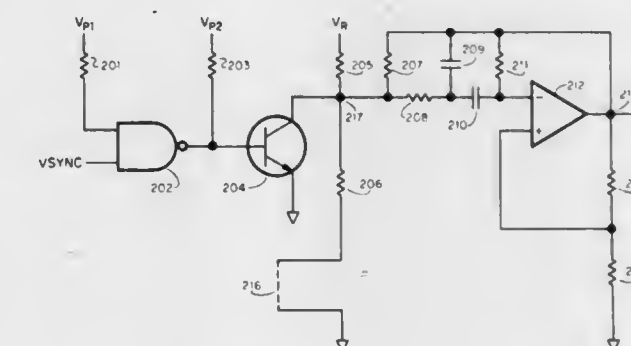
Gerald Manktelow, Austin, Tex., and Kenneth T. Wolff, Medway, Mass., assignors to Data General Corporation, Westboro, Mass.

Filed Dec. 5, 1980, Ser. No. 213,265

Int. Cl.³ H01J 29/70, 29/76

U.S. Cl. 315—403

10 Claims



the magnetic polarities of said field pole pieces to provide rotational movement about the common axis; and control means for energizing the armature pole means of a first one of said two drive armatures at a first time and for energizing the armature pole means of a second one of said two drive armatures at a second time while maintaining the armature pole means of said first armature energized.

4,395,665

CONTROL SYSTEM FOR VIBRATING A MEMBER AT ITS RESONANT FREQUENCY

Gerald L. Buchas, Forestville, Conn., assignor to The Arthur G. Russell Company, Incorporated, Bristol, Conn.

Filed Jun. 9, 1981, Ser. No. 271,819

Int. Cl.³ H02P 5/40

U.S. Cl. 318—114

14 Claims



5. For use with a device having a member supported for vibratory motion and an electromagnetic driver including a coil surrounding a core, a control system for causing said driver to drive vibratory motion at the member's resonant frequency, said control system comprising:

- a means for detecting the vibratory movement of said member and for producing a detected frequency electrical signal having a frequency equal to the vibratory frequency of said member;
- a means responsive to said detected frequency signal for producing an electrical drive signal supplied to said driver, said electrical drive signal consisting of spaced pulses of electric current constrained to flow in opposite directions through said coil of said driver during alternate ones of said pulses and which pulses appear at a frequency equal to that of said detected frequency signal;

said means for producing an electrical drive signal including a source of D.C. power, a switching means connected between said source and said coil for switching between one state at which power from said source is connected to flow in one direction through said driver coil and a second state at which power from said source is connected to flow in the other direction through said driver coil, and means including a phase-locked loop circuit for switching said switching means between said first and second states at a frequency directly related to the frequency of said detected frequency signal, said phase-locked loop circuit including a phase comparator and a voltage controlled oscillator, said phase comparator having said detected frequency signal as an input thereto, and said voltage controlled oscillator having an output frequency equal to Nf where f is the frequency of the input signal to the phase comparator and N is an integer, a divide by $2N$ counter with $2N$ decoded outputs, and two one shot multivibrators each connected with a different one of the outputs of said counter for producing, in combination, two trains of pulses of which alternate in time and which are supplied to said switching means to switch said switching means between its first and second states.

4,395,666 D.C. SERIES EXCITED TRACTION MOTOR CAPABLE OF OPERATING WITH A CONTINUOUS CURRENT POWER SUPPLY

N'Guyen U. Thuy, La Verpilliere, France, assignor to Societe CEM Compagnie Electro-Mecanique & Cie SNC, Paris, France

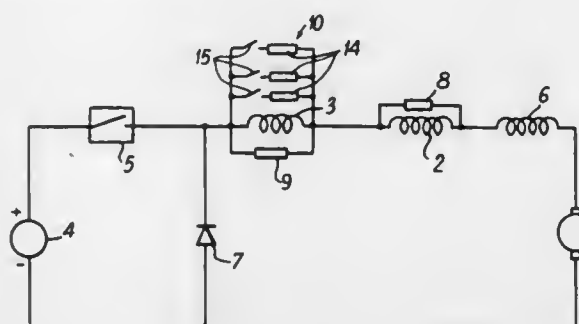
Filed Mar. 25, 1981, Ser. No. 247,341

Claims priority, application France, Mar. 26, 1980, 80 06682

Int. Cl.³ H02P 5/06

U.S. Cl. 318—139

8 Claims



1. A direct current, series excited traction motor circuit, comprising:

- an armature coil;
- first and second field coils connected in series with said armature coil and with each other to generate additive magnetic flux;
- a smoothing coil connected in series with said armature and field coils;
- a diode connected in parallel with the series connection of said armature, field and smoothing coils;
- a current shunting device connected in parallel with said first field coil for controlling a shunt current to progressively reduce the field flux generated by said first field coil; and
- a current chopper for controlling the supply of direct current to said coils.

4,395,667

NON-LINEAR CONTROL ARRANGEMENT FOR PRINTING MACHINES

Klaus Tonn, Leipzig, German Democratic Rep., assignor to VEB Kombinat Polygraph Werner Lamberz, Leipzig, Leipzig, German Democratic Rep.

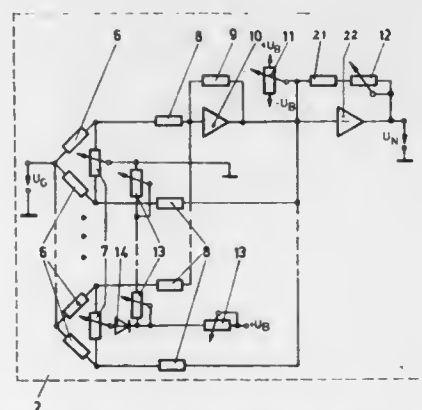
Filed Jul. 8, 1981, Ser. No. 283,019

Claims priority, application German Democratic Rep., Jul. 25, 1980, 222867

Int. Cl.³ H02P 5/00

U.S. Cl. 318—309

6 Claims



1. A non-linear control arrangement for a driving unit, particularly for use in printing machinery, comprising a source of a basic electrical signal; means for producing a control signal non-linearly dependent on said basic signal, including a plurality of adjustable resistor-diode bridges coupled in parallel to

one another and each having a first and a second input and a first and a second output, a pair of resistors respectively coupled between said first input and said first and second outputs, an adjustable potentiometer coupled between said outputs and having a wiper connected to said second input, and a diode interposed between said wiper and said second input, said first inputs being connected in parallel from said basic signal source, said producing means further including a source of a plurality of electrical potentials, including a plurality of additional adjustable potentiometers respectively associated with said bridges and connected to said second inputs thereof, a summation member having an input and an output, and an amplifier having an input and an output, said first outputs of said bridges being connected to said input of said summation member and said second outputs of said bridges and said output of said summation member being connected to said input of said amplifier; and means connected from said output of said amplifier for controlling the speed of rotation of the driving unit.

4,395,668
MOTORS

Fumito Komatsu, 69-1632-12-banchi, Nomura Aza, Ooaza Hirooka, Shiozishiri, Naganoken, Japan

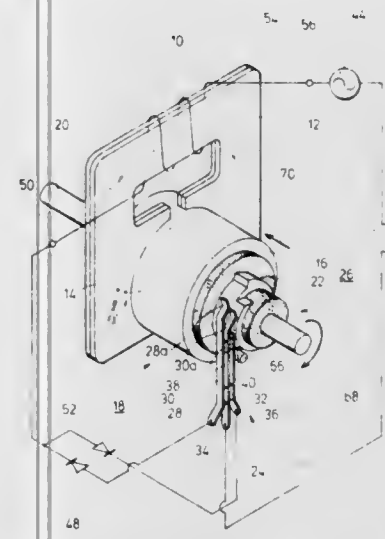
Filed Oct. 6, 1981, Ser. No. 308,956

Claims priority, application Japan, Oct. 11, 1980, 55-142294; Jan. 14, 1981, 56-4078

Int. Cl.³ H02P 1/48

U.S. Cl. 318—439

5 Claims



1. In a synchronous motor having a permanent-magnet motor, a stator, rectifiers for converting the AC power supply into rectified current, and a commutator for switching the direction of current as the rotor rotates during start-up, and means for switching the AC supply directly to the stator when the rotor approaches synchronous speed; the improvement wherein the commutator comprises a rotary component which rotates with the rotor and engages fixed switching elements for effecting switching of the current to rectify current for the motor, said rotary component being axially displaceable to release it from contact with said switching elements, and means are provided for effecting said displacement when the rotor approaches synchronous speed, said displacement allowing said switching elements to contact each other to permit the AC current to be supplied directly to the stator by way of said switching elements.

4,395,669

ELECTRICAL MACHINE HAVING CONTROLLED CHARACTERISTICS AND ITS APPLICATION TO A WIND-DRIVEN MACHINE

Michel Berna, Domont; Michel Kant; Jean P. Vilain, both of Thourotte, and Rene Seger, Limeil Brevannes, all of France, assignors to Association Gradient, Compiègne, France

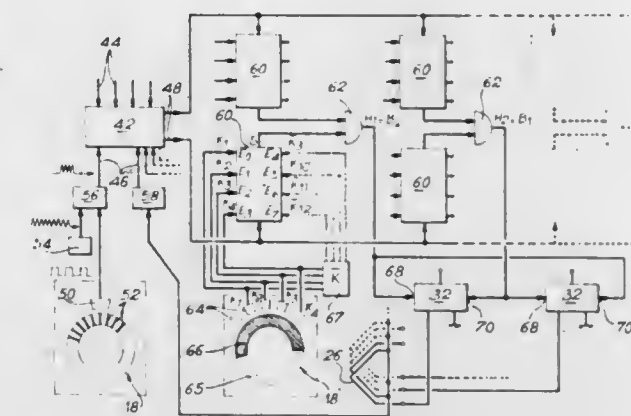
Filed Jun. 19, 1980, Ser. No. 160,842

Claims priority, application France, Jun. 20, 1979, 79 15809

Int. Cl.³ H02K 29/00; H02P 9/00

U.S. Cl. 318—502

5 Claims



1. An electric machine having controllable characteristics and being capable of transforming electrical energy into mechanical energy comprising:

- a stator;
- a rotor rotatably mounted relative to said stator;
- an armature associated with said stator said armature including at least two independent winding assemblies each being adapted for independent connection;
- field producing means associated with said rotor;
- means for monitoring the instantaneous position of said rotor with respect to said stator and for supplying logic signals which together represent the instantaneous relative position of the armature and field; and
- control means responsive to said logic signals for supplying coded control instructions representative of said instantaneous position, the control means including independent switch means being associated with each winding assembly for selectively switching the connections of each winding assembly, the control means further including an even number of multiplexers having control inputs for receiving the coded control instructions and the logic signals supplied by the monitoring means to supply at their outputs logic signals applicable to the corresponding coded input, the logic signals supplied by each multiplexer being grouped together in twos in order to define connection and switching instructions applied to each of the switching means for controlling said independent connections of said winding assemblies for spatially and temporally controlling the beginning and the end of conduction therein thereby controlling the operating characteristics of said electric machine.

4,395,670

HYBRID ELECTRICAL BRAKING METHOD AND SYSTEM FOR TOOL EQUIPMENT HAVING INDUCTION MOTOR DRIVES

Allen F. Podell, Palo Alto, Calif., assignor to Cuisinarts, Inc., Greenwich, Conn.

Filed Feb. 23, 1981, Ser. No. 236,930

Int. Cl.³ H02P 3/24

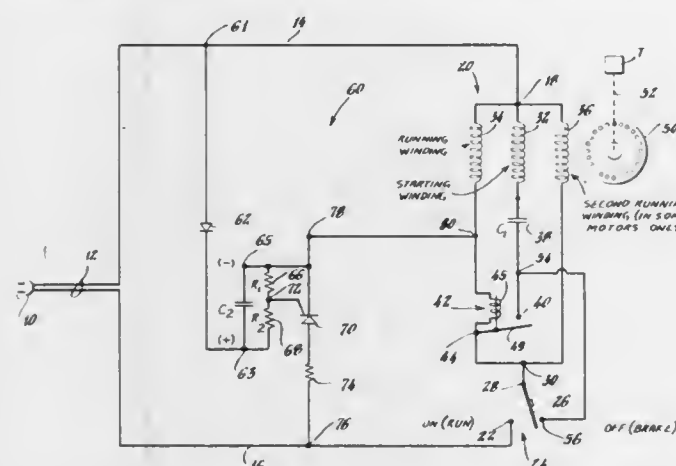
U.S. Cl. 318—758

4 Claims

1. The method of electromagnetically rapidly braking rotor rotation in a fractional-horsepower induction motor having at least one running winding, a starting winding, a starting capacitor, and a starting relay, said braking occurring after the motor has been turned off, said method comprising the steps of:

immediately after the induction motor has been turned off connecting the starting capacitor in series with at least one of said windings forming a resonant loop circuit for producing an initial rapid braking,

immediately after the motor has been turned off feeding unidirectional current through at least one running wind-



ing for creating a unidirectional magnetic field in the motor for further braking the rotor, and automatically shutting off said unidirectional current flow after a brief predetermined time period which is sufficiently long for the rotor to stop before the unidirectional current flow is turned off.

4,395,671

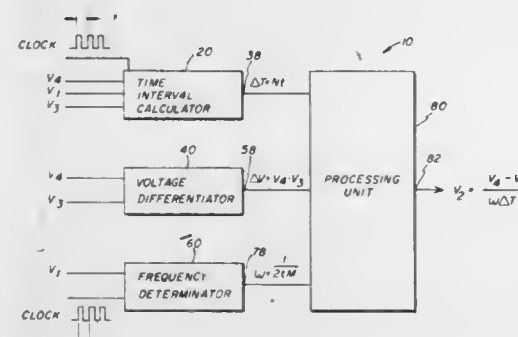
CONTROL SYSTEM AND METHOD FOR MOTOR STARTING

Louis M. Sandler, North Reading, and Robert G. Bristol, Everett, both of Mass., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Continuation of Ser. No. 50,177, Jun. 20, 1979, abandoned. This application Jan. 4, 1982, Ser. No. 336,982
Int. Cl.³ H02P 1/42

U.S. Cl. 318—786

12 Claims



1. In a motor start control system of the type having a current sensing device for producing a signal proportional to the main winding current of said motor and a control circuit responsive to said signal for deenergizing the start winding of said motor when the peak amplitude of said signal is less than a threshold level, the improvement wherein said control circuit includes means for storing said threshold level as a proportion of the initial peak amplitude of said main winding current.

4,395,672

BATTERY CHARGER CONTROLLER

Lee V. Gassaway, 1660 SW. 196th Ave., Aloha, Oreg. 97005

Filed Apr. 2, 1981, Ser. No. 250,395

Int. Cl.³ H02J 7/06

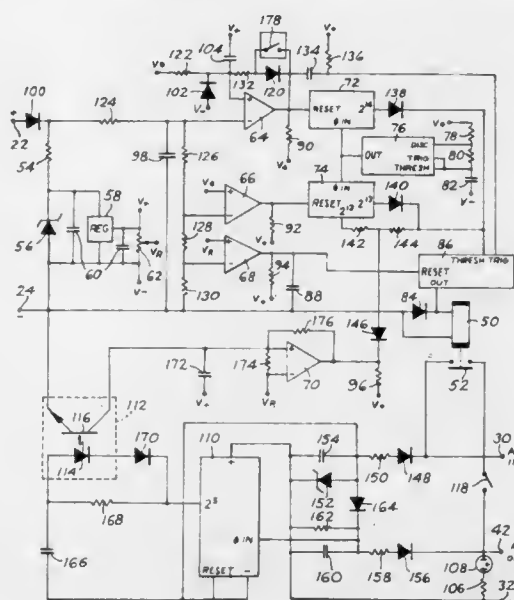
U.S. Cl. 320—31

12 Claims

1. A controller for a battery charger having an alternating

current input and a direct current output for connection to a battery to be charged, the controller comprising:

- electric switch means arranged for connection in the alternating current circuit of the charger for controlling activation and deactivation of the charger,
- electric actuator means for said switch means having a direct current electric circuit,
- voltage level comparison means having an output operatively connected to the actuator means and an input connected to the direct current output of the charger and



operable when the battery voltage is below a predetermined level to cause the actuator means to keep the electric switch means open and the charger deactivated and operable when the battery voltage is above said predetermined voltage level to cause the actuator means to close the electric switch means and activate the charger, and

(d) delay start switch means connected across the voltage level comparison means, and having open and closed positions and operable in one of said positions to prevent activation of the charger and in the other of said positions to allow activation of the charger.

4,395,673

CONTROLLED RECTIFIER MOTOR VEHICLE BATTERY CHARGER

Wolfgang Kurz, Hemmingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Fed. Rep. of Germany

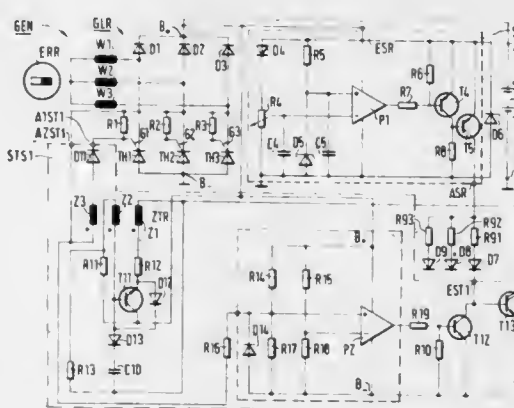
Filed May 1, 1981, Ser. No. 259,555

Claims priority, application Fed. Rep. of Germany, May 2, 1980, 3016955

Int. Cl.³ H02J 7/14

U.S. Cl. 320—61

1 Claim



1. A three-phase a.c. generator and rectifier unit for a motor vehicle comprising a rotor having at least one permanent magnet for generator excitation, a stator having three windings (W1, W2, W3) for alternating current excited by said at least one magnet, diodes (D1, D2, D3) respectively connecting ends

of said stator windings with one pole of a storage battery, three semiconductor controlled rectifiers (TH1, TH2, TH3) respectively connecting the same ends of said windings to the other pole of said storage battery, a voltage regulator (SPR) having an on-off d.c. output, and three control circuits for respectively controlling, without the use or interposition of any oscillator circuit, said semiconductor controlled rectifiers in response to said output of said voltage regulator so as to pass an entire half wave of current excited in the stator winding connected to the respective rectifier whenever said output of said rectifier is in its "on" condition, each of said control circuits comprising pulse transformer (ZTR) in a pulse shaping circuit and having a driving transistor (T11) therefore, said pulse transformer having an output winding (Z3) connected with the control path of one of said semiconductor controlled rectifiers, and also a switching transistor (T13) having its switching path interposed between the switching path of said driving transistor (T11) and the negative pole of said battery and having its control electrode connected with said output of said regulator, and a Schmitt trigger unit (P2) having its output connected to said control electrode of said switching transistor (T13) through a control transistor (T12) and having its control input connected with a corresponding one of said stator windings for releasing said switching transistor (T13) for control thereof by said output of said voltage regulator quickly at the beginning of every half wave of said corresponding one of said stator windings.

4,395,674

REGULATING SYSTEM EMPLOYING AN RMS COMPOSITE CONTROLLER

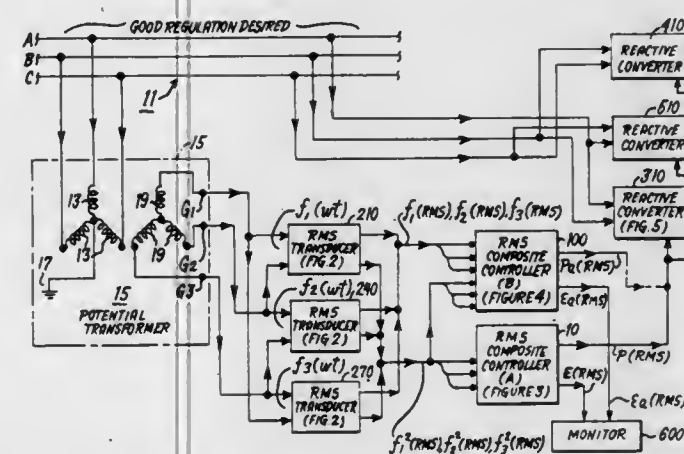
Fred W. Kelley, Jr., Media, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Dec. 23, 1981, Ser. No. 333,962

Int. Cl.³ G05F 1/70

U.S. Cl. 323—210

6 Claims



1. In a regulating system coupled to a three phase power system at a critical area, said regulating system having reactive converters respectively coupled across each of the phase-to-phase voltages of the three phase power system for delivering a leading or lagging current to compensate for a load of varying reactance, said regulating system comprising;

- means for developing a first signal representative of the R.M.S. value of the positive sequence component of the R.M.S. values of the phase-to-phase voltages of the three phase power system at the critical area;
- means for developing second signals representative of desired voltage regulation levels of each of the phase-to-phase voltages of the three phase power at the critical area;
- means responsive to said first and said second signals for developing error signals for said regulating system which are used to hold the first signal and second signals in close correspondence if within a desired range of the reactive converters;
- comparison means for sensing non-correspondence be-

tween said first signal and each of said second signals, and developing in dependence upon said sensed non-correspondence command signals indicative of whether normal or transient conditions are present in the power system;

(e) gating control means responsive to said command signals for supplying control signals for each of the reactive converters so as to regulate the voltage at said critical area both during normal and transient conditions;

(f) a first, a second and a third arrangement, each comprising two circuit branches connected in parallel, each branch comprising an inductor and a thyristor connected in series, said thyristors being oppositely poled and each of said thyristor providing a unidirectional path through its inductor; a capacitor connected in parallel with each of said two branches; said first, second, and third arrangements for two circuit branches being respectively connected between the first and second, second and third, and third and first phases of the three phase power system;

(g) said gating control means, (1) in effecting said voltage regulation during normal conditions, causing each of thyristors of each of the first, second and third arrangements to have a conduction angle of 180 degrees or less in response to said comparison means sensing the presence of normal power conditions in the power system, and (2) in effecting said voltage regulation during transient conditions, causing each of said thyristors to have a conduction angle of greater than 180 degrees in response to said comparison means sensing the presence of transient power conditions in the power system.

4,395,675

TRANSFORMERLESS NONINVERTING BUCK BOOST SWITCHING REGULATOR

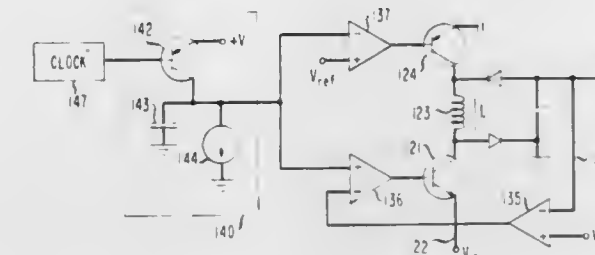
Rouben Toumani, Randolph, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 22, 1981, Ser. No. 313,957

Int. Cl.³ G05F 1/46

U.S. Cl. 323—271

13 Claims



1. A switching type power conditioning circuit comprising: input means for accepting a DC voltage source, output means for accepting a load to be energized by the DC voltage source, a signal winding inductive energy storage medium, a first switch interconnecting one end terminal of the storage medium to the input means, a flyback diode interconnecting the one end terminal to a signal reference point, a decoupling diode interconnecting an opposite end terminal of the storage medium to the load, a second switch interconnecting the opposite end terminal to the signal reference point, and means for synchronously driving the first and second switches with overlapping first and second duty cycles, respectively.

4,395,676

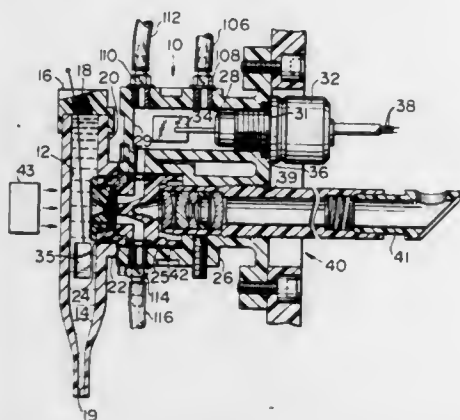
FOCUSED APERTURE MODULE

John D. Hollinger, Michael R. Groves, and Walter R. Hogg, all of Miami, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Nov. 24, 1980, Ser. No. 209,611
Int. Cl.³ G01N 27/00

U.S. Cl. 324—71.4

14 Claims



1. A particle analyzing apparatus for detecting properties of particles, said particle analyzing apparatus including a container for holding a liquid suspension of the particles to be analyzed, a first liquid holding chamber, a flow director having a bore which forms a liquid passageway between said container and said first chamber, a second liquid holding chamber, aperture means including a sensing aperture which forms a constricted liquid and electrical passageway between said first chamber and said second chamber, means for providing an electrical current through said sensing aperture to generate detectable electrical signals with the passage of the particles through said sensing aperture, fluid moving means for providing a pressure drop across said sensing aperture to move a quantity of liquid from said first chamber to said second chamber, means for providing a particle free liquid to said first chamber to form a liquid sheath around a quantity of said liquid suspension from said flow director, the improvement comprising:

means for providing a substantially constant pressure drop across said flow director to move said quantity of said liquid suspension from said container to said first chamber, whereby said substantially constant pressure drop establishes a substantially constant flow rate of said liquid suspension through said sensing aperture;

said bore of said flow director having an elongated configuration dimensioned to form a fluid resistor for limiting the flow of said quantity of said suspension through said bore, whereby said fluid resistor sufficiently restrains the flow therethrough to a desired flow rate so as to allow for said pressure drop across said flow director to be of a magnitude that is subject to regulation and measurement.

4,395,677

HALL EFFECT TESTER FOR HEATED WINDOW GRIDS
Roland W. Petersdorf, Sterling Heights, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

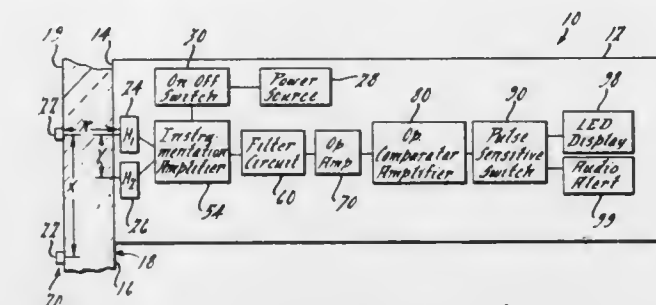
Filed Feb. 13, 1981, Ser. No. 234,273
Int. Cl.³ G01R 33/00, 31/08

U.S. Cl. 324—117 H

3 Claims

1. A solid state electrical continuity test probe instrument for detecting breaks in a plurality of electrically connected conductive resistive defroster grid lines located on a window glass plate installed in a motor vehicle, said grid lines elongated in a common first direction and uniformly transversely spaced from each other a predetermined first distance on the inside surface of the window glass plate area to be heated, a DC voltage source of the vehicle connected to said grid lines providing substantially equal currents passing through each grid line for heating the plate area, said instrument comprising: a probe housing suitable for hand-held operation including a

sensing frontal end having a substantially planar glide surface; said housing including first and second Hall Effect sensors arranged on an axis parallel to said glide surface; said sensors spaced on said axis with their centers located a predetermined second distance less than said predetermined first distance between the transversely spaced grid lines; said instrument characterized in that with said glide surface positioned in flush intimate contact with the outside surface of the vehicle window glass plate area and with said axis of the sensors oriented substantially transverse to the grid lines, said probe sensors adapted to be moved along the plate area in a direction transverse to said common first direction successively crossing each grid line; whereby said first sensor is caused to alternately enter and



depart maximum and minimum conducting grid line flux density regions while said second sensor is caused to concurrently enter and depart minimum and maximum conducting grid line flux density regions and so forth; solid state detection circuit means within said housing supplied for a secondary DC power source, said circuit means operative for receiving and amplifying the phase difference in sinusoidal output voltage signals from said sensors to provide a composite sinusoidal output signal, and said circuit means including comparator means producing an output triggering pulse operative for successively activating and deactivating indicating means on said probe housing informing the operator of the state of electrical continuity of each successive grid line being traversed by said sensors, thereby obviating the need for the operator to enter the vehicle to conduct a continuity test of said grid lines with said probe instrument.

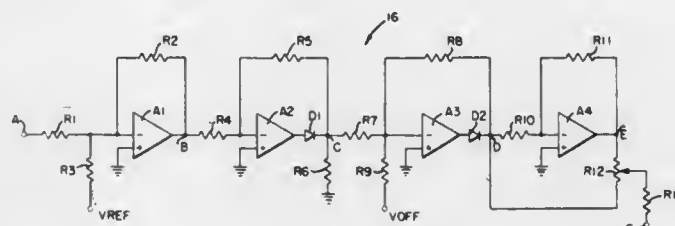
4,395,678

LINEARIZING CIRCUIT FOR METER DISPLAYS
Edmond R. Pelta, Los Altos Hills, Calif., assignor to EMC Corporation, Chicago, Ill.

Filed Aug. 15, 1980, Ser. No. 178,651
Int. Cl.³ G01R 15/10; G06G 7/12

U.S. Cl. 324—132

17 Claims



1. An electrical circuit for providing a correction signal in response to a basic signal only when the basic signal is in a predetermined portion of and is defined between opposing end points within a range over which the basic signal varies between a minimum and a maximum value, the correction signal having a substantially zero value at and outside of the end points of the predetermined portion of the range, comprising means for receiving the basic signal and a reference signal and for providing a first output which is a function of the

basic signal and which has a zero reference determined by said reference signal, means for receiving said first output and an offset signal and for providing a second output having a maximum signal magnitude determined by said reference signal and wherein the end points of the predetermined portion of the range are determined by said offset signal, and means for summing a selected portion of said second output with the basic signal whereby an adjusted basic signal is obtained only within the predetermined portion of the range of variation.

4,395,679

SINGLE SENSOR ENGINE ANALYZER WITH NOISE REJECTION AND AUTOMATIC TRIGGERING CIRCUIT

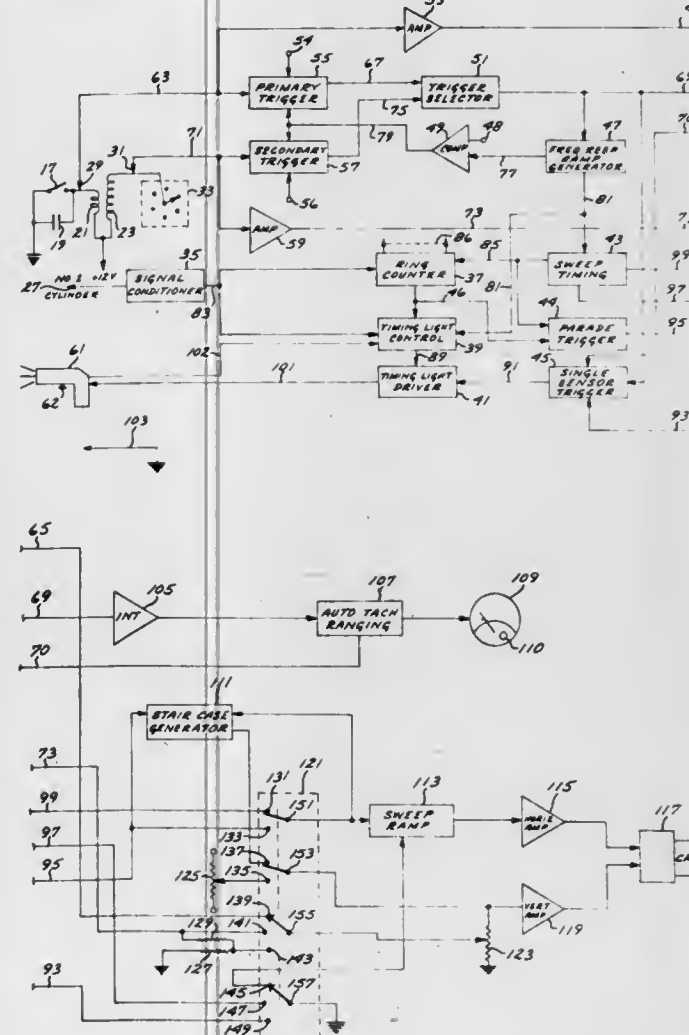
Stephen A. Gniewek, Glendora, and Dick M. Olsen, Pasadena, both of Calif., assignors to Clayton Manufacturing Company, El Monte, Calif.

Division of Ser. No. 14,807, Feb. 26, 1979, which is a division of Ser. No. 854,768, Nov. 25, 1977. This application Nov. 6, 1980, Ser. No. 204,476

Int. Cl.³ F02P 17/00

U.S. Cl. 324—379

5 Claims



1. In an improved apparatus for analyzing the operation of a multiple cylinder internal combustion engine wherein plug firings to obtain cylinder ignition are displayed on a cathode ray tube and engine timing is determined by driving a timing light in synchronism with cylinder ignition, the improvement comprising:

a first sensor means adapted for connection to the primary winding of the engine's ignition coil for sensing the plug firings of all the cylinders in said engine; a second sensor means adapted for connection to the secondary winding of the engine ignition coil for sensing the plug firings of all the cylinders in said engine; a first means responsive to said first sensor means for gener-

ating timing control signals representative of cylinder ignition; a second means responsive to said second sensor means for generating timing control signals representative of cylinder ignition; and, selector means adapted for receiving the timing control signals from said first and second timing control signal generating means and generating timing control signals in response to the first in time control signals received from said first and second timing control signal generating means.

4,395,680

AUTOMOBILE TIMING LIGHT

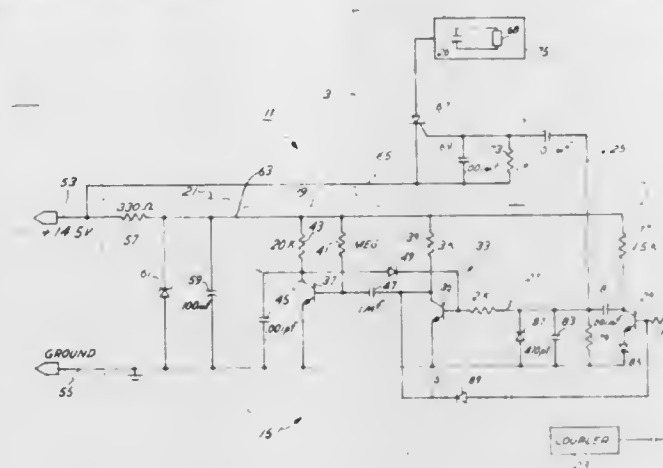
Azriel Slutsky, San Jose, Calif., assignor to Sun Electric Corporation, Crystal Lake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,819

Int. Cl.³ F02P 17/00

U.S. Cl. 324—392

5 Claims



1. A timing light for use with an automobile engine having at least one cylinder, the automobile engine intermittently providing a firing voltage to the one cylinder, comprising, in combination:

- (a) flash means for providing a flash of light;
- (b) couple means for interconnection to the automobile engine and for providing an input signal representative of the firing voltage;
- (c) trigger means for activating said flash means in response to said input signal; and
- (d) skip circuitry means, responsive to said input signal, for disabling said trigger means from responding to said input signal for a substantially fixed, predetermined period of time after every activation of said flash means by said trigger means, whereby said flash of light has a predetermined brightness.

4,395,681

SYSTEM FOR COMPENSATING THE OFFSET VOLTAGE OF A DIFFERENTIAL AMPLIFIER

Robert Hornung, Mennecy, and Gerard Lebesnerais, Perthes En Gatinis, both of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 23, 1980, Ser. No. 219,543

Claims priority, application France, Jan. 9, 1980, 80 00750
Int. Cl.³ H03F 3/45

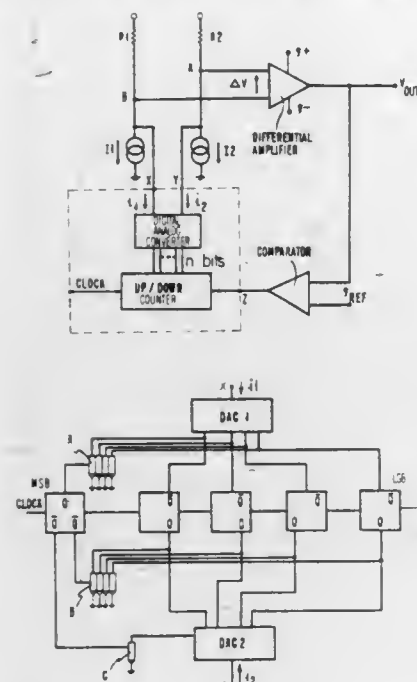
U.S. Cl. 330—259

6 Claims

1. A system for compensating the offset voltage of a differential amplifier comprising:

an operational amplifier provided with two generators of input signals whose difference is to be amplified; an offset voltage compensation loop, including a comparator, an n-bit up/down counter, and a digital-analog converter means; the output of said comparator being connected to the input of said n-bit up/down counter, and the outputs of said counter being connected to the inputs of said digital-analog converter means;

said digital-analog converter means including first and second n-1 bit digital-analog converters, the output of each converter being connected respectively to one of said generators of input signals so as to modulate the input



signals; and in which the inputs of said first converter are connected to the complementary outputs of n-1 bits of said counter, and the inputs of said second converter are connected to the real outputs of said n-1 bits of said counter.

4,395,682

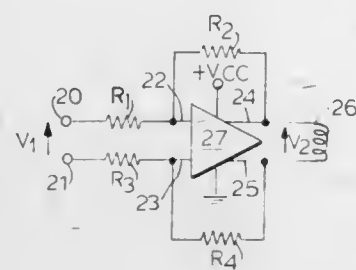
DIFFERENTIAL OUTPUT CIRCUIT

Nobuyoshi Yokobori, Osaka; Tetsuo Maeda, Neyagawa, and Yoshiaki Igarashi, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 29, 1980, Ser. No. 220,722

Claims priority, application Japan, Dec. 28, 1979, 54-172555
Int. Cl.³ H03F 3/45

U.S. Cl. 330—260

5 Claims



1. A differential output circuit comprising: a two-phase differential amplifier which has a first output which changes its output voltage in response to a voltage applied to a first input and has a second output which changes its output voltage in response to a voltage applied to a second input, said differential amplifier being driven by a single power source; a load which is connected between said first and second outputs, said first output and first input being connected together by a first negative feedback resistor, said second output and second input being connected together by a second negative feedback resistor; a first resistor and a second resistor are respectively connected at one end thereof with said first and second inputs; wherein said load is supplied with current flowing either in a normal or reverse direction according to the polarity of a potential difference between the other ends of said first and second resistors.

4,395,683

FREQUENCY SYNTHESIZERS

Peter P. Connell, Marlow, and Malcolm F. Morgan, High Wycombe, both of England, assignors to Racal-Dana Instruments Limited, Bracknell, England

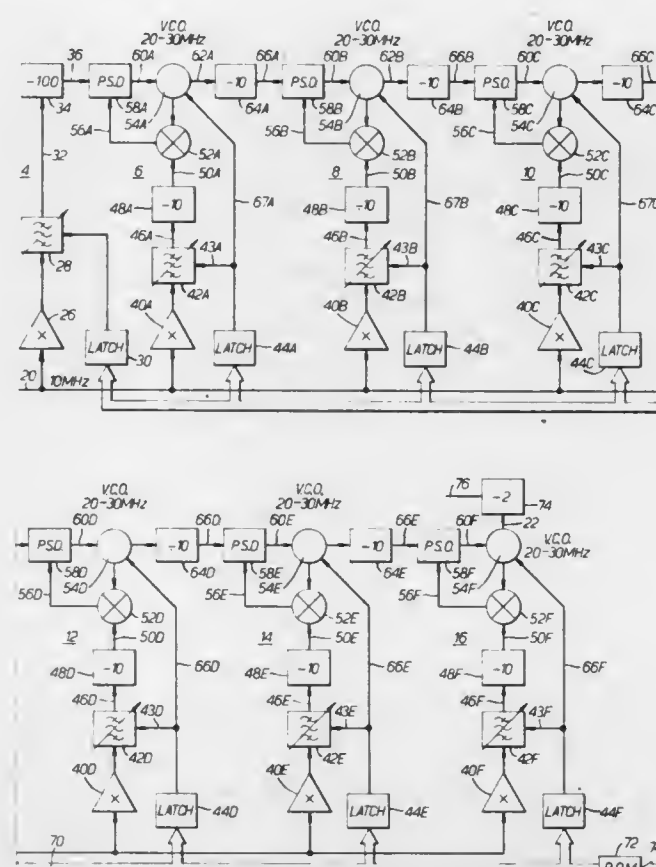
Filed Jun. 10, 1981, Ser. No. 272,107

Claims priority, application United Kingdom, Jul. 12, 1980, 8022857

Int. Cl.³ H03L 7/22

U.S. Cl. 331—2

4 Claims



1. A stage for a frequency synthesizer, for producing an adjustable frequency whose value determines the value of one of the digits in the synthesized output frequency, the stage comprising

means responsive to a predetermined reference frequency to produce multiples thereof lying within a predetermined frequency range, selectively-settable bandpass filter means for selecting one of the multiples, frequency dividing means connected to receive the selected multiple to produce a control frequency, controllable oscillator means producing the said adjustable frequency, phase-locked loop means connected to control the frequency of the controllable oscillator means in dependence on the said control frequency and on the adjustable frequency of a preceding stage, and pre-setting means producing a control signal connected to selectively set the bandpass filter means.

4,395,684

R.F. PRIMED PLASMA LIMITER FOR RADAR RECEIVER PROTECTOR

Harry Goldie, Randallstown, and Suman D. Patel, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 10, 1981, Ser. No. 300,762

Int. Cl.³ H01P 1/14

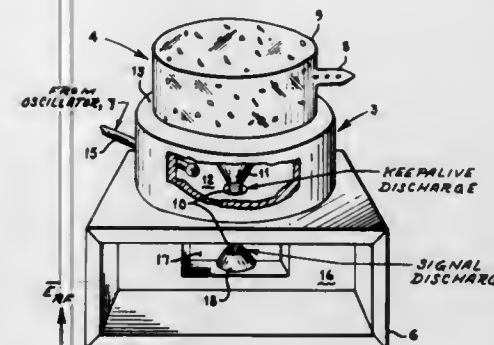
U.S. Cl. 333—13

5 Claims

1. In a radar receiver protector having a microwave trans-

mission line for transmitting and receiving radar signals the improvement residing in an r.f. primed plasma limiter, said r.f. primed plasma limiter comprising

an r.f. re-entrant cavity mounted on the exterior surface of said microwave transmission line, means for establishing an r.f. electric field in said re-entrant cavity, and



a container filled with halogen gas inserted through said re-entrant cavity and into said microwave transmission line, whereby interaction of said r.f. electric field and said halogen gas generates a continuous supply of electrons in said halogen gas, said electrons diffusing from the re-entry cavity region to the microwave transmission line region and enabling plasma breakdown of said halogen gas in response to radar signal pulses propagating through said transmission line.

4,395,685

WAVEGUIDE JUNCTION FOR PRODUCING CIRCULARLY POLARIZED SIGNAL

Arthur B. C. Davies, Sandown, and Andrew P. Norris, Newport, both of England, assignors to Plessey Overseas Limited, Ilford, England

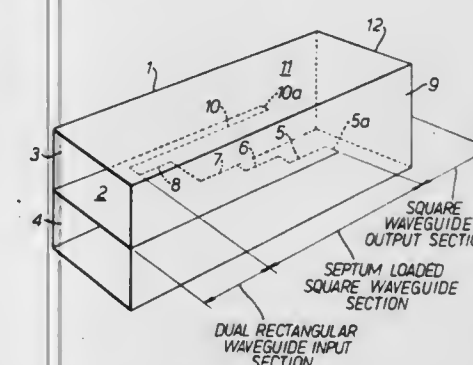
Filed May 1, 1981, Ser. No. 259,482

Claims priority, application United Kingdom, May 1, 1980, 8014553

Int. Cl.³ H01P 1/17, 5/12

U.S. Cl. 333—125

5 Claims



1. A junction between three waveguides in which one of the waveguides is formed in a channel of uniform cross section and is divided into two parallel waveguide channels so as to define the other two of the three waveguides by an asymmetrical stepped septum comprising first step means including a plurality of first steps which advance progressively in one direction and second step means including at least one second step which follow the first step means and which returns in an opposite direction.

4,395,686

ATTENUATION OF HIGHER ORDER WIDTH MODES IN MAGNETOSTATIC WAVE DEVICES

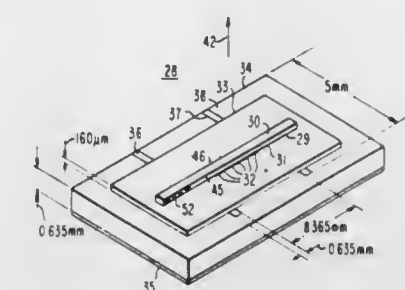
John D. Adam, Murrysville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 2, 1981, Ser. No. 308,011

Int. Cl.³ H01P 1/19; H03H 9/00

U.S. Cl. 333—151

17 Claims



1. A magnetostatic wave device operable with microwave signals and operable within a biasing magnetic field, comprising: material suitable for propagating magnetostatic waves in a first direction and having a finite width transverse to said first direction; a first and second transducer located in spaced apart relationship in association with said material for generating and receiving magnetostatic waves along a propagation path therebetween in said first direction; and a plurality of resistive strips spaced apart from one another and positioned above said material and transverse to said propagation path for attenuating selected modes of propagating magnetostatic waves occurring due to said finite width of said material.

4,395,687

ADJUSTABLE PHASE SHIFTER

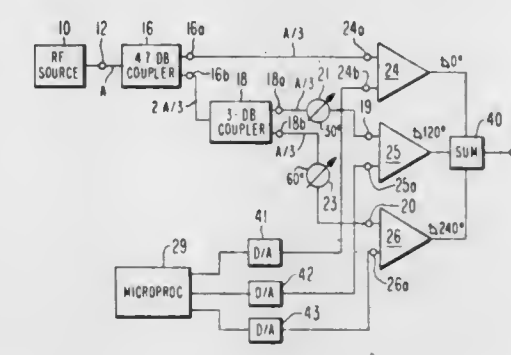
Erwin F. Belohoubek, Kendall Park, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 10, 1981, Ser. No. 272,288

Int. Cl.³ H03H 11/20; H01P 1/18

U.S. Cl. 333—164

7 Claims



1. A signal controlled radio frequency (RF) phase shifter comprising:

divider means responsive to an RF input signal for power dividing said RF input signal into three power divided RF signals at substantially equal power levels; means comprising first, second and third circuits, respectively, each having an RF signal input terminal, a control signal terminal, and an output terminal, each circuit being receptive of a different one of said power divided RF signals at its input terminal for providing an RF signal at its output terminal at an amplitude which is a function of a parameter of a control signal applied to its control signal terminal; and means for combining the RF signals present at said output terminal of said first, second and third circuits at relative phases of 0°, 120° and 240°, respectively, so that by adjust-

ment of said parameter of the control signals applied to the respective control terminals of said first, second and third circuits the phase shift imparted to said RF input signal can be controlled through 360°.

4,395,688

LINEAR PHASE FILTER WITH SELF-EQUALIZED GROUP DELAY

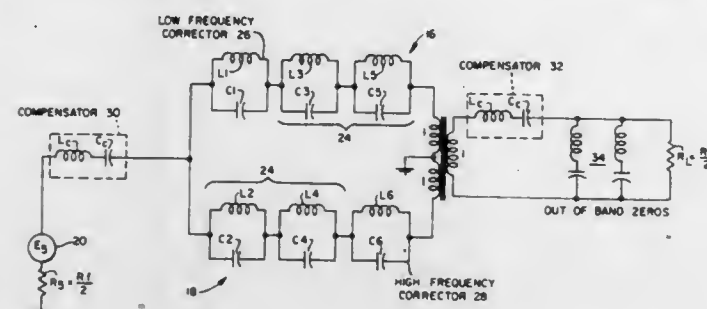
Robert W. Sellers, Palm Bay, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Aug. 11, 1981, Ser. No. 291,937

Int. Cl.³ H03H 7/075, 7/09

U.S. Cl. 333—169

32 Claims



1. A filter for filtering an electrical signal to pass said electrical signal within a predetermined bandwidth of frequencies centered around a predetermined center frequency comprising:

- an input coupled to receive said electrical signal;
- an output for providing a filtered output signal; and
- a pair of lattice arms coupled in parallel between said input and output, wherein each arm includes a plurality of parallel resonant LC resonators connected in series along each arm, each of said resonators having a different resonant frequency within the bandwidth of said filter, wherein the capacitors of the resonators in each arm have values which are substantially exponentially related in accordance with the frequency of resonance of the resonator they are in to the capacitance determined for resonance at the center frequency.

4,395,689

ELASTIC SURFACE WAVE RECURSIVE FILTER

Michel Feldmann, 45, rue Saint Lambert, 75015 Paris, and Jeannine Henaff, 3ter, Place Marquis, 92140 Clamart, both of France

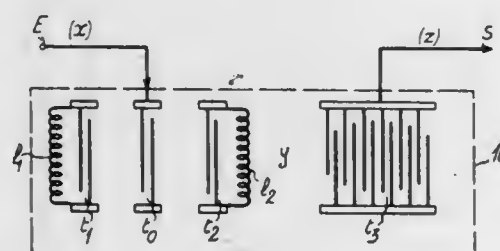
Filed May 13, 1981, Ser. No. 263,269

Claims priority, application France, Jun. 10, 1980, 80 12869

Int. Cl.³ H03H 9/64, 9/25

U.S. Cl. 333—195

2 Claims



1. An elastic surface wave filter, comprising:
- a substrate adapted to propagate elastic surface waves;
 - a first tuned transducer;
 - a second tuned transducer having a coefficient of transmission;
 - said first and second transducers disposed on said substrate to form a passive resonator for said elastic surface waves;
 - an extra transducer, disposed on said substrate between said first and second transducers and connected to an input of the filter, forming a means for introducing an elastic surface wave into said resonator whereby a resonant elastic surface wave is obtained in said resonator, partly transmitted through said second transducer, and a transmitted elastic surface wave propagates on the output side of said second transducer;
 - a transversal filter having a predetermined transfer function without poles, said transversal filter disposed on said substrate on the output side of said second transducer for receiving said transmitted elastic surface wave, said transversal filter connected to an output of the filter.

face wave into said resonator whereby a resonant elastic surface wave is obtained in said resonator, partly transmitted through said second transducer, and a transmitted elastic surface wave propagates on the output side of said second transducer;

a transversal filter having a predetermined transfer function without poles, said transversal filter disposed on said substrate on the output side of said second transducer for receiving said transmitted elastic surface wave, said transversal filter connected to an output of the filter.

4,395,690

TWO-TERMINAL-PAIR NETWORK SIMULATING AN INDUCTANCE

Karl-Heinz Parras, Nuremberg, Fed. Rep. of Germany, assignor to TE KA DE Felten & Guillaume Fernmeldeanlagen GmbH, Nuremberg, Fed. Rep. of Germany

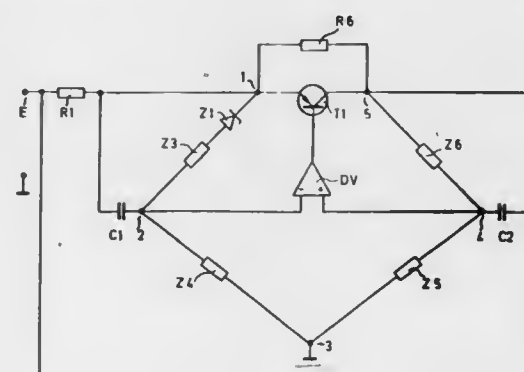
Filed Jun. 8, 1981, Ser. No. 271,183

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1980, 3021960

Int. Cl.³ H03H 11/48

U.S. Cl. 333—214

9 Claims



1. A two-terminal-pair circuit having an input terminal pair and an output terminal pair and simulating an inductance, the circuit comprising a first ohmic resistor, the voltage-carrying terminal of the input terminal pair being connected to one terminal of the first ohmic resistor, a bridge circuit having bridge branches and two opposite bridge diagonal terminals, two capacitors each connecting a respective one of the two bridge diagonal terminals to a respective one of the terminals of the first ohmic resistor, a difference amplifier having two inputs each connected to a respective one of the two bridge diagonal terminals, a transistor having a base connected to the output of the difference amplifier, the transistor having a collector-emitter path connected in a bridge branch in series with an impedance, the emitter of the transistor being connected to the other terminal of the first resistor, and the collector of the transistor forming the voltage-carrying terminal of the output terminal pair.

4,395,691

BEAM DEFLECTION SYSTEM

Wolfgang Knauer, Malibu, Calif., assignor to Hughes Aircraft Company, El Segundo, Calif.

Filed Mar. 4, 1982, Ser. No. 354,699

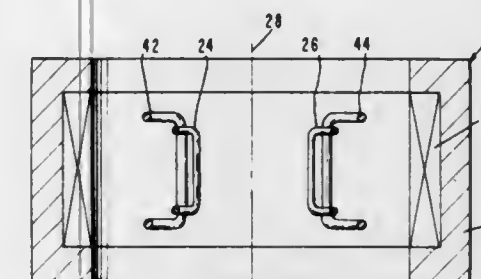
Int. Cl.³ H01F 7/00

U.S. Cl. 335—210

16 Claims

1. A charged particle beam deflection system comprising:
- first and second deflection electromagnetic coils positioned adjacent the beam path so that electrical energization of said deflection coils causes beam deflection; and
 - first and second compensation electromagnetic coils respectively positioned adjacent said first and second deflection coils, said coils each having a number of turns, a radius from the beam path and a wire radius, and a wire resistance such that the incremental change in magnetic field

during coil current penetration from the wire skin to the wire full cross-section is substantially equal and opposite



for the compensation coils with respect to the deflection coils.

4,395,692

APPARATUS FOR MAGNETIZING A CONVERGENCE DEVICE FOR IN-LINE COLOR-PICTURE TUBES AND METHODS OF ADJUSTING CONVERGENCE WITH SUCH APPARATUS

Erhard Kienle, Esslingen; Walter Kornaker, Berkheim, and Felix Greiner, Stuttgart, all of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

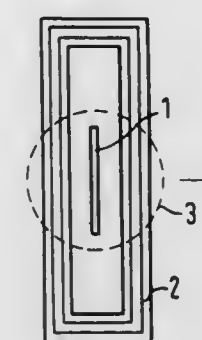
Filed Dec. 8, 1980, Ser. No. 214,408

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949851

U.S. Cl. 335—284

Int. Cl.³ H01F 13/00

11 Claims



1. Apparatus for magnetizing the permanent-magnet convergence device of an in-line color-picture tube, wherein permanent magnets located around the neck of the tube in a plane perpendicular to the tube axis, hereinafter referred to as "convergence-device plane", are magnetized or remagnetized, by which magnetization the electron beams in the tube are deflected relative to each other in different directions until they converge, said apparatus comprising:

electrically excitable coils mounted around the neck of the tube having their magnetic axes located in the convergence-device plane, said coils having cross sectional dimensions in the convergence-device plane greater than the dimensions perpendicular thereto, and coil axes lying in the convergence-device plane.

4,395,693

ELECTRICAL WINDING FOR A TRANSFORMER, A CHOKE COIL OR THE LIKE

Marlene Marinescu, Frankfurt am Main, Fed. Rep. of Germany, assignor to Teldix GmbH, Heidelberg, Fed. Rep. of Germany PCT No. PCT/DE80/00150, § 371 Date Jun. 9, 1981, § 102(e) Date Jun. 9, 1981, PCT Pub. No. WO81/01219, PCT Pub. Date Apr. 30, 1981

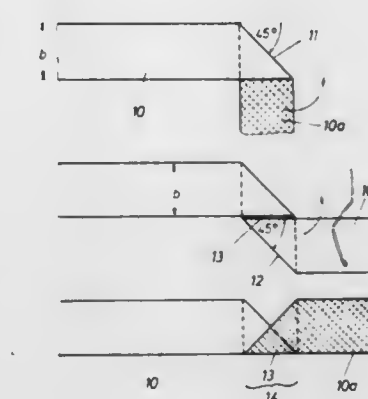
PCT Filed Oct. 16, 1980, Ser. No. 276,350

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1979, 2943124

Int. Cl.³ H01H 85/00

U.S. Cl. 336—223

4 Claims



1. An electrical winding having a conductor which is radially subdivided into 1 through n subconductor tapes, and wherein within the winding said subconductor tapes are twisted in such a manner that the tape initially lying innermost, after twisting, comes to lie outermost, the tape lying at the second innermost position, after twisting, comes to lie at the second outermost position, etc., wherein the improvement comprises that the subconductor tapes 1 through (n-1) are formed of two partially overlapping tape sections which in the overlap region are conductively connected together at the side edges of the tape sections; that the nth subconductor tape is made of one piece and forms one of the outwardly disposed subconductor tapes of the conductor; that the subconductor tapes 2 through n are laced through between the overlapping tape sections of the first subconductor tape; that the conductor tapes 3 through n are laced through between the overlapping tape sections of the second subconductor, the nth tape being laced through the overlapping tape sections of the (n-1)th conductor, each of the first through (n-1)th conductor tapes being produced from a double width tape wherein two regions are formed by severing half the tape width, the conductor tape extending in said region being offset with respect to itself by one tape width and said regions overlapping in part, one tape region being folded about the side edge of the tape by 180° in the overlap region.

4,395,694

THERMOSTAT CONSTRUCTION EMPLOYING ARAMIDE INSULATION

Glenn E. Wehl, North Canton, Ohio, assignor to Portage Electric Products, Inc., North Canton, Ohio

Filed Jun. 23, 1982, Ser. No. 391,128

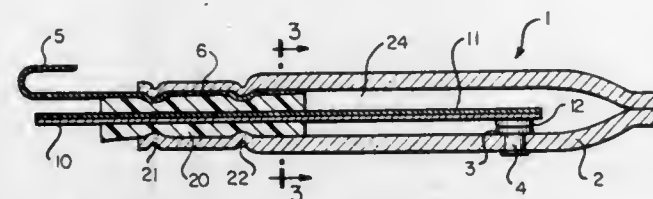
Int. Cl.³ H01H 71/02

U.S. Cl. 337—112

4 Claims

1. In a thermostatic device comprising a casing, at least one bimetallic element, a contact associated with that bimetallic element, a second contact within the casing for mating with said first contact in order to complete an electric circuit, means for electrically connecting said bimetallic element to an external circuit and means for connecting said second contact to an external electrical circuit, the improvement which comprises

the use of an aramide insulating sleeve in an open end of said casing to electrically insulate said bimetallic element and asso-



ciated electrically conductive parts from other parts of said thermostatic device.

4,395,695

NON-CONTACT MAGNETIC POTENTIOMETER

Shigekazu Nakamura, Ageo, Japan, assignor to Copal Company Limited, Tokyo, Japan

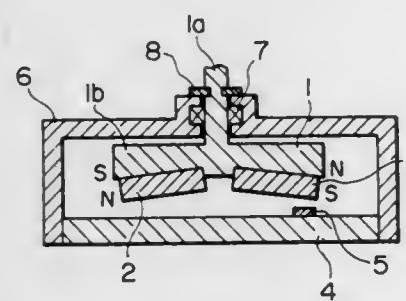
Filed Jul. 22, 1981, Ser. No. 285,330

Claims priority, application Japan, Jul. 25, 1980, 55-101928; Jul. 25, 1980, 55-101929; Jul. 25, 1980, 55-101930

Int. Cl.³ H01L 43/04

U.S. Cl. 338—32 H

5 Claims



1. A non-contact magnetic potentiometer comprising a rotatable first yoke to which an angular displacement is to be transmitted, a second yoke arranged as opposed to and spaced from said first yoke, a hall effect device fixedly located in parallel with said second yoke between said first yoke and second yoke, and a pair of permanent magnets magnetized in the thickness direction and secured to said first yoke as inclined to said hall effect device, a hall electromotive force being put out of said hall effect device in response to the angle of rotation of said first yoke when said first yoke is rotated.

4,395,696

PLASTIC EMERGENCY POWER PACK FOR VEHICLE TRAILER

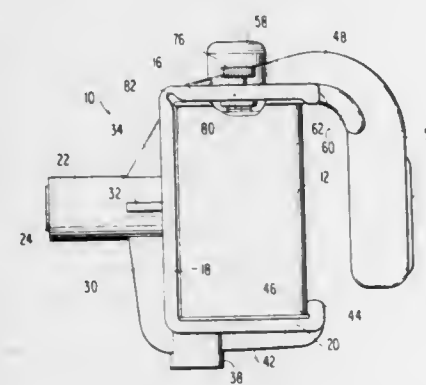
Roger O. Menard, P.O. Box 1216, Clearfield, Pa. 16830
Filed Feb. 26, 1980, Ser. No. 124,741

The portion of the term of this patent subsequent to Feb. 27, 1996, has been disclaimed.

Int. Cl.³ B60Q 1/00, 1/46

U.S. Cl. 340—74

21 Claims



1. An emergency power pack adapted to be connected to an

unhitched trailer of a tractor-trailer of the type which has a plug on said tractor and a mating socket on said trailer to provide an electrical connection therebetween when hitched for controlling the lights on said trailer from a first source of power on said tractor, which comprises:

a second source of power comprising a battery;

a plastic case for supporting said battery;

an adapter plug adapted to mate with said socket;

flasher means electrically connected to said adapter plug and said battery for flashing the lights on said trailer when said adapter plug is mated with said socket when said trailer is unhitched from said tractor; and

means formed integrally on said case for housing said adapter plug.

4,395,697

OFF-IMAGE DETECTION CIRCUIT FOR AN IMAGE ANALYZER

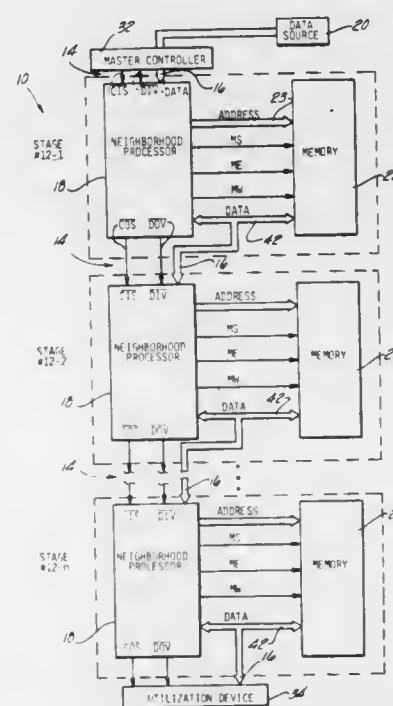
William O. Dargel; Robert M. Loughheed; David L. McCubrey, all of Ann Arbor, Mich., and Ralph E. Richardson, Eatontown, N.J., assignors to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Aug. 15, 1980, Ser. No. 178,314

Int. Cl.³ G06K 9/36

U.S. Cl. 382—41

15 Claims



1. In an image analyzer system having at least one neighborhood transformation stage for transforming serial scan lines of image pixel data according to the values of a center pixel and its surrounding pixels in a neighborhood window, some of the scan lines containing valid pixels therein representing characteristics of the image to be analyzed together with invalid pixels not representing image information, wherein the improvement comprises off image detection circuitry comprising:

storage means for storing the number of valid pixels in at least one scan line of the image as it is presented to the stage;

comparison means for comparing the number of valid pixels in subsequent scan lines presented to the stage with the number of valid pixels stored in the storage means, operative to provide an output signal; when the window contains invalid pixels and

transformation control means for altering the transformation of the stage in response to the output of the comparison means whereby the accuracy of image analysis may be increased.

4,395,698

NEIGHBORHOOD TRANSFORMATION LOGIC CIRCUITRY FOR AN IMAGE ANALYZER SYSTEM

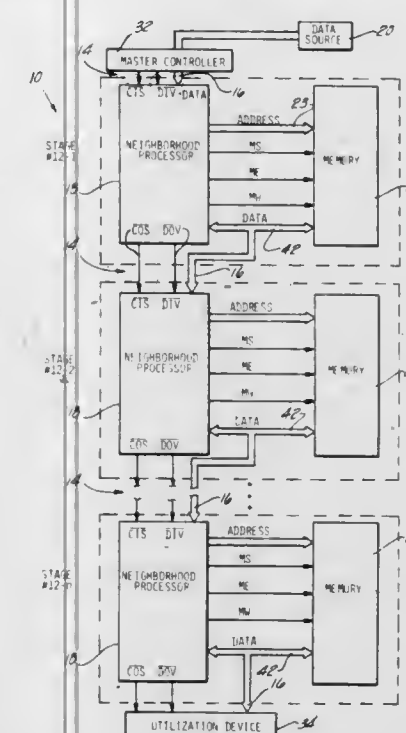
Stanley R. Sternberg; William O. Dargel; Robert M. Loughheed; David L. McCubrey, all of Ann Arbor, Mich., and Ralph E. Richardson, Eatontown, N.J., assignors to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Aug. 15, 1980, Ser. No. 178,312

Int. Cl.³ G06K 9/00; G06F 15/20

U.S. Cl. 382—27

22 Claims



1. In an image analyzer system having at least one neighborhood transformation stage including a plurality of neighborhood window storage registers for temporarily accessing substantially all of the neighborhoods of pixel values in the image, wherein the improvement comprises a neighborhood transformation stage which can provide a wide variety of image analyses, said stage including:

adder means having at least two inputs and an output, operative to provide at its output the sum of the two values applied to its inputs;

means for connecting said neighborhood window registers to one input of said adder means;

means for applying a contribution value to the other input of said adder means;

zero detector means for detecting a zero output of said adder means; and

maximum value detection means coupled to said adder means output for detecting the maximum value generated at said adder means output for the pixel values contained in said neighborhood window registers.

4,395,699

METHOD AND APPARATUS FOR PATTERN RECOGNITION AND DETECTION

Stanley R. Sternberg, Ann Arbor, Mich., assignor to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Division of Ser. No. 73,818, Sep. 10, 1979, Pat. No. 4,322,716, which is a continuation-in-part of Ser. No. 742,127, Nov. 15, 1976, Pat. No. 4,167,728, and a continuation-in-part of Ser. No. 919,171, Jun. 26, 1978, Pat. No. 4,174,514. This application May

29, 1981, Ser. No. 268,607

Int. Cl.³ G06K 9/00; G06F 15/20

U.S. Cl. 382—41

17 Claims

1. A neighborhood transformation circuit stage for analyzing an image represented by a serial stream of digital data signals corresponding to a matrix of points constituting the image, said stage circuitry comprising:

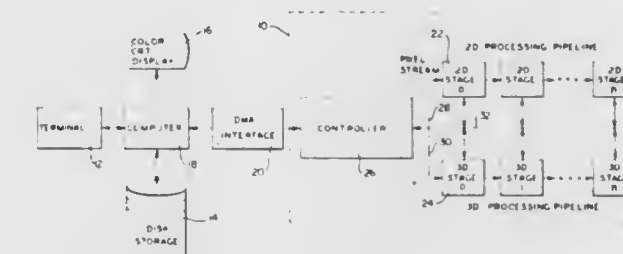
a data input for receiving said stream of digital data signals; neighborhood extraction means including a plurality of digital storage devices for temporarily storing digital

signals associated with a neighborhood in the matrix comprised of a central data point and its surrounding points in the matrix;

means for loading the signals into the storage devices to sequentially access substantially all of the neighborhoods in the matrix;

neighborhood configuration detector means for detecting a particular configuration of data signals having given values in each extracted neighborhood and providing a given output signal when the particular configuration is detected;

center detection means coupled to the storage device in the neighborhood extraction means containing the central data point, operative to provide a given output signal when a data signal having particular values for the central data point is contained therein;



comparison means having a plurality of inputs coupled to the outputs of said neighborhood configuration detector means and said center detection means, operative to provide an output signal upon receipt of both of said given signals; and

multiplexor means having at least two inputs and a control input for selectively coupling one of the inputs to its output, one of said inputs being coupled to the storage device in the neighborhood extraction means containing the central data point, the other input being coupled to a value generator means for providing a signal of a selected value, with said control input being coupled to the output of the comparison means such that the output of said multiplexor means provides the transformation output for the stage and is dependent upon the output of said comparison means.

4,395,700

IMAGE ANALYZER WITH VARIABLE LINE STORAGE

David L. McCubrey, Ann Arbor, Mich., and Ralph E. Richardson, Eatontown, N.J., assignors to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Aug. 15, 1980, Ser. No. 178,313

Int. Cl.³ G06K 9/00, 15/20

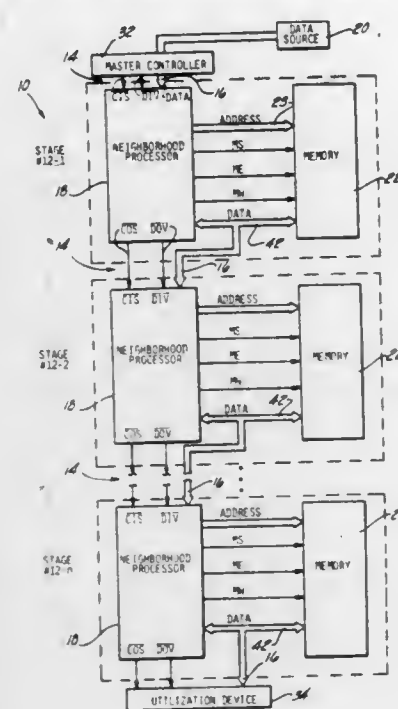
U.S. Cl. 382—27

10 Claims

1. A system for analyzing images represented by a plurality of raster scan lines of pixel values, said system comprising:

at least one neighborhood transformation stage, each stage including a processor portion for analyzing windows of neighboring pixel values in a matrix of pixels representing an image and providing a transformation output as a function of the pixel values contained in the window, a memory portion including a single random access memory (RAM) for repetitively storing a given plurality of successive scan lines of pixels fed to the stage, and means for sequentially loading said processor portion with selected pixel values from said RAM in a periodic fashion to se-

quentially access substantially all of the neighborhood windows in the image matrix for analysis whereby said



RAM serves as a recirculating line storage device for accommodating different raster scan line lengths.

4,395,701

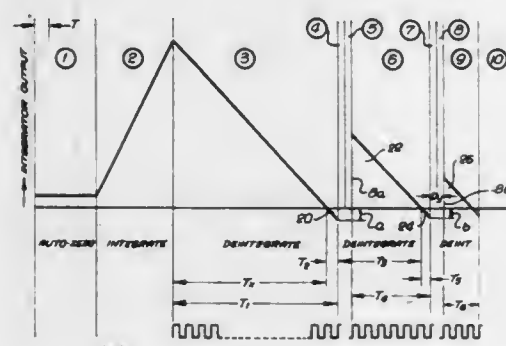
HIGH SPEED INTEGRATING ANALOG-TO-DIGITAL CONVERTER

Lee L. Evans, Atherton, Calif., assignor to Intersil, Inc., Cupertino, Calif.

Filed Mar. 25, 1980, Ser. No. 134,153
Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 NT

16 Claims



1. An integrating analog-to-digital converter for converting an unknown analog input signal to a digital value, comprising: an integrator; multiplication means for multiplying the output of the integrator by a predetermined amount; storage means for storing the output of the multiplication means; comparison means for selectively comparing the output of the integrator with the output of the multiplication means and storage means; a feedback loop for coupling the output of the comparison means to the input of the integrator to thereby cause the integrator output to assume a value equal to the value of the output of the comparison means; switching means for selectively coupling the outputs of the multiplication means and storage means to the comparison means, for selectively closing the feedback loop and for controlling the operation of the integrator; and digital means, coupled to the output of the comparison means, for controlling the switching means to (a) cause the unknown analog input signal to be integrated by the integrator for a predetermined time period, (b) cause the

integrator to be deintegrated for a first time period until a zero crossing of its output is detected, (c) cause the integrator output to assume a value equal to the value of the output of the multiplication means at the end of the first time period, (d) causes the integrator to be deintegrated for a second time period until its output is zero, said digital means also for measuring said deintegration time periods and providing a digital output as a function thereof.

4,395,702

BULK ACOUSTIC WAVE INTEGRATED OPTICAL DEFLECTOR AND MONOLITHIC A/D CONVERTER USING SUCH DEFLECTOR

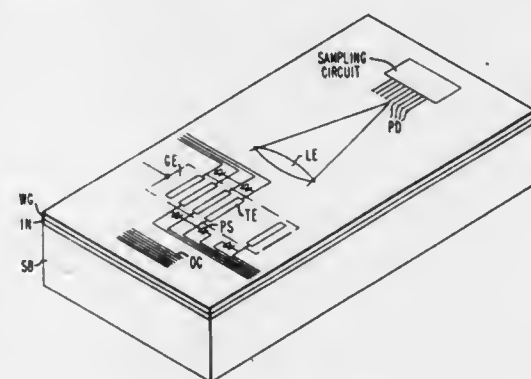
Milton Gottlieb, Pittsburgh, and Gerald B. Brandt, Edgewood Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Division of Ser. No. 82,513, Oct. 9, 1979, Pat. No. 4,348,075.
This application Jun. 12, 1981, Ser. No. 273,177

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

3 Claims



1. A monolithic optical analog-to-digital (A/D) converter comprising: a common substrate having a general direction and a surface plane; an optical waveguide formed on said substrate in said phase and along said surface adapted for passing guided light therethrough; an array of ultrasonic transducer elements integrated with said optical waveguide in a zone of acoustic interaction therewith across said general direction for generating bulk acoustic waves normally of said optical waveguide in said zone and for interaction with the guided light; phase shifter means integrated with said optical waveguide and associated with said transducer elements for introducing cumulative phase shifts of identical relative magnitude between consecutive transducer elements of said array thereby to cause deflection of the guided light; said phase shifter means being controlled by an analog signal to establish a deflection angle for said guided light in relation to the magnitude thereof; an array of photo-detecting devices integrated with said waveguide for receiving guided light deflected by said phase shifter devices; and means responsive to said photo-detecting devices for generating a digital signal in relation to said deflection angle and said analog signal.

4,395,703

PRECISION DIGITAL RANDOM DATA GENERATOR

Gerald V. Piosenka, Scottsdale, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Jun. 29, 1981, Ser. No. 278,261

Int. Cl.³ H03K 13/02

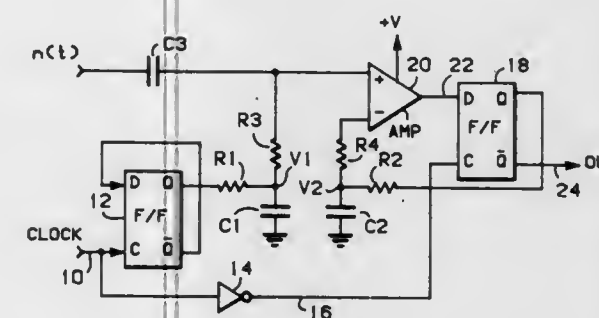
U.S. Cl. 340—347 AD

4 Claims

1. An electronic circuit for amplifying and synchronizing a random analog input noise signal having a statistical characteristic to produce a useful random data digital signal, the digital

signal having statistical characteristics essentially the same as the characteristics of the random analog signal, the circuit comprising:

- a system clock signal input;
- first integrator means connected to said input for generating a first integrated signal from a system clock signal applied to said input;
- a second integrator means connected to said input for generating a second integrated signal utilizing the system clock



- signal and for generating the random data digital signal at an output thereof;
- both integrator means being clocked at the same rate;
- means for comparing said first and second integrated signals and for generating an output of said comparing means responsive to said comparison, said output of said comparing means being a second input of said second bias means; and
- means for applying a time varying noise signal in superposition with said first integrated signal.

4,395,704

INPUT DEVICE FOR ELECTRONIC APPARATUS

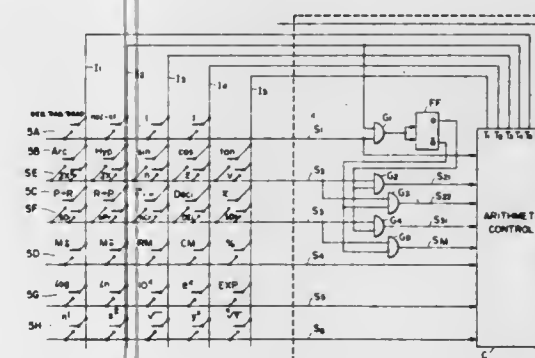
Juji Kishimoto; Ichiro Sado, both of Tokyo, and Mitsuo Cho, Ina, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 82,536, Oct. 9, 1979, abandoned. This application Sep. 21, 1981, Ser. No. 304,311

Claims priority, application Japan, Oct. 14, 1978, 53-125716
Int. Cl.³ G08C 9/00; G06F 13/00

U.S. Cl. 340—365 S

2 Claims



1. An input device for electronic apparatus comprising: a first plurality of spaced keys each for producing a signal; a first key signal line to which each of said first keys is coupled for conducting a signal therefrom; a plurality of first AND gate means each of which is coupled to said first key signal line; and setting means for selecting any one of said plurality of said first AND gate means to transmit signals produced by only a portion of said keys, said setting means including memory means, a manual switch, a second key signal line, and second AND gate means for changing the output status of said memory means to select a different one of said first AND gate means to transmit signals produced by a different portion of said keys, an output of said second AND gate means being coupled to the input of said memory means, and an input of said second AND gate means

being coupled to said manual switch by said second key signal line.

4,395,705

TROUBLE-SHOOTING CIRCUIT WITH FIRST-FAILURE IDENTIFICATION CAPABILITY

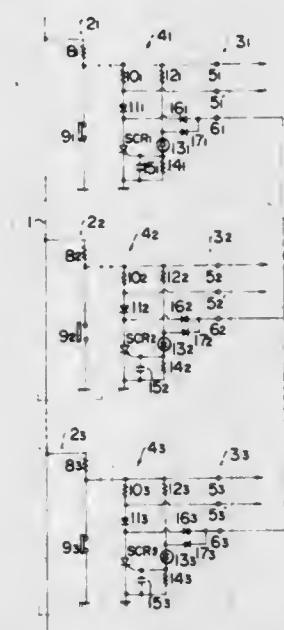
Kazuhiro Tsutsumi; Genichiro Tanoue, and Yoshiaki Takaya, all of Tokyo, Japan, assignors to Toyo Electronics Corporation, Tokyo, Japan

Filed Mar. 3, 1981, Ser. No. 240,215

Int. Cl.³ G08B 23/00

U.S. Cl. 340—520

4 Claims



1. A trouble detecting and localization circuit apparatus for identifying a first failure or trouble in time in a sequence of failures or troubles, comprising a plurality of monitor circuit means (41, 42) having trouble detector means (21, 22), with contacts (91, 92) for producing direct current outputs in response to the occurrence of trouble at said contacts (91, 92), and trouble localization circuit means (31, 32), and a connecting line operatively coupling said trouble detector means to said trouble localization circuit means, each of said monitor circuit means consisting of:

- (a) first and second output terminals (51, 51'; 52, 52') with a first resistor (101, 102), a first diode (111, 112) and a silicon controlled rectifier with a gate, anode and cathode, said first resistor, said first diode and said anode and cathode of said silicon controlled rectifier being connected in series with each other between said first output terminal and ground;
- (b) a second resistor having one end connected to the first output terminal; a constant voltage diode having its cathode connected to the other end of the second resistor and its anode connected to the gate of said silicon controlled rectifier;
- (c) delay circuit means (151, 152) connected between said gate and ground;
- (d) a lock signal terminal (61, 62) and a second diode (161, 162), said lock signal terminal being connected through said second diode to a point between said first diode and the anode of said controlled rectifier;
- (e) a third diode (171, 172) connected between the second resistor (121, 122) and the cathode of said constant voltage diode to the lock signal terminals, and said lock signal terminals (61, 62) being interconnected each to the other; and
- (f) an alarm circuit means connected between the first and second output terminals of each of said monitor circuit means.

4,395,706

BOOM LIMIT SAFETY CONTROL CIRCUIT

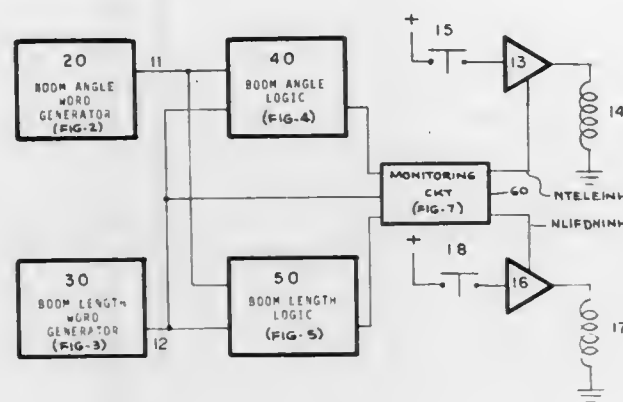
Eugene L. Garber, McConnellsburg, Pa., assignor to JLG Industries, Inc., McConnellsburg, Pa.

Continuation-in-part of Ser. No. 164,281, Jun. 30, 1980, abandoned. This application Jan. 7, 1981, Ser. No. 223,898

Int. Cl.³ B66C 15/06; G08B 21/00

U.S. Cl. 340—685

13 Claims



1. An extensible boom safety control circuit comprising:
 - a means for generating a coded boom angle word representing the boom angle of elevation comprising a voltage divider network including a pendulum potentiometer having a plurality of sequential swept contacts for providing discrete voltage levels representing boom angles; and electrical contact means for contacting said swept contacts of said pendulum potentiometer; an electrical bus connected to said electrical contact means; a plurality of voltage comparators connected in parallel to said electrical bus for producing a parallel, coded word representing boom angle; and a plurality of voltage dividers for providing reference potentials for said plurality of comparators;
 - a means for generating a coded boom length word representing boom length, comprising a plurality of microswitches connected in parallel and means responsive to boom length for actuating said microswitches in a mutually exclusive fashion;
 - boom angle logic means responsive to said boom angle word and said boom length word for generating a boom extension control signal, wherein said boom angle logic means comprises a plurality of 3-input NAND gates each of which includes a first input electrically connected to one of said comparators, a second input electrically connected via an inverter to a different one of said comparators, and a third input electrically connected to one of said microswitches, and an inhibit function NAND gate including an input for each of said 3-input NAND gates, said 3-input NAND gates each connected to one of said inputs; and
 - boom length logic means responsive to said boom length word and said boom angle word for generating a boom lowering control signal;
 - boom extension inhibit means responsive to said boom extension control signal for preventing boom extension; and
 - boom down inhibit means responsive to said boom lowering control signal for preventing boom lowering.

4,395,707

LIGHT PEN CONTROLLED METHOD AND EQUIPMENT FOR EVALUATING FLUORESCENT SCREEN PICTURES

Jaroslav Satrapa, Timelkam, Austria, assignor to Kretztechnik Gesellschaft m.b.H., Zipf, Austria

Filed Dec. 31, 1979, Ser. No. 108,647

Claims priority, application Austria, Jan. 31, 1979, 694/79

Int. Cl.³ G09G 1/28

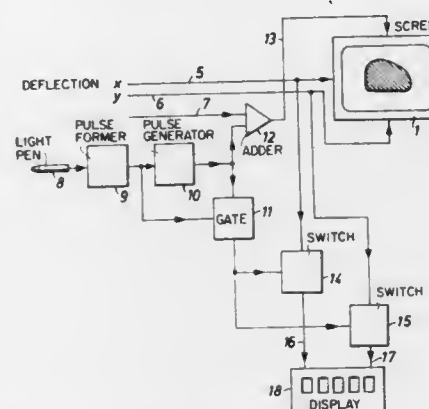
U.S. Cl. 340—703

10 Claims

1. In a method of marking and evaluating or measuring successive pictures displayed on a fluorescent screen by an

electron beam scanning the screen, by means of a light pen, the light pen having an operative position directing a receiving optical system towards screen areas brightened by the electron beam and transducing the light received by the optical system from the brightened screen areas to generate bright-up control pulses for intensifying the electron beam whereby a light spot appears in an area of the screen towards which the light pen optical system is directed, the steps of

- (a) generating target pulses in response to the bright-up control pulses, the target pulses causing the display of



- (1) a light spot forming a pilot area for the light pen on the screen, the pilot area being about one percent of the area of the screen, and
 - (2) a sharply defined target mark having coordinates determining a predetermined geometrical relation of the target mark outside and adjacent the pilot area,
- (b) ascertaining the coordinates of the target mark on the basis of the instantaneous deflecting voltage of the electron beam, and
 - (c) using the ascertained coordinates of the target mark to measure distances between points, the periphery or the area of the pictures.

4,395,708

SAMPLING AND LEVEL SHIFTING APPARATUS TO OPERATE IN CONJUNCTION WITH A LIQUID CRYSTAL DISPLAY FOR CONVERTING DC ANALOG DRIVE SIGNALS TO AC SIGNALS

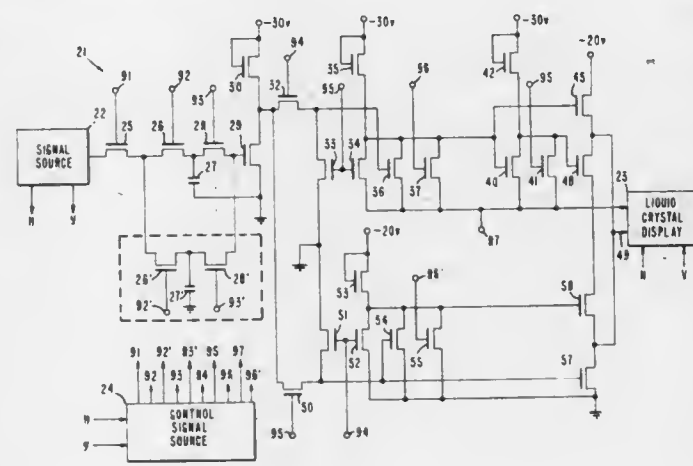
Randahl B. Lloyd, San Marcos, Calif., assignor to Hughes Aircraft Company, El Segundo, Calif.

Filed Dec. 22, 1980, Ser. No. 219,162

Int. Cl.³ G09G 3/36

U.S. Cl. 340—784

1 Claim



1. Apparatus for use with a liquid crystal display which provides alternating current driving signals thereto derived from direct current analog signals, said apparatus comprising:
 - first means for sampling and storing said applied analog signals in response to first predetermined control signals applied thereto;

second means coupled to said first means for transferring said stored analog signals in response to second predetermined control signals;

third means coupled to said second means for level shifting said analog signals applied thereto into a first predetermined range associated with said liquid crystal display during a first field time; and

fourth means coupled to said second means for level shifting said analog signals applied thereto into a second predetermined range associated with said liquid crystal display, said first and second ranges being symmetrically disposed about a predetermined reference level of said liquid crystal display, said level shifted signals in said second range being of opposite polarity from said level shifted signals of said first range.

4,395,709

DRIVING DEVICE AND METHOD FOR MATRIX-TYPE DISPLAY PANEL USING GUEST-HOST TYPE PHASE TRANSITION LIQUID CRYSTAL

Yoshiharu Nagae, Masaaki Kitajima, both of Hitachi, and Hideaki Kawakami, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

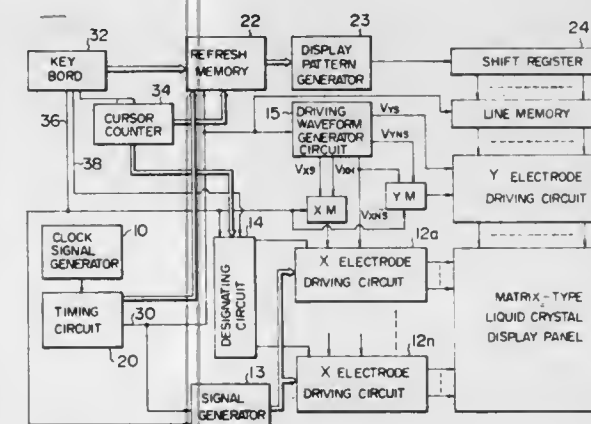
Filed Apr. 29, 1981, Ser. No. 258,625

Claims priority, application Japan, May 2, 1980, 55/57837

Int. Cl.³ G09F 9/32

U.S. Cl. 340—784

6 Claims



1. An apparatus for driving a guest-host phase transition liquid crystal in matrix comprising:

- (a) a plurality of liquid crystal display elements including a guest-host liquid crystal with a pleochroic dye added to one of the cholesteric-nematic liquid crystal and the chiralnematic phase transition liquid crystal, said liquid crystal display elements being driven by X and Y electrodes arranged in matrix,
- (b) a circuit generating a rectangular wave clock signal,
- (c) a drive waveform generator circuit for generating in synchronism with said rectangular wave clock signal an X electrode non-selecting voltage and an X electrode selecting voltage to be applied to said X electrodes and a Y electrode non-selecting voltage and a Y electrode selecting voltage to be applied to said Y electrodes, in order to supply each liquid crystal cell of said liquid crystal display elements with selected one of a holding voltage for holding the display condition and a write-in voltage for new writing operation, said drive waveform generator circuit further generating in synchronism with said rectangular wave clock signal an erasure holding voltage to be applied to one of said X and Y electrodes, said holding voltage being selected to be applied to the liquid crystal cells other than those liquid crystal cells to be erased when substantially the same waveform voltage is applied to the X and Y electrodes corresponding to the liquid crystal cells to be erased, in order to apply an erasure voltage to each liquid crystal cell positioned at the parts to be erased,
- (d) an X electrode driving circuit for supplying each of said X electrodes of said liquid crystal display elements with at

least the X electrode non-selecting voltage and the X electrode selecting voltage selectively among the drive waveform voltages derived from said drive waveform generator circuit,

- (e) a Y electrode driving circuit for supplying each of said Y electrodes of said liquid crystal display elements with at least the Y electrode non-selecting voltage and the Y electrode selecting voltage selectively among the drive waveform voltages derived from said drive waveform generator circuit,
- (f) a change-over circuit for enabling the X electrode non-selecting voltage and the X electrode selecting voltage to be applied to said X electrode drive circuit and the Y electrode non-selecting voltage and the Y electrode selecting voltage to be applied to said Y electrode drive circuit at the time of execution of the writing operation, at least said X and Y electrode drive circuits being supplied with substantially the same waveform voltage while applying said erasure holding voltage to one of said X and Y drive circuits at the time of execution of the partial erasure,
- (g) a designating circuit for designating a region in the display panel of said liquid crystal display elements, where one of said write-in and partial erasure is to be executed, and
- (h) a control signal generator circuit for supplying a control signal to said X electrode drive circuit and said Y electrode drive circuit in such a manner that a write-in voltage is supplied to the liquid crystal cells to be written in the region designated by said designating circuit and a holding voltage is supplied to the other liquid crystal cells at the time of execution of the write-in operation, an erasure voltage being applied to the liquid crystal cells in the region designated by said designating circuit and a holding voltage being applied to the other liquid crystal cells at the time of execution of said partial erasure.

4,395,710

BUS ACCESS CIRCUIT FOR HIGH SPEED DIGITAL DATA COMMUNICATION

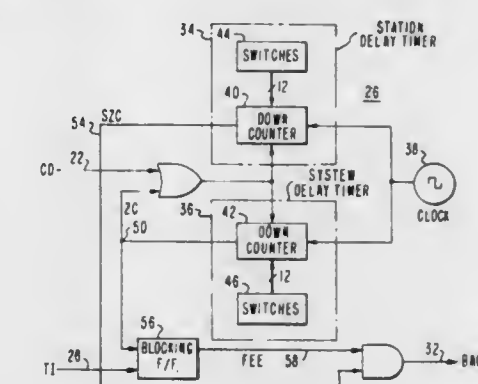
Charles W. Einolf, Jr.; Andras I. Szabo, both of Murrysville, and Albert W. Crew, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 26, 1980, Ser. No. 210,700

Int. Cl.³ H04Q 9/00; H04J 3/00

U.S. Cl. 340—825.5

6 Claims



1. In a digital communication system, a serial data communications network comprising:

- a plurality of sections;
- a serial data communications bus to which each of said stations is interfaced and through which each of said stations communicates to every other of said stations; and
- a plurality of circuit means, each in communication with one of said stations, for controlling orderly and collision-free access by said station to said serial bus for transmission thereon, each circuit means comprising:
 - first means for monitoring said bus for transmission inactivity over a preassigned first time period which is substan-

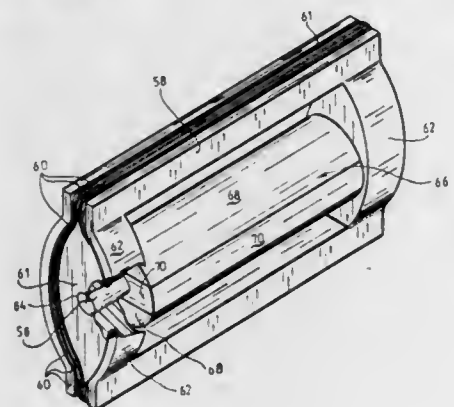
tially common to all of the stations of said plurality, said first means including means for reinitializing its monitoring time upon detection of bus transmission activity within said first time period and for repeating monitoring of said bus over another first time period upon detection of transmission inactivity throughout a first time period, said first means further including means for generating a first signal upon initiation of each repeat of a monitoring operation; second means for monitoring said bus for transmission inactivity over a preassigned second time period, each circuit means corresponding to a station of said plurality being preassigned a unique second time period, said second means including means for reinitializing its monitoring time upon detection of bus transmission activity within said second time period and for generating a second signal upon detection of transmission inactivity throughout said second time period, said second means further including means for repeating monitoring said bus over another second time period concurrent with said repeat of monitoring operation of said first means; means governed by said second signal to conditionally generate a third signal to permit said corresponding station exclusive transmission access to said bus, whereby collision-free access by each corresponding station to said bus is achieved; means for enabling said generating means to generate said third signal in accordance with said first signal generation; and means for disabling said generating means to prevent generation of said third signal upon transmission activity of said corresponding station and for maintaining disablement thereof after said transmission until enabled by said enabling means, whereby an orderly access to said bus by each corresponding station is achieved.

4,395,711

INDUCTIVE SENSOR

Frank L. Ward, Exeter, N.H., assignor to Clarostat Mfg. Co., Inc., Dover, N.H.
Division of Ser. No. 137,994, Apr. 7, 1980, abandoned. This application Jul. 2, 1981, Ser. No. 280,067
Int. Cl.³ G08C 19/06, 19/12; G01B 7/14
U.S. Cl. 340—870.31

3 Claims



1. A sensor which converts the rotational displacement of an object into an electrical signal for monitoring said displacement, said sensor having: a housing; a coil having a center axis through which flux lines from said coil pass when an electric current is applied thereto; the coil being wound about said housing; a rotational element axially positioned in said housing and disposed with its axis of rotation transverse to the center axis of the coil; the rotational element being adapted to receive a rotationally displacing force from said object; said rotational element being comprised of alternate portions of conductive material and magnetic material which transverse the center axis of the coil with sufficient portions to allow the variable concentration of flux lines through the center axis; wherein the induction of the coil is variable as a function of the rotation of said element in said coil which rotates alternately the portions of magnetic material and conductive material so that flux lines

are established and then shorted so as to vary the induction of the coil gradually and cyclically between a minimum and maximum and a monitoring of which indicates the displacement of said object.

4,395,712

LINEAR DETECTION OF A DME SIGNAL

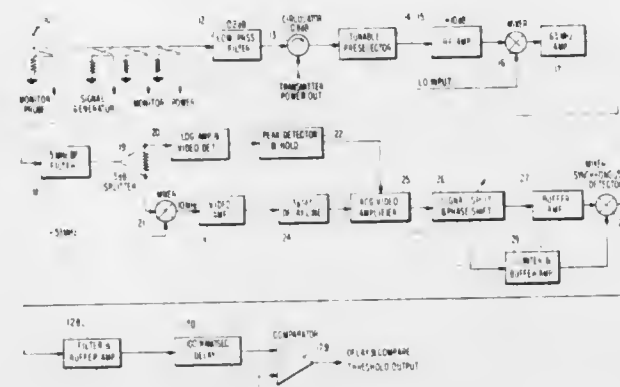
Edward J. O'Hare, Coral Springs, Fla., assignor to General Signal Corp., Stamford, Conn.

Filed Jan. 27, 1981, Ser. No. 228,840

Int. Cl.³ G01S 7/32

U.S. Cl. 343—7.3

5 Claims



1. A DME receiver, responsive to an RF input signal for generating a linear baseband replica of said RF input for distance determining purposes, including:
a first mixer, coupled to said RF input signal, and to a local oscillator signal,
an IF amplifier and bandpass filter, serially connected to said first mixer,
a second mixer with two inputs and an output, and,
signal processing means with two outputs coupled between said bandpass filter and said second mixer for processing a signal from said bandpass filter to generate a first output signal and a second output signal comprising a hard limited version of said RF input signal, said signal processing means including phase shift means for phase adjusting said second output signal relative to said first output signal, said phase shift means comprising an active circuit element with an input and two outputs, variable reactive circuit means coupled between said two outputs, said two outputs of said active circuit element providing said first and second output signals, respectively,
whereby with the relative phases of said first and second output signals adjusted, said second mixer produces, at baseband, a linear replica of said RF input signal.

4,395,713

TRANSIT ANTENNA

Thomas E. Nelson, Thompson, and Herbert A. Consor, Chagrin Falls, both of Ohio, assignors to Antenna, Incorporated, Cleveland, Ohio

Continuation of Ser. No. 147,216, May 6, 1980, abandoned. This application Nov. 16, 1981, Ser. No. 321,556

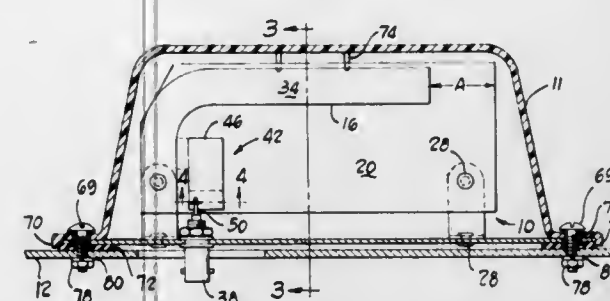
Int. Cl.³ H01Q 1/32

U.S. Cl. 343—713

6 Claims

1. A mobile communication antenna comprising:
(a) a base at least a portion of which is conductive and adapted to be connected to an associated vehicle for grounding;
(b) an antenna substrate fixed to the base in spaced relationship, the substrate being a relatively thin body of insulating material with its major dimensions positioned longitudinally and transversely of the base;
(c) a housing connected to the base and together with the base defining a protected chamber in which the substrate is positioned, the housing and substrate including inter-

connected portions which coact to assist in maintaining the substrate in fixed spaced relationship with the base;
(d) two generally L shaped conductive antenna surfaces secured to opposed faces of the substrate;



(e) an electrical connector secured to the base in grounding connection with the conductive portion; and
(f) an antenna lead extending through the connector and capacitively connected to at least one of the conductive antenna surfaces.

4,395,714

ANTENNA ARRAY SYSTEM USABLE FOR AM/FM RECEIVER

Shigeki Takeda; Junichi Shibata; Masashi Shimakata; Yasuhiro Oshime, all of Tokorozawa; Shintaro Gomi, and Katsuaki Kawamura, both of Kawagoe, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

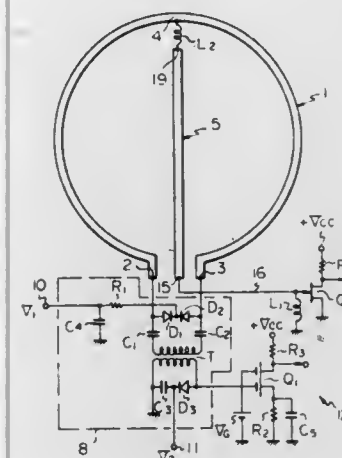
Filed Mar. 3, 1981, Ser. No. 241,459

Claims priority, application Japan, Mar. 3, 1980, 55-27315

Int. Cl.³ H01Q 21/00

U.S. Cl. 343—725

14 Claims



1. An antenna array system comprising at least one loop antenna having an electric neutral point and two output terminals positioned closely to each other, at least one rod antenna having one end terminal thereof electrically coupled with the electric neutral point of said loop antenna and the other end thereof positioned closely to the end terminals of said loop antenna, first means connected to the output end terminals of said loop antenna, for picking up a first frequency wave signal caught by said loop antenna, and second means connected to the other end of said rod antenna, for picking up a second frequency wave signal caught by said rod antenna and being different in frequency from said first frequency wave signal, said first means including balanced variable reactance circuit connected to the output terminals of said loop antenna and having a reactance variable with a first control dc voltage; and first voltage supply means for supplying said first control dc voltage via said rod antenna and said loop antenna to said variable reactance circuit.

4,395,715

METHOD AND ARRANGEMENT FOR CONTROLLING THE PRINT CURRENT IN METAL PAPER PRINTERS

Dietrich J. Bahr, Herrenberg, and Gottfried A. Goldrian, Böblingen, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

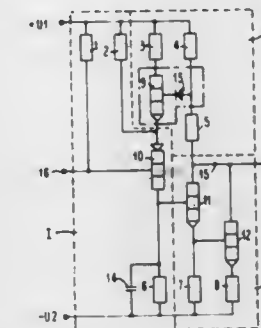
Filed Aug. 27, 1981, Ser. No. 296,662

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1980, 80105659

Int. Cl.³ G06K 15/10; B41J 3/10

U.S. Cl. 346—1.1

13 Claims



1. A circuit for controlling the current supplied to an electrode for marking metal coated recording paper comprising:
means connected to said electrode for supplying arcing current thereof; and
control means connected to said supply means and the junction of said electrode and said recording paper for varying the arcing current through said supply means in response to the voltage level at said junction.

4,395,716

BIPOLAR INK JET METHOD AND APPARATUS

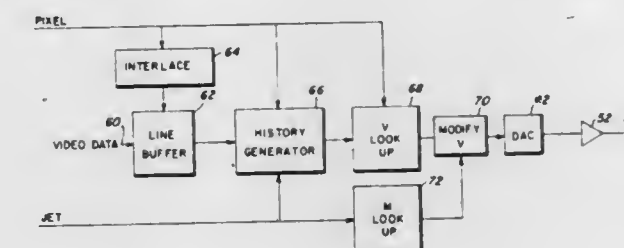
Peter A. Crean, Penfield, N.Y.; John M. Schneider, Spring Valley, Ohio, and Anthony F. Lipani, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 27, 1981, Ser. No. 296,922

Int. Cl.³ G01D 18/00, 15/18

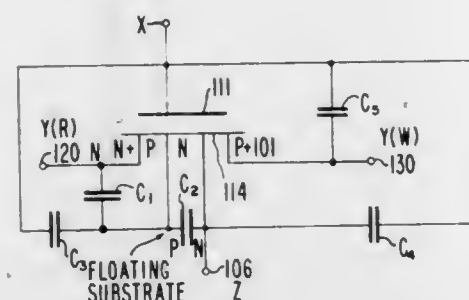
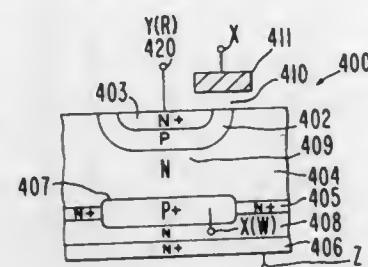
U.S. Cl. 346—1.1

4 Claims



4. A process in ink jet recording wherein a series of ink droplets are directed to controlled locations on a record medium, said process comprising the steps of:
directing a number of ink columns defining an ink jet array toward said medium, ink in said columns having a controlled speed of movement toward said medium;
perturbing said ink to cause said columns to break off into droplets at a desired distance from said record medium;
charging each droplet either positively or negatively to a particular magnitude related to a desired subsequent trajectory for said droplet;
generating a uniform electric field for each column to cause droplets from each of said columns to be deflected as the droplets pass therethrough in accordance with each droplet's charge magnitude and polarity said uniform electric field being generated between a series of pairs of parallel aligned electrodes when the electrode pairs are separated by appropriate voltage, one pair of electrodes being provided for each column of droplets and each pair having confronting field generating surfaces substantially parallel to an initial direction of ink droplet travel, one electrode of each pair of electrodes in said series of pairs being

said second region to said substrate through said first region in response to a second selected set of potentials applied to said substrate, said second region and said means for forming a conductive channel and



means for measuring the time rate of change of potential in said second region in response to said second set of potentials to indicate the information stored in said first region.

4,395,724

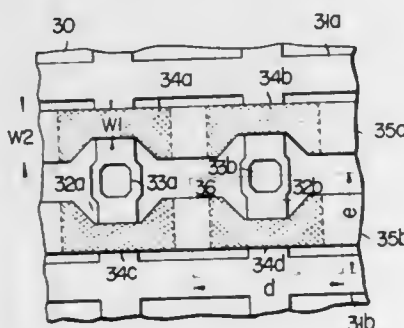
NONVOLATILE SEMICONDUCTOR MEMORY DEVICE
Hiroshi Iwahashi, Yokohama, and Masamichi Asano, Musashino, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Aug. 22, 1980, Ser. No. 180,435

Claims priority, application Japan, Aug. 31, 1979, 54-111111
Int. Cl.³ H01L 29/78, 27/02

U.S. Cl. 357—23 VT

3 Claims



1. A nonvolatile semiconductor memory device, comprising: a semiconductor substrate of a preselected conductivity type;
- a drain region formed on said semiconductor substrate, said drain region having first and second oppositely disposed end portions and a contact hole substantially midway between said end portions;
- first and second source regions formed on said semiconductor substrate adjacent but spaced apart from said first and second end portions of said drain region, respectively, by a predetermined distance;
- first and second channel regions formed, respectively, between said first end of said drain region and said first source region, and between said second end of said drain region and said second source region;
- a first gate insulation film overlying said first and second channel regions;
- first and second floating gate electrodes formed on said first

gate insulation film and overlying, respectively, said first and said second channel regions;

a second gate insulation film overlying said first and second floating gate electrodes; and

first and second control gate electrodes formed on said second gate insulating film and overlying entirely said first and second floating gate electrodes, respectively, wherein the width dimension of each of said floating gate electrodes and said control gate electrodes is narrower at portions thereof located directed over said channel regions, than at portions thereof which are not located directly over said channel regions.

4,395,725

SEGMENTED CHANNEL FIELD EFFECT TRANSISTORS

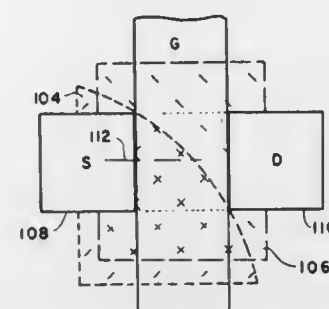
Rajesh H. Parekh, 425 Gwinn Ct., San Jose, Calif. 95111

Filed Oct. 14, 1980, Ser. No. 196,384

Int. Cl.³ H01L 29/06, 29/78

U.S. Cl. 357—23

3 Claims



1. A segmented channel field effect transistor including a substrate, separated source and drain pockets adjoining one surface of said substrate, a current conduction channel bridging the separation between said source and drain pockets and having a length corresponding to said separation and a width corresponding to the widths of said source and drain pockets adjacent said conduction channel, and a gate element overlying said channel and electrically insulated therefrom, the current conduction channel of said transistor having therein a plurality of segments each implanted to conduct at a unique threshold voltage, at least one of said plurality of segments bridging the width of said channel adjacent one of said pockets and narrowing in width as said segment extends along the length of said channel.

4,395,726

SEMICONDUCTOR DEVICE OF SILICON ON SAPPHERE STRUCTURE HAVING FETS WITH DIFFERENT THICKNESS POLYCRYSTALLINE SILICON FILMS

Kenji Maeguchi, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

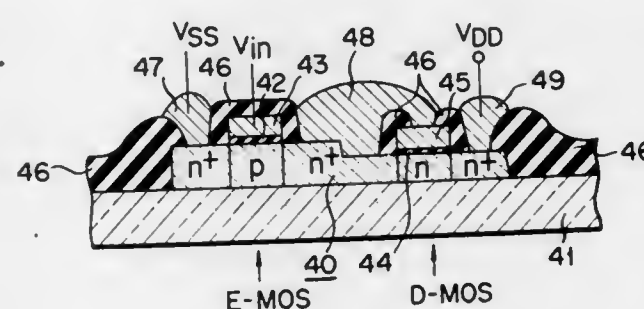
Filed Mar. 27, 1980, Ser. No. 134,678

Claims priority, application Japan, Mar. 30, 1979, 54-36968

Int. Cl.³ H01L 27/02, 29/78

U.S. Cl. 357—41

2 Claims



1. A semiconductor device including an insulating substrate,

a first silicon film on said substrate to form a depletion mode field effect transistor on said substrate, said first silicon film comprising a source, drain and channel of one conductivity type, a second silicon film on said substrate to form an enhancement mode field effect transistor formed on said substrate, said second silicon film comprising a source and drain of said one conductivity type and a channel of opposite conductivity type, with the source of said depletion mode transistor formed integral with the drain of said enhancement mode transistor, and with the thickness of said first silicon film which constitutes said depletion mode transistor being thinner than said second silicon film which constitutes said enhancement mode transistor.

4,395,727

BARRIER-FREE, LOW-RESISTANT ELECTRICAL CONTACT ON III-V SEMICONDUCTOR MATERIAL
Christl Lauterbach, Ottobrunn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

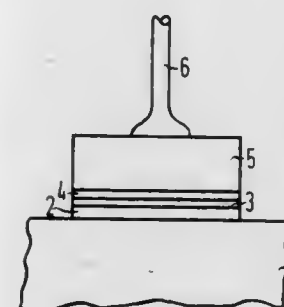
Filed Mar. 17, 1981, Ser. No. 244,723

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1980, 3011952

Int. Cl.³ H01L 23/48, 23/54, 29/40, 29/54

U.S. Cl. 357—71

10 Claims



1. A barrier-free, low-resistance contact structure for semiconductor components based on indium-containing III-V semiconductor material, comprising:

a plurality of layers positioned on one another in a layer sequence on a select area of said semiconductor component,

with a first layer of said sequence being in direct contact with said semiconductor material and consisting of indium;

with a second layer of said sequence being in direct contact with said first layer and being composed of a material having a p-doping effect in said semiconductor material;

with an uppermost layer of said sequence being composed of a metal available for external contact of said semiconductor component;

said layer sequence being subjected to a common thermal treatment; and

with a third layer being positioned in the layer sequence between said second layer and said uppermost layer, said third layer being composed of a material selected from the group consisting of platinum, palladium, chromium and a chromium-nickel alloy.

4,395,728

TEMPERATURE CONTROLLED APPARATUS

Chou H. Li, 379 Elm Dr., Roslyn, N.Y. 11576.

Continuation-in-part of Ser. No. 69,355, Aug. 24, 1979, abandoned. This application Aug. 13, 1981, Ser. No. 292,626

Int. Cl.³ H01L 25/04, 23/02, 23/12

U.S. Cl. 357—82

10 Claims

1. A temperature-controlled apparatus for cooling, according to demand, a heat-sensitive device having two major surfaces thereon comprising:

a heat-sinking substrate having a substrate contact area of a fixed shape and size on the contact side thereof which is in

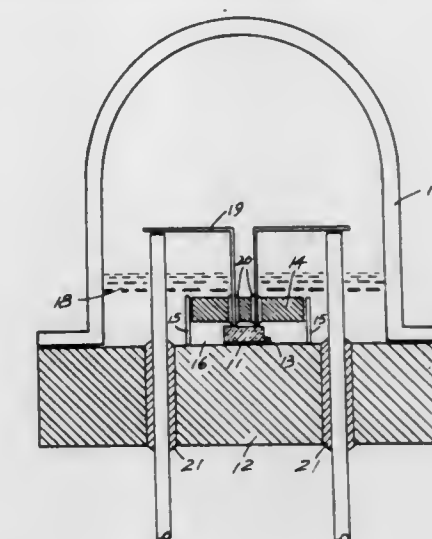
thermal and physical contact with one of the major surfaces, the thermal resistance through the substrate contact area decreasing with increasing contact pressure between the device and the substrate;

a heat-conductive disk having a disk contact area on one side thereof which is in thermal and physical contact with the other major surface;

a source of an evaporable liquid in thermal contact with the other side of the disk and whose vapor pressure increases with the temperature of the liquid;

the heat from the device substantially instantaneously heating up the disk through heat conduction across the disk contact area to thereby evaporate the liquid and also increase the liquid vapor pressure on the other side of the disk;

a gas-tight and substantially rigid enclosure means enclosing at least the disk and part of the contact side of the substrate to allow the build-up of the vapor pressure of the liquid within the enclosure means;



means for preventing the vapor pressure from being applied to the one side of the disk which is in contact with the device;

the other side of the disk subjected to the liquid vapor pressure thereon being substantially greater than the substrate contact area contacting the device so that to balance the forces on the two sides of the disk the unit contact pressure between the device and the substrate must also be substantially greater than the liquid vapor pressure on the other side of the disk whereby increasing temperature on the device heats up the disk and the liquid to increase the vapor pressure on the other side of the disk and, simultaneously, to increase the contact pressure between the device and the substrate and thus to decrease the thermal resistance thereby allowing more effective heat removal from the device via heat conduction through the substrate at a time when more cooling of the device is needed, without constantly applying unnecessarily high and damaging pressure on the device.

4,395,729

DIGITAL VIDEO SIGNAL PROCESSING FILTERS WITH SIGNAL-TO-NOISE ENHANCEMENT

Henry G. Lewis, Jr., Hamilton Square, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 31, 1981, Ser. No. 298,255

Int. Cl.³ H04N 9/46, 5/21

U.S. Cl. 358—21 R

4 Claims

1. In a television receiver, including a source of digital video signals, a digital filter for processing said digital video signals comprising:

means for producing a clock signal in a timed relationship with said digital video signals;

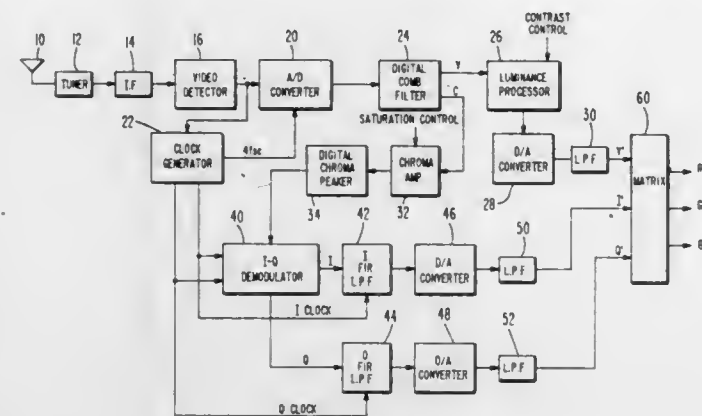
a serial shift register including a plurality of clocked shift register stages and having a first shift register stage cou-

pled to receive said digital video signals and a plurality of output taps emanating from ones of the stages of said register;

a plurality of weighting function circuits coupled to ones of said output taps for weighting signals applied thereto;

an adder tree arrangement, including a plurality of adders, and having inputs coupled to ones of said weighting function circuits and an output at which a filtered digital signal is produced;

a latch circuit having a signal input coupled to the output of said adder tree arrangement, an output, and a clock signal input;



a second latch circuit having a signal input coupled to the signal output of said first-named latch circuit, a signal output, and a clock signal input;

an adder having a first input coupled to the output of said first-named latch circuit, a second input coupled to the output of said second latch circuit, and an output at which averaged digital video signal samples are produced; and

means for applying said clock signal to said clocked shift register stages and said clock signal inputs of said latch circuit and said second latch circuit.

4,395,730

AUTOMATIC COLOR-TEMPERATURE
COMPENSATION DEVICE

Chou-Ming Shen, 4F-2, No. 65, An Ho Rd., Taipei, Taiwan

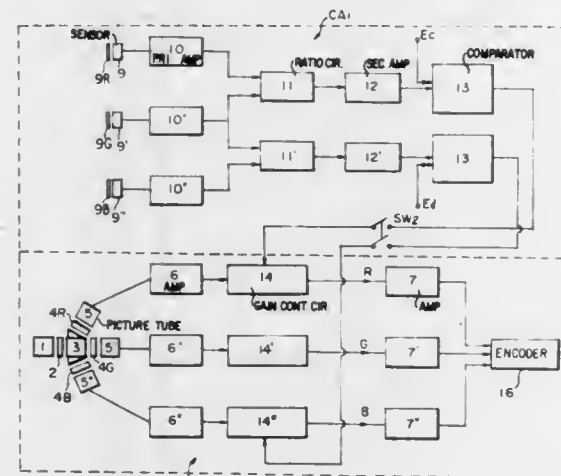
Filed Oct. 23, 1981, Ser. No. 314,514

Claims priority, application Taiwan, May 26, 1981, 7023018

Int. Cl.³ H04N 9/535

U.S. Cl. 358—29

5 Claims



1. An automatic color temperature compensation device for electronic cameras, comprising:

- (a) a first sensor having a first filter, said first filter adapted to pass a first color ray of light, said first sensor adapted to detect said first color ray and produce a first electrical signal in response to the detected first color ray;
- (b) a second sensor having a second filter, said second filter adapted to pass a second color ray of light, said second sensor adapted to detect said second color ray and pro-

duce a second electrical signal in response to the detected second color ray;

- (c) a third sensor having a third filter, said third filter adapted to pass a third color ray of light, said third sensor adapted to detect said third color ray and produce a third electrical signal in response to the detected third color ray;
- (d) a first ratio circuit adapted to receive and compare the first and second electrical signals and to produce a first ratio output in response to the ratio difference between said first and second electrical signals;
- (e) a second ratio circuit adapted to receive and compare the second and third electrical signals and to produce a second ratio output in response to the ratio difference between said second and third electrical signals;
- (f) a first comparator to receive the first ratio output and compare it with a first reference voltage, and to produce a first control voltage in response to the difference between said ratio output and said first reference voltage;
- (g) a second comparator to receive the second ratio output and compare it with a second reference voltage, and to produce a second control voltage in response to the difference between said second ratio output and said second reference voltage; and
- (h) a camera means including:

a first signal means having a first filter for passing only red ray of light; a first pick-up tube capable of detecting the first color ray and producing a fourth electrical signal, a first gain controlling circuit adapted to adjust the gain of said fourth electrical signal; a second signal means having a second filter for passing a second color ray of light, a second pick-up tube capable of detecting the second color ray and producing a fifth electrical signal, and a second gain controlling circuit; and a third signal means having a third filter for passing a third color ray of light, a third pick-up tube capable of detecting the third color ray and producing a sixth electrical signal, a third gain controlling circuit adapted to adjust the gain of said sixth electrical signal;

said first comparator being electrically connected to said first gain controlling circuit through a first switch means such that said first control voltage is delivered to said first gain controlling circuit for adjusting the gain of said fourth electrical signal, and said second comparator is electrically connected to said third gain controlling circuit through a second switch means such that said second control voltage is delivered to said third gain controlling circuit for adjusting the gain of said sixth electrical signal.

4,395,731

TELEVISION MICROSCOPE SURGICAL METHOD AND
APPARATUS THEREFOR

Arnold Schoölmman, 8705 Catalina Dr., Prairie Village, Kans. 66207

Filed Oct. 16, 1981, Ser. No. 312,007

Int. Cl.³ H04N 9/54

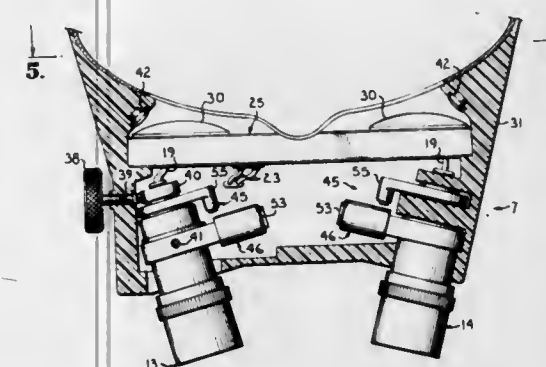
U.S. Cl. 358—88

12 Claims

1. A method of selectively providing an individual a magnified view of an image of manual manipulation of the individual and images of other than the manual manipulation of the individual, the method comprising:

- (a) viewing the manual manipulation by means of a video camera;
- (b) generating electrical signals by a first signal generating means representing a first image of said manual manipulation;
- (c) viewing a second image spaced from said manual manipulation by a second video camera;
- (d) generating electrical signals representing the second image by a second signal generating means;

- (e) positioning a viewing means in optical alignment with eyes of said individual;
- (f) signal transmittingly connected said viewing means with said first and second signal generating means; and



- (g) selectively regenerating by a signal selection means one of said first or second images on said viewing screen.

4,395,732

STATISTICALLY ADAPTIVE ANALOG TO DIGITAL
CONVERTER

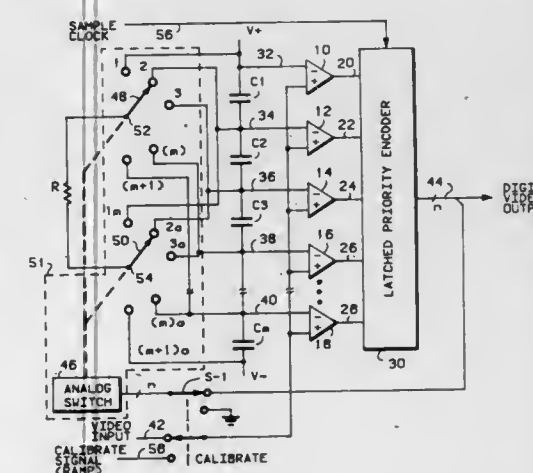
Eric L. Upton, Mesa, Ariz., assignor to Motorola Inc., Schaumburg, Ill.

Filed Aug. 19, 1981, Ser. No. 294,273

Int. Cl.³ H04N 5/14

U.S. Cl. 358—169

3 Claims



1. In a system for contrast enhancement of digital video signals, the improvement comprising:

- a series string of capacitors, said series string being connected to at least a pair of voltage sources and defining a plurality of nodes;
- a plurality of comparator circuits having inputs connected to the nodes;
- a priority encoder being connected to receive signals from the plurality of comparator circuits;
- an analog switch having a controller connected to said encoder and dual poles, each of said dual poles having a fixed end and a plurality of fixed contacts placed at a plurality of throw positions, the fixed contacts of each of the dual poles being connected to different ones of said nodes so that the fixed ends of the dual poles have a different one of said capacitors connected therebetween in each of the throw positions, and each throw position of the dual poles being controlled by signals from said priority encoder supplied to the controller; and
- a resistor connected to the fixed ends of said dual poles.

4,395,733

TELEVISION SPECIAL EFFECTS CIRCUIT FOR WIPING
VIDEO SIGNALS

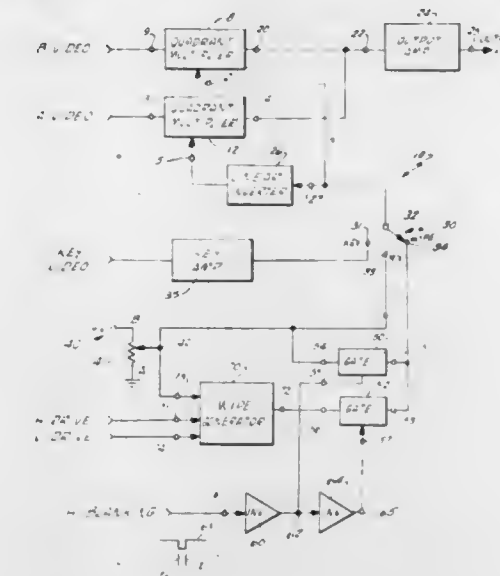
William J. Elenbaas, 130 S. Pine St., McBain, Mich. 49657

Filed Jan. 26, 1981, Ser. No. 228,190

Int. Cl.³ H04N 5/21

U.S. Cl. 358—183

5 Claims



1. A special effects circuit for wiping from one composite video source to another composite video source comprising: only two variable gain linear amplifiers each having an input terminal for receiving composite video signals including color burst signals to be wiped, said amplifiers further including control input terminals and output terminals; circuit means for providing a wipe control signal applied to the control input terminals of said variable gain amplifiers to control the gain of the amplifiers during each blanking interval in proportion to the wiping action for mixing the color burst signals from the two sources and to control the variable gain amplifiers during the remaining portion of each scanning interval in the same proportion to provide video signals to said output terminals from one or the other video sources; and
- an output amplifier having an input terminal coupled to said output terminals of said variable gain amplifiers for mixing the signals from said variable gain amplifiers and including an output terminal for providing video output signals thereat.

4,395,734

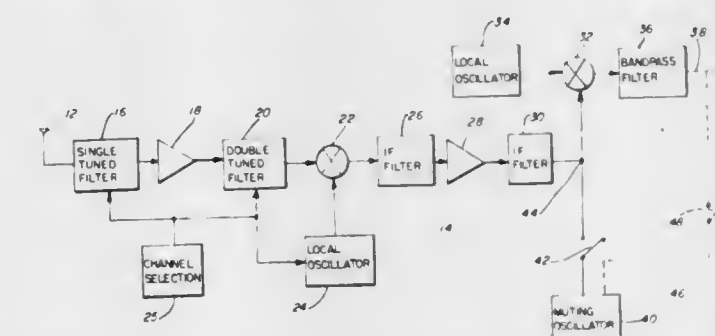
REMOTE MUTING FOR CATV/STV CONVERTERS
Jouke N. Rypkema, Lombard, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Apr. 24, 1981, Ser. No. 257,074

Int. Cl.³ H04N 7/16, 7/12

U.S. Cl. 358—194.1

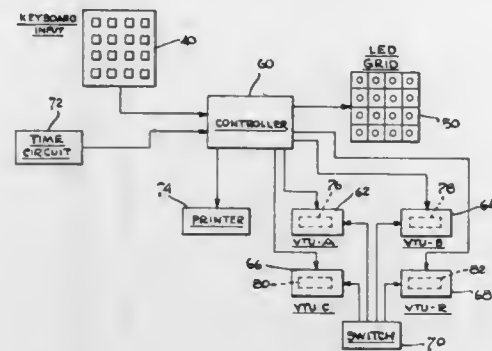
7 Claims



3. A television signal frequency translating apparatus comprising: means for receiving a television signal broadcast over a first RF frequency band and including a video component comprising a modulated RF video carrier and an audio

switches and said display screen and speaker means for controlling operation of said display screen and speaker means in response to an introduced code, and

(f) a video unit operatively connected to said controller for receiving a video record member containing informational messages about said consumer products or con-



sumer services so that the controller can select the proper informational messages on the video record member corresponding to the introduced code and cause the message to be displayed on the video screen and presented simultaneously on the speaker means to thereby enable a potential purchaser to compare products or services and determine which of a potential product or service to purchase.

4,395,741

POSITIONABLE ELEMENT DRIVING CIRCUIT

Masaaki Kobayashi, Kawanishi; Kouichi Igata, Hirakata, and Akihiro Takeuchi, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

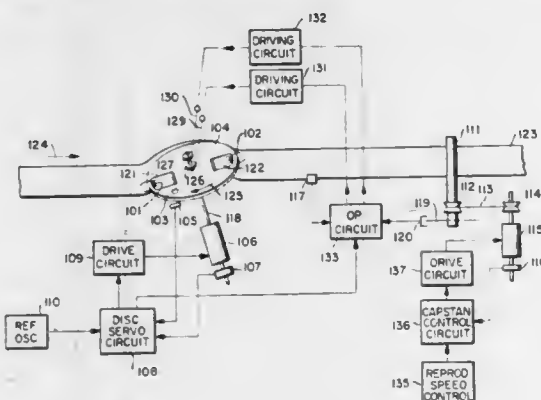
Filed Jan. 16, 1981, Ser. No. 226,172

Claims priority, application Japan, Jan. 19, 1980, 55-4815

Int. Cl.³ G11B 21/10

U.S. Cl. 360-77

3 Claims



1. A positionable element driving circuit for supplying an AC driving voltage to a positionable element so as to alternately displace said positionable element, said driving circuit comprising: a displacing pattern signal source for supplying an AC displacing pattern signal; an amplifying means coupled to said displacing pattern signal source and supplied with said displacing pattern signal and having a gain for amplifying said displacing pattern signal by said gain; and a gain control means coupled to said amplifying means for controlling said gain of said amplifying means so as to make said gain correspond to a value which is inversely proportional to a gradient of a curve corresponding to said supplied voltage vs. a displaced position with respect to said positionable element, wherein said curve is defined by the relationship between said displaced position of said positionable element and the peak-to-peak voltage of said displacing pattern signal supplied directly to said positionable element.

4,395,742

HOME APPARATUS

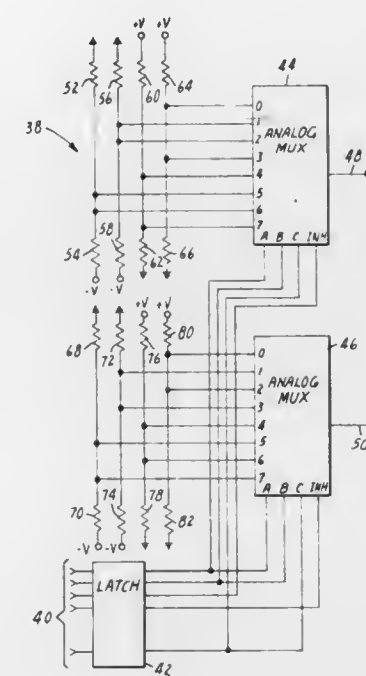
Arthur Ostroff, Woodland Hills, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Oct. 15, 1980, Ser. No. 197,136

Int. Cl.³ G11B 21/08

U.S. Cl. 360-78

9 Claims



1. A signal reproducing apparatus, comprising:

a transducer for scanning a selected one of a plurality of parallel tracks on a record medium on which signals may be recorded;

a stepper motor for controlling the position of said transducer with respect to said plurality of parallel tracks, said stepper motor having a plurality of steps and having a plurality of windings, each step of said stepper motor being defined by a particular current present in each of said plurality of windings, the number of said plurality of parallel tracks exceeding the number of said particular steps of said stepper motor;

control means for controlling the movements of said transducer relative to said plurality of parallel tracks by moving said transducer a selected number of said tracks by providing a sequence of currents to said plurality of windings to effect a movement in said stepper motor;

a physical stop positioned near one of said plurality of parallel tracks designated a home track, said physical stop for restricting the movement of said transducer from moving beyond said home track; and

current selection means coupled between said control means and said plurality of windings for selecting between a set of high amplitude currents during normal operation and a set of low amplitude currents during initialization;

whereby the position of said transducer may be initialized at said home track by stepping said stepper motor at least the number of said plurality of parallel tracks with said set of low amplitude currents and by ending the stepping of said stepper motor with the particular currents present in said windings associated with the particular step of said stepper motor associated with said home track.

4,395,743

PINCH ROLLER DRIVE MECHANISM AND CONTROL CIRCUIT IN OPEN REEL TYPE TAPE RECORDER

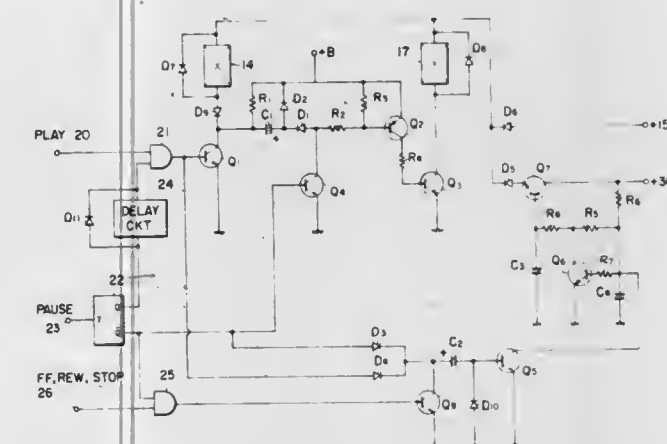
Yoshimitsu Sunaga; Toshio Kamiura, and Satoru Honda, all of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 16, 1980, Ser. No. 169,240

Claims priority, application Japan, Jul. 16, 1979, 54-90044; Jul. 16, 1979, 54-96765[U]

Int. Cl.³ G11B 15/00

U.S. Cl. 360-90



4,395,745

HEAD-DRUM MOUNTING FOR A HELICAL SCAN TAPE RECORDER

Petrus J. J. Aarts, Eindhoven, Netherlands; Harald Fleck; Karl Kocsisek, both of Vienna, Austria, and Ernst M. Schmidt, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

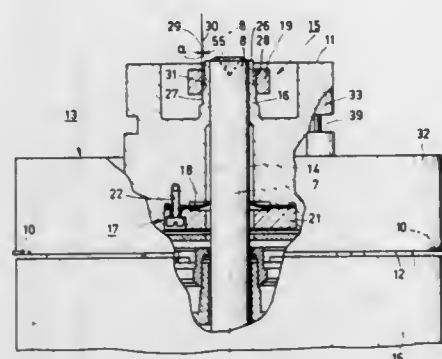
Filed Aug. 25, 1980, Ser. No. 180,779

Claims priority, application Netherlands, Aug. 29, 1979, 7906478

Int. Cl.³ G11B 5/10

U.S. Cl. 360—129

17 Claims



1. An apparatus for magnetically recording and reading wide-band signals on a magnetic tape in signal tracks which extend obliquely on the tape adjacent each other, comprising:

- (a) an at least partly cylindrical drive spindle having a free end, rotatable about an axis of rotation,
- (b) a head-drum system detachably secured to a cylindrical portion of the drive spindle near its free end, having a first side adjacent said free end, a second side remote from said free end, a central bore for mounting the head-drum system on the drive spindle, and comprising at least one magnetic head rotatable in a circular path about said axis of rotation, and
- (c) a first centering device on the first side of the head-drum system, comprising a first electrically deformable wall portion on the first side of the head-drum system, which wall portion engages the drive spindle for centering the head-drum system, characterized in that the head-drum system further comprises a second centering device spaced axially from the first centering device, said second centering device comprising a second elastically deformable wall portion which engages the drive spindle and is disposed on the second side of the head-drum system.

4,395,746

METHOD AND DEVICE FOR MAGNETICALLY TRANSPORTING

Hirotu Tanaka, Kamifukuoka; Yasumasa Kohno, Fujisawa; Hideyuki Tanaka, and Kotaro Sasaki, both of Sendai, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha and Tohoku Kinzoku Kogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Apr. 24, 1980, Ser. No. 143,422

Claims priority, application Japan, May 2, 1979, 54-54600; May 4, 1979, 54-55040; May 4, 1979, 54-55041

Int. Cl.³ H01F 13/00

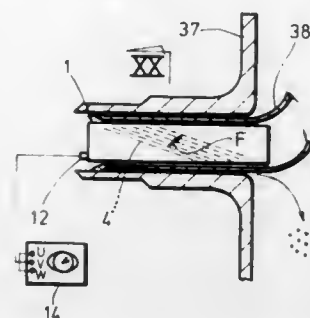
U.S. Cl. 361—143

4 Claims

1. Apparatus for transporting fine particles of which at least a part of magnetizable such as the CRUD particles accumulated in a nuclear reactor, comprising:

- (a) first magnetic field source means for applying a stationary magnetic field to magnetize the particles prior to transport; and
- (b) second magnetic field source means comprising a multiphase generator with a plurality of ring-shapedly formed coils disposed on a cylindrical magnetic core and having a

three-quarter full-pitch winding and operative on the particles magnetized by the first magnetic field source



means for applying a revolving magnetic field to transport the magnetized particles.

4,395,747

LOW INDUCTANCE ELECTROLYTIC CAPACITOR

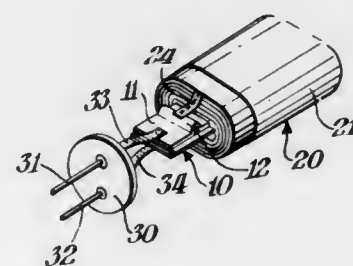
Jack D. White, Clinton, Tenn., assignor to Sprague Electric Company, North Adams, Mass.

Filed Apr. 29, 1981, Ser. No. 258,709

Int. Cl.³ H01G 9/00, 1/06, 4/06

U.S. Cl. 361—433

4 Claims



1. A low inductance electrolytic capacitor comprising a pair of rectangular metal strips each having a raised projection spaced from one end thereof, a plastic insulating strip having a first tab extending laterally from one end thereof and a second lateral tab extending from the other end of said strip and in opposition to said first tab, said insulating strip being sandwiched between said metal strips with one tab being folded over one end of one of said metal strip and said second tab being folded over an end of said second metal strip, said metal strips being positioned so that one of said projections lies at one end of the resulting assembly and the other of said projections lies at the other end of said assembly, said metal strips and said barrier strip being laminated together forming a stripline, an anode foil and a cathode foil wound with interleaved spacer material in extended foil fashion directly around said stripline, said extended anode foil being crushed and welded to one of said projections, said extended cathode foil being welded to the other of said projections, a cover bearing two terminals one of which is electrically connected to one of said metal strips forming said stripline and the other of which is electrically connected to the other of said metal strips, and a housing in which said capacitor section is located and to which said cover is sealed.

4,395,748

DETACHABLE FLASH ACCESSORY FOR PHOTOGRAPHIC APPARATUS

John C. Killian, Jr., Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1980, Ser. No. 220,897

Int. Cl.³ G03B 15/02

U.S. Cl. 362—8

3 Claims

1. A flash illuminating accessory releasably attachable to a photographic camera apparatus of the type having an opening therein for providing access to a camera latching formation

4,395,750

OPERATING ROOM LIGHT

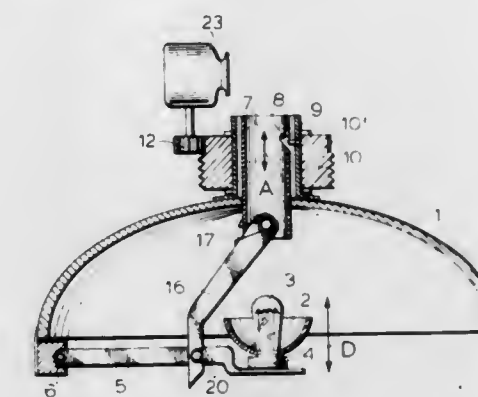
Hans Scheidemann, Maintal; Alois Rieth, Offenbach; Bruno Sebralla, Bruchköbel, and Walter Wohlfart, Klein Ostheim, all of Fed. Rep. of Germany, assignors to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany

Filed Feb. 3, 1981, Ser. No. 231,159

Int. Cl.³ F21V 1/00

U.S. Cl. 362—239

10 Claims



1. Operating room light having a dome-shaped reflector (1) formed with a downwardly directed light opening;

- a halogen incandescent lamp bulb (3) positioned "base down" and directing light upwardly towards the dome-shaped reflector (1);
- a counter reflector (2) surrounding the bulb and reflecting light upwardly towards the dome-shaped reflector (1);
- and a holding structure for said bulb and counter reflector, comprising an arm (5) extending at least partly across the dome-shaped reflector, wherein said arm includes a fixed pivot point at one end thereof, located adjacent the circumference of the dome-shaped reflector, the halogen lamp bulb (3) being positioned adjacent the other end of said arm, and means positioning the pivot arm (5) and hence the bulb (3) with respect to the reflector comprising an adjustable element (7) capable of being adjustably positioned with respect to the apex of the dome-shaped reflector (1);
- and a releasable coupling element (16, 20; 18, 19; 21, 22) connecting the pivot arm (5, 25) and the adjustable element (7, 28) to provide for pivotable adjustment of the pivot arm and hence the lamp bulb (3) with respect to the apex of the dome-shaped reflector upon positioning of the adjustable element and permit release of coupling engagement between the pivot arm and the adjustable element to permit free pivoting of the pivot arm about the pivot point adjacent the circumference of the reflector and hence repositioning of the bulb and the counter reflector to provide for accessibility to the bulb, the counter reflector and the dome-shaped reflector for servicing.

4,395,751

FLUX-BALANCED VARIABLE FREQUENCY INVERTER

Lawrence G. Meares, Rancho Palos Verdes, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Sep. 21, 1981, Ser. No. 303,780

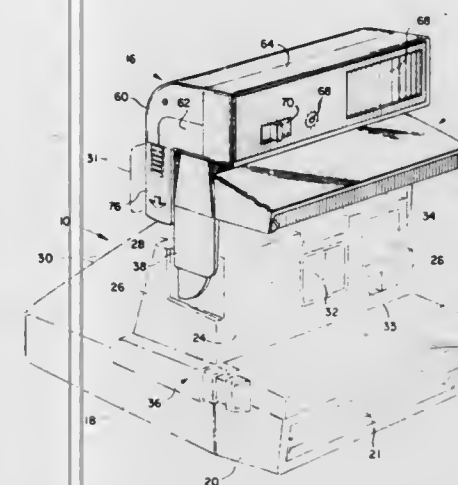
Int. Cl.³ H02M 7/537; H02P 13/12

U.S. Cl. 363—134

6 Claims

1. In a two-core inverter comprising two transistor switches, a power core and a timing core, the improvement comprising a flux-balanced, variable frequency inverter wherein the timing core of the two-core inverter is replaced by a magnetic

and having camming surfaces adjacent the latching formation, said accessory comprising a housing having a plurality of openings and enclosing an energizable source of illumination; and means for mounting said accessory on said camera, said mounting means including a unitary latching body mounted for movement in and relative to said housing, said unitary body having a finger-engageable portion being accessible through a first of said housing openings, said unitary body having a biasing portion being formed generally opposite said finger-engageable portion along a given axis and cooperable with said housing to bias said unitary body in one direction to an initial condition, said unitary body having a latching finger extending



from said body outwardly from a second housing opening for selective latching cooperation with the camera latching formation, said biasing portion allowing said body to move, in response to forces urging said body in a direction opposite the one direction along the given axis as said finger engages the camming surface, from the initial position to a prelatching condition, and then urging said body and finger in the one direction so that said finger can latchingly cooperate with the camera latching formation, said finger-engageable portion being selectively movable in the opposite direction for allowing overcoming of the biasing force, so as to thereby allow release of said finger from the camera latching formation.

4,395,749

BOAT TRAILER LAMP AND LICENSE PLATE SUPPORT

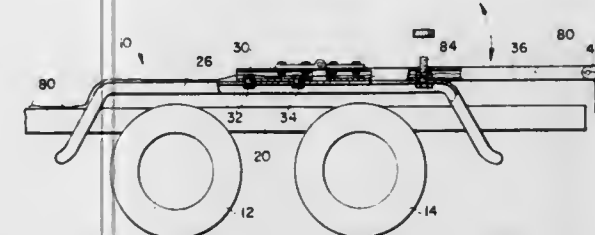
George A. Poveromo, 14135 N. Miami Ave., Miami, Fla. 33168

Filed May 6, 1981, Ser. No. 261,078

Int. Cl.³ B60Q 1/26, 1/56

U.S. Cl. 362—83

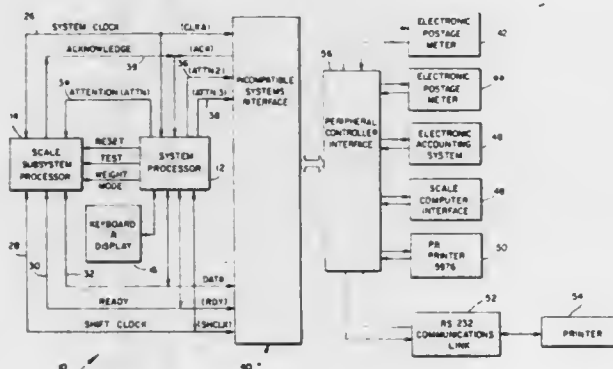
6 Claims



1. A boat trailer lamp and license plate support comprising: a hollow base secured to the fender of said trailer; a hollow bar spaced from said base a distance, said hollow bar attached to said base by a hinge member and in axial alignment therewith; a lamp and license plate attached to said bar; electric wiring extending from a power supply through said hollow base and said hollow bar to said lamp for lighting same; and said hollow bar pivotable on said hollow base plate by said hinge so that the lamp and license plate may be positioned behind the trailer during over-the-road travel and repositioned forward of the trailer during launching of a boat

the communications bus, the system processor including means for receiving a series of data within time frames defined by and synchronous with the system clock signal, the interface comprising:

- processing means, the processing means having an average instruction execution time sufficiently long with respect to the system clock cycle time wherein the processor's average instruction execution time will not permit data to be transmitted from the processing means to the system processor within the time frame and synchronously with the system clock;
- buffer means operatively connected between the processing means and the communications bus for temporarily storing data being transmitted from the processing means to the system processor, the buffer latching data transmitted by the processing means onto the communications bus data line;
- means, operatively connected to the processing means, for receiving the system clock signal;



- means for transmitting a command signal from the processing means to the clock signal receiving means, the command signal being transmitted after transmission of data to the buffer means by the processing means, said transmission of data occurring during execution of a data transmission routine by the processing means;
- the clock signal receiving means in response to the concurrence of a predesignated portion of the system clock cycle and assertion of the command signal generating a disabling signal, the processing means receiving the disabling signal and in response thereto pausing in execution of the data transmission routine, the clock signal receiving means discontinuing the disabling signal in response to a subsequent occurrence of the predesignated portion of the system clock cycle, and the processing means continuing the execution of the data transmission routine in response to the discontinuance of the disabling signal, whereby the interface operatively controls a data transfer to the system processor in synchronism with the system clock.

4,395,757

PROCESS SYNCHRONIZATION UTILIZING SEMAPHORES

Jacques Bienvenu, Paris; Claude Carre, La Varenne-St-Hilaire; Duc Luu, and Henri Verdier, both of Paris, all of France, assignors to Compagnie Honeywell Bull, Paris, France
Continuation of Ser. No. 58,147, Jul. 17, 1979, abandoned, which is a continuation of Ser. No. 529,256, Dec. 2, 1974, abandoned.
This application Apr. 14, 1981, Ser. No. 254,184

Claims priority, application France, Nov. 30, 1973, 73 42691
Int. Cl.³ G06F 9/00

U.S. Cl. 364—200

8 Claims

1. Apparatus for enabling synchronization among events such as a completion of an asynchronous operation, an arrival of a message, an availability of a resource, an arrival of a process at a particular stage of execution, any kind of which will affect to be affected by a process presently or ultimately operating in a data processing system, said events occurring at different times in said data processing system, comprising in combination:

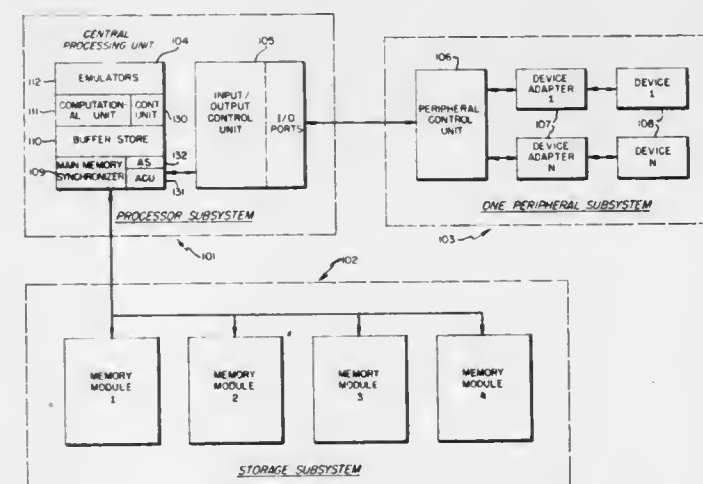
a memory member adapted to have stored therein first,

second and third queues of representations, respectively of the occurrences of first, second and third kind events, said first, second and third kind events being, respectively, message free events, message bearing events and resource requesting processes;

said memory member having stored therein first and second data elements, each of said data elements comprising: a first field representing a maximum number of events which may be associated with said data element; a second field representing a number of events currently associated with said data element; and a third field representing a location of the first kind event representation in one of said three queues associates with said data element;

first testing means responsive to the occurrence of one of said first kind events and to the first and second storage fields of said first data element for generating a first signal when the algebraic value of the number represented by said second field is less than a predetermined value and said number is less in magnitude than the number represented by said first field;

first control means responsive to the occurrence of said first



signal for inserting a representation of said one first kind event into said first queue, for decrementing the number represented by the second field of said first data element, and for modifying the third field of said first data element to point to the location in said first queue of said representation inserted therein;

second testing means responsive to the occurrence of one of said second kind events and to the first and second fields of said first data element for generating a second signal when the algebraic value of the number represented by said second field is not less than said predetermined value and said number is less in magnitude than the number represented by said first field;

second control means responsive to the occurrence of said second signal for inserting a representation of said one second kind event into said second queue, for incrementing the number represented by the second field of said first data element, and for modifying the third field of said first data element to point to the location in said second queue of said representation inserted therein;

means for applying message free and message bearing events having occurrence representations stored respectively in said first and second queues to requesting processes.

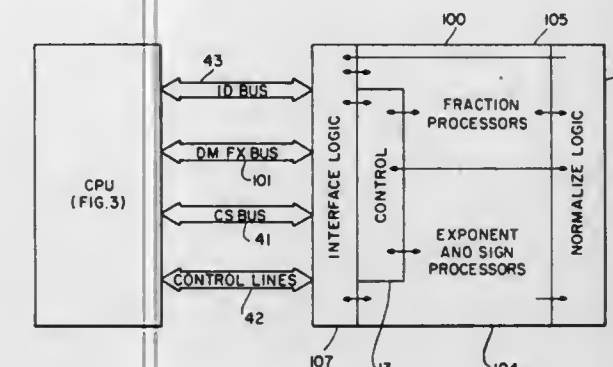
4,395,758

ACCELERATOR PROCESSOR FOR A DATA PROCESSING SYSTEM

Allan Helenius, Westford; Stanley A. Lackey, Jr., Chelmsford, and Thomas A. Northrup, Westford, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Continuation of Ser. No. 101,700, Dec. 10, 1979, abandoned, which is a continuation of Ser. No. 954,609, Oct. 25, 1978, abandoned. This application Oct. 13, 1981, Ser. No. 310,826
Int. Cl.³ G06F 15/16

U.S. Cl. 364—200

7 Claims



1. In a digital data processing system including central processing means for executing instructions and for connection to memory means for storing instructions that include operation codes representing operations to be performed and operand specifiers that indicate the operands on which the operations are to be performed and wherein the central processing means includes addressable register means for storing information including operands, retrieval means for retrieving operands in response to the operand specifiers, code means for generating operation code signals that identify an operation to be performed with respect to at least one operand in accordance with an operation code of an instruction, and processor means connected to the retrieval means and the code means for either processing the retrieved operands in response to certain operation code signals or entering an alternate state of operation in response to predetermined ones of said operation code signals, said processor means including destination computation means for computing a destination address in said memory means at which a result is to be stored and for generating a destination ready signal for indicating that said central processing means is ready to receive a result of at least one operand processed in response to said predetermined operation code signals, a special instruction processing means for processing predetermined ones of the instructions corresponding to said predetermined operation codes, said special instruction processing means including:

- operand means for retrieving each operand concurrently with the retrieval thereof by the retrieval means in the central processing means,
- special processing means connected to said operand means and operable to process the operands;
- control means connected to the central processing means and said special processing means for receiving each of the operation code signals from the code means concurrently with the processor means in the central processing means, for recognizing said predetermined code signals, for operating said special processing means to process the operands in said operand means in response to said predetermined operation code signals, and for automatically disabling the processing of the retrieved operands by the processor means in accordance with said predetermined operation codes when said control means receives one of the predetermined operation code signals but permitting said destination computation means to compute said destination address, and
- transfer means connected to said special processor means for transferring to the central processing means the result

of the operation by said special processing means in response to said destination ready signal.

4,395,759

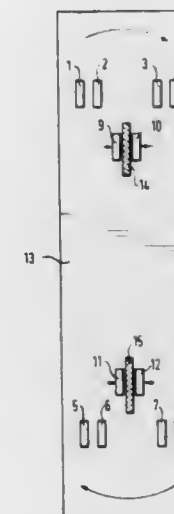
ELECTRONIC SAFETY SKI BINDING WITH REDUNDANT SENSORS

Nicholas F. D'Antonio, Luverpool, N.Y., and Walter Knabel, Farchant, Fed. Rep. of Germany, assignors to Marker-Patent-verwertungsgesellschaft GmbH, Switzerland
Filed Jun. 19, 1980, Ser. No. 160,926
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925375

Int. Cl.³ A63C 9/08

U.S. Cl. 364—410

8 Claims



1. An electronic safety ski binding having a latching condition for grasping a skier's boot in the binding and a releasing condition for releasing the boot from the binding comprising: at least two sensing means for redundantly detecting loads acting in a particular direction on the binding and generating electrical signals in response to said loads; and electronic circuitry operatively connected to said sensing means for receiving and processing said signals and generating a triggering signal to switch the binding from its latching condition to its releasing condition in response to the detection of a load of a predetermined value by at least one of said sensing means, wherein said triggering signal is generated when at least one of said at least two sensing means is operative and a load of the predetermined value is detected.

4,395,760

ELECTRONIC BASEBALL GAME

Norbert S. Soski, 16641 Calneva Dr., Encino, Calif. 91436, and Richard S. Levine, 8400 Edinger Ave., Huntington Beach, Calif. 92647

Filed Jan. 7, 1981, Ser. No. 223,184

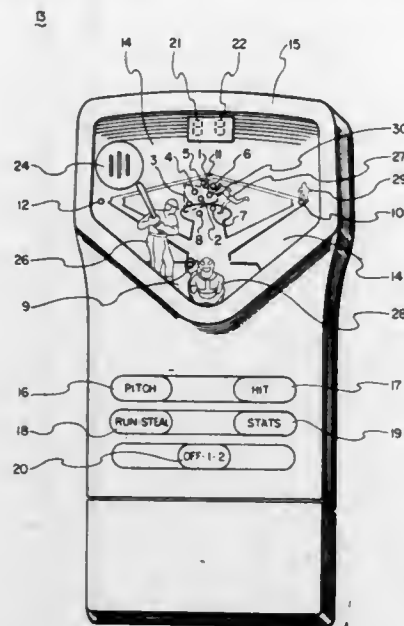
Int. Cl.³ G06F 15/44; A63F 9/00

U.S. Cl. 364—410

5 Claims

1. An electric baseball game comprising: a display having indicia in the form of first illuminable indicators simulating base runners, second illuminable indicators simulating a ball, and indicia representing a pitcher, a batter, and bases; input means for providing input signals to cause the pitcher to throw the ball, to cause the batter to swing at the ball, and to cause a runner to run toward a base; control means responsive to the input means for controlling the illuminable indicators to depict the play of the game, including means for incrementally varying the brightness of one of the first illuminable indicators in a sequential manner to simulate movement and rate of movement of a base runner toward that one first illuminable indicator,

and means for incrementally varying one of the second illuminable indicators in a sequential manner to simulate



movement and rate of movement of the ball away from that one second illuminable indicator.

4,395,761

ANTISKID BRAKE CONTROLLING METHOD AND APPARATUS FOR VEHICLES

Makoto Sato, Kamifukuoka; Taiji Ohmori, and Yoshikazu Tsuchiya, both of Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

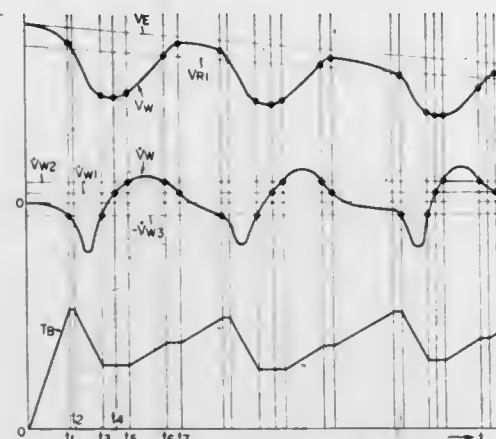
Filed May 6, 1981, Ser. No. 261,142

Claims priority, application Japan, May 15, 1980, 55-64546; Sep. 13, 1980, 55-127810

Int. Cl.³ B60T 8/02

U.S. Cl. 364-426

17 Claims



1. An antiskid brake controlling method comprising: comparing, during braking of a vehicle, a wheel speed signal V_w representative of the peripheral speed of a wheel of the vehicle with a first reference wheel speed signal V_{R1} less than a vehicle speed signal V_E and with a second reference wheel speed signal V_{R2} which is less than said first reference wheel speed signal V_{R1} ; comparing a wheel acceleration signal V_w representative of the peripheral acceleration of said wheel with a first reference wheel acceleration signal V_{w1} representing a predetermined positive peripheral acceleration of said wheel, a second reference wheel acceleration signal V_{w2} greater than said first reference wheel acceleration signal and a reference wheel deceleration signal $-V_{w3}$ representative of a predetermined negative peripheral acceleration of said wheel; decreasing the braking torque T_{br} from an instant at which said wheel acceleration signal V_w has dropped below said reference wheel deceleration signal $-V_{w3}$ when said wheel speed signal V_w is less than said first reference wheel speed signal V_{R1} but

greater than said second reference wheel speed signal V_{R2} ; stopping the decrease of the braking torque T_{br} after said wheel acceleration signal V_w comes to increase again, at an instant at which said wheel acceleration signal V_w exceeds said reference wheel deceleration signal $-V_{w3}$; and also decreasing the braking torque T_{br} until the wheel acceleration signal V_w increases to exceed said first reference wheel acceleration signal V_{w1} when said wheel speed signal V_w has dropped below said second reference wheel speed signal V_{R2} .

4,395,762

FREQUENCY COUNTER

Hendrik M. Wondergem, Ste. 1903, 265 Balliol St., Toronto, Ontario, Canada M4S 1C9, and Robert J. Kaldenbach, 5 Denham Dr., Thornhill, Ontario, Canada (L4J 1N5)

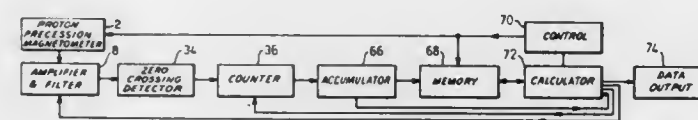
Filed Feb. 17, 1981, Ser. No. 234,994

Claims priority, application Canada, Oct. 28, 1980, 363389

Int. Cl.³ G06F 15/36; G01R 23/02

U.S. Cl. 364-484

13 Claims



1. Apparatus for determining the frequency of a cyclical component of a signal, comprising a signal source, filter means for receiving said signal and isolating said component, means for receiving said isolated component and dividing it at predetermined points in its cycle whereby to divide it into elements comprising an integral number of half cycles, an elapsed time counter means receiving said elements and outputting successive counts defining increments in total elapsed time corresponding to the successive elements, memory means receiving and storing said counts, a statistical calculator operative to receive said stored counts and provide an output proportional to a statistical means increment in total elapsed time, and read-out means operative to receive said output and provide a read-out of the frequency or period of said cyclical component of said signal, said statistical calculator being configured to determine a statistical mean increment such as to minimize the sum of the squares of the residuals of said successive total elapsed times as counted to the end of each element with respect to the corresponding incremental total elapsed times calculated on the basis of said mean.

4,395,763

BUFFER MEMORY CONTROL SYSTEM OF THE SWAP SYSTEM

Masanori Takahashi, Tokyo, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Dec. 5, 1980, Ser. No. 213,401

Claims priority, application Japan, Dec. 6, 1979, 54-158417

Int. Cl.³ G06F 13/00

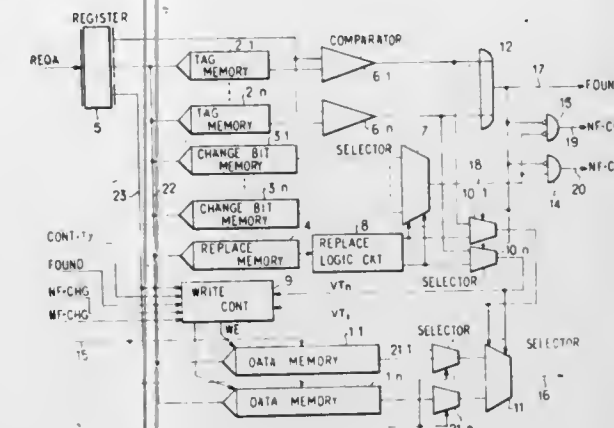
U.S. Cl. 364-900

3 Claims

1. A control system for writing data in a buffer memory of a swap type data block storage system which control system performs an ordinary memory access only with the buffer memory and when data having a requested address does not exist in a data block of the buffer memory, moves out from the buffer memory a selected one of replaceable data blocks thereof to a main memory and moves from said main memory into the buffer memory a data block from the main memory which includes the data at the requested address, said control system comprising:

- a first detecting means for detecting whether the data block of the buffer memory including the data of the requested address exists in the buffer memory; and
- a second detecting means for detecting whether the replaceable data block has been changed after being previously loaded in the buffer memory;

including means for writing data in the buffer memory in an area of a size equal to or an integral multiple of the data block of said buffer memory when it is detected by said first detecting means that the data corresponding to said requested address does not exist in the buffer memory and it is detected by said second detecting means that the



replaceable data block has not been changed, wherein data including the data to be written in is written in the replaceable data block of the buffer memory directly without performing at least the operation of moving in the requested address block from the main memory including data at the requested address so that the data in the replaceable block is overwritten with the data for the requested address.

4,395,764

MEMORY DEVICE UTILIZING SHIFT REGISTERS FOR DATA ACCESSING

Shigeki Matsue, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

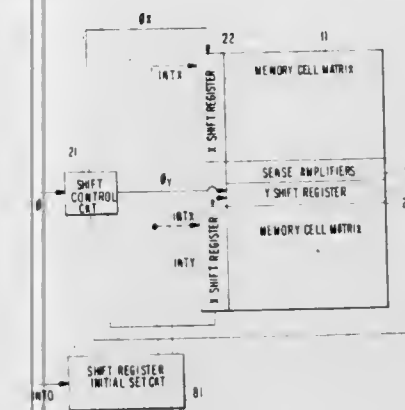
Filed Dec. 29, 1980, Ser. No. 221,106

Claims priority, application Japan, Dec. 27, 1979, 54-170712

Int. Cl.³ G11C 7/00, 19/00

U.S. Cl. 365-78

13 Claims



1. A memory device comprising memory cell array including a plurality of memory cells arrayed in rows and columns, a first shift register having a full shift length and having a plurality of outputs, the number of said outputs of said first shift register being not less than the number of said rows, first means responsive to a start signal for initializing the outputs of said first shift register so as to set only one output among the outputs of said first shift register at a selection level, second means responsive to the outputs of said first shift register for selecting one of said rows, third means for generating a shift length designation signal for designating a desired shift length which is shorter than said full shift length whereby a portion of said shift register outputs corresponding to said desired shift length will address a portion of said rows of said cell array, fourth means for supplying said first shift register with a train of shift signals to thereby shift a location of the set output of said first

shift register, fifth means coupled to said third means and said fourth means for detecting when the location of said set output of said first shift register reaches a position of said first shift register corresponding to said desired shift length designated by said shift length designation signal, and sixth means coupled to said first means and said fifth means for producing said start signal upon the detection by said fifth means that said set output of said first register has reached said position corresponding to said desired shift length, whereby said portion of the rows of said cell array are sequentially addressed in synchronism with said shift signals.

4,395,765

MULTI-PORT MEMORY ARRAY

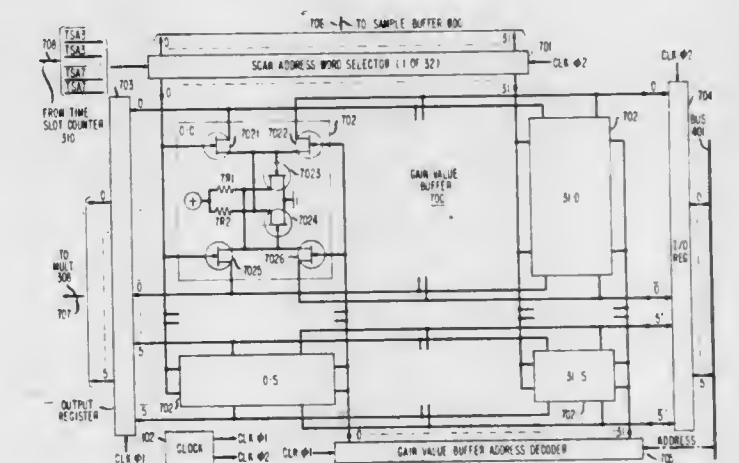
Bryan S. Moffitt, Eatontown, N.J., and Alexander R. Ross, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 23, 1981, Ser. No. 256,697

Int. Cl.³ G11C 7/00

U.S. Cl. 365-174

7 Claims



1. A memory array having a plurality of memory storage elements,

a first pair of access lines associated with said elements for providing precharged interrogate signals to said elements, and wherein each said element is arranged to respond to said precharged interrogate signals with the signal value stored thereat, said response occurring at a time immediately following the precharging of said first access lines, said elements further arranged to be isolated from said first access lines during said precharging interval, characterized in that there is provided a second pair of access lines associated with said elements, said second pair of access lines being independent from said first pair of access lines for providing precharged interrogate signals to said elements, said second pair of access lines being adapted to receive precharge interrogate signals at a time different from the precharging of interrogate signals on said first pair of access lines thereby allowing said associated elements to respond with the signal value stored thereat over said second pair of access lines independent from said response over said first pair of access lines.

4,395,766

LASER TYPE RECORDING DEVICE

Masahiro Ohnishi; Shigenori Oosaka, and Hiroshi Oono, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 9, 1980, Ser. No. 214,815

Claims priority, application Japan, Dec. 25, 1979, 54-168565

Int. Cl.³ H04N 1/22

U.S. Cl. 369-47

6 Claims

1. A laser type recording device comprising: means for sampling an input signal with a sampling pulse signal; means for applying a high frequency pulse signal whose frequency is

tor signals; wherein said first and second local oscillator means each include digitally controlled frequency generator means for providing said first and second local oscillator signals at frequencies that are substantially linear functions of first and second digital values N_1 and N_2 , respectively; and wherein said control means includes automatic logic circuitry for providing said digital values N_1 and N_2 to the respective digitally controlled frequency generators of said first and second local oscillator means as a function of selecting a desired frequency of said incoming signal, with the second digital value N_2 being provided from a predetermined range of integers so that the second local oscillator frequency remains in a corresponding

said phase compensation circuit and said variable phase shift circuit and means for supplying a variable D.C. voltage to said voltage variable capacitors to control their capacitance.

4,395,779

JAMMING WAVE REJECTING DEVICE

Teruhisa Fujino, Kawasaki; Fujio Osawa, Tama; Kenichi Chiwaki, Chiba, and Sadatoshi Narazaki, Tokyo, all of Japan, assignors to Kabushiki Kaisha Koden Seisakusho, Tokyo, Japan

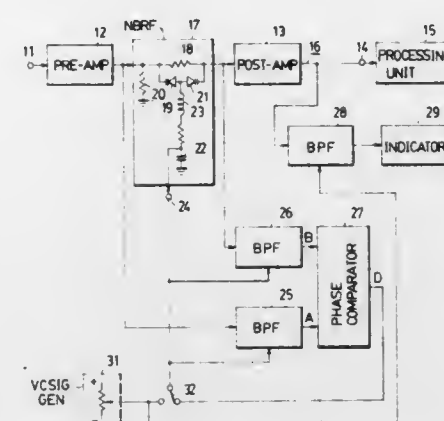
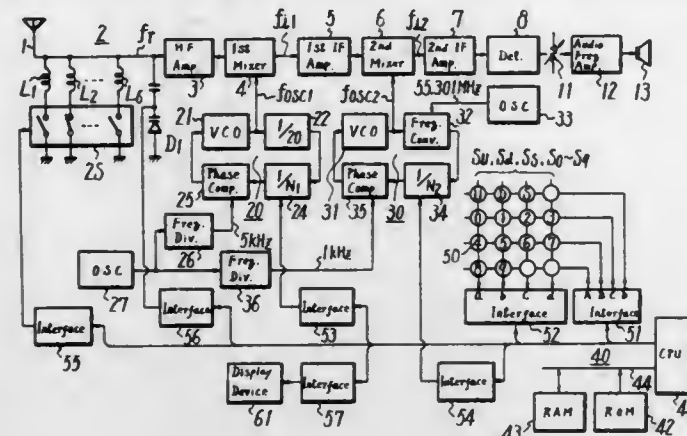
PCT No. PCT/JP79/00326, § 371 Date Aug. 12, 1981, § 102(e) Date Aug. 12, 1981, PCT Pub. No. WO81/01930, PCT Pub. Date Jul. 9, 1981

PCT Filed Dec. 26, 1979, Ser. No. 293,642

Int. Cl.³ H04B 1/12

U.S. Cl. 455—306

8 Claims



1. A jamming wave rejecting device comprising a narrow-band rejection filter which is inserted in series in a received signal path and the rejection frequency of which is varied by a control signal; first and second band-pass filters which are connected to the input and output sides of the narrow-band rejection filter, respectively, and which have pass center frequencies substantially equal to the rejection frequency of the narrow-band rejection filter and have substantially the same filter characteristic; a phase comparator for detecting the phase difference between the outputs from the first and second band-pass filters; a variable control signal generator for generating a control signal; a third band-pass filter which is connected to the output side of the abovesaid narrow-band rejection filter and the pass center frequency of which is controlled by the control signal from the abovesaid control signal generator; an indicator which is connected to the output side of the third band-pass filter for displaying the intensity of the output therefrom; and a change-over switch which changes over the output from the abovesaid phase comparator and the output from the abovesaid control signal generator and applies one of them as the control signal to the abovesaid narrow-band rejection filter.

4,395,780

SERVICE-INTEGRATED COMMUNICATION TRANSMISSION AND EXCHANGE SYSTEM

Lothar Gohm, and Klaus Krull, both of Weissach, Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 18, 1981, Ser. No. 275,047

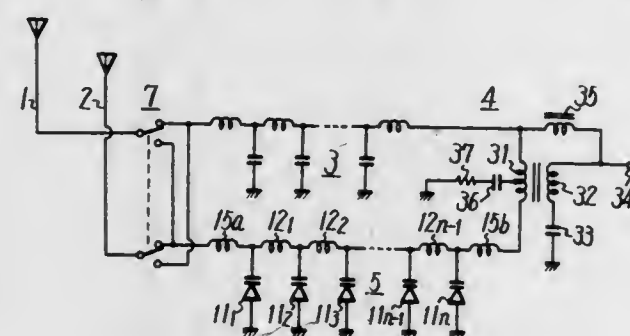
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1980, 3022725

Int. Cl.³ H04N 7/18; H04B 9/00

U.S. Cl. 455—607

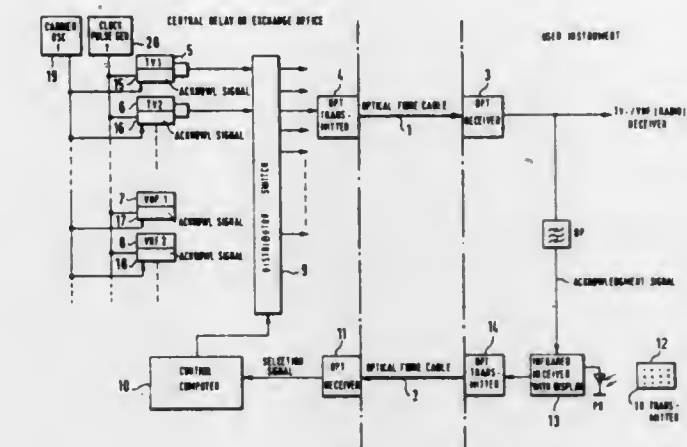
6 Claims

1. An undesired signal canceller for a radiant energy receiver comprising first and second antennas spaced a distance (d) apart, a phase compensation circuit connected to said first antenna, a variable phase shift circuit connected to said second antenna, said variable phase shift circuit comprising a plurality of series connected inductors wherein adjacent ones of said inductors are magnetically coupled together and a plurality of voltage variable capacitors with adjacent ones of said plurality of voltage variable capacitors connected between ground and the junction points between adjacent ones of said series connected inductors, adding means connected to the outputs of



ments being equipped with means for transmitting a selection signal to said exchange station to select certain desired services and their programs to be transmitted by said exchange station over likewise selectable transmission channels and for receiving the transmitted programs, the improvement wherein said exchange station further includes an acknowledgment means for producing a signal acknowledging receipt of a selection signal from a user equipment and means for transmitting the acknowledging signal to the associated user equipment; wherein said means for producing said acknowledgment signal comprises means for keying in or out a carrier frequency, which is outside of the signal frequency range of the selectable services, according to a code representing the acknowledgment signal being transmitted; wherein said means for transmitting said acknowledgment signal to said user equipment includes means for combining same with the signals of the selected program being transmitted by said exchange station; and

wherein said user equipment includes means for receiving the transmitted acknowledgment signal including means for de-



tecting the acknowledgment signal and displaying same on a display device.

DESIGNS

JULY 26, 1983

269,824

HOOK FASTENER FOR GARMENTS

Yoshihiro Kanzaka, Nyuzen, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

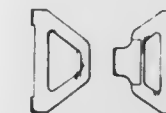
Filed Jan. 27, 1981, Ser. No. 229,001

Claims priority, application Japan, Jul. 29, 1980, 55-30797

Term of patent 14 years

Int. Cl. D02-07

U.S. Cl. D2-418



269,826

HANDBAG

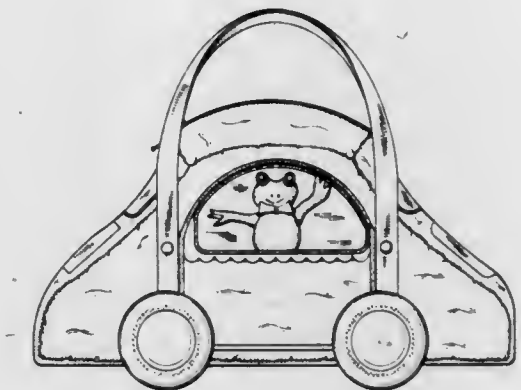
Bonnie H. C. Ko, 9702 Debbie La., Houston, Tex. 77038

Filed Jul. 29, 1981, Ser. No. 288,050

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D3-44



269,825

COUPLING ADAPTOR FOR A MAGNETIC TAPE CASSETTE ACCOMMODATING CASE

Hideo Shirako, Hachioji; Shoichi Saito, Tokyo; Terumasa Wada, Hachioji, and Koki Yamamoto, Omiya, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

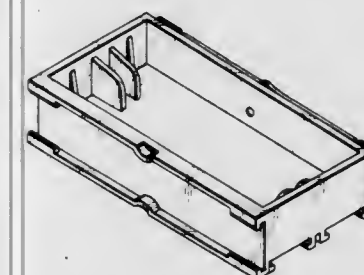
Filed May 7, 1981, Ser. No. 261,564

Claims priority, application Japan, Nov. 11, 1980, 55-47126

Term of patent 14 years

Int. Cl. D3-02, 99

U.S. Cl. D3-35



269,827

ANGLE BROOM

Frank Clark, Girard, Pa., assignor to Tantera, Inc., Girard, Pa.

Filed May 13, 1981, Ser. No. 263,104

Term of patent 14 years

Int. Cl. D4-01

U.S. Cl. D4-03



269,828

STEP STOOL

Leslie C. Greene, 12245 Rockcrest Rd., Lakeside, Calif. 92040
 Filed Mar. 2, 1981, Ser. No. 239,526

Term of patent 14 years
 Int. Cl. D6-05

U.S. Cl. D6-33



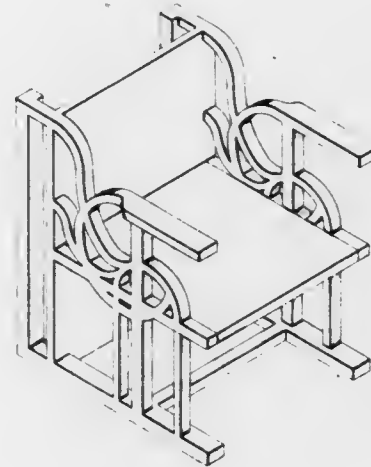
269,830

CHAIR OR SIMILAR ARTICLE

Klaas Nijhuis, 2600 San Leandro Blvd., San Leandro, Calif.
 94578

Filed Jun. 15, 1981, Ser. No. 273,668
 Term of patent 14 years
 Int. Cl. D6-01

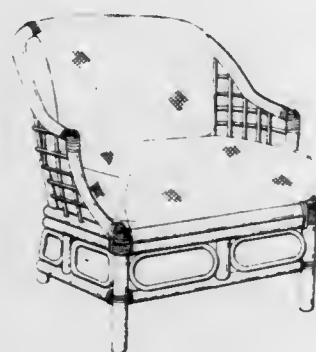
U.S. Cl. D6-68

269,829
CHAIR

Mike T. Claman, New York, N.Y., assignor to Lewittes Furniture Enterprises, Inc., New York, N.Y.

Filed Feb. 20, 1981, Ser. No. 236,316
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-57



269,831

MOLDED SHELL STACK CHAIR

Barry W. Crone, Kansas City, Mo., assignor to Fixtures Manufacturing Corporation, Kansas City, Mo.

Filed Nov. 28, 1980, Ser. No. 211,462
 Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-75



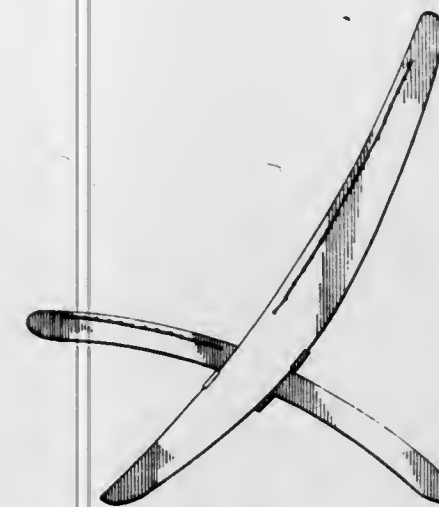
269,832

CHAIR

Frank M. Crane, Belgrade Rd., Oakland, Me. 04963
 Filed Jun. 8, 1981, Ser. No. 271,436

Term of patent 14 years
 Int. Cl. D6-01

U.S. Cl. D6-76



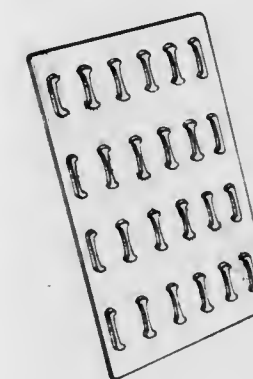
269,833

MULTIPLE KEY HOLDER

Wayne L. Chubb, Box 531, Beverly Shores, Ind. 46301
 Filed May 13, 1981, Ser. No. 263,302

Term of patent 14 years
 Int. Cl. D6-06

U.S. Cl. D6-114



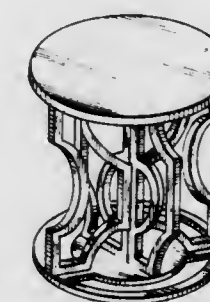
269,834

OCCASIONAL TABLE

Bruce N. Lee, 19 Columbia Ave., Trenton, N.J. 08618
 Filed May 4, 1981, Ser. No. 260,644

Term of patent 14 years
 Int. Cl. D6-03

U.S. Cl. D6-146



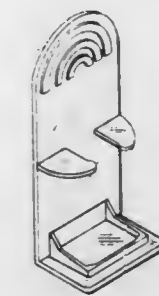
269,835

BOTTLE RETAINING SUPPORT RACK

Harry P. Knabb, Winston-Salem, N.C., assignor to Consolidated Foods Corporation, Winston-Salem, N.C.

Filed Mar. 17, 1981, Ser. No. 244,829
 Term of patent 14 years
 Int. Cl. D6-99

U.S. Cl. D6-181

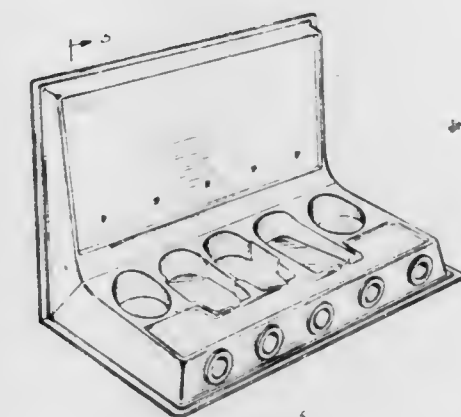


269,836

DISPLAY STAND FOR MASSAGE IMPLEMENTS
 Ira Pruzan, Cook County, Ill., assignor to Associated Mills, Inc., Chicago, Ill.

Filed Jul. 25, 1980, Ser. No. 172,435
 Term of patent 14 years
 Int. Cl. D06-04

U.S. Cl. D6-188



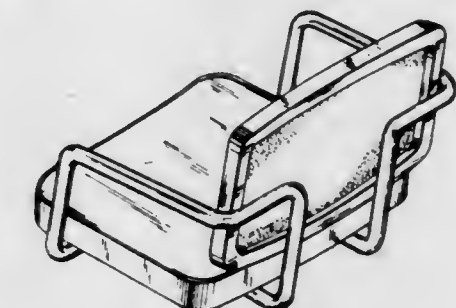
269,837

COMBINED SEAT AND BACKREST UNIT

Edsel E. Murry, Rte. 1, Box 271-A, Christiana, Tenn. 37037
 Filed Feb. 9, 1981, Ser. No. 232,875

Term of patent 14 years
 Int. Cl. D6-06

U.S. Cl. D6-191



269,838

PICTURE FRAME

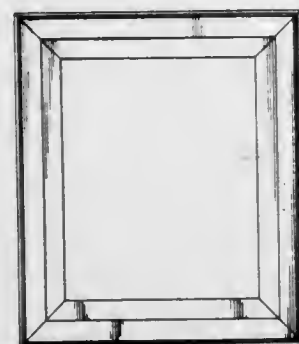
Richard C. Altonaga, New York, N.Y., assignor to New Hermes Incorporated, New York, N.Y.

Filed Mar. 20, 1981, Ser. No. 245,865

Term of patent 14 years

Int. Cl. D6—07

U.S. Cl. D6—242



269,839

BARBECUE GRILL

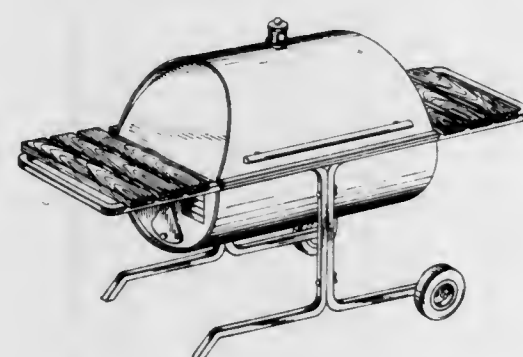
John H. Givens, III, 2456 N. Grant, Milwaukee, Wis. 53210

Filed Dec. 16, 1981, Ser. No. 331,122

Term of patent 14 years

Int. Cl. D7—04

U.S. Cl. D7—334



269,840

MICROWAVE OVEN

Michio Tanaka, Nara; Masamichi Yamamura, Osaka, and Toshio Harada, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

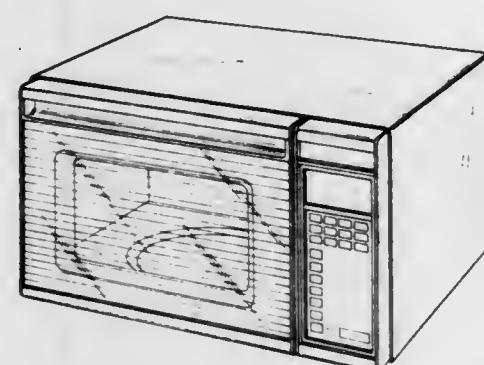
Filed Dec. 9, 1981, Ser. No. 329,141

Claims priority, application Japan, Jul. 2, 1981, 56-29192

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—351



269,841

MICROWAVE OVEN

Masamichi Yamamura, Osaka, and Toshio Harada, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

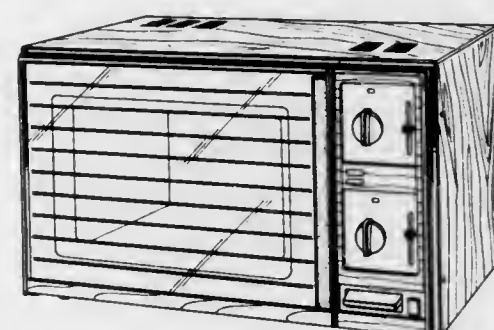
Filed Dec. 9, 1981, Ser. No. 329,105

Claims priority, application Japan, Jun. 19, 1981, 56-26985

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—351



269,842

MICROWAVE OVEN

Masamichi Yamamura, Osaka, and Toshio Harada, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

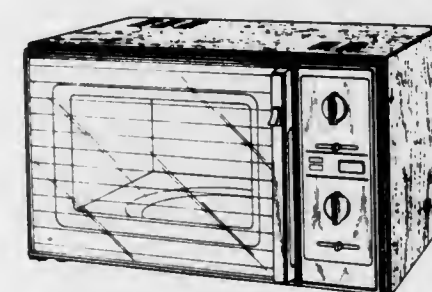
Filed Dec. 9, 1981, Ser. No. 329,106

Claims priority, application Japan, Jun. 19, 1981, 56-26984

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—351



269,843

TREE GUARD

Robert E. Haggard, Everett, Wash., assignor to Merry Haggard, Snohomish, Wash.

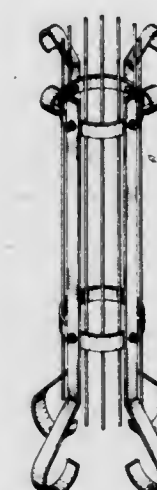
Division of Ser. No. 158,937, Jun. 12, 1980. This application Sep.

9, 1982, Ser. No. 416,109

Term of patent 14 years

Int. Cl. D11—99

U.S. Cl. D8—01



269,845

ABRADING TOOL

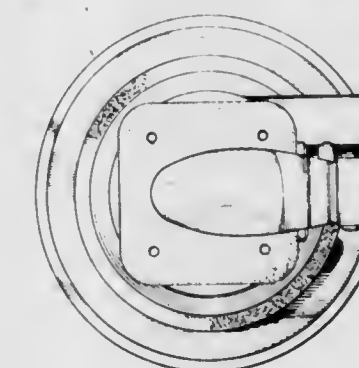
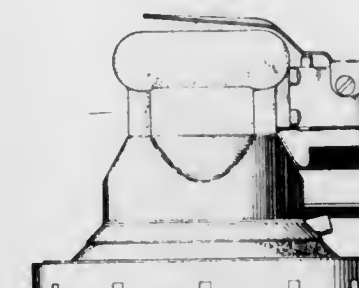
Alma A. Hutchins, Pasadena, Calif., assignor to Hutchins Manufacturing Co., Pasadena, Calif.

Filed Oct. 22, 1980, Ser. No. 199,452

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—62



269,844

DEVICE FOR EXTRACTING SOIL CORES FOR LABORATORY ANALYSIS

John V. Hackerson, Beardstown, Ill., assignor to Mabel J.

Hackerson, Beardstown, Ill., a part interest

Filed Jan. 12, 1981, Ser. No. 224,375

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—7



269,846

AIR GRINDER

Osamu Izumisawa, 24-10, 2-chome asahicho, Nerimaku, Tokyo, Japan

Filed Mar. 16, 1981, Ser. No. 244,328

Claims priority, application Japan, Sep. 15, 1980, 55-37832

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—62



269,847

AIR GRINDER

Osamu Izumisawa, 24-10, 2-chome asahicho, Nerimaku, Tokyo, Japan

Filed Mar. 16, 1981, Ser. No. 244,329

Claims priority, application Japan, Sep. 15, 1980, 55-37833

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-62



269,848

HANDLE FOR A SAW BLADE

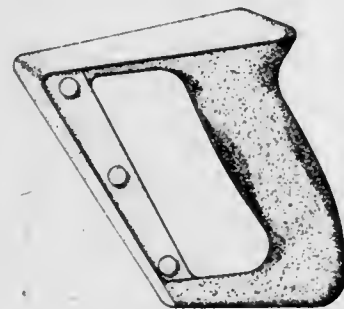
Laird F. Covey, Easton, Conn., assignor to The Stanley Works, New Britain, Conn.

Filed Sep. 12, 1980, Ser. No. 186,676

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-97



269,849

BICYCLE HANDLEBAR GRIP

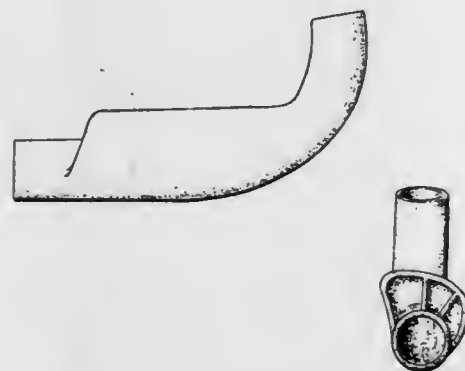
Clyde R. Morgan, 210 Roadrunner Dr., Sedona, Ariz. 86336

Filed Nov. 28, 1980, Ser. No. 211,298

Term of patent 14 years

Int. Cl. D12-11

U.S. Cl. D8-303



269,850

HANDLEBAR GRIP

James M. Preisler, Mound, and Alwin J. Stahel, Saint Paul, both of Minn., assignors to Drag Specialties, Inc., Minneapolis, Minn.

Filed Jul. 22, 1981, Ser. No. 286,014

Term of patent 14 years

Int. Cl. D10-11

U.S. Cl. D8-303



269,851

RETAINER CLIP FOR PIPES, RODS AND OTHER ELONGATED BODIES OR THE LIKE

Shigeru Kimura, Kamakura, Japan, assignor to Nifco Inc., Tokyo, Japan

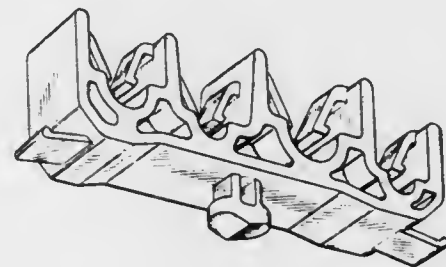
Filed Dec. 1, 1980, Ser. No. 211,496

Claims priority, application Japan, May 31, 1980, 55-21590

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-356



269,852

LOCK WASHER

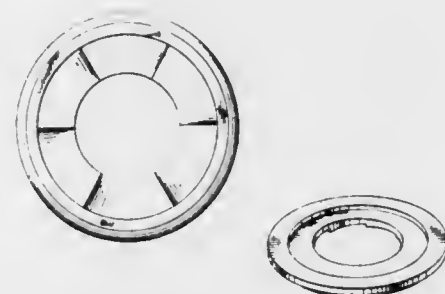
Bengt O. Frieberg, 869 Picaacho, La Habra Heights, Calif. 90631

Division of Ser. No. 131,938, Mar. 21, 1980, Pat. No. Des. 263,792. This application Oct. 13, 1981, Ser. No. 310,532

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-399



269,853

PACKAGING CONTAINER FOR PROMOTIONAL MATERIAL

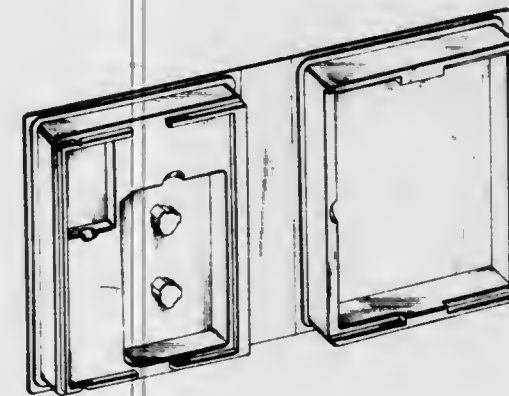
Rod Springett, London, England, assignor to The Designers & Art Directors Association of London, London, England

Filed Apr. 29, 1981, Ser. No. 258,629

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-326



269,855

PACKAGING CONTAINER

Vincent E. Fortuna, Garden Grove, Calif., assignor to Cosden Technology, Inc., Dallas, Tex.

Filed Apr. 13, 1981, Ser. No. 253,813

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-398



269,856

TRANSPARENT DISPENSER BOX

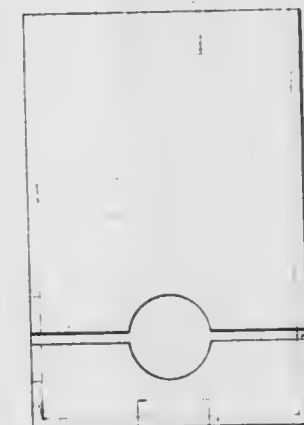
Raymond F. Kuta, West Islip, N.Y., assignor to Clairol Incorporated, New York, N.Y.

Filed Dec. 18, 1980, Ser. No. 217,930

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-418



269,854

PACKAGING CONTAINER FOR FOOD OR THE LIKE

Nicholas D. Comisso, Victor, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

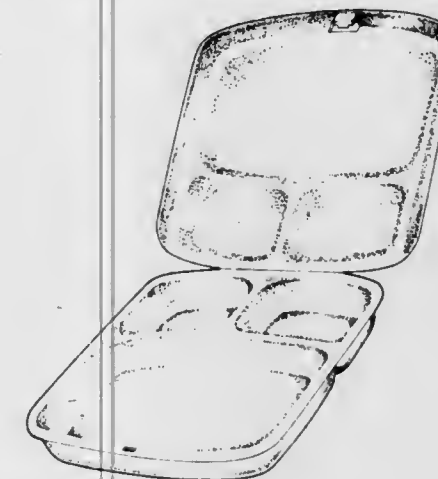
Continuation of Ser. No. 810,556, Jun. 27, 1977. This application

Mar. 31, 1980, Ser. No. 135,583

Term of patent 14 years

Int. Cl. D9-03

U.S. Cl. D9-347



269,857

ELECTRONIC CLOCK/TIMER

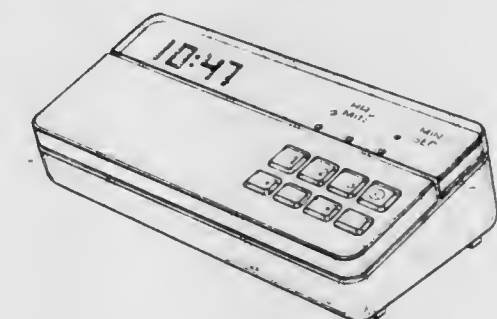
John W. Goodin, Long Beach; Edward E. Albright, Santa Ana, and Amy K. Tamura, Long Beach, all of Calif., assignors to Dart Industries Inc., Northbrook, Ill.

Filed Jul. 29, 1981, Ser. No. 287,961

Term of patent 14 years

Int. Cl. D10-01

U.S. Cl. D10-15



269,858

COMPACT RADON DETECTOR UNIT

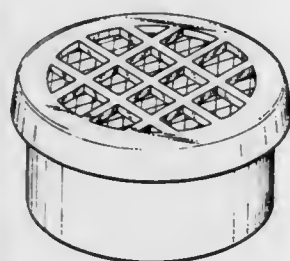
H. Ward Alter, Walnut Creek, Calif., assignor to Terradex Corp., Walnut Creek, Calif.

Filed Feb. 12, 1981, Ser. No. 233,818

Term of patent 14 years

Int. Cl. D10—04

U.S. Cl. D10—47



269,860

DISPLAY PANEL FOR TIMEPIECE

Kenji Tanikawa; Noritaka Uchihori, and Susumu Suzuki, all of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

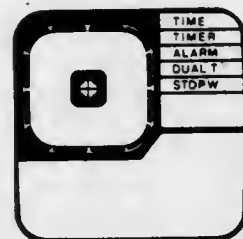
Filed Apr. 20, 1981, Ser. No. 255,418

Claims priority, application Japan, Oct. 22, 1980, 55-44068

Term of patent 14 years

Int. Cl. D10—07

U.S. Cl. D10—125



269,859

SENSING ANTENNA HOUSING FOR A THEFT DETECTION SYSTEM

Ariel G. Paladini, Norregade 23, Roskilde, Denmark (4000)

Filed Nov. 19, 1980, Ser. No. 208,293

Term of patent 14 years

Int. Cl. D10—05

U.S. Cl. D10—121



269,861

VESTMENTAL PIN

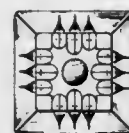
Shadrack Brown, Jr., 3431 Kershaw Rd. NW., Roanoke, Va. 24017

Filed Jun. 10, 1981, Ser. No. 272,354

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—76



269,862

SEGMENTED FISH-SHAPED PENDANT OR SIMILAR ARTICLE

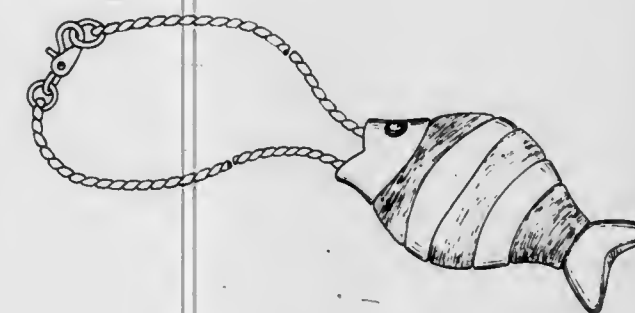
Muriel Meyer, Long Beach, N.Y., assignor to General Mills Products Corp., Minneapolis, Minn.

Filed Apr. 22, 1981, Ser. No. 256,445

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—82



269,863

SEGMENTED HEART-SHAPED PENDANT OR SIMILAR ARTICLE

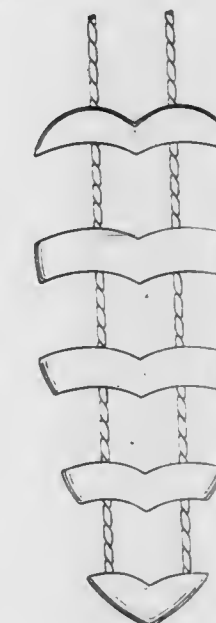
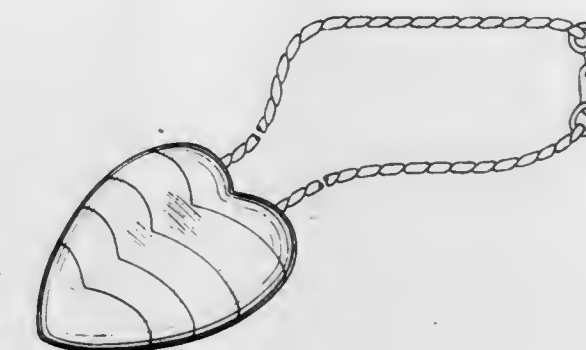
Muriel Meyer, Long Beach, N.Y., assignor to General Mills Products Corp., Minneapolis, Minn.

Filed Apr. 22, 1981, Ser. No. 256,446

Term of patent 14 years

Int. Cl. D11—01

U.S. Cl. D11—83



269,864

DERAILLEUR FOR A BICYCLE

Satoshi Watanabe, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

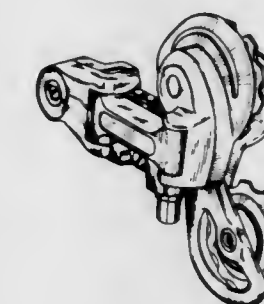
Filed Feb. 5, 1981, Ser. No. 231,854

Claims priority, application Japan, Aug. 12, 1980, 55-33121

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D12—124



269,865

TIRE FOR A VEHICLE WHEEL

Hiroshi Tomoda, Ashiya, Japan, assignor to Dunlop Limited, London, England

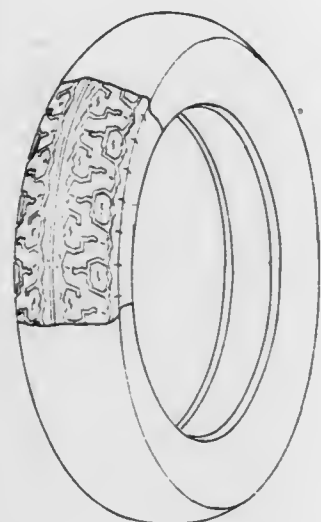
Filed Jan. 22, 1981, Ser. No. 227,526

Claims priority, application Japan, Aug. 27, 1980, 55-35409

Term of patent 14 years

Int. Cl. D12-15

U.S. Cl. D12-143



269,867

BRAKE FOR A BICYCLE

Satoshi Watanabe, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

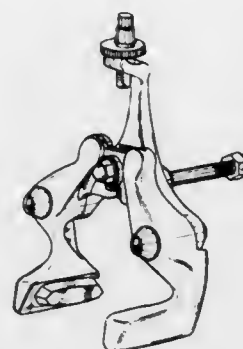
Filed Jan. 26, 1981, Ser. No. 228,169

Claims priority, application Japan, Aug. 5, 1980, 55-31852

Term of patent 14 years

Int. Cl. D12-11

U.S. Cl. D12-179



269,868

BATTERY TRAY

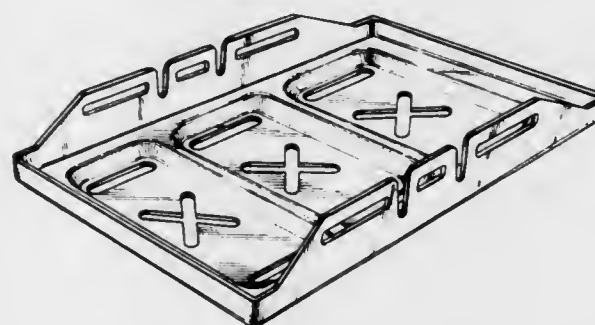
Samuel M. Seltzer, and Saul Dennison, both of Livingston, N.J., assignors to Allison Corporation, Livingston, N.J.

Filed Apr. 6, 1981, Ser. No. 251,511

Term of patent 14 years

Int. Cl. D13-02

U.S. Cl. D13-10



269,866

TIRE CHAIN FOR SLIP PREVENTION OF VEHICLE

Kare Espedalen, Grenseveien 5, N-3290 Stavern, Norway

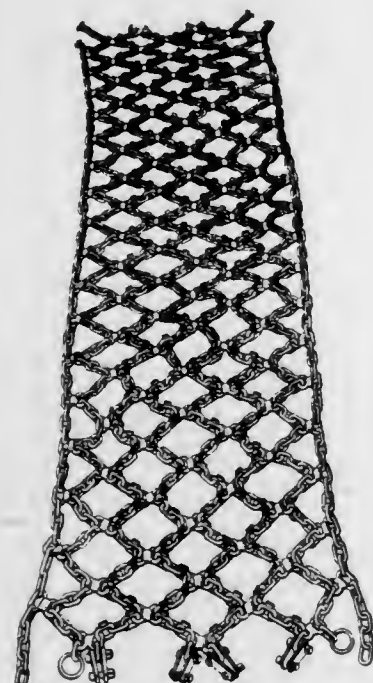
Filed Mar. 11, 1980, Ser. No. 129,322

Claims priority, application Norway, Sep. 20, 1979, 60039

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-154



269,869

LOUDSPEAKER

Hideyuki Matsubara, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 4, 1981, Ser. No. 240,583

Claims priority, application Japan, Sep. 13, 1980, 55-37885

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-30



269,870

LOUDSPEAKER

Takekazu Iijima, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 24, 1981, Ser. No. 247,147

Claims priority, application Japan, Nov. 8, 1980, 55-46723

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-30



269,872

LOUDSPEAKER

Hideaki Ishizaki, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan

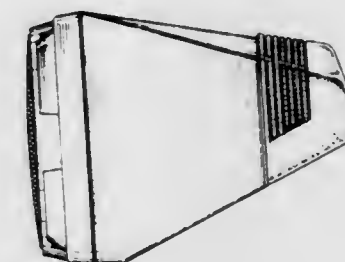
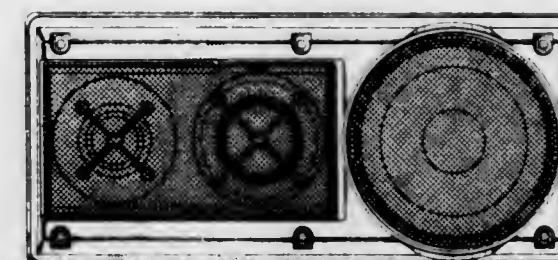
Filed Mar. 4, 1981, Ser. No. 240,509

Claims priority, application Japan, Sep. 5, 1980, 55-36655

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-34



269,873

PORTABLE RADIO TELEPHONE OR SIMILAR ARTICLE

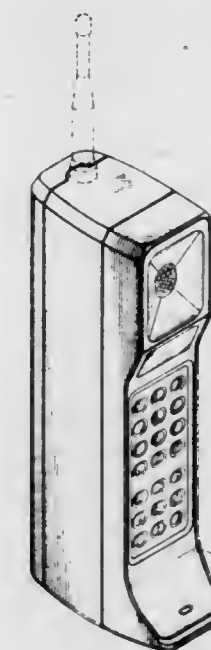
Albert L. Nagele, Wilmette, and Kenneth W. Larson, Elmhurst, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 4, 1981, Ser. No. 231,552

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-53



269,871

LOUDSPEAKER

Hideaki Ishizaki, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan

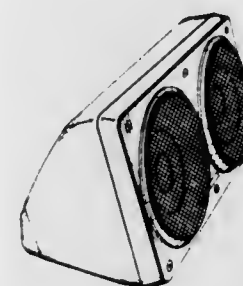
Filed Mar. 4, 1981, Ser. No. 240,508

Claims priority, application Japan, Sep. 5, 1980, 55-36654

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D14-34



269,874

TELEPHONE HANDSET

Robert R. Huntington, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Feb. 13, 1981, Ser. No. 234,154

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D14—63



269,875

ELECTRONIC TRANSLATOR

Katsuhiro Ishida, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan

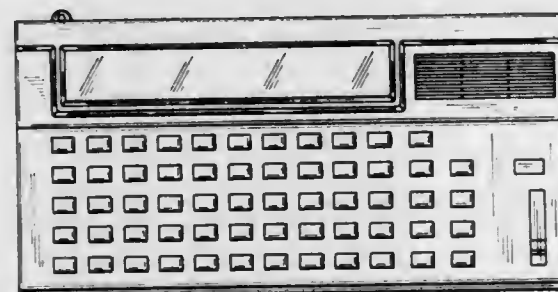
Filed Apr. 24, 1981, Ser. No. 257,372

Claims priority, application Japan, Oct. 31, 1980, 55-45834

Term of patent 14 years

Int. Cl. D14—02; D18—01

U.S. Cl. D14—100



269,876

SANITARY COUNTERTOP MACHINE FOR STORING AND DISPENSING PARTICULATE ICE AND FOR DISPENSING BEVERAGE

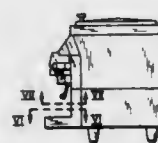
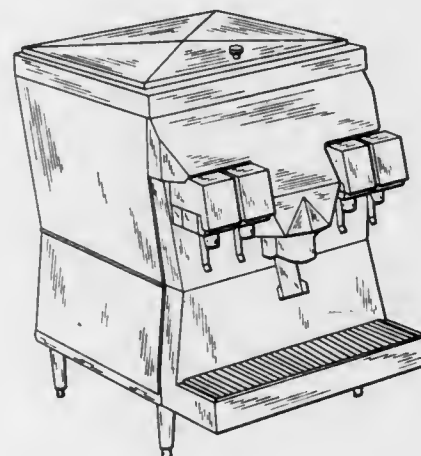
Charles M. Lents, Leon Valley, Tex., assignor to Stainless IceTainer Company, San Antonio, Tex.

Filed Mar. 23, 1981, Ser. No. 246,469

Term of patent 14 years

Int. Cl. D15—07, 08

U.S. Cl. D15—80



269,877

REFRIGERATOR CABINET SUITABLE FOR USE ON RAILROADS AND IN OTHER VEHICLES SUBJECT TO CONSIDERABLE VIBRATION

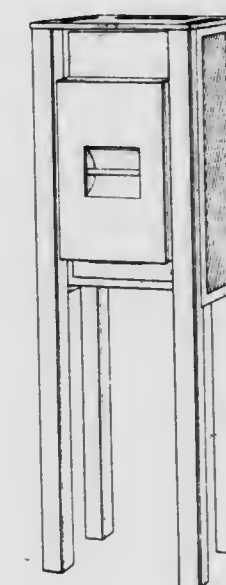
Shlomo Beitner, Tel-Aviv, Israel, assignor to Bipol Ltd., Tel-Aviv, Israel

Filed Feb. 9, 1981, Ser. No. 232,631

Term of patent 14 years

Int. Cl. D15—07

U.S. Cl. D15—81



269,879

TIRE CHANGER

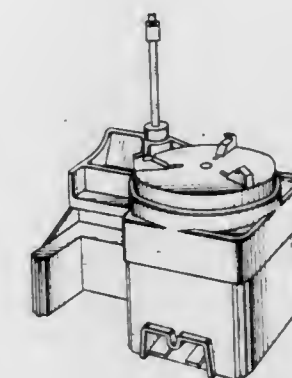
Jim L. Holladay, Nashville, and Charles G. Leeper, Antioch, both of Tenn., assignors to Hennessy Industries, Inc., Elk Grove Village, Ill.

Filed May 29, 1981, Ser. No. 268,200

Term of patent 14 years

Int. Cl. D15—99

U.S. Cl. D15—199



269,880

CAMERA TRIPOD

Osamu Iwasaki, Tokorozawa, Japan, assignor to Slik Tripod Co., Ltd., Saitama, Japan

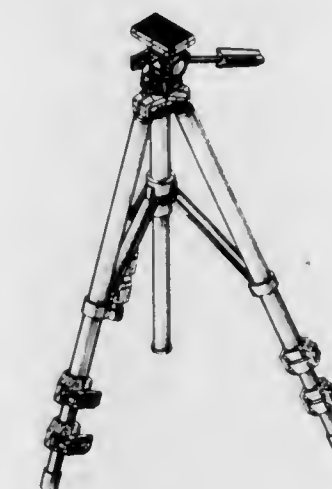
Filed Mar. 2, 1981, Ser. No. 239,495

Claims priority, application Japan, Aug. 29, 1980, 55-35265

Term of patent 14 years

Int. Cl. D16—05

U.S. Cl. D16—45



269,878

LENS BLOCK

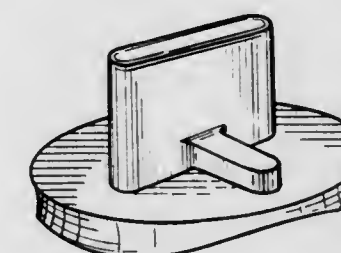
Howard E. Noble, Jr., Bettendorf, Iowa, assignor to Cole National Corporation, Cleveland, Ohio

Filed Jul. 10, 1981, Ser. No. 253,705

Term of patent 14 years

Int. Cl. D15—99

U.S. Cl. D15—124



269,881
FONT OF TYPE

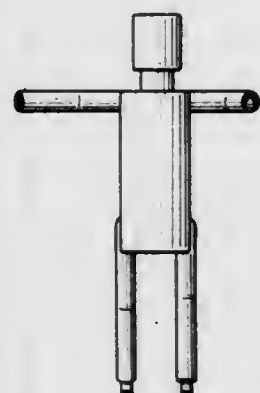
Ethan Hirsh, 12202 Meadowdale Dr., Stafford, Tex. 77477, and
Michael L. Taylor, 23026 Briarcreek, Spring, Tex. 77373
Filed Nov. 7, 1980, Ser. No. 204,869
Term of patent 14 years
Int. Cl. D18—03

U.S. Cl. D18—24

ABCDFGJL
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qr tuwyz

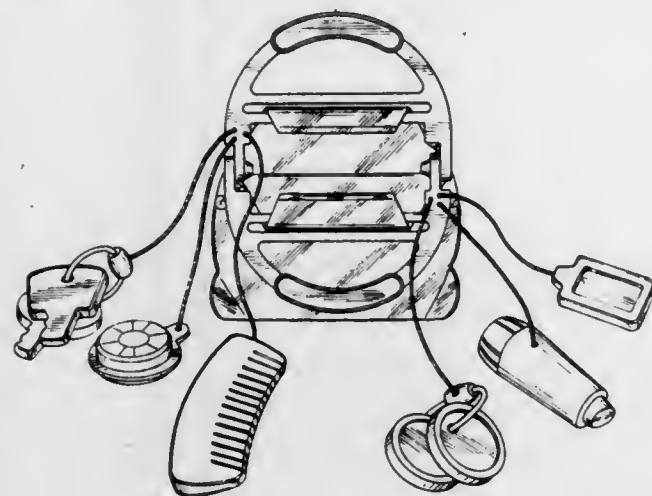
269,882
MARTIAL ARTS MANNEQUIN
Floyd J. Leverton, 39056 Dianron Rd., Palmdale, Calif. 93550
Filed Feb. 12, 1981, Ser. No. 233,871
Term of patent 14 years
Int. Cl. D19—07

U.S. Cl. D19—59



269,883
COMBINED CARRYING CASE AND TETHERED TOYS
Kathryn A. Cavnar, Covington, Ky.; Charles E. Ligon, and
Rickie T. Bedell, both of Cincinnati, Ohio, assignors to CPG
Products Corp., Minneapolis, Minn.
Filed Oct. 5, 1981, Ser. No. 308,327
Term of patent 14 years
Int. Cl. D21—01

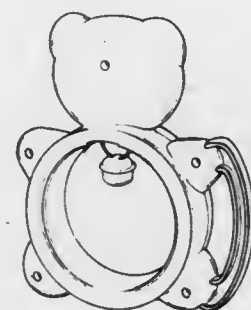
U.S. Cl. D21—59



269,884
TOY RATTLE

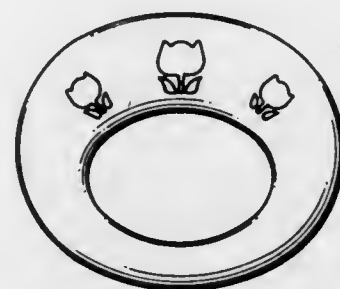
Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Taira Hana-
shima, both of Tokyo, all of Japan, assignors to Combi Co.,
Ltd., Tokyo, Japan
Filed Apr. 13, 1981, Ser. No. 253,500
Claims priority, application Japan, Nov. 5, 1980, 55-46254
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—65



269,885
TOY RATTLE
Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Taira Hana-
shima, both of Tokyo, all of Japan, assignors to Combi Co.,
Ltd., Tokyo, Japan
Filed Aug. 19, 1981, Ser. No. 294,276
Claims priority, application Japan, Feb. 27, 1981, 56-7858
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—65



269,886
TOY RATTLE

Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Taira Hana-
shima, both of Tokyo, all of Japan, assignors to Combi Co.,
Ltd., Tokyo, Japan
Filed Aug. 19, 1981, Ser. No. 294,277
Claims priority, application Japan, Jun. 17, 1981, 56-26336
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—65



269,888
DOLL

Joretta Rupp, R.R. 2, Box 80E, Wadesville, Ind. 47638
Filed Jun. 24, 1981, Ser. No. 276,912
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—173



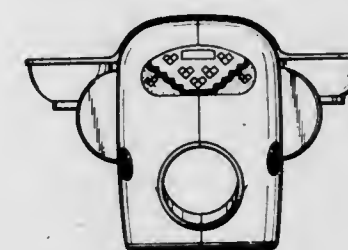
269,889
PHYSICAL EXERCISE SUPPORT
Thomas E. Beer, 9206 Holland Ave., Durham, Calif. 95938
Filed Jan. 12, 1981, Ser. No. 224,704
Term of patent 14 years
Int. Cl. D21—02

U.S. Cl. D21—191



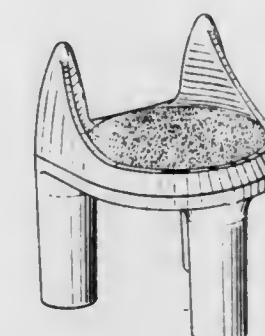
269,887
ANIMAL FIGURE TOY
Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Susumu Ma-
tsumoto, both of Tokyo, all of Japan, assignors to Combi Co.,
Ltd., Tokyo, Japan
Filed May 18, 1981, Ser. No. 265,112
Claims priority, application Japan, Jan. 27, 1981, 56-2643
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D21—162



269,890
FOOTBALL KICKING TEE
Jan Stenerud, Overland Park, Kans., assignor to Jan Stenerud
and Company Inc., Shawnee Mission, Kans.
Filed Apr. 28, 1981, Ser. No. 258,422
Term of patent 14 years
Int. Cl. D21—02

U.S. Cl. D21—209



269,891

BALL CATCHING AND THROWING DEVICE

Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.

Filed Jun. 10, 1980, Ser. No. 158,331

The portion of the term of this patent subsequent to Jun. 28, 1997, has been disclaimed.

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-210



269,893

BALL CATCHING AND THROWING DEVICE

Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.

Filed Jun. 10, 1980, Ser. No. 158,336

The portion of the term of this patent subsequent to Jun. 28, 1997, has been disclaimed.

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-210



269,894

TENNIS BALL PROJECTOR FOR TRAINING PURPOSES

Tsugio Hirabayashi, Tokyo, and Michio Nakai, Ebina, both of Japan, assignors to Sony Corporation, Tokyo, Japan

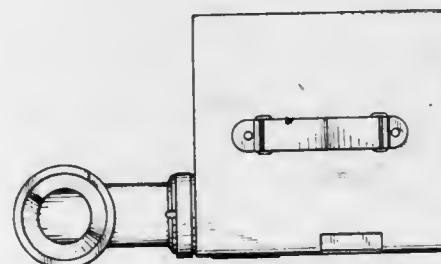
Filed Dec. 15, 1980, Ser. No. 216,183

Claims priority, application Japan, Jun. 19, 1980, 55-24586

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D21-210



269,892

BALL CATCHING AND THROWING DEVICE

Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.

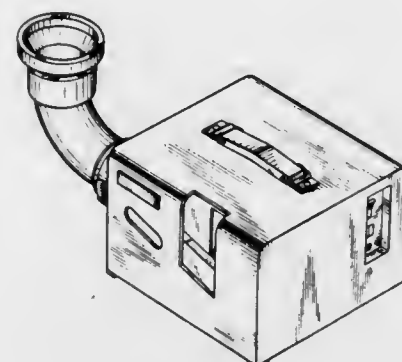
Filed Jun. 10, 1980, Ser. No. 158,333

The portion of the term of this patent subsequent to Jun. 28, 1997, has been disclaimed.

Term of patent 14 years

Int. Cl. D21-01, 210

U.S. Cl. D21-210



269,895

HANDGUN GRIP

John E. Bianchi; Richard D. E. Nichols, both of Fallbrook; Frank A. Pachmayr, Los Angeles; Jack R. Farrar, Whittier, and Frank W. Farrar, Los Alamitos, all of Calif., assignors to Bianchi Leather Products, Inc., Temecula, Calif.

Filed Mar. 5, 1981, Ser. No. 240,809

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-1



269,897

FLY TRAP

Charles B. Duff, Scottsdale, Ariz., assignor to Farnam Companies, Inc., Phoenix, Ariz.

Filed Nov. 20, 1980, Ser. No. 208,566

Term of patent 14 years

Int. Cl. D22-06

U.S. Cl. D22-19



269,896

PISTOL

Louis W. Seecamp, 487 Wolcott La., Orange, Conn. 06477

Filed Jun. 26, 1981, Ser. No. 277,722

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-1



269,898

LINE GUIDE

Shigeru Yamamoto, Higashikurume, Japan, assignor to Daiwa Seiko, Inc., Tokyo, Japan

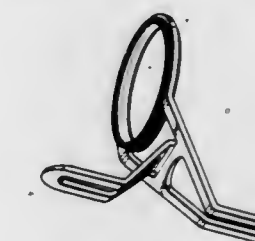
Filed Apr. 6, 1981, Ser. No. 251,604

Claims priority, application Japan, Oct. 4, 1980, 55-41297

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-24



269,899

FISHING REEL

Takeshi Shohoji, Funabashi, and Masakazu Sakamoto, Fukuyama, both of Japan, assignors to Ryobi Ltd., Hiroshima, Japan

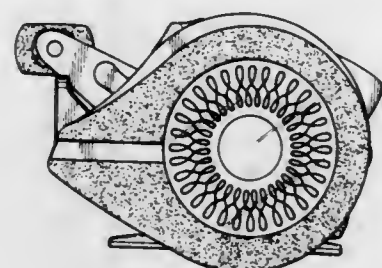
Filed Apr. 8, 1981, Ser. No. 252,485

Claims priority, application Japan, Oct. 16, 1980, 55-43302

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-25



269,900

LURE FOR FISHING

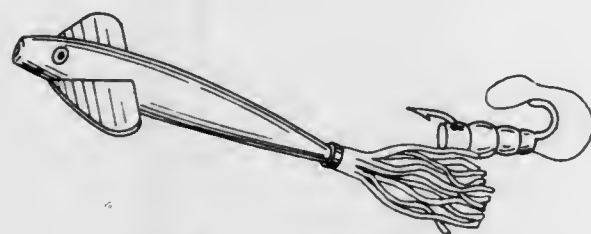
Howard P. Shiverdecker, Park City South, Lot 132, Bloomington, Ill. 61701

Filed Mar. 5, 1981, Ser. No. 240,820

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-28



269,901

STOVE

Winston J. F. Sorensen, Rudkøbing, Denmark, assignor to Danish Stove Association, ApS, Odense, Denmark

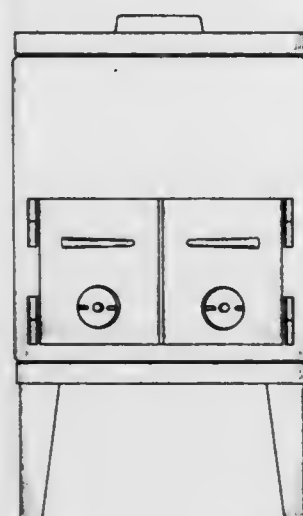
Filed Nov. 19, 1980, Ser. No. 208,291

Claims priority, application Denmark, May 23, 1980, 409/80

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-97



269,902

COMBINED AIR FRESHENER AND PHOTO FRAME OR SIMILAR ARTICLE

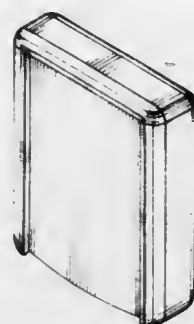
Bradford L. Edwards, 4653 - 41st Ave. NE., Seattle, Wash. 98105

Filed Dec. 15, 1980, Ser. No. 216,517

Term of patent 14 years

Int. Cl. D23-04

U.S. Cl. D23-150



269,903

VACUUM FIRING PORCELAIN FURNACE

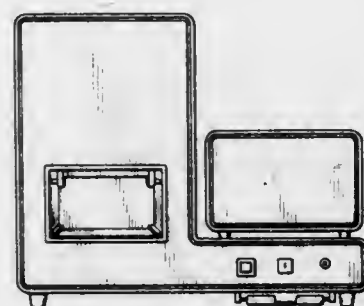
Robert S. Quandt, Libertyville, Ill., assignor to Sybron Corporation, Rochester, N.Y.

Filed Oct. 24, 1980, Ser. No. 200,332

Term of patent 14 years

Int. Cl. D24-01

U.S. Cl. D24-08



269,904

ENDOSCOPE

Hideki Shimonaka, Sagami-hara, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan

Filed Mar. 30, 1981, Ser. No. 249,184

Claims priority, application Japan, Dec. 17, 1980, 55-52660

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D24-18



269,905

OCCLUSIVE SPHYGMANOMETER FOR THE MEASURING OF ARTERIAL BLOOD PRESSURE

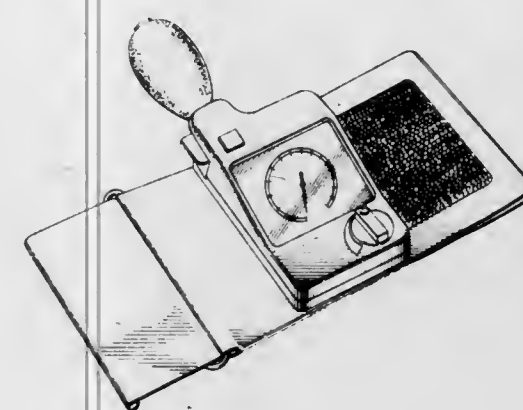
Ulf S. Tamm, 122 Ch. de la Montagne, 1224 Chene Bougeries, Switzerland

Filed Feb. 18, 1981, Ser. No. 235,598

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D24-21



269,906

BABY BOTTLE MEDICANT DEVICE

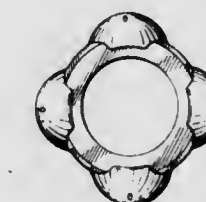
Nicholas P. Cerasari, 1103 Spruce Ave., Wilmington, Del. 19805

Filed Sep. 24, 1980, Ser. No. 190,436

Term of patent 14 years

Int. Cl. D24-04

U.S. Cl. D24-47



269,907

INCONTINENCE GARMENT

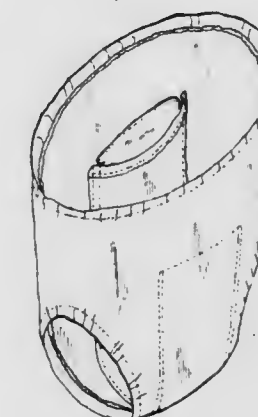
David P. Tong, Nuneaton, England, assignor to Humanicare International Inc., East Brunswick, N.J.

Filed Nov. 10, 1980, Ser. No. 205,715

Term of patent 14 years

Int. Cl. D24-99; D2-01

U.S. Cl. D24-50



269,908

WALKING SPLINT

Hugh W. Payton, 36 S. Main St., Jeffersonville, Ohio 43128

Filed Aug. 25, 1980, Ser. No. 182,274

Term of patent 14 years

Int. Cl. D24-04

U.S. Cl. D24-64



269,909

MULTIPLE-OCCUPANCY RESIDENTIAL BUILDING OR SIMILAR ARTICLE

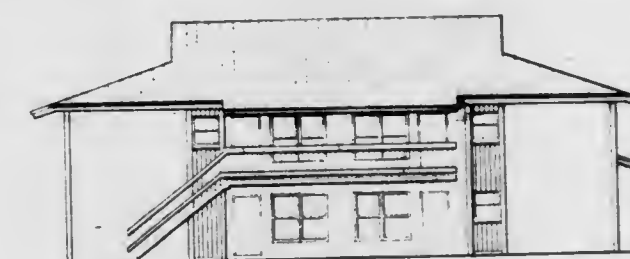
John S. Obarowski, Hollywood, Fla., assignor to Development Corporation of America, Hollywood, Fla.

Filed Apr. 9, 1981, Ser. No. 252,613

Term of patent 14 years

Int. Cl. D25-03

U.S. Cl. D25-23



269,910

COMBINATION ARTICULATION RAIL AND
CONNECTING BAR FOR SCREEN WALLS AND
SIMILAR ARTICLES

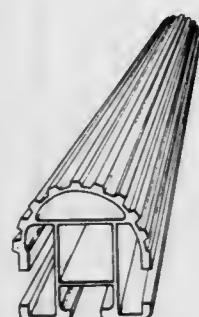
Ake K. Johansson, Strömstad, Sweden

Filed Mar. 9, 1981, Ser. No. 241,655

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—74



269,912

POST FOR AN ELECTRIC FENCE

Yrjö Aho, Espoo, Finland, assignor to Exel Oy, Helsinki, Finland

Filed Sep. 3, 1981, Ser. No. 299,322

Claims priority, application Finland, Mar. 4, 1981, 160/81

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—77



269,913

ADJUSTABLE LAMP

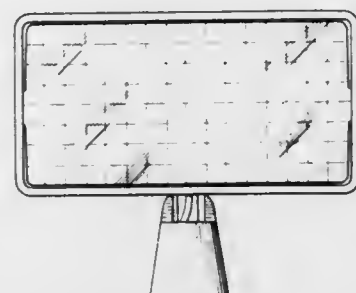
Robert W. Johnson, Levittown, Pa., and Donald W. Doman, Janesville, Wis., assignors to Exide Electronics Corporation, Philadelphia, Pa.

Filed Aug. 14, 1980, Ser. No. 178,035

Term of patent 4 years

Int. Cl. D26—03

U.S. Cl. D26—63



269,911

SEALING STRIP

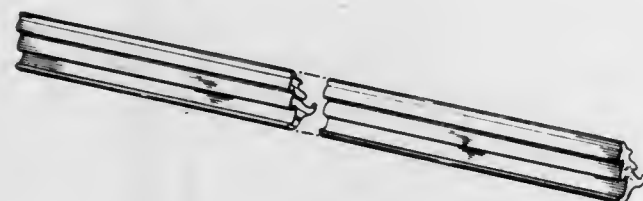
Robert W. Lucous, 1690 S. Shiloh Rd., Laura, Ohio 45337

Filed Sep. 14, 1981, Ser. No. 301,827

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—74



269,914

BAR OF SOAP

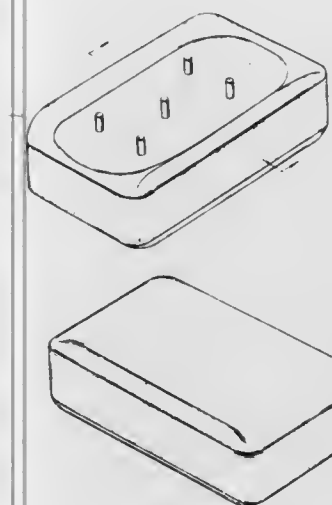
Kiyoshi Otsuka, Kato-so, 2166, Futoo-cho, Kouhoku-ku, Yokohama, Japan

Filed Sep. 23, 1981, Ser. No. 304,928

Term of patent 14 years

Int. Cl. D28—02

U.S. Cl. D28—8.1



269,916

DOG HOUSES

Lawrence Lodrick, 2436 Harrison Ave. North, Rochester, Mich. 48063

Filed Apr. 16, 1981, Ser. No. 254,961

The portion of the term of this patent subsequent to Nov. 4, 1994, has been disclaimed.

Term of patent 14 years

Int. Cl. D30—02

U.S. Cl. D30—1



269,917

HOUSEHOLD CLEANING MOP

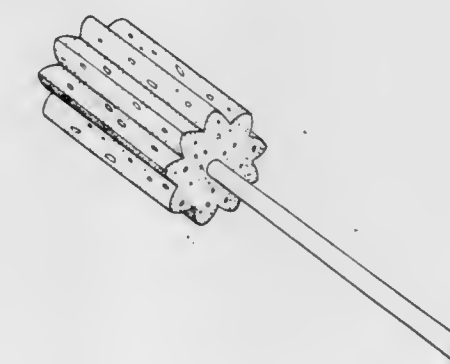
Donald C. Spann, 1003 Botany Rd., Greenville, S.C. 29607

Filed Nov. 5, 1980, Ser. No. 204,259

Term of patent 14 years

Int. Cl. D7—05

U.S. Cl. D32—51



269,915

DISPOSABLE SAFETY RAZOR

Clemens A. Iten, Staunton, Va., and David O. Chase, Skaneateles, N.Y., assignors to American Safety Razor Company, Verona, Va.

Filed Apr. 8, 1981, Ser. No. 252,084

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—46



269,918

TOOL TRAY OR THE LIKE

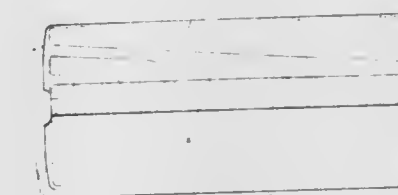
Andrew E. Dembricks, Wake, N.C., assignor to Southern Case, Inc., Raleigh, N.C.

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LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF JULY, 1983

NOTE—Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

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- AB Piab: *See—*
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- AB Saffle Gjuteri and Mekaniska Verkstad: *See—*
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- Abe, Akira: *See—*
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- Anthony, David S.; and Anthony, Michael D. Downhole oil well pump. 4,395,200, Cl. 417-131.000.
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- Brems, John H. Pallet registry mechanism and transfer lift system. 4,394,897, Cl. 198-345.000.
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- Bristol, Robert G.: See—
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- British Aerospace Public Limited Company: See—
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- Brooks, Jerry A. Method and apparatus for entrenching an elongated under-water structure. 4,395,158, Cl. 405-161.000.
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- Brownfield, Jerry A.; Sandberg, Richard J.; Niemi, Thomas J.; and Howland, Leland L., to Thermo King Corporation. Transport refrigeration unit with removable power pack frame. 4,394,818, Cl. 62-239.000.
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- Buchan, William R.; and Cielakie, Eddie W., to Nashua Corporation. Methods and apparatus for cleaning photoconductive members. 4,395,113, Cl. 355-15.000.
- Buchas, Gerald L., to Arthur G. Russell Company, Incorporated, The. Control system for vibrating a member at its resonant frequency. 4,395,665, Cl. 318-114.000.
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- Camp, Ronald L. Polyether-based thickeners with additives for increased efficiency in aqueous systems. 4,395,351, Cl. 252-315.100.
- Campagne, Jean-Claude; and Frappier, Guy, to Rhone-Poulenc Industries. Expandable food composition. 4,395,429, Cl. 426-271.000.
- Campbell, James F., to Paper Converting Machine Company. Method and apparatus for providing balanced stacks of diapers. 4,394,898, Cl. 198-374.000.
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- Castonguay, Roger N., to General Electric Company. Isolation shield for circuit breaker compartment secondary disconnects. 4,395,602, Cl. 200-50.0AA.
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- Chang, Chin A.: See—
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- Charbonneau, Larry F., to Celanese Corporation. Preparation of aromatic copolymers via in situ esterification with isopropenyl esters of an alkyl acid. 4,395,536, Cl. 528-206.000.
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- Charles A. Breskin Assoc. Inc.: See—
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- Ciba-Geigy Corporation: See—
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Hayashi, Hideki; and Takai, Kazuki, 4,394,995, Cl. 242-207.000.
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- Coutin, Pierre F., to R. Alkan & Cie. Device for suspending under aircraft miscellaneous loads with variable distance between centers. 4,395,003, Cl. 244-137.00R.
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- Cunningham, Donald M., to Emerson Electric Co. Electric circulation heater for heating fluids such as oil. 4,395,618, Cl. 219-298.000.
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- Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., to Environmental Research Institute of Michigan. Off-image detection circuit for an image analyzer. 4,395,697, Cl. 382-41.000.
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- Dawes, Donald, to Scapa Dyers Inc. Spiral fabric papermakers felt and method of making. 4,395,308, Cl. 162-232.000.
- Dawson, Robert J., to Falconbridge Limited. Abrasion resistant machineable white cast iron. 4,395,284, Cl. 75-123.00CB.
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- Dayco Corporation: See—
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- Deason, Max W. Pool deck form for vinyl liner swimming pool. 4,395,014, Cl. 249-9.000.
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- Rae, Rory, 4,394,976, Cl. 239-679.000.
- De Goederen, Cornelis W. J.: See—
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- Delalande S.A.: See—
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- Delhey, Hans-Martin: See—
Braun, Albert; Portz, Willi; Strauss, Georg; and Delhey, Hans-Martin, 4,395,282, Cl. 75-58.000.
- Dennikov, Sergei J.: See—
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- DePalma, Anthony M.: See—
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- DeSimone, Robert S.: See—
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- de Vries, Louis; and King, John M., to Chevron Research Company. Antioxidant combinations of sulfur containing molybdenum complexes and organic sulfur compounds. 4,395,343, Cl. 252-32.70E.
- Dial-A-Firm International, Inc.: See—
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- Diesel Kiki Co., Ltd.: See—
Takada, Haruhiko, 4,395,203, Cl. 417-282.000.
- Di Gioacchino, Sandro: See—
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- Digital Equipment Corporation: See—
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- Dillinger, Robert B.: See—
Stone, W. James; Burkland, Vernon D.; and Dillinger, Robert B., 4,395,001, Cl. 244-122.00AE.
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Bartolotti, Frank; and Dockstader, Douglas, 4,395,155, Cl. 404-9.000.
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Shirey, Richard, 4,394,794, Cl. 29-432.000.
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- Dostert, Philippe L.: See—
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- Doumas, John: See—
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- McDonald, Charles J., 4,395,311, Cl. 203-34.000.
- Park, Chung P., 4,395,510, Cl. 524-230.000.
- Dow Corning Corporation: See—
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- Polmanter, Keith E., 4,395,462, Cl. 428-420.000.
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- Dutra, Gerard A.; and Sikorski, James A., to Monsanto Company. Alkyl N-arylsulfonyl-N-diaryloxy-phosphinylmethylglycinates. 4,395,374, Cl. 260-941.000.
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- DuVall, Zell, to TSI Incorporated. Fluid flow measuring apparatus. 4,394,825, Cl. 73-861.090.
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 Eibl, Johann; Schwarz, Otto; Elsinger, Fritz; and Philipitsch, Anton, to Immuno Aktiengesellschaft fur Chemisch-medizinische Produkte. Blood-coagulation-promoting preparation based on human proteins and a method of producing the same. 4,395,396, Cl. 424-101.000.
 Eicker, Karl-Georg; Schulz, Siegfried; and Seim, Burkhardt, to K. A. Schmersal GmbH & Co. Safety switch assemblies. 4,395,608, Cl. 200-153.00L.
 Eickhoff, David J.; and Robbins, Medford D., to Procter & Gamble Company. The Catalysts for oxygen-initiated free-radical polymerization reactions. 4,395,361, Cl. 252-431.00C.
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 Eiermann, Kurt; Horlebein, Eberhard; and Schafer, Wolfgang, to Degussa AG. Holding device for electrical thin layer resistance. 4,395,586, Cl. 174-138.00J.
 Einolf, Charles W., Jr.; Szabo, Andras I.; and Crew, Albert W., to Westinghouse Electric Corp. Bus access circuit for high speed digital data communication. 4,395,710, Cl. 340-825.500.
 Eistetter, Klaus; Rapp, Erich; and Wolf, Horst, to Byk Gulden Lomberg Chemische Fabrik Gesellschaft mit Beschränkter Haftung. Substituted quinolinone-alkanecarboxylic acids and medicaments containing them, having a hyperglycaemic action. 4,395,414, Cl. 424-258.000.
 EKC Technology, Inc.: See—
 Lee, Wai M., 4,395,348, Cl. 252-143.000.
 Electric Power Development Co. Ltd.: See—
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 Ferris, William E., deceased; Hennessy, Gail, executrix; Doumas, John; and McCarter, Harry, 4,395,375, Cl. 264-40.100.
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 Cade, Phillip J., 4,395,224, Cl. 431-31.000.
 Cade, Phillip J., 4,395,638, Cl. 250-554.000.
 Elenbaas, William J. Television special effects circuit for wiping video signals. 4,395,733, Cl. 358-183.000.
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 Molloy, Bryan B.; and Steinberg, Mitchell I., 4,395,410, Cl. 424-244.000.
 Ryan, Charles W., 4,395,560, Cl. 549-391.000.
 Elkem Metals Company: See—
 Merkert, Rodney F., 4,395,285, Cl. 75-256.000.
 Ellis, John: See—
 Murphy, John M.; Spensley, Robert H.; and Ellis, John, 4,395,162, Cl. 405-261.000.
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 Elvo Elektronik AG: See—
 Vogler, Franz, 4,394,785, Cl. 15-21.00D.
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 Rembges, Wolfgang; and Elwart, Jan G., 4,395,024, Cl. 266-252.000.
 EMC Corporation: See—
 Pelta, Edmond R., 4,395,678, Cl. 324-132.000.
 Emerson Electric Co.: See—
 Cunningham, Donald M., 4,395,618, Cl. 219-298.000.
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 Davis, Denny G.; Emerson, Robert C.; and Banks, George J., Jr., 4,395,029, Cl. 269-57.000.
 Emhart Industries, Inc.: See—
 Sandler, Louis M.; and Bristol, Robert G., 4,395,671, Cl. 318-786.000.
 Emmons, William D.; and Stevens, Travis E., to Rohm and Haas Company. Acrylamide copolymer thickener for aqueous systems. 4,395,524, Cl. 526-307.200.
 Eng, Kjell, to AB Eiser. Method of absorbing liquids. 4,395,336, Cl. 210-693.000.
 Engel, John F., to FMC Corporation. 1R,Cis-3-(2-halo-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylic acid derivatives. 4,395,567, Cl. 560-124.000.
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 Engelsmann, Dieter: See—
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 Helgeland, Olav; Rudi, Guttorm; and Engely, Odd, 4,395,010, Cl. 248-371.000.
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 Courduvelis, Constantine I., 4,395,302, Cl. 156-642.000.
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 Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., 4,395,697, Cl. 382-41.000.
 McCubrey, David L.; and Richardson, Ralph E., 4,395,700, Cl. 382-27.000.
 Sternberg, Stanley R.; Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., 4,395,698, Cl. 382-27.000.
 Sternberg, Stanley R., 4,395,699, Cl. 382-41.000.
 Epps, Stephan R.: See—
 Lanning, John M.; and Epps, Stephan R., 4,394,913, Cl. 212-189.000.
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 Epson Corporation: See—
 Gomi, Yoshifumi, 4,394,949, Cl. 226-76.000.
 Ernes, Neri, to S.I.C.A. Serrande. Infissi. Carpenteria. Attrezzatura S.p.A. Mechanical expansion plug for the internal calibration of plastic material tubes in general, particularly for fashioning the seats for gaskets. 4,395,218, Cl. 425-392.000.
 Esaki, Leo; and Chang, Chin A., to United States of America, Army. Heterojunction transistor. 4,395,722, Cl. 357-16.000.
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 Ethyl Corporation: See—
 Seth, Kishankumar K., 4,395,389, Cl. 423-341.000.
 Evans, John M.: See—
 Wittmann, Joseph W.; and Evans, John M., 4,395,496, Cl. 523-107.000.
 Evans, Lee L., to Intersil, Inc. High speed integrating analog-to-digital converter. 4,395,701, Cl. 340-347.0NT.
 Ex-Cell-O Corporation: See—
 Lisiecki, Robert E., 4,394,954, Cl. 229-17.00G.
 Exxon Research and Engineering Co.: See—
 Idenden, John E., 4,395,310, Cl. 203-2.000.
 Majewski, Henry A.; Salmre, William; and Van Brimer, R. Hugh, 4,395,719, Cl. 346-140.00R.
 Nagano, Hayao; and Costemalle, Bernard J., 4,395,506, Cl. 524-68.000.
 Wristers, Harry J., 4,395,358, Cl. 252-429.00B.

- Fabrique Nationale Herstal, en abregé F.N., Societe Anonyme: See—
 Chavee, René M.; and Gabriels, Andre J., 4,394,836, Cl. 102-485.000.
 Falconbridge Limited: See—
 Dawson, Robert J., 4,395,284, Cl. 75-123.0CB.
 Fan, Steve T., to General Mills, Inc. Dry mix for bread. 4,395,426, Cl. 426-62.000.
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 Weill, Wolfgang; Lanz, Andres; Vogt, Max; Meier, Paul; Kaul, Martin; and Fankhauser, Hanspeter, 4,395,614, Cl. 219-72.000.
 Farina, James S.: See—
 Raghu, Sivaraman; Farina, James S.; and Peake, Steven L., 4,395,547, Cl. 544-184.000.
 Farmer, Douglas A., Jr.: See—
 Lines, Ellwood L., Jr.; and Farmer, Douglas A., Jr., 4,395,453, Cl. 428-216.000.
 Farnam, Robert G. Method of coating liquid penetrable articles with polymeric dispersions. 4,395,441, Cl. 427-211.000.
 Farrand Optical Co., Inc.: See—
 Shenker, Martin, 4,395,234, Cl. 434-33.000.
 Faulkner, Ben V. Method of preventing drill string overflow. 4,394,880, Cl. 175-69.000.
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 Barker, Thomas H.; Roach, Thomas L.; Kruse, Richard H.; Fayer, Jay A.; and Bohlman, Eric O., 4,395,627, Cl. 235-381.000.
 Fegley, Charles R. Fluid dispensing anti-burglar device. 4,394,934, Cl. 222-5.000.
 Fehr, Rudolf: See—
 Haldimann, Walter; Held, Fritz; and Fehr, Rudolf, 4,395,074, Cl. 305-43.000.
 Feissel, Wolfgang, to Siemens Aktiengesellschaft. Data processing system having virtual memory addressing. 4,395,754, Cl. 364-200.000.
 Feldmann, Michel; and Henaff, Jeannine. Elastic surface wave recursive filter. 4,395,689, Cl. 333-195.000.
 Fenwick, George W., to BASF Wyandotte Corporation. Azo coupling process. 4,395,264, Cl. 8-662.000.
 Fernandez, Joseph M.: See—
 Rosenski, Josephine M.; and Fernandez, Joseph M., 4,395,499, Cl. 523-206.000.
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 Veltman, Jan S.; and Ferrari, Edward A., 4,395,070, Cl. 296-1.00C.
 Ferris, William E., deceased; Hennessy, Gail, executrix; Doumas, John; and McCarter, Harry, to Electrolux Corporation. Method of electrically testing molded cord-sets during the molding operation. 4,395,375, Cl. 264-40.100.
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 Wetzel, Robert E.; Fieler, Wayne C.; and Hollaway, Gerald C., 4,395,298, Cl. 156-137.000.
 Fike Metal Products Corporation: See—
 McLelland, Bruce, 4,394,868, Cl. 137-68.00A.
 Findley Adhesives Inc.: See—
 Nelson, Jeffrey, 4,394,915, Cl. 215-12.00R.
 Fink, Herbert: See—
 Dinklage, Horst; Fink, Herbert; Frank, Peter; Rauch, Hubert; and Siol, Werner, 4,395,515, Cl. 524-832.000.
 Firth, Kenneth; and Howard, Richard K., to Marconi Company Limited, The. Color selective filters. 4,395,088, Cl. 350-3.700.
 Fischbeck, Kenneth H.: See—
 Grover, Joel W.; and Fischbeck, Kenneth H., 4,395,720, Cl. 346-140.00R.
 Fischer, Hannes; and Zimmermann, Rolf, to Hoechst Aktiengesellschaft. Hot melt adhesives. 4,395,525, Cl. 526-307.600.
 Fischer, Harry A.; Koepnick, Paul J.; Dennis, Thomas A.; and Anderson, Joseph R., to Werner Lehara, Inc. Method and apparatus for depositing dough on a conveyor. 4,395,427, Cl. 426-231.000.
 Fischetti, Frank, Jr.: See—
 Schmidt, Douglass N.; and Fischetti, Frank, Jr., 4,395,422, Cl. 424-284.000.
 Fisons Limited: See—
 Taylor, James E.; and Stevenson, Neil A., 4,395,421, Cl. 424-283.000.
 Fitzpatrick, Donald C.; Guild, Gerald A.; and Karis, Arthur T., to Beloit Corporation. Telescoping air jets for piling. 4,395,038, Cl. 271-195.000.
 Flanagan, James L., to Bell Telephone Laboratories, Incorporated. Acoustic differential digital coder. 4,395,593, Cl. 179-1.00F.
 Fleck, Harald: See—
 Aarts, Petrus J. J.; Fleck, Harald; Kocsisek, Karl; and Schmidt, Ernst M., 4,395,745, Cl. 360-129.000.
 Fleet Tech, Inc.: See—
 Wartski, Heinz, 4,395,624, Cl. 377-15.000.
 Flider, Frank S., to Justrite Manufacturing Company. Safety can conversion apparatus. 4,394,937, Cl. 222-189.000.
 Fluck, Rene, to SIG - Schweizerische Industrie-Gesellschaft. Article grouping apparatus. 4,394,899, Cl. 198-408.000.
 FMC Corporation: See—
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 Start, John F., 4,395,548, Cl. 544-190.000.
 Wittman, Leroy L.; and Jensen, Lyle B., 4,394,911, Cl. 212-189.000.
 Fohl, Artur, to Repa Feinstanzwerk GmbH. Energy absorber for load carrying flexible pulling means. 4,394,992, Cl. 242-85.000.
 Fohlen, George M.: See—
 Varma, Indra K.; Fohlen, George M.; and Parker, John A., 4,395,557, Cl. 548-413.000.
 Follmann, Rainer: See—
 Kramer, Walter; and Follmann, Rainer, 4,395,357, Cl. 252-428.000.
 Ford Motor Company: See—
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 Jacquet, Bernard; Lang, Gerard; Malaval, Alain; Forestier, Serge; and Le Trung, Do, 4,395,541, Cl. 528-367.000.
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 Romano, Ugo; Fornasari, Giancarlo; and Di Gioacchino, Sandro, 4,395,565, Cl. 560-24.000.
 Forsch, Manfred; and Gerhards, Hermann, to Hoechst Aktiengesellschaft. Carbamoyloxyamino-1,4-benzodiazepines and medicaments containing these compounds. 4,395,409, Cl. 424-244.000.
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 Best, Walter E.; and Foshee, William R., 4,394,821, Cl. 70-422.000.
 Foster Wheeler Energy Corporation: See—
 Pratt, Harry H., deceased; and Gill, William J., 4,394,849, Cl. 122-235.00K.
 Fothergill, Graham A.; and Osbond, John M., to Hoffmann-La Roche Inc. 2,3-Indole-dione derivatives. 4,395,559, Cl. 548-485.000.
 Fraleux, Jean, to Thomson - CSF. Solid state image pickup. 4,395,736, Cl. 358-213.000.
 Francis Hankin & Co. Limited: See—
 Ciepiela, Edmund J., 4,395,337, Cl. 210-703.000.
 Franetzki, Manfred: See—
 Prestele, Karl; Franetzki, Manfred; and Reif, Erich, 4,395,259, Cl. 604-67.000.
 Frank, Peter: See—
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 Franken, Jeffrey J.; Gladney, Walter W.; and Yeich, William R., to Western Electric Co., Inc. Apparatus for forming compactible material into a body. 4,395,219, Cl. 425-405.00R.
 Franklin Electric Co., Inc.: See—
 Whitney, John A.; and Rosenbrock, Richard, 4,394,958, Cl. 236-49.000.
 Frankosky, Michael S., to Du Pont de Nemours, E. I., and Company. Polyester fiberfill batting having improved thermal insulating properties. 4,395,455, Cl. 428-299.000.
 Franssen, Nico V., deceased; de Haan, Friedrich J., administrator; Kaizer, Adrianus J. M.; and Wesche, Cornelis A. M., to U.S. Philips Corporation. MFB system with a by-pass network. 4,395,588, Cl. 179-1.00F.
 Frantz, Richard J., to Timex Corporation. Optional alarm and battery backup system for a talking timepiece. 4,395,135, Cl. 368-63.000.
 Franzen, Wolfgang: See—
 Rump, Egon; and Franzen, Wolfgang, 4,394,925, Cl. 220-86.00R.
 Frappier, Guy: See—
 Campagne, Jean-Claude; and Frappier, Guy, 4,395,429, Cl. 426-271.000.
 Frassanito, John R., to Sani-Fresh International, Inc. Dispenser and package for liquid or granular materials. 4,394,938, Cl. 222-207.000.
 FRC Composites Limited: See—
 Karuks, Ergo; and Rohn, Martin, 4,395,159, Cl. 405-172.000.
 Frear, David L., to Bendix Corporation, The. Electrical connector having removable contacts. 4,395,083, Cl. 339-59.00R.
 Freeman, James D. Self-penetrating fastener for fastening roofing panels to metal beams. 4,395,174, Cl. 411-510.000.
 Friauf, Walter S.; Brooks, Rodney A.; Sank, Victor J.; and Cascio, Horace E., to United States of America, Health and Human Services. Gamma ray coincidence analysis system. 4,395,635, Cl. 250-366.000.
 Friedrich Grohe Armaturenfabrik GmbH & Co.: See—
 Backe, Wolfgang; Goedecke, Wolf-Dieter; and Schwenzer, Reinhard, 4,394,965, Cl. 239-102.000.
 Friis, Nils: See—
 Wagner, Burkhard E.; Karol, Frederick J.; Goeke, George L.; Jorgensen, Robert J.; and Friis, Nils, 4,395,359, Cl. 252-429.00B.
 Fritts, David H., to United States of America, Air Force. Low pressure nickel hydrogen battery. 4,395,469, Cl. 429-34.000.
 Fuji Photo Film Co., Ltd.: See—
 Horie, Seiji; Nagata, Masayoshi; Nakano, Junji; and Sato, Hideo, 4,395,473, Cl. 430-58.000.
 Kitamoto, Tatsuji; and Shirahata, Ryuji, 4,395,439, Cl. 427-132.000.
 Matsuda, Terumi; Ishiguro, Shoji; Moriuchi, Shigenori; and Suzuki, Yoshiaki, 4,395,483, Cl. 430-411.000.
 Ogawa, Hiroshi; and Tamai, Yasuo, 4,395,466, Cl. 428-695.000.
 Ohnishi, Masahiro; Oosaka, Shigenori; and Oono, Hiroshi, 4,395,766, Cl. 369-47.000.
 Terasita, Takaaki, 4,395,099, Cl. 354-31.000.
 Fuji Xerox Co., Ltd.: See—
 Murayama, Tomio; Kikuchi, Yoshiki; Moriguchi, Haruhiko; Ohmori, Takashi; and Moriguchi, Fujio, 4,395,718, Cl. 346-135.100.
 Saitoh, Koichi, 4,395,470, Cl. 430-39.000.
 Fujimura, Naoto: See—
 Kondo, Hideyo; and Fujimura, Naoto, 4,395,474, Cl. 430-67.000.
 Fujino, Teruhisa; Osawa, Fujio; Chiwaki, Kenichi; and Narazaki, Sadatoshi, to Kabushiki Kaisha Koden Seisakusho. Jamming wave rejecting device. 4,395,779, Cl. 455-306.000.
 Fujisawa Pharmaceutical Co., Ltd.: See—
 Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,395,411, Cl. 424-246.000.
 Fujitsu Fanuc Limited: See—
 Izumiya, Syunzo, 4,395,612, Cl. 219-69.00P.

- Fujitsu Limited: See—
Takahashi, Masanori, 4,395,763, Cl. 364-900.000.
- Fujiwara, Toshihide: See—
Kaneko, Nobutaka; and Fujiwara, Toshihide, 4,395,125, Cl. 356-400.000.
- Fukatsu, Shunzo: See—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuharu, 4,395,402, Cl. 424-177.000.
- Fukui, Kazuyuki, to Minolta Camera Kabushiki Kaisha. Sheet feeding device, 4,395,034, Cl. 271-21.000.
- Fukumoto, Yoshiyuki: See—
Takagi, Toshinori; Nakata, Shinsaku; Mikami, Yoichi; Hotta, Masahiro; and Fukumoto, Yoshiyuki, 4,395,465, Cl. 428-626.000.
- Funschilling, Peter, to Sandoz Ltd. Tetrahydro-2(1H)-quinazolinones and cyclohexene nitriles, 4,395,550, Cl. 544-253.000.
- Furutani, Toshinobu: See—
Torisu, Yoshio; Sakurai, Shigenori; Kamo, Takashi; and Furutani, Toshinobu, 4,395,319, Cl. 204-426.000.
- Futaba Denshi Kogyo Kabushiki Kaisha: See—
Hattori, Takashi; and Makita, Satoru, 4,395,654, Cl. 313-496.000.
- G. D. Searle & Co.: See—
Muir, Robert D., 4,395,341, Cl. 252-8.55D.
- G. D. Societa per Azioni: See—
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- G. S. Blodgett Co., Inc.: See—
Smith, Robert C.; and Cox, A. Benis, II, 4,395,233, Cl. 432-176.000.
- Gabriels, Andre J.: See—
Chavee, Rene M.; and Gabriels, Andre J., 4,394,836, Cl. 102-485.000.
- Gacek, Mikkel J.; Oftebro, Reidar; Laland, Soren; and Undheim, Kjell, to Nyegaard & Co. A/S. 5-Halopyrimid-2-ones, 4,395,406, Cl. 424-180.000.
- Gahleitner, Erwin: See—
Kopke, Wolfgang; Muller, Manfred; Schmidt, Wolfgang; Eggert, Albert; Gahleitner, Erwin; and Raupach, Gerhard, 4,395,601, Cl. 179-179.000.
- Gaiser, John W.: See—
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- Gaiser, William R.; and Gaiser, John W., to Broadway Companies, Inc., The. Injection molding apparatus, 4,395,222, Cl. 425-548.000.
- Galafassi, Pierre: See—
Adam, Jean-Marie; and Galafassi, Pierre, 4,395,545, Cl. 544-74.000.
- Galbraith, Andrew R.: See—
Ballany, John M.; and Galbraith, Andrew R., 4,395,407, Cl. 424-200.000.
- Ganellin, Charon R.: See—
Durant, Graham J.; Ganellin, Charon R.; and Young, Rodney C., 4,395,419, Cl. 424-270.000.
- Ganssle, Eugene R.; and Samhammer, Nelson F., to RCA Corporation. Modular spacecraft structures, 4,395,004, Cl. 244-158.000.
- Ganssle, Eugene R., to RCA Corporation. Apparatus for remotely indicating alignment of male and female members, 4,395,005, Cl. 244-161.000.
- Garber, Eugene L., to JLG Industries, Inc. Boom limit safety control circuit, 4,395,706, Cl. 340-685.000.
- Garbis, Dennis J.; and Baker, Donald E. Shielded/jacketed ribbon-cable sheathing stripping tool, 4,394,828, Cl. 81-9.510.
- Garcia, Gerardo L.: See—
Zahniser, David J.; and Garcia, Gerardo L., 4,395,493, Cl. 435-289.000.
- Gargione, Frank, to Keystone Bingo Products, Inc. Game chip, 4,395,043, Cl. 273-239.000.
- Gaskell, David J., to Lucas Industries Limited. Fuel injection nozzle assembly, 4,394,971, Cl. 239-453.000.
- Gassaway, Lee V. Battery charger controller, 4,395,672, Cl. 320-31.000.
- Gattu, Narahari: See—
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- Gaul, John H., to Dow Corning Corporation. Preparation of polysilazane polymers and the polymers therefrom, 4,395,460, Cl. 428-408.000.
- Gebauer, Gerhard; and Mayer, Franz, to Hoechst Aktiengesellschaft. Coating and primer formulation on the basis of a copolymer of tetrafluoroethylene and a perfluoro(alkylvinyl) ether, and use thereof, 4,395,445, Cl. 427-407.100.
- Geever, Robert F.: See—
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- Geiger, Rolf: See—
Konig, Wolfgang; Geiger, Rolf; and Sandow, Jurgen K., 4,395,400, Cl. 424-177.000.
- Gemmani, Giuseppe, to SCM Finanziaria S.p.A. Machine for machining panels, planks and sections or similar, in particular for wood and the derivatives thereof, 4,394,894, Cl. 198-339.000.
- General Can Company, Inc.: See—
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- General Dynamics, Pomona Division: See—
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- General Electric Company: See—
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- Ching, Ta-Yen, 4,395,461, Cl. 428-412.000.
- Giles, Harold F., Jr.; and White, Dwain M., 4,395,518, Cl. 525-180.000.
- Graff, William A., 4,395,653, Cl. 313-112.000.
- Harris, Lawrence A., 4,395,322, Cl. 204-290.00F.
- Hayes, Susan E., 4,395,563, Cl. 556-459.000.
- Kelley, Fred W., Jr., 4,395,674, Cl. 323-210.000.
- Kray, William D., 4,395,463, Cl. 428-447.000.
- Sexton, Charles W., Jr., 4,395,662, Cl. 315-371.000.
- White, Mary A.; Beers, Melvin D.; Lucas, Gary M.; Smith, Robert A.; and Swiger, Roger T., 4,395,526, Cl. 528-18.000.
- General Electric Silicones: See—
Dziark, John J.; and Shinohara, Kazuto, 4,395,507, Cl. 524-101.000.
- General Mills, Inc.: See—
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- General Mining Union Corporation, Limited: See—
Bohme, Rolf C.; and Lazerson, Max M., 4,394,907, Cl. 209-556.000.
- Bohme, Rolf C., 4,395,634, Cl. 250-359.100.
- General Motors Corporation: See—
Lindsay, James H.; La Sala, Joseph; and Ghorashi, Hamid M., 4,395,313, Cl. 204-30.000.
- Lopez-Crevillen, Jose M.; and Huber, John W., 4,394,853, Cl. 123-195.00C.
- Smith, Richard H.; and Armstrong, Donald J., 4,394,856, Cl. 123-506.000.
- Sowash, Thomas R., 4,395,609, Cl. 200-153.0LA.
- Swick, Robert M., 4,394,811, Cl. 60-39.28R.
- General Signal Corp.: See—
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- Genth, Hermann: See—
Paulus, Wilfried; and Genth, Hermann, 4,395,274, Cl. 71-67.000.
- George Washington University: See—
Low, Teresa L. K.; and Goldstein, Allan L., 4,395,404, Cl. 424-177.000.
- Gerety, Robert J.: See—
Tabor, Edward; and Gerety, Robert J., 4,395,395, Cl. 424-89.000.
- Gerhards, Hermann: See—
Forsch, Manfred; and Gerhards, Hermann, 4,395,409, Cl. 424-244.000.
- Germaine, Gilbert R.; and Darnanville, Jean P., to Shell Oil Company. Li-spinel catalyst for non-oxidative dehydrogenation process, 4,395,579, Cl. 585-444.000.
- Germann, Alfred: See—
Boller, Arthur; Germann, Alfred; Schadt, Martin; and Villiger, Alois, 4,395,350, Cl. 252-299.100.
- Gertsch, Peter; and Imhof, Robert. Drive for rotary-roller offset printing machines, 4,394,835, Cl. 101-177.000.
- Gewerkschaft Eisenhutte Westfalia: See—
Weirich, Walter; and Grommas, Werner, 4,394,875, Cl. 137-636.100.
- Ghaffoori, Abdul R.: See—
Berry, Max A., 4,395,230, Cl. 431-286.000.
- Ghorashi, Hamid M.: See—
Lindsay, James H.; La Sala, Joseph; and Ghorashi, Hamid M., 4,395,313, Cl. 204-30.000.
- Giacone, Felice; Becchi, Raffaele; and Ukmar, Boris, to Ing. C. Olivetti & C., S.p.A. Serial printer, 4,395,145, Cl. 400-59.000.
- Giannetti, Enzo; and Scata, Umberto, to Montedison S.p.A. Catalyst components and catalysts for the polymerization of alpha-olefins, 4,395,360, Cl. 252-429.00B.
- Gibbs & Hill, Inc.: See—
Damsker, Dorel J., 4,395,582, Cl. 136-248.000.
- Gibson, Dale E., to Leupold & Stevens, Inc. Variable magnification telescopic sight having reticle centering mount, 4,395,096, Cl. 350-560.000.
- Giessen, Bill C.: See—
Panchanathan, Viswanathan; Ray, Ranjan; and Giessen, Bill C., 4,395,464, Cl. 428-546.000.
- Gilch, Heinz G.: See—
Bauer, Herbert; Piester, Gerhard; and Gilch, Heinz G., 4,395,301, Cl. 156-307.500.
- Giles, Harold F., Jr.; and White, Dwain M., to General Electric Company. Polyetherimide-acrylate copolymer blends, 4,395,518, Cl. 525-180.000.
- Gill, William J.: See—
Pratt, Harry H., deceased; and Gill, William J., 4,394,849, Cl. 122-235.00K.
- Gingerich, Richard G. W.: See—
Vanderpool, Clarence D.; Scheithauer, Richard A.; and Gingerich, Richard G. W., 4,395,278, Cl. 75-0.5AA.
- Ginniff, Maurice E.; and Richardson, Eric K., to United Kingdom Atomic Energy Authority. Facilities for the examination of radioactive bodies, 4,394,895, Cl. 198-339.000.
- Giordano, Paul J.; and Smierciak, Richard C., to Standard Oil Company. Photochemical conversion and storage of light energy by endoergic isomerizations, 4,394,858, Cl. 126-400.000.
- Girard, Alain, to Societa Nazionale Industrielle Aerospaziale. Concave mirror constituted by a plurality of plane facets and solar generator comprising such a mirror, 4,395,581, Cl. 136-246.000.
- Giraud, Jean M.: See—
Gorre, Paul; and Giraud, Jean M., 4,395,087, Cl. 339-278.00R.
- Gladky, Evgeny D.: See—
Medovar, Boris I.; Gladky, Evgeny D.; Bondarenko, Oleg P.; Chekotilo, Leonty V.; Zayats, Valery I.; Egorov, Sergei P.; and Skosnyagin, Jury A., 4,395,771, Cl. 373-49.000.
- Gladney, Walter W.: See—
Franken, Jeffrey J.; Gladney, Walter W.; and Yeich, William R., 4,395,219, Cl. 425-405.00R.
- Glaser, David. Method of making a display panel, 4,395,244, Cl. 445-25.000.

- Gniewek, Stephen A.; and Olsen, Dick M., to Clayton Manufacturing Company. Single sensor engine analyzer with noise rejection and automatic triggering circuit, 4,395,679, Cl. 324-379.000.
- Goddard, Errol D.: See—
Kulkarni, Ravindra D.; Kanner, Bernard; and Goddard, Errol D., 4,395,352, Cl. 252-321.000.
- Goedecke, Wolf-Dieter: See—
Backe, Wolfgang; Goedecke, Wolf-Dieter; and Schwenzer, Reinhard, 4,394,965, Cl. 239-102.000.
- Goeke, George L.: See—
Wagner, Burkhard E.; Karol, Frederick J.; Goeke, George L.; Jorgensen, Robert J.; and Friis, Nils, 4,395,359, Cl. 252-429.00B.
- Goethals, Jean M. E. B.; and Krol, Thijs, to U.S. Philips Corporation. Error correction device for data transfer system, 4,395,768, Cl. 371-45.000.
- Gohm, Lothar; and Krull, Klaus, to Licentia Patent-Verwaltungs-GmbH. Service-integrated communication transmission and exchange system, 4,395,780, Cl. 455-607.000.
- Goldfarb, Adolph E.; and Von Winckelmann, Emil H., to Goldfarb, Adolph E. Ball transfer and capture game and method, 4,395,041, Cl. 273-119.00A.
- Goldie, Harry; and Patel, Suman D., to United States of America, Air Force. R.F. Primed plasma limiter for radar receiver protector, 4,395,684, Cl. 333-13.000.
- Goldrian, Gottfried A.: See—
Bahr, Dietrich J.; and Goldrian, Gottfried A., 4,395,715, Cl. 346-1.100.
- Goldstein, Allan L.: See—
Low, Teresa L. K.; and Goldstein, Allan L., 4,395,404, Cl. 424-177.000.
- Goldstein, Samuel A., to Polsam, Inc. Elasticized overlay, 4,394,803, Cl. 36-51.000.
- Goltz, Kurt; and West, William T., to Pennwalt Corporation. Method for manufacturing water glass cement hardeners, 4,395,387, Cl. 423-305.000.
- Golubkov, Sergei V.; Druzhinin, Ernest A.; Zimin, Vladimir M.; Kubasov, Vladimir L.; Lvovich, Florenty I.; and Mazanko, Anatoly F. Process for the producing concentrated solution of sodium hydroxide and chlorine, 4,395,314, Cl. 204-98.000.
- Gomi, Shintaro: See—
Takeda, Shigeki; Shibata, Junichi; Shimakata, Masashi; Oshime, Yasuhiro; Gomi, Shintaro; and Kawamura, Katsuaki, 4,395,714, Cl. 343-725.000.
- Gomi, Yoshifumi, to Epson Corporation; and Kabushiki Kaisha Suwa Seikosha. Pin wheel feed mechanism, 4,394,949, Cl. 226-76.000.
- Goodman, James A., to Consolidated Foods Corporation. Method of making corrugated packages, 4,395,253, Cl. 493-87.000.
- Gorog, Istvan: See—
Southgate, Peter D.; and Gorog, Istvan, 4,395,122, Cl. 356-237.000.
- Gorog, Peter: See—
Budai, Zoltan; Lay nee Konya, Aranka; Mezei, Tibor; Petocz, Lujza; Grasser, Katalin; Kosoczky, Ibolya; Szirt nee Kiszelly, Eniko; and Gorog, Peter, 4,395,413, Cl. 424-250.000.
- Gorre, Paul; and Giraud, Jean M., to Socapex. Strip of border-held contact elements for a connection device, and a process for forming such contact elements, 4,395,087, Cl. 339-278.00R.
- Goss, Ralph R., to AMP Incorporated. Connector insertion tool, 4,394,795, Cl. 29-739.000.
- Goto, Jiro: See—
Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,395,411, Cl. 424-246.000.
- Gotthold, John P. Method of generating process instructions, 4,395,236, Cl. 434-219.000.
- Gottlieb, Milton; and Brandt, Gerald B., to Westinghouse Electric Corp. Bulk acoustic wave integrated optical deflector and monolithic A/D converter using such deflector, 4,395,702, Cl. 340-347.0AD.
- Goulding, Terence: See—
Jackson, Graham V.; Goulding, Terence; and Bradbury, John A., 4,395,456, Cl. 428-304.400.
- Graber, Joseph V. Bicycle carrier for vehicles, 4,394,948, Cl. 224-314.000.
- Graf, Felix; and Wirz, Armin, to Rieter Machine Works Limited. Winding apparatus for threads or yarns, 4,394,985, Cl. 242-18.0DD.
- Graff, William A., to General Electric Company. Electric lamp with neodymium oxide vitreous coating, 4,395,653, Cl. 313-112.000.
- Grakauskas, Vytautas: See—
Baum, Kurt; Grakauskas, Vytautas; and Berkowitz, Phillip T., 4,395,561, Cl. 549-510.000.
- Granda, Edward J.: See—
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,395,366, Cl. 252-545.000.
- Grasser, Katalin: See—
Budai, Zoltan; Lay nee Konya, Aranka; Mezei, Tibor; Petocz, Lujza; Grasser, Katalin; Kosoczky, Ibolya; Szirt nee Kiszelly, Eniko; and Gorog, Peter, 4,395,413, Cl. 424-250.000.
- Graves, Donald L.: See—
MacDonell, Wayne O.; Graves, Donald L.; and Timar, Thomas, 4,395,178, Cl. 414-138.000.
- Gray, John E., to Otis Elevator Company. Modified slowdown and braking of an elevator car, 4,394,889, Cl. 187-29.00R.
- Green, John C., to Hassy Horticultural Development Ltd. Apparatus for handling harvested material, 4,395,176, Cl. 414-57.000.
- Green, John C., to Hassy Horticultural Development Ltd. Method of handling harvested material, 4,395,194, Cl. 414-786.000.
- Greenwood, Thomas D.: See—
St. Clair, Terry L.; Wolfe, James F.; and Greenwood, Thomas D., 4,395,540, Cl. 528-345.000.
- Greier, Josef; and Pomfret, Colin T., to List, Hans. Decompression device in an internal combustion engine, 4,394,851, Cl. 123-182.000.
- Greiner, Felix: See—
Kienle, Erhard; Kornaker, Walter; and Greiner, Felix, 4,395,692, Cl. 335-284.000.
- Grimfard, Goran, to Asea AB. Treating molten pig iron in a torpedo, 4,395,281, Cl. 75-53.000.
- Griset, Norman. Guide clamp, 4,394,800, Cl. 33-443.000.
- Grommas, Werner: See—
Weirich, Walter; and Grommas, Werner, 4,394,875, Cl. 137-636.100.
- Groteke, Daniel E. Pre-wet and reinforced molten metal filter, 4,395,333, Cl. 210-510.000.
- Groth, Francis R. Closure clamp for food bags, 4,394,791, Cl. 24-30.50R.
- Grove Valve and Regulator Company: See—
Van Scoy, Davis A., 4,394,826, Cl. 73-861.610.
- Grover, Joel W.; and Fischbeck, Kenneth H., to Xerox Corporation. Configurational reduction of pulse ejector crosstalk, 4,395,720, Cl. 346-140.00R.
- Groves, Michael H.: See—
Ramsden, Paul N.; and Groves, Michael H., 4,395,630, Cl. 250-237.00G.
- Groves, Michael R.: See—
Hollinger, John D.; Groves, Michael R.; and Hogg, Walter R., 4,395,676, Cl. 324-71.400.
- Gruber, Damie C.; and Robichaud, Bernard J., to Webb Company, The. Apparatus for printing books of signatures and method for same, 4,395,031, Cl. 270-54.000.
- Gruner, Manfred; and Hendrich, Wolfgang, to Mannesmann Aktien-Gesellschaft. Positioning of a multicolor ribbon, 4,395,148, Cl. 400-212.000.
- Grussen, Jean, to Charles A. Breskin Assoc. Inc. Screw cap with tamper-proof hold ring, 4,394,918, Cl. 215-243.000.
- GTE Automatic Electric Labs Inc.: See—
Comfort, Joseph A.; Perry, Thomas J.; and Loos, Michel, 4,395,753, Cl. 364-200.000.
- Kaczko, John E., 4,395,591, Cl. 179-100.00R.
- Gte Products Corporation: See—
Houck, David L., 4,395,279, Cl. 75-0.5BB.
- Vanderpool, Clarence D.; Scheithauer, Richard A.; and Gingerich, Richard G. W., 4,395,278, Cl. 75-0.5AA.
- Guild, Gerald A.: See—
Fitzpatrick, Donald C.; Guild, Gerald A.; and Karis, Arthur T., 4,395,038, Cl. 271-195.000.
- Gulf & Western Industries, Inc.: See—
Oller, Osvaldo A.; Hansen, Eric R.; and Eaker, Gerard L., 4,395,290, Cl. 106-100.000.
- Gulotta, Joseph A.: See—
Kunkle, Gerald E.; Sensi, John E.; and Gulotta, Joseph A., 4,395,272, Cl. 65-99.500.
- Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, to Petroleum Fermentations N.V. Polyanionic heteropoly-saccharide biopolymers, 4,395,353, Cl. 252-356.000.
- Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, to Petroleum Fermentations N.V. Emulsions, 4,395,354, Cl. 252-356.000.
- Haase, Jeroslav; Liechti, Peter; Wegmuller, Hans; Wurster, Rudolf F.; and Bowes, Quentin, to Ciba-Geigy Corporation. N-Methylolcarboxamide compounds, 4,395,546, Cl. 544-168.000.
- Hachisu, Mitsugu: See—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuharu, 4,395,402, Cl. 424-177.000.
- Hackenberg, Hubert: See—
Luhrig, Hermann; Hoffacker, Franz; Kovacic, Guido; Engelsmann, Dieter; Zobel, Siegfried; Hackenberg, Hubert; and Wagner, Karl, 4,395,107, Cl. 354-275.000.
- Hackenberg, Robert A., to Robertson Paper Box Co., Inc. Auto platform carton, 4,394,905, Cl. 206-486.000.
- Hackstein, Helmut: See—
Hans, Karl; and Hackstein, Helmut, 4,395,587, Cl. 178-30.000.
- Hagen, Helmut; Ziegler, Hans; Mappes, Celia J.; and Pommer, Ernst-Heinrich, to BASF Aktiengesellschaft. N-Oxo-pyridin-2-yl-dithio-(4-nitro-2-trichloromethylbenzene) and a fungicidal formulation containing same, 4,395,415, Cl. 424-263.000.
- Haldimann, Walter; Held, Fritz; and Fehr, Rudolf, to Huber & Suhner AG. Connecting spike for flexibly connecting two chain links of a track, 4,395,074, Cl. 305-43.000.
- Hall, Charles B.; McBride, Edward D.; and Young, Robert F., to Outboard Marine Corporation. Hydraulic system for marine propulsion device with sequentially operating tilt and trim means, 4,395,239, Cl. 440-61.000.
- Hall, Iris; Cocolas, George; and Chapman, James M., Jr., to Research Corporation. Antihyperlipidemic compositions, 4,395,417, Cl. 424-270.000.
- Halliburton Company: See—
McLaughlin, Homer C., 4,395,340, Cl. 252-8.55D.
- Halliday, David P.: See—
Sharrock, Barry; and Halliday, David P., 4,395,008, Cl. 244-215.000.

- Hallquist, Lisa G.: See—
Ward, Irl E.; Hallquist, Lisa G.; and Hurley, Thomas J., 4,395,479, Cl. 430-258.000.
- Hama, Mamoru, to Mihama Manufacturing Co., Ltd.; and Kato Hatsuo Kaisha, Ltd. Apparatus for manufacture of turbulence member made of synthetic resin. 4,395,210, Cl. 425-71.000.
- Hamamsy, Mahmoud A. E., to Bell Telephone Laboratories, Incorporated. Optically toggled latch-free normally off switch. 4,395,637, Cl. 250-551.000.
- Hamanishi, Yoshinari, to Nippon Kogaku K.K. Large aperture ratio photographic lens with means for correcting aberrations. 4,395,094, Cl. 350-467.000.
- Hammond, James A., to Colamco, Inc. Catalyst initiated prepolymer systems. 4,395,530, Cl. 528-48.000.
- Hamprecht, Gerhard: See—
Acker, Rolf-Dieter; and Hamprecht, Gerhard, 4,395,555, Cl. 546-289.000.
- Han, Kong W., to Internationale Octrooi Maatschappij "Octropa" B.V. Stabilized water-in-mineral oil emulsion. 4,395,266, Cl. 44-51.000.
- Hanna Mining Company, The: See—
Zambrano, Adolfo R., 4,395,315, Cl. 204-112.000.
- Hans, Karl; and Hackstein, Helmut, to Siemens Aktiengesellschaft. Method and apparatus for representing characters. 4,395,587, Cl. 178-30.000.
- Hans, Waldemar: See—
Sauer, Rudolf; Kienzie, Wolfgang; Paschke, Werner; and Hans, Waldemar, 4,394,973, Cl. 239-467.000.
- Hansen, Eric R.: See—
Oller, Osvaldo A.; Hansen, Eric R.; and Eaker, Gerard L., 4,395,290, Cl. 106-100.000.
- Harada, Masahiro: See—
Shimizu, Senzo; Nomura, Isao; Harada, Masahiro; Usui, Motohachi; Taniyama, Susumu; and Yanada, Shigeo, 4,395,534, Cl. 528-126.000.
- Haraguchi, Yasushi: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichi; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihide; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Harari, Eliyahou. Floating substrate dynamic RAM cell with lower punch-through means. 4,395,723, Cl. 357-23.000.
- Harbour, J. Michael: See—
Becker, Roger T.; Hathaway, John W.; and Harbour, J. Michael, 4,394,900, Cl. 198-614.000.
- Harigai, Hiroshi, to Yamada Electric Industries, Co. Ltd. Hand held hair dryer with shock mounted quartz tube heater. 4,395,619, Cl. 219-377.000.
- Harnischfeger Corporation: See—
Epps, Stephen R.; and Gattu, Narahari, 4,394,912, Cl. 212-189.000.
Lanning, John M.; and Epps, Stephen R., 4,394,913, Cl. 212-189.000.
- Harris Corporation: See—
Sellers, Robert W., 4,395,688, Cl. 333-169.000.
- Harris, Lawrence A., to General Electric Company. Catalytic electrode. 4,395,322, Cl. 204-290.00F.
- Harter, Warren L. Apparatus for forming construction blocks. 4,395,220, Cl. 425-413.000.
- Haruta, Masahiro: See—
Eida, Tsuyoshi; Yano, Yasuhiro; Haruta, Masahiro; Matsufuji, Yohji; and Ohta, Tokuya, 4,395,288, Cl. 106-22.000.
Kobayashi, Masatsune; Matsumoto, Seiko; Haruta, Masahiro; and Ohta, Tokuya, 4,395,287, Cl. 106-20.000.
- Harvey, Edward L.: See—
Riggs, Dennis M.; and Harvey, Edward L., 4,395,299, Cl. 156-285.000.
- Hasegawa, Katsumi; Kawabata, Takahiro; and Kuge, Shintaro, to Toray Industries, Inc. Yarn winding apparatus. 4,394,986, Cl. 242-18.00R.
- Hasegawa, Masami; and Kato, Koji, to Nissan Motor Co., Ltd. Metal cleaning composition containing a fatty acid succrose ester and other detergent components. 4,395,365, Cl. 252-545.000.
- Hashimoto, Michiaki: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
- Hassall, Stephen J.: See—
Kildal, Maurice A.; and Hassall, Stephen J., 4,394,990, Cl. 242-65.000.
- Hassan, Javathu K.: See—
DeRobertis, Ignatius J.; Hassan, Javathu K.; Judge, Robert L.; and Paivanas, John A., 4,395,165, Cl. 406-88.000.
- Hassy Horticultural Development Ltd.: See—
Green, John C., 4,395,176, Cl. 414-57.000.
Green, John C., 4,395,194, Cl. 414-786.000.
- Hatazawa, Kikuo: See—
Ohno, Mitsuo; Hatazawa, Kikuo; and Abe, Akira, 4,395,721, Cl. 346-160.000.
- Hathaway, John W.: See—
Becker, Roger T.; Hathaway, John W.; and Harbour, J. Michael, 4,394,900, Cl. 198-614.000.
- Hattori, Takashi; and Makita, Satoru, to Futaba Denshi Kogyo Kabushiki Kaisha. Fluorescent display apparatus. 4,395,654, Cl. 313-496.000.
- Hauschildt, Hans: See—
Birkle, Siegfried; Rubner, Roland; Hauschildt, Hans; and Rissel, Eva-Maria, 4,395,481, Cl. 430-326.000.
- Hauser, Oscar G.; and Ruckdeschel, Frederick R., to Xerox Corporation. Blended toners of functional color. 4,395,471, Cl. 430-45.000.
- Hayami, Hiroyuki: See—
Kasashima, Tatsuji; Morita, Shuji; Hayami, Hiroyuki; Ose, Seiroku; Takada, Yoshinori; and Nozaki, Fumihiro, 4,395,320, Cl. 204-206.000.
- Hayasaka, Hiroshi: See—
Okigami, Noboru; Hayasaka, Hiroshi; Sekiguchi, Yoshitoshi; and Tamura, Harushige, 4,395,223, Cl. 431-10.000.
- Hayashi, Hideki; and Takai, Kazuki, to Clarion Co., Ltd. Reel-turntable torque adjusting means. 4,394,995, Cl. 242-207.000.
- Hayashi, Teruo: See—
Ohki, Eiji; Oida, Sadao; Yoshida, Akira; Hayashi, Teruo; and Sugawara, Shinichi, 4,395,418, Cl. 424-270.000.
- Hayashi, Tomoharu: See—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,395,597, Cl. 179-115.50R.
- Hayashi, Yoshimasa, to Nissan Motor Company, Limited. Cylinder block for automotive internal combustion engine. 4,394,850, Cl. 123-41.740.
- Hayes, Eugene G.: See—
Prasad, Keni K.; and Hayes, Eugene G., 4,395,249, Cl. 474-93.000.
- Hayes, Leonard L.: See—
Nelson, Ben L.; and Hayes, Leonard L., 4,395,065, Cl. 292-339.000.
- Hayes, Susan E., to General Electric Company. Hydrolysis of alkoxysilanes. 4,395,563, Cl. 556-459.000.
- Heald, Anthony F.: See—
Ita, Callistus E.; Heald, Anthony F.; and Egli, Peter, 4,395,556, Cl. 548-126.000.
- Heckmann, Werner: See—
Ciongwa, Joachim; Heckmann, Werner; Jendrichowski, Klaus; Quest, Karl; Ruppel, Christian; and Sushardt, Wolfgang, 4,394,867, Cl. 134-104.000.
- Hedlund, Lee V.; and Herzog, Donald G., to RCA Corporation. Helical scan tape recording and/or replay apparatus. 4,395,738, Cl. 358-335.000.
- Heimberg, Eli, to Cameo Curtains, Inc. Drapery package. 4,394,996, Cl. 242-222.000.
- Heimel, Helmut: See—
Ross, Rudi; and Heimel, Helmut, 4,395,632, Cl. 250-343.000.
- Heine, Helmut: See—
Hohl, Rolf; and Heine, Helmut, 4,395,491, Cl. 435-262.000.
- Heine, Rolf, to Herbert Kannegiesser GmbH & Co. Apparatus for stacking textile fabric sheets on top of one another. 4,395,037, Cl. 271-188.000.
- Held, Fritz: See—
Haldmann, Walter; Held, Fritz; and Fehr, Rudolf, 4,395,074, Cl. 305-43.000.
- Helenius, Allan; Lackey, Stanley A., Jr.; and Northrup, Thomas A., to Digital Equipment Corporation. Accelerator processor for a data processing system. 4,395,758, Cl. 364-200.000.
- Helgeland, Olav; Rudi, Guttorm; and Engely, Odd, to Tandberg Data A/S. Device for the setting up of a data display device on a work surface. 4,395,010, Cl. 248-371.000.
- Hellin, Michel: See—
Juguin, Bernard; Miquel, Jean; Hellin, Michel; and Torck, Bernard, 4,395,580, Cl. 585-639.000.
- Helmut Darda Spielwaren- und Maschinenbau GmbH: See—
Muller, Werner, 4,394,961, Cl. 238-10.00R.
- Helzer, Lawrence E., to Hughes Tool Company. Swivel unit. 4,395,061, Cl. 285-281.000.
- Hemsworth, George R.: See—
Wolff, John S., III; Hemsworth, George R.; and Jensen, Keith E., 4,395,394, Cl. 424-88.000.
- Henaff, Jeannine: See—
Feldmann, Michel; and Henaff, Jeannine, 4,395,689, Cl. 333-195.000.
- Henderson, William A., Jr.; and Singh, Balwant, to American Cyanamid Company. Manufacture of isocyanate. 4,395,369, Cl. 260-453.00P.
- Hendrischk, Wolfgang, to Mannesmann Aktiengesellschaft. Drive for friction rolls in printers. 4,395,152, Cl. 400-569.000.
- Hendrischk, Wolfgang: See—
Gruner, Manfred; and Hendrischk, Wolfgang, 4,395,148, Cl. 400-212.000.
- Henkel Kommanditgesellschaft auf Aktien: See—
Thor, Gunter; Stoffer, Albert; and Mehl, Dietholf, 4,394,939, Cl. 222-207.000.
- Hennessy, Gail, executrix: See—
Ferris, William E., deceased; Hennessy, Gail, executrix; Doumas, John; and McCarter, Harry, 4,395,375, Cl. 264-40.100.
- Hensley, Albert L., Jr.; and Quick, Leonard M., to Standard Oil Company (Indiana). Catalyst and support, their methods of preparation, and processes employing same. 4,395,328, Cl. 208-251.00H.
- Heraeus-Christ GmbH: See—
Schroter, Gerhard, 4,395,256, Cl. 494-38.000.
- Herbert Kannegiesser GmbH & Co.: See—
Heine, Rolf, 4,395,037, Cl. 271-188.000.
- Hercules Incorporated: See—
Byrne, Brian; and DeSimone, Robert S., 4,395,430, Cl. 426-534.000.
- Herder, Kornelis; and Olderaan, Wilhelmus F. T. C., to Wavin B.V. Method and device for forming an internal annular groove in a plastic tube part. 4,395,379, Cl. 264-573.000.
- Hermecz, Istvan; Kokosi, Jozsef; Horvath, Agnes; Meszaros, Zoltan; Szasz, Gyorgy; Breining, Tibor; and Vasvari nee Debreczy, Lelle, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. 6-

- Hydrazono-pyrido[2,1-b] quiazoline-11 ones. 4,395,549, Cl. 544-252.000.
- Hermes Precisa International S.A.: See—
Costa, Jorge, 4,395,150, Cl. 400-285.000.
- Herrington, F. John, to Mobil Oil Corporation. Tubular extrusion apparatus. 4,395,221, Cl. 425-467.000.
- Herschdorfer, C. George; and Vaughan, Dennis J. Reinforced laminates produced from crosslinkable thermoplastic olefin polymer material. 4,395,459, Cl. 428-391.000.
- Herzog, Donald G.: See—
Hedlund, Lee V.; and Herzog, Donald G., 4,395,738, Cl. 358-335.000.
- Hewlett-Packard GmbH: See—
Traub, Stefan, 4,395,642, Cl. 307-261.000.
- Hidaka, Akio: See—
Watanabe, Teruoki; Kanno, Tadao; Hidaka, Akio; and Kobayashi, Shunji, 4,395,025, Cl. 266-257.000.
- Hierath, Leonard L.: See—
Andrews, James S.; and Hierath, Leonard L., 4,394,956, Cl. 231-2.00E.
- Hight, Rayburn M.; and Corrick, Paul M., to Polar Bear, Inc. Ice block loading mechanism for an ice shaving machine. 4,394,984, Cl. 241-278.00R.
- Hilbig, Manfred: See—
Beltrop, Herbert; Teutenberg, Josef; and Hilbig, Manfred, 4,395,164, Cl. 406-74.000.
- Hilby, Noel E.: See—
Simmons, Gerald C.; and Hilby, Noel E., 4,395,068, Cl. 294-78.00R.
- Hill, Walter A.: See—
Bare, Clyde A., Jr.; Bare, Buddy L.; and Hill, Walter A., 4,394,975, Cl. 239-654.000.
- Hipp, Richard D., Jr., to Minnesota Mining and Manufacturing Company. Document feeder. 4,395,032, Cl. 271-10.000.
- Hirabayashi, Tsugio: See—
Ura, Hiroaki; Hirabayashi, Tsugio; and Koiso, Junichi, 4,395,114, Cl. 355-15.000.
- Hirano, Munehiko: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichi; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihide; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Hirano, Senzaburo: See—
Tomizawa, Fumio; Sobata, Katsutoshi; Yoshimatsu, Yoshiaki; Saito, Sadayuki; Otani, Takashi; and Hirano, Senzaburo, 4,395,023, Cl. 266-158.000.
- Hirano, Shyoji: See—
Sanpei, Hideo; Matsuno, Kunio; Hirano, Shyoji; and Kumagai, Katuya, 4,395,435, Cl. 427-38.000.
- Hirano, Toshio: See—
Saito, Takashi; Hirano, Toshio; and Kumaki, Takashi, 4,395,744, Cl. 360-97.000.
- Hirosawa, Makoto, to Dainippon Screen Mfg. Co., Ltd. Digital control process with inverse function table memory. 4,395,752, Cl. 364-130.000.
- Hirose, Fuminori: See—
Yano, Masayoshi; and Hirose, Fuminori, 4,395,079, Cl. 312-7.100.
- Hiruta, Masaru: See—
Satoh, Hiroaki; and Hiruta, Masaru, 4,395,362, Cl. 252-511.000.
- Hisamitsu Pharmaceutical Co., Inc.: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichi; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihide; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Hitachi Construction Machinery Co., Ltd.: See—
Izumi, Eiki; Watanabe, Hiroshi; Aoyagi, Yukio; Honma, Kazuo; and Nakajima, Kichio, 4,395,199, Cl. 417-53.000.
- Hitachi, Ltd.: See—
Asakura, Yamato; Suzuki, Teiji; and Kawamura, Fumio, 4,395,386, Cl. 423-249.000.
Kanda, Hiroshi; Ishikawa, Isao; Kondo, Toshio; and Katakura, Kageyoshi, 4,394,824, Cl. 73-606.000.
Nagae, Yoshiharu; Kitajima, Masaaki; and Kawakami, Hideaki, 4,395,709, Cl. 340-784.000.
Ohno, Mitsuo; Hatazawa, Kikuo; and Abe, Akira, 4,395,721, Cl. 346-160.000.
Saito, Toru, 4,395,335, Cl. 210-675.000.
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
Toyama, Noboru; and Oyama, Yoshinori, 4,395,243, Cl. 445-6.000.
Wakai, Katsuro, 4,395,755, Cl. 364-200.000.
Yoshinaga, Yoichi; Nishida, Hideo; and Ueda, Shinjiro, 4,395,197, Cl. 415-211.000.
- Hitachi Shipbuilding & Engineering Co., Ltd.: See—
Okigami, Noboru; Hayasaka, Hiroshi; Sekiguchi, Yoshitoshi; and Tamura, Harushige, 4,395,223, Cl. 431-10.000.
- Hobbins, Norris D.; and Roberts, Ronald F., to Bell Telephone Laboratories, Incorporated. Copper corrosion inhibitor. 4,395,294, Cl. 148-6.14R.
- Hodl, Fritz; and Kassegger, Friedrich, to Arbed S.A. Refractory gas-permeable structural unit. 4,395,026, Cl. 266-265.000.
- Hoechst Aktiengesellschaft: See—
Braun, Albert; Portz, Willi; Strauss, Georg; and Delhey, Hans-Martin, 4,395,282, Cl. 75-58.000.
Fischer, Hannes; and Zimmermann, Rolf, 4,395,525, Cl. 526-307.600.
- Forsch, Manfred; and Gerhards, Hermann, 4,395,409, Cl. 424-244.000.
- Gebauer, Gerhard; and Mayer, Franz, 4,395,445, Cl. 427-407.100.
- Hohl, Rolf; and Heine, Helmut, 4,395,491, Cl. 435-262.000.
- Konig, Wolfgang; Geiger, Rolf; and Sandow, Jurgen K., 4,395,400, Cl. 424-177.000.
- Lohr, Gernot; and Reinecke, Rolf, 4,395,500, Cl. 523-221.000.
- Sprintschnik, Gerhard, 4,395,480, Cl. 430-309.000.
- Hoener, Dieter W.; Lambert, Neville L.; and Schweizer, Erwin V., to Boeing Company, The. Cargo restraint system with spring fuse. 4,395,172, Cl. 410-84.000.
- Hoffacker, Franz: See—
Luhrig, Hermann; Hoffacker, Franz; Kovacic, Guido; Engelsmann, Dieter; Zobel, Siegfried; Hackenberg, Hubert; and Wagner, Karl, 4,395,107, Cl. 354-275.000.
- Hoffmann, Benjamin, to Trochoid Power Corporation. Seal compensated geometry rotary motion device. 4,395,206, Cl. 418-61.00A.
- Hoffmann-La Roche Inc.: See—
Boller, Arthur; Germann, Alfred; Schadt, Martin; and Villiger, Alois, 4,395,350, Cl. 252-299.100.
Chan, Ka-Kong; and Pawson, Beverly A., 4,395,575, Cl. 568-442.000.
Fothergill, Graham A.; and Osbond, John M., 4,395,559, Cl. 548-485.000.
- Hoffmann, Wolfgang, to B & H Manufacturing Company, Inc. Base cup applying apparatus and method. 4,395,300, Cl. 156-294.000.
- Hofmann, Karl; Seifert, Kurt; and Jungbauer, Josef, to Robert Bosch GmbH. Fuel injection nozzle for combustion engines. 4,394,970, Cl. 239-453.000.
- Hogg, Walter R.: See—
Hollinger, John D.; Groves, Michael R.; and Hogg, Walter R., 4,395,676, Cl. 324-71.400.
- Hohl, Rolf; and Heine, Helmut, to Hoechst Aktiengesellschaft. Method for isolating solid matter from a salinomycin culture broth. 4,395,491, Cl. 435-262.000.
- Hohne, Hartmut: See—
Walz, Kurt; Dittmann, Peter; and Hohne, Hartmut, 4,395,345, Cl. 252-135.000.
- Hollaway, Gerald C.: See—
Weitzel, Robert E.; Fieler, Wayne C.; and Hollaway, Gerald C., 4,395,298, Cl. 156-137.000.
- Hollenbeck, John C. Food container/holder. 4,394,906, Cl. 206-525.000.
- Hollinger, John D.; Groves, Michael R.; and Hogg, Walter R., to Coulter Electronics, Inc. Focused aperture module. 4,395,676, Cl. 324-71.400.
- Holmes, David D., to RCA Corporation. FM Counter detector. 4,395,735, Cl. 358-198.000.
- Holstein und Kappert GmbH: See—
Ciongwa, Joachim; Heckmann, Werner; Jendrichowski, Klaus; Quest, Karl; Ruppel, Christian; and Sushardt, Wolfgang, 4,394,867, Cl. 134-104.000.
- Honda Giken Kogyo Kabushiki Kaisha: See—
Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, 4,395,761, Cl. 364-426.000.
Watanabe, Teruoki; Kanno, Tadao; Hidaka, Akio; and Kobayashi, Shunji, 4,395,025, Cl. 266-257.000.
- Honda, Satoru: See—
Sunaga, Yoshimitsu; Kamiura, Toshio; and Honda, Satoru, 4,395,743, Cl. 360-90.000.
- Honeywell Inc.: See—
Egli, Werner H.; Setterholm, Jeffrey M.; and Weir, E. Jack, 4,394,831, Cl. 89-41.0EA.
- Honig, Helmut; and Pampouchidis, Georgios, to Vianova Kunstharz, A. G. Cathodically depositable coating compositions for electrodeposition (II). 4,395,502, Cl. 523-415.000.
- Honma, Kazuo: See—
Izumi, Eiki; Watanabe, Hiroshi; Aoyagi, Yukio; Honma, Kazuo; and Nakajima, Kichio, 4,395,199, Cl. 417-53.000.
- Hopper, Steven P.: See—
Kanner, Bernard; and Hopper, Steven P., 4,395,564, Cl. 556-470.000.
- Horie, Seiji; Nagata, Masayoshi; Nakano, Junji; and Sato, Hideo, to Fuji Photo Film Co., Ltd. Electrophotographic sensitive materials containing barbituric acid or thiobarbituric acid derivatives. 4,395,473, Cl. 430-58.000.
- Horike, Masanori; and Ebi, Yutaka, to Ricoh Company, Ltd. Ink jet recording apparatus. 4,395,717, Cl. 346-75.000.
- Horiuchi, Tatsuo: See—
Saito, Narimasa; and Horiuchi, Tatsuo, 4,395,487, Cl. 435-22.000.
- Horlebein, Eberhard: See—
Eiermann, Kurt; Horlebein, Eberhard; and Schafer, Wolfgang, 4,395,586, Cl. 174-138.00J.
- Hornung, Robert; and Lebesnerais, Gerard, to International Business Machines Corp. System for compensating the offset voltage of a differential amplifier. 4,395,681, Cl. 330-259.000.
- Horton, Richard F., to United States of America, Navy. Optical system for infrared tracking. 4,395,095, Cl. 350-504.000.
- Horvath, Agnes: See—
Hermecz, Istvan; Kokosi, Jozsef; Horvath, Agnes; Meszaros, Zoltan; Szasz, Gyorgy; Breining, Tibor; and Vasvari nee Debreczy, Lelle, 4,395,549, Cl. 544-252.000.
- Hosokawa, Kiyoshi: See—
Shimizu, Chiyuki; and Hosokawa, Kiyoshi, 4,395,443, Cl. 427-387.000.

- Hosono, Nagao; and Tajima, Hatsuo, to Canon Kabushiki Kaisha. Developing device with applicator contoured to stir developer applied to a developer support. 4,395,110, Cl. 355-3.0DD.
- Hosono, Nagao: See—
Kanbe, Junichiro; Toyono, Tsutomu; Hosono, Nagao; and Takahashi, Tohru, 4,395,476, Cl. 430-102.000.
- Hotta, Masahiro: See—
Takagi, Toshinori; Nakata, Shinsaku; Mikami, Yoichi; Hotta, Masahiro; and Fukumoto, Yoshiyuki, 4,395,465, Cl. 428-626.000.
- Houck, David L., to Gte Products Corporation. Plasma spray powder. 4,395,279, Cl. 75-0.5BB.
- Howaldtwerke Deutsche Werft Aktiengesellschaft Hamburg und Kiel: See—
Pietsch, Gunter; Walter, Gerhard; Mewes, Gunter; and Schrader, Gert, 4,395,141, Cl. 384-147.000.
- Howard, Richard K.: See—
Firth, Kenneth; and Howard, Richard K., 4,395,088, Cl. 350-3.700.
- Howland, Leland L.: See—
Brownfield, Jerry A.; Sandberg, Richard J.; Niemi, Thomas J.; and Howland, Leland L., 4,394,818, Cl. 62-239.000.
- Hoyen, Harry A., to Eastman Kodak Company. Direct-positive core-shell emulsions and photographic elements and processes for their use. 4,395,478, Cl. 430-217.000.
- Hruby, Jan; and Pleskac, Karel, to Zbrojovka Vsetin, narodni podnik. Arrangement for constant feeding of yarn. 4,394,988, Cl. 242-47.120.
- HTC Corporation, The: See—
Spigarelli, Donald J., 4,394,802, Cl. 34-27.000.
- Huang, Ben T. Graphite impregnated polyamide tennis strings. 4,395,458, Cl. 428-367.000.
- Hubbard, Winchester L.: See—
Dekeyser, Mark A.; Pierce, Benjamin J.; Moore, Richard C.; and Hubbard, Winchester L., 4,395,551, Cl. 544-282.000.
- Huber, John W.: See—
Lopez-Crevillen, Jose M.; and Huber, John W., 4,394,853, Cl. 123-195.000.
- Huber, Lothar, to Luk Lamellen und Kupplungsbau GmbH. Method and apparatus for separably connecting crankshafts in internal combustion engines. 4,394,854, Cl. 123-198.00F.
- Huber & Suhner AG: See—
Haldimann, Walter; Held, Fritz; and Fehr, Rudolf, 4,395,074, Cl. 305-43.000.
- Hughes Aircraft Company: See—
Knauer, Wolfgang, 4,395,691, Cl. 335-210.000.
- Knechtli, Ronald C.; Loo, Robert Y.; and Kamath, G. Sanjiv, 4,395,293, Cl. 148-1.500.
- Lloyd, Randolph B., 4,395,708, Cl. 340-784.000.
- Hughes, Howard C., to Research Corporation. S-A Node helical lead for atrial pacemakers and method of placement. 4,394,866, Cl. 128-785.000.
- Hughes Tool Company: See—
Helzer, Lawrence E., 4,395,061, Cl. 285-281.000.
- Hula, Carl J. Space board game apparatus. 4,395,044, Cl. 273-253.000.
- Humphries, Donald N.: See—
Wood, Laurior A.; and Humphries, Donald N., 4,394,844, Cl. 118-260.000.
- Hunt, Keith: See—
King, Alan G.; and Hunt, Keith, 4,395,251, Cl. 474-111.000.
- Hunt, Ronald E., to International Business Machines Corporation. Air shingler. 4,395,035, Cl. 271-97.000.
- Hurley, Thomas J.: See—
Ward, Irl E.; Hallquist, Lisa G.; and Hurley, Thomas J., 4,395,479, Cl. 430-258.000.
- HyJacker Products, Inc.: See—
McCormick, Robert C., 4,394,946, Cl. 223-115.000.
- Iannone, Samuel J. Insert for a stove. 4,394,857, Cl. 126-60.000.
- Ichinose, Isao: See—
Kunimoto, Go; Ichinose, Isao; Suzuki, Noboru; and Mori, Fumio, 4,395,446, Cl. 428-35.000.
- Ide, Hiroyuki: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichi; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihiko; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Idenden, John E., to Exxon Research and Engineering Co. Fractionation system. 4,395,310, Cl. 203-2.000.
- Igarashi, Yoshiaki: See—
Yokobori, Nobuyoshi; Maeda, Tetsuo; and Igarashi, Yoshiaki, 4,395,682, Cl. 330-260.000.
- Igata, Kouichi: See—
Kobayashi, Masaaki; Igata, Kouichi; and Takeuchi, Akihiro, 4,395,741, Cl. 360-77.000.
- Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; and Kono, Kimihiko, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Separator electrolytic cell. 4,395,321, Cl. 204-252.000.
- Illinois Tool Works Inc.: See—
Sygnator, Henry A., 4,395,173, Cl. 411-387.000.
- Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, to Shin-Etsu Chemical Co., Ltd. Method for improving surface properties of shaped articles of synthetic resins. 4,395,434, Cl. 427-38.000.
- Imai, Tatsuhiro; and Ohi, Akira, to Daicel Chemical Industries, Ltd. Thermoplastic resin compositions comprising copolymer of unsaturated dicarboxylic acid anhydride and vinyl aromatic monomer, ABS, and methylmethacrylate polymer. 4,395,516, Cl. 525-71.000.
- Imazumi, Hiroyuki: See—
Saikawa, Isamu; Takano, Shuntaro; Imazumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Imhof, Robert: See—
Gertsch, Peter; and Imhof, Robert, 4,394,835, Cl. 101-177.000.
- Immuno Aktiengesellschaft für Chemisch-medizinische Produkte: See—
Eibl, Johann; Schwarz, Otto; Elsinger, Fritz; and Philipitsch, Anton, 4,395,396, Cl. 424-101.000.
- Imperial Chemical Industries Limited: See—
Jackson, Graham V.; Goulding, Terence; and Bradbury, John A., 4,395,456, Cl. 428-304.000.
- Ing. C. Olivetti & C., S.p.A.: See—
Giacone, Felice; Becchi, Raffaele; and Ukmar, Boris, 4,395,145, Cl. 400-59.000.
- Inoue, Nori, to Tokai Electric Wire Company Limited. Waterproof connector. 4,395,085, Cl. 339-94.00R.
- Institut Bioorganicheskoi Khimii Imeni M.M. Shemyakina Akademii Nauk SSSR: See—
Ovchinnikov, Jury A.; Ivanov, Vadim T.; Rostovtseva, Larisa I.; Andronova, Tatyana M.; Sorokina, Irina B.; and Malkova, Veronika P., 4,395,399, Cl. 424-177.000.
- Institut Français du Pétrole: See—
Auboir, Pierre; Bonnefond, Pierre; and Mank, Larry, 4,395,330, Cl. 208-309.000.
- Ecomard, Andre; and Pinchon, Philippe, 4,394,964, Cl. 239-90.000.
- Juguin, Bernard; Miquel, Jean; Hellin, Michel; and Torck, Bernard, 4,395,580, Cl. 585-639.000.
- Institute of Gas Technology: See—
St. John, Michael R., 4,395,316, Cl. 204-129.000.
- International Business Machine Corp.: See—
DeRobertis, Ignatius J.; Hassan, Javathu K.; Judge, Robert L.; and Paivanas, John A., 4,395,165, Cl. 406-88.000.
- International Business Machines Corporation: See—
Bahr, Dietrich J.; and Goldrian, Gottfried A., 4,395,715, Cl. 346-1.100.
- Cases, Moises; Kraft, Wayne R.; Moore, Victor S.; Stahl, William L., Jr.; and Thoma, Nandor G., 4,395,646, Cl. 307-468.000.
- Hornung, Robert; and Lebesnerais, Gerard, 4,395,681, Cl. 330-259.000.
- Hunt, Ronald E., 4,395,035, Cl. 271-97.000.
- Janssen, Donovan M.; Magno, Robert; Seaward, William S.; and Valent, James A., 4,395,033, Cl. 271-10.000.
- International Flavors & Fragrances Inc.: See—
Boden, Richard M.; Tyszkiewicz, Theodore J.; and Licciardello, Michael, 4,395,370, Cl. 260-463.000.
- Boden, Richard M., 4,395,425, Cl. 426-3.000.
- Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,395,366, Cl. 252-545.000.
- International Standard Electric Corporation: See—
Kienle, Erhard; Kornaker, Walter; and Greiner, Felix, 4,395,692, Cl. 335-284.000.
- International Telephone and Telegraph Corporation: See—
Pernyeszi, Joseph, 4,395,645, Cl. 307-450.000.
- Internationale Octrooi Maatschappij "Octropa" B.V.: See—
Han, Kong W., 4,395,266, Cl. 44-51.000.
- Intersil, Inc.: See—
Evans, Lee L., 4,395,701, Cl. 340-347.0NT.
- Inui, Kenichi: See—
Aoike, Nanjou; Inui, Kenichi; and Koshimura, Yasunobu, 4,395,659, Cl. 315-209.00R.
- Iochi, Akihiko: See—
Nakata, Kazuo; Iochi, Akihiko; Kaise, Isamu; Takeuchi, Kazuo; and Nomura, Katsuhiko, 4,395,119, Cl. 356-73.000.
- Iowa Manufacturing Company of Cedar Rapids, Iowa: See—
Musil, Joseph E., 4,395,129, Cl. 366-25.000.
- Isao, Koga: See—
Yohji, Terui; Isao, Koga; and Nobumasa, Ohtake, 4,395,562, Cl. 556-431.000.
- Isenberg, Arnold O., to Westinghouse Electric Corp. Fuel cell generator. 4,395,468, Cl. 429-31.000.
- Ishiguro, Shoji: See—
Matsuda, Terumi; Ishiguro, Shoji; Moriuchi, Shigenori; and Suzuki, Yoshiaki, 4,395,483, Cl. 430-411.000.
- Ishihara, Koji: See—
Maeda, Masanori; Ishihara, Koji; and Kino, Yoshio, 4,395,617, Cl. 219-145.100.
- Ishikawa, Isao: See—
Kanda, Hiroshi; Ishikawa, Isao; Kondo, Toshio; and Katakura, Kageyoshi, 4,394,824, Cl. 73-606.000.
- Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
Tanaka, Hiroto; Kohno, Yasumasa; Tanaka, Hideyuki; and Sasaki, Kotaro, 4,395,746, Cl. 361-143.000.
- Kotaro, 4,395,746, Cl. 361-143.000.
- Tomizawa, Fumio; Sobata, Katsutoshi; Yoshimatsu, Yoshiaki; Saito, Sadayuki; Otani, Takashi; and Hirano, Senzaburo, 4,395,023, Cl. 266-158.000.
- Isomura, Hukuyosi: See—
Murakami, Shozo; Isomura, Hukuyosi; and Koga, Yoshihiro, 4,395,283, Cl. 75-60.000.
- Ita, Callixtus E.; Heald, Anthony F.; and Egli, Peter, to E. R. Squibb & Sons, Inc. Nitrobenzofuran derivatives. 4,395,556, Cl. 548-126.000.
- Itoh, Masayoshi: See—
Toyoda, Toshihiro; Kawamata, Motoo; Osawa, Masanori; Itoh, Masayoshi; Mizutani, Kazumi; and Kono, Masahiro, 4,395,531, Cl. 528-49.000.
- Itoh, Takayuki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Compact telephoto zoom lens. 4,395,092, Cl. 350-427.000.

- ITT Industries, Inc.: See—
Belart, Juan, 4,395,072, Cl. 303-114.000.
- Weiler, Rolf; and Boehm, Peter, 4,394,832, Cl. 91-376.00R.
- Weiler, Rolf; and Wagner, Wilfried, 4,394,833, Cl. 91-376.00R.
- Ivanov, Vadim T.: See—
Ovchinnikov, Jury A.; Ivanov, Vadim T.; Rostovtseva, Larisa I.; Andronova, Tatyana M.; Sorokina, Irina B.; and Malkova, Veronika P., 4,395,399, Cl. 424-177.000.
- Iwahashi, Hiroshi; and Asano, Masamichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Nonvolatile semiconductor memory device. 4,395,724, Cl. 357-23.0VT.
- Iwasa, Masaru: See—
Terakado, Ryoji; Iwasa, Masaru; Takahashi, Ituo; Anzawa, Norio; and Yoshida, Gen, 4,395,021, Cl. 266-85.000.
- Iwata, Masatoshi, to Kabushiki Kaisha Komatsu Seisakusho. Fuel injection nozzle. 4,394,963, Cl. 239-89.000.
- Izumi, Akiya: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
- Izumi, Elki; Watanabe, Hiroshi; Aoyagi, Yukio; Honma, Kazuo; and Nakajima, Kichio, to Hitachi Construction Machinery Co., Ltd. Control method of a system of internal combustion engine and hydraulic pump. 4,395,199, Cl. 417-53.000.
- Izumiya, Syunzo, to Fujitsu Fanuc Limited. Power source circuit for electric discharge machine. 4,395,612, Cl. 219-69.00P.
- J. T. Baker Chemical Company: See—
Ward, Irl E.; Hallquist, Lisa G.; and Hurley, Thomas J., 4,395,479, Cl. 430-258.000.
- Jackson, Graham V.; Goulding, Terence; and Bradbury, John A. A., to Imperial Chemical Industries Limited. Inorganic foam. 4,395,456, Cl. 428-304.000.
- Jacquet, Bernard; Lang, Gerard; Malaval, Alain; Forestier, Serge; and Le Trung, Do, to Societe Anonyme dite: L'Oreal. Ionene polymer and preparation thereof. 4,395,541, Cl. 528-367.000.
- Jacquin, Yves: See—
Le Page, Jean-Francois; Billon, Alain; and Jacquin, Yves, 4,395,329, Cl. 208-251.00H.
- Jamer, Ernst R. Self locking container closure. 4,394,920, Cl. 215-253.000.
- James, Jack E.: See—
Wharton, James H.; and James, Jack E., 4,395,737, Cl. 358-312.000.
- Jamet, Bernard: See—
Dran, Maurice; and Jamet, Bernard, 4,395,622, Cl. 219-522.000.
- Janssen, Donovan M.; Magno, Robert; Seaward, William S.; and Valent, James A., to International Business Machines Corporation. Shingling with controlled force and/or velocity. 4,395,033, Cl. 271-10.000.
- Janssen Pharmaceutica N.V.: See—
Ballany, John M.; and Galbraith, Andrew R., 4,395,407, Cl. 424-200.000.
- Jendrichowski, Klaus: See—
Ciongwa, Joachim; Heckmann, Werner; Jendrichowski, Klaus; Quest, Karl; Ruppel, Christian; and Sushardt, Wolfgang, 4,394,867, Cl. 134-104.000.
- Jennens, Ian H.: See—
Sands, Gilbert; and Jennens, Ian H., 4,395,231, Cl. 432-11.000.
- Jensen, Keith E.: See—
Wolff, John S., III; Hemsworth, George R.; and Jensen, Keith E., 4,395,394, Cl. 424-88.000.
- Jensen, Lyle B.: See—
Wittman, Leroy L.; and Jensen, Lyle B., 4,394,911, Cl. 212-189.000.
- Jette, Emile. Showerhead control. 4,394,969, Cl. 239-414.000.
- Jeumont-Schneider: See—
Timmermans, Francis; and Vandervorst, Jean, 4,395,048, Cl. 277-65.000.
- JLG Industries, Inc.: See—
Garber, Eugene L., 4,395,706, Cl. 340-685.000.
- Johns, William H.: See—
Stalson, Stanley L.; and Johns, William H., 4,394,786, Cl. 15-306.00A.
- Johnson, Donald R.: See—
Barr, James L.; and Johnson, Donald R., 4,395,613, Cl. 219-69.00E.
- Johnson, Everett A.: See—
Silverman, Daniel; and Johnson, Everett A., 4,395,628, Cl. 235-382.000.
- Johnson & Johnson: See—
Korpmann, Ralf, 4,394,930, Cl. 220-444.000.
- Jordan Chemical Company: See—
Loggin, Robert B.; and Berke, Robert L., 4,395,373, Cl. 260-928.000.
- Jordan, David D.: See—
Taig, Alistair G.; and Jordan, David D., 4,395,246, Cl. 464-153.000.
- Jorgensen, Robert J.: See—
Wagner, Burkhard E.; Karol, Frederick J.; Goeke, George L.; Jorgensen, Robert J.; and Friis, Nils, 4,395,359, Cl. 252-429.00B.
- Judge, Robert L.: See—
DeRobertis, Ignatius J.; Hassan, Javathu K.; Judge, Robert L.; and Paivanas, John A., 4,395,165, Cl. 406-88.000.
- Juergens, Geerd F.: See—
Leutner, Bernd; Pucker, Berndhard; Rother, Eberhard; Juergens, Geerd F.; and Wagner, Dieter, 4,395,273, Cl. 71-11.000.
- Juguin, Bernard; Miquel, Jean; Hellin, Michel; and Torck, Bernard, to Institut Français Du Pétrole. Process for producing an olefin by decomposition of the corresponding ether. 4,395,580, Cl. 585-639.000.
- Jungbauer, Josef: See—
Hofmann, Karl; Seifert, Kurt; and Jungbauer, Josef, 4,394,970, Cl. 239-453.000.
- Justrite Manufacturing Company: See—
Flider, Frank S., 4,394,937, Cl. 222-189.000.
- K. A. Schmersal GmbH & Co.: See—
Eicker, Karl-Georg; Schulz, Siegfried; and Seim, Burkhard, 4,395,608, Cl. 200-153.00L.
- Kabushiki Kaisha Daini Seikosa: See—
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- Kabushiki Kaisha Fujikoshi: See—
Tonomura, Takashi, 4,395,051, Cl. 279-75.000.
- Kabushiki Kaisha Koden Seisakusho: See—
Fujino, Teruhisa; Osawa, Fujio; Chiwaki, Kenichi; and Narazaki, Sadatoshi, 4,395,779, Cl. 455-306.000.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Iwata, Masatoshi, 4,394,963, Cl. 239-89.000.
- Kabushiki Kaisha Suwa Seikosa: See—
Chihara, Hiroyuki, 4,395,138, Cl. 368-204.000.
- Gomi, Yoshifumi, 4,394,949, Cl. 226-76.000.
- K.K. Yoshioka Seisakusho: See—
Yoshioka, Yoshitomo, 4,394,942, Cl. 222-361.000.
- KACA Corporation: See—
Ulsky, Carl M., 4,394,983, Cl. 241-243.000.
- Kackos, Edward M., to Vernitron Corporation. Apparatus for controlling temperature below 212 degrees fahrenheit in a sterilizer chamber. 4,395,383, Cl. 422-112.000.
- Kaczko, John E., to GTE Automatic Electric Labs Inc. Arrangement for supporting a telephone handset or the like. 4,395,591, Cl. 179-100.00R.
- Kaduk, James A., to Standard Oil Company (Indiana). Synthetic cristobalite. 4,395,388, Cl. 423-339.000.
- Kaise, Isamu: See—
Nakata, Kazuo; Iochi, Akihiko; Kaise, Isamu; Takeuchi, Kazuo; and Nomura, Katsuhiko, 4,395,119, Cl. 356-73.000.
- Kaiser-Farmer Development Corp.: See—
Kaiser, Robert T., 4,395,039, Cl. 272-126.000.
- Kaiser, Josef. Excavator-hoist construction vehicle. 4,395,191, Cl. 414-694.000.
- Kaiser, Robert T., to Kaiser-Farmer Development Corp. Method of exercising. 4,395,039, Cl. 272-126.000.
- Kaizer, Adrianus J. M.: See—
Franssen, Nico V., deceased; de Haan, Friedrich J., administrator; Kaizer, Adrianus J. M.; and Wesche, Cornelis A. M., 4,395,588, Cl. 179-1.00F.
- Kalamazoo Conveyor Company: See—
Becker, Roger T.; Hathaway, John W.; and Harbour, J. Michael, 4,394,900, Cl. 198-614.000.
- Kaldenbach, Robert J.: See—
Wundergem, Hendrik M.; and Kaldenbach, Robert J., 4,395,762, Cl. 364-484.000.
- Kalfas, Paul P. Electric cord support bracket assembly for lawnmowers and the like. 4,395,053, Cl. 280-47.340.
- Kamath, G. Sanjiv: See—
Knechtli, Ronald C.; Loo, Robert Y.; and Kamath, G. Sanjiv, 4,395,293, Cl. 148-1.500.
- Kamei, Takao: See—
Nakabayashi, Yasuyuki; Matsuura, Yoshio; Kurihara, Michio; Kamei, Takao; Nakamura, Akira; Komai, Keichi; Shimotamari, Akira; and Wakabayashi, Takeshi, 4,395,334, Cl. 210-631.000.
- Kamiura, Toshio: See—
Sunaga, Yoshimitsu; Kamiura, Toshio; and Honda, Satoru, 4,395,743, Cl. 360-90.000.
- Kamiya, Masaaki: See—
Namiki, Masayuki; Kamiya, Masaaki; Kojima, Yoshikazu; and Tanaka, Kojiro, 4,395,139, Cl. 374-178.000.
- Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, to Fujisawa Pharmaceutical Co., Ltd. Pyrimidinyl cephalosporanic acid derivatives and pharmaceutical compositions. 4,395,411, Cl. 424-246.000.
- Kamo, Takashi: See—
Torisu, Yoshio; Sakurai, Shigenori; Kamo, Takashi; and Furutani, Toshinobu, 4,395,319, Cl. 204-426.000.
- Kanbe, Junichiro; Toyono, Tsutomu; Hosono, Nagao; and Takahashi, Tohru, to Canon Kabushiki Kaisha. Developing method for developer transfer under A.C. electrical bias and apparatus therefor. 4,395,476, Cl. 430-102.000.
- Kanda, Hiroshi; Ishikawa, Isao; Kondo, Toshio; and Katakura, Kageyoshi, to Hitachi, Ltd. Acoustic microscope. 4,394,824, Cl. 73-606.000.
- Kanebo, Ltd.: See—
Kondo, Yoshikazu; Yamamoto, Toshihiro; and Yamamoto, Takaji, 4,395,377, Cl. 264-46.100.
- Kanebo Synthetic Fibers, Ltd.: See—
Kondo, Yoshikazu; Yamamoto, Toshihiro; and Yamamoto, Takaji, 4,395,377, Cl. 264-46.100.
- Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; and Kono, Kimihiko, 4,395,321, Cl. 204-252.000.
- Yonezawa, Kazuya; Asada, Masahiro; and Matsuura, Miyuki, 4,395,537, Cl. 528-219.000.
- Kaneko, Nobutaka; and Fujiwara, Toshihide, to Olympus Optical Co., Ltd. Centering system. 4,395,125, Cl. 356-400.000.

- Kaneko, Tadao: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
- Kania, Charles M.: See—
Das, Surya K.; and Kania, Charles M., 4,395,444, Cl. 427-388.400.
- Kanner, Bernard; and Hopper, Steven P., to Union Carbide Corporation. Process for the preparation of alkoxyhydrosilanes. 4,395,564, Cl. 556-470.000.
- Kanner, Bernard: See—
Kulkarni, Ravindra D.; Kanner, Bernard; and Goddard, Errol D., 4,395,352, Cl. 252-321.000.
- Kanno, Tadao: See—
Watanabe, Teruoki; Kanno, Tadao; Hidaka, Akio; and Kobayashi, Shunji, 4,395,025, Cl. 266-257.000.
- Kant, Michel: See—
Berna, Michel; Kant, Michel; Vilain, Jean P.; and Seger, Rene, 4,395,669, Cl. 318-502.000.
- Kantojarvi, Jouni; Lahti, Pertti; and Lindholm, Veikko. Emergency draining mechanism for the centrifugal spreader of an airplane. 4,395,002, Cl. 244-136.000.
- Kao Soap Co., Ltd.: See—
Murata, Moriyasu; and Okahashi, Kenji, 4,395,364, Cl. 252-526.000.
- Kapchits, Zelik F.: See—
Bazarov, Vladimir G.; Kuzmin, Alexei V.; Smaga, Gennady A.; Kapchits, Zelik F.; Dennikov, Sergei J.; and Soosalu, Peter I., 4,395,228, Cl. 431-168.000.
- Karis, Arthur T.: See—
Fitzpatrick, Donald C.; Guild, Gerald A.; and Karis, Arthur T., 4,395,038, Cl. 271-195.000.
- Karol, Frederick J.: See—
Wagner, Burkhard E.; Karol, Frederick J.; Goetze, George L.; Jorgensen, Robert J.; and Friis, Nils, 4,395,359, Cl. 252-429.00B.
- Karuks, Ergo; and Rohn, Martin, to FRC Composites Limited. Mechanical protection coating for coated metal substrate. 4,395,159, Cl. 405-172.000.
- Kasai, Masaji; Shirahata, Kunikatsu; and Kono, Motomichi, to Kyowa Hakko Kogyo Kabushiki Kaisha. 9-Epi-mitomycin B and D compounds. 4,395,558, Cl. 548-422.000.
- Kasashima, Tatsuji; Morita, Shuji; Hayami, Hiroyuki; Ose, Seiroku; Takada, Yoshinori; and Nozaki, Fumihiko, to Dainichi-Nippon Cables, Ltd. Apparatus for producing electrodeposited wires. 4,395,320, Cl. 204-206.000.
- Kashiwa, Norio: See—
Minami, Syuji; Kashiwa, Norio; Kato, Akifumi; and Watanabe, Junichi, 4,395,519, Cl. 525-240.000.
- Kashiwagi, Michio; and Nakajima, Kiichi, to Toray Industries, Inc. Dry electrophotographic toner comprising small, polymer coated particles as flow agent. 4,395,485, Cl. 430-903.000.
- Kashiwagi, Takashi; and Kasutani, Hiroshi, to Mitsubishi Kinzoku Kabushiki Kaisha. Drill bit. 4,395,169, Cl. 408-59.000.
- Kassegger, Friedrich: See—
Hodl, Fritz; and Kassegger, Friedrich, 4,395,026, Cl. 266-265.000.
- Kastelic, John R.; Charbonneau, Larry F.; and Carter, Thomas P., Jr., to Celanese Corporation. Thermotropic liquid crystal polymer pulp and method of preparation thereof wherein said polymer comprises recurring units which contain a 2,6-dioxyanthraquinone moiety. 4,395,307, Cl. 162-157.300.
- Kasuga, Muneeo: See—
Tsuda, Hiroshi; Miyashita, Kiyoshi; Shimizu, Akira; Nishikawa, Masaji; and Kasuga, Muneeo, 4,395,115, Cl. 355-25.000.
- Kasutani, Hiroshi: See—
Kashiwagi, Takashi; and Kasutani, Hiroshi, 4,395,169, Cl. 408-59.000.
- Katakura, Kageyoshi: See—
Kanda, Hiroshi; Ishikawa, Isao; Kondo, Toshio; and Katakura, Kageyoshi, 4,394,824, Cl. 73-606.000.
- Kato, Akifumi: See—
Minami, Syuji; Kashiwa, Norio; Kato, Akifumi; and Watanabe, Junichi, 4,395,519, Cl. 525-240.000.
- Kato Hatsuo Kaisha, Ltd.: See—
Hama, Mamoru, 4,395,210, Cl. 425-71.000.
- Kato, Koji: See—
Hasegawa, Masami; and Kato, Koji, 4,395,365, Cl. 252-545.000.
- Kato, Tadaharu: See—
Nishitani, Takao; and Kato, Tadaharu, 4,395,595, Cl. 179-84.0VF.
- Katsygin, Vitaly V.: See—
Sidorenko, Georgy I.; Stankevich, Vladimir I.; Katsygin, Vitaly V.; and Lopato, Georgy P., 4,394,865, Cl. 128-782.000.
- Katz, Edward; Davis, Henry S.; and Scallet, Barrett L., to Anheuser-Busch, Incorporated. High fructose syrup and process for making same. 4,395,292, Cl. 127-29.000.
- Kaufman, Marvin L.; and Salathe, George F., to Mobil Oil Corporation. Chemically modified imidazole curing catalysts for epoxy resins and powder coatings containing them. 4,395,522, Cl. 525-524.000.
- Kaul, Martin: See—
Weil, Wolfgang; Lanz, Andres; Vogt, Max; Meier, Paul; Kaul, Martin; and Fankhauser, Hanspeter, 4,395,614, Cl. 219-72.000.
- Kaup & Co. KG: See—
Kaup, Otmir, 4,395,188, Cl. 414-622.000.
- Kaup, Otmir, to Kaup & Co. KG. Load carrying arrangement for a lift truck. 4,395,188, Cl. 414-622.000.
- Kawabata, Takahiro: See—
Hasegawa, Katsumi; Kawabata, Takahiro; and Kuge, Shintaro, 4,394,986, Cl. 242-18.00R.
- Kawakami, Hideaki: See—
Nagae, Yoshiharu; Kitajima, Masaaki; and Kawakami, Hideaki, 4,395,709, Cl. 340-784.000.
- Kawamata, Motoo: See—
Toyoda, Toshihiro; Kawamata, Motoo; Osawa, Masanori; Itoh, Masayoshi; Mizutani, Kazumi; and Kono, Masahiro, 4,395,531, Cl. 528-49.000.
- Kawamura, Fumio: See—
Asakura, Yamato; Suzuki, Teiji; and Kawamura, Fumio, 4,395,386, Cl. 423-249.000.
- Kawamura, Katsuaki: See—
Takeda, Shigeki; Shibata, Junichi; Shimakata, Masashi; Oshime, Yasuhiro; Gomi, Shintaro; and Kawamura, Katsuaki, 4,395,714, Cl. 343-725.000.
- Kawamura, Kenji: See—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuharu, 4,395,402, Cl. 424-177.000.
- Kawasaki Jukogyo Kabushiki Kaisha: See—
Nakabayashi, Yasuyuki; Matsuura, Yoshio; Kurihara, Michio; Kamei, Takao; Nakamura, Akira; Komai, Keiichi; Shimotamari, Akira; and Wakabayashi, Takeshi, 4,395,334, Cl. 210-631.000.
- Kawasaki, Masahiro; Okura, Zenichi; and Urano, Fumio, to Asahi Kogaku Kogyo Kabushiki Kaisha. Compensation for diaphragm control in SLR camera. 4,395,106, Cl. 354-271.000.
- Kawasaki Seitetsu Kabushiki Kaisha: See—
Tomizawa, Fumio; Sobata, Katsutoshi; Yoshimatsu, Yoshiaki; Saito, Sadayuki; Otani, Takashi; and Hirano, Senzaburo, 4,395,023, Cl. 266-158.000.
- Kayahara, Masao: See—
Yoda, Kenichi; Togawa, Hideo; Ogawa, Eizou; and Kayahara, Masao, 4,395,136, Cl. 368-156.000.
- Kazakhsky Khimiko-Tekhnologicheskii Institut: See—
Balakirev, Anatoly A.; and Balakirev, Boris A., 4,395,289, Cl. 106-98.000.
- Keck, Donald B.: See—
Blankenship, Michael G.; and Keck, Donald B., 4,395,270, Cl. 65-3.120.
- Keller, Alex J.; and Pinto, Akiva, to Automatic Material Handling, Inc. Fiber feeding apparatus with controlled air flow. 4,394,790, Cl. 19-105.000.
- Kelley, Fred W., Jr., to General Electric Company. Regulating system employing an RMS composite controller. 4,395,674, Cl. 323-210.000.
- Kelly, Michael G.: See—
Covill, James H.; Kelly, Michael G.; and Leahy, Thomas F., 4,395,566, Cl. 560-87.000.
- Kent, William C., to Western Electric Company, Inc. Workpiece positioning, clamping and conveying apparatus. 4,395,028, Cl. 269-50.000.
- Kern, John M., to Borg-Warner Corporation. Multi-speed transmission. 4,395,248, Cl. 474-24.000.
- Kern, Werner; and Schnable, George L., to RCA Corporation. Selective etching of phosphosilicate glass. 4,395,304, Cl. 156-657.000.
- Kerr-McGee Refining Corporation: See—
Welsh, Charles J., 4,395,385, Cl. 423-234.000.
- Kettenring, Gunther, to Max-Planck-Gesellschaft zur Forderung. Electromagnetic diaphragm disk actuator. 4,395,650, Cl. 310-82.000.
- Ketzler, John H. A.: See—
Van Brunt, Nicholas P.; and Ketzler, John H. A., 4,395,767, Cl. 371-25.000.
- Keystone Bingo Products, Inc.: See—
Gargione, Frank, 4,395,043, Cl. 273-239.000.
- Kienle, Erhard; Kornaker, Walter; and Greiner, Felix, to International Standard Electric Corporation. Apparatus for magnetizing a convergence device for in-line color-picture tubes and methods of adjusting convergence with such apparatus. 4,395,692, Cl. 335-284.000.
- Kienzie, Wolfgang: See—
Sauer, Rudolf; Kienzie, Wolfgang; Paschke, Werner; and Hans, Waldemar, 4,394,973, Cl. 239-467.000.
- Kikuchi, Yoshiki: See—
Murayama, Tomio; Kikuchi, Yoshiki; Moriguchi, Haruhiko; Ohmori, Takashi; and Moriguchi, Fujio, 4,395,718, Cl. 346-135.100.
- Kildal, Maurice A.; and Hassall, Stephen J., to Eastman Kodak Company. Web cinching and winding apparatus and method. 4,394,990, Cl. 242-65.000.
- Killat, George R., to Dow Chemical Company, The. Method for preparing fibrous mats from a fibrous suspension. 4,395,306, Cl. 162-156.000.
- Killian, John C., Jr., to Polaroid Corporation. Detachable flash accessory for photographic apparatus. 4,395,748, Cl. 362-8.000.
- King, Alan G., to Borg-Warner Limited. Tensioning devices. 4,395,250, Cl. 474-111.000.
- King, Alan G.; and Hunt, Keith, to Borg-Warner Limited. Tensioning devices. 4,395,251, Cl. 474-111.000.
- King, John M.: See—
de Vries, Louis; and King, John M., 4,395,343, Cl. 252-32.70E.
- Kino, Yoshio: See—
Maeda, Masanori; Ishihara, Koji; and Kino, Yoshio, 4,395,617, Cl. 219-145.100.
- Kinoshita, Koji, to Osaka Yuki Kagaku Kogyo Kabushiki Kaisha. Vulcanization accelerator for chloroprene rubber. 4,395,349, Cl. 252-182.000.
- Kinsella, Patrick W.: See—
Lembeck, Manfred; Kinsella, Patrick W.; and Watson, Allan M., 4,395,355, Cl. 252-373.000.

- Kirch, William, to Chemplex Company. Method of making and recovering olefin polymer particles. 4,395,523, Cl. 526-64.000.
- Kishimoto, Juji; Sado, Ichiro; and Cho, Mitsuo, to Canon Kabushiki Kaisha. Input device for electronic apparatus. 4,395,704, Cl. 340-365.00S.
- Kishimoto, Kazuo: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; and Kono, Kimihiko, 4,395,321, Cl. 204-252.000.
- Kitajima, Masaaki: See—
Nagae, Yoshiharu; Kitajima, Masaaki; and Kawakami, Hideaki, 4,395,709, Cl. 340-784.000.
- Kitamoto, Tatsuji; and Shirahata, Ryuji, to Fuji Photo Film Co., Ltd. Method of manufacturing magnetic recording medium. 4,395,439, Cl. 427-132.000.
- Klein, Max, to Klein, Max; and Crane, Frederick G., Jr. Adsorption and filtration mat for liquids. 4,395,332, Cl. 210-496.000.
- Kleinfewers GmbH: See—
Pav, Josef; and Munch, Erhard, 4,394,793, Cl. 29-116.0AD.
- Kleinhenrich, Charles W., Jr., to Eaton Corporation. Automatic slack adjuster. 4,394,890, Cl. 188-71.900.
- Kleist, Frederick D., to Allergan Pharmaceuticals, Inc. Method for cleaning contact lenses. 4,395,346, Cl. 252-135.000.
- Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., to International Flavors & Fragrances Inc. Carbomethoxy methyl norbornanes, organoleptic uses thereof and process for preparing same. 4,395,366, Cl. 252-545.000.
- Klinger AG: See—
Wirz, Peter, 4,395,050, Cl. 277-236.000.
- Klockner Ionon GmbH: See—
Rembges, Wolfgang; and Elwart, Jan G., 4,395,024, Cl. 266-252.000.
- Kluttz, Robert Q.; and Slaugh, Lynn H., to Shell Oil Company. Alkylation process. 4,395,372, Cl. 260-465.00R.
- Knabel, Walter: See—
D'Antonio, Nicholas F.; and Knabel, Walter, 4,395,759, Cl. 364-410.000.
- Knapp, Alan G., to U.S. Philips Corporation. Method of forming a secondary emissive coating on a dynode. 4,395,437, Cl. 427-78.000.
- Knauer, Wolfgang, to Hughes Aircraft Company. Beam deflection system. 4,395,691, Cl. 335-210.000.
- Knechtli, Ronald C.; Loo, Robert Y.; and Kamath, G. Sanjiv, to Hughes Aircraft Company. Accelerated annealing of gallium arsenide solar cells. 4,395,293, Cl. 148-1.500.
- Kobayashi, Masaaki; Igata, Kouichi; and Takeuchi, Akihiro, to Matsushita Electric Industrial Co., Ltd. Positionable element driving circuit. 4,395,741, Cl. 360-77.000.
- Kobayashi, Masatsune; Matsumoto, Seiko; Haruta, Masahiro; and Ohta, Tokuya, to Canon Kabushiki Kaisha. Liquid recording material. 4,395,287, Cl. 106-20.000.
- Kobayashi, Shunji: See—
Watanabe, Teruoki; Kanno, Tadao; Hidaka, Akio; and Kobayashi, Shunji, 4,395,025, Cl. 266-257.000.
- Kobe Steel, Limited: See—
Nakata, Kazuo; Iochi, Akihiko; Kaise, Isamu; Takeuchi, Kazuo; and Nomura, Katsuhiko, 4,395,119, Cl. 356-73.000.
- Koch, Albert P., to Nabisco Brands, Inc. Oven control apparatus. 4,395,232, Cl. 432-32.000.
- Kocsisek, Karl: See—
Aarts, Petrus J. J.; Fleck, Harald; Kocsisek, Karl; and Schmidt, Ernst M., 4,395,745, Cl. 360-129.000.
- Koda, Akihiko: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichi; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihiko; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Kodama, Yutaka: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Koepnick, Paul J.: See—
Fischer, Harry A.; Koepnick, Paul J.; Dennis, Thomas A.; and Anderson, Joseph R., 4,395,427, Cl. 426-231.000.
- Koga, Yoshihiro: See—
Murakami, Shozo; Isomura, Hukuyosi; and Koga, Yoshihiro, 4,395,283, Cl. 75-60.000.
- Kohler, Henry G.; and Major, Emeric L., to Shutter Mart of California, Inc. Ratchet bearing for shutter slats and the like. 4,394,788, Cl. 16-334.000.
- Kohno, Yasumasa: See—
Tanaka, Hiroto; Kohno, Yasumasa; Tanaka, Hideyuki; and Sasaki, Kotaro, 4,395,746, Cl. 361-143.000.
- Kohyama, Susumu: See—
Nagakubo, Yoshihide; and Kohyama, Susumu, 4,395,433, Cl. 427-35.000.
- Koiso, Junichi: See—
Ura, Hiroaki; Hirabayashi, Tsugio; and Koiso, Junichi, 4,395,114, Cl. 355-15.000.
- Kojima, Yoshikazu: See—
Namiki, Masayuki; Kamiya, Masaaki; Kojima, Yoshikazu; and Tanaka, Kojiro, 4,395,139, Cl. 374-178.000.
- Kokosi, Jozsef: See—
Hermecz, Istvan; Kokosi, Jozsef; Horvath, Agnes; Meszaros, Zoltan; Szasz, Gyorgy; Breining, Tibor; and Vasvari nee Debreczy, Lelle, 4,395,549, Cl. 544-252.000.
- Komai, Keiichi: See—
Nakabayashi, Yasuyuki; Matsuura, Yoshio; Kurihara, Michio; Kamei, Takao; Nakamura, Akira; Komai, Keiichi; Shimotamari, Akira; and Wakabayashi, Takeshi, 4,395,334, Cl. 210-631.000.
- Komatsu, Fumito. Motors. 4,395,668, Cl. 318-439.000.
- Komori, Shigehiro; and Yamaguchi, Masaru, to Canon Kabushiki Kaisha. Copying apparatus. 4,395,118, Cl. 355-75.000.
- Kondo, Hideyo; and Fujimura, Naoto, to Canon Kabushiki Kaisha. Electrophotographic photosensitive member with cured cyclized rubber binder. 4,395,474, Cl. 430-67.000.
- Kondo, Isao, to Olympus Optical Company Ltd. Illumination mode switching circuit for automatic electronic flash. 4,395,100, Cl. 354-33.000.
- Kondo, Shiro; and Takii, Yasuo, to Alps Electric Co., Ltd. Illuminated push-button switch. 4,395,611, Cl. 200-314.000.
- Kondo, Toshio: See—
Kanda, Hiroshi; Ishikawa, Isao; Kondo, Toshio; and Katakura, Kageyoshi, 4,394,824, Cl. 73-606.000.
- Kondo, Yoshikazu; Yamamoto, Toshihiro; and Yamamoto, Takaji, to Kanebo, Ltd.; and Kanebo Synthetic Fibers, Ltd. Porous acrylic synthetic fibers comprising cellulose acetate in an acrylic matrix and method for producing said fibers. 4,395,377, Cl. 264-46.100.
- Konig, Wolfgang; Geiger, Rolf; and Sandow, Jurgen K., to Hoechst Aktiengesellschaft. Nonapeptide, a process for its preparation, an agent containing it and its use. 4,395,400, Cl. 424-177.000.
- Konishiroku Photo Industry Co., Ltd.: See—
Ura, Hiroaki; Hirabayashi, Tsugio; and Koiso, Junichi, 4,395,114, Cl. 355-15.000.
- Kono, Kimihiko: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; and Kono, Kimihiko, 4,395,321, Cl. 204-252.000.
- Kono, Masahiro: See—
Toyoda, Toshihiro; Kawamata, Motoo; Osawa, Masanori; Itoh, Masayoshi; Mizutani, Kazumi; and Kono, Masahiro, 4,395,531, Cl. 528-49.000.
- Kono, Motomichi: See—
Kasai, Masaji; Shirahata, Kunikatsu; and Kono, Motomichi, 4,395,558, Cl. 548-422.000.
- Konrad, Eugen; and Mager, Herbert, to Wella Aktiengesellschaft. Hair dyeing agent. 4,395,262, Cl. 8-410.000.
- Kopke, Wolfgang; Muller, Manfred; Schmidt, Wolfgang; Eggert, Albert; Gahleitner, Erwin; and Raupach, Gerhard, to Robert Bosch GmbH. Modular hearing aid. 4,395,601, Cl. 179-179.000.
- Koppers Company, Inc.: See—
Lahner, William F., III, 4,395,047, Cl. 277-3.000.
- Kopse, Odon; and Amaya, Nestor R., to Robert Bosch GmbH. Electrical signal generating fuel injection valve. 4,394,823, Cl. 73-119.00A.
- Kornaker, Walter: See—
Kienle, Erhard; Kornaker, Walter; and Greiner, Felix, 4,395,692, Cl. 335-284.000.
- Korpinen, Matti: See—
Manttari, Erkki; and Korpinen, Matti, 4,395,207, Cl. 418-102.000.
- Korpman, Ralf, to Johnson & Johnson. Absorbent foam products. 4,394,930, Cl. 220-444.000.
- Koshimura, Yasunobu: See—
Aoike, Nanjou; Inui, Kenichi; and Koshimura, Yasunobu, 4,395,659, Cl. 315-209.00R.
- Kosmahl, Henry G., to United States of America, National Aeronautics and Space Administration. Gyrotron transmitting tube. 4,395,656, Cl. 315-4.000.
- Kosoczky, Ibolya: See—
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- Kousaka, Akira: See—
Tada, Isao; Okamura, Toshio; Kousaka, Akira; and Nakai, Kaichiro, 4,395,657, Cl. 315-39.710.
- Kovacic, Guido: See—
Luhrig, Hermann; Hoffacker, Franz; Kovacic, Guido; Engelsmann, Dieter; Zobel, Siegfried; Hackenberg, Hubert; and Wagner, Karl, 4,395,107, Cl. 354-275.000.
- Kraft, Wayne R.: See—
Cases, Moises; Kraft, Wayne R.; Moore, Victor S.; Stahl, William L., Jr.; and Thoma, Nandor R., 4,395,646, Cl. 307-468.000.
- Kramer, Carl. Apparatus for floatingly moving a length of material. 4,394,950, Cl. 226-97.000.
- Kramer, Donald L., to Miles Laboratories, Inc. Apparatus for reflectance measurement of fluorescent radiation and composite useful therein. 4,395,126, Cl. 356-417.000.
- Kramer, Lee F.: See—
Christensen, Robert B.; and Kramer, Lee F., 4,395,193, Cl. 414-722.000.
- Kramer, Walter; and Follmann, Rainer, to Mars Inc. Calcium silicate granules forming a microporous structure. 4,395,357, Cl. 252-428.000.
- Kray, William D., to General Electric Company. Article comprising silicone resin coated, methacrylate-primed substrate. 4,395,463, Cl. 428-447.000.
- Krenz, Horst M., to Zenith Radio Corporation. Print head drive belt tensioning means and method for line printer. 4,395,151, Cl. 400-320.000.
- Kretztechnik Gesellschaft m.b.H.: See—
Satrapa, Jaroslav, 4,395,707, Cl. 340-703.000.
- Krol, Thijs: See—
Goethals, Jean M. E. B.; and Krol, Thijs, 4,395,768, Cl. 371-45.000.

- Kronich, Peter G.; and Arendt, Dan R., to Tecumseh Products Company. Engine shut-off system with flywheel braking. 4,394,893, Cl. 192-1.000.
- Krull, Klaus: See—
Gohm, Lothar; and Krull, Klaus, 4,395,780, Cl. 455-607.000.
- Krupp Polysius AG: See—
Beltrup, Herbert; Teutenberg, Josef; and Hilbig, Manfred, 4,395,164, Cl. 406-74.000.
- Kruse, Richard H.: See—
Barker, Thomas H.; Roach, Thomas L.; Kruse, Richard H.; Fayer, Jay A.; and Bohlman, Eric O., 4,395,627, Cl. 235-381.000.
- Kubasov, Vladimir L.: See—
Golubkov, Sergei V.; Druzhinin, Ernest A.; Zimin, Vladimir M.; Kubasov, Vladimir L.; Lvovich, Florenty I.; and Mazanko, Anatoly F., 4,395,314, Cl. 204-98.000.
- Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Transmission control system with modified friction engaging mechanism actuating pressure. 4,394,827, Cl. 74-868.000.
- Kubota, Yoshihiro; and Kuriyama, Osamu, to Shin-Etsu Chemical Co., Ltd. Polyphenylenesulfide resin composition. 4,395,512, Cl. 524-413.000.
- Kuge, Shintaro: See—
Hasegawa, Katsumi; Kawabata, Takahiro; and Kuge, Shintaro, 4,394,986, Cl. 242-18.00R.
- Kuhn, Eberhard: See—
Ahne, Hellmut; Kuhn, Eberhard; and Rubner, Roland, 4,395,482, Cl. 430-326.000.
- Kulkarni, Ravindra D.; Kanner, Bernard; and Goddard, Errol D., to Union Carbide Corporation. High efficiency antifoam compositions and process for reducing foaming. 4,395,352, Cl. 252-321.000.
- Kumagai, Katuya: See—
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- Kumaki, Takashi: See—
Saito, Takashi; Hirano, Toshio; and Kumaki, Takashi, 4,395,744, Cl. 360-97.000.
- Kunimoto, Go; Ichinose, Isao; Suzuki, Noboru; and Mori, Fumio, to Toyo Seikan Kaisha, Ltd. Peelable adhesive structure. 4,395,446, Cl. 428-35.000.
- Kunkle, Gerald E.; Sensi, John E.; and Gulotta, Joseph A., to PPG Industries, Inc. Pressure sizing of float glass. 4,395,272, Cl. 65-99.500.
- Kuramochi, Koujiro: See—
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- Kureha Kagaku Kogyo Kabushiki Kaisha: See—
Sato, Hiroaki; and Hirata, Masaru, 4,395,362, Cl. 252-511.000.
- Kurihara, Michio: See—
Nakabayashi, Yasuyuki; Matsura, Yoshio; Kurihara, Michio; Kamei, Takao; Nakamura, Akira; Komai, Keichi; Shimotamari, Akira; and Wakabayashi, Takeshi, 4,395,334, Cl. 210-631.000.
- Kuriyama, Osamu: See—
Kubota, Yoshihiro; and Kuriyama, Osamu, 4,395,512, Cl. 524-413.000.
- Kurz, Wolfgang, to Robert Bosch GmbH. Controlled rectifier motor vehicle battery charger. 4,395,673, Cl. 320-61.000.
- Kutowy, Oleh. Interconnected pumping mechanism. 4,395,130, Cl. 366-137.000.
- Kuzmin, Alexei V.: See—
Bazarov, Vladimir G.; Kuzmin, Alexei V.; Smaga, Gennady A.; Kapchits, Zelik F.; Dennikov, Sergei J.; and Soosalu, Peter I., 4,395,228, Cl. 431-168.000.
- Kvasnikoff, Georges: See—
Desgrandchamps, Guy; Kvasnikoff, Georges; and Blanc, Claude, 4,395,390, Cl. 423-573.00G.
- Kwantes, Arien; and De Goederen, Cornelis W. J., to Shell Oil Company. Process for the preparation of ethanol. 4,395,576, Cl. 568-913.000.
- Kyowa Hako Kogyo Kabushiki Kaisha: See—
Kasai, Masaji; Shirahata, Kunikatsu; and Kono, Motomichi, 4,395,558, Cl. 548-422.000.
- Kyushima, Tatsuo: See—
Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,394,827, Cl. 74-868.000.
- Lackey, Stanley A., Jr.: See—
Helenius, Allan; Lackey, Stanley A., Jr.; and Northrup, Thomas A., 4,395,758, Cl. 364-200.000.
- Lacour, Alain P.: See—
Langlois, Michel; Bucher, Bernard P.; Dostert, Philippe L.; Lacour, Alain P.; and Moinet, Gerard H., 4,395,416, Cl. 424-267.000.
- Lahner, William F., III, to Koppers Company, Inc. Shaft seal with seal impeller for materials processing machinery. 4,395,047, Cl. 277-3.000.
- Lahti, Pertti: See—
Kantojarvi, Jouni; Lahti, Pertti; and Lindholm, Veikko, 4,395,002, Cl. 244-136.000.
- Laird, William B. Furniture with removable cushions. 4,395,071, Cl. 297-440.000.
- Laland, Soren: See—
Gacek, Mikkel J.; Oftebro, Reidar; Laland, Soren; and Undheim, Kjell, 4,395,406, Cl. 424-180.000.
- Lambert, Neville L.: See—
Hoener, Dieter W.; Lambert, Neville L.; and Schweizer, Erwin V., 4,395,172, Cl. 410-84.000.
- Lambertus, Friedrich, to Werner & Pfeleiderer. Screen-change device for extruders. 4,395,212, Cl. 425-185.000.
- Lampton, Michael L.: See—
Anger, Hal O.; Martin, Donn C.; and Lampton, Michael L., 4,395,636, Cl. 250-366.000.
- Lance, David G.; and Skinner, Raymond N., to Carlton and United Breweries Limited. Processing of hop resins and similar materials. 4,395,431, Cl. 426-600.000.
- Landskrona Finans AB: See—
Clevenholm, Roy L. R.; and Mellqvist, Carl-Olof H., 4,395,133, Cl. 366-241.000.
- Lang, Gerard: See—
Jacquet, Bernard; Lang, Gerard; Malaval, Alain; Forestier, Serge; and Le Trung, Do, 4,395,541, Cl. 528-367.000.
- Lange, Karl-Heinz; to Balda-Werke Photographische Gerate und Kunststoff GmbH & Co., KG. Electrically programmed shutter assembly. 4,395,104, Cl. 354-230.000.
- Lange, Walter J.: See—
Leitman, Harold N.; and Lange, Walter J., 4,395,596, Cl. 179-99.0LC.
- Langenegger, Georg; Bauer, Franz; and Langenegger, Josef. Unit for the administration of liquids to animals, more specially a watering bowl. 4,394,847, Cl. 119-75.000.
- Langenegger, Josef: See—
Langenegger, Georg; Bauer, Franz; and Langenegger, Josef, 4,394,847, Cl. 119-75.000.
- Langlais, Jacques F.: See—
Dauge, Gilbert V.; Langlais, Jacques F.; and Quehen, Daniel J., 4,394,885, Cl. 177-210.00C.
- Langlois, Michel; Bucher, Bernard P.; Dostert, Philippe L.; Lacour, Alain P.; and Moinet, Gerard H., to Delalande S.A. 1-Spiro isobenzofuranic and 1-spiro isobenzothiophenic derivatives the process for preparing the same and their use in therapeutics. 4,395,416, Cl. 424-267.000.
- Lanning, John M.; and Epps, Stephan R., to Harnischfeger Corporation. Crane having power operated outriggers and lock means therefor. 4,394,913, Cl. 212-189.000.
- Lanyi, Gyorgy: See—
Molnar, Attila; Csermely, Gyorgy; and Lanyi, Gyorgy, 4,395,568, Cl. 560-198.000.
- Lanz, Andres: See—
Weil, Wolfgang; Lanz, Andres; Vogt, Max; Meier, Paul; Kaul, Martin; and Fankhauser, Hanspeter, 4,395,614, Cl. 219-72.000.
- LaPelle, Ronald J.: See—
Ou, Sam A.; and LaPelle, Ronald J., 4,394,926, Cl. 220-89.00A.
- Lapham, Edward L. Portable, reusable pipe coupling. 4,395,060, Cl. 285-39.000.
- Lappe, Manfred: See—
Rathje, Uwe; and Lappe, Manfred, 4,394,886, Cl. 180-140.000.
- Larimore, Franklin C., to Minnesota Mining and Manufacturing Company. Peripherally supported package for adhesive-surfaced articles. 4,394,904, Cl. 206-447.000.
- Larkin, John M., to Texaco, Inc. Oligomerization of olefins over boron trifluoride in the presence of a transition metal cation-containing promoter. 4,395,578, Cl. 585-10.000.
- La Sala, Joseph: See—
Lindsay, James H.; La Sala, Joseph; and Ghorashi, Hamid M., 4,395,313, Cl. 204-30.000.
- Latsch, Reinhard; Linder, Ernst; Maurer, Helmut; Muller, Klaus; and Rieger, Franz, to Robert Bosch GmbH. Internal combustion engine with externally supplied ignition having an ignition chamber associated with the main combustion chamber. 4,394,855, Cl. 123-254.000.
- Lauterbach, Christl, to Siemens Aktiengesellschaft. Barrier-free, low-resistant electrical contact on III-V semiconductor material. 4,395,727, Cl. 357-71.000.
- Laugier, Rene, to Angenieux-Clb S.A. Rear "stop" light contactor for a vehicle such as a motorcycle or motor bicycle. 4,395,603, Cl. 200-61.870.
- Lavorzaione Materie Plastiche L.M.P. S.p.A.: See—
Benadi, Alberto, 4,395,217, Cl. 425-382.00R.
- Lay nee Konya, Aranka: See—
Budai, Zoltan; Lay nee Konya, Aranka; Mezei, Tibor; Petocz, Lujza; Grasser, Katalin; Kosoczky, Ibolya; Szirt nee Kiszelly, Eniko; and Gorog, Peter, 4,395,413, Cl. 424-250.000.
- Lazerson, Max M.: See—
Bohme, Rolf C.; and Lazerson, Max M., 4,394,907, Cl. 209-556.000.
- Leahy, Thomas F.: See—
Covill, James H.; Kelly, Michael G.; and Leahy, Thomas F., 4,395,566, Cl. 560-87.000.
- Lebesnerais, Gerard: See—
Hornung, Robert; and Lebesnerais, Gerard, 4,395,681, Cl. 330-259.000.
- Lebret, Gerard, to E. P. Remy et Cie. Pincers-type gripper for seizing objects and gripping head equipped with such grippers. 4,395,069, Cl. 294-87.220.
- Lee, Wai M., to EKC Technology, Inc. Photoresist stripping composition and method. 4,395,348, Cl. 252-143.000.
- Lefevre, Marcel R.; and DePalma, Anthony M., to Research-Cottrell, Inc. Filling sheet attaching means for gas and liquid contact apparatus and method of assembly of plural parallel filling sheets. 4,395,448, Cl. 428-99.000.
- Lehmacher, Hans. Apparatus for making bags of thin synthetic-resin film. 4,395,252, Cl. 493-28.000.
- Lehmann, Klaus, to Robert Bosch GmbH. Broadband circuit with rapidly variable resistor. 4,395,643, Cl. 307-264.000.
- Lehmann, Richard W.: See—
Chowdhury, Ajit K.; Bauer, Gerald L.; and Lehmann, Richard W., 4,395,339, Cl. 210-761.000.

- Leiner, Howard H.; and Bossert, Emily C., to M&T Chemicals Inc. Catalyst composition and curable polymer compositions containing same. 4,395,528, Cl. 528-45.000.
- Leitman, Harold N.; and Lange, Walter J. Multi-line controller. 4,395,596, Cl. 179-99.0LC.
- Lembeck, Manfred; Kinsella, Patrick W.; and Watson, Allan M., to Linde Aktiengesellschaft. Process and apparatus for treating a pressurized feed stream capable of undergoing an endothermic reaction. 4,395,355, Cl. 252-373.000.
- Le Page, Jean-Francois; Billon, Alain; and Jacquin, Yves, to Societe Francaise des Produits pour Catalyse. Catalyst and process for hydro-refining hydrocarbon charges with high contents of metals, resins and/or asphaltenes. 4,395,329, Cl. 208-251.00H.
- Lesage, Philippe M., to Societe Audax. Electro-acoustic transducer causing sound waves to be in phase at any point by preventing reflection from the back end of the diaphragm to stress applying means. 4,395,598, Cl. 179-115.00R.
- Le Trung, Do: See—
Jacquet, Bernard; Lang, Gerard; Malaval, Alain; Forestier, Serge; and Le Trung, Do, 4,395,541, Cl. 528-367.000.
- Leupold & Stevens, Inc.: See—
Gibson, Dale E., 4,395,096, Cl. 350-560.000.
- Leutner, Bernd; Purucker, Berndhard; Rother, Eberhard; Juergens, Geerd F.; and Wagner, Dieter, to BASF Aktiengesellschaft. Preparation of multi-trace element fertilizers. 4,395,273, Cl. 71-11.000.
- Lever Brothers Company: See—
Walz, Kurt; Dittmann, Peter; and Hohne, Hartmut, 4,395,345, Cl. 252-135.000.
- Levine, Richard S.: See—
Soski, Norbert S.; and Levine, Richard S., 4,395,760, Cl. 364-410.000.
- Levy, Jerome F.: See—
Lewis, Sheldon N.; and Levy, Jerome F., 4,395,569, Cl. 560-222.000.
- Lewis, Henry G., Jr., to RCA Corporation. Digital video signal processing filters with signal-to-noise enhancement. 4,395,729, Cl. 358-21.00R.
- Lewis, Sheldon N.; and Levy, Jerome F., to Rohm and Haas Company. Method of preparing sulfonic acid salts of acyloxyalkylamines and polymers and compounds therefrom. 4,395,569, Cl. 560-222.000.
- Leybold Heraeus GmbH: See—
Ross, Rudi; and Heimel, Helmut, 4,395,632, Cl. 250-343.000.
- Li, Chou H. Temperature controlled apparatus. 4,395,728, Cl. 357-82.000.
- Licciardello, Michael: See—
Boden, Richard M.; Tyszkiewicz, Theodore J.; and Licciardello, Michael, 4,395,370, Cl. 260-463.000.
- Licentia Patent-Verwaltungs-GmbH: See—
Gohm, Lothar; and Krull, Klaus, 4,395,780, Cl. 455-607.000.
- Lieberman, Sidney, to Dorma Door Controls Inc. Hydraulic door closer construction. 4,394,787, Cl. 16-58.000.
- Liechti, Peter: See—
Haase, Jeroslav; Liechti, Peter; Wegmuller, Hans; Wurster, Rudolf F.; and Boves, Quentin, 4,395,546, Cl. 544-168.000.
- Lifel di Torta E C. S.A.S.: See—
Torta, Mario, 4,395,011, Cl. 248-393.000.
- Liller, Paul R.; and Shahan, Donald J., to RCA Corporation. Method of electrically processing a CRT mount assembly to reduce afterglow. 4,395,242, Cl. 445-5.000.
- Limare, Armand; Razumowski, Bernard; and Sindezingue, Claude, to Societe Anonyme Societe Miniere et Metallurgique de Penarroya. Process for making non-dusting high lead oxide-low silica additive. 4,395,291, Cl. 106-297.000.
- Linde Aktiengesellschaft: See—
Lembeck, Manfred; Kinsella, Patrick W.; and Watson, Allan M., 4,395,355, Cl. 252-373.000.
- Linder, Ernst: See—
Latsch, Reinhard; Linder, Ernst; Maurer, Helmut; Muller, Klaus; and Rieger, Franz, 4,394,855, Cl. 123-254.000.
- Lindholm, Veikko: See—
Kantojarvi, Jouni; Lahti, Pertti; and Lindholm, Veikko, 4,395,002, Cl. 244-136.000.
- Lindholm, Wayne R.: See—
Eskuchen, Frank G., 4,395,030, Cl. 269-181.000.
- Lindner, Christian: See—
Waniczek, Helmut; Suling, Carlhans; Lindner, Christian; and Bartl, Herbert, 4,395,517, Cl. 525-168.000.
- Lindsay, James H.; La Sala, Joseph; and Ghorashi, Hamid M., to General Motors Corporation. Vacuum pretreatment process for durable electroplated coatings on ABS and PPO plastics. 4,395,313, Cl. 204-30.000.
- Line S.A.: See—
Pinchemaille, Pierre, 4,394,908, Cl. 211-1.500.
- Lines, Ellwood L., Jr.; and Farmer, Douglas A., Jr., to Olin Corporation. Fire and heat resistant structure. 4,395,453, Cl. 428-216.000.
- Lipani, Anthony F.: See—
Crean, Peter A.; Schneider, John M.; and Lipani, Anthony F., 4,395,716, Cl. 346-1.100.
- Lippincott, Douglas E.: See—
Patton, Charles R., III; and Lippincott, Douglas E., 4,395,116, Cl. 355-32.000.
- Lisiecki, Robert E., to Ex-Cell-O Corporation. Container and blank for constructing same. 4,394,954, Cl. 229-17.00G.
- List, Hans: See—
Greier, Josef; and Pomfret, Colin T., 4,394,851, Cl. 123-182.000.
- Litton Systems, Inc.: See—
Loomer, Weston R., 4,395,181, Cl. 414-284.000.
- Lloyd, Randahl B., to Hughes Aircraft Company. Sampling and level shifting apparatus to operate in conjunction with a liquid crystal display for converting DC analog drive signals to AC signals. 4,395,708, Cl. 340-784.000.
- Lobeck, John H., to Torrington Company. The. Self-adjusting angular contact spherical bearing. 4,395,142, Cl. 384-192.000.
- Lockheed Corporation: See—
deJong, Sijze, 4,395,160, Cl. 405-195.000.
- Loctite Corporation: See—
Taylor, James H., Jr., 4,394,945, Cl. 222-571.000.
- Login, Robert B.; and Berke, Robert L., to Jordan Chemical Company. Phosphated amine oxides. 4,395,373, Cl. 260-928.000.
- Lohr, Gernot; and Reinecke, Rolf, to Hoechst Aktiengesellschaft. Protective colloid-free plastics dispersion having a bimodal particle size distribution. 4,395,500, Cl. 523-221.000.
- Longrod, Scott J., to SCM Corporation. Ribbon drive mechanism. 4,395,149, Cl. 400-215.000.
- Loo, Robert Y.: See—
Knechtli, Ronald C.; Loo, Robert Y.; and Kamath, G. Sanjiv, 4,395,293, Cl. 148-1.500.
- Loomer, Weston R., to Litton Systems, Inc. Robot vehicle. 4,395,181, Cl. 414-284.000.
- Loos, Michel: See—
Comfort, Joseph A.; Perry, Thomas J.; and Loos, Michel, 4,395,753, Cl. 364-200.000.
- Looser, Christian, to Alcan International Limited. Sealed closure-container package. 4,394,917, Cl. 215-232.000.
- Lopato, George P.: See—
Sidorenko, Georgy I.; Stankevich, Vladimir I.; Katsygin, Vitaly V.; and Lopato, Georgy P., 4,394,865, Cl. 128-782.000.
- Lopez-Crevillen, Jose M.; and Huber, John W., to General Motors Corporation. Engine oil pan isolation mounting. 4,394,853, Cl. 123-195.00C.
- Lougheed, Robert M.: See—
Dargel, William O.; Lougheed, Robert M.; McCubbrey, David L.; and Richardson, Ralph E., 4,395,697, Cl. 382-41.000.
- Sternberg, Stanley R.; Dargel, William O.; Lougheed, Robert M.; McCubbrey, David L.; and Richardson, Ralph E., 4,395,698, Cl. 382-27.000.
- Low, Teresa L. K.; and Goldstein, Allan L., to George Washington University. Synthetic thymosin β_1 and β_4 analogues. 4,395,404, Cl. 424-177.000.
- Lowe, Richard D. Can crusher. 4,394,834, Cl. 100-245.000.
- Lucas, Gary M.: See—
White, Mary A.; Beers, Melvin D.; Lucas, Gary M.; Smith, Robert A.; and Swiger, Roger T., 4,395,526, Cl. 528-18.000.
- Lucas Industries Limited: See—
Gaskell, David J., 4,394,971, Cl. 239-453.000.
- Lucas Industries PLC: See—
Potter, James C., 4,394,972, Cl. 239-453.000.
- Lucatorto, Thomas B.: See—
Roberts, James R.; McIlrath, Thomas J.; and Lucatorto, Thomas B., 4,395,775, Cl. 378-145.000.
- Luce, Nunzio A. Joystick switch for timepieces. 4,395,134, Cl. 368-3.000.
- Luhrig, Hermann; Hoffacker, Franz; Kovacic, Guido; Engelsmann, Dieter; Zobel, Siegfried; Hackenberg, Hubert; and Wagner, Karl, to Agfa-Gevaert AG. Film cassette. 4,395,107, Cl. 354-275.000.
- Luk Lamellen und Kupplungsbau GmbH: See—
Huber, Lothar, 4,394,854, Cl. 123-198.00F.
- Lundback, Per B. Vessel for recovering material. 4,394,841, Cl. 114-26.000.
- Lundy, Rene R.; and Tyler, David L. Auditory subliminal message system and method. 4,395,600, Cl. 179-1.50M.
- Lutz, Charles W., to FMC Corporation. Vapor hydrogen peroxide bleach delivery. 4,395,261, Cl. 8-111.000.
- Luu, Duc: See—
Bienvenu, Jacques; Carre, Claude; Luu, Duc; and Verdier, Henri, 4,395,757, Cl. 364-200.000.
- Lvovich, Florenty I.: See—
Golubkov, Sergei V.; Druzhinin, Ernest A.; Zimin, Vladimir M.; Kubasov, Vladimir L.; Lvovich, Florenty I.; and Mazanko, Anatoly F., 4,395,314, Cl. 204-98.000.
- M & T Chemicals Inc.: See—
Berger, Ade, 4,395,527, Cl. 528-26.000.
- Leiner, Howard H.; and Bossert, Emily C., 4,395,528, Cl. 528-45.000.
- Ma, Chi: See—
Sulzberg, Theodore; and Ma, Chi, 4,395,504, Cl. 524-14.000.
- MacDonell, Wayne O.; Graves, Donald L.; and Timar, Thomas, to Boeing Company. The. Transfer system for use between platforms having relative motion between one another. 4,395,178, Cl. 414-138.000.
- MacPhee, John; Wirth, David; and St. John, John, to Baldwin-Gegenheimer Corporation. System for mixing concentrate and water to form fountain solution for offset printing presses. 4,394,870, Cl. 137-99.000.
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- Mahlein, Hans F., to Siemens Aktiengesellschaft. Optical cut-off filter. 4,395,090, Cl. 350-166.000.
- Majewski, Henry A.; Salmre, William; and Van Brimer, R. Hugh, to Exxon Research and Engineering Co. Ink jet apparatus with a flexible piezoelectric member and method of operating same. 4,395,719, Cl. 346-140.00R.
- Major, Emeric L.: See—
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- Makita, Satoru: See—
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- Malkova, Veronika P.: See—
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- Mank, Larry: See—
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- Mansfield, Gerald R.: See—
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- Marinescu, Marlene, to Teldix GmbH. Electrical winding for a transformer, a choke coil or the like. 4,395,693, Cl. 336-223.000.
- Mark Levinson Audio Systems Ltd.: See—
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- Marks, Alvin M. Electrothermodynamic (ETD) power converter. 4,395,648, Cl. 310-10.000.
- Mars Inc.: See—
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- Marsh, Edward K., to Bendix Corporation, The. Electrical contact for electrical connector assembly. 4,395,086, Cl. 339-176.00M.
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- Massachusetts Institute of Technology: See—
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- Wang, Daniel I. C.; and Avgerinos, George C., 4,395,543, Cl. 536-56.000.
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- Mathews, Marion J., III: See—
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- Mathis System-Technik GmbH: See—
Mathis, Paul; and Zimmer, Max, 4,395,128, Cl. 366-18.000.
- Matsuda, Terumi; Ishiguro, Shoji; Moriuchi, Shigenori; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Direct positive type silver halide photosensitive material. 4,395,483, Cl. 430-411.000.
- Matsue, Shigeki, to Nippon Electric Co., Ltd. Memory device utilizing shift registers for data accessing. 4,395,764, Cl. 365-78.000.
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- Matsumaru, Haruo: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
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- Maudal, Inge, to General Dynamics, Pomona Division. Sequential time discrimination system for sub-delivery systems. 4,394,997, Cl. 244-3.160.
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Taillet, Joseph; and Maulard, Jean, 4,394,998, Cl. 244-31.000.
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- Maurer, Helmut: See—
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- Max-Planck-Gesellschaft zur Forderung: See—
Kettenring, Gunther, 4,395,650, Cl. 310-82.000.
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- Mazanko, Anatoly F.: See—
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- McBride, Edward D.: See—
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- McCarney, Greg J., to Minnesota Mining and Manufacturing Company. Roomlight-stable ultraviolet-response photothermographic imaging material. 4,395,484, Cl. 430-620.000.
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- McCubrey, David L.; and Richardson, Ralph E., to Environmental Research Institute of Michigan. Image analyzer with variable line storage. 4,395,700, Cl. 382-27.000.
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- McCullough, John E., to Arthur D. Little, Inc. Mechanically actuated tip seals for scroll apparatus and scroll apparatus embodying the same. 4,395,205, Cl. 418-55.000.
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- McDonald, Charles J., to Dow Chemical Company, The. Preparation of aminomethanols. 4,395,311, Cl. 203-34.000.
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- McLaughlin, James H.; Dente, Stephen V.; Carmello, Robert; and Smith, James A., to Airwick Industries, Inc. Powdered carpet cleaner containing other alcohol solvents. 4,395,347, Cl. 252-139.000.
- McLelland, Bruce, to Fike Metal Products Corporation. Horizontal discharge assembly for vertically oriented fire extinguisher. 4,394,868, Cl. 137-68.00A.
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- Meares, Lawrence G., to McDonnell Douglas Corporation. Flux-balanced variable frequency inverter. 4,395,751, Cl. 363-134.000.
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- Mehl, Dietholf: See—
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- Menard, Roger O. Plastic emergency power pack for vehicle trailer. 4,395,696, Cl. 340-74.000.
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- Miller, Daniel A., to Nestier Corporation. Shelf for order picking systems. 4,394,910, Cl. 211-490.000.
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- Hipp, Richard D., Jr., 4,395,032, Cl. 271-10.000.
- Larimore, Franklin C., 4,394,904, Cl. 206-447.000.
- McCarney, Greg J., 4,395,484, Cl. 430-620.000.
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- Mizusawa, Mitsutoyo; Seki, Masayuki; and Sunohara, Kazuo, to Nisshin Kogyo Kabushiki Kaisha. Automated braking-gap adjuster system for mechanical drum brake. 4,394,892, Cl. 188-196.0BA.
- Mizutani, Kazumi: See—
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- Mager, Herbert: See—
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- Magnotte, John A., to Westmont Industries. Engine unit maintenance complex. 4,395,180, Cl. 414-282.000.
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- Mahlein, Hans F., to Siemens Aktiengesellschaft. Optical cut-off filter. 4,395,090, Cl. 350-166.000.
- Majewski, Henry A.; Salmre, William; and Van Brimer, R. Hugh, to Exxon Research and Engineering Co. Ink jet apparatus with a flexible piezoelectric member and method of operating same. 4,395,719, Cl. 346-140.00R.
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- Mank, Larry: See—
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- Manktelow, Gerald; and Wolff, Kenneth T., to Data General Corporation. Circuit and method of linearity correction for CRT deflection circuits. 4,395,663, Cl. 315-403.000.
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- Mansfield, Gerald R.: See—
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- Mantari, Erkki; and Korpinen, Matti, to Valmet Oy. Gear pump or motor with bearing passage for shaft lubrication. 4,395,207, Cl. 418-102.000.
- Mappes, Celia J.: See—
Hagen, Helmut; Ziegler, Hans; Mappes, Celia J.; and Pommer, Ernst-Heinrich, 4,395,415, Cl. 424-263.000.
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- Marinescu, Marlene, to Teldix GmbH. Electrical winding for a transformer, a choke coil or the like. 4,395,693, Cl. 336-223.000.
- Mark Levinson Audio Systems Ltd.: See—
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- Marker-Patentverwertungsgesellschaft GmbH: See—
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- Marko Materials, Inc.: See—
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- Marks, Alvin M. Electrothermodynamic (ETD) power converter. 4,395,648, Cl. 310-10.000.
- Mars Inc.: See—
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- Marsh, Edward K., to Bendix Corporation. The. Electrical contact for electrical connector assembly. 4,395,086, Cl. 339-176.00M.
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- Martin, Donn C.: See—
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- Martin, Richard L.: See—
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- Marz, Dieter; Schmitt, Philipp; and Weidenhammer, Peter, to Draiswerke GmbH. Device for the simultaneous and continuous feeding of pulverulent solids and of liquids into treatment machines. 4,394,980, Cl. 241-46.020.
- Masaki, Hisaji: See—
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- Masco Corporation: See—
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- Massachusetts Institute of Technology: See—
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- Mathews, Marion J., III: See—
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- Matsumaru, Haruo: See—
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- Matsumoto, Seiko: See—
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- Matsuno, Kunio: See—
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- Matsushita Electric Industrial Co., Ltd.: See—
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- Kobayashi, Masaaki; Igata, Kouichi; and Takeuchi, Akihiro, 4,395,741, Cl. 360-77.000.
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- Yoda, Kenichi; Togawa, Hideo; Ogawa, Eizou; and Kayahara, Masao, 4,395,136, Cl. 368-156.000.
- Yokobori, Nobuyoshi; Maeda, Tetsuo; and Igarashi, Yoshiaki, 4,395,682, Cl. 330-260.000.
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- Matsuura, Miyuki: See—
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- Matsuura, Yoshio: See—
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- Mathews, John, to Crayon Limited. Injection moulding machines. 4,395,376, Cl. 264-73.000.
- Maudal, Inge, to General Dynamics, Pomona Division. Sequential time discrimination system for sub-delivery systems. 4,394,997, Cl. 244-3.160.
- Maulard, Jean: See—
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- Maurer, Helmut: See—
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- Max-Planck-Gesellschaft zur Forderung: See—
Kettenring, Gunther, 4,395,650, Cl. 310-82.000.
- Mayer, Franz: See—
Gebauer, Gerhard; and Mayer, Franz, 4,395,445, Cl. 427-407.100.
- Mazanko, Anatoly F.: See—
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- Mazzoni, Guido, to Costruzioni Meccaniche G. Mazzoni S.p.A. Offset device for arranging along two parallel lines, articles which arrive from a single line. 4,394,902, Cl. 198-436.000.
- McBride, Edward D.: See—
Hall, Charles B.; McBride, Edward D.; and Young, Robert F., 4,395,239, Cl. 440-61.000.
- McCarney, Greg J., to Minnesota Mining and Manufacturing Company. Roomlight-stable ultraviolet-response photothermographic imaging material. 4,395,484, Cl. 430-620.000.
- McCarter, Harry: See—
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- McClung, Charles E., to United States of America, National Aeronautics and Space Administration. Antenna grout replacement system. 4,395,503, Cl. 523-440.000.

- McComas, Jerry L.; and Crawford, Donald C., to FMC Corporation. Backlog control system for processing machine. 4,394,896, Cl. 198-341.000.
- McCormick, Robert C., to HyJacker Products, Inc. Collapsible boot-jack. 4,394,946, Cl. 223-115.000.
- McCreery, Richard L.; McCurdy, Clyde W.; and Rossi, Paula J., to Ohio State University Research Foundation. The. Method and apparatus for the analysis of solution adjacent an electrode. 4,395,312, Cl. 204-1.00T.
- McCubrey, David L.; and Richardson, Ralph E., to Environmental Research Institute of Michigan. Image analyzer with variable line storage. 4,395,700, Cl. 382-27.000.
- McCubrey, David L.: See—
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- McDonnell Douglas Corporation: See—
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- McGill, Lee E.: See—
von Alven, Raymond D.; and McGill, Lee E., 4,394,919, Cl. 215-253.000.
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- McIlrath, Thomas J.: See—
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- McKee, William H., to TRW Inc. Clamp construction for use in optical fiber cables. 4,395,089, Cl. 350-96.200.
- McLaughlin, Homer C., to Halliburton Company. Enhanced oil recovery methods and systems. 4,395,340, Cl. 252-8.55D.
- McLaughlin, James H.; Dente, Stephen V.; Carmello, Robert; and Smith, James A., to Airwick Industries, Inc. Powdered carpet cleaner containing ether alcohol solvents. 4,395,347, Cl. 252-139.000.
- McLelland, Bruce, to Fike Metal Products Corporation. Horizontal discharge assembly for vertically oriented fire extinguisher. 4,394,868, Cl. 137-68.00A.
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- Meares, Lawrence G., to McDonnell Douglas Corporation. Flux-balanced variable frequency inverter. 4,395,751, Cl. 363-134.000.
- Medical College of Ga. Research Inst., Inc.: See—
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- Meier, Paul: See—
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Clevenholm, Roy L. R.; and Mellqvist, Carl-Olof H., 4,395,133, Cl. 366-241.000.
- Melys, Aleksandras A., to Sweda International, Inc. Electrical connector. 4,395,081, Cl. 339-14.00R.
- Menard, Roger O. Plastic emergency power pack for vehicle trailer. 4,395,696, Cl. 340-74.000.
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Bodart, Detlef; and Bitsch, Roland, 4,395,494, Cl. 436-111.000.
- Merkert, Rodney F., to Elkem Metals Company. Low density compacts of prepared mix for use in the production of silicon and ferrosilicon. 4,395,285, Cl. 75-256.000.
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- Messerschmitt-Boelkow-Blohm Gesellschaft mit beschränkter Haftung: See—
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- Meszaros, Zoltan: See—
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- Meulenbergh, Andrew, Jr., to Communications Satellite Corporation. Optimized back contact for solar cells. 4,395,583, Cl. 136-256.000.
- Mewes, Gunter: See—
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- Meyerand, Russell G., Jr.: See—
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- Meyerle, John A., to Bell Telephone Laboratories, Incorporated. Method and apparatus for forcing randomization of idle channel seizures. 4,395,594, Cl. 179-2.0EB.
- Mezei, Tibor: See—
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- Mihama Manufacturing Co., Ltd.: See—
Hama, Mamoru, 4,395,210, Cl. 425-71.000.
- Mijala, Ari A. M., to Oy Tampella AB. Method for improving the utilization of heat energy produced in a wood grinding process. 4,394,977, Cl. 241-21.000.
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- Miles Laboratories, Inc.: See—
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- Mille Note System S.r.l.: See—
Sferragatta, Enrico, 4,395,056, Cl. 281-31.000.
- Miller, Daniel A., to Nestier Corporation. Shelf for order picking systems. 4,394,910, Cl. 211-490.000.
- Minami, Syuji; Kashiwa, Norio; Kato, Akifumi; and Watanabe, Junichi, to Mitsui Petrochemical Industries, Ltd. Physically blended propylene polymer composition. 4,395,519, Cl. 525-240.000.
- Minnesota Mining and Manufacturing Company: See—
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- Hipp, Richard D., Jr., 4,395,032, Cl. 271-10.000.
- Larimore, Franklin C., 4,394,904, Cl. 206-447.000.
- McCarney, Greg J., 4,395,484, Cl. 430-620.000.
- Moris, Alfred H., 4,394,989, Cl. 242-55.19A.
- Ostroff, Arthur, 4,395,742, Cl. 360-78.000.
- Minolta Camera Kabushiki Kaisha: See—
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- Minott, Peter O., to United States of America, National Aeronautics and Space Administration. Interferometric angle monitor. 4,395,123, Cl. 356-353.000.
- Miquel, Jean: See—
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- Misaizu, Tetsuo, to Nippon Electric Co., Ltd. Drive circuit. 4,395,644, Cl. 307-270.000.
- Miskinis, Robert J. Glassware stopper with venting valve. 4,394,921, Cl. 215-296.000.
- Miskinis, Robert J. Glassware stopcock with freeze extractor. 4,395,382, Cl. 422-103.000.
- Mita Industrial Co., Ltd.: See—
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- Mitsubishi Gas Chemical Company, Inc.: See—
Shimizu, Senzo; Nomura, Isao; Harada, Masahiro; Usui, Motohachi; Taniyama, Susumu; and Yanada, Shigeo, 4,395,534, Cl. 528-126.000.
- Mitsubishi Kinzoku Kabushiki Kaisha: See—
Kashiwagi, Takashi; and Kasutani, Hiroshi, 4,395,169, Cl. 408-59.000.
- Mitsui Engineering and Shipbuilding Company Limited: See—
Tanaka, Yoshiharu; Watanabe, Yoshiaki; and Sasaki, Kou, 4,394,813, Cl. 60-618.000.
- Mitsui Petrochemical Industries, Ltd.: See—
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- Mitsui Toatsu Chemical Incorporated: See—
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- Mittmann, Bernd, to Webasto-Werk W. Baier GmbH and Co. Burner operated with liquid fuel for heating devices. 4,395,225, Cl. 431-62.000.
- Miura, Takuji: See—
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- Miyashita, Kiyoshi: See—
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- Mizusawa, Mitsutoyo; Seki, Masayuki; and Sunohara, Kazuo, to Nisshin Kogyo Kabushiki Kaisha. Automated braking-gap adjuster system for mechanical drum brake. 4,394,892, Cl. 188-196.0BA.
- Mizutani, Kazumi: See—
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- Mobil Oil Corporation: See—
 Chang, Clarence D.; and Perkins, Patrick D., 4,395,554, Cl. 546-250.000.
 Derbyshire, Francis J.; Varghese, Philip; and Whitehurst, Darrell D., 4,395,324, Cl. 208-56.000.
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 McGovern, Stephen J.; Owens, Peter J.; and Dolan, Michael J., 4,395,325, Cl. 208-113.000.
 Pelrine, Bruce P., 4,395,327, Cl. 208-216.00R.
 Searles, Raymond C., 4,395,019, Cl. 251-357.000.
 Moen, Alfred M., to Stanadyne, Inc. Valve member with fixed seal shutoff, 4,395,018, Cl. 251-310.000.
 Moffitt, Bryan S.; and Ross, Alexander R., to Bell Telephone Laboratories, Incorporated. Multiport memory array, 4,395,765, Cl. 365-174.000.
 Mohrman, Richard C., to Bausch & Lomb Incorporated. Compact refraction instrument, 4,395,097, Cl. 351-201.000.
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 Monsanto Company: See—
 Cutchens, Charles E.; Mathews, Marion J., III; and Sowell, Mark S., III, 4,395,573, Cl. 564-492.000.
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 Purdum, William R., 4,395,275, Cl. 71-87.000.
 Sikorski, James A.; and Curtis, Tommie G., 4,395,276, Cl. 71-87.000.
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 Giannetti, Enzo; and Scata, Umberto, 4,395,360, Cl. 252-429.00B.
 Nelli, Giuseppe; and Oriani, Roberto, 4,395,508, Cl. 524-103.000.
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 Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., 4,395,539, Cl. 528-291.000.
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 Dekeyser, Mark A.; Pierce, Benjamin J.; Moore, Richard C.; and Hubbard, Winchester L., 4,395,551, Cl. 544-282.000.
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 Morgan, Malcolm F.: See—
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 Mori, Fumio: See—
 Kunimoto, Go; Ichinose, Isao; Suzuki, Noboru; and Mori, Fumio, 4,395,446, Cl. 428-35.000.
 Moriguchi, Fujio: See—
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 Morimoto, Ichiro, to Olympus Optical Company Ltd. Apparatus for presetting photographing distance for camera, 4,395,101, Cl. 354-128.000.
 Moris, Alfred H., to Minnesota Mining and Manufacturing Company. Adjustable endless loop tape cartridge with shipping lock, 4,394,989, Cl. 242-55.19A.
 Morita, Shuji: See—
 Kasashima, Tatsuji; Morita, Shuji; Hayami, Hiroyuki; Ose, Seiroku; Takada, Yoshinori; and Nozaki, Fumihiko, 4,395,320, Cl. 204-206.000.
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 Matsuda, Terumi; Ishiguro, Shoji; Moriuchi, Shigenori; and Suzuki, Yoshiaki, 4,395,483, Cl. 430-411.000.
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 Morong, William H., III, to Analog Devices, Incorporated. Half-wave signal isolator with means for controlling flux in the coupling transformer, 4,395,647, Cl. 307-540.000.
 Morse, John E., to Eastman Kodak Company. Color balanced scratch suppressing projection apparatus for color transparencies, 4,395,108, Cl. 355-1.000.
 Motorola Inc.: See—
 Piosenka, Gerald V., 4,395,703, Cl. 340-347.0AD.
 Polcyn, Erwin R., 4,395,585, Cl. 174-138.00G.
 Upton, Eric L., 4,395,732, Cl. 358-169.000.
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 Thorsell, Stanley E., 4,394,808, Cl. 52-483.000.
 Muir, Robert D., to G. D. Searle & Co. Use of metronidazole in oil recovery, 4,395,341, Cl. 252-8.55D.
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 Latsch, Reinhard; Linder, Ernst; Maurer, Helmut; Muller, Klaus; and Rieger, Franz, 4,394,855, Cl. 123-254.000.
 Muller, Manfred: See—
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 Muller, Werner, to Helmut Darda Spielwaren- und Maschinenbau GmbH. Track for toy vehicles with jumping-off and jumping-on ramps, 4,394,961, Cl. 238-10.00R.
 Munch, Erhard: See—
 Pav, Josef; and Munch, Erhard, 4,394,793, Cl. 29-116.0AD.
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 Nalco Chemical Company: See—
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 Namiki, Masayuki; Kamiya, Masaaki; Kojima, Yoshikazu; and Tanaka, Kojiro, to Kabushiki Kaisha Daini Seikosha. Temperature detecting device, 4,395,139, Cl. 374-178.000.
 Napper, Roger L. Escapable-window-security-guard system, 4,394,805, Cl. 49-55.000.
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 Nashua Corporation: See—
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 National Carbide Tool, Inc.: See—
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 National Semiconductor Corporation: See—
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 Zaffrann, Albert A.; Borchardt, Robert E.; and Nelson, Grant W., 4,395,606, Cl. 200-144.00R.
 Nelson, Jeffrey, to Findley Adhesives Inc. Hot melt adhesive compositions and bottle assemblies using said compositions, 4,394,915, Cl. 215-12.00R.
 Nelson, Thomas E.; and Consor, Herbert A., to Antenna, Incorporated. Transit antenna, 4,395,713, Cl. 343-713.000.
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 van Huuksloot, Leendert, 4,395,066, Cl. 294-70.000.
 Nestier Corporation: See—
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 Scher, Herbert I.; and Ungar, Israel S., 4,395,452, Cl. 428-148.000.
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 Bianchi, Giuseppe; Nidola, Antonio; and Martelli, Gian N., 4,395,436, Cl. 427-53.100.
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 Niedrich, Helmut: See—
 Diekmann, Herbert; and Niedrich, Helmut, 4,394,840, Cl. 112-121.150.
 Niemi, Thomas J.: See—
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 Nippon Air Brake Co., Ltd.: See—
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 Nippon Kogaku K.K.: See—
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 Nishida, Hideo: See—
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 Tsuda, Hiroshi; Miyashita, Kiyoshi; Shimizu, Akira; Nishikawa, Masaji; and Kasuga, Muneco, 4,395,115, Cl. 355-25.000.
 Nishioka, Itsuo: See—
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 Nissan Motor Co., Ltd.: See—
 Hasegawa, Masami; and Kato, Koji, 4,395,365, Cl. 252-545.000.
 Hayashi, Yoshimasa, 4,394,850, Cl. 123-41.740.
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 Noda Institute for Scientific Research: See—
 Saito, Narimasa; and Horiuchi, Tatsuo, 4,395,487, Cl. 435-22.000.
 Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichiro; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihiko; and Ide, Hiroyuki, to Hisamitsu Pharmaceutical Co., Inc. Alkyl-ketohexopyrand-side derivatives and method of use, 4,395,405, Cl. 424-180.000.
 Nomura, Hirokazu: See—
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 Noonan, John M.; and Perlstein, Jerome H., to Eastman Kodak Company. Condensation polymeric photoconductors containing pendant arylamines, 4,395,475, Cl. 430-69.000.
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 Helenius, Allan; Lackey, Stanley A., Jr.; and Northrup, Thomas A., 4,395,758, Cl. 364-200.000.
 Nory, Pierre; and Ripart, Guy, to Societe Anonyme dite: Compagnie Industrielle des Lasers. Apparatus for determining the angular position of a target illuminated by light pulses, 4,395,121, Cl. 356-152.000.
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 NRM Corporation: See—
 Singh, Anand P.; and Shichman, Daniel, 4,395,209, Cl. 425-33.000.
 N.V. Nederlandse Gasunie: See—
 de Vries, Auke O. T., 4,394,959, Cl. 237-2.00B.
 Nyegaard & Co. A/S: See—
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 O. A. Newton & Son Company: See—
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 O&K Orenstein & Koppel Aktiengesellschaft: See—
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- Ochiai, Hirokazu: See—
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- Odaira, Hiroshi: See—
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- Oeckl, Siegfried; Zahl, Gero; and Radt, Walter, to Bayer Aktiengesellschaft. Process for the preparation of 2-halogeno-3-sulphonyl-acrylonitriles, 4,395,371, Cl. 260-464.000.
- Oeschger, Frank A.: See—
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- Office National d'Etudes et de Recherche Aerospatiales (ONERA): See—
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- Oftebro, Reidar: See—
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- Ogawa, Eizou: See—
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- Ogawa, Hiroshi; and Tama, Yasuo, to Fuji Photo Film Co., Ltd. Magnetic recording medium, 4,395,466, Cl. 428-695.000.
- Ogawa, Hisahito: See—
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- O'Hare, Edward J., to General Signal Corp. Linear detection of a DME signal, 4,395,712, Cl. 343-7.300.
- Ohata, Yosuke: See—
Miyakawa, Nobuhiro; Shibata, Kiyoshi; Watanabe, Toshio; and Ohata, Yosuke, 4,395,112, Cl. 355-14.00D.
- Ohi, Akira: See—
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- Ohigashi, Hiroji: See—
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- Ohio State University Research Foundation, The: See—
McCreery, Richard L.; McCurdy, Clyde W.; and Rossi, Paula J., 4,395,312, Cl. 204-1.00T.
- Ohki, Eiji; Oida, Sadao; Yoshida, Akira; Hayashi, Teruo; and Sugawara, Shinichi, to Sankyo Company Limited. Penem-3-carboxylic acid derivatives, 4,395,418, Cl. 424-270.000.
- Ohmori, Taiji: See—
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- Ohmori, Takashi: See—
Murayama, Tomio; Kikuchi, Yoshiki; Moriguchi, Haruhiko; Ohmori, Takashi; and Moriguchi, Fujio, 4,395,718, Cl. 346-135.100.
- Ohnishi, Masahiro; Oosaka, Shigenori; and Oono, Hiroshi, to Fuji Photo Film Co., Ltd. Laser type recording device, 4,395,766, Cl. 369-47.000.
- Ohno, Mitsuo; Hatazawa, Kikuo; and Abe, Akira, to Hitachi, Ltd. Laser beam printer, 4,395,721, Cl. 346-160.000.
- Ohta, Tokuya: See—
Eida, Tsuyoshi; Yano, Yasuhiro; Haruta, Masahiro; Matsufuji, Yohji; and Ohta, Tokuya, 4,395,288, Cl. 106-22.000.
- Kobayashi, Masatsune; Matsumoto, Seiko; Haruta, Masahiro; and Ohta, Tokuya, 4,395,287, Cl. 106-20.000.
- Oida, Sadao: See—
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- Okahashi, Kenji: See—
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- Okamura, Toshio: See—
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- Oki, Ryuji; and Ebisawa, Takashi, to Sony Corporation. Double super-heterodyne receiver, 4,395,777, Cl. 455-183.000.
- Okigami, Noboru; Hayasaka, Hiroshi; Sekiguchi, Yoshitoshi; and Tamura, Harushige, to Hitachi Shipbuilding & Engineering Co., Ltd. Multi-stage combustion method for inhibiting formation of nitrogen oxides, 4,395,223, Cl. 431-10.000.
- Okino, Tadashi, to Canon Kabushiki Kaisha. Proper light emission indicating device for computer flash device, 4,395,658, Cl. 315-134.000.
- Okura, Zenichi: See—
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- Olderaan, Wilhelmus F. T. C.: See—
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- Olin Corporation: See—
Lines, Ellwood L., Jr.; and Farmer, Douglas A., Jr., 4,395,453, Cl. 428-216.000.
- Shapiro, Eugene, 4,395,295, Cl. 148-11.50C.
- Oller, Osvaldo A.; Hansen, Eric R.; and Eaker, Gerard L., to Gulf & Western Industries, Inc. Method of manufacturing cement raw mix, 4,395,290, Cl. 106-100.000.
- Olsen, Dick M.: See—
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- Olympus Optical Co., Ltd.: See—
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- Kondo, Isao, 4,395,100, Cl. 354-33.000.
- Morimoto, Ichiro, 4,395,101, Cl. 354-128.000.
- Tsuda, Hiroshi; Miyashita, Kiyoshi; Shimizu, Akira; Nishikawa, Masaji; and Kasuga, Muneco, 4,395,115, Cl. 355-25.000.
- Onoda, Tadayuki: See—
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- Oono, Hiroshi: See—
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- Oono, Hiroto, to Victor Company of Japan. Tape fast-forwarding and rewinding apparatus, 4,394,994, Cl. 242-200.000.
- Oosaka, Shigenori: See—
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- Opprecht, Paul: See—
Weil, Wolfgang; Lanz, Andres; Vogt, Max; Meier, Paul; Kaul, Martin; and Fankhauser, Hanspeter, 4,395,614, Cl. 219-72.000.
- Oriani, Roberto: See—
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- Orlando, Mario. Zero setting mechanism for service station pumps, 4,394,935, Cl. 222-35.000.
- Orndorff, Karl B.: See—
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- Oronzio de Nora Impianti Elettrochimici S.p.A.: See—
Bianchi, Giuseppe; Nidola, Antonio; and Martelli, Gian N., 4,395,436, Cl. 427-53.100.
- Ortiz, Nilson V. Rotor driven buoyant toy, 4,394,804, Cl. 46-250.000.
- Osada, Yasuo; Nakagawa, Takeo; and Utsunomiya, Kimitake, to Sony Corporation. Undesired signal canceller, 4,395,778, Cl. 455-276.000.
- Osaka Yuki Kagaku Kogyo Kabushiki Kaisha: See—
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- Osawa, Fujio: See—
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- Osawa, Masanori: See—
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- Osbond, John M.: See—
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- Ose, Seiroku: See—
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- Oshima, Harumi, to Tokico Ltd. Disc brake, 4,394,891, Cl. 188-73.380.
- Oshime, Yasuhiro: See—
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- Ostroff, Arthur, to Minnesota Mining and Manufacturing Company. Home apparatus, 4,395,742, Cl. 360-78.000.
- Ota, Tadaki: See—
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- Otani, Takashi: See—
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- Otis Elevator Company: See—
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- Ou, Sam A.; and LaPelle, Ronald J., to BS & B Safety Systems, Inc. Reverse buckling rupture disk apparatus, 4,394,926, Cl. 220-89.00A.
- Ourboard Marine Corporation: See—
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- Ourboard Marine Corporation: See—
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- Payne, Guy D., 4,395,238, Cl. 440-53.000.
- Ovchinnikov, Jury A.; Ivanov, Vadim T.; Rostovtseva, Larisa I.; Andronova, Tatyana M.; Sorokina, Irina B.; and Malkova, Veronika P., to Institut Bioorganicheskoi Khimii Imeni M.M. Shemyakina Akademii Nauk SSSR. Glycopeptides and method for preparing same, 4,395,399, Cl. 424-177.000.
- Owens-Illinois, Inc.: See—
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- Owens, Peter J.: See—
McGovern, Stephen J.; Owens, Peter J.; and Dolan, Michael J., 4,395,325, Cl. 208-113.000.
- Owl, George A., Jr., to Rockwell International Corporation. Actuation system for a control surface of an aircraft, 4,395,007, Cl. 244-215.000.
- Oy Tappella AB: See—
Mijala, Ari A. M., 4,394,977, Cl. 241-21.000.
- Oyamada, Yoshinori: See—
Toyama, Noboru; and Oyamada, Yoshinori, 4,395,243, Cl. 445-6.000.
- Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., to Eastman Kodak Company. Amorphous aromatic polyester modified with amine and UV curable composition containing the same, 4,395,539, Cl. 528-291.000.
- Paivas, John A.: See—
DeRobertis, Ignatius J.; Hassan, Javathu K.; Judge, Robert L.; and Paivas, John A., 4,395,165, Cl. 406-88.000.
- Pako Corporation: See—
Adams, Daniel O.; and Beckman, Gregg S., 4,395,144, Cl. 400-30.000.

- Palomar Systems & Machines, Inc.: See—
Braden, Denver, 4,395,184, Cl. 414-417.000.
- Pampouchidis, Georgios: See—
Honig, Helmut; and Pampouchidis, Georgios, 4,395,502, Cl. 523-415.000.
- Panandiker, K. A. Pai; and Danick, Charles, to Cargill, Incorporated. Coating powders for protective films based on epsilon-caprolactam blocked isocyanates, 4,395,529, Cl. 528-45.000.
- Panchanathan, Viswanathan; Ray, Ranjan; and Giessen, Bill C., to Marko Materials, Inc. Copper base alloys made using rapidly solidified powders and method, 4,395,464, Cl. 428-546.000.
- Papadopoulos, Kimon: See—
Rizzelli, Frank D.; and Papadopoulos, Kimon, 4,395,432, Cl. 427-34.000.
- Paper Converting Machine Company: See—
Campbell, James F., 4,394,898, Cl. 198-374.000.
- Parekh, Rajesh H. Segmented channel field effect transistors, 4,395,725, Cl. 357-23.000.
- Park, Chung P., to Dow Chemical Co., The. Novel olefin polymer compositions and foamed articles prepared therefrom having improved elevated temperature dimensional stability, 4,395,510, Cl. 524-230.000.
- Parker, John A.: See—
Varma, Indra K.; Fohlen, George M.; and Parker, John A., 4,395,557, Cl. 548-413.000.
- Parker, Randall W. Timing control apparatus and circuit, 4,395,621, Cl. 219-492.000.
- Parras, Karl-Heinz, to TE KA DE Felten & Guillaume Fernmeldeanlagen GmbH. Two-terminal-pair network simulating an inductance, 4,395,690, Cl. 333-214.000.
- Paschke, Werner: See—
Sauer, Rudolf; Kienle, Wolfgang; Paschke, Werner; and Hans, Waldemar, 4,394,973, Cl. 239-467.000.
- Patel, Nandlal P.; and Dolida, Roger J., to Union Carbide Corporation. Cryogenic liquid storage container having an improved access conduit, 4,394,929, Cl. 220-421.000.
- Patel, Suman D.: See—
Goldie, Harry; and Patel, Suman D., 4,395,684, Cl. 333-13.000.
- Patterson, Howard F. Bonding process for securing objects to a smooth surface, 4,395,297, Cl. 156-64.000.
- Patton, Charles R., III; and Lippincott, Douglas E. Artwork generation apparatus and process for charts, 4,395,116, Cl. 355-32.000.
- Paul Wurth S.A.: See—
Ulveling, Leon, 4,395,166, Cl. 406-124.000.
- Paulus, Philippe A.; and Economopoulos, Marios, to Centre de Recherches Metallurgiques-Centrum voor Research in de Metallurgie. Method of and apparatus for controlled cooling of metallurgical products, 4,395,022, Cl. 266-106.000.
- Paulus, Wilfried; and Genth, Hermann, to Bayer Aktiengesellschaft. Microbicidal agent and its use, 4,395,274, Cl. 71-67.000.
- Pav, Josef; and Munch, Erhard, to Kleinewefers GmbH. Roll for use in calendars or the like, 4,394,793, Cl. 29-116.0AD.
- Pawson, Beverly A.: See—
Chan, Ka-Kong; and Pawson, Beverly A., 4,395,575, Cl. 568-442.000.
- Payne, Guy D., to Outboard Marine Corporation. Outboard motor mounting means affording upward tilting without travel of the motor forwardly of the boat transom, 4,395,238, Cl. 440-53.000.
- Peake, Steven L.: See—
Raghu, Sivaraman; Farina, James S.; and Peake, Steven L., 4,395,547, Cl. 544-184.000.
- Pedroia, Luigi. Mechanism for causing the rotation of the spool in a machine for tying a knot, 4,394,987, Cl. 242-46.200.
- Pelrine, Bruce P., to Mobil Oil Corporation. Hydrotreating process, 4,395,327, Cl. 208-216.00R.
- Pelta, Edmond R., to EMC Corporation. Linearizing circuit for meter displays, 4,395,678, Cl. 324-132.000.
- Penn Engineering & Manufacturing Corp.: See—
Dise, Ronald S., 4,395,641, Cl. 307-116.000.
- Pennwalt Corporation: See—
Goltz, Kurt; and West, William T., 4,395,387, Cl. 423-305.000.
- Penzien, Klaus: See—
Naarmann, Herbert; Naegele, Dieter; Penzien, Klaus; and Schlag, Johannes, 4,395,497, Cl. 523-135.000.
- Perkin-Elmer Corporation, The: See—
Russo, Albert J., 4,395,091, Cl. 350-319.000.
- Perkins, Patrick D.: See—
Chang, Clarence D.; and Perkins, Patrick D., 4,395,554, Cl. 546-250.000.
- Perlstein, Jerome H.: See—
Noonan, John M.; and Perlstein, Jerome H., 4,395,475, Cl. 430-69.000.
- Pernyeszi, Joseph, to International Telephone and Telegraph Corporation. Mosfet logic inverter buffer circuit for integrated circuits, 4,395,645, Cl. 307-450.000.
- Perraud, Raymond J., to Societe d'Etude et de Construction de Machines pour Toutes Industries S.E.C.O.M.A. S.A. Mining appliance, 4,395,163, Cl. 405-303.000.
- Perry, Thomas J.: See—
Comfort, Joseph A.; Perry, Thomas J.; and Loos, Michel, 4,395,753, Cl. 364-200.000.
- Peters, Karl-Clemens: See—
Nieberle, Juergen; Peters, Karl-Clemens; Reuther, Wolfgang; and Bankowsky, Heinz-Hilmar, 4,395,535, Cl. 528-137.000.
- Petersdorf, Roland W., to Chrysler Corporation. Hall Effect tester for heated window grids, 4,395,677, Cl. 324-117.00H.
- Peterson, Oscar F. A. Dispenser for fluent materials, 4,394,940, Cl. 222-276.000.
- Petocz, Lujza: See—
Budai, Zoltan; Lay nee Konya, Aranka; Mezei, Tibor; Petocz, Lujza; Grasser, Katalin; Kovoczky, Ibolya; Szirt nee Kiszelly, Eniko; and Gorog, Peter, 4,395,413, Cl. 424-250.000.
- Petroleum Fermentations N.V.: See—
Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,395,353, Cl. 252-356.000.
- Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,395,354, Cl. 252-356.000.
- Petrolite Corporation: See—
Tait, William S.; Martin, Richard L.; and Rodgers, Richard A., 4,395,318, Cl. 204-404.000.
- Pfeiffer, Francis R., to SmithKline Beckman Corporation. Renally active dipeptides, 4,395,401, Cl. 424-177.000.
- Pfeiffer, Heinrich; Mutzel, Wolfgang; and Speck, Ulrich, to Schering Aktiengesellschaft. Unsymmetrically substituted dicarboxylic-acid-bis-(2,4,6-triiodo-anilides), their preparation, and x-ray contrast media containing same, 4,395,391, Cl. 424-5.000.
- Pfizer Inc.: See—
Wolff, John S., III; Hensworth, George R.; and Jensen, Keith E., 4,395,394, Cl. 424-88.000.
- Philapitsch, Anton: See—
Eibl, Johann; Schwarz, Otto; Elsing, Fritz; and Philapitsch, Anton, 4,395,396, Cl. 424-101.000.
- Philip, Morris. Splash-proof container and cover, 4,394,928, Cl. 220-366.000.
- Philippides, Constantinos; and Zinger, William H., to United States of America, Navy. Apparatus for identifying coded information without internal clock synchronization, 4,395,773, Cl. 375-116.000.
- Phillips, Martha F., and Dadik, Roger A. Geodesic dome connector, 4,395,154, Cl. 403-172.000.
- Phillip Petroleum Company: See—
Blackwell, Jennings P.; Tieszen, Dale O.; and Scruggs, Jack G., 4,395,509, Cl. 524-127.000.
- Phipps, Arthur I., and Stoyanos, Ben, to U.C. Industries. Foam extrusion apparatus having downstream upper and lower hinged shaping means and side restraining means, 4,395,214, Cl. 425-214.000.
- Pierce, Benjamin J.: See—
Dekeyser, Mark A.; Pierce, Benjamin J.; Moore, Richard C.; and Hubbard, Winchester L., 4,395,551, Cl. 544-282.000.
- Pierce, O. Leon; Smith, Mark C.; and Driver, R. Byron, to Universal Data Systems, Inc. Line powered modem, 4,395,590, Cl. 179-2.0DP.
- Piester, Gerhard: See—
Bauer, Herbert; Piester, Gerhard; and Gilch, Heinz G., 4,395,301, Cl. 156-307.500.
- Pietsch, Gunter; Walter, Gerhard; Mewes, Gunter; and Schrader, Gert, to Howaldtswerke Deutsche Werft Aktiengesellschaft Hamburg und Kiel. Bearing and seal assembly for stern tubes of vessels, 4,395,141, Cl. 384-147.000.
- Pinchemaille, Pierre, to Line S.A. Tool magazine for automatic tool-changing device, 4,394,908, Cl. 211-1.500.
- Pinchon, Philippe: See—
Leonard, Andre; and Pinchon, Philippe, 4,394,964, Cl. 239-90.000.
- Pinto, Akiva: See—
Keller, Alex J.; and Pinto, Akiva, 4,394,790, Cl. 19-105.000.
- Pioneer Electronic Corporation: See—
Sunaga, Yoshimitsu; Kamiura, Toshio; and Honda, Satoru, 4,395,743, Cl. 360-90.000.
- Takeda, Shigeki; Shibata, Junichi; Shimakata, Masashi; Oshime, Yasuhiro; Gomi, Shintaro; and Kawamura, Katsuaki, 4,395,714, Cl. 343-725.000.
- Prosenka, Gerald V., to Motorola Inc. Precision digital random data generator, 4,395,703, Cl. 340-347.0AD.
- Pinney Bowes Inc.: See—
Branecky, George N.; Roetter, Frank T.; and Oeschger, Frank A., 4,395,255, Cl. 493-439.000.
- Daniels, Edward P., 4,395,756, Cl. 364-200.000.
- Pizzuti, Donato F., to Polaroid Corporation. Bellows for folding camera, 4,395,102, Cl. 354-187.000.
- Plautz, John R. Turbine shroud honeycomb matrix mechanical locking structure and method, 4,395,196, Cl. 415-174.000.
- Pleskac, Karel: See—
Hruby, Jan; and Pleskac, Karel, 4,394,988, Cl. 242-47.120.
- Pless, Janos: See—
Bauer, Wilfried; and Pless, Janos, 4,395,403, Cl. 424-177.000.
- Plessey Overseas Limited: See—
Davies, Arthur B. C.; and Norris, Andrew P., 4,395,685, Cl. 333-125.000.
- Plicon Corporation: See—
Raines, Charles D.; and Williams, Earl W., 4,394,955, Cl. 229-65.000.
- Podell, Allen F., to Cuisinarts, Inc. Hybrid electrical braking method and system for tool equipment having induction-motor drives, 4,395,670, Cl. 338-758.000.
- Polar Bear, Inc.: See—
Hight, Rayburn M.; and Corrick, Paul M., 4,394,984, Cl. 241-278.00R.
- Polaroid Corporation: See—
Killian, John C., Jr., 4,395,748, Cl. 362-8.000.
- Pizzuti, Donato F., 4,395,102, Cl. 354-187.000.
- Polcyn, Erwin R., to Motorola Inc. Multiple use component spacer and methods for preparing a spacer for mounting on and affixing a spacer to a circuit board, 4,395,585, Cl. 174-138.00G.

- Polmanteer, Keith E., to Dow Corning Corporation. Fluoroelastomer coated silicone rubber. 4,395,462. Cl. 428-420.000.
- Polysar, Inc.: See—
Goldstein, Samuel A., 4,394,803. Cl. 36-51.000.
- Polysar Limited: See—
Briggs, George J., and Wei, Yung-Kang, 4,395,501. Cl. 523-351.000.
- Pomfret, Colin T.: See—
Greier, Josef, and Pomfret, Colin T., 4,394,851. Cl. 123-182.000.
- Pommer, Ernst-Heinrich: See—
Hagen, Helmut; Ziegler, Hans; Mappes, Celia J., and Pommer, Ernst-Heinrich, 4,395,415. Cl. 424-263.000.
- Portage Electric Products, Inc.: See—
Wehl, Glenn E., 4,395,694. Cl. 337-112.000.
- Porter, Frederic E., and Scott, James M., to Sandoz Ltd. Seed coating apparatus. 4,394,845. Cl. 118-303.000.
- Portz, Willi: See—
Braun, Albert; Portz, Willi; Strauss, Georg; and Delhey, Hans-Martin, 4,395,282. Cl. 75-58.000.
- Potter, James C., to Lucas Industries PLC. Fuel injection nozzles. 4,394,972. Cl. 239-453.000.
- Poveromo, George A. Boat trailer lamp and license plate support. 4,395,749. Cl. 362-83.000.
- Poynton, Corbett J., to Allied Eneabba Limited. Process for treating zircon. 4,395,384. Cl. 423-1.000.
- PPG Industries, Inc.: See—
Das, Surya K., and Kania, Charles M., 4,395,444. Cl. 427-388.400.
Kunkle, Gerald E.; Sensi, John E.; and Gulotta, Joseph A., 4,395,272. Cl. 65-99.500.
- Prasad, Keni K., and Hayes, Eugene G., to Deere & Company. Variable speed drive clutch. 4,395,249. Cl. 474-93.000.
- Pratt, Harry H., deceased (by Pratt, Mary D., executrix); and Gill, William J., to Foster Wheeler Energy Corporation. Vapor generator having drainable tube bends around burner openings extending through furnace boundary walls formed in part by angularly extending fluid flow tubes. 4,394,849. Cl. 122-235.00K.
- Pratt, Mary D., executrix: See—
Pratt, Harry H., deceased; and Gill, William J., 4,394,849. Cl. 122-235.00K.
- Prestele, Karl; Franetzki, Manfred; and Reif, Erich, to Siemens Aktiengesellschaft. Device for the infusion of fluids into the human or animal body. 4,395,259. Cl. 604-67.000.
- Privat, Albert, to Creusot-Loire. Telescopic cranes. 4,394,914. Cl. 212-203.000.
- Proco, Inc.: See—
Rash, Curtis W., 4,395,052. Cl. 280-5.00C.
- Procter & Gamble Company, The: See—
Bishop, Delmar J., 4,395,215. Cl. 425-290.000.
Crawford, Robert J., 4,395,363. Cl. 252-526.000.
Eickhoff, David J., and Robbins, Medford D., 4,395,361. Cl. 252-431.00C.
- Strauss, Daniel L., 4,395,342. Cl. 252-8.750.
- Puncoc, Miloslav: See—
Deviny, James E., and Puncoc, Miloslav, 4,395,000. Cl. 244-118.300.
- Purdue Frederick Company, The: See—
Shetty, Bola V., and Airey, John E., 4,395,552. Cl. 546-118.000.
- Purdum, William R., to Monsanto Company. Mono and diesters of N-phosphonomethylglycinates as herbicides. 4,395,275. Cl. 71-87.000.
- Purucker, Bernhard: See—
Leutner, Bernd; Purucker, Berndhard; Rother, Eberhard; Juergens, Geerd F., and Wagner, Dieter, 4,395,273. Cl. 71-11.000.
- Quehen, Daniel J.: See—
Dauge, Gilbert V.; Langlais, Jacques F., and Quehen, Daniel J., 4,394,885. Cl. 177-210.00C.
- Quest, Karl: See—
Ciongwa, Joachim; Heckmann, Werner; Jendrichowski, Klaus; Quest, Karl; Ruppel, Christian; and Sushardt, Wolfgang, 4,394,867. Cl. 134-104.000.
- Quick, Leonard M.: See—
Hensley, Albert L., Jr., and Quick, Leonard M., 4,395,328. Cl. 208-251.00H.
- R. Alkan & Cie: See—
Coutin, Pierre F., 4,395,003. Cl. 244-137.00R.
- R. B. Industries: See—
Rice, Verle L., and Check, Dwight E., 4,394,878. Cl. 144-131.000.
- Racal-Dana Instruments Limited: See—
Connell, Peter P., and Morgan, Malcolm F., 4,395,683. Cl. 331-2.000.
- Radt, Walter: See—
Oeckl, Siegfried; Zahl, Gero; and Radt, Walter, 4,395,371. Cl. 260-464.000.
- Rae, Rory, to Deere & Company. Hydraulically operated push-off manure spreader. 4,394,976. Cl. 239-679.000.
- Raghu, Sivaraman; Farina, James S., and Peake, Steven L., to American Cyanamid Co. Process for preparing 1-substituted-6-n-propyl-8-methylimidazo[1,5-d]-as-triazin-4(3H)-ones. 4,395,547. Cl. 544-184.000.
- Raines, Charles D., and Williams, Earl W., to Plicon Corporation. Bag with bendable retainer strip, and method of making the same. 4,394,955. Cl. 229-65.000.
- Ramsden, Paul N., and Groves, Michael H., to Stanley Tools Limited. Photoelectric measuring ruler including fault detection apparatus. 4,395,630. Cl. 250-237.00G.
- Rance, Frederick K. Support for a mailbox. 4,395,012. Cl. 248-545.000.
- Randall, Alfred R.: See—
Bakken, Gordon J.; Randall, Alfred R.; and Bodily, Richard W., 4,395,143. Cl. 384-221.000.
- Randwal Instrument Co., Inc.: See—
Remijan, Paul W., 4,395,124. Cl. 356-373.000.
- Rapp, Adolph K., to National Semiconductor Corporation. Low power CMOS frequency divider. 4,395,774. Cl. 377-114.000.
- Rapp, Erich: See—
Eistetter, Klaus; Rapp, Erich; and Wolf, Horst, 4,395,414. Cl. 424-258.000.
- Rash, Curtis W., to Proco, Inc. Uranium slurry hauling system. 4,395,052. Cl. 280-5.00C.
- Rathje, Uwe; and Lappe, Manfred, to O&K Orenstein & Koppel Aktiengesellschaft. Steering gear with steering-arm lever. 4,394,886. Cl. 180-140.000.
- Rauch, Hubert: See—
Dinklage, Horst; Fink, Herbert; Frank, Peter; Rauch, Hubert; and Siol, Werner, 4,395,515. Cl. 524-832.000.
- Raupach, Gerhard: See—
Kopke, Wolfgang; Muller, Manfred; Schmidt, Wolfgang; Eggert, Albert; Gahleitner, Erwin; and Raupach, Gerhard, 4,395,601. Cl. 179-179.000.
- Ray, Ranjan: See—
Panchanathan, Viswanathan; Ray, Ranjan; and Giessen, Bill C., 4,395,464. Cl. 428-546.000.
- Razumowski, Bernard: See—
Limare, Armand; Razumowski, Bernard; and Sindezingue, Claude, 4,395,291. Cl. 106-297.000.
- RCA Corporation: See—
Belohoubek, Erwin F., 4,395,687. Cl. 333-164.000.
Ganssle, Eugene R.; and Samhammer, Nelson F., 4,395,004. Cl. 244-158.00R.
- Ganssle, Eugene R., 4,395,005. Cl. 244-161.000.
- Hedlund, Lee V., and Herzog, Donald G., 4,395,738. Cl. 358-335.000.
- Holmes, David D., 4,395,735. Cl. 358-198.000.
- Kern, Werner; and Schnable, George L., 4,395,304. Cl. 156-657.000.
- Lewis, Henry G., Jr., 4,395,729. Cl. 358-21.00R.
- Liller, Paul R., and Shahan, Donald J., 4,395,242. Cl. 445-5.000.
- Ruda, Joseph C.; Wartzok, Richard E.; and Wedekind, Robert J., 4,394,951. Cl. 226-118.000.
- Southgate, Peter D., and Gorog, Istvan, 4,395,122. Cl. 356-237.000.
- Vossen, John L., Jr., and Zelez, Joseph, 4,395,467. Cl. 428-697.000.
- Wharton, James H., and James, Jack E., 4,395,737. Cl. 358-312.000.
- Reardon, Margaret. Cake mold. 4,395,015. Cl. 249-115.000.
- Rech, Jakob, to Applefield, Jerome; and Applefield, Sheldon. Valved closure for dispensing container. 4,394,944. Cl. 222-553.000.
- Recine, Giuseppe, to Shannon, Thomas L., Jr. Fluid dispenser. 4,394,941. Cl. 222-355.000.
- Rees, Douglas, to Res-Del Group Ltd. Perfusion chamber. 4,395,492. Cl. 435-283.000.
- Regie Nationale des Usines Renault: See—
Bellot, Dominique; and Barre, Michel, 4,395,064. Cl. 292-201.000.
- Reif, Erich: See—
Prestele, Karl; Franetzki, Manfred; and Reif, Erich, 4,395,259. Cl. 604-67.000.
- Reilly, Charles; and Bailey, Richard G. Fuel pellets. 4,395,265. Cl. 44-15.00R.
- Reinecke, Rolf: See—
Lohr, Gernot; and Reinecke, Rolf, 4,395,500. Cl. 523-221.000.
- Rembges, Wolfgang; and Elwart, Jan G., to Klockner Ionon GmbH. Apparatus for hardening metallic workpieces including furnace and workpiece transport structure, a part of which can remain in the furnace during furnace operation. 4,395,024. Cl. 266-252.000.
- Remijan, Paul W., to Randwal Instrument Co., Inc. Apparatus for position encoding. 4,395,124. Cl. 356-373.000.
- Remillard, Jean M. Apparatus for making and maintaining an ice surface. 4,394,817. Cl. 62-235.000.
- Rempfler, Hermann: See—
Bohner, Beat; and Rempfler, Hermann, 4,395,277. Cl. 71-94.000.
- Repa Feinstanzwerk GmbH: See—
Fohl, Artur, 4,394,992. Cl. 242-85.000.
- Res-Del Group Ltd.: See—
Rees, Douglas, 4,395,492. Cl. 435-283.000.
- Research Corporation: See—
Hall, Iris; Cocolas, George; and Chapman, James M., Jr., 4,395,417. Cl. 424-270.000.
- Hughes, Howard C., 4,394,866. Cl. 128-785.000.
- Research-Cottrell, Inc.: See—
Lefevre, Marcel R.; and DePalma, Anthony M., 4,395,448. Cl. 428-99.000.
- Reuther, Wolfgang: See—
Nieberle, Juergen; Peters, Karl-Clemens; Reuther, Wolfgang; and Bankowsky, Heinz-Hilmar, 4,395,535. Cl. 528-137.000.
- Rexnord Inc.: See—
Carlson, Dennis L., 4,395,245. Cl. 464-49.000.
- Reynolds, Gordon S.: See—
Todd, Robert J.; and Reynolds, Gordon S., 4,395,260. Cl. 604-122.000.
- Reynolds, William A. Method of repairing damaged keyway. 4,394,879. Cl. 164-76.100.
- Rhone-Poulenc Industries: See—
Campagne, Jean-Claude; and Frappier, Guy, 4,395,429. Cl. 426-271.000.

- Rice, Verle L., and Check, Dwight E., to R. B. Industries. Combination planar molder. 4,394,878. Cl. 144-131.000.
- Richardson, Eric K.: See—
Ginniff, Maurice E.; and Richardson, Eric K., 4,394,895. Cl. 198-339.000.
- Richardson, Ralph E.: See—
Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., 4,395,697. Cl. 382-41.000.
McCubrey, David L.; and Richardson, Ralph E., 4,395,700. Cl. 382-27.000.
- Sternberg, Stanley R.; Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., 4,395,698. Cl. 382-27.000.
- Ricoh Company, Ltd.: See—
Horike, Masanori; and Ebi, Yutaka, 4,395,717. Cl. 346-75.000.
Sugiyama, Hiroaki, 4,394,923. Cl. 215-329.000.
- Rieger, Franz: See—
Latsch, Reinhard; Linder, Ernst; Maurer, Helmut; Muller, Klaus; and Rieger, Franz, 4,394,855. Cl. 123-254.000.
- Ries, Gunter, to Siemens Aktiengesellschaft. Cable shaped cryogenically cooled stabilized superconductor. 4,395,584. Cl. 174-15.00S.
- Rieter Machine Works Limited: See—
Graf, Felix; and Wirz, Armin, 4,394,985. Cl. 242-18.00D.
- Rieth, Alois: See—
Scheidemann, Hans; Rieth, Alois; Sebralla, Bruno; and Wohlfart, Walter, 4,395,750. Cl. 362-239.000.
- Riggs, Dennis M., and Harvey, Edward L., to United States of America, Army. Bonded bulk graphite and process for bonding. 4,395,299. Cl. 156-285.000.
- Rinnai Kabushiki Kaisha: See—
Nakanishi, Masakatsu; and Nomura, Toshiyuki, 4,395,226. Cl. 431-76.000.
- Ripart, Guy: See—
Nory, Pierre; and Ripart, Guy, 4,395,121. Cl. 356-152.000.
- Rissel, Eva-Maria: See—
Birkle, Siegfried; Rubner, Roland; Hauschildt, Hans; and Rissel, Eva-Maria, 4,395,481. Cl. 430-326.000.
- Ritter, Don F.; St. Clair, Jack A.; and Togami, Henry K., to United States of America, Energy. Continuous chain bit with downhole cycling capability. 4,394,882. Cl. 175-89.000.
- Rizzelli, Frank D., and Papadopoulos, Kimon, to Westinghouse Electric Corp. β -Alumina coating. 4,395,432. Cl. 427-34.000.
- RMI Corporation: See—
Damiano, Paul J., 4,394,830. Cl. 84-1.150.
- Roach, Thomas L.: See—
Barker, Thomas H.; and Roach, Thomas L., 4,395,626. Cl. 235-381.000.
- Barker, Thomas H.; Roach, Thomas L.; Kruse, Richard H.; Fayer, Jay A.; and Bohlman, Eric O., 4,395,627. Cl. 235-381.000.
- Robbins, Medford D.: See—
Eickhoff, David J.; and Robbins, Medford D., 4,395,361. Cl. 252-431.00C.
- Robert Bosch GmbH: See—
Hofmann, Karl; Seifert, Kurt; and Jungbauer, Josef, 4,394,970. Cl. 239-453.000.
- Kopke, Wolfgang; Muller, Manfred; Schmidt, Wolfgang; Eggert, Albert; Gahleitner, Erwin; and Raupach, Gerhard, 4,395,601. Cl. 179-179.000.
- Koppe, Odon; and Amaya, Nestor R., 4,394,823. Cl. 73-119.00A.
- Kurz, Wolfgang, 4,395,673. Cl. 320-61.000.
- Latsch, Reinhard; Linder, Ernst; Maurer, Helmut; Muller, Klaus; and Rieger, Franz, 4,394,855. Cl. 123-254.000.
- Lehmann, Klaus, 4,395,643. Cl. 307-264.000.
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- Thome, Ludwig; Wanner, Karl; and Bretthauer, Karlheinz, 4,395,649. Cl. 310-15.000.
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- Roberts, Derek A., to Rolls-Royce Limited. Shaft coupling. 4,395,247. Cl. 464-158.000.
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- Robertson Paper Box Co., Inc.: See—
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- Robichaud, Bernard J.: See—
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- Robillard, Jean J. Plain paper reproduction process. 4,395,472. Cl. 430-47.000.
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- Roels, Oswald A. Culture of marine species. 4,394,846. Cl. 119-2.000.
- Roetter, Frank T.: See—
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- Rohm GmbH: See—
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- Rohm, Gunter H. Chuck key. 4,395,171. Cl. 408-241.00R.
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- Ross, Alexander R.: See—
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- Rotek Incorporated: See—
Sable, Harvey J., 4,395,140. Cl. 384-99.000.
- Roth, Adrian W., to Sprecher & Schuh A.G. Gas blast switch. 4,395,607. Cl. 200-148.00R.
- Rother, Eberhard: See—
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- Roussel Uclaf: See—
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- Rowe, Delton J. Drive-through pit production of ethanol. 4,395,488. Cl. 435-161.000.
- Rowton, Billy L. Method and system for dewatering reserve pits. 4,395,338. Cl. 210-747.000.
- Rubner, Roland: See—
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Hauser, Oscar G.; and Ruckdeschel, Frederick R., 4,395,471. Cl. 430-45.000.
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- Rumble, Clive S. Obturator. 4,395,082. Cl. 339-41.000.
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- Russell, Thomas H., III. Foldable posting board assembly. 4,395,059. Cl. 282-29.00B.
- Russo, Albert J., to Perkin-Elmer Corporation, The. Optical coupling device for use with a plasma emission spectrometer. 4,395,091. Cl. 350-319.000.
- Ryan, Charles W., to Eli Lilly and Company. Preparation of 6a,10a-trans-hexahydrodibenzopyranones. 4,395,560. Cl. 549-391.000.

- Ryco Graphic Manufacturing, Inc.: See—
Swital, Thomas G., 4,394,873, Cl. 137-613.000.
- Rypkema, Jouke N., to Zenith Radio Corporation. Remote muting for CATV/STV converters. 4,395,734, Cl. 358-194.100.
- S.I.C.A. Serrande Infissi Carpentaria Attrezzatura S.p.A.: See—
Ermes, Neri, 4,395,218, Cl. 425-392.000.
- SAB NIFE Aktiebolag: See—
Bring, Karl-Birger, 4,395,639, Cl. 307-66.000.
- Sable, Harvey J., to Rotek Incorporated. Bearing mounting with hydraulic fastening means for cranes and the like. 4,395,140, Cl. 384-99.000.
- Sabre, Daniel R. Bearing design for drill bit. 4,395,076, Cl. 384-92.000.
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- Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, to Toyama Chemical Co., Ltd. 7 α -Methoxycephalosporins. 4,395,412, Cl. 424-246.000.
- St. Clair, Jack A.: See—
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- St. Clair, Terry L.; Wolfe, James F.; and Greenwood, Thomas D., to United States of America, National Aeronautics and Space Administration. Thermoset-thermoplastic aromatic polyamide containing N-propargyl groups. 4,395,540, Cl. 528-345.000.
- Saint Gobain Vitrage: See—
Dran, Maurice; and Jamet, Bernard, 4,395,622, Cl. 219-522.000.
- St. John, John: See—
MacPhee, John; Wirth, David; and St. John, John, 4,394,870, Cl. 137-99.000.
- St. John, Michael R., to Institute of Gas Technology. Hydrogen production by biomass product depolarized water electrolysis. 4,395,316, Cl. 204-129.000.
- Saito, Masaaki; and Ota, Tadaki, to Nissan Motor Co., Ltd. Fuel injector valve. 4,394,974, Cl. 239-585.000.
- Saito, Narimasa; and Horiuchi, Tatsuo, to Noda Institute for Scientific Research. Method for assay of α -amylase activity. 4,395,487, Cl. 435-22.000.
- Saito, Sadyuki: See—
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- Saito, Takashi; Hirano, Toshio; and Kumaki, Takashi, to Victor Company of Japan, Ltd. Disc-shaped recording medium reproducing apparatus. 4,395,744, Cl. 360-97.000.
- Saito, Toru, to Hitachi, Ltd. Reproduction method of filter demineralizer in condensate cleanup system of reactor. 4,395,335, Cl. 210-675.000.
- Saitoh, Koichi, to Fuji Xerox Co., Ltd. Process of forming magnetic latent images. 4,395,470, Cl. 430-39.000.
- Sakane, Kazuo: See—
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- Sakurai, Shigenori: See—
Torisu, Yoshio; Sakurai, Shigenori; Kamo, Takashi; and Furutani, Toshinobu, 4,395,319, Cl. 204-426.000.
- Salathe, George F.: See—
Kaufman, Marvin L.; and Salathe, George F., 4,395,522, Cl. 525-524.000.
- Salisbury, Winfield W., to Occidental Research Corporation. High density ion source. 4,395,631, Cl. 250-251.000.
- Salmre, William: See—
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- Samatsu, Yasuo: See—
Arikawa, Tetsuro; and Samatsu, Yasuo, 4,395,073, Cl. 303-116.000.
- Samejima, Yasushi: See—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; and Kono, Kimihiko, 4,395,321, Cl. 204-252.000.
- Samhammer, Nelson F.: See—
Ganssle, Eugene R.; and Samhammer, Nelson F., 4,395,004, Cl. 244-158.00R.
- Samson Efficiency B.V.: See—
Schimmel, Huibertus, 4,395,153, Cl. 402-15.000.
- Sandberg, Richard J.: See—
Brownfield, Jerry A.; Sandberg, Richard J.; Niemi, Thomas J.; and Howland, Leland L., 4,394,818, Cl. 62-239.000.
- Sanders Associates, Inc.: See—
Baer, Ralph H., 4,395,045, Cl. 273-312.000.
- Sanders, James M.: See—
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- Sandhaus, Jeffrey. Apparatus and method for effecting occlusion of the vas deferens. 4,394,864, Cl. 128-321.000.
- Sandler, Louis M.; and Bristol, Robert G., to Emhart Industries, Inc. Control system and method for motor starting. 4,395,671, Cl. 318-786.000.
- Sandow, Jurgen K.: See—
Konig, Wolfgang; Geiger, Rolf; and Sandow, Jurgen K., 4,395,400, Cl. 424-177.000.
- Sandoz Ltd.: See—
Bauer, Wilfried; and Pless, Janos, 4,395,403, Cl. 424-177.000.
- Egli, Robert, 4,395,544, Cl. 542-413.000.
- Funfschilling, Peter, 4,395,550, Cl. 544-253.000.
- Porter, Frederic E.; and Scott, James M., 4,394,845, Cl. 118-303.000.
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- Sani-Fresh International, Inc.: See—
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- Sank, Victor J.: See—
Friauf, Walter S.; Brooks, Rodney A.; Sank, Victor J.; and Cascio, Horace E., 4,395,635, Cl. 250-366.000.
- Sankyo Company Limited: See—
Ohki, Eiji; Oida, Sadao; Yoshida, Akira; Hayashi, Teruo; and Sugawara, Shinichi, 4,395,418, Cl. 424-270.000.
- Sanpei, Hideo; Matsuno, Kunio; Hirano, Shyoji; and Kumagai, Katuya, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for manufacturing information recording medium. 4,395,435, Cl. 427-38.000.
- Santillan, Salvatore C.: See—
Downs, Robert F.; and Santillan, Salvatore C., 4,395,610, Cl. 200-292.000.
- Sasaki, Kotaro: See—
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- Sasaki, Kou: See—
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- Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, to Hitachi, Ltd. Solid-state color imager and method of manufacturing the same. 4,395,629, Cl. 250-226.000.
- Sato, Hideo: See—
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- Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, to Honda Giken Kogyo Kabushiki Kaisha. Antiskid brake controlling method and apparatus for vehicles. 4,395,761, Cl. 364-426.000.
- Satoh, Hiroaki; and Hirata, Masaru, to Kureha Kagaku Kogyo Kabushiki Kaisha. Electroconductive resin composite material for molding. 4,395,362, Cl. 252-511.000.
- Satrapa, Jaroslav, to Kretztechnik Gesellschaft m.b.H. Light pen controlled method and equipment for evaluating fluorescent screen pictures. 4,395,707, Cl. 340-703.000.
- Sauer, Rudolf; Kienle, Wolfgang; Paschke, Werner; and Hans, Walde-mar, to Robert Bosch GmbH. Injection valve. 4,394,973, Cl. 239-467.000.
- Scallet, Barrett L.: See—
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- Scapa Dyers Inc.: See—
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- Scata, Umberto: See—
Giannetti, Enzo; and Scata, Umberto, 4,395,360, Cl. 252-429.00B.
- Schadt, Martin: See—
Boller, Arthur; Germann, Alfred; Schadt, Martin; and Villiger, Alois, 4,395,350, Cl. 252-299.100.
- Schaefer, Eugene J.: See—
Cooney, Charles L.; and Schaefer, Eugene J., 4,395,490, Cl. 435-201.000.
- Schaeffer, Charles W.: See—
Wilson, Edwin B.; Eben, C. Frederick; Meyer, Charles L.; and Schaeffer, Charles W., 4,395,161, Cl. 405-259.000.
- Schafer, Wolfgang: See—
Eiermann, Kurt; Horlebein, Eberhard; and Schafer, Wolfgang, 4,395,586, Cl. 174-138.00J.
- Scheidemann, Hans; Rieth, Alois; Sebralla, Bruno; and Wohlfart, Walter, to W. C. Heraeus GmbH. Operating room light. 4,395,750, Cl. 362-239.000.
- Scheithauer, Richard A.: See—
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- Scher, Herbert I.; and Ungar, Israel S., to Nevamar Corporation. Abrasion resistant laminate. 4,395,452, Cl. 428-148.000.
- Schering Aktiengesellschaft: See—
Pfeiffer, Heinrich; Mutzel, Wolfgang; and Speck, Ulrich, 4,395,391, Cl. 424-5.000.
- Schertler, Siegfried, to Vat Aktiengesellschaft Fur Vakuum-Apparate-Technik. Metallic sealing device for a high-vacuum closure. 4,395,049, Cl. 277-236.000.
- Schimmel, Huibertus, to Samson Efficiency B.V. File. 4,395,153, Cl. 402-15.000.
- Schlafly, Paul W., to Warner & Swasey Company, The. Boom cylinder. 4,395,192, Cl. 414-718.000.
- Schlag, Johannes: See—
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- Schmidt, Douglass N.; and Fischetti, Frank, Jr., to BASF Wyandotte Corporation. Spray dried vitamin E powder. 4,395,422, Cl. 424-284.000.
- Schmidt, Ernst M.: See—
Aarts, Petrus J. J.; Fleck, Harald; Kocsisek, Karl; and Schmidt, Ernst M., 4,395,745, Cl. 360-129.000.
- Schmidt, Wolfgang: See—
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- Schmidt, Yves, to Aciars et Outillage Peugeot. Buckle for a safety belt. 4,394,792, Cl. 24-230.00A.

- Schmitt, Frederick L.: See—
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,395,366, Cl. 252-545.000.
- Schmitt, Philipp: See—
Marz, Dieter; Schmitt, Philipp; and Weidenhammer, Peter, 4,394,980, Cl. 241-46.020.
- Schmolka, Irving R., to BASF Wyandotte Corporation. Artificial blood emulsifiers. 4,395,393, Cl. 424-78.000.
- Schnable, George L.: See—
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- Schneider, John M.: See—
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- Schnirch, Leo: See—
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- Schobl Enterprises, Inc.: See—
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- Schobl, Howard T., to Schobl Enterprises, Inc. Valve assembly for packing removal. 4,394,872, Cl. 137-315.000.
- Schold, George R. Apparatus for dispersing finely divided solid particles in a liquid vehicle with a mechanism for reducing screen clogging. 4,394,981, Cl. 241-46.170.
- Schonfeldt, Martin K.: See—
Tsurimoto, Hidetoshi; Tokunaga, Koichi; and Schonfeldt, Martin K., 4,395,175, Cl. 414-21.000.
- Schoolman, Arnold. Television microscope surgical method and apparatus therefor. 4,395,731, Cl. 358-88.000.
- Schrader, Gert: See—
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- Schreurs, Jan W. H.: See—
Beall, George H.; Mansfield, Gerald R.; and Schreurs, Jan W. H., 4,395,271, Cl. 65-31.000.
- Schroter, Gerhard, to Heraeus-Christ GmbH. Centrifuge rotor closure. 4,395,256, Cl. 494-38.000.
- Schucker, Thomas R., to Allis-Chalmers Corporation. Continuous twin-stay columns for bulb hydraulic turbines. 4,395,198, Cl. 415-219.00R.
- Schuler, Frederick E., to Donaldson Company, Inc. Compact dust filter assembly. 4,395,269, Cl. 55-302.000.
- Schulz, Siegfried: See—
Eicker, Karl-Georg; Schulz, Siegfried; and Seim, Burkhardt, 4,395,608, Cl. 200-153.00L.
- Schuster, Ronald D. Cover for a rifle sight. 4,394,797, Cl. 33-244.000.
- Schuster, Samuel J. Apparatus for making disposable, breathable receptacles. 4,395,254, Cl. 493-196.000.
- Schutt, Donald W. Container counter. 4,395,625, Cl. 235-98.00C.
- Schwarz, Otto: See—
Eibl, Johann; Schwarz, Otto; Elsinger, Fritz; and Philapitsch, Anton, 4,395,396, Cl. 424-101.000.
- Schwarzkopf Development Corporation: See—
Sonnweber, Alfred; Bildstein, Hubert; and Egger, Lambert, 4,394,953, Cl. 228-124.000.
- Schweizer, Erwin V.: See—
Hoener, Dieter W.; Lambert, Neville L.; and Schweizer, Erwin V., 4,395,172, Cl. 410-84.000.
- Schwenzer, Reinhard: See—
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- Sciortino, Lawrence A. Outside air breathing supply system. 4,394,861, Cl. 128-205.250.
- SCM Corporation: See—
Longrod, Scott J., 4,395,149, Cl. 400-215.000.
- SCM Finanziaria S.p.A.: See—
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- Societe Nationale Elf Aquitaine: See—
Desgrandchamps, Guy; Kvasnikoff, Georges; and Blanc, Claude, 4,395,390, Cl. 423-573.00G.
- Scott, James M.: See—
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- Scruggs, Jack G.: See—
Blackwell, Jennings P.; Tieszen, Dale O.; and Scruggs, Jack G., 4,395,509, Cl. 524-127.000.
- Searles, Raymond C., to Mobil Oil Corporation. Seal for wear resistant inserts. 4,395,019, Cl. 251-357.000.
- Seaward, William S.: See—
Janssen, Donovan M.; Magno, Robert; Seaward, William S.; and Valent, James A., 4,395,033, Cl. 271-10.000.
- Sebralla, Bruno: See—
Scheidemann, Hans; Rieth, Alois; Sebralla, Bruno; and Wohlfart, Walter, 4,395,750, Cl. 362-239.000.
- Seger, Rene: See—
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- Seidel, Hans: See—
Stahl, Peter; Seidel, Hans; and Brunner, Herwig, 4,395,489, Cl. 435-190.000.
- Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Driving point impedance derived from a transfer impedance. 4,395,599, Cl. 179-170.00C.
- Seifert, Kurt: See—
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- Seim, Burkhardt: See—
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- Seki, Masayuki: See—
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- Sekiguchi, Yoshitoshi: See—
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- Sekisui Kagaku Kogyo Kabushiki Kaisha: See—
Takagi, Toshinori; Nakata, Shinsaku; Mikami, Yoichi; Hotta, Masahiro; and Fukumoto, Yoshiyuki, 4,395,465, Cl. 428-626.000.
- Sekizawa, Yasuharu: See—
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- Sellers, Robert W., to Harris Corporation. Linear phase filter with self-equalized group delay. 4,395,688, Cl. 333-169.000.
- Sensi, John E.: See—
Kunkle, Gerald E.; Sensi, John E.; and Gulotta, Joseph A., 4,395,272, Cl. 65-99.500.
- Senuma, Michio, to Canon Kabushiki Kaisha. Device for adjusting driving spring of focal plane shutter. 4,395,105, Cl. 354-246.000.
- Seragnoli, Enzo, to G. D. Societa per Azioni. Apparatus for feeding folded and flattened cartons to a packaging machine. 4,395,177, Cl. 414-130.000.
- Seth, Kishankumar K., to Ethyl Corporation. Chlorosilane disproportionation process. 4,395,389, Cl. 423-341.000.
- Setterholm, Jeffrey M.: See—
Egli, Werner H.; Setterholm, Jeffrey M.; and Weir, E. Jack, 4,394,831, Cl. 89-41.0EA.
- Sewell Plastics, Inc.: See—
Alberghini, Alfred C.; and Nickel, Gerhard E. B., 4,395,378, Cl. 264-532.000.
- Sexton, Charles W., Jr., to General Electric Company. Correction circuits for projection television. 4,395,662, Cl. 315-371.000.
- Sferragatta, Enrico, to Mille Note System S.r.l. Note booklet, provided with a foldable cover, effective to act as a sheet and pen holder. 4,395,056, Cl. 281-31.000.
- Shahan, Donald J.: See—
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- Shannon, Thomas L., Jr.: See—
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- Shapiro, Howard M., to Sidney Farber Cancer Institute, Inc. Apparatus and method for killing unwanted cells. 4,395,397, Cl. 424-101.000.
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Yasuhira, Shuji; and Naka, Shinichi, 4,395,229, Cl. 431-261.000.
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- Shell Oil Company: See—
Germaine, Gilbert R.; and Darnanville, Jean P., 4,395,579, Cl. 585-444.000.
- Kluttz, Robert Q.; and Slaugh, Lynn H., 4,395,372, Cl. 260-465.00R.
- Kwantes, Arien; and De Goederen, Cornelis W. J., 4,395,576, Cl. 568-913.000.
- Slaugh, Lynn H.; and Willis, Carl L., 4,395,356, Cl. 252-413.000.
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- Shenker, Martin, to Farrand Optical Co., Inc. Optical scanning probe with multiple outputs. 4,395,234, Cl. 434-33.000.
- Sherwood, Edward F.; and Orndorff, Karl B., to Westinghouse Electric Corp. Coreless hung panel assembly. 4,394,809, Cl. 52-512.000.
- Shetty, Bola V.; and Airey, John E., to Purdue Frederick Company, The. Antimicrobial bis-imidazo-pyridine compound. 4,395,552, Cl. 546-118.000.
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- Shibata, Kiyoshi: See—
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- Shichman, Daniel: See—
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- Shimizu, Chiyuki; and Hosokawa, Kiyoshi, to Toshiba Silicones, Ltd. Method of forming silicone films. 4,395,443, Cl. 427-387.000.
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- Kubota, Yoshihiro; and Kuriyama, Osamu, 4,395,512, Cl. 524-413.000.
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- Shirey, Richard, to Donn Incorporated. Metal fastening system and method. 4,394,794, Cl. 29-432.000.
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- Sidman, Kenneth R.: See—
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- Siebert, Dirk B. L., to AWB Apparatenfabriek Warmtebouw B.V. Central heating boiler. 4,394,848, Cl. 122-13.00R.
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Ahne, Hellmut; Kuhn, Eberhard; and Rubner, Roland, 4,395,482, Cl. 430-326.000.
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- Lauterbach, Christl, 4,395,727, Cl. 357-71.000.
- Mahlein, Hans F., 4,395,090, Cl. 350-166.000.
- Prestele, Karl; Franetzi, Manfred; and Reif, Erich, 4,395,259, Cl. 604-67.000.
- Ries, Gunter, 4,395,584, Cl. 174-15.00S.
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Fluck, Rene, 4,394,899, Cl. 198-408.000.
- Sikorski, James A.; and Curtis, Tommie G., to Monsanto Company. Thiosulfenamide derivatives of N-phosphonomethylglycinonitriles as herbicides. 4,395,276, Cl. 71-87.000.
- Sikorski, James A.: See—
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- Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, to Bell Telephone Laboratories, Incorporated. Segmented plasma excitation-recombination light source. 4,395,770, Cl. 372-62.000.
- Silverman, Daniel; and Johnson, Everett A. Access security control. 4,395,628, Cl. 235-382.000.
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- Simmons, Gerald C.; and Hilby, Noel E., to Boeing Company, The. Static line retrieval apparatus. 4,395,068, Cl. 294-78.00R.
- Simons, Keith F., to Morgan Construction Company. High reduction method and apparatus for continuously hot rolling products. 4,394,822, Cl. 72-235.000.
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- Singh, Anand P.; and Shichman, Daniel, to NRM Corporation. Tire press. 4,395,209, Cl. 425-33.000.
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- Singh, Bawa: See—
Denton, Richard A.; and Singh, Bawa, 4,395,323, Cl. 204-298.000.
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- Skipper, Uvon. Shock sub. 4,394,884, Cl. 175-321.000.
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- Slutzky, Azriel, to Sun Electric Corporation. Automobile timing light. 4,395,680, Cl. 324-392.000.
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- Smalley, Ned J., to Owens-Illinois, Inc. Child-resistant closure assembly. 4,394,916, Cl. 215-220.000.
- Smeets, Arnoldus A.: See—
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- Smierciak, Richard C.: See—
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- Smith, Derrick A. Solar light bulb. 4,394,860, Cl. 126-439.000.
- Smith, Harvey E., Sr.; and Weis, Seigfried K., to C. L. Frost & Son, Inc. Bearing unit with improved inner race. 4,395,078, Cl. 308-196.000.
- Smith, James A.: See—
McLaughlin, James H.; Dente, Stephen V.; Carmello, Robert; and Smith, James A., 4,395,347, Cl. 252-139.000.
- Smith Kline & French Laboratories Limited: See—
Durant, Graham J.; Ganellin, Charon R.; and Young, Rodney C., 4,395,419, Cl. 424-270.000.
- Smith, Mark C.: See—
Pierce, O. Leon; Smith, Mark C.; and Driver, R. Byron, 4,395,590, Cl. 179-2.0DP.
- Smith, Martin T., Jr.: See—
Snyder, Larry L.; and Smith, Martin T., Jr., 4,394,966, Cl. 239-127.000.
- Smith, Richard H.; and Armstrong, Donald J., to General Motors Corporation. Compression operated injector with fuel injection control. 4,394,856, Cl. 123-506.000.
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- Smith, Robert C.; and Cox, A. Bennis, II, to G. S. Blodgett Co., Inc. Dual flow heating apparatus. 4,395,233, Cl. 432-176.000.
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Pfeiffer, Francis R., 4,395,401, Cl. 424-177.000.
- Snowden, Dennis C.: See—
Moree, Elwood D.; and Snowden, Dennis C., 4,394,799, Cl. 33-343.000.
- Snyder Industries, Inc.: See—
Snyder, Larry L.; and Smith, Martin T., Jr., 4,394,966, Cl. 239-127.000.
- Snyder, Larry L.; and Smith, Martin T., Jr., to Snyder Industries, Inc. Spraying apparatus having a fluid storage tank with agitator and anti-vortex tank fittings. 4,394,966, Cl. 239-127.000.
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Gorre, Paul; and Giraud, Jean M., 4,395,087, Cl. 339-278.00R.
- Socared S.A.: See—
Brandt, Bertil, 4,394,979, Cl. 241-26.000.
- Societa Nazionale Industriale Aerospaziale: See—
Girard, Alain, 4,395,581, Cl. 136-246.000.
- S.p.A. Officine Maccaferri via Raffaele Maccaferri & Figli: See—
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Murphy, John M.; Spensley, Robert H.; and Ellis, John, 4,395,162, Cl. 405-261.000.
- Societe Anonyme dite: Compagnie Industrielle des Lasers: See—
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- Societe Anonyme dite: L'Oreal: See—
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- Societe Audax: See—
Lesage, Philippe M., 4,395,598, Cl. 179-115.50R.
- Societe CEM Compagnie Electro-Mecanique & Cie SNC: See—
Thuy, N'Guyen U., 4,395,666, Cl. 318-139.000.
- Societe d'Etude et de Construction de Machines pour Toutes Industries S.E.C.O.M.A. S.A.: See—
Perraud, Raymond J., 4,395,163, Cl. 405-303.000.
- Societe Francaise des Produits pour Catalyse: See—
Le Page, Jean-Francois; Billon, Alain; and Jacquin, Yves, 4,395,329, Cl. 208-251.00H.

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- Nakazawa, Tetsuji; and Asai, Toshio, 4,395,739, Cl. 360-61.000.
- Oki, Ryuji; and Ebisawa, Takashi, 4,395,777, Cl. 455-183.000.
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- Sorokina, Irina B.: See—
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- Southgate, Peter D.; and Gorog, Istvan, to RCA Corporation. Defect detection system. 4,395,122, Cl. 356-237.000.
- Sowash, Thomas R., to General Motors Corporation. Cam operated dual switch assembly. 4,395,609, Cl. 200-153.0LA.
- Sowell, Mark S., III: See—
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- Spainhour, Phillip A., to Ammco Tools, Inc. Strut compressor. 4,395,020, Cl. 254-10.500.
- Spanset Inter A.G.: See—
Robin, Peter D. L., 4,395,067, Cl. 294-74.000.
- Speck, Ulrich: See—
Pfeiffer, Heinrich; Mutzel, Wolfgang; and Speck, Ulrich, 4,395,391, Cl. 424-5.000.
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- Spigarelli, Donald J., to HTC Corporation, The. Counter-convection vapor control system. 4,394,802, Cl. 34-27.000.
- Spinks, Donald E. Ladder standoff device. 4,394,887, Cl. 182-214.000.
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- Sprague Electric Company: See—
White, Jack D., 4,395,747, Cl. 361-433.000.
- Whitman, Alfred, 4,395,305, Cl. 156-665.000.
- Sprague, Henry W., III. Surface material spreading. 4,395,156, Cl. 404-110.000.
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Roth, Adrian W., 4,395,607, Cl. 200-148.00R.
- Springs, Thomas W.; and Wallis, William F., to Besser Company. Noise suppressing block molding machinery. 4,395,213, Cl. 425-211.000.
- Sprintschnik, Gerhard, to Hoechst Aktiengesellschaft. Developer mixture and process for developing exposed negative-working diazonium salt layers. 4,395,480, Cl. 430-309.000.
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Barchard, John, 4,395,190, Cl. 414-664.000.
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- Stahl, Peter; Seidel, Hans; and Brunner, Herwig, to Boehringer Mannheim GmbH. Process for the recovery of glycerol dehydrogenase. 4,395,489, Cl. 435-190.000.
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- Stanadyne, Inc.: See—
Moen, Alfred M., 4,395,018, Cl. 251-310.000.
- Standard Duplicating Machines Corporation: See—
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- Standard Oil Company: See—
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- Standard Oil Company (Indiana): See—
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- Kaduk, James A., 4,395,388, Cl. 423-339.000.
- Stankevich, Vladimir I.: See—
Sidorenko, Georgy I.; Stankevich, Vladimir I.; Katsygin, Vitaly V.; and Lopato, Georgy P., 4,394,865, Cl. 128-782.000.
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- Steinberg, Mitchell I.: See—
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- Sterling Drug Inc.: See—
Chowdhury, Ajit K.; Bauer, Gerald L.; and Lehmann, Richard W., 4,395,339, Cl. 210-761.000.
- Neumann, Helmut C., 4,395,423, Cl. 424-304.000.
- Sternberg, Stanley R.; Dargel, William O.; Loughheed, Robert M.; McCubrey, David L.; and Richardson, Ralph E., to Environmental Research Institute of Michigan. Neighborhood transformation logic circuitry for an image analyzer system. 4,395,698, Cl. 382-27.000.
- Sternberg, Stanley R., to Environmental Research Institute of Michigan. Method and apparatus for pattern recognition and detection. 4,395,699, Cl. 382-41.000.
- Stevens, Travis E.: See—
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- Stevenson, Neil A.: See—
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- Stivers, Scotlund. Flame thrower attachment. 4,395,227, Cl. 431-142.000.
- Stoehr, Herbert M., to Artos Engineering Company. Flying shear for metal strip stock. 4,394,829, Cl. 83-314.000.
- Stoffler, Albert: See—
Thor, Gunter; Stoffler, Albert; and Mehl, Dietholf, 4,394,939, Cl. 222-207.000.
- Stone, W. James; Burklund, Vernon D.; and Dillinger, Robert B., to United States of America. Navy. Attitude selective aircrew escape control. 4,395,001, Cl. 244-122.0AE.
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Phipps, Arthur L.; and Stoyanov, Ben, 4,395,214, Cl. 425-214.000.
- Strauss, Daniel L., to Procter & Gamble Company, The. Granular fabric softening composition. 4,395,342, Cl. 252-8.750.
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Braun, Albert; Portz, Willi; Strauss, Georg; and Delhey, Hans-Martin, 4,395,282, Cl. 75-58.000.
- Sturwold, Robert J., to Cincinnati-Vulcan Company, The. Water-based coating oil. 4,395,286, Cl. 106-14.130.
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- Sugiyama, Hiroaki, to Ricoh Co., Ltd. Threaded cap with inner plug. 4,394,923, Cl. 215-329.000.
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- Sun Chemical Corporation: See—
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- Sunohara, Kazuo: See—
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- Survival Technology, Inc.: See—
Bartner, Elliot, 4,394,863, Cl. 604-90.000.
- Sury, Yel S., to Ciba-Geigy Corporation. Process for removing trace amounts of epichlorohydrin from heat sensitive glycidyl products. 4,395,542, Cl. 528-481.000.
- Sushardt, Wolfgang: See—
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- Suwyn, Donald W. Filling and distribution apparatus and method for silos. 4,395,182, Cl. 414-299.000.
- Suzuki, Akiyoshi, to Canon Kabushiki Kaisha. Printing apparatus having an in-focus detector. 4,395,117, Cl. 355-43.000.
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- Suzuki, Miyo: See—
Nakanishi, Toshiharu; Suzuki, Miyo; and Ohigashi, Hiroji, 4,395,652, Cl. 310-334.000.
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- Suzuki, Teiji: See—
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- Sweda International, Inc.: See—
Melys, Aleksandras A., 4,395,081, Cl. 339-14.00R.

- Sweeney, William M., to Texaco, Inc. Novel method of extending a hydrocarbon fuel heavier than gasoline. 4,395,267, Cl. 44-56.000.
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- Swick, Robert M., to General Motors Corporation. Fuel control for gas turbine with continuous pilot flame. 4,394,811, Cl. 60-39.28R.
- Swiger, Roger T.: See—
White, Mary A.; Beers, Melvin D.; Lucas, Gary M.; Smith, Robert A.; and Swiger, Roger T., 4,395,526, Cl. 528-18.000.
- Swisher, James A. Double action barrel lock. 4,394,820, Cl. 70-34.000.
- Switall, Thomas G., to Ryco Graphic Manufacturing, Inc. Fluid valve with compressible channel. 4,394,873, Cl. 137-613.000.
- Switthenbank, Colin, to Rohm and Haas Company. Preparation of 5-(2-halo-4-trifluoromethylphenoxy)-2-nitrobenzoic acid and salts and esters and amides. 4,395,570, Cl. 562-435.000.
- Sygnator, Henry A., to Illinois Tool Works Inc. Drill screw with protective burrs. 4,395,173, Cl. 411-387.000.
- Syntex (U.S.A.) Inc.: See—
Dvorak, Charles A., 4,395,571, Cl. 562-466.000.
- Szabo, Andras I.: See—
Einolf, Charles W., Jr.; Szabo, Andras I.; and Crew, Albert W., 4,395,710, Cl. 340-825.500.
- Szasz, Gyorgy: See—
Hermecz, Istvan; Kokosi, Jozsef; Horvath, Agnes; Meszaros, Zoltan; Szasz, Gyorgy; Breining, Tibor; and Vasvari nee Debreczy, Lelle, 4,395,549, Cl. 544-252.000.
- Szeto, Leo H.: See—
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,395,770, Cl. 372-62.000.
- Szirt nee Kiszelly, Eniko: See—
Budai, Zoltan; Lay nee Konya, Aranka; Mezei, Tibor; Petocz, Lujza; Grasser, Katalin; Kosoczy, Ibolya; Szirt nee Kiszelly, Eniko; and Gorog, Peter, 4,395,413, Cl. 424-250.000.
- Tabor, Edward; and Gerety, Robert J., to United States of America, Health and Human Services. Detection of non-A, non-B hepatitis associated antigen. 4,395,395, Cl. 424-89.000.
- Tada, Isao; Okamura, Toshio; Kousaka, Akira; and Nakai, Kaichiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Magnetron unit with a magnetic field compensating means. 4,395,657, Cl. 315-39.710.
- Taguchi, Tatsuhsa: See—
Maruyama, Teruo; Taguchi, Tatsuhsa; and Onoda, Tadayuki, 4,395,208, Cl. 418-102.000.
- Tai, Masaru: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Taig, Alistair G.; and Jordan, David D., to Bendix Corporation, The. Universal joint. 4,395,246, Cl. 464-153.000.
- Taillet, Joseph; and Maulard, Jean, to Office National d'Etudes et de Recherche Aeronautiques (ONERA). Process and apparatus for exploring the atmosphere of a planet. 4,394,998, Cl. 244-31.000.
- Taira, Kazuo; Morofuji, Akihiko; and Ueno, Hiroshi, to Toyo Seikan Kaisha, Ltd. Adhesive for production of metal bottles. 4,395,538, Cl. 528-272.000.
- Tait, William S.; Martin, Richard L.; and Rodgers, Richard A., to Petrolite Corporation. Pitting corrosion meter. 4,395,318, Cl. 204-404.000.
- Tajima, Hatsu: See—
Hosono, Nagao; and Tajima, Hatsu, 4,395,110, Cl. 355-3.0DD.
- Takada, Haruhiko, to Diesel Kiki Co., Ltd. Vane compressor having a discharge rate control. 4,395,203, Cl. 417-282.000.
- Takada, Yoshinori: See—
Kasashima, Tatsuji; Morita, Shuji; Hayami, Hiroyuki; Ose, Seiroku; Takada, Yoshinori; and Nozaki, Fumihiro, 4,395,320, Cl. 204-206.000.
- Takagi, Toshinori; Nakata, Shinsaku; Mikami, Yoichi; Hotta, Masahiro; and Fukumoto, Yoshiyuki, to Sekisui Kagaku Kogyo Kabushiki Kaisha. Magnetic recording medium and process for production thereof. 4,395,465, Cl. 428-626.000.
- Takahashi, Fumio, to Nippon Kogaku K.K. Method of and apparatus for measuring the refractive power of a contact lens. 4,395,120, Cl. 356-125.000.
- Takahashi, Ito: See—
Terakado, Ryoji; Iwasa, Masaru; Takahashi, Ito; Anzawa, Norio; and Yoshida, Gen, 4,395,021, Cl. 266-85.000.
- Takahashi, Masanori, to Fujitsu Limited. Buffer memory control system of the swap system. 4,395,763, Cl. 364-900.000.
- Takahashi, Shigeo: See—
Naito, Yukio; Tamura, Masahide; and Takahashi, Shigeo, 4,395,776, Cl. 455-119.000.
- Takahashi, Tohru: See—
Kanbe, Junichiro; Toyono, Tsutomu; Hosono, Nagao; and Takahashi, Tohru, 4,395,476, Cl. 430-102.000.
- Takahashi, Yuji; and Masaki, Hisaji, to Canon Kabushiki Kaisha. Sheet conveying device. 4,395,111, Cl. 355-14.00R.
- Takai, Kazuki: See—
Hayashi, Hideki; and Takai, Kazuki, 4,394,995, Cl. 242-207.000.
- Takakura, Isamu: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Takano, Shuntaro: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Takaya, Yoshiaki: See—
Tsutsumi, Kazuhiro; Tanoue, Genichiro; and Takaya, Yoshiaki, 4,395,705, Cl. 340-520.000.
- Takeda, Shigeo; Shibata, Junichi; Shimakata, Masashi; Oshime, Yasuhiro; Gomi, Shintaro; and Kawamura, Katsuaki, to Pioneer Electronic Corporation. Antenna array system usable for AM/FM receiver. 4,395,714, Cl. 343-725.000.
- Takenouchi, Akira; and Niwa, Yukio, to Daidotokushuko Kabushiki Kaisha. Preheating process for steel-making materials. 4,395,280, Cl. 75-28.000.
- Takeuchi, Akihiro: See—
Kobayashi, Masaaki; Igata, Kouichi; and Takeuchi, Akihiro, 4,395,741, Cl. 360-77.000.
- Takeuchi, Kazuo: See—
Nakata, Kazuo; Iochi, Akihiko; Kaise, Isamu; Takeuchi, Kazuo; and Nomura, Katsuhiko, 4,395,119, Cl. 356-73.000.
- Takeuchi, Tomio: See—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuhiro, 4,395,402, Cl. 424-177.000.
- Taki, Hideo: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Takii, Yasuo: See—
Kondo, Shiro; and Takii, Yasuo, 4,395,611, Cl. 200-314.000.
- Tamai, Yasuo: See—
Ogawa, Hiroshi; and Tamai, Yasuo, 4,395,466, Cl. 428-695.000.
- Tamura, Harushige: See—
Okigami, Noboru; Hayasaka, Hiroshi; Sekiguchi, Yoshitoshi; and Tamura, Harushige, 4,395,223, Cl. 431-10.000.
- Tamura, Masahide: See—
Naito, Yukio; Tamura, Masahide; and Takahashi, Shigeo, 4,395,776, Cl. 455-119.000.
- Tanaka, Hideyuki: See—
Tanaka, Hiroto; Kohno, Yasumasa; Tanaka, Hideyuki; and Sasaki, Kotaro, 4,395,746, Cl. 361-143.000.
- Tanaka, Hiroto; Kohno, Yasumasa; Tanaka, Hideyuki; and Sasaki, Kotaro, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha; and Tohoku Kinzoku Kogyo Kabushiki Kaisha. Method and device for magnetically transporting. 4,395,746, Cl. 361-143.000.
- Tanaka, Kojiro: See—
Namiki, Masayuki; Kamiya, Masaaki; Kojima, Yoshikazu; and Tanaka, Kojiro, 4,395,139, Cl. 374-178.000.
- Tanaka, Yoshiharu; Watanabe, Yoshiaki; and Sasaki, Kou, to Mitsui Engineering and Shipbuilding Company Limited. Exhaust gas heat recovery system in internal combustion engine. 4,394,813, Cl. 60-618.000.
- Tandberg Data A/S: See—
Helgeland, Olav; Rudi, Guttorm; and Engely, Odd, 4,395,010, Cl. 248-371.000.
- Tanenbaum, Joseph M. Apparatus for welding metal trusses. 4,395,615, Cl. 219-79.000.
- Taniguchi, Yoshio: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
- Taniyama, Susumu: See—
Shimizu, Senzo; Nomura, Isao; Harada, Masahiro; Usui, Motohachi; Taniyama, Susumu; and Yanada, Shigeo, 4,395,534, Cl. 528-126.000.
- Tanoue, Genichiro: See—
Tsutsumi, Kazuhiro; Tanoue, Genichiro; and Takaya, Yoshiaki, 4,395,705, Cl. 340-520.000.
- Tartaglia, Paul. Automobile cargo carrying rack. 4,394,947, Cl. 224-42.430.
- Taylor, Henry J. Mechanism for capturing and releasing a spinning object. 4,395,006, Cl. 244-161.000.
- Taylor, James E.; and Stevenson, Neil A., to Fisons Limited. Disodium cromoglycate formulations. 4,395,421, Cl. 424-283.000.
- Taylor, James H., Jr., to Loctite Corporation. Valve having suck-back feature. 4,394,945, Cl. 222-571.000.
- TE KA DE Felten & Guillaume Fernmeldeanlagen GmbH: See—
Parras, Karl-Heinz, 4,395,690, Cl. 333-214.000.
- Technology Management, Inc.: See—
Downs, Robert F.; and Santillan, Salvatore C., 4,395,610, Cl. 200-292.000.
- Tecumseh Products Company: See—
Kronich, Peter G.; and Arendt, Dan R., 4,394,893, Cl. 192-1.000.
- Teldix GmbH: See—
Marinescu, Marlene, 4,395,693, Cl. 336-223.000.
- Teledyne Industries, Inc.: See—
Conrad, Richard A., 4,395,084, Cl. 339-75.0MP.
- Tell, Peter, to AB Piab. Multi-ejector. 4,395,202, Cl. 417-169.000.
- Tellus Maskin AB: See—
Wirholm, Stig; and Berggren, Soren, 4,395,183, Cl. 414-416.000.
- Teraji, Tsutomu: See—
Kamiya, Takashi; Teraji, Tsutomu; Nakai, Yoshiharu; Sakane, Kazuo; and Goto, Jiro, 4,395,411, Cl. 424-246.000.
- Terakado, Ryoji; Iwasa, Masaru; Takahashi, Ito; Anzawa, Norio; and Yoshida, Gen, to Nippon Steel Corporation. Vertical continuous annealing furnace and its operating method. 4,395,021, Cl. 266-85.000.

- Terastita, Takaaki, to Fuji Photo Film Co., Ltd. Scene brightness measuring system. 4,395,099, Cl. 354-31.000.
- Terbush, William G. Energy conversion apparatus. 4,395,664, Cl. 318-112.000.
- Terrell, Christopher E., to W. F. Industries, Inc. Clip for suspension filing. 4,395,058, Cl. 281-46.000.
- Testut Aequitas: See—
Dauge, Gilbert V.; Langlais, Jacques F.; and Quehen, Daniel J., 4,394,885, Cl. 177-210.00C.
- Teutenberg, Josef: See—
Beltrup, Herbert; Teutenberg, Josef; and Hilbig, Manfred, 4,395,164, Cl. 406-74.000.
- Texaco, Inc.: See—
Larkin, John M., 4,395,578, Cl. 585-10.000.
- Sweeney, William M., 4,395,267, Cl. 44-56.000.
- Tezuka, Nobuo, to Canon Kabushiki Kaisha. Film winding device for camera. 4,395,103, Cl. 354-212.000.
- Theiler, Richard F., to Armour and Company. Process for preparing cooked meat having reduced levels of N-nitrosamines. 4,395,428, Cl. 426-266.000.
- Therma-Plex Corporation: See—
Wyner, Jay S., 4,395,457, Cl. 428-312.400.
- Thermo King Corporation: See—
Brownfield, Jerry A.; Sandberg, Richard J.; Niemi, Thomas J.; and Howland, Leland L., 4,394,818, Cl. 62-239.000.
- Thibodeaux, Francis. Multifunction, multipurpose construction tool. 4,394,801, Cl. 33-496.000.
- Thiokol Corporation: See—
Bakken, Gordon J.; Randall, Alfred R.; and Bodily, Richard W., 4,395,143, Cl. 384-221.000.
- Thoma, Nandor G.: See—
Cases, Moises; Kraft, Wayne R.; Moore, Victor S.; Stahl, William L., Jr.; and Thoma, Nandor G., 4,395,646, Cl. 307-468.000.
- Thomas, Roy L.: See—
Bergman, Carl A.; Thomas, Roy L.; and Bourbeau, Richard A., 4,395,036, Cl. 271-171.000.
- Thome, Ludwig; Wanner, Karl; and Brethauer, Karlheinz, to Robert Bosch GmbH. Linear electromagnetic vibrator. 4,395,649, Cl. 310-15.000.
- Thomson - CSF: See—
Frileux, Jean, 4,395,736, Cl. 358-213.000.
- Thor, Gunter; Stoffer, Albert; and Mehl, Dietholf, to Henkel Kommanditgesellschaft auf Aktien. Dispenser container for viscous fluids. 4,394,939, Cl. 222-207.000.
- Thorsell Holdings Ltd.: See—
Thorsell, Stanley E., 4,394,808, Cl. 52-483.000.
- Thorsell, Stanley E., to Robert S. Agar, Inc.; Thorsell Holdings Ltd.; and Mudlake Holdings Ltd. Fastener for attaching panel to stud. 4,394,808, Cl. 52-483.000.
- Thuy, N'Guyen U., to Societe CEM Compagnie Electro-Mecanique & Cie SNC. D.C. Series excited traction motor capable of operating with a continuous current power supply. 4,395,666, Cl. 318-139.000.
- Tieszen, Dale O.: See—
Blackwell, Jennings P.; Tieszen, Dale O.; and Scruggs, Jack G., 4,395,509, Cl. 524-127.000.
- Timar, Thomas: See—
MacDonell, Wayne O.; Graves, Donald L.; and Timar, Thomas, 4,395,178, Cl. 414-138.000.
- Timex Corporation: See—
Frantz, Richard J., 4,395,135, Cl. 368-63.000.
- Timmermans, Francis; and Vandervorst, Jean, to Jeumont-Schneider. Pump safety device. 4,395,048, Cl. 277-65.000.
- TMC Corporation: See—
Wittmann, Heinz, 4,395,054, Cl. 280-605.000.
- Todd, Robert J.; and Reynolds, Gordon S., to Sorenson Research Co., Inc. Drip chamber. 4,395,260, Cl. 604-122.000.
- Togami, Henry K.: See—
Ritter, Don F.; St. Clair, Jack A.; and Togami, Henry K., 4,394,882, Cl. 175-89.000.
- Togawa, Hideo: See—
Yoda, Kenichi; Togawa, Hideo; Ogawa, Eizou; and Kayahara, Masao, 4,395,136, Cl. 368-156.000.
- Tohoku Kinzoku Kogyo Kabushiki Kaisha: See—
Tanaka, Hiroto; Kohno, Yasumasa; Tanaka, Hideyuki; and Sasaki, Kotaro, 4,395,746, Cl. 361-143.000.
- Tokai Electric Wire Company Limited: See—
Inoue, Nori, 4,395,085, Cl. 339-94.00R.
- Tokico Ltd.: See—
Oshima, Harumi, 4,394,891, Cl. 188-73.380.
- Tokunaga, Koichi: See—
Tsurimoto, Hidetoshi; Tokunaga, Koichi; and Schonfeldt, Martin K., 4,395,175, Cl. 414-21.000.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
Iwahashi, Hiroshi; and Asano, Masamichi, 4,395,724, Cl. 357-23.0VT.
- Maeguchi, Kenji, 4,395,726, Cl. 357-41.000.
- Nagakubo, Yoshihide; and Kohyama, Susumu, 4,395,433, Cl. 427-35.000.
- Nakajima, Shunichi; and Odaira, Hiroshi, 4,395,109, Cl. 355-3.0FU.
- Sanpei, Hideo; Matsuno, Kunio; Hirano, Shyoji; and Kumagai, Katuya, 4,395,435, Cl. 427-38.000.
- Tada, Isao; Okamura, Toshio; Kousaka, Akira; and Nakai, Kaichiro, 4,395,657, Cl. 315-39.710.
- Tominaga, Shinobu, to Alps Electric Co., Ltd. Pulse switch. 4,395,604, Cl. 200-74.000.
- Tomizawa, Fumio; Sobata, Katsutoshi; Yoshimatsu, Yoshiaki; Saito, Sadayuki; Otani, Takashi; and Hirano, Senzaburo, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha; and Kawasaki Seitetsu Kabushiki Kaisha. Shroud for steel making electric-arc furnace. 4,395,023, Cl. 266-158.000.
- Tonn, Klaus, to VEB Kombinat Polygraph Werner Lamberz: Leipzig. Non-linear control arrangement for printing machines. 4,395,667, Cl. 318-309.000.
- Tonomura, Takashi, to Kabushiki Kaisha Fujikoshi. Quick-change holder. 4,395,051, Cl. 279-75.000.
- Toray Industries, Inc.: See—
Hasegawa, Katsumi; Kawabata, Takahiro; and Kuge, Shintaro, 4,394,986, Cl. 242-18.00R.
- Kashiwagi, Michio; and Nakajima, Kiichi, 4,395,485, Cl. 430-903.000.
- Nakanishi, Toshiharu; Suzuki, Miyo; and Ohigashi, Hiroji, 4,395,652, Cl. 310-334.000.
- Torck, Bernard: See—
Juguin, Bernard; Miquel, Jean; Hellin, Michel; and Torck, Bernard, 4,395,580, Cl. 585-639.000.
- Torelli, Vesperto; Deraedt, Roger; and Nedelec, Lucien, to Roussel Uclaf. Novel steroids. 4,395,408, Cl. 424-238.000.
- Torii, Kiyofumi: See—
Shimada, Minoru; and Torii, Kiyofumi, 4,395,623, Cl. 219-544.000.
- Torisu, Yoshio; Sakurai, Shigenori; Kamo, Takashi; and Furutani, Toshinobu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Lean sensor. 4,395,319, Cl. 204-426.000.
- Torrington Company, The: See—
Lobeck, John H., 4,395,142, Cl. 384-192.000.
- Torta, Mario, to Lifel di Torta E. C. S.A.S. Mounting and guiding device for adjustable motor vehicle seats. 4,395,011, Cl. 248-393.000.
- Toshiba Electric Equipment Corporation: See—
Aoike, Nanjou; Inui, Kenichi; and Koshimura, Yasunobu, 4,395,659, Cl. 315-209.00R.
- Toshiba Silicones, Ltd.: See—
Shimizu, Chiuyuki; and Hosokawa, Kiyoshi, 4,395,443, Cl. 427-387.000.
- Toshio, Ikeda. Combustion apparatus. 4,394,839, Cl. 110-234.000.
- Toumani, Rouben, to Bell Telephone Laboratories, Incorporated. Transformerless noninverting buck boost switching regulator. 4,395,675, Cl. 323-271.000.
- Toyama Chemical Co., Ltd.: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Toyama, Noboru; and Oyamada, Yoshinori, to Hitachi, Ltd. Method of fabricating cathode-ray tube. 4,395,243, Cl. 445-6.000.
- Toyo Communication Equipment Co., Ltd.: See—
Naito, Yukio; Tamura, Masahide; and Takahashi, Shigeo, 4,395,776, Cl. 455-119.000.
- Toyo Electronics Corporation: See—
Tsutsumi, Kazuhiro; Tanoue, Genichiro; and Takaya, Yoshiaki, 4,395,705, Cl. 340-520.000.
- Toyo Seikan Kaisha, Ltd.: See—
Kunimoto, Go; Ichinose, Isao; Suzuki, Noboru; and Mori, Fumio, 4,395,446, Cl. 428-35.000.
- Taira, Kazuo; Morofuji, Akihiko; and Ueno, Hiroshi, 4,395,538, Cl. 528-272.000.
- Toyoda, Toshihiro; Kawamata, Motoo; Osawa, Masanori; Itoh, Masayoshi; Mizutani, Kazumi; and Kono, Masahiro, to Mitsui Toatsu Chemical Incorporated. Process for the preparation of polyamide compounds by the reaction of polycarboxylic acids with diisocyanates in the presence of at least one mono-alkali metal salt of dicarboxylic acid. 4,395,531, Cl. 528-49.000.
- Toyono, Tsutomu: See—
Kanbe, Junichiro; Toyono, Tsutomu; Hosono, Nagao; and Takahashi, Tohru, 4,395,476, Cl. 430-102.000.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,394,827, Cl. 74-868.000.
- Torisu, Yoshio; Sakurai, Shigenori; Kamo, Takashi; and Furutani, Toshinobu, 4,395,319, Cl. 204-426.000.
- Traub, Stefan, to Hewlett-Packard GmbH. Sine-shaping circuit. 4,395,642, Cl. 307-261.000.
- Trested, Warren C., Jr., to Bell Telephone Laboratories, Incorporated. Line protection switch controller. 4,395,772, Cl. 375-40.000.
- Trochoid Power Corporation: See—
Hoffmann, Benjamin, 4,395,206, Cl. 418-61.00A.
- TRW Inc.: See—
McKee, William H., 4,395,089, Cl. 350-96.200.
- Tschirch, Richard P.; and Sidman, Kenneth R., to United States of America, National Aeronautics and Space Administration. Heat sealable, flame and abrasion resistant coated fabric. 4,395,511, Cl. 524-371.000.
- TSI Incorporated: See—
DuVall, Zell, 4,394,825, Cl. 73-861.090.
- Tsuchiya, Yoshikazu: See—
Sato, Makoto; Ohmori, Taiji; and Tsuchiya, Yoshikazu, 4,395,761, Cl. 364-426.000.
- Tsuda, Hiroshi; Miyashita, Kiyoshi; Shimizu, Akira; Nishikawa, Masaji; and Kasuga, Muneko, to Olympus Optical Co. Ltd. Conveyor unit for book carrier in electro-photographic copying machines. 4,395,115, Cl. 355-25.000.
- Tsurimoto, Hidetoshi; Tokunaga, Koichi; and Schonfeldt, Martin K., to Mescio, Inc.; and Copper Refineries Pty. Ltd. Process for treating scrap anodes and apparatus therefor. 4,395,175, Cl. 414-21.000.

- Tsutsui, Ken: See—
Sasano, Akira; Nakano, Toshio; Tsutsui, Ken; Hashimoto, Michiaki; Kaneko, Tadao; Taniguchi, Yoshio; Matsumaru, Haruo; and Izumi, Akiya, 4,395,629, Cl. 250-226.000.
- Tsutsui, Kazuhiro; Tanoue, Genichiro; and Takaya, Yoshiaki, to Toyo Electronics Corporation. Trouble-shooting circuit with first-failure identification capability. 4,395,705, Cl. 340-520.000.
- Tuckey, Charles H.; and Romig, Alan D., to Walbro Corporation. Cowl mounted pulse control start valve. 4,394,852, Cl. 123-187.50R.
- Turner, Richard L. Oil well pump. 4,395,204, Cl. 417-554.000.
- Turtle Tractor Company: See—
Whyte, Garry R., 4,395,186, Cl. 414-528.000.
- Tyler, David L.: See—
Lundy, Rene R.; and Tyler, David L., 4,395,600, Cl. 179-1.50M.
- Tyler, Loren E. Positioning apparatus for boom structures. 4,394,968, Cl. 239-167.000.
- Tyszkiewicz, Theodore J.: See—
Boden, Richard M.; Tyszkiewicz, Theodore J.; and Licciardello, Michael, 4,395,370, Cl. 260-463.000.
- U.C. Industries: See—
Phipps, Arthur L.; and Stoyanov, Ben, 4,395,214, Cl. 425-214.000.
- Uchidoi, Masanori; and Urushihara, Kazunobu, to Canon Kabushiki Kaisha. Shutter time control circuit. 4,395,098, Cl. 354-23.00D.
- UCO Optics, Inc.: See—
Wittmann, Joseph W.; and Evans, John M., 4,395,496, Cl. 523-107.000.
- Ueda, Koichiro: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichiro; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihide; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.
- Ueda, Shinjiro: See—
Yoshinaga, Yoichi; Nishida, Hideo; and Ueda, Shinjiro, 4,395,197, Cl. 415-211.000.
- Ueno, Hiroshi: See—
Taira, Kazuo; Morofuji, Akihiko; and Ueno, Hiroshi, 4,395,538, Cl. 528-272.000.
- Ueno, Susumu: See—
Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,395,434, Cl. 427-38.000.
- Ukmar, Boris: See—
Giacone, Felice; Becchi, Raffaele; and Ukmar, Boris, 4,395,145, Cl. 400-59.000.
- Ulsky, Carl M., to KACA Corporation. Tire and refuse shredder. 4,394,983, Cl. 241-243.000.
- Ulvelling, Leon, to Paul Wurth S.A. Fluidization and distribution. 4,395,166, Cl. 406-124.000.
- Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuharu, to Zaidan Hojin Biseibutsu Kagaku Kankyu Kai. Analgesic agent. 4,395,402, Cl. 424-177.000.
- Undheim, Kjell: See—
Gacke, Mikkel J.; Oftebro, Reidar; Laland, Soren; and Undheim, Kjell, 4,395,406, Cl. 424-180.000.
- Ungar, Israel S.: See—
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- Horton, Richard F., 4,395,095, Cl. 350-504.000.
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- Vinals, Joaquin F.: See—
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- Voorhis, Roger J., to Carrier Corporation. Heat pump system. 4,394,816, Cl. 62-205.000.
- Vossen, John L., Jr.; and Zelez, Joseph, to RCA Corporation. Transparent conductive film having areas of high and low resistivity. 4,395,467, Cl. 428-697.000.
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- Walter, Friedrich C., to Argus Verwaltungsgesellschaft mbH. Valve construction for quick-closure coupling. 4,394,874, Cl. 137-614.020.
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- Wang, Carl C. T.; Charles, Steve; and Buckingham, Joseph T., to Cooper Medical Devices. Linear intra-ocular suction device. 4,395,258, Cl. 604-65.000.
- Wang, Daniel I. C.; and Avgerinos, George C., to Massachusetts Institute of Technology. Selective solvent extraction of cellulosic material. 4,395,543, Cl. 536-56.000.
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- Ward, Irl E.; Hallquist, Lisa G.; and Hurley, Thomas J., to J. T. Baker Chemical Company. Stripping compositions and methods of stripping resists. 4,395,479, Cl. 430-258.000.
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- Watanabe, Junichi: See—
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- Webb Company, The: See—
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- Wedekind, Robert J.: See—
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- Weidenhammer, Peter: See—
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- Weiss, Anton, to Waagner-Biro A.G. Method for treatment of waste metal and liquid dross. 4,394,978, Cl. 241-23.000.
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- Welsh, Charles J., to Kerr-McGee Refining Corporation. Process for removing hydrogen sulfide from sour gas streams. 4,395,385, Cl. 423-234.000.
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- Werner & Pfeiderer: See—
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- West Company, The: See—
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- West, William T.: See—
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- Western Electric Co., Inc.: See—
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- Kent, William C., 4,395,028, Cl. 269-50.000.
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- Einolf, Charles W., Jr.; Szabo, Andras I.; and Crew, Albert W., 4,395,710, Cl. 340-825.500.
- Gottlieb, Milton; and Brandt, Gerald B., 4,395,702, Cl. 340-347.0AD.
- Isenberg, Arnold O., 4,395,468, Cl. 429-31.000.
- Rizzelli, Frank D.; and Papadopoulos, Kimon, 4,395,432, Cl. 427-34.000.
- Sherwood, Edward F.; and Orndorff, Karl B., 4,394,809, Cl. 52-512.000.
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- Weston, William A. Float operated reed switches. 4,395,605, Cl. 200-84.00C.
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- Whaley, Morris L. Self-leveling boat trailer. 4,395,185, Cl. 414-483.000.
- Wharton, James H.; and James, Jack E., to RCA Corporation. Video disc slow down processor with reverse color detector/corrector. 4,395,737, Cl. 358-312.000.
- White, David. Adjustable basketball goal. 4,395,040, Cl. 273-1.50R.
- White, Dwain M.: See—
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- White, Jack D., to Sprague Electric Company. Low inductance electrolytic capacitor. 4,395,747, Cl. 361-433.000.
- White, Mary A.; Beers, Melvin D.; Lucas, Gary M.; Smith, Robert A.; and Swiger, Roger T., to General Electric Company. One package, stable, moisture curable, polyalkoxy-terminated organopolysiloxane compositions and method for making. 4,395,526, Cl. 528-18.000.
- Whitehurst, Darrell D.: See—
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- Whitener, Philip C., to Boeing Company. The. Composite structural skin spar joint and method of making. 4,395,450, Cl. 428-116.000.
- Whiteside, Darwin L. Wetting tension treating apparatus and method. 4,395,317, Cl. 204-165.000.
- Whitman, Alfred, to Sprague Electric Company. Chemical etching of aluminum capacitor foil. 4,395,305, Cl. 156-665.000.
- Whitney, John A.; and Rosenbrock, Richard, to Franklin Electric Co., Inc. Air flow and condition responsive damper. 4,394,958, Cl. 236-49.000.
- Whyte, Garry R., to Turtle Tractor Company. Vehicle for tending low growing vegetation. 4,395,186, Cl. 414-528.000.
- Whyte, Lance. Waste fluid receptacle. 4,394,877, Cl. 141-98.000.
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- Wilber, Dennis A., to Cummins Engine Company, Inc. Solenoid operated fuel injector and control valve. 4,394,962, Cl. 239-88.000.
- Wiley, Wallace F. Synchronizing system for oscillating mechanism. 4,395,137, Cl. 368-179.000.
- Williams, Douglas J., to EECO Incorporated. Electro-acoustical structure. 4,395,589, Cl. 179-1.0SW.
- Williams, Earl W.: See—
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- Willis, Carl L.: See—
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- Wilson, Clive J., to Midland-Ross Corporation. Liner plate for grinding mills. 4,394,982, Cl. 241-183.000.
- Wilson, Edwin B.; Eben, C. Frederick; Meyer, Charles L.; and Schaefer, Charles W., to Bethlehem Steel Corporation. Transition plate for a mine roof truss. 4,395,161, Cl. 405-259.000.
- Wilson, John T.: See—
Wilson, Lois B.; Wilson, John T.; and Geever, Robert F., 4,395,486, Cl. 435-6.000.
- Wilson, Lois B.; Wilson, John T.; and Geever, Robert F., to Medical College of Ga. Research Inst., Inc. Method for the direct analysis of sickle cell anemia. 4,395,486, Cl. 435-6.000.
- Wimmer, Hans, to West Company, The. Rubber stopper with plastic pull ring. 4,394,922, Cl. 215-300.000.
- Winer, Brian A. Vegetation stem cutting apparatus. 4,394,796, Cl. 30-178.000.
- Winn, Klaus; Engelbach, Klaus-Ludwig; and Schnirch, Leo, to Weyel KG Visuelle Einrichtungen. Construction set for the manufacture of frames for furniture. 4,395,080, Cl. 312-257.00R.
- Wire Lab Company: See—
Stalson, Stanley L.; and Johns, William H., 4,394,786, Cl. 15-306.00A.
- Wirholm, Stig; and Berggren, Soren, to Tellus Maskin AB. Loading device. 4,395,183, Cl. 414-416.000.
- Wirth, David: See—
MacPhee, John; Wirth, David; and St. John, John, 4,394,870, Cl. 137-99.000.
- Wirz, Armin: See—
Graf, Felix; and Wirz, Armin, 4,394,985, Cl. 242-18.0DD.
- Wirz, Peter, to Klinger AG. Sealing arrangement specifically for shut off devices. 4,395,050, Cl. 277-236.000.
- Wissinger, Lawrence H. Lantern holder. 4,395,013, Cl. 248-558.000.
- Wittman, Leroy L.; and Jensen, Lyle B., to FMC Corporation. Heavy duty crane. 4,394,911, Cl. 212-189.000.
- Wittmann, Heinz, to TMC Corporation. Ski brake. 4,395,054, Cl. 280-605.000.
- Wittmann, Joseph W.; and Evans, John M., to UCO Optics, Inc. Cured cellulose ester, method of curing same, and use thereof. 4,395,496, Cl. 523-107.000.
- Wohlfart, Walter: See—
Scheidemann, Hans; Rieth, Alois; Sebralla, Bruno; and Wohlfart, Walter, 4,395,750, Cl. 362-239.000.
- Wolf, Horst: See—
Eistetter, Klaus; Rapp, Erich; and Wolf, Horst, 4,395,414, Cl. 424-258.000.
- Wolfe, James F.: See—
St. Clair, Terry L.; Wolfe, James F.; and Greenwood, Thomas D., 4,395,540, Cl. 528-345.000.
- Wolff, John S., III; Hemsworth, George R.; and Jensen, Keith E., to Pfizer Inc. Use of lipid amines formulated with fat or lipid emulsions as vaccine adjuvants. 4,395,394, Cl. 424-88.000.
- Wolff, Kenneth T.: See—
Manktelow, Gerald; and Wolff, Kenneth T., 4,395,663, Cl. 315-403.000.
- Wolgemuth, Richard L., to Adria Laboratories Inc. Method for treating kidney stones. 4,395,392, Cl. 424-78.000.
- Womble, Larry E. Chain link repair device. 4,394,810, Cl. 59-7.000.
- Wondergem, Hendrik M.; and Kaldenbach, Robert J. Frequency counter. 4,395,762, Cl. 364-484.000.
- Wong, Simon F., to Sperry Corporation. Spindle assembly. 4,395,077, Cl. 308-189.00A.
- Woo, Edmund P.: See—
Bertram, James L.; and Woo, Edmund P., 4,395,533, Cl. 528-77.000.
- Wood, Laurior A.; and Humphries, Donald N. Chip coater. 4,394,844, Cl. 118-260.000.
- Wood, Obert R., II: See—
Silfvast, William T.; Szeto, Leo H.; and Wood, Obert R., II, 4,395,770, Cl. 372-62.000.
- Wristers, Harry J., to Exxon Research & Engineering Co. Titanium trichloride catalyst complex and process for the production thereof. 4,395,358, Cl. 252-429.00B.
- Wurster, Rudolf F.: See—
Haase, Jeroslav; Liechti, Peter; Wegmuller, Hans; Wurster, Rudolf F.; and Bowes, Quentin, 4,395,546, Cl. 544-168.000.
- Wurthman, Gunther E., to United States of America, Army. High power gyrotron (OSC) or gyrotron type amplifier using light weight focusing for millimeter wave tubes. 4,395,655, Cl. 315-4.000.
- Wyffels, Achiel, to Constructie Werkhuizen Vandekerckhove N.V. Stirring gear with internal heating. 4,395,132, Cl. 366-147.000.
- Wyner, Jay S., to Thermo-Plex Corporation. Thermal insulating and waterproofing of masonry structures by entrapment of multilayered dead air spaces with use of high speed injected liquid-air stream. 4,395,457, Cl. 428-312.400.
- Xerox Corporation: See—
Crean, Peter A.; Schneider, John M.; and Lipani, Anthony F., 4,395,716, Cl. 346-1.100.
- Grover, Joel W.; and Fischbeck, Kenneth H., 4,395,720, Cl. 346-140.00R.
- Hauser, Oscar G.; and Ruckdeschel, Frederick R., 4,395,471, Cl. 430-45.000.
- Yagi, Akira: See—
Noda, Kanji; Nakagawa, Akira; Haraguchi, Yasushi; Ueda, Koichiro; Hirano, Munehiko; Nishioka, Itsuo; Yagi, Akira; Koda, Akihide; and Ide, Hiroyuki, 4,395,405, Cl. 424-180.000.

- Yamada Electric Industries, Co. Ltd.: See—
Harigai, Hiroshi, 4,395,619, Cl. 219-377.000.
- Yamaguchi, Masaru: See—
Komori, Shigehiro; and Yamaguchi, Masaru, 4,395,118, Cl. 355-75.000.
- Yamamoto, Hiroji, to Bee Brand Medico Dental Co., Ltd. Dental hemostatic composition. 4,395,398, Cl. 424-145.000.
- Yamamoto, Hisashi: See—
Suzuki, Kiyoaki; Watanabe, Masaru; Yamamoto, Hisashi; Hayashi, Tomoharu; and Miura, Takuji, 4,395,597, Cl. 179-115.50R.
- Yamamoto, Takaji: See—
Kondo, Yoshikazu; Yamamoto, Toshihiro; and Yamamoto, Takaji, 4,395,377, Cl. 264-46.100.
- Yamamoto, Toshihiro: See—
Kondo, Yoshikazu; Yamamoto, Toshihiro; and Yamamoto, Takaji, 4,395,377, Cl. 264-46.100.
- Yamamoto, Yujiro. Low energy relay using piezoelectric bender elements. 4,395,651, Cl. 310-317.000.
- Yanada, Shigeo: See—
Shimizu, Senzo; Nomura, Isao; Harada, Masahiro; Usui, Motohachi; Taniyama, Susumu; and Yanada, Shigeo, 4,395,534, Cl. 528-126.000.
- Yano, Masayoshi; and Hirose, Fuminori, to Matsushita Electric Industrial Co., Ltd. Plastic molded mesh screen covering for audio cabinets. 4,395,079, Cl. 312-7.100.
- Yano, Yasuhiro: See—
Eida, Tsuyoshi; Yano, Yasuhiro; Haruta, Masahiro; Matsufuji, Yohji; and Ohta, Tokuya, 4,395,288, Cl. 106-22.000.
- Yasuda, Takashi: See—
Saikawa, Isamu; Takano, Shuntaro; Imaizumi, Hiroyuki; Takakura, Isamu; Ochiai, Hirokazu; Yasuda, Takashi; Taki, Hideo; Tai, Masaru; and Kodama, Yutaka, 4,395,412, Cl. 424-246.000.
- Yasuhiro, Shuji; and Naka, Shinichi, to Sharp Kabushiki Kaisha. Discharge type ignitor for oil stove. 4,395,229, Cl. 431-261.000.
- Yeich, William R.: See—
Franken, Jeffrey J.; Gladney, Walter W.; and Yeich, William R., 4,395,219, Cl. 425-405.00R.
- Yoda, Kenichi; Togawa, Hideo; Ogawa, Eizou; and Kayahara, Masao, to Matsushita Electric Works, Ltd.; and Matsushita Electric Industrial Co., Ltd. Electronic timer. 4,395,136, Cl. 368-156.000.
- Yohji, Terui; Isao, Koga; and Nobumasa, Ohtake, to Chisso Corporation. Vinylidene-silicon-compound and a process for its production. 4,395,562, Cl. 556-431.000.
- Yokobori, Nobuyoshi; Maeda, Tetsuo; and Igarashi, Yoshiaki, to Matsushita Electric Industrial Co., Ltd. Differential output circuit. 4,395,682, Cl. 330-260.000.
- Yonezawa, Kazuya; Asada, Masahiro; and Matsuura, Miyuki, to Kanagafuchi Kagaku Kogyo Kabushiki Kaisha. Polyether resin and method of manufacturing the same. 4,395,537, Cl. 528-219.000.
- Yoshida, Akira: See—
Ohki, Eiji; Oida, Sadao; Yoshida, Akira; Hayashi, Teruo; and Sugawara, Shinichi, 4,395,418, Cl. 424-270.000.
- Yoshida, Gen: See—
Terakado, Ryoji; Iwasa, Masaru; Takahashi, Ituo; Anzawa, Norio; and Yoshida, Gen, 4,395,021, Cl. 266-85.000.
- Yoshimatsu, Yoshiaki: See—
Tomizawa, Fumio; Sobata, Katsutoshi; Yoshimatsu, Yoshiaki; Saito, Sadayuki; Otani, Takashi; and Hirano, Senzaburo, 4,395,023, Cl. 266-158.000.
- Yoshinaga, Yoichi; Nishida, Hideo; and Ueda, Shinjiro, to Hitachi, Ltd. Centrifugal fluid machine. 4,395,197, Cl. 415-211.000.
- Yoshioka, Yoshitomo, to K.K. Yoshioka Seisakusho. Automatic apparatus for supplying a fixed quantity of particle or powder. 4,394,942, Cl. 222-361.000.
- Young, Gary A.: See—
Swenson, Gerald R.; Swenson, Emil S.; and Young, Gary A., 4,394,784, Cl. 5-453.000.
- Young, John H.: See—
De Cosmo, Anthony R.; and Young, John H., 4,395,195, Cl. 415-137.000.
- Young, John W. Book holder. 4,395,057, Cl. 281-42.000.
- Young, Robert F.: See—
Hall, Charles B.; McBride, Edward D.; and Young, Robert F., 4,395,239, Cl. 440-61.000.
- Young, Rodney C.: See—
Durant, Graham J.; Ganellin, Charon R.; and Young, Rodney C., 4,395,419, Cl. 424-270.000.
- Yuen, Aubrey; and Battista, William P. Apparatus and method for locating and presenting pre-recorded information. 4,395,740, Cl. 360-72.200.
- Zabelka, Jaroslav. Hot gas cooler for a coal gasification plant. 4,395,268, Cl. 48-67.000.
- Zaccheroni, Giulio, to S.p.A. Officine Maccaferri gia Raffaele Maccaferri & Figli. Process for making gabions provided with inner partitions. 4,394,924, Cl. 220-19.000.
- Zaffrann, Albert A.; Borchardt, Robert E.; and Nelson, Grant W., to Allen-Bradley Company. Disconnect switch with line-side contact module. 4,395,606, Cl. 200-144.00R.
- Zahl, Gero: See—
Oeckl, Siegfried; Zahl, Gero; and Radt, Walter, 4,395,371, Cl. 260-464.000.
- Zahniser, David J.; and Garcia, Gerardo L., to Coulter Electronics, Inc. Monolayer device using filter techniques. 4,395,493, Cl. 435-289.000.
- Zaidan Hojin Biseibutsu Kagaku Kankyu Kai: See—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hachisu, Mitsugu; Kawamura, Kenji; Fukatsu, Shunzo; and Sekizawa, Yasuharu, 4,395,402, Cl. 424-177.000.
- Zambrano, Adolfo R., to Hanna Mining Company, The. Recovery of nickel from waste materials. 4,395,315, Cl. 204-112.000.
- Zayats, Valery I.: See—
Medovar, Boris I.; Gladky, Evgeny D.; Bondarenko, Oleg P.; Chekoto, Leonty V.; Zayats, Valery I.; Egorov, Sergei P.; and Skosnyagin, Jury A., 4,395,771, Cl. 373-49.000.
- Zbrojovka Vsetin, narodni podnik: See—
Hruby, Jan; and Pleskac, Karel, 4,394,988, Cl. 242-47.120.
- Zelev, Joseph: See—
Vossen, John L., Jr.; and Zelev, Joseph, 4,395,467, Cl. 428-697.000.
- Zenith Radio Corporation: See—
Krenz, Horst M., 4,395,151, Cl. 400-320.000.
- Rypkema, Jouke N., 4,395,734, Cl. 358-194.100.
- Ziegler, Hans: See—
Hagen, Helmut; Ziegler, Hans; Mappes, Celia J.; and Pommer, Ernst-Heinrich, 4,395,415, Cl. 424-263.000.
- Zimin, Vladimir M.: See—
Golubkov, Sergei V.; Druzhinin, Ernest A.; Zimin, Vladimir M.; Kubasov, Vladimir L.; Lvovich, Florenty I.; and Mazanko, Anatoly F., 4,395,314, Cl. 204-98.000.
- Zimmer, Max: See—
Mathis, Paul; and Zimmer, Max, 4,395,128, Cl. 366-18.000.
- Zimmermann, Rolf: See—
Fischer, Hannes; and Zimmermann, Rolf, 4,395,525, Cl. 526-307.600.
- Zinaida, Zosim: See—
Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,395,353, Cl. 252-356.000.
- Gutnick, David L.; Rosenberg, Eugene; Belsky, Igal; and Zinaida, Zosim, 4,395,354, Cl. 252-356.000.
- Zinger, William H.: See—
Philippides, Constantinos; and Zinger, William H., 4,395,773, Cl. 375-116.000.
- Zobel, Siegfried: See—
Luhrig, Hermann; Hoffacker, Franz; Kovacic, Guido; Engelsmann, Dieter; Zobel, Siegfried; Hackenberg, Hubert; and Wagner, Karl, 4,395,107, Cl. 354-275.000.
- Zysset, Edgar H., to General Can Company, Inc. Metallic convenience closure. 4,394,927, Cl. 220-273.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF JULY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Amery, John G.; and Jorgenson, Robert W., to RCA Corporation. Signal translating apparatus for composite signal subject to jitter. Re. 31,326, Cl. 358-322.000.
 Apotheker, David, deceased (by Delaware, Bank of, executor), to Du Pont de Nemours, E. I., and Company. Fluorine containing organo-silicon compounds. Re. 31,324, Cl. 556-445.000.
 Audi NSU Auto Union Aktiengesellschaft: See—
 Hoser, Alfred, Re. 31,320, Cl. 123-549.000.
 Crapo, Roland L., to Superior Electric Company, The. Stepping AC line voltage regulator. Re. 31,325, Cl. 323-263.000.
 Delaware, Bank of, executor: See—
 Apotheker, David, deceased, Re. 31,324, Cl. 556-445.000.
 Du Pont de Nemours, E. I., and Company: See—
 Apotheker, David, deceased, Re. 31,324, Cl. 556-445.000.
 Field, Nathan D.: See—
 Marder, Herman L.; Field, Nathan D.; and Shinohara, Makoto, Re. 31,323, Cl. 536-87.000.
 Halm Industries Co. Inc.: See—
 Harrison, Henry, deceased, Re. 31,321, Cl. 126-422.000.
 Handa, Kohichi: See—
 Ohishi, Tetsu; Handa, Kohichi; and Ueno, Haruo, Re. 31,322, Cl. 526-230.000.
 Harrison, Dorothy D., administratrix: See—
 Harrison, Henry, deceased, Re. 31,321, Cl. 126-422.000.
 Harrison, Henry, deceased (by Harrison, Dorothy D., administratrix), to Halm Industries Co. Inc. Solar heating system. Re. 31,321, Cl. 126-422.000.
 Hoser, Alfred, to Audi NSU Auto Union Aktiengesellschaft. Self-regulating heater. Re. 31,320, Cl. 123-549.000.
 International Playtex, Inc.: See—
 Marder, Herman L.; Field, Nathan D.; and Shinohara, Makoto, Re. 31,323, Cl. 536-87.000.
 Jorgenson, Robert W.: See—
 Amery, John G.; and Jorgenson, Robert W., Re. 31,326, Cl. 358-322.000.
 Marder, Herman L.; Field, Nathan D.; and Shinohara, Makoto, to International Playtex, Inc. Preparation of water-insoluble carboxy-methyl cellulose absorbents. Re. 31,323, Cl. 536-87.000.
 Nippon Zeon Co. Ltd.: See—
 Ohishi, Tetsu; Handa, Kohichi; and Ueno, Haruo, Re. 31,322, Cl. 526-230.000.
 Ohishi, Tetsu; Handa, Kohichi; and Ueno, Haruo, to Nippon Zeon Co. Ltd. Process for producing sulfur-curable acrylic rubbers. Re. 31,322, Cl. 526-230.000.
 Peterson, Max E., to Rockwell International Corporation. Proportional digital control for radio frequency synthesizers. Re. 31,327, Cl. 455-157.000.
 RCA Corporation: See—
 Amery, John G.; and Jorgenson, Robert W., Re. 31,326, Cl. 358-322.000.
 Rockwell International Corporation: See—
 Peterson, Max E., Re. 31,327, Cl. 455-157.000.
 Shinohara, Makoto: See—
 Marder, Herman L.; Field, Nathan D.; and Shinohara, Makoto, Re. 31,323, Cl. 536-87.000.
 Superior Electric Company, The: See—
 Crapo, Roland L., Re. 31,325, Cl. 323-263.000.
 Ueno, Haruo: See—
 Ohishi, Tetsu; Handa, Kohichi; and Ueno, Haruo, Re. 31,322, Cl. 526-230.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

Cenker, Ronald P.; and Procyk, Frank J., to Bell Telephone Laboratories Incorporated. Memory with redundant rows and columns. B1 4,228,528, Cl. 365—200.
 Bell Telephone Laboratories Incorporated: See—
 Cenker, Ronald P.; and Procyk, Frank J. B1 4,228,528, Cl. 365—200.

LIST OF DESIGN PATENTEEES

Aho, Yrjo, to Exel Oy. Post for an electric fence. 269,912, 7-26-83, Cl. D25-77.000.
 Albright, Edward E.: See—
 Goodin, John W.; Albright, Edward E.; and Tamura, Amy K., 269,857, Cl. D10-15.000.
 Allison Corporation: See—
 Seltzer, Samuel M.; and Dennison, Saul, 269,868, Cl. D13-10.000.
 Alter, H. Ward, to Terradex Corp. Compact radon detector unit. 269,858, 7-26-83, Cl. D10-47.000.
 Altonaga, Richard C., to New Hermes Incorporated. Picture frame. 269,838, 7-26-83, Cl. D6-242.000.
 American Safety Razor Company: See—
 Iten, Clemens A.; and Chase, David O., 269,915, Cl. D28-46.000.
 Amos, Homer C., to Brunswick Corporation. Ball catching and throwing device. 269,891, 7-26-83, Cl. D21-210.000.
 Amos, Homer C., to Brunswick Corporation. Ball catching and throwing device. 269,892, 7-26-83, Cl. D21-210.000.
 Amos, Homer C., to Brunswick Corporation. Ball catching and throwing device. 269,893, 7-26-83, Cl. D21-210.000.
 Associated Mills, Inc.: See—
 Pruzan, Ira, 269,836, Cl. D6-188.000.
 Bedell, Rickie T.: See—
 Cavnar, Kathryn A.; Ligon, Charles E.; and Bedell, Rickie T., 269,883, Cl. D21-59.000.
 Beer, Thomas E. Physical exercise support. 269,889, 7-26-83, Cl. D21-191.000.
 Beitner, Shlomo, to Bipol Ltd. Refrigerator cabinet suitable for use on railroads and in other vehicles subject to considerable vibration. 269,877, 7-26-83, Cl. D15-81.000.
 Bianchi, John E.; Nichols, Richard D. E.; Pachmayr, Frank A.; Farrar, Jack R.; and Farrar, Frank W., to Bianchi Leather Products, Inc. Handgun grip. 269,895, 7-26-83, Cl. D22-1.000.
 Bianchi Leather Products, Inc.: See—
 Bianchi, John E.; Nichols, Richard D. E.; Pachmayr, Frank A.; Farrar, Jack R.; and Farrar, Frank W., 269,895, Cl. D22-1.000.
 Bipol Ltd.: See—
 Beitner, Shlomo, 269,877, Cl. D15-81.000.
 Brown, Shadrack, Jr. Vestmental pin. 269,861, 7-26-83, Cl. D11-76.000.
 Brunswick Corporation: See—
 Amos, Homer C., 269,891, Cl. D21-210.000.
 Amos, Homer C., 269,892, Cl. D21-210.000.
 Amos, Homer C., 269,893, Cl. D21-210.000.
 Cavnar, Kathryn A.; Ligon, Charles E.; and Bedell, Rickie T., to CPG Products Corp. Combined carrying case and tethered toys. 269,883, 7-26-83, Cl. D21-59.000.
 Cerasari, Nicholas P. Baby bottle medicant device. 269,906, 7-26-83, Cl. D24-47.000.
 Chase, David O.: See—
 Iten, Clemens A.; and Chase, David O., 269,915, Cl. D28-46.000.
 Chubb, Wayne L. Multiple key holder. 269,833, 7-26-83, Cl. D6-114.000.
 Clairol Incorporated: See—
 Kuta, Raymond F., 269,856, Cl. D9-418.000.

LIST OF DESIGN PATENTEEES

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Claman, Mike T., to Lewittes Furniture Enterprises, Inc. Chair. 269,829, 7-26-83, Cl. D6-57.000.
 Clark, Frank, to Tantera, Inc. Angle broom. 269,827, 7-26-83, Cl. D4-03.000.
 Cole National Corporation: See—
 Noble, Howard E., Jr., 269,878, Cl. D15-124.000.
 Combi Co., Ltd.: See—
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,884, Cl. D21-65.000.
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,885, Cl. D21-65.000.
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,886, Cl. D21-65.000.
 Harada, Toshio: See—
 Tanaka, Michio; Yamamura, Masamichi; and Harada, Toshio, 269,840, Cl. D7-351.000.
 Yamamura, Masamichi; and Harada, Toshio, 269,841, Cl. D7-351.000.
 Yamamura, Masamichi; and Harada, Toshio, 269,842, Cl. D7-351.000.
 Hennessy Industries, Inc.: See—
 Holladay, Jim L.; and Leeper, Charles G., 269,879, Cl. D15-199.000.
 Hirabayashi, Tsugio; and Nakai, Michio, to Sony Corporation. Tennis ball projector for training purposes. 269,894, 7-26-83, Cl. D21-210.000.
 Hirsh, Ethan; and Taylor, Michael L. Font of type. 269,881, 7-26-83, Cl. D18-24.000.
 Holladay, Jim L.; and Leeper, Charles G., to Hennessy Industries, Inc. Tire changer. 269,879, 7-26-83, Cl. D15-199.000.
 Humancare International Inc.: See—
 Tong, David P., 269,907, Cl. D24-50.000.
 Huntington, Robert R., to General Electric Company. Telephone handset. 269,874, 7-26-83, Cl. D14-63.000.
 Hutchins, Alma A., to Hutchins Manufacturing Co. Abrading tool. 269,845, 7-26-83, Cl. D8-62.000.
 Hutchins Manufacturing Co.: See—
 Hutchins, Alma A., 269,845, Cl. D8-62.000.
 Iijima, Takekazu, to Pioneer Kabushiki Kaisha. Loudspeaker. 269,870, 7-26-83, Cl. D14-30.000.
 Ishida, Katsuhiko, to Sharp Corporation. Electronic translator. 269,875, 7-26-83, Cl. D14-100.000.
 Ishii, Yoshiyasu: See—
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,884, Cl. D21-65.000.
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,885, Cl. D21-65.000.
 Nakao, Shinroku; Ishii, Yoshiyasu; and Hanashima, Taira, 269,886, Cl. D21-65.000.
 Nakao, Shinroku; Ishii, Yoshiyasu; and Matsumoto, Susumu, 269,887, Cl. D21-162.000.
 Ishizaki, Hideaki, to Pioneer Kabushiki Kaisha. Loudspeaker. 269,871, 7-26-83, Cl. D14-34.000.
 Ishizaki, Hideaki, to Pioneer Kabushiki Kaisha. Loudspeaker. 269,872, 7-26-83, Cl. D14-34.000.
 Iten, Clemens A.; and Chase, David O., to American Safety Razor Company. Disposable safety razor. 269,915, 7-26-83, Cl. D28-46.000.
 Iwasaki, Osamu, to Slik Tripod Co., Ltd. Camera tripod. 269,880, 7-26-83, Cl. D16-45.000.
 Izumisawa, Osamu. Air grinder. 269,846, 7-26-83, Cl. D8-62.000.
 Izumisawa, Osamu. Air grinder. 269,847, 7-26-83, Cl. D8-62.000.
 Jan Stenerud and Company Inc.: See—
 Stenerud, Jan, 269,890, Cl. D21-209.000.
 Johansson, Ake K. Combination articulation rail and connecting bar for screen walls and similar articles. 269,910, 7-26-83, Cl. D25-74.000.
 Johnson, Robert W.; and Doman, Donald W., to Exide Electronics Corporation. Adjustable lamp. 269,913, 7-26-83, Cl. D26-63.000.
 Kabushiki Kaisha Suwa Seikosha: See—
 Tanikawa, Kenji; Uchihori, Noritaka; and Suzuki, Susumu, 269,860, Cl. D10-125.000.
 Kanzaka, Yoshihiro, to Yoshida Kogyo K.K. Hook fastener for garments. 269,824, 7-26-83, Cl. D2-418.000.
 Kimura, Shigeru, to Nifco Inc. Retainer clip for pipes, rods and other elongated bodies or the like. 269,851, 7-26-83, Cl. D8-356.000.
 Knabb, Harry P., to Consolidated Foods Corporation. Bottle retaining support rack. 269,835, 7-26-83, Cl. D6-181.000.
 Ko, Bonnie H. C. Handbag. 269,826, 7-26-83, Cl. D3-44.000.
 Kuta, Raymond F., to Clairol Incorporated. Transparent dispenser box. 269,856, 7-26-83, Cl. D9-418.000.
 Larson, Kenneth W.: See—
 Nagele, Albert L.; and Larson, Kenneth W., 269,873, Cl. D14-53.000.
 Lee, Bruce N. Occasional table. 269,834, 7-26-83, Cl. D6-146.000.
 Leeper, Charles G.: See—
 Holladay, Jim L.; and Leeper, Charles G., 269,879, Cl. D15-199.000.
 Lents, Charles M., to Stainless IceTainer Company. Sanitary countertop machine for storing and dispensing particulate ice and for dispensing beverage. 269,876, 7-26-83, Cl. D15-80.000.
 Leverton, Floyd J. Martial arts mannequin. 269,882, 7-26-83, Cl. D19-59.000.
 Lewittes Furniture Enterprises, Inc.: See—
 Claman, Mike T., 269,829, Cl. D6-57.000.
 Ligon, Charles E.: See—
 Cavnar, Kathryn A.; Ligon, Charles E.; and Bedell, Rickie T., 269,883, Cl. D21-59.000.
 Lodrick, Lawrence. Dog houses. 269,916, 7-26-83, Cl. D30-1.000.
 Lucous, Robert W. Sealing strip. 269,911, 7-26-83, Cl. D25-74.000.
 Matsubara, Hideyuki, to Pioneer Kabushiki Kaisha. Loudspeaker. 269,869, 7-26-83, Cl. D14-30.000.
 Danish Stove Association, ApS: See—
 Sorensen, Winston J. F., 269,901, Cl. D23-97.000.
 Dart Industries Inc.: See—
 Goodin, John W.; Albright, Edward E.; and Tamura, Amy K., 269,857, Cl. D10-15.000.
 Dembricks, Andrew E., to Southern Case, Inc. Tool tray or the like. 269,918, 7-26-83, Cl. D34-44.000.
 Dennison, Saul: See—
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ISSUED JULY 26, 1983

NOTE.—First number, class; second number, subclass; third number, patent number

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453		4,394,784	67		506	4,394,855	84 VF	4,395,595	693	4,395,336	381	4,395,626
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	CLASS 29		123 CB		CLASS 137		339	4,394,894	296	4,394,922	167	4,394,968
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432		4,394,794		CLASS 81	82	4,394,869			329	4,394,924	453	4,394,970
739		4,394,795	9.51		99	4,394,870		4,394,895	69 E	4,395,613		4,394,971
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178		4,394,796	314		315	4,394,872	345	4,394,897	72	4,395,614	585	4,394,973
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139	4,395,345	150	4,395,063	210	4,395,691	21 R	5	4,395,391
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545	4,395,362	116	4,395,075	74	4,395,702	129	250	4,395,411
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	4,395,366	66	4,395,077	520	4,395,706	83	270	4,395,415
	4,395,367	115	4,395,078	685	4,395,707	239	278	4,395,416
10.5	4,395,020	116	4,395,079	703	4,395,708	8	283	4,395,417
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158	4,395,368	264	4,395,081	825.5	4,395,710	134	304	4,395,419
453 P	4,395,369	270	4,395,082	870.31	4,395,711	143	359	4,395,420
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573	4,395,379	317	4,395,092	CLASS 313		900	185	4,395,212
		334	4,395,093	7.1	4,395,720	CLASS 400	211	4,395,213
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265	4,395,026	10	4,395,097	140 R	4,395,725	CLASS 408	413	4,395,219
		15	4,395,098	CLASS 317		CLASS 409	467	4,395,220
25	4,395,027	82	4,395,099	160	4,395,726	CLASS 410	548	4,395,221
50	4,395,028	317	4,395,100	CLASS 318		CLASS 411		4,395,222
57	4,395,029	334	4,395,101	7.1	4,395,727	CLASS 412		4,395,223
181	4,395,030	CLASS 319		257 R	4,395,728	CLASS 413		4,395,224
		4	4,395,102	CLASS 320		CLASS 414		4,395,225
54	4,395,031	39.71	4,395,103	3.7	4,395,729	CLASS 415		4,395,226
CLASS 270		134	4,395,104	96.20	4,395,730	CLASS 416		4,395,227
CLASS 271		209 R	4,395,105	166	4,395,731	CLASS 417		4,395,228
10	4,395,032	291	4,395,106	319	4,395,732	CLASS 418		4,395,229
	4,395,033	360	4,395,107	427	4,395,733	CLASS 419		4,395,230
21	4,395,034	371	4,395,108	441	4,395,734	CLASS 420		4,395,231
97	4,395,035	403	4,395,109	467	4,395,735	CLASS 421		4,395,232
171	4,395,036	CLASS 321		504	4,395,736	CLASS 422		4,395,233
188	4,395,037	112	4,395,110	560	4,395,737	CLASS 423		4,395,234
195	4,395,038	114	4,395,111	CLASS 322		CLASS 424		4,395,235
		139	4,395,112	CLASS 323		CLASS 425		4,395,236
126	4,395,039	309	4,395,113	CLASS 324		CLASS 426		4,395,237
CLASS 272		439	4,395,114	CLASS 325		CLASS 427		4,395,238
CLASS 273		502	4,395,115	CLASS 326		CLASS 428		4,395,239
1.5 R	4,395,040	758	4,395,116	CLASS 327		CLASS 429		4,395,240
119 A	4,395,041	786	4,395,117	CLASS 328		CLASS 430		4,395,241
176 B	4,395,042	CLASS 329		CLASS 329		CLASS 431		4,395,242
239	4,395,043	1	4,395,118	CLASS 330		CLASS 432		4,395,243
253	4,395,044	31	4,395,119	CLASS 331		CLASS 433		4,395,244
312	4,395,045	61	4,395,120	CLASS 332		CLASS 434		4,395,245
424	4,395,046	CLASS 333		CLASS 333		CLASS 435		4,395,246
		210	4,395,121	CLASS 334		CLASS 436		4,395,247
3	4,395,047	263	4,395,122	CLASS 335		CLASS 437		4,395,248
236	4,395,048	271	4,395,123	CLASS 336		CLASS 438		4,395,249
	4,395,049	CLASS 336		CLASS 337		CLASS 439		4,395,250
	4,395,050	71.4	4,395,124	CLASS 338		CLASS 440		4,395,251
CLASS 279		117 H	4,395,125	CLASS 339		CLASS 441		4,395,252
75	4,395,051	132	4,395,126	CLASS 340		CLASS 442		4,395,253
CLASS 280		379	4,395,127	CLASS 341		CLASS 443		4,395,254
5 C	4,395,052	392	4,395,128	CLASS 342		CLASS 444		4,395,255

CLASSIFICATION OF PATENTS

312.4	4,395,457	168	4,395,228	CLASS 455	440	4,395,503	126	4,395,534	510	4,395,561		
367	4,395,458	261	4,395,229				137	4,395,535	CLASS 556			
391	4,395,459	286	4,395,230	119	4,395,776	CLASS 524	206	4,395,536				
408	4,395,460			157	Re.31,327	14	4,395,504	219	4,395,537	431	4,395,562	
412	4,395,461	CLASS 432		183	4,395,777	55	4,395,505	272	4,395,538	445	Re.31,324	
420	4,395,462	11	4,395,231	276	4,395,778	68	4,395,506	291	4,395,539	459	4,395,563	
447	4,395,463	32	4,395,232	306	4,395,779	101	4,395,507	345	4,395,540	470	4,395,564	
546	4,395,464	176	4,395,233	607	4,395,780	103	4,395,508	367	4,395,541	CLASS 560		
626	4,395,465	CLASS 434		CLASS 464		127	4,395,509	481	4,395,542	24	4,395,565	
695	4,395,466			49	4,395,245	230	4,395,510	CLASS 536		87	4,395,566	
697	4,395,467	33	4,395,234	153	4,395,246	371	4,395,511			124	4,395,567	
CLASS 429		219	4,395,235	158	4,395,247	413	4,395,512	56	4,395,543	198	4,395,568	
31	4,395,468	270	4,395,236	CLASS 474		599	4,395,513	87	Re.31,323	222	4,395,569	
34	4,395,469	CLASS 435		24	4,395,248	600	4,395,514	CLASS 542		CLASS 562		
CLASS 430		6	4,395,486	93	4,395,249	832	4,395,515	413	4,395,544	435	4,395,570	
39	4,395,470	22	4,395,487	111	4,395,250	CLASS 525	71	4,395,516	CLASS 544	466	4,395,571	
45	4,395,471	161	4,395,488		4,395,251	168	4,395,517	74	4,395,545	CLASS 564		
47	4,395,472	190	4,395,489	CLASS 493		180	4,395,518	168	4,395,546	399	4,395,572	
58	4,395,473	201	4,395,490	28	4,395,252	240	4,395,519	184	4,395,547	492	4,395,573	
67	4,395,474	262	4,395,491	87	4,395,253	502	4,395,520	190	4,395,548	CLASS 568		
69	4,395,475	283	4,395,492	196	4,395,254	524	4,395,521	252	4,395,549	11	4,395,574	
102	4,395,476	289	4,395,493	439	4,395,255	CLASS 526	64	4,395,522	282	4,395,551	442	4,395,575
216	4,395,477	CLASS 436		CLASS 494		64	4,395,523	CLASS 546		913	4,395,576	
217	4,395,478	111	4,395,494	38	4,395,256	230	Re.31,322	118	4,395,552	936	4,395,577	
258	4,395,479	CLASS 440		47	4,395,257	307.2	4,395,524	235	4,395,553	CLASS 585		
309	4,395,480	27	4,395,237	CLASS 518		307.6	4,395,525	250	4,395,554	10	4,395,578	
326	4,395,481	53	4,395,238	704	4,395,495	CLASS 528	18	4,395,526	CLASS 548	44	4,395,579	
411	4,395,483	61	4,395,239	CLASS 523		26	4,395,527	126	4,395,556	639	4,395,580	
620	4,395,484	86	4,395,240	107	4,395,496	45	4,395,528	413	4,395,557	CLASS 604		
903	4,395,485	CLASS 441		158	4,395,497	48	4,395,529	422	4,395,558	65	4,395,258	
CLASS 431		65	4,395,241	206	4,395,498	49	4,395,530	485	4,395,559	67	4,394,862	
10	4,395,223	CLASS 445		221	4,395,500	75	4,395,531	CLASS 549		90	4,395,259	
31	4,395,224	5	4,395,242	351	4,395,501	77	4,395,532	391	4,395,560	122	4,394,863	
62	4,395,225	6	4,395,243	415	4,395,502		4,395,533				4,395,260	
76	4,395,226	25	4,395,244									
142	4,395,227											

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 : 4,395,590	4,395,451	4,395,616	4,395,316	4,394,996	4,395,462
04 : 4,394,935	4,395,458	4,395,645	4,395,341	4,395,015	4,395,625
4,394,982	4,395,488	4,395,665	4,395,388	4,395,036	4,395,677
4,395,014	4,395,530	4,395,719	4,395,420	4,395,046	4,395,697
4,395,428	4,395,571	4,395,756	4,395,441	4,395,102	4,395,698
4,395,585	4,395,589	Re.31,324	4,395,505	4,395,113	4,395,699
4,395,631	4,395,610	4,395,131	4,395,591	4,395,124	4,395,700
4,395,703	4,395,636	4,395,449	4,395,626	4,395,143	4,395,733
4,395,732	4,395,640	4,395,455	4,395,627	4,395,205	4,394,784
4,395,753	4,395,651	4,395,127	4,395,734	4,395,224	4,394,797
05 : 4,395,539	4,395,660	4,394,860	4,394,811	4,395,305	4,394,818
06 : 4,394,788	4,395,670	4,394,861	4,394,821	4,395,397	4,394,825
4,394,800	4,395,678	4,394,887	4,394,929	4,395,464	4,394,831
4,394,804	4,395,679	4,394,969	4,394,951	4,395,472	4,394,845
4,394,814	4,395,680	4,394,981	4,394,958	4,395,490	4,394,904
4,394,828	4,395,691	4,395,030	4,394,962	4,395,493	4,394,968
4,394,896	4,395,701	4,395,065	4,395,142	4,395,511	4,394,989
4,394,906	4,395,708	4,395,086	4,395,246	4,395,518	4,395,031
4,394,919	4,395,723	4,395,093	4,395,276	4,395,543	4,395,032
4,394,920	4,395,725	4,395,126	4,395,328	4,395,574	4,395,144
4,394,921	4,395,740	4,395,244	4,395,410	4,395,624	4,395,206
4,394,993	4,395,751	4,395,347	4,395,560	4,395,638	4,395,227
4,394,997	4,395,760	4,395,573	4,395,609	4,395,647	4,395,269
4,395,001	4,395,774	4,395,646	4,395,737	4,395,671	4,395,315
4,395,007	08 : 4,394,956	4,395,676	4,394,911	4,395,748	4,395,426
4,395,027	4,395,029	4,395,688	4,394,912	4,395,758	4,395,498
4,395,041	4,395,033	4,395,712	4,394,913	4,394,791	4,395,529
4,395,055	09 : Re.31,325	4,395,749	4,395,040	4,394,852	4,395,742
4,395,061	4,394,783	4,394,799	4,395,129	4,394,853	4,395,767
4,395,077	4,394,820	4,394,955	4,395,523	4,394,856	4,395,158
4,395,084	4,394,830	4,395,042	4,394,879	4,394,890	4,394,868
4,395,089	4,394,834	4,395,308	4,395,137	4,394,897	4,394,878
4,395,116	4,394,870	4,395,378	4,395,731	4,394,900	4,395,275
4,395,156	4,394,905	4,395,486	4,395,019	4,394,944	4,395,292
4,395,157	4,394,945	Re.31,326	4,395,181	4,394,954	4,395,298
4,395,160	4,395,059	4,394,807	4,395,361	4,395,062	4,395,374
4,395,178	4,395,075	4,394,862	4,394,782	4,395,070	4,394,966
4,395,180	4,395,091	4,394,873	4,394,801	4,395,078	4,394,844
4,395,184	4,395,135	4,394,876	4,395,389	4,395,151	4,395,045
4,395,230	4,395,149	4,394,888	4,394,805	4,395,182	4,395,711
4,395,236	4,395,195	4,394,909	4,395,095	4,395,189	4,395,772
4,395,254	4,395,255	4,394,937	4,395,123	4,395,196	Re.31,323
4,395,258	4,395,295	4,395,020	4,395,154	4,395,213	4,394,849
4,395,263	4,395,302	4,395,044	4,395,395	4,395,264	4,394,863
4,395,293	4,395,369	4,395,053	4,395,452	4,395,303	4,394,930
4,395,300	4,395,375	4,395,167	4,395,558	4,395,306	4,394,933
4,395,309	4,395,453	4,395,173	4,395,583	4,395,311	4,395,004
4,395,343	4,395,532	4,395,174	4,395,635	4,395,313	4,395,005
4,395,344	4,395,547	4,395,190	4,395,684	4,395,351	4,395,043
4,395,346	4,395,552	4,395,216	4,395,773	4,395,393	4,395,063
4,395,348	4,395,561	4,395,238	4,395,775	4,395,422	4,395,081
4,395,382	4,395,592	4,395,239	4,394,802	4,395,427	4,395,122
4,395,438	4,395,602	4,395,253	4,394,822	4,395,460	4,395,134

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

PI 45

4,395,232	4,395,738	4,395,553	4,395,621	4,395,468	4,395,358
4,395,261	4,395,765	4,395,563	4,395,653	4,395,479	4,395,372
4,395,294	4,395,769	4,395,564	4,395,656	4,395,524	4,395,533
4,395,304	4,395,770	4,395,582	4,395,694	4,395,567	4,395,578
4,395,307	4,394,882	4,395,596	4,395,713	4,395,569	4,395,661
4,395,310	Re.31,321	4,395,613	40 : 4,394,880	4,395,570	4,395,663
4,395,323	4,394,816	4,395,620	4,394,926	4,395,618	49 : 4,395,039
4,395,324	4,394,857	4,395,648	4,395,017	4,395,641	4,395,260
4,395,325	4,394,864	4,395,716	4,395,204	4,395,674	50 : 4,395,233
4,395,327	4,394,928	4,395,720	4,395,338	4,395,686	51 : 4,394,819
4,395,332	4,394,957	4,395,722	4,395,340	4,395,696	4,394,837
4,395,359	4,394,990	4,395,728	4,395,385	4,395,702	4,394,877
4,395,366	4,395,038	4,395,759	4,395,509	4,395,706	4,394,901
4,395,370	4,395,083	37 : 4,395,417	4,395,628	4,395,710	4,394,952
4,395,383	4,395,097	4,395,454	4,395,664	44 : 4,395,542	4,395,241
4,395,394	4,395,108	4,395,566	41 : 4,395,096	45 : 4,394,790	4,395,404
4,395,401	4,395,155	4,395,012	4,395,186	4,395,170	4,395,540
4,395,425	4,395,165	39 : 4,394,786	4,395,600	4,395,299	4,395,662
4,395,430	4,395,168	4,394,794	4,395,672	47 : 4,394,869	53 : 4,394,859
4,395,448	4,395,221	4,394,806	4,394,787	4,395,290	4,394,871
4,395,467	4,395,234	4,394,858	4,394,795	4,395,368	4,394,983
4,395,499	4,395,235	4,394,910	4,394,803	4,395,747	4,395,000
4,395,504	4,395,248	4,394,916	4,394,809	48 : Re.31,327	4,395,009
4,395,513	4,395,265	4,394,927	4,394,866	4,394,810	4,395,068
4,395,520	4,395,267	4,395,013	4,394,872	4,394,826	4,395,172
4,395,521	4,395,270	4,395,018	4,394,846	4,394,846	4,395,220
4,395,522	4,395,271	4,395,057	4,394,934	4,394,941	4,394,881
4,395,527	4,395,285	4,395,140	4,395,047	4,394,883	4,395,450
4,395,528	4,395,322	4,395,179	4,395,071	4,394,884	54 : 4,394,975
4,395,536	4,395,352	4,395,192	4,395,076	4,394,938	4,395,572
4,395,548	4,395,380	4,395,209	4,395,161	4,394,946	55 : 4,394,829
4,395,554	4,395,423	4,395,214	4,395,198	4,394,947	4,394,893
4,395,556	4,395,457	4,395,215	4,395,219	4,394,984	4,394,898
4,395,575	4,395,459	4,395,222	4,395,242	4,395,016	4,394,915
4,395,577	4,395,461	4,395,286	4,395,272	4,395,028	4,394,948
4,395,593	4,395,463	4,395,297	4,395,278	4,395,035	4,395,193
4,395,594	4,395,471	4,395,312	4,395,279	4,395,052	4,395,240
4,395,599	4,395,475	4,395,333	4,395,296	4,395,060	4,395,245
4,395,637	4,395,477	4,395,342	4,395,373	4,395,185	4,395,249
4,395,655	4,395,478	4,395,363	4,395,387	4,395,187	4,395,318
4,395,675	4,395,496	4,395,392	4,395,424	4,395,200	4,395,339
4,395,687	4,395,507	4,395,469	4,395,432	4,395,317	4,395,484
4,395,729	4,395,514	4,395,503	4,395,444	4,395,356	4,395,606
4,395,735	4,395,526	4,395,510			

DESIGN PATENTS

04 : 269,849	269,889	269,844	26 : 269,916	269,863	48 : 269,826
269,897	269,891	269,873	27 : 269,850	269,835	269,876
06 : 269,828	269,892	269,900	29 : 269,831	269,918	269,881
269,830	269,893	269,903	34 : 269,834	269,908	269,861
269,845	269,895	18 : 269,833	36 : 269,868	269,911	269,874
269,852	09 : 269,848	19 : 269,878	42 : 269,829	269,913	269,915
269,855	269,896	20 : 269,890	45 : 269,854	269,917	53 : 269,843
269,857	10 : 269,906	21 : 269,883	47 : 269,837	269,879	269,902
269,858	12 : 269,909	23 : 269,832			55 : 269,839
269,882	17 : 269,836				

PLANT PATENTS

06 : 5,073	5,074	42 : 5,075			
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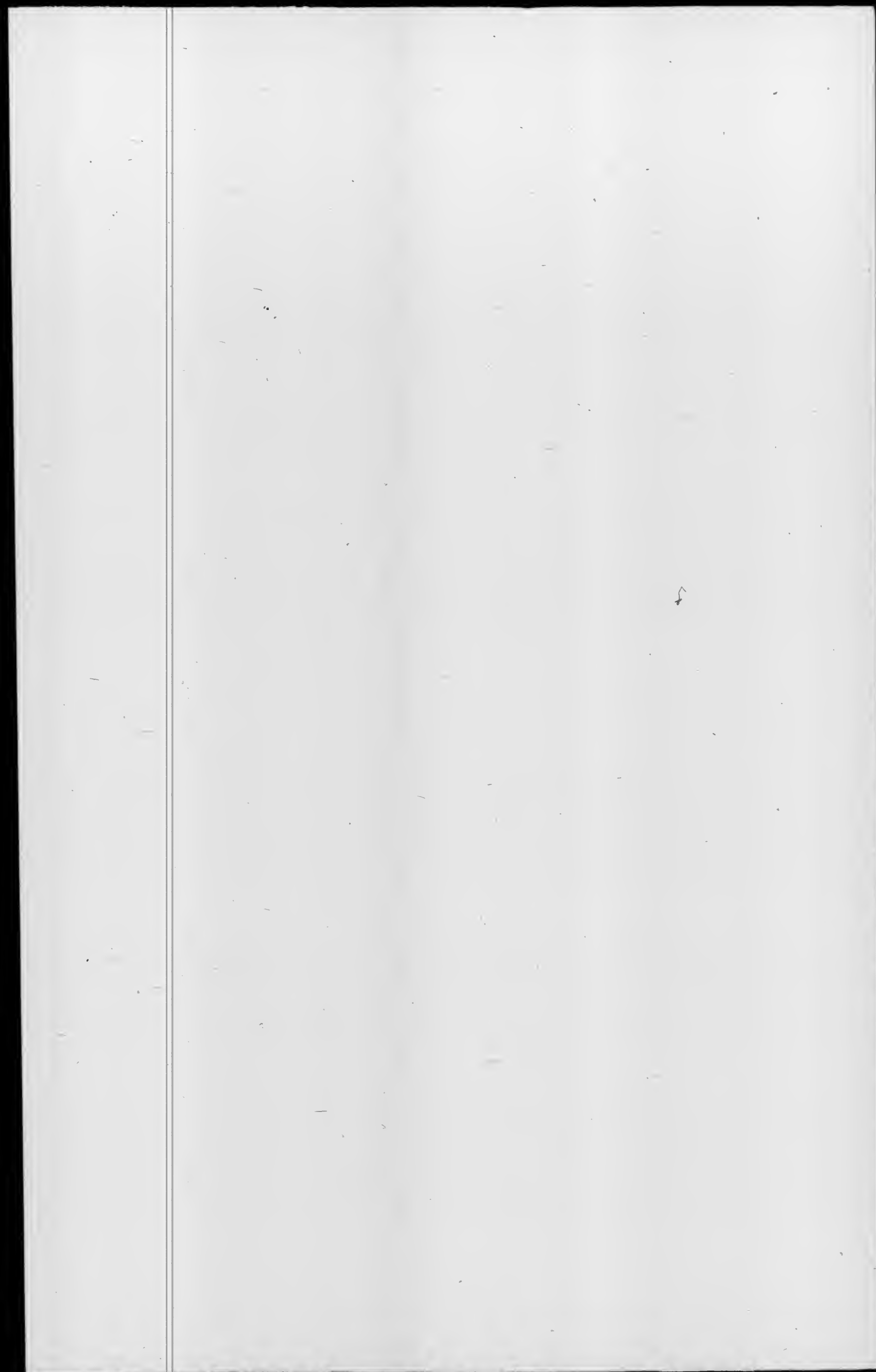
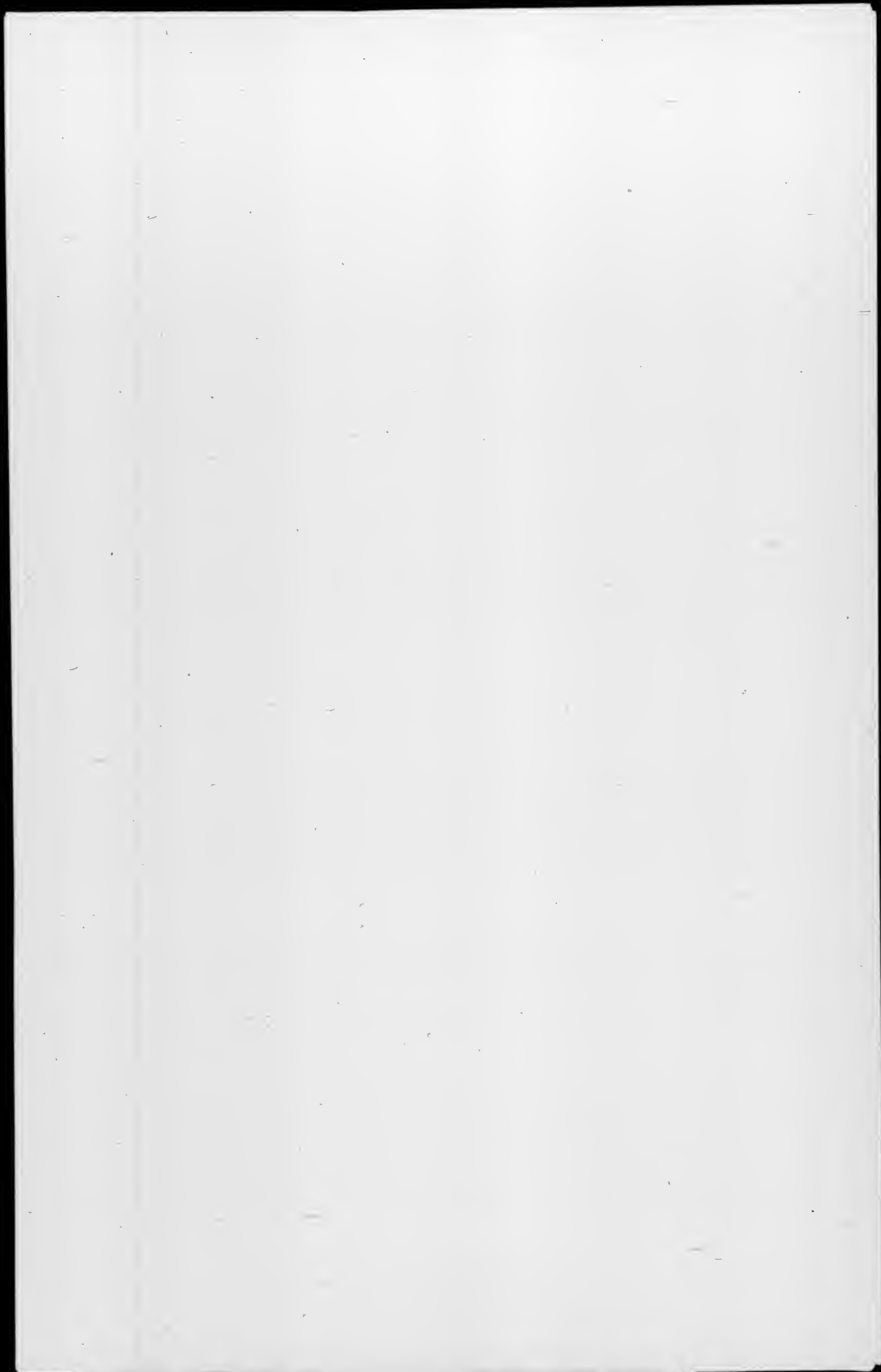
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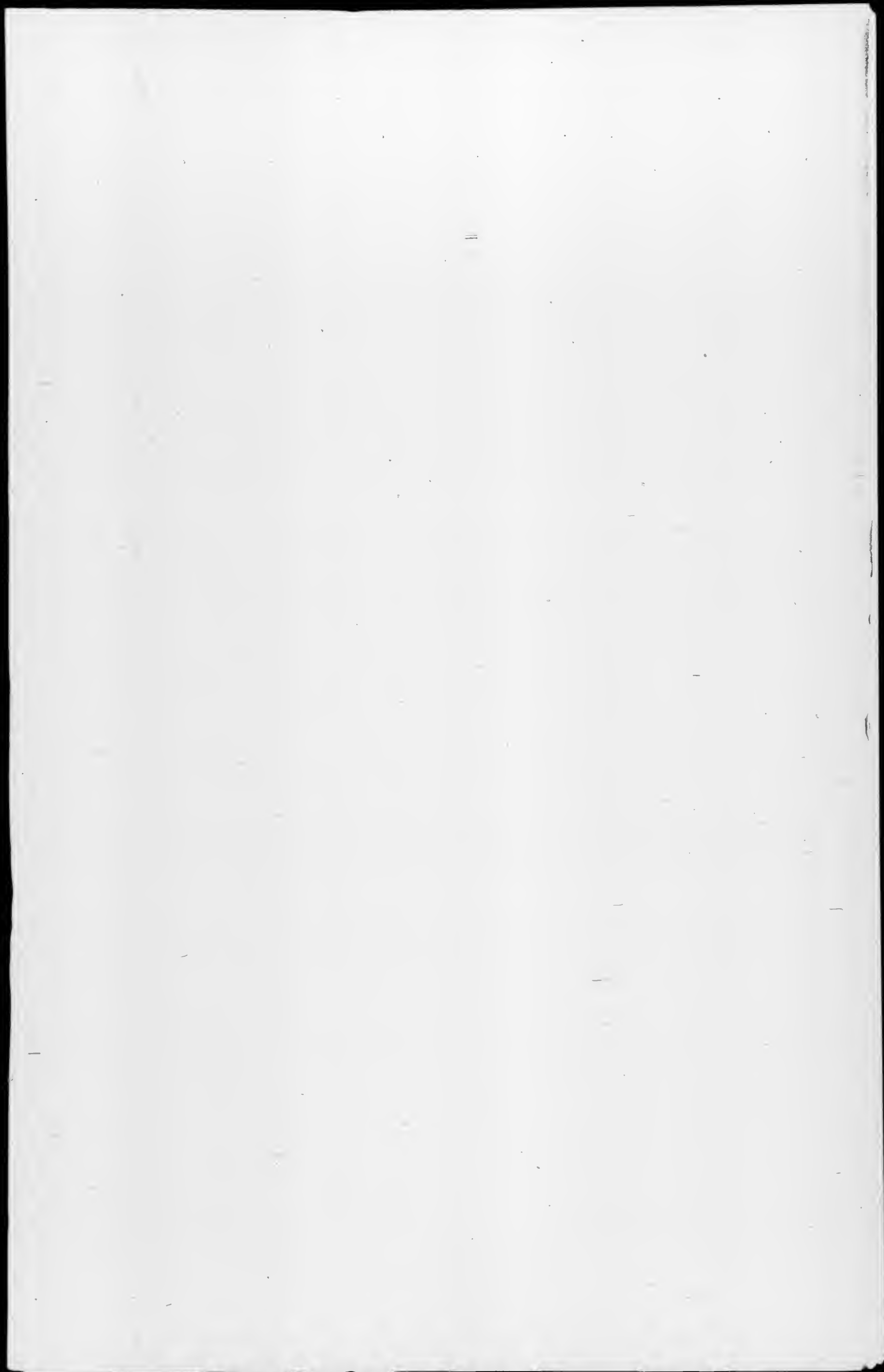
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